

U.S. Department of Labor

Office of Inspector General—Office of Audit

MINE SAFETY AND HEALTH ADMINISTRATION



**IN 32 YEARS MSHA HAS NEVER
SUCCESSFULLY EXERCISED ITS PATTERN
OF VIOLATIONS AUTHORITY**

Date Issued: September 29, 2010
Report Number: 05-10-005-06-001

**U.S. DEPARTMENT OF LABOR
OFFICE OF INSPECTOR GENERAL
Office of Audit**

BRIEFLY...

Highlights of Report Number 05-10-005-06-001, to the Assistant Secretary of Labor for Mine Safety and Health.

WHY READ THE REPORT

On April 5, 2010, an accident at the Upper Big Branch Mine-South in Montcoal, West Virginia killed 29 miners. Concerns were raised about the mine's safety record and the Mine Safety and Health Administration's (MSHA) process for identifying mines with a pattern of violations (POV). Those concerns increased when MSHA reported that an error in its POV computer application caused this mine to be omitted from a list of mines with potential patterns of violations.

POV authority is an important tool that lets MSHA take enhanced enforcement actions when a mine demonstrates recurring safety violations that could significantly and substantially contribute to the cause and effect of health and safety issues.

WHY OIG CONDUCTED THE AUDIT

The OIG conducted a performance audit to determine:

- How MSHA had developed its POV rules, criteria, and procedures and implemented its POV authority;
- Whether MSHA timely and consistently reviewed and monitored mine operators' POV corrective action plans;
- Whether MSHA's POV computer application contained errors in addition to the one MSHA reported after the Upper Big Branch Mine-South accident;
- Whether MSHA's enforcement data was sufficiently reliable to support accurate POV analysis; and
- The effects on the results of MSHA's POV model from various changes in the criteria.

READ THE FULL REPORT

To view the report, including the scope, methodology, and full agency response, go to:

<http://www.oig.dol.gov/public/reports/oa/2010/05-10-005-06-001.pdf>

September 2010

IN 32 YEARS MSHA HAS NEVER SUCCESSFULLY EXERCISED ITS PATTERN OF VIOLATIONS AUTHORITY

WHAT OIG FOUND

MSHA has not successfully exercised its POV authority in 32 years. Administration of this authority has been hampered by a lack of leadership and priority in the Department across various administrations.

MSHA took 13 years to finalize POV regulations. Those regulations created limitations on MSHA's authority that were not present in the enabling legislation and made it difficult for MSHA to place mines on POV status. For the next 17 years, MSHA Districts performed POV analyses based on individual interpretations of requirements, but never put any mine operator on POV status. In 2007, MSHA attempted to implement a standardized method based on quantitative data for identifying potential POV mines. However, (a) the process was unreliable and (b) the criteria were complex and lacked a supportable rationale.

The audit also concluded that:

- MSHA did not monitor the implementation of mine operators' POV corrective action plans;
- Logic errors caused unreliable results from MSHA's POV computer application;
- Tests identified no deficiencies in the reliability of data MSHA used for POV screening; and
- Delays in testing rock dust samples could cause delays in identifying safety hazards.

WHAT OIG RECOMMENDED

We made 10 recommendations to the Assistant Secretary for Mine Safety and Health. In summary, we recommended that MSHA re-evaluate current POV regulations; seek stakeholders input in developing new, transparent POV criteria; use system development life cycle techniques in creating any new POV related computer applications; and re-evaluate the standard for timely completion of laboratory tests.

The Assistant Secretary agreed with our recommendations and committed to developing and implementing corrective actions.

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U.S. Department of Labor

Office of Inspector General
Washington, D.C. 20210



September 29, 2010

Assistant Inspector General's Report

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On April 5, 2010, an accident at the Upper Big Branch Mine-South in Montcoal, West Virginia, resulted in the deaths of 29 miners. Concerns were immediately raised about the mine's safety record and the Mine Safety and Health Administration's (MSHA) process for identifying mines having a pattern of violations (POV). Those concerns were heightened when, subsequent to the fatal accident, MSHA determined that a computer error had caused the Upper Big Branch Mine-South to incorrectly be omitted from its most recent list of mines with potential patterns of violations.

As part of our audit oversight responsibility and in response to a request from several Members of Congress, the Office of Inspector General (OIG) audited MSHA's use of its POV authority. This authority is an important tool available to MSHA to take enhanced enforcement actions when a mine operator demonstrates recurring safety violations that could significantly and substantially contribute to the cause and effect of health and safety hazards. See Appendix A for more information.

Specifically, the OIG conducted a performance audit to determine the history of MSHA's administration of its POV authority since its inception in 1977. To this end, we conducted audit work to determine the following:

1. How MSHA had developed its POV rules, criteria, and procedures and implemented its POV authority;
2. Whether MSHA timely and consistently reviewed and monitored mine operators' POV corrective action plans;
3. Whether MSHA's POV computer application contained errors in addition to the one identified and reported by MSHA after the Upper Big Branch Mine-South accident;
4. Whether MSHA's enforcement data was sufficiently reliable to support accurate POV analysis; and
5. The effects on the results of MSHA's POV model from various changes in the criteria.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Our objectives, scope, methodology, and criteria are detailed in Appendix B.

Results in Brief

Since passage of the Federal Mine Safety and Health Act of 1977 (Mine Act) more than 32 years ago, MSHA has not successfully exercised its POV authority. During that time, MSHA had only once issued a pattern of violations notice to a mine operator. Successful administration of this authority has been hampered by a lack of leadership and priority in the Department across various Administrations, which in turn allowed the rulemaking process to stall and fall victim to the competing interests of the industry, the operators, and the unions representing the miners as to how that authority should be administered.

Indeed, nearly 13 years passed from the enactment of the Mine Act in 1977 until regulations for the administration of the POV authority were finally implemented by the Department in 1990. However, those regulations created limitations on MSHA's authority that were not present in the enabling legislation and which made it difficult for MSHA to place mines on POV status. According to MSHA officials, in the nearly 17 years that followed, MSHA districts, with limited guidance and promotion from the national office, performed POV analyses based on individual interpretations of requirements. In 2007, MSHA attempted for the first time to implement a standard method based on quantitative data for screening and monitoring potential POV mines. However, the criteria lacked a supportable rationale and the process proved to be complex and unreliable.

In responding to our draft report, the Assistant Secretary for Mine Safety and Health agreed that the pattern of violations process was flawed and stated that correcting the problem was a high priority. He agreed with all of our recommendations and specifically stated that MSHA intended to propose new POV regulations to simplify the criteria for placing mines on a POV notice and to make the POV system a more effective tool in identifying problem mines and changing operators' behavior.

He expressed concern with our statement that MSHA was responsible for assuring that mine operators protect workers from mining hazards and our conclusion that MSHA's exclusion of certain mines from POV analysis potentially placed miners at risk (see page 10). Our statement and conclusion are based on the requirements of the Mine Act that describe MSHA's roles and responsibilities in setting safety and health standards, identifying instances of non-compliance (including patterns of violations), and compelling mine operators to take timely corrective actions. These are integral components of the overall system for providing miners with a safe and healthy work

environment. Whenever MSHA does not fulfill these responsibilities, miners may be at increased risk.

The Assistant Secretary's entire response is contained in Appendix L.

We made 10 recommendations to the Assistant Secretary for Mine Safety and Health. In summary, we recommended that MSHA evaluate the appropriateness of revising current POV regulations; seek stakeholder input to POV screening criteria; assure that POV selection criteria are transparent and POV decisions are based solely on safety and health conditions in mines; and ensure that any POV computer applications are developed and maintained using system life cycle techniques.

RESULTS AND FINDINGS

Specific enforcement authority targeting mine operators with a pattern of significant and substantial (S&S) violations of mandatory safety and health standards was defined in Section 104(e) of the Mine Act. Congress intended this authority as "an effective tool to protect miners when the operator demonstrates his disregard for the health and safety of miners through an established pattern of violations."¹ The Mine Act did not define "pattern of violations," but authorized the Secretary of Labor to make rules to establish criteria for determining when a pattern existed.

To assist MSHA's efforts to improve and make POV authority an effective tool for ensuring safety in the Nation's mines, it is important to understand what has been tried in the past, what obstacles inhibited the usefulness of POV authority, and what concerns must be addressed in a new system. Our audit work covered MSHA's development, implementation, and use of POV authority from its origin in the Mine Act through May 10, 2010. We reviewed MSHA's development and implementation of POV authority by reviewing available documentation² related to MSHA's POV rulemaking processes (1980, 1985, and 1989/1990) as well as subsequent MSHA policy and guidance materials. We reviewed the development of MSHA's *Pattern of Violations Screening Criteria and Scoring Model* (POV model), which was implemented in 2007. We also examined the computer application used by MSHA to implement this model and identify potential POV mines from 2007–2009. Finally, we performed tests to assure that MSHA's enforcement data would produce reliable results when screening for POV mines and performed analyses to demonstrate the impacts of revising the current criteria.

¹ Senate Report No. 95, 95th Congress, 1st Session, p. 33 (1977)

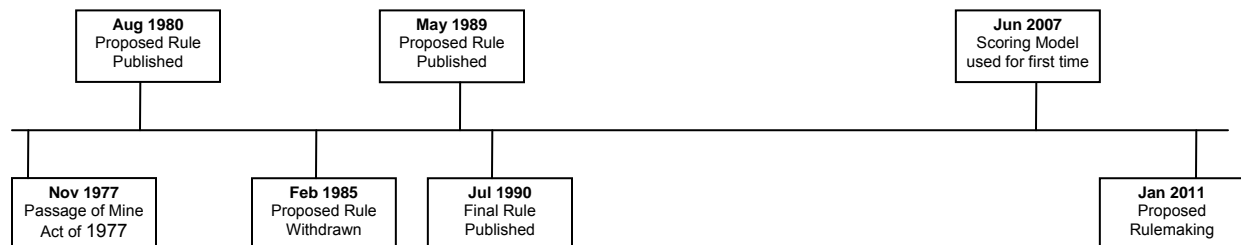
² We were limited in our ability to reconstruct events related to the development and implementation of POV authority because some pertinent historical records had been lost or destroyed and because many MSHA personnel involved in these events were no longer available.

Objective 1 — How did MSHA develop and implement its POV authority?

POV rulemaking stalled as stakeholders argued differing views on implementation; MSHA curtailed its own POV authority and rarely tried to use it.

MSHA started a rulemaking process in 1980, but aborted that process in 1985. MSHA renewed efforts to create regulations in 1989, resulting in a final rule in 1990. MSHA District personnel stated that during the nearly 17 years that followed, they annually used enforcement data and their personal knowledge and experience to evaluate mines for a pattern of violations. However, little documentation exists on how this was done and no mine was placed on POV status during this time. In 2007, MSHA designed and implemented a standard method based on quantitative data for identifying and monitoring mines that showed a potential pattern of violations. Only once during that entire span of time (2008) did MSHA issue a pattern of violations notice to a mine operator. However, because the Federal Mine Safety and Health Review Commission (Commission) subsequently modified some of the citations and orders that caused that POV notice to be issued, MSHA did not enforce the order. MSHA has never successfully exercised its POV authority in 32 years.

The following timeline summarizes the general chronology of MSHA's efforts to develop criteria and guidance related to its POV authority.



Nearly 13 Years of Rulemaking: To identify the criteria and procedures that it would use to notify an operator that a pattern of violations existed, MSHA published the first Proposed Rule related to its POV authority in the *Federal Register* on August 15, 1980. The Proposed Rule explained that a pattern would typically be shown by (1) an unusually large number of S&S violations and little or no indication of improved compliance or (2) a worsening trend of S&S violations indicating a greater than normal risk of disaster, accidents, injuries, or illnesses. It made clear that the determination would not be made mechanically, but would be a documented judgment involving both quantitative and qualitative factors. In support of this concept, the proposed rule called for a District Review Committee, consisting of at least three experienced MSHA employees, to make recommendations to the District Manager about whether a pattern of violations existed at any specific mine.

The Proposed Rule listed 10 factors to consider, at least annually, in identifying mines that were developing a potential pattern of violations. These included the (1) number of

S&S citations; (2) comparative number of S&S citations in successive inspections; (3) number of citations and orders for unwarrantable failures; (4) number of withdrawal orders for failure to abate S&S violations; (5) number of imminent danger orders resulting from S&S violations; (6) number of recurring S&S violations of the same or related standard; (7) number of violations concerning the submittal of reports or plans, examinations, and training of personnel; (8) operator's accident/injury/illness/fatality incidence rate; (9) inspector's statement for S&S citations and orders; and (10) number of inspection days.

It also listed five criteria to be considered in determining whether a pattern of violations existed, including (1) a chronic recurrence of S&S violations during one or more review periods; (2) MSHA's use of enforcement mechanisms other than 104(a) citations (e.g., withdrawal orders, imminent danger orders) to address S&S violations during a review period; (3) a history of accidents, injuries, illnesses, and fatalities at the mine; (4) lack of management commitment to protecting the safety and health of miners; and (5) extenuating circumstances beyond management's control that strongly mitigate other findings.

Although not required by the Proposed Rule, MSHA stated that it might, as a matter of policy, alert affected mine operators that an initial screening had identified that operator's mine as a potential recipient of a pattern notice, unless the mine's compliance record improved. The Proposed Rule provided a 60-day public comment period, ending October 14, 1980.

On February 8, 1985, more than 4 years after the public comment period ended, MSHA published a withdrawal of the Proposed Rule in the *Federal Register*. MSHA explained that comments it had received were generally in opposition to its implementation because of its complexity, statistical orientation, and vagueness. Some comments stated that it was inappropriate for MSHA to establish a POV regulation at a time that the Commission was redefining the definition of a S&S violation through ongoing litigation (*Secretary of Labor v Cement Division, National Gypsum Co.*, 3 Federal Mine Safety and Health Review Commission 822, April 1981).

In the same *Federal Register* notice, MSHA published an Advanced Notice of Proposed Rulemaking (ANPRM) stating its intention to reconsider appropriate POV criteria and procedures. In developing a new approach, MSHA believed POV criteria should focus on the health and safety record of each mine rather than a comparison of individual mines to industry-wide norms. MSHA envisioned simplified criteria in contrast to the previously proposed rule. MSHA stated that it was focusing on two principal criteria: (1) were S&S violations common to a particular hazard or did S&S violations throughout the mine represent an underlying health and safety problem, and (2) is the mine on a 104(d) unwarrantable failure sequence, indicating that other enforcement measures had been ineffective? MSHA asked for public participation and suggestions in formulating POV criteria and procedures.

After another 4 years had elapsed, on May 30, 1989, MSHA published a second Proposed Rule for POV in the *Federal Register*. In explaining this new Proposed Rule, MSHA addressed some public comments received in response to the 1985 ANPRM. Specifically, MSHA stated that it (a) did not believe it was appropriate to define what constituted a “significant and substantial” violation in the rule, (b) believed it was appropriate to base POV determinations on only final citations and orders, and (c) believed that it was appropriate to warn operators of a potential pattern of violations prior to issuance of a notice that a pattern existed because of the severity of the sanctions and because it expected that reaching the level of compliance required to terminate a pattern of violations notice “can be expected to be difficult at some mines.” These latter two items were not required by the language in the enabling statute, but amounted to self-imposed restrictions on POV authority by MSHA.

The proposed rule listed several factors to consider, at least annually, in performing an initial screening of mines to evaluate for a pattern of violations. These included (1) the mine’s history of S&S violations, closure orders for failure to abate S&S violations, and imminent danger orders resulting from S&S violations; (2) enforcement actions other than POV that have been used at the mine; (3) evidence of the operator’s lack of good faith in correcting S&S violations; (4) an accident, injury, or illness record that demonstrates a serious safety and health management problem; and (5) mitigating circumstances, if any.

For mines identified by these initial screening criteria, a pattern of violations would be established by then examining a history of S&S violations (1) of a particular standard, (2) standards related to the same hazard, and (3) caused by an unwarrantable failure to comply. Only final citations and orders were to be used to identify mines with a potential pattern of violations.

The Proposed Rule intentionally did not quantify the violations or other factors that would identify a POV mine because MSHA wanted to retain the “flexibility to individually evaluate each mine’s compliance history and particular circumstances....”

In November 1989, MSHA conducted public hearings on the Proposed Rule in Pittsburgh, Pennsylvania and Denver, Colorado. Nine witnesses representing the mining industry and eight representing organized labor testified. The need for a definition of “significant and substantial” was again raised by several mine industry participants. MSHA responded that it would adhere to case law in defining S&S since future case law might modify the meaning. Several participants spoke about MSHA’s plan to use only final citations and orders. Industry supported the concept; organized labor opposed it. MSHA defended the use of final citations and orders as providing a clear notice to operators of which citations and orders MSHA would consider.

In publishing the Final Rule on July 31, 1990, MSHA again addressed concerns about the use of only final citations and orders in the POV criteria. Some comments had raised concerns that this limitation would motivate operators to challenge every S&S citation and order, thus delaying MSHA’s application of its POV authority. However,

MSHA repeated its position that use of final citations and orders in the pattern criteria provided clear notice to operators of which citations and orders would be used and that “proper notice ... is of paramount importance given the extraordinary nature of the pattern notice.”

The resulting POV regulations (30 Code of Federal Regulations (CFR) 104) remained unchanged from those presented in the Proposed Rule. They included the self-imposed restrictions of (1) using only final citations and orders in determining a pattern of violations and (2) creation of the “potential” pattern of violations warning to mine operators and a subsequent period of further evaluation before exercising the POV authority.

Nearly 17 Years of Decentralized Implementation: From the time POV regulations became effective in October 1990 until mid-2007, POV screening was decentralized and lacked a consistent, structured approach. MSHA District offices were responsible for conducting the required annual POV screening of mines during this period, but never put any mine operator on POV status. While District Managers reported that they had kept files on POV activities during this period, most also stated that those records had been destroyed under MSHA’s record retention policies.

During this period, MSHA Administrators for the Office of Coal Mine Safety and Health (Coal) and Office of Metal/Nonmetal Safety and Health (Metal/Nonmetal) issued occasional memos and policy letters related to POV to their District offices (see Appendix C). The guidance generally reiterated the criteria contained in the regulations, but also created some procedures unique to each program office. Districts were required to annually conduct a screening of all mines to identify those that should receive a potential POV notification. These screenings were to review each mine’s compliance record for the past 24-month period and focus on repeated S&S violations (a) of a particular standard, (b) of standards related to the same hazard, or (c) caused by an unwarrantable failure to comply.

District Managers stated that they involved various District personnel in completing the annual screenings, including Assistant District Managers, Staff Assistants, Program Analysts, Field Office Supervisors, mine inspectors, and investigators. District Managers cited various data sources for conducting the screening reviews including (1) computer printouts showing the mine’s compliance history relative to the types of enforcement action noted in 30 CFR 104.2(a); (2) information in mine files such as prior inspection reports and inspector’s notes; (3) special assessment and enhanced assessment action; (4) special investigation activities; and (5) other information resulting from inspector debriefings.

In August 1992, MSHA identified 10 specific items to be reviewed for each coal mine in conducting a POV screening (Coal Mine Safety and Health (CMS&H) Memo HQ-92-373-S). After completing the screening, Coal District managers were to send a copy of each mine’s compliance record to the mine operator (regardless of whether the District Manager believed that a potential pattern of violations existed) to assist operators in

designing programs to “reverse any unsatisfactory trends.” The transmittal was also to inform the mine operator of the MSHA programs available to assist in improving the mine’s compliance record.

In January 1993, MSHA required that each Coal District complete and send to the Administrator a standard report summarizing the District’s POV activity (CMS&H Memo HQ-93-025-S). It also required that all Potential POV letters be sent in draft to the Administrator’s office for review before issuance to a mine operator.

In April 2002, the Acting Metal/Nonmetal Administrator sent each of his District Managers a list of mines that might meet the criteria for issuance of a notice of potential POV. The mines had been identified through a review of selected enforcement data conducted by the Administrator’s office. District Managers were instructed to (a) review their mine files for each of the listed mines and, after considering specific factors; (b) prepare a warning list, (c) mail warning notices to the identified operators, (d) work with the operators to address repeat violation problems, and (e) report to the Administrator on their efforts. While some District Managers recalled receiving this memo, they did not have records of any actions they had taken.

2007 POV Screening Criteria and Scoring Model: Following the fatal accidents at Sago, Darby, and Aracoma mines in early 2006, MSHA began work on developing a national POV screening process based on quantitative data. MSHA’s Internal Review Report on the Sago mine accident had concluded that POV criteria were ineffective and recommended that MSHA revise its POV screening criteria. The then Assistant Secretary wanted a system that would (a) identify those mines that District Managers saw as “problem mines,” (b) leave little room for subjectivity and criticism from mine operators, and (c) afford mine operators “due process.”

To begin the process³, a group of MSHA Headquarters personnel met on several occasions and discussed mine characteristics that might be used as the basis for a more empirical model to identify mines showing a potential pattern of violations. The group discussed different configurations of factors contained in the Initial Screening portion of the POV regulation (30 CFR 104.2). This larger group was ultimately reduced to a “committee of three,” including the then Assistant Secretary.

These three individuals conducted numerous “brainstorming” sessions on various possible criteria. They (a) consulted provisions of the Mine Act (104(e)), the POV regulations (30 CFR 104), and the preamble to that Final Rule; (b) reviewed inspection and violation records for the previous 5-10 years; and (c) used computer applications to manipulate and analyze various enforcement data. They tried different combinations of criteria until they generated a list of mines that they believed MSHA could defend as having been subjected to various enforcement methods, but still were not in compliance.

³ MSHA did not prepare or maintain records of this process. As a result, the information presented is based on interviews with two of the three MSHA officials involved in this project. The third participant, the then Assistant Secretary, has since retired and did not make himself available to be interviewed.

After finalizing the results of their efforts into the POV model, the committee briefed other MSHA officials and representatives of the Office of the Solicitor (SOL). Some District Managers recalled discussions and presentations at meetings about MSHA's decision to unveil and use new POV screening criteria. But generally, District Managers said they first learned of the new POV criteria and a scoring model (Appendix D) when, in June 2007, they received a list of mines in their District that had been identified to receive a notice of a potential Pattern of Violations.

MSHA's Office of Assessments used a computer application based on the newly developed POV model on five separate occasions between June 2007 and September 2009 to generate a list of mines with a potential Pattern of Violations. MSHA officials stated that the screening criteria remained unchanged throughout these five analyses. However, our audit found that in its original use of the POV model, MSHA required that a mine have at least two "elevated enforcement actions" (i.e. 104(b), 104(d), or 107(a)) issued during the most recent 12 months of the review period while in all subsequent uses of the POV model this criteria was changed to at least two "elevated enforcement actions" during the entire 24 month review period. MSHA officials were unaware that this difference had existed and could not explain why the criterion had changed.

Initial Screening Performed by MSHA's POV Computer Application: The five POV analyses that MSHA conducted between June 2007 and September 2009 identified a total of 89 mines as meeting the POV criteria.

POV Cycle	24-Month Period Reviewed	Mines Identified by POV Computer Application		
		Coal	Metal / Nonmetal	Total
1	04/01/05 – 03/31/07	6	2	8
2	10/01/05 – 09/30/07	20	1	21
3	04/01/06 – 03/31/08	15	4	19
4	01/01/07 – 12/31/08	24	2	26
5	09/01/07 – 08/31/09	14	1	15
Total				89

MSHA uses the following status codes to classify mines:

Status Code	Definition
Active	A mine that operates on a full-time basis.
Abandoned	A mine that will be abandoned for the foreseeable future.
Abandoned / Sealed	A mine that has been permanently abandoned and sealed.
Intermittent	A mine that can reasonably be expected to operate sometime during the year. These operation times vary due to the demand for product or seasonal conditions.
New Mine	A mine that has been assigned a Mine ID but no physical development has begun.
Non-Producing / Active	A mine where production has not yet begun or has ceased, but employees perform some work at the mine.
Temporarily Idle	A mine that has been temporarily idled (used by Coal only).

Workers can still be present in mines that are not in an “active” status. For example, mines in a “non-producing/active” status may have workers performing maintenance or other tasks in the mine. Mines in an “intermittent” status would likely have workers in the mine at various times of the year.

It is important to note that in performing these initial screenings, MSHA automatically excluded any mine not in an “active” status. As a result, eight additional mines that met all of MSHA’s stated POV screening criteria were not considered for potential POV evaluation during the five analyses because they were in a status other than “active.” Specifically, 5 mines were in a “non-producing/active status” and 3 were in a “temporarily idle” status. While it may be appropriate to remove a mine from the potential POV list after the initial screening process based on the consideration of non-quantitative factors, MSHA should not have excluded a mine during the initial screening process simply because it was not in an “active” status.

MSHA’s responsibility is to assure that mine operators protect all workers from mining hazards at all times, regardless of whether a mine operates on a full-time basis or is producing any product at all. Whenever workers are present in a mine, the possibility of safety hazards and a pattern of violations exist. Thus, MSHA’s exclusion of certain mines from POV analysis by restricting its initial screening process to only mines in an active status potentially placed workers at risk.

Based on the computer application results for each POV analysis, the Director of the Office of Assessments then provided the relevant list of mines, including related data from the POV model, to the Coal and Metal/Nonmetal Administrators. The Administrators divided the lists by responsible district office and forwarded the information to the appropriate District Managers. The Administrators’ typically (a) identified the mine(s) to be reviewed, (b) provided the detailed data for each mine related to the model’s selection criteria, (c) provided a copy of the POV model, and

(d) summarized the process to be followed, including a timeline of critical milestone dates.

District Managers first reviewed their list of mines and could, if they deemed it appropriate, provide a written recommendation to their Administrator that a mine not receive a potential POV notification letter based on mitigating circumstances. As discussed in the following section, such recommendations did occasionally occur for various reasons. According to District Managers, they included other District personnel (e.g., Assistant District Managers, Supervisors, Program Analysts, etc.) in evaluating the mines prior to making this decision. The final decision to exclude an identified mine rested with the Administrators.

Twenty-One Mines Excluded from Potential POV Notification: Of the 89 mines originally identified by MSHA's POV computer application from 2007-2009, 21 did not receive potential POV notification letters for reasons summarized below.

Reason for Excluding a Mine from Potential POV Notification	# of Mines Excluded
Quantity limits established by MSHA management	10
Mine had closed or ceased production	3
Recent improvements based on potential POV notice in prior period	6
Recent improvements based on prior potential POV status at related mine	1
Rulings by the Commission changed potential POV finding	1
Total	21

As we reported in a separate Alert Memo to MSHA's Assistant Secretary (see Appendix E), 10 coal mines were inappropriately excluded because of limits established by MSHA management. Additional audit work showed that these limits were only established in Cycles 4 and 5. In Cycle 4, the Coal Administrator, with the concurrence of the then Deputy Assistant Secretary for Operations sent a letter to his District Managers instructing them to "... *select no more than one mine on the initial screening list per field office and a maximum of 3 mines per district.*" In Cycle 5, the Coal Administrator, after again conferring with the then Deputy Assistant Secretary for Operations, sent a letter to his District Managers instructing them to "... *select no more than two mines on the initial screening list per field office.*" Although the Metal/Nonmetal Administrator used the same letter to his District Managers in Cycle 5, the limitation had no practical impact because so few Metal/Nonmetal mines appeared on the potential POV list. MSHA management viewed these limits as necessary because of resource concerns about the extensive time and effort required to monitor each mine.

In responding to our Alert Memo (see Appendix F), the Assistant Secretary agreed that certain mines may have been removed from potential POV lists in the past for reasons other than appropriate consideration of health and safety conditions at those mines. He stated his intention that "... *decisions about PPOV and POV enforcement actions will be based solely on what is best for the safety and health of the miners*" and that "... MSHA

will never be placed in a situation where a mine operator avoids being placed on a POV because MSHA lacks resources.”

He also stated, however, that MSHA did not anticipate that all mine operators identified through a quantitative or formulaic process would always be placed in POV status. He reasoned that these decisions should always be a combination of initial screening methods and a case-by-case consideration of potential mitigating factors.

Furthermore, he pointed out that MSHA continued to conduct an array of inspection activities at the mines identified in our report to protect the safety and health of miners. He added that MSHA had had significant inspector presence at all these mines since the decisions not to place them in potential POV status. Nevertheless, he had requested that MSHA inspect *“every one of the producing coal and metal nonmetal mines that were listed by the OIG as having not been placed in potential POV status following an initial screening that identified them as PPOV eligible.”* The subsequent inspections⁴ resulted in MSHA issuing 63 104(a) citations (including 26 that were S&S) and 1 order.

MSHA also provided detailed information about recent inspection activities and results at each of the mines that had been removed from potential POV lists. MSHA reported that 8 of the 10 mines excluded from potential POV status because of resource limitations had subsequently improved their rate of S&S citations and orders, while 2 mines actually had increased their rate of S&S citations and orders.

The OIG agrees that POV determinations should not be confined to purely quantitative analyses. The experience, knowledge, and professional judgment of MSHA personnel are important factors in all aspects of a successful enforcement program. However, decisions based on available resources, rather than safety and health considerations, are inappropriate and contrary to the spirit and letter of the Mine Act. It is also important that MSHA define and implement a process for documenting all factors – both quantitative and non-quantitative – used to make POV decisions.

Sixty-Eight Mines Sent Potential POV Notification Letters: For the five POV screenings performed from 2007-2009, District Managers sent notification letters to 68 mine operators. These letters provided the operators with the mine’s specific data related to MSHA’s screening criteria and explained the POV evaluation process, including the operator’s ability to (a) request a conference with the District Manager and (b) submit a written plan for improving their rate of S&S violations.

If requested, the District Manager was required to conduct a conference with the operator within 10 days. If the operator submitted a written corrective action plan, the District Manager reviewed it and provided feedback, if necessary, to the operator (see Objective 2, p. 14 for a further discussion of MSHA’s review of these corrective action plans). Inspectors then conducted a “Regular Safety and Health Inspection” of the entire mine within 90 days of the date the operator submitted the written corrective action plan.

⁴ MSHA conducted inspection at fourteen mines. Six additional mines were not inspected because they had been placed in non-producing, temporarily idle, or abandoned status.

According to District Managers, they monitored these inspections along with their Assistant District Managers and Field Supervisors. In one District that we visited, the District Manager received and reviewed every citation (and the related inspector's notes) issued to the potential POV mines.

After the District had begun this inspection, MSHA's Office of Assessments produced and sent the District Offices a weekly report for each potential POV mine showing that mine's rate of S&S citations and orders since the beginning of the inspection. The report also showed the two improvement metrics that MSHA tracked in determining whether a mine had sufficiently improved to avoid POV status. Mines had to either reduce their rate of S&S citations and orders (1) by 30 percent or (2) to the national average for mines of a similar type and classification.

At the conclusion of the inspection, the District Managers provided a written recommendation to their Administrator of whether each potential POV mine had met improvement goals to avoid being placed in POV status.

Nine Mines Recommended for POV Notice: Of the 68 mines that received potential POV notification letters, District Managers recommended that 9 be given a POV notice after completing the evaluation period. However, for a variety of reasons listed below, MSHA did not enforce its POV authority against any of these mines.

# of Mines	Reason POV Recommendations Did Not Result in POV Notice
3	S&S citations / orders modified as a result of review by and conferences with the Department's SOL*
2	S&S citations / order modified by the Commission prior to issuance of POV notice
1	New mine owner was granted additional time to implement improvements
2	Metal/Nonmetal Administrator decided not to issue a POV notice based on non-quantitative factors (e.g., employee training, safety audits conducted by the mine operator)
1	S&S citations / orders modified by the Commission after issuance of POV notice

* Anticipating that mine operators would challenge MSHA's determinations, SOL attorneys reviewed all S&S citations issued to those mines recommended by a District Manager for POV status. Conferences were held with the Administrator and District enforcement personnel to discuss any concerns that the SOL attorneys had about the appropriateness or defensibility of the S&S designation on a citation or order. These discussions sometimes resulted in citations or orders being modified, on the advice of the SOL attorneys, to remove the S&S designation.

Efforts to Redesign the POV Criteria and Procedures: In November 2009, MSHA began internal discussions about the need to revise the pattern of violations criteria and procedures. In testimony before the U.S. House Committee on Education and Labor on February 23, 2010, the Assistant Secretary stated:

To encourage mine operators to take more responsibility for the safety and health of their workers, MSHA will evaluate ways to improve the use of effective mine safety and health management programs by mine operators, particularly those that may be subject to the application of the pattern of violations criteria pursuant to section 104(e) of the Mine Act.

We are ... reviewing the current pattern of violation criteria contained in [regulations] ... considering a review of the pattern of violation process to determine whether our current approach is the best one for providing timely protection for miners.

In its Semiannual Regulatory Agenda posted April 26, 2010, MSHA described plans to issue a Notice of Proposed Rulemaking by January 2011 to

... review [pattern of violations] regulations with the goal of simplifying them to improve the process and to improve consistency in the application of the pattern of violations notice.

In summary, during the 32 years that MSHA has had Pattern of Violations authority, it has never successfully used it against a mine operator. MSHA allowed the rulemaking to stall as stakeholders argued differing views on implementation. Moreover, for many years after regulations were in place MSHA relied on District personnel to interpret and carry out those regulations. Only during the past few years had MSHA used a standardized method based on quantitative data for identifying potential POV mines. However, those analyses have proven to be complex and unreliable. Moving forward it is imperative for MSHA to ensure that POV criteria and procedures are transparent and well reasoned.

Objective 2 — Did MSHA timely and consistently review and monitor mine operators' POV corrective action plans?

Operator corrective action plans were given little importance in MSHA's POV process.

POV Regulations give a mine operator “*reasonable opportunity*” (i.e., up to 20 days after receiving notification of a potential pattern of violations) to “*institute a program to avoid repeated significant and substantial violations at the mine*” (30 CFR 104.4). The regulations do not require a written plan. However, MSHA’s policy, established through the *Pattern of Violations Procedures Summary* described the regulation as an opportunity to submit “... a **written corrective action plan** to institute a program to avoid repeated significant and substantial violations at the operation” [text bolded for emphasis]. Even though MSHA has not provided written guidance to either their own personnel or to mine operators about the nature or content of these written corrective action plans, we were told by MSHA officials (at both the national and district levels) that plans should address the specific areas (e.g., ventilation, roof control, coal dust, etc.) that caused a mine to be identified as having a potential pattern of violations.

If a mine operator did submit a written corrective action plan, MSHA's subsequent inspection of the mine was to be completed within 90 days "from the date the operator submitted the corrective action plan." However, if an operator did not submit a written corrective action plan, MSHA was to complete an inspection within 60 days from the date of the issuance of the notification of potential Pattern of Violations. Thus, by submitting a written plan, no matter how minimal its content, a mine operator obtained additional time before MSHA made a determination of the mine's POV status.

Most mine operators chose to submit a written corrective action plan. But our review of a sample of written corrective action plans submitted to two MSHA Coal districts showed that plans accepted by MSHA ranged from a one-page memo with several brief bulleted action statements to an 80+ page document.

While MSHA District personnel did review and discuss with mine operators the plans they submitted, MSHA did not approve, disapprove or otherwise monitor these plans. In addition, the nature and basis of MSHA's reviews also varied based on each District Manager's interpretation of the POV criteria and process.

MSHA did not verify the implementation of an operator's written POV corrective action plan. In fact, District Managers told us that unlike other mine plans that an operator is required to submit for MSHA's approval (e.g., roof control plan, ventilation plan, training plan, etc.) the corrective action plan is not an enforceable plan. Rather, MSHA's monitoring and evaluation of a mine it had identified for potential POV status was primarily focused on the rate of S&S violations issued during a subsequent inspection of the entire mine regardless of whether a corrective action plan was submitted or implemented. As a result, MSHA could not demonstrate that these corrective action plans had any role in subsequent declines in violation rates.

Since mine operators receive a benefit from submitting a written corrective action plan (i.e., additional time to address safety and health violations), MSHA needs to assure that the plan is more than a perfunctory exercise and consider whether these plans should be required.

Objective 3 — Did MSHA's POV computer application contain errors in addition to the one identified and reported by MSHA after the Upper Big Branch Mine-South accident?

Three logic errors caused unreliable results from POV computer application.

MSHA's POV computer application, implemented in 2007 in connection with the POV model, contained logic errors, inconsistencies with the stated selection criteria, and one other anomaly. These deficiencies occurred because the computer application was not developed, tested, maintained, and documented in the disciplined and structured manner normally associated with major computer applications. Because MSHA's enforcement data changes constantly and MSHA did not maintain historic copies of the

data, we could not run a corrected program against the same enforcement data that MSHA used in completing the five POV analyses from 2007–2009. Therefore, it was not possible to determine whether these computer application discrepancies affected the specific outcomes of those analyses. However, we were able to demonstrate that correcting these deficiencies produced significantly different results when run against a “test” copy of MSHA’s enforcement data. Since MSHA does not intend to use the current computer application for future POV analyses, these discrepancies should have no direct impact on future POV analyses. However, it is important to understand the types of problems that occurred in the past in order to prevent them in any future development process. See Appendix G for the technical details of the items summarized below.

Overview of MSHA’s POV Computer Application: MSHA’s POV model was based on a computerized summary and analysis of selected enforcement data contained in MSHA’s Standardized Information System (MSIS). Each night, MSHA creates a Data Warehouse from information in MSIS.⁵ The Data Warehouse is available through MSHA’s network to authorized MSHA users for use in performing a wide variety of analyses, including POV screening.

The POV computer application actually consisted of three components: (1) a Basic query program (consisting of 46 individual sub-queries) and Repeat Violations query program used to extract and summarize data from the Data Warehouse, (2) an electronic spreadsheet that receives the extracted data and computes additional data values based on the extracted data, and (3) filters in the electronic spreadsheet that screen out mines that do not meet specified criteria. The program was designed to produce a list of mines that meet all of MSHA’s initial screening and pattern criteria.

MSHA used the POV computer application to produce a list of potential POV mines on five separate occasions for the 24-month periods ending:

- March 31, 2007 (Cycle 1)
- September 30, 2007 (Cycle 2)
- March 31, 2008 (Cycle 3)
- December 31, 2008 (Cycle 4)
- August 31, 2009 (Cycle 5)

MSHA used the same logic and programming syntax for all five cycles. However, because MSHA could not locate a copy of the electronic spreadsheet produced in Cycle 1, it was not possible to validate the formulas and filters used during that cycle.

On April 13, 2010, following the Upper Big Branch Mine-South accident, MSHA discovered and reported a logic error in the Basic query program. MSHA reported the error incorrectly excluded Upper Big Branch Mine-South from the list of potential POV mines produced in Cycle 5, and did not affect any other underground coal mines.

⁵ Prior to August 2008, MSHA updated its Data Warehouse on a weekly basis.

Logic Errors: In all five cycles for both Coal and Metal/Nonmetal, 4 of 46 sub-queries in the Basic query and the Repeat query contained a value that could have caused a vacated citation to be counted as if it were a valid, final citation. As a result, the program could have over counted citations for a specific mine.

In all five cycles for both Coal and Metal/Nonmetal, 5 of 46 sub-queries in the Basic query were missing a value that could have caused citations and orders associated with a prior owner of the mine to be counted as if they were associated with the current owner. As a result, the program could have overcounted citations for a specific mine.

In Cycles 3–5 for Metal/Nonmetal, the electronic spreadsheet formula intended to provide the total number of S&S 104(d) final orders at each mine for the 24-month review period incorrectly sums two columns that represent the 104(d) final orders that may contain 104(d) final orders that are not S&S. As a result, the list of potential POV mines may have included a mine that did not meet the screening criteria for S&S 104(d) final orders.

Misstated Criteria: In all five cycles for both Coal and Metal/Nonmetal, the logic in 2 of 46 sub-queries in the Basic query did not count all 104(b) orders (failure to abate) as required by one of MSHA’s stated screening criterion. The screening criterion stated that a mine had to have “A minimum of two ‘elevated enforcement’ final orders of the Commission, [i.e., type action is 104 (b), 104 (d) or 107 (a)] during the 24-month review period.” But, the program logic only counted final 104(b) orders if they were issued to replace an S&S citation or order.

Since the stated criterion did not restrict 104(b) actions to only those that replaced an S&S citation or order, we initially concluded that the program was potentially excluding 104(b) orders that should have been counted. But MSHA officials stated that the program logic correctly represented what MSHA had intended. According to MSHA, the published criterion was misstated and should have been written as “A minimum of two ‘elevated enforcement’ final orders of the Commission, [i.e., type action is 104(b) replacing an S&S citation, 104(d) or 107 (a)] during the 24-month review period.”

Similarly, in Cycles 2–5 for both Coal and Metal/Nonmetal, two separate formulas in the electronic spreadsheet were inconsistent with MSHA’s stated screening criteria. One screening criteria stated that a mine had to have at least 10 (surface and facility) or 20 (underground) S&S citations issued during the review period. Another stated that a mine had to have at least 10 (surface and facility) or 20 (underground) S&S citations that were final orders of the Commission during the review period. However, the formulas that tested these values used the Boolean operator “greater than” (>). To correctly match the stated criteria, the Boolean operator should have been “greater than or equal to” (≥).

We initially identified this as a logic error. But MSHA officials stated that these formulas also correctly represented what MSHA had intended the screening criteria to be.

According to MSHA, the published criterion was misstated and should have been written as “more than” instead of “at least.”

Given MSHA’s statements, the queries and formulas used did not require correction. However, these misstatements resulted in mine operators and the public having an incorrect understanding of the screening criteria being used by MSHA to identify mines with a potential POV.

Anomaly: In Cycles 3-5 for both Coal and Metal/Nonmetal, we identified one other concern with an electronic spreadsheet formula that, while not an error in programming logic, contains a risk of producing incorrect results.

The formula matches each mine identification number against mine identification numbers in a separate list of mines having more than five S&S violations of the same standard. This list of repeat violations is produced by the Repeat Violations query and varies in length for each POV cycle. If a match is found, the number of repeat violations is placed in the spreadsheet cell. For the formula to work properly, it must define the location of the list of mines to be searched. In each spreadsheet used in Cycles 3 – 5, the formula used the parameters of the list produced in Cycle 2, which resulted in the formula defining an area that was larger than the actual list to be searched. Since the defined area was larger than the actual list, no error resulted. However, had the Repeat Violations query produced a list longer than the one used in Cycle 2, the formula would have incorrectly ignored the data outside the stated parameters. This situation indicates a lack of proper controls in maintaining the integrity of the spreadsheet formulas.

Logic Errors Impact Which Mines Are Put on Potential POV Lists: Because MSHA’s Data Warehouse is updated daily and MSHA does not maintain historic copies of the Data Warehouse, it was not possible to perform a POV analysis against the enforcement data as it existed on the days that MSHA had performed its five past POV analyses (Cycles 1-5). Therefore, we could not determine what, if any, specific changes would have resulted from correcting the errors that we identified and re-performing those analyses.

However, to demonstrate that these changes could produce results different from MSHA’s uncorrected program, we ran both MSHA’s uncorrected program and the OIG’s corrected program against a copy of the Data Warehouse as of May 10, 2010.

MSHA’s uncorrected program produced a list of 17 mines for potential POV evaluation – 12 coal mines and 5 metal/nonmetal mines. The OIG’s corrected program, run against the exact same data, produced a list of 21 mines for potential POV evaluation – 16 coal mines and 5 metal/nonmetal mines.

The resulting lists of metal/nonmetal mines were identical. However, for the analysis of coal mines, the MSHA list contained one mine that was not on the OIG list and the OIG list contained five mines that were not on the MSHA list.

The magnitude and nature of the variations in results between the uncorrected and corrected applications would likely fluctuate if run on various dates over a period of time. This would be caused by changes in the enforcement data, specifically to the data elements impacted by the identified errors. However, the test results show that the unidentified logic errors had a potential to incorrectly include mines that had not met the POV screening criteria or exclude mines that had met the POV screening criteria.

As MSHA moves forward with its plans to redesign the POV screening criteria and procedures, it is critical that any related computer application provide accurate results. To minimize the risks of unreliable results caused by programming errors, MSHA must develop, test, maintain, and document any POV computer application in a structured and disciplined manner.

Objective 4 — Was MSHA’s enforcement data sufficiently reliable to support accurate POV analysis?

Data reliability tests discovered no deficiencies in accuracy or completeness, but delays in laboratory test results are a problem.

We found nothing in our various system and data test results to question the overall reliability of the data used by MSHA to perform the initial screening and pattern of violations determinations under its POV model. We did, however, identify delays in MSHA’s testing of rock dust samples in underground coal mines that could cause critical delays in MSHA identifying serious safety hazards.

Data Reliability: We successfully tested the data entry controls and a statistical sample of data records for the key data elements that MSHA used in performing its POV screenings from April 1, 2008–March 31, 2010. Nothing in the test results raised concerns about the reliability of the data.

MSHA’s POV computer application used 70 unique data elements from MSHA’s Data Warehouse to analyze each mine’s enforcement history against the screening criteria in MSHA’s POV model (see Appendix H for a complete listing of these data elements). Based on the manner and the number of times each data element was used by the computer application, we determined that 55 of the 70 data elements were key in determining program’s results. These key data elements were collected into the integrated MSIS through five different input systems as summarized below.

Input Entry Control Point	# of Key Data Elements
IPAL (inspector laptop)	30
MSIS User Interface - Enforcement Interface	2
MSIS User Interface - Assessment Interface	6
MSIS e-Gov Interface	12
MSIS User Interface - Part 50 Interface	5
Total	55

Focusing on the 55 key data elements, we documented (a) the data processing steps and data flows and (b) the control points, objectives, and techniques.

We successfully completed tests of these five input entry points for consistency, effectiveness in validating data, and reporting of errors for correction prior to data acceptance. The testing included value checking by entering blanks, non-numeric, non-alpha, out-of-range, and illogical relationships.

We also successfully completed tests for accuracy and completeness of a random statistical sample of active mine information covering the 55 key data elements, including tracing to source information and/or initial input.

Delays in Testing Rock Dust Samples: While evaluating controls over various data input sources, we identified occasional delays in MSHA's testing of rock dust samples at its National Air and Dust Laboratory (NADL) in Mt. Hope, West Virginia. While these delays did not impact the overall reliability of enforcement data used in the POV model, they did increase the risk that MSHA did not timely identify serious safety hazards in underground coal mines.

Safety standards (30 CFR 75.402) require mine operators to "rock dust" mines to dilute the coal dust in the mine atmosphere and prevent the propagation of coal dust explosions. This typically involves dusting of underground areas with powdered limestone. Rock dusting must assure that the incombustible content of coal dust, rock dust, and other dust is maintained at prescribed minimum levels (30 CFR 75.403).

Since mine inspectors do not currently have a way to measure compliance with this standard on-site during an inspection, they collect and send samples to the NADL. Using a standard protocol, lab personnel tested the samples and reported the results to the mine inspector via email. Based on the reported results, the inspector determined whether a violation had occurred and a citation should be issued.

According to lab personnel, fluctuating workloads and the laboratory's recent participation in the National Institute for Occupational Safety and Health (NIOSH) evaluation of a portable Coal Dust Explosibility Meter (CDEM), have affected how quickly rock dust samples are tested after they are received. During the spring and summer months, rock dust samples are normally tested and the results are reported to mine inspectors in 2-3 days. However, during fall and winter months, inspectors collect a higher volume of samples because cold air dries out mine surfaces and increases the risk of explosions. During these periods of increased risk and workload, it could take 2-3 weeks to test and report results. MSHA has had no performance standard for the timeliness of testing these samples. In addition, during MSHA's participation in the NIOSH project, normal lab tests were sometimes delayed until after samples could first be tested with the CDEM.

We have no evidence that coal dust contributed in any way to the accident at Upper Big Branch Mine-South on April 5, 2010. But the handling of rock dust samples from Upper Big Branch Mine-South illustrates the critical importance of completing these tests in a timely manner⁶.

On March 15, 2010, a mine inspector collected 14 rock dust samples from Upper Big Branch Mine-South during an inspection. NADL's laboratory tests on those samples were not completed for more than three weeks – this was two days after the April 5, 2010 accident. The results showed that one of eight samples tested (six samples contained too much moisture to test) did not meet regulatory standards. Based on these results, MSHA issued an S&S citation on April 13, 2010. The chronology of events related to these samples is summarized in the following table.

Chronology of Events	
Testing of Rock Dust Samples from Upper Big Branch Mine-South	
Date	Event
03/15/2010	Mine inspector collected rock dust samples at mine
03/16/2010	NADL received rock dust samples
03/31/2010	MSHA personnel tested rock dust samples using CDEM as part of NIOSH project
04/05/2010	Accident at Upper Big Branch Mine-South
04/06/2010	NADL personnel prepared rock dust samples for NADL testing
04/07/2010	NADL personnel completed tests of rock dust samples
04/08/2010	NADL transmitted rock dust test results to mine inspector via email
04/13/2010	MSHA issued S&S citation for violation of 30 CFR 75.403

On July 29, 2010, in response to our concern that NADL lacked a performance standard for timely testing and reporting of rock dust samples, the Coal Administrator directed lab personnel to implement procedures to assure that rock dust samples were tested and the results were reported to mine inspectors within 19 calendar days of being received at the lab.

Although MSHA took prompt action on the concern we raised, 19 days does not convey an appropriate level of urgency for completing tests related to a mine's compliance with a standard for preventing the propagation of coal dust explosions. If samples can be tested in 2–3 days during portions of the year, it seems unreasonable to set a standard that allows testing to take up to six times longer during the time of the year when the associated risk is greatest.

⁶ The OIG provided information we gathered on the Upper Big Branch Mine-South rock dust samples to MSHA's Accident Investigation team, which is ultimately responsible for determining the cause of the accident. We also provided it to MSHA's Internal Review team, which is examining MSHA's actions with respect to this mine.

Objective 5 — How Would the Results of MSHA's POV Model be Affected by Changes in the Current Criteria?

Some criteria significantly changed screening results and improvement success.

It is MSHA's responsibility to determine the criteria and procedures that best identify mines having a pattern of violations. In an effort to provide information that may be helpful in MSHA's stated goal to revise the current criteria and procedures, we conducted several "what if" analyses aimed at demonstrating the impact of various changes to the current criteria on the number of mines (a) identified as having a potential Pattern of Violations and (b) meeting MSHA's improvement metrics.

Modifying Some Screening Criteria Significantly Affects Results: MSHA's POV model required that a mine meet all of the 10 defined screening criteria to be identified as having a potential POV. Eliminating or modifying some of these individual criteria significantly impacted the number of mines identified as having a potential POV, while others had little impact.

We used a static copy of MSHA's Data Warehouse (as of May 10, 2010) and MSHA's current POV model to produce a list of potential POV mines as a baseline. For each scenario we eliminated or modified one or more of the existing criteria and ran the revised computer application against the same Data Warehouse to produce a new list of potential POV mines. We compared the results of each scenario against the baseline results to measure the extent to which the number of mines identified increased or decreased (see Appendix J).

Eliminating the POV model's requirements for final orders resulted in the most significant change. This modification (scenario 12) produced a list of 91 potential POV mines versus the baseline list of 16. Reducing the period of enforcement actions reviewed from 24 months to 12 months (scenario 11) produced significant changes in both new mines being added to the baseline list (+20) and original mines dropped from the baseline list (-12); 9 mines remained the same.

Other scenarios that produced significant increases in the number of mines identified for potential POV analysis included (1) eliminating or reducing the ratio of citations/orders issued in the second year of the review period to the first year of the review period (scenarios 3 and 3a), (2) eliminating the comparison of a mine's rate of S&S citations to the national rate for similar mine (scenario 4), and (3) eliminating the requirement for at least one final S&S citation for an unwarrantable failure (scenario 7).

Eliminating the requirement for at least 10 S&S citations (surface mines and facilities) or at least 20 S&S citations (underground mines) had no effect on the results (scenario 1).

Fewer Potential POV Mines Met MSHA's Improvement Metrics Over Extended Evaluation Periods: While most potential POV mines met MSHA's improvement metrics

within the first inspection period following receipt of their notification letter, fewer mines would have satisfied those standards if evaluated over a longer period of time.

MSHA monitored and evaluated the rate of S&S citations and orders at mines given a potential POV notification for the period covering one complete inspection following the notification. Mine operators must have met either of two metrics: (1) reduce the rate of S&S citations and orders by at least 30 percent, or (2) reduce the rate of S&S citations and orders to at least the national average for similar mines. In most cases, the first standard was the easier one to meet. For the mines that received potential POV notification letters from MSHA from 2007-2009 and whose rate of S&S citations and orders were subsequently monitored by MSHA⁷, 61 out of 65 (94 percent) successfully met one of the improvement metrics.

To evaluate whether mine operators sustained improvement levels beyond the first inspection period, we used the same computer application used by MSHA to compute each potential POV mine's rate of S&S citations for two additional inspection periods. The results indicate that as the evaluation period is extended, fewer mines satisfy the required improvement metrics. After two inspection cycles, 56 out of 63 (89 percent) still satisfied one of the improvement metrics. After three inspection periods, the success rate decreased to 51 out of 60 (85 percent).

We performed a similar analysis for 8 of the 10 mines⁸ that MSHA excluded from the Potential POV lists because of limits set by MSHA management. Because they were not sent potential POV notification letters, these mines were not subjected to the specific POV monitoring or improvement metrics. After one inspection period, 3 of 8 (38 percent) mines had met one of the improvement metrics. At the end of the second inspection period, the success rate remained at 3 of 8 (38 percent). For the mines that had completed a third inspection period, 3 of 6 (50 percent) met the improvement metrics. Results indicate that a much lower percentage of these mines met MSHA's improvement metrics than those subjected to the potential POV evaluation process.

Changes to MSHA's criteria for identifying potential POV mines can result in significantly different results. Therefore, as MSHA moves to revise its POV enforcement program it is critical for MSHA to ensure that POV selection criteria are transparent, reasoned, and suitable for identifying mines whose owners demonstrate the "disregard for the health and safety of miners through a pattern of violations" as intended by Congress. In addition, MSHA should examine its current process for monitoring mine operators to increase the likelihood that improvements are not temporary.

⁷ MSHA did not evaluate mines that had ceased operations or that were under new ownership.

⁸ Two mines were excluded from our analysis because they were under new ownership.

RECOMMENDATIONS

We recommend that the Assistant Secretary for Mine Safety and Health:

1. Evaluate the appropriateness of eliminating or modifying limitations in the current regulations, including the use of only final orders in determining a pattern of violations and the issuance of a warning notice prior to exercising POV authority.
2. Seek stakeholders' input (e.g., miners, miner representatives, mine operators, etc.) in the development of POV screening criteria, but assure that the process, including rulemaking, is not stalled or improperly affected because of competing viewpoints.
3. Assure that POV selection criteria are sufficiently transparent to allow stakeholders to reasonably determine an individual mine's status at any point in time.
4. Assure that POV decisions are based solely on the health and safety conditions at each mine.
5. Implement a standard process for documenting all factors – both quantitative and non-quantitative – used to make POV decisions.
6. Establish guidance on the preparation, review, and monitoring of mine operators' POV corrective action plans.
7. Eliminate the requirement that mines be in an "active" status to be screened for a pattern of violations.
8. Use system development life cycle techniques (analysis, design, test, implement, and maintain) to reduce the risk of errors in any POV-related computer application.
9. Re-evaluate the performance standard for timely completion of laboratory tests on rock dust or any other samples that yield enforcement related data, including addressing workload fluctuations and resources needs.
10. Examine its current process and metrics for monitoring the improvement of potential POV mines to increase the likelihood that improvements are not temporary.

We appreciate the cooperation and courtesies that MSHA personnel extended to the OIG during this audit. OIG personnel who made major contributions to this report are listed in Appendix M.



Elliot P. Lewis
Assistant Inspector General
for Audit

Appendices

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Appendix A

Background

The Mine Safety and Health Administration (MSHA) enforces compliance with mandatory health and safety standards as a means to eliminate fatal accidents, reduce the frequency and severity of nonfatal accidents, minimize health hazards, and promote improved safety and health conditions in the Nation's mines. As required by the Mine Act, as amended by the Mine Improvement and New Emergency Response Act of 2006, MSHA inspectors conduct recurring inspections of every mine; issuing citations or closure orders when they observe violations. Citations and orders result in monetary penalties to mine operators based on the nature and severity of the offense. During calendar year (CY) 2009, MSHA inspections at the Nation's more than 14,000 surface and underground mines resulted in more than 175,000 citations/orders and assessed monetary fines of approximately \$141 million.

Among the enforcement tools available to MSHA through the Mine Act is the authority to take enhanced enforcement actions when a mine operator demonstrates a pattern of S&S violations at a mine. After notifying a mine operator that such a POV exists, MSHA has the authority to order the withdrawal of miners from areas of the mine affected by any S&S violation until the violation is abated.

MSHA defined the implementation of POV authority through regulations (30 CFR 104) in 1990. From 1990 until early 2007 MSHA applied the authority in a decentralized manner through its district offices. In 2007, MSHA developed and implemented a POV model on a national basis. Using an empirical analysis of enforcement data, the model identified mines showing a potential pattern of violations based on MSHA's selected criteria.

On February 23, 2010, in testimony before the House Committee on Education and Labor, MSHA's Assistant Secretary stated that MSHA was reviewing the POV criteria contained in the current regulations and was considering a review of its POV process.

On April 5, 2010, MSHA publicly announced an accident at Performance Coal Company's Upper Big Branch Mine-South in Montcoal, West Virginia resulted in the deaths of 29 miners. Public and media scrutiny of the mine's record of safety and health violations raised questions about (a) why MSHA had not exercised its POV authority against Performance Coal Company at Upper Big Branch Mine-South, and (b) whether MSHA's POV process was effectively identifying repeat violators.

On April 13, 2010, MSHA announced that an error in the computerized tools it had developed to execute its POV model had caused Upper Big Branch Mine-South to incorrectly be omitted from the most recent list of potential POV mines. This raised additional questions about the accuracy of MSHA's analysis and the reliability of the underlying enforcement data.

In an April 15, 2010 letter, several Members of Congress requested that the OIG review and report on MSHA's development and implementation of its POV authority, including the accuracy of the current POV model and its underlying data.

On April 27, 2010, testifying before the Senate Committee on Health, Education, Labor and Pensions, MSHA's Assistant Secretary concluded that "the current 'pattern of violations' process is broken and must be fixed."

Appendix B

Objectives, Scope, Methodology, and Criteria

Objective

The OIG performed an audit to assess what progress MSHA had made in implementing the Pattern of Violations (POV) authority contained in the Federal Mine Safety and Health Act of 1977.

Specifically, we conducted audit work to determine (a) how MSHA had developed its POV rules, criteria, and procedures and implemented its POV authority; (b) whether MSHA timely and consistently reviewed and monitored mine operators' POV corrective action plans; (c) whether MSHA's POV computer application contained errors in addition to the one identified and reported by MSHA after the Upper Big Branch Mine-South accident; (d) whether MSHA's enforcement data was sufficiently reliable to support accurate POV analysis; and (e) the effects on the results of MSHA's POV model from various changes in the criteria.

Scope

Our audit work covered MSHA's development, implementation, and use of POV authority from its inception in the Mine Act (1977) through May 10, 2010. Our work related to the reliability of MSHA's enforcement data included 70 data elements from MSHA's Data Warehouse that were used by MSHA's POV computer application.

We performed audit work at MSHA's National Office in Arlington, Virginia, MSHA's Data Center in Lakewood, Colorado, and in MSHA District offices in Morgantown, West Virginia; Mt. Hope, West Virginia; and Dallas, Texas.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Methodology

To determine how MSHA developed POV regulations, criteria, and procedures, we reviewed available documentation related to MSHA's rulemaking processes (1980, 1985 and 1989/1990), including the proposed POV regulations, public comments, and the final regulations. Limited records were available. MSHA's Office of Standards, Regulations, and Variances (OSRV), which coordinates MSHA's regulatory work, is responsible for maintaining appropriate records. OSRV was able to provide us with inventory lists for 15 boxes of "non-permanent" records related to various MSHA

rulemaking activities between 1977 and 1989, including those related to POV. However, OSRV could not account for the whereabouts of the associated records.

OSRV had prepared these records to be sent to storage at the Federal Records Center, but could not provide evidence that they had actually been sent. The Federal Records Center had no evidence of having received the records. Even had these records been transferred to the Federal Records Center, it is likely that they would have been destroyed prior to our audit under guidelines of MSHA's "Consolidated Records Disposition Schedule" for Standards and Regulations. According to MSHA's records inventory lists, these non-permanent records included items such as a POV concept paper, written public comments on the 1980 and 1985 proposed rules, an interagency decision memo concerning MSHA's withdrawal of the 1980 proposed rule, and guidelines for designating violations as "significant and substantial."

In addition, our search of 27 boxes of "permanent" MSHA records at the Federal Records Center found nothing related to POV, even though one box's inventory sheet was labeled "Pattern of Violations."

MSHA provided us with copies of transcripts from the two public hearings it held in 1989 as part of its POV final rulemaking process. It obtained these copies from the United Mine Workers of America.

We also reviewed policy and guidance materials that MSHA issued after the implementation of the POV regulations. We interviewed two of the three MSHA staff involved in developing the POV model and summarized any related documentation⁹.

To determine how MSHA had implemented its POV authority for the period October 1, 1990, to present, we conducted interviews of 16 of 17 MSHA District Managers using a standard set of questions. We did not interview the District Manager in Coal District 1 because no mine in his District had been identified by MSHA's POV model as having a potential POV and because the District Manager was leading MSHA's Internal Review of the Upper Big Branch Mine-South accident, so his availability was very limited. We also visited Coal Districts 3 and 4 and the Metal and Nonmetal South Central District, interviewed relevant District staff, and reviewed all available records related to their POV activities. For potential POV mines MSHA identified in its computer analysis, we determined the reasons MSHA did not send potential POV letters to certain mines.

To measure the affects on MSHA's current POV model from various changes to its criteria, we developed and executed a series of "what-if" scenarios. We created a baseline result by executing MSHA's current POV computer application (corrected for error identified in our audit) against a static copy of MSHA's Data Warehouse (as of May 10, 2010). For each "what-if" scenario, we eliminated or revised one or more of the

⁹ The third MSHA participant in this process was the then Assistant Secretary for Mine Safety and Health. Despite our repeated efforts, we were unable to obtain his participation in this audit.

existing selection criteria, ran the revised computer application against the same copy of MSHA's Data Warehouse, and compared the results against the baseline results.

To evaluate whether potential POV mines monitored by MSHA maintained improved rates of S&S citations and orders beyond the one inspection period evaluated by MSHA, we used MSHA's computer application to calculate S&S rates for each potential POV mine for two additional inspection cycles and compared the results against the two improvement metrics used by MSHA.

To determine if MSHA was timely and consistently reviewing and monitoring mine operators' POV corrective action plans (CY 2007 to present), we interviewed the District Managers from 16 of 17 MSHA districts that had notified at least one mine of potential POV status during this period. These interviews summarized how these districts interacted with the notified mine operators and how the districts monitored an operator's progress in improving the mine's violation rate during the designated improvement period. During site visits to MSHA Coal Districts 3 and 4, we reviewed mine corrective action plans submitted by mine operators.

To determine if MSHA's POV computer application contained unidentified errors, we reviewed (a) the logic and syntax (i.e., queries) used to extract and summarize data from MSHA's historical enforcement data, (b) the formulas used in electronic spreadsheets to perform tests and computations on the extracted data, and (c) the filters used in electronic spreadsheets to apply MSHA selection criteria against the analytical results for the five analyses that MSHA completed from 2007-2009¹⁰.

Specifically, to analyze the queries we (a) reviewed a user manual for MSHA's query software; (b) reviewed data dictionaries, data field attributes, and relevant handbook sections provided by MSHA; (c) evaluated the underlying formulas; and (d) prepared process flow charts. When necessary, we obtained explanations from knowledgeable MSHA personnel. To analyze the formulas spreadsheets used in the POV analysis¹¹ and for the weekly reports¹², we reviewed all formula logic and syntax based on explanations from knowledgeable MSHA personnel on their intended purpose. To analyze the spreadsheet filters, we compared MSHA's POV selection criteria to the filter logic and syntax. To demonstrate the impact of any identified errors on the mines identified for potential POV notification, we created a baseline by executing MSHA's POV analysis against a copy of MSHA's Data Warehouse produced by MSHA on May 10, 2010. After making appropriate revisions to the queries, formulas, and filters we executed the corrected POV analysis against the same set of data and compared the results to the baseline.

¹⁰ For the 24-month periods ending March 31, 2007, September 30, 2007, March 31, 2008, December 31, 2008, and August 31, 2009.

¹¹ MSHA was not able to provide the POV analysis spreadsheet for the 24 months ending March 31, 2007 because it did not maintain the original analysis, only the results.

¹² MSHA only used the weekly report queries and spreadsheet for the 24 month period ending August 31, 2009. For all previous POV analysis, MSHA used a query and report combination using the query software.

To determine the reliability of data used in MSHA's POV analysis, we used an approach consistent with the Government Accountability Office's *Assessing the Data Reliability of Computer-Processed Data*, (GAO-09-680G, July 2009, External Version I). Based on a detailed review we judged 55 of the 70 data elements used in MSHA's POV computer application to be key in determining whether a mine demonstrated a potential pattern of violations. The 55 key data elements reside in the Data Warehouse as a result of various sources and input processes, including intermediary systems' processing and data bases prior to final update to the Data Warehouse (see Appendix I for related Data Flow Diagram).

We performed the data reliability assessment, focused primarily on the 55 key data elements, by (a) interviewing knowledgeable MSHA computer and program operations personnel about the key data elements, processes and related controls; (b) identifying the sources of the key data elements; (c) documenting the data processing steps and data flows; (d) documenting the control points, objectives, and techniques; (e) testing data entry control points for enforcement, assessments, and accident, injury, employment and production data; and (f) selecting a random statistical sample of active mine information covering the 55 key data elements to determine the accuracy and completeness of the data, including tracing to source information and/or initial input.

We tested each primary input entry point covering the 55 POV key data elements for consistency, effectiveness in validating data, and reporting of errors for correction prior to data acceptance. The testing included value checking by entering blanks, non-numeric, non-alpha, out-of-range, and illogical relationships.

We verified the accuracy and completeness of the 55 POV key data elements using a sampling of active mine data covering the period April 1, 2008, through March 31, 2010. We used a random sampling method with stratified design, where appropriate, to provide effective coverage of the units and to obtain precise estimates of the characteristics tested at a 95 percent confidence level and 5 percent error. Auditors traced and compared values in key data element fields in MSHA Data Warehouse to information from source documentation and/or initial input entry points and/or related data bases (i.e., MSIS and Sungard data bases).

Criteria

Federal Mine Safety and Health Act of 1977, as amended

Miner Improvement and New Emergency Response Act of 2006

30 CFR Part 104 – Pattern of Violations

Federal Register, Volume 54, No. 102 (May 30, 1989) – Pattern of Violations Proposed Rule

Federal Register, Volume 55, No. 147 (July 31, 1990) – Pattern of Violations Final Rule

Senate Report No. 95-181, Federal Mine Safety and Health Act of 1977

MSHA Program Policy Manual, Volume III, Part 104, Pattern of Violations
(Release III-22, February 2003)

MSHA Pattern of Violations Procedures Summary

MSHA Pattern of Violations Screening Criteria and Scoring Model

Government Accountability Office, Standards for Internal Control in the Federal
Government, November 1999

National Institute of Standards and Technology Special Publication 800-53 Revision 2,
December 2007.

National Institute of Standards and Technology Special Publication 800-53 Revision 3,
August 2009.

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Appendix C**MSHA Documents Related to Pattern of Violations Authority**

Document Type	Effective / Issued Date	Subject	From	To
Program Policy Letter P91-III-1	04/08/91	Guidelines for the Implementation of Pattern of Violations	Coal and Metal/Nonmetal Administrators	All MSHA employees
CMS&H Memo HQ-92-373-S	08/05/92	Enforcement Strategy and Procedures, including Pattern of Violations	Coal Administrator	Coal District Managers & Division Chiefs
CMS&H Memo HQ-93-025-S	01/29/93	Pattern of Violations Procedures and Reporting to MSHA Headquarters	Coal Administrator	Coal District Managers
Program Policy Letter P93-III-1	Re-issuance of PPL P91-III-1	Guidelines for the Implementation of Pattern of Violations	Coal and Metal/Nonmetal Administrator	All MSHA employees
Program Policy Manual, Vol III	05/16/96	Interpretations and Guidelines on Enforcement of the Mine Act – POV		All MSHA employees
CMS&H Memo HQ-96-107-S	07/26/96	Clarification on Enforcement Procedures	Coal Administrator	Coal District Managers
CMS&H Memo HQ-97-050-S	05/13/97	Pattern of Violations Procedures	Coal Administrator	Coal District Managers
Procedure Instruction Letter I99-V-11	03/29/99	Review of Respirable Coal Mine Dust Citations for a Pattern of Violations	Coal Administrator	Coal Enforcement Personnel

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Appendix D

MSHA's Pattern of Violations Screening Criteria and Scoring Model

Criteria #1

At least 10 S&S Citations/Orders, at mines classified as Surface and Facility, **issued** during the 24-month review period. At least 20 S&S Citations/Orders, at mines classified as Underground, **issued** during the 24-month review period.

Criteria #2

At least two “elevated enforcement” actions, [i.e. type action is 104 (b), 104 (d) or 107(a)], **issued** during the 24-month review period.

Criteria #3

The ratio of Citation/Orders **issued** in the most recent 12 months of the review period to the number of Citations/Orders **issued** during the previous 12 months of the review is 70% or greater.

Criteria #4

The mines’ rate of S&S Citations/Orders **issued** per 100 inspection hours during the 24-month review period is equal to or greater than 125% of the National rate of S&S Citations/Orders **issued** per 100 inspection hours for that mine type and classification.

Criteria #5

The number of S&S Citation/Orders **issued** per 100 inspection hours during the last two quarters is greater than the Industry Average for this mine type and classification **OR** the number of elevated enforcement Citations/Orders **issued** per 100 inspection hours during the last two quarters is greater than the Industry Average for this mine type and classification.

Criteria #6

A minimum of two “elevated enforcement” **final orders** of the Commission, [i.e. type action is 104 (b), 104 (d) or 107(a)] during the 24-month review period.

Criteria #7

At least one S&S 104 (d) issuance that became a **final order** of the Commission during the 24-month review period.

Criteria #8

At least 10 S&S Citations/Orders, at mines classified as Surface or Facility, that are **final orders** of the Commission during the 24-month review period. At least 20 S&S Citations/Orders, at mines classified as Underground, that are **final orders** of the Commission during the 24-month review period.

Criteria #9

The information used to screen mines includes a **raw weighted score** for each operation meeting the above criteria as follows:

- a. The number of S&S citations and orders issued per 100 Inspection Hrs. that became **final** during the 24-month review period times the weight assigned to this factor; plus
- b. the number of 104(b) (failure to abate) orders issued per 100 Inspection Hrs. for failure to abate an S&S issuance that became **final** during the 24-month review period and multiplying by a factor of 5; plus
- c. the number of 104(d) (unwarrantable failure) citations and orders issued per 100 Inspection Hrs. that became **final** during the 24-month review period and multiplying by a factor of 5; plus
- d. the number of 107(a) (imminent danger) orders issued¹³ per 100 Inspection Hrs. during the 24-month review period and multiplying by a factor of 5.

This **raw weighted score** is increased by:

- e. 5%-20% for operations with injury rates above the national average for the same mine type and industry grouping as follows:

Degree 1-4 Injury Rate (IR) Multipliers

<i>IR Greater than Nat'l. Avg. and less than or equal to 2 times the Nat'l. Avg.</i>	<i>IR Greater than 2 times the Nat'l. Avg. and less than or equal to 3 times the Nat'l. Avg.</i>	<i>IR Greater than 3 times the Nat'l. Avg. and less than or equal to 4 times the Nat'l. Avg.</i>	<i>IR Greater than 4 times the Nat'l. Avg.</i>
5%	10%	15%	20%

- f. 5%-20% for operations with injury severity rates (number of days lost X 200,000 divided by the total work hours reported) above the national average for the same mine type and industry grouping as follows:

Degree 1-4 Injury Severity Rate (ISR) Multipliers

<i>ISR Greater than Nat'l. Avg. and less than or equal to 2 times the Nat'l. Avg.</i>	<i>ISR Greater than 2 times the Nat'l. Avg. and less than or equal to 3 times the Nat'l. Avg.</i>	<i>ISR Greater than 3 times the Nat'l. Avg. and less than or equal to 4 times the Nat'l. Avg.</i>	<i>ISR Greater than 4 times the Nat'l. Avg.</i>
5%	10%	15%	20%

¹³ Imminent Danger orders are not assessed and thus do not become "final orders" of the Commission. Therefore, the number of Imminent Danger orders issued is used in this score.

- g.** 5%-20% for operations with **final** S&S citations and orders per 100 inspection hours (Violations per Inspector hour (VPIH)) above the 24-month national average for the same mine type and industry grouping as follows:

VPIH Multipliers

<i>VPIH Greater than Nat'l. Avg. and less than or equal to 2 times the Nat'l. Avg.</i>	<i>VPIH Greater than 2 times the Nat'l. Avg. and less than or equal to 3 times the Nat'l. Avg.</i>	<i>VPIH Greater than 3 times the Nat'l. Avg. and less than or equal to 4 times the Nat'l. Avg.</i>	<i>VPIH Greater than 4 times the Nat'l. Avg.</i>
5%	10%	15%	20%

The final weighted score must be greater than or equal to the average weighted score for all active mines of the same mine type and industry classification.

Criteria #10

Meet one of the following pattern criteria: (1) a history of repeated S&S violations of a particular standard; (2) a history of repeated S&S violations of standards related to the same hazard; or (3) a history of repeated S&S violations caused by unwarrantable failure to comply. Only citations and orders that are final may be considered in determining if these criteria have been met. For a Pattern of Violations review, mines must have at least five S&S citations of the same standard that became **final orders** of the Commission during the most recent 12 months.

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Appendix E

OIG Alert Memo – MSHA Set Limits on the Number of Potential Pattern of Violation Mines to be Monitored

U.S. Department of Labor

Office of Inspector General
Washington, DC 20210



June 23, 2010

MEMORANDUM FOR: JOSEPH A. MAIN
Assistant Secretary
for Mine Safety and Health

Elliot P. Lewis

FROM: ELLIOT P. LEWIS
Assistant Inspector General
for Audit

SUBJECT: **Alert Memorandum:** MSHA Set Limits on the
Number of Potential Pattern of Violation Mines to be
Monitored
Report No. 05-10-004-06-001

The purpose of this memorandum is to alert you to a matter related to MSHA's past implementation of its Pattern of Violation (POV) authority that requires immediate corrective action. The results included in this interim report are based on our limited work to date. Fieldwork is continuing and we will provide overall results when our audit work is complete.

MSHA's POV activity addresses mines with an inspection history of recurrent significant and substantial violations of mandatory safety or health standards that demonstrate a mine operator's disregard for the health and safety of miners. In 2007, MSHA implemented its POV Screening Criteria and Scoring Model to identify potential POV mines. In March 2009 when the Coal Mine Safety and Health (CMS&H) Administrator notified his District Managers of mines meeting the POV screening criteria (including scores for each mine) he directed them to **"select no more than one mine on the initial screening list per field office and a maximum of 3 mines per district."** We were told this guidance was necessary to address resource limitations. However, this instruction set a limit that was inappropriate for this enforcement program.

MSHA's initial screening process allowed program Administrators to remove mines from the original list based on a written justification from the District Manager. Our preliminary review of information provided by MSHA shows that MSHA performed five POV analyses between 2007 and 2009. Those analyses identified 89 mines for potential POV status. For a variety of reasons (not yet

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validated through audit procedures), MSHA officials removed 21 of these mines from the initial screening lists. Mines that were removed did not receive letters notifying them of potential POV status nor did MSHA monitor these mines for improved rates of significant and substantial violations.

The stated reason for removing some mines appears reasonable. For example, we were advised that three mines were removed because they were no longer producing coal. However, it appears that CMS&H removed at least 10 mines¹ because of the limit established by the CMS&H Administrator's instruction.

Potential POV Mines 2007 - 2009			
Analysis Date	# of Mines Identified by POV Screening Criteria and Scoring Model	# of Mines Removed From Initial Screening List (All reasons)	# of Mines Removed From Initial Screening List Because of Limits Set by CMS&H
Jun-07	8	-	-
Dec-07	21	1	-
Jun-08	19	4	-
Feb-09	26	11	9
Sep-09	15	5	1
Totals	89	21	10

We are very concerned about mines removed for reasons other than appropriate consideration of the health and safety conditions at those mines. MSHA is not subjecting these mines to the enhanced oversight that accompanies potential POV status, yet it does not have evidence that they had reduced their rate of significant and substantial violations. As a result, miners may be subjected to increased safety risks.

Although MSHA has suspended use of its POV Screening Criteria and Scoring Model while it evaluates possible revisions, we recommend that MSHA immediately re-evaluate the appropriate POV status of the 10 mines that were previously removed from POV oversight and monitoring based on the CMS&H limits. We also recommend that MSHA assure that on future POV analysis all decisions to include or remove mines from POV-related enforcement efforts are based solely on the health and safety conditions at each mine.

We request that you take action and respond to this report within 10 days on actions taken. Please contact Charles Allberry, Audit Director, MSHA Audits, at (312) 353-2416, if you have any questions.

¹ Total includes nine individual mines; one mine was removed in two separate cycles.

Appendix F

MSHA's Response to OIG Alert Memo

U.S. Department of Labor

Mine Safety and Health Administration
1100 Wilson Boulevard
Arlington, Virginia 22209-3939



JUL 06 2010

MEMORANDUM FOR ELLIOT P. LEWIS

Assistant Inspector General for Audit

FROM:

JOSEPH A. MAIN

Assistant Secretary of Labor for
Mine Safety and Health

A handwritten signature in black ink, reading "Joseph A. Main", is written over the typed name and title.

SUBJECT:

MSHA's 10-day Response to OIG's Alert Memorandum: MSHA
Set Limits on the Number of Potential Pattern of Violation Mines
to be Monitored Report No. 05-10-004-06-001

Thank you for the opportunity to respond to your Alert Memorandum, *MSHA Set Limits on the Number of Potential Pattern of Violation Mines to be Monitored*. I welcome the independent analysis provided by the Office of Inspector General (OIG) to improve the fundamentally flawed pattern of violation (POV) process that was put in place by the previous administration. As you are aware, the pattern of violations process, including the potential pattern of violations (PPOV) screening process that the OIG is currently investigating is no longer in use, and I can assure you that this process will not be used again.

We have reviewed the alert memorandum and are providing the Mine Safety and Health Administration's (MSHA) 10-day response as requested in your memorandum of June 23, 2010. In immediate response to your memo, I requested that MSHA inspect every one of the producing coal and metal and nonmetal mines that were listed by the OIG as having not been placed in PPOV status following an initial screening that identified them as PPOV eligible. As a result, MSHA conducted inspections at 14 mines during the week of June 28, 2010, and issued 63 104(a) citations, of which 26 were S&S, and 1 order. The remaining 6 mines from the list of '21' (2 were repeat mines), are either in non-producing, temporarily idled or abandoned status.

Your memorandum highlighted your concern that "mines were removed for reasons other than appropriate consideration of the health and safety conditions at those mines." We agree that this may have been the case in certain mines and we are committed to make sure that this will not be the case in the future. Our review of the mines identified in your Alert Memorandum indicated that there were, in addition, a number of factors taken into consideration following the initial screening, consistent with previously established policy. Some mines were not put into PPOV status because there was a change in ownership. The POV program focuses on mine operators; thus a bona fide change in ownership resulted in the initiation of a new time period for consideration of violations. In another instance, the OIG incorrectly identified a mine that it said did not receive a PPOV notice letter. The PPOV notice was sent but withdrawn on July 17,

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2008, due to the decision by the Federal Mine Safety and Health Review Commission to reopen certain citations and that these affected citations would no longer be treated as final orders of the Commission for pattern purposes. Information about each of the mines included in your Alert Memorandum is included in the attachment.

Our review of the PPOV screenings in question found that although mines were previously excluded from POV oversight and not placed in potential POV status, the District Managers were notified of all mines meeting the screening criteria in effect at that time, and scores were provided for each mine. As such, District managers were made aware that these mines were problematic and of their screening scores.

The memorandum stated that MSHA did not "...subject these mines to the enhanced oversight that accompanies potential POV status..." MSHA continued to conduct a broad array of inspection activities at these mines to protect the safety and health of the miners. MSHA also has had significant inspector presence at all these mines since the decisions not to place them in PPOV status. An attachment to this memo details the number of inspection activities, including regular safety and health inspections, spot inspections, technical inspections and other investigations, as well as the inspector time on-site at each of these producing mines since the 2009 screenings and the decisions not to place them in PPOV status. There have been no fatalities at these mines since the mines were removed from the potential POV list 2009.

The alert memorandum indicated that MSHA "... does not have evidence that they had reduced their rate of significant and substantial violations. As a result, miners may have been subjected to increased safety risks." MSHA district managers continually monitor operator compliance and S&S rates of mines under their jurisdiction. MSHA does have relevant evidence that we will be happy to provide to you if you request it.

The career leadership at MSHA was following the existing policies in place prior to my arrival at MSHA. I do not agree with these policies. Going forward, decisions about PPOV and POV enforcement actions will be based solely on what is best for the safety and health of the miners, within legal and regulatory constraints.

Under the POV system in place during the time frame addressed by the audit, placing a mine within PPOV status required a significant time investment from key staff. Listed below are some details on the requirements for supervising and monitoring the PPOV process established during the prior administration. The process involved oversight and review responsibilities for headquarters personnel, District Managers, Assistant District Managers, Field Office Supervisors, Staff Assistants, Conference and Litigation Representatives (CLRs), and inspectors. This oversight and review was not only directed at the mine operator, but also at MSHA's citation process, and included:

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- Preparing written notification to the mine operator, reviewing initial written responses from the operator, evaluating enforcement data regarding the mine, and preparation of headquarters acknowledgement letters;
- Meeting with the mine operator and miners representatives;
- Reviewing the mine operator's action plan to reduce S&S violations;
- Ongoing evaluation and monitoring of the mine through inspections and inspection oversight, which could include field office supervisors making weekly visits during the 90-day evaluation period and review of weekly POV updates;
- Participating in meetings with operators to evaluate the mine's progress;
- Conducting detailed citation evaluations to ensure that if POV status was triggered that the underlying citations were properly written;
- Increasing CLR review of citations, including conferences with the operator, as well as written and oral communication between the CLR, the inspectors and the District Manager to ensure that any potential case against a pattern violator was based on properly written citations; and
- Working with headquarters and the regional and MSH-Division Solicitors on the merits of the S&S citations issued under POV.

Action Plan

As noted above, in immediate response to your memo, I requested that MSHA perform special inspections at every one of the producing coal and metal and nonmetal mines that were listed by as having not been put into PPOV status after the initial screening found them eligible. As a result, MSHA conducted inspections at 14 mines during the week of June 28, 2010, and issued 63 104(a) citations, of which 26 were S&S, and 1 order. The remaining six mines from the list of '21' (two were repeat mines), are either in non-producing, temporarily idled or abandoned status.

I share your concern that district managers were asked to limit the number of mines to be placed in potential POV status, especially in MSHA's District 4 in southern West Virginia which has the highest concentration of coal mines in the country. The better response, in my opinion, would have been to split District 4, so that all the mines that need attention can receive attention. This is a position that we are advocating and exploring to address the workload issued in District 4.

The fundamental problem here is that the POV system is badly broken. That is why we are fully committed to fixing the system as quickly as possible. First, we are attempting to determine all policies that have guided this program since its inception. This information will be of benefit as we rewrite the existing MSHA policies governing POV prior to the next round of POV decisions later this year. This will ensure that the first POV determinations under my watch will be handled differently. Second, we announced in April our intention to rewrite the POV regulations. While that won't be done by October, we are working to provide this longer term improvement. Third, we

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will continue to work with Congress to provide a legislative fix to the POV system. We do not believe the current system reflects Congress' intentions and have been working with Congressional representatives to fix this problem. Attached is a copy of Proposed Legislative Changes to Protect the Safety of All Workers and Prevent Future Disasters prepared by the offices of the Senate Committee on Health, Education, Labor and Pensions the House Committee on Education and Labor Senator Rockefeller and Representative Rahall. The recently introduced Mine Safety and Health Act of 2010 proposes changes to address the problems with the current law regarding POV mines.

We intend, going forward, that MSHA will never be placed in a situation where a mine operator avoids being placed on a POV because MSHA lacks resources. However, MSHA, like all law enforcement agencies, must continue to use professional judgment and discretion in utilizing the resources it has. Appropriate resource utilization will involve the creation of a screening system that will identify mines that chronically fail to implement proper health and safety controls. The mines that are screened into a pool for consideration will then be carefully examined in order to confirm the accuracy of the data used and to assure that their current conditions merit inclusion in this enhanced enforcement program. We do not anticipate that all mine operators crossing a certain quantitative or formulaic threshold for POV consideration will *always* be placed in POV status. Rather, our expectation is that there will be legitimate case-by-case situations where mine operators are not placed on a POV because of qualitative and human factors that present mitigating circumstances. For example, such mitigating circumstances might include a mine operator with a recently-implemented safety program that legitimately improves mine safety or one that has substantially changed its safety performance for the better despite its POV score that was based on historical practices.

It is critical that MSHA focus its POV enhanced inspection resources on those mine operators that have chronically failed to protect the safety and health of the miners and that continue to put miners at risk. In cases where mines are screened into a pool for POV consideration, excluding mine operators from POV must be a matter of *informed* rather than arbitrary consideration. A final determination should require both a screening and confirmatory process, including a review of other factors as described above (significant changes in health and safety at mines, change of ownership, etc.) to assure the correct mines are selected. MSHA will make every effort to ensure as transparent a process as possible.

As with all issues you are examining related to the POV, we strongly encourage your auditors to engage MSHA officials in open and ongoing dialogue regarding the factors that should be involved in screening mines for POV consideration and ultimately placing a mine in POV status. We appreciate the willingness and commitment expressed by your office to work with MSHA and provide information throughout this review process

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that will be helpful in designing the screening process. The assistance of your office will help assure that the re-designed process will provide greater protection to the nation's miners.

If you have any questions, please contact Brent Carpenter (202) 693-9782 or Melinda Pon (202) 693-9516.

Attachments

Attachment: Mines noted by the Inspector General as having met initial screening criteria for PPOV consideration that were not put in PPOV status

District 3, Bridgeport, WV Field Office

****Sentinel Mine (4604168), Wolf Run Mining Company, International Coal Group Inc.***

Following the February 2009 screening the mine implemented proactive efforts to reduce the noncompliance in the areas of rock dusting and electrically-related violations. The mine has succeeded in significantly reducing its S&S rate.

Sentinel Mine received 123 inspection events including five regular health and safety inspections, 94 103(i) spot inspections (for excessive methane), nine technical inspections, four hazard complaint investigations, and six non-injury/non-fatal accident investigations. MSHA has had 780 inspection days at this mine (3897.75 on-site inspection hours) and there have been no fatalities at this mine since the mine was not placed in PPOV status following the February 2009 screening[†].

A spot inspection was conducted on June 28, 2010, and no violations were found.

Broad Run Mine (4609136), Big River Mining LLC, Coalfield Transport, Inc.

Broad Run Mine is currently in non-producing status. Broad Run was identified as a PPOV mine in February 2009 and again in September 2009. MSHA did not provide a PPOV notice letter to the operator in the September 2009 cycle because the mine had taken proactive steps to reduce its S&S rate, repeat violations and elevated negligence actions. Before Broad Run went into non-producing status, the mine received 14 inspection events including four regular safety and health inspections, two hazard complaint investigations, one non-injury accident investigation, and five technical inspections. MSHA has had 334 inspection days at this mine (1665.25 on-site inspection hours) since September 2009, and there have been no fatalities since the mine was not placed in PPOV status following the February 2009 screening.

District 4, Logan, WV Field Office

****No. 1 Mine (4605978), Jacob Mining LLC, Wolford Jeffrey***

Although identified in the February 2009 for PPOV consideration, this mine was not put in PPOV status at that time. Since then, No. 1 Mine had a change of ownership on July 2, 2009. The mine is now Bronzite III, Consol Energy Inc. The POV program focuses on mine operators; thus a bona fide change in ownership results in the initiation of a new time period for consideration of violations.

* Mines identified by OIG as not on PPOV status due to resource limits. Two mines repeated (Copley Trace Surface Mine and Deep Mine No. 8)

† All inspection data as of June 15, 2010.

Bronzite III received eight inspection events including three regular health and safety inspections, two spot inspections and one technical inspection. MSHA has had 44 inspection days at this mine (216.50 on-site inspection hours) since the ownership change and there have been no fatalities since this mine was not placed in PPOV status following the February 2009 screening.

No violations were found during a spot inspection conducted on June 28, 2010.

****Coalburg No. 2 Mine (4608570), Rio Group, Inc., Richard H. Abraham***

Following the February 2009 screening, Coalburg No. 2 substantially reduced its S&S violation rate.

Coalburg No. 2 Mine received 10 inspection events including six regular health and safety inspections, two spot inspections, one hazard complaint investigation one technical inspection, and an impact inspection. MSHA conducted an impact inspection at Coalburg No. 2 Mine during the week of April 19 – 23, 2010, and issued a total of seven enforcement actions, including two S&S citations. MSHA has had 174 inspection days at this mine (868.25 on-site inspection hours) and there have been no fatalities since the mine was not put in PPOV status following the February 2009 screening.

A spot inspection was conducted on June 28, 2010, and three 104(a) citations were issued (one was S&S).

****Copley Trace Surface Mine (4608704), Argus Energy WV, LLC, James H. Booth***

Copley Trace mine was identified for PPOV consideration in the February 2009 and September 2009 screenings. Following the September 2009 screening Copley Trace Surface Mine's S&S rate was essentially stable.

This surface mine received five inspection events including two regular health and safety inspections, one spot inspection and two hazard complaint investigations since the February 2009 screening. MSHA has had 80 inspection days at this mine (399 on-site inspection hours) and there have been no fatalities since the mine was not placed in PPOV status following the February 2009 screening.

A spot inspection conducted on June 28, 2010, resulted in the issuance of one 104(a) S&S citation.

****Pond Creek Mine No. 1 (4608715), KVV Operations LLC, Robert Helton***

Pond Creek Mine No. 1 was identified in February 2009 for PPOV consideration. Following the February 2009 screening, the mine reduced its S&S rate.

Pond Creek Mine No. 1 received 10 inspection events including five regular health and safety inspections, two technical inspections, and one hazard complaint investigation. MSHA has had 73 inspection days at this mine (363 on-site inspection hours). There

have been no fatalities since the mine was not put in PPOV status following the February 2009 screening.

A spot inspection was conducted on June 28, 2010, and four 104(a) citations were issued (two of which were S&S).

****Deep Mine No. 8 (4608994), Argus Energy WV, LLC, James H. Booth***

Deep Mine No. 8 received PPOV notification letters during two previous PPOV screenings in November 2007 and May 2008. The mine achieved the S&S goals for the respective November 2007 and May 2008 PPOV cycles. The PPOV screening process again identified the mine for PPOV consideration in February 2009. MSHA did not provide a PPOV notice letter in February 2009 in light of the mine's previous PPOV status and S&S reductions. An additional consideration was that the screening used the two-year history but also included the six months that the operator developed and implemented the action plan. Following the February 2009 screening, Deep Mine No. 8 Mine's S&S rate increased.

Deep Mine No. 8 has received nine inspection events including five regular health and safety inspections, one hazard complaint investigation, one non-injury/non-fatal accident investigation and one Part 50 audit. MSHA has had 170 inspection days at this mine (848 on-site inspection hours) and there have been no fatalities since not being placed in PPOV status following the February 2009 screening.

A spot inspection conducted on June 28, 2010 resulted in three 104(a) citations (one was S&S) and one order.

Surface No. 1 (4608249), Stollings Truck Co., Inc., Rhonda Marcum

Surface No. 1 was identified for PPOV consideration mine in the February 2009 and September 2009 screenings. The mine was placed in PPOV status during the February 2009 cycle and achieved the necessary S&S reduction for this period. MSHA did not provide a PPOV notice letter to the operator in the September 2009 cycle because the mine had taken proactive steps to reduce its S&S rate. Following the February 2009 screening, Surface No. 1's S&S rate declined substantially.

Surface No. 1 Mine received four inspection events, including two regular safety and health inspections and one spot inspection. MSHA has spent 34 inspection days (167.25 on-site inspection hours) at this mine since September 2009, and there have been no fatalities at this mine since being placed in PPOV status following the February 2009 screening.

A spot inspection conducted June 29, 2010, identified no violations.

District 4, Madison, WV Field Office

****Black Castle Mining Co. (4607938), Elk Run Coal Co., Massey Energy***

Black Castle Mining was identified for PPOV consideration in February 2009. Following the February 2009 screening, Black Castle's S&S rate decreased substantially.

Since the screening, Black Castle Mine received 13 inspection events, including three regular health and safety inspections, three spot inspections, three hazard complaint investigations, and two non-injury/non-fatal accident investigations. MSHA has had 169 inspection days at this mine (840.75 on-site inspection hours) and there have been no fatalities at this mine since not being placed in PPOV status following the February 2009 screening.

A spot inspection was conducted on June 28, 2010, and two 104(a) citations were issued (one of which was S&S).

****Justice #1 (4607273), Independence Coal Co., Massey Energy***

Justice #1 was identified as for PPOV consideration in November 2007 and in February 2009. In November 2007, Justice #1 was placed in PPOV status and achieved the S&S goal for the PPOV cycle. When it was identified again in the February 2009 screening, the mine was not issued a PPOV notification letter. Following the February 2009 screening, Justice #1's S&S rate increased.

Justice #1 received 90 inspection events including five regular health and safety inspections, 73 103(i) spot inspections (for excessive methane), four spot inspections, two technical inspections, four hazard complaint investigations, four non-injury accident investigations and one Part 50 audit. MSHA has had 485 inspection days at this mine (2,423 on-site inspection hours) and there have been no fatalities at this mine since it was not placed in PPOV status following the February 2009 screening.

Justice was one of the mines targeted by MSHA as part of the April 2010 special impact inspections. MSHA conducted an impact inspection at Justice #1 Mine during the week of April 19 – 23, 2010 and issued 42 enforcement actions, including 25 S&S citations.

A spot inspection was conducted at this mine on July 1, 2010 and eight citations were issued (one was S&S). On June 19, 2010, the mine was issued a 103(k) order and shut down due to a roof fall on the slope (primary escapeway); the 103(k) order was terminated on July 1, 2010.

Allegiance Mine (4608735), Independence Coal Co., Massey Energy

Allegiance Mine was not placed in PPOV status following the September 2009 screening. At the time, the operator had recently placed the mechanized mining unit in non-producing status and had made recent significant improvements to the overall ventilation of this mine.

Allegiance Mine received four inspection events, including three regular health and safety inspections and one non-injury accident investigation. MSHA has had 167 inspection days (833.75 on-site inspection hours) and there have been no fatalities at this mine since it was not placed in PPOV status following the September 2009 screening.

A spot inspection conducted on June 29, 2010, resulted in the issuance of one S&S citation.

District 4, Princeton, WV Field Office

****Mine No. 6 (4609084), Harvest-Time Coal Inc., Dick J. Plaster***

Although identified in the February 2009 for PPOV consideration, this mine was not put in PPOV status at that time. Since then, Mine No. 6 changed on March 6, 2009. The mine is now Laurel Fork Mine, Consol Energy Inc. MSHA was notified of the change of ownership after the Coal Administrator received the initial potential POV screening list of mines from the Assessments Director. The POV program focuses on mine operators; thus a bona fide change in ownership results in the initiation of a new time period for consideration of violations.

The mine is in non-producing status; there are no miners working and there is no mining activity (pumping only). MSHA has had 10 inspection days (49.25 onsite inspection hours) at this mine since the ownership change. A spot inspection conducted on June 29, 2010 found no violations.

District 5, Norton, VA Field Office

No. 2 (4407081), Regent Allied Carbon Energy, Inc., Ervin Stillner

The June 2008 screening identified this mine as a potential repeat PPOV mine. The mine was previously placed in PPOV status during the December 2007 cycle and the mine achieved the S&S goal and significantly reduced its S&S rate. The screening uses the two year history but also includes the six months that the operator developed and implemented the action plan. Enforcement data from Jan 1, 2008 to June 9, 2008 indicated only 18% of violations were S&S.

The six month review cycle was too short to allow company's plan of action to be fully implemented and evaluated, thus it was not put into PPOV status again.

No. 2 Mine received 34 inspection events, including seven regular safety and health inspections, 23 spot inspections, two technical inspections, and one hazard complaint investigation. MSHA had 184 inspection days at this mine (919.75 onsite inspection hours) and there have been no fatalities at this mine since June 2008.

A spot inspection was conducted on June 30, 2010. As a result of this inspection, 11 104(a) citations were issued (two were S&S). No high negligence citations or orders were written.

District 7, Barboursville, KY Field Office

RB#10 (1518267), Manalapan Mining Company, Inc., Ben Bennett

RB#10 was placed on PPOV in December 2007 and achieved the S&S goal during this cycle. When the February 2009 screening identified RB#10 for PPOV consideration, the mine was worked out, production had ceased, and equipment had been removed from the mine. The mine is in abandoned status.

District 8, Vincennes, IN Field Office

Hazleton Mine (1202324), White River Coal, Inc., Bronco Energy Fund, Inc.

The screening in December 2007 identified Hazleton Mine for PPOV consideration. However, the mine ceased production on August 31, 2007; equipment was removed from the section, and the mine began sealing on December 17, 2007. The mine is currently in temporarily idled status.

District 9, Aztec, NM Field Office

McKinley Mine (2900096), Chevron Mining, Chevron Corporation

The OIG is incorrect when it identified McKinley Mine as a mine that did not receive a PPOV notice letter. McKinley Mine received a PPOV notice letter on June 12, 2008. The PPOV notice was withdrawn on July 17, 2008, due to a decision by the Federal Mine Safety and Health Review Commission to reopen certain citations and that these affected citations would no longer be treated as final orders of the Commission for pattern purposes. The operator was advised that MSHA would not proceed further with the implementation of the pattern procedure under 30 C.F.R. Part 104 at the McKinley Mine and the operator was encouraged to continue to take the remedial measures implemented in response to the pattern notice. The mine has since been put in non-producing status.

King 1 (0500266), GCC Energy LLC, GCC of America

As a result of the February 2009 screening, King 1 Mine was issued a PPOV notice letter. The mine's underground workings were permanently sealed on February 20, 2009, and the operator sent a letter to MSHA dated March 9, 2009, that the mine would be abandoned. The mine remains in abandoned status.

Metal/Nonmetal Mines

Northcentral District, Marquette MI Field Office

Empire Mine (2001012), Empire Iron Mining Partnership, Inland Steel Industries-Cleveland Cliffs

Empire Mine was identified for PPOV consideration in June 2008. MSHA did not provide a PPOV notice letter to the operator in the June 2008 cycle because the mine had taken proactive steps to reduce its S&S rate.

Empire Mine received 21 inspection events, including three regular safety and health inspections, two spot inspections, two technical inspections, and four hazard complaint investigations. MSHA has been on-site 365 inspection days at this mine (1821.25 on-site hours). There have been no fatalities at this mine since it was not put in PPOV status following the June 2008 screening.

A spot inspection of the Empire Mine was started on June 28, 2010. As a result of this inspection, 19 104(a) citations were issued (eight were S&S). One high negligence citation was written.

Southeastern District, Lexington KY Field Office

Kosmos Cement Co. (1504469), CEMEX INC., Cemex S A

Kosmos Cement Co was identified for PPOV consideration in November 2007 and June 2008. In November 2007, Kosmos was placed in PPOV status and achieved the S&S goal for the PPOV cycle. MSHA did not provide a PPOV notice letter to the operator in the June 2008 cycle because a review of relevant citations issued during the more recent 12-month period revealed that they should not have been issued as S&S. A recalculation of the violation frequency showed that Kosmos Cement did not meet the PPOV S&S criteria.

Kosmos Cement plant received 15 inspection events, including four regular safety and health inspections, one technical inspection, one hazard complaint investigation, one fatal injury accident investigation, and one non-injury/non-fatal accident investigation. MSHA has had 84 inspection days at this mine (419.75 onsite hours) and one fatality has occurred at this mine since June 2008. Specifically, on August 23, 2009, a miner suffered what appeared to be a fatal heart attack while at work. The incident was investigated and considered to not be related to his work duties, and has not been charged as a mining fatality.

MSHA initiated a spot inspection of the Kosmos Cement plant on June 29, 2010. As a result of this inspection, 11 104(a) citations were issued (eight were S&S). One citation was classified as high negligence.

Proposed Legislative Changes to Protect the Safety of All Workers and Prevent Future Disasters

Prepared by the offices of:

Senator Tom Harkin
Chairman, Senate HELP Committee

Senator Patty Murray
Chairwoman, Subcommittee on Employment and
Workplace Safety

Senator Jay Rockefeller*

Representative George Miller
Chairman, House Committee on Education and Labor

Representative Lynn Woolsey
Chairwoman, Subcommittee on Workforce Protections

Representative Nick Rahall

An alarming series of tragedies has befallen our nation's workplaces in recent months. In the wake of the recent disaster at the Upper Big Branch Mine, there was substantial public outcry about the mine's disturbing safety record, and the systemic barriers that prevented these recurring safety problems from being addressed. Similar concerns have been raised in other industries in the aftermath of workplace fatalities. Some of these deaths received national attention – like the explosion at the Tesoro refinery in Washington or the Kleen Energy facility in Connecticut – but the vast majority get little attention beyond affected family and friends.

This concept paper outlines legislative proposals that would address these serious concerns – increasing incentives for mine operators and other employers to comply with safety laws, empowering workers to speak up about safety concerns, and giving MSHA the tools it needs to put unsafe mines back on track. It is the hope of the authors that this paper can form the basis of productive discussions with Congressional colleagues and interested stakeholders, and can be the starting point for bipartisan legislation that will protect all our workers and prevent future disasters by improving compliance with mine and occupational safety and health laws.

Putting Mines with Deteriorating Safety Records Back on Track

- ***Change MSHA's "pattern of violations" process from a primarily punitive to a rehabilitative process, wherein mines with significantly degraded safety records are given remedial safety plans and must meet benchmarks demonstrating that they are making progress on safety issues.***

The "pattern of violations" system was intended to be the most important tool to address mines with recurring safety problems. Unfortunately, this tool cannot be effectively utilized under current law. In addition, the harshly punitive nature of the current system does not serve the goal of helping unsafe mines improve their performance and return to operations safely.

We propose that mines with a pattern of significant safety problems (withdrawal orders, flagrant violations, citations for "significant and substantial" violations, accidents and injuries, etc.) should be placed on "pattern of violation" status if their safety and compliance record falls below thresholds established by MSHA. These thresholds should be appropriate to the size and type of mine, and both the thresholds and the data that MSHA uses to evaluate mines should be made publicly

available on MSHA's website and updated regularly so that mines can track their status and take preventive measures to avoid being placed on pattern status.

When a mine meets the criteria and is placed on pattern status, miners must be withdrawn to protect their safety, and a remedial order should be issued by MSHA. This remedial order should outline steps that the mine must take to get its safety performance back on track, such as additional training for miners, additional safety personnel, or the creation of a health and safety management program. Miners must remain withdrawn until violations or unsafe conditions identified in the remedial order are remedied, and the operator has commenced or completed other safety actions as identified in the order. Once miners return to the mine, the mine should be in what is effectively a probationary period. The number of annual inspections should increase, and MSHA should periodically assess whether the mine is meeting prescribed safety benchmarks. Mines that meet these benchmarks for one year should be removed from pattern status. Mines that do not meet these benchmarks should face an increase in fines and penalties for safety violations, and potentially a renewed withdrawal order.

Giving MSHA Appropriate Enforcement Tools

- ***Give MSHA additional authority to order training.*** Even outside the pattern of violations context, there are also circumstances where additional training is the appropriate response to a safety concern. MSHA should have the authority to order such additional training in appropriate circumstances.
- ***Give MSHA authority to seek injunctions when there is a course of conduct that constitutes a continuing threat to the health and safety of miners.*** Currently, MSHA has limited authority to pursue injunctive relief in court when there are serial violations that present a risk to the health and safety of miners. MSHA should have the authority to pursue an injunction-stopping these bad practices or temporarily shutting down the mine when there is a course of conduct that constitutes a continuing hazard to the health and safety of miners.
- ***Clarify the definition of a "significant and substantial" violation.*** Currently there is no statutory definition of a significant and substantial violation. The law would benefit from additional clarity by defining a "significant and substantial violation" to include violations where there is "a reasonable possibility that such violation could result in injury, illness or death."
- ***Give MSHA expanded authority to subpoena documents and testimony.*** Currently, MSHA does not have the authority to subpoena documents or testimony from operators outside the context of a formal, public hearing. MSHA should have this authority in the context of investigations and inspections as well as public hearings.

Ensuring that Irresponsible Operators are Held Accountable

- ***Increase maximum criminal penalties.*** Currently, criminal violations of mine safety laws are a misdemeanor for a first offense. To provide a strong deterrent for such serious misconduct, the penalties for knowing violations of safety standards should be raised to the felony level, including providing felony penalties for miners, operators, and government officials who knowingly provide advance notice of an unannounced inspection.

- ***Increase maximum civil penalties.*** Raising maximum civil penalties for “significant and substantial” violations of mine safety laws would also be beneficial to ensure that operators have a strong economic incentive to comply with the law.
- ***Ensure that operators pay penalties in a timely manner.*** Currently, MSHA is trying to collect about \$27 million in unpaid penalties for fully adjudicated violations. Operators who accrue penalties that are affirmed by the Commission, but never paid, effectively get away with violating the law. MSHA should have the authority to withdraw miners from a mine that is more than 180 days in arrears on fully-adjudicated penalties, if that mine is not participating in a payment plan.

Protecting Workers Who Speak Out About Unsafe Conditions

- ***Strengthen protections for workers who speak out about unsafe conditions.*** Workers who go into a mine every day are in the best position to find safety hazards. It is essential that miners have the strongest possible protections to ensure that they can raise safety concerns on the job without fear of retaliation. We propose to strengthen existing whistleblower protections, including requiring one hour annually of “miner’s rights training” to inform workers of the law’s protections, giving miners an express right to refuse unsafe work, expanding the time limit for complaining about retaliation from 60 to 180 days, and authorizing punitive damages and criminal penalties for knowing retaliation against workers who raise safety concerns.
- ***Ensure that miners don’t lose pay for safety-related closures.*** Fear of losing a paycheck can also deter miners from raising safety issues. Miners should receive full pay when they are idled by a MSHA-initiated safety-related closure and cannot be re-assigned to work in an open portion of the mine.
- ***Ensure that miners can speak freely during investigations.*** The ability of miners to communicate openly with MSHA during investigations is key to uncovering and correcting safety problems. MSHA should have the ability to interview mine employees and other individuals with relevant information privately if the individual requests or consents to a private interview.

Increasing Accountability

- ***Provide for an independent investigation of the most serious accidents.*** Everyone benefits from having the best possible information about serious accidents, not only to learn about what went wrong, but also to learn whether government officials acted properly before the accident, in responding to the crisis, and in their subsequent investigation. We support requiring an independent investigation by a NIOSH-appointed team of independent experts for any accident involving 3 or more deaths.
- ***Ensure that all safety personnel are well-qualified.*** A key component of mine safety is ensuring that those responsible for the day-to-day safety decisions meet the highest standards of qualification. MSHA should institute a process to certify the qualifications of foremen, superintendents, and other high-level safety officials if there is not an adequate state-based certification process in place.

- ***Ensure that inspections are comprehensive and well-targeted.*** Inspections by MSHA are the cornerstone of our mine safety system, and MSHA's limited inspection resources should be well-distributed over all shifts and days of the week when mines are operating to protect all miners.
- ***Require pre-shift reviews of mine conditions, and communication to ensure that appropriate safety information is transmitted.*** Responsible practices and good communication is the first line of defense in keeping our mines safe. Operators should be required to institute a pre-shift review of mine conditions, and to implement a communication program to ensure that each miner is made aware of the current conditions of the mine at the start of his/her shift. This would be accomplished through required verbal communication between incoming and outgoing foreman, assistant foreman, and other officials responsible for safety conditions on each shift. These verbal communications should also be recorded in writing in a log.

Reducing Safety Risks

- ***Reduce the Risk of Coal Dust Explosions.*** It is essential to take all possible steps to reduce known risks to miner's safety. To reduce the risk of dangerous explosions, we must require greater amounts of rock dusting, mandate new monitoring technology to improve rock dust measurements, and require the study and subsequent use of continuous atmospheric monitoring systems.

Increasing Safety in Other Workplaces

- ***Provide similar protections in other workplaces covered under the Occupational Safety and Health Act.*** Unfortunately, mines are not our nation's only dangerous workplaces. All workers deserve to come home safe after work each day. Accordingly, we also support improving protections for workers in other workplaces by strengthening whistleblower protections, increasing criminal penalties where workers are killed due to a safety violation, updating civil penalties which have not been increased since 1990, preventing litigation from delaying the correction of hazards that could lead to serious injury or death, and providing greater rights for victims of accidents and their family members to participate in proceedings under the OSHAct.

* The office of the late Senator Robert C. Byrd also participated in the preparation of this paper. The authors gratefully acknowledge these contributions.

Appendix G**Technical Details of the Logic Errors, Criteria Misstatements, and Anomaly in the POV Computer Application****Queries**

Our review of the queries used in MSHA's POV computer application to extract and summarize data from MSHA's Data Warehouse identified the following logic errors:

- 4 sub-queries in the *Basic_Query_9-15-2009.qry* file and 1 query in the *Repeat S&S Finals by CFR 9-16-2009.qry* file use the following function statement.

```
(INQprod.tera_violations_vwj.last_action_code IN
('1stDemandReady', '2ndDemandPrinted', 'ApprovedForTreasury',
'Chapter 11', 'Chapter 7', 'Chapter 7 Bankruptcy', 'Citation Vacated',
'Delinquent', 'Final Order Date', 'JusticeSettlement', 'On Hold',
'Paid', 'ProposeUncollectable', 'Recalled From Treasury',
'RecommendTreasury', 'Treasury', 'Uncollectable'))
```

The purpose of this function is to restrict the data extraction to only final citations/orders.

1. The value "Citation Vacated" was incorrectly included in this function statement. Result = possible over count of relevant citations/orders.
- 5 sub-queries in the *Basic_Query_9-15-2009.qry* file are missing one of the following function statements.

```
(INQprod.tera_violations_vwj.occurrence_date >=
INQMSIS.mine_tbl.curr_ownr_beg_dt)
```

or

```
(INQprod.enf_time_tbl.date_worked >=
INQMSIS.mine_tbl.curr_ownr_beg_dt)
```

The purpose of these functions is to restrict the data extraction to transactions that relate to only the current mine owner.

2. The "current owner only" dates were incorrectly excluded from this function statement. Result = possible over count of citations/orders.

Spreadsheet – Filters

Our review of the Excel spreadsheet filters used to identify mines that meet all of MSHA's POV criteria disclosed the following issues:

- Column BZ is used for POV criteria filter #1 in the Coal and Metal/Nonmetal POV analyses for the 24 months ending September 30, 2007, March 31, 2008, December 31, 2008, and August 31, 2009. The Excel formula used to generate the values in this column is

=IF(BN{current row number}>BM{current row number},"Yes","No")

3. The formula uses the Boolean operator “greater than” (>). However, to correctly represent the screening criteria for filter #1 which required at least 10 S&S citations/orders issued for surface and facility mines or at least 20 S&S citations for underground mines it should have used the Boolean operator “greater than or equal to” (>=).

According to MSHA, the intent was to require more than 10 S&S citations/orders issued for surface and facility mines or more than 20 S&S citations issued for underground mines.

Result = based on MSHA’s explanation of its intent, the formula used is correct. However, the criteria had been continually misstated since it was first published in June 2007.

- Column CF is used for POV criteria filter #7 in the MNM POV analyses for the 24 months ending March 31, 2008, December 31, 2008, and August 31, 2009. The Excel formula used to generate the values in this column is

=AL{current row number}+AM{current row number}

4. The formula references and adds the wrong columns (AL and AM). The columns referenced contain data on the number of 104(d) final orders for the first 12 months (AL) and the second 12 months (AM) of the review period. However, since the screening criteria for filter #7 requires at least one S&S 104(d) final order during the review period, the formula should reference Column BE (Final S&S 104(d) citations and orders for the 24 review period).

Result = inclusion of mines with a final 104(d) order that was not a S&S final 104(d) order.

Note: The formula used in Column CF in the spreadsheet used for the Coal POV analysis during these same time periods is correct.

- Column CG is used for POV criteria filter #8 in the Coal and Metal/Nonmetal POV analyses for the 24 months ending September 30, 2007, March 31, 2008, December 31, 2008, and August 31, 2009. The Excel formula used to generate the values in this column is

=IF(M{current row number}>BM{current row number},"Yes","No")

5. The formula uses the Boolean operator “greater than” (>). However, to correctly represent the screening criteria for filter #8 which required at least 10 S&S citations/orders that are final for surface and facility mines or at least 20 S&S citations/orders that are final for underground mines it should have used the Boolean operator “greater than or equal to” (>=).

According to MSHA, the intent was to require more than 10 S&S citations/orders that were final for surface and facility mines or more than 20 S&S citations that were final for underground mines

Result = based on MSHA’s explanation of its intent, the formula used is correct. However, the criteria had been continually misstated since it was first published in June 2007.

- Column CH is used for POV criteria filter #10 in the Coal and Metal/Nonmetal POV analyses for the 24 months ending March 31, 2008, December 31, 2008, and August 31, 2009. The Excel formula used to generate the values in this column is

=VLOOKUP(C{current row number},’Repeat Violations by Mine’!\$A\$2:\$C\$754,3,FALSE)

6. The formula incorrectly defines the length of the table to be referenced as ending in row 754. The actual length of the referenced table will change each time the POV analysis is executed. If the actual table length is less than or equal to 754 rows, no problem occurs. However, if the actual table length should exceed 754 rows, this formula will ignore potentially relevant data.

Result = a mine with at least 5 final S&S citations/orders could incorrectly fail to meet this screening criteria.

Note: It appears the use of row 754 as a table length is a carry-over from the prior POV analysis performed for the 24 months ended September 30, 2007 where 754 was the correct length of the table.

Results of Comparing Original versus Corrected POV Analysis

MSHA’s Data Warehouse is updated (i.e., changed) every night¹⁴ with new information. In order to compare results of different versions of MSHA’s POV computer application, we required a static data set. At our request, MSHA provided us with a copy of its Data Warehouse as of May 10, 2010. By executing the original POV computer application and the OIG’s corrected version of the computer application against this static data set,

¹⁴ Prior to August 2008, MSHA updated its Data Warehouse on a weekly basis.

we could be sure that differences in the results were caused by the changes in the computer application, not changes in the underlying data.

- Executing MSHA’s uncorrected POV analysis against the May 10, 2010 data warehouse identified 17 mines for potential POV evaluation – 12 coal mines and 5 metal/nonmetal mines.
- Executing the OIG’s corrected version of the POV analysis against the May 10, 2010 data warehouse identified 21 mines for potential POV evaluation – 16 coal mines and 5 metal/nonmetal mines.
- In comparing specific mines identified, for Metal/Nonmetal, the MSHA and OIG results matched exactly (same five mines). However, for Coal, the MSHA analysis identified one mine that was not identified in the OIG analysis and the OIG analysis identified five mines that were not in the MSHA analysis.

POV Screening Results May 10, 2010 Data Warehouse			
Uncorrected POV Computer Application		OIG Corrected POV Computer Application	
Mine ID		Mine ID	
1.	Coal mine A	1.	Coal mine A
2.	Coal mine B	2.	Coal mine B
3.	Coal mine C	3.	Coal mine C
4.	Coal mine D	4.	Coal mine D
5.	Coal mine E	5.	Coal mine E
6.	Coal mine F	6.	Coal mine F
7.	Coal mine G	7.	Coal mine G
8.	Coal mine H	8.	Coal mine H
9.	Coal mine I	9.	Coal mine I
10.	Coal mine J		
11.	Coal mine K	10.	Coal mine K
12.	Coal mine L	11.	Coal mine L
		12.	Coal mine M
		13.	Coal mine N
		14.	Coal mine O
		15.	Coal mine P
		16.	Coal mine Q
13.	Metal/Nonmetal mine AA	17.	Metal/Nonmetal mine AA
14.	Metal/Nonmetal mine BB	18.	Metal/Nonmetal mine BB
15.	Metal/Nonmetal mine CC	19.	Metal/Nonmetal mine CC
16.	Metal/Nonmetal mine DD	20.	Metal/Nonmetal mine DD
17.	Metal/Nonmetal mine EE	21.	Metal/Nonmetal mine EE

Appendix H

70 Unique POV Data Elements Tested and Related Descriptions

Attribute	Field Description (Descriptions taken from MSHA Data Warehouse Data Dictionary)
Mine_tbl	
* Coal (C) or Metal (M) Mine	Qualify with a 'C' if only coal mines are desired. Qualify with an 'M' if only Metal/nonmetal mines are desired.
* Primary Canvass Code	Canvass code associated with the primary commodity code. In the MSIS system, canvass code is known as an industry group code. Values are 1, 2, 5, 6, 7, 8. For Coal breakdown: Canvass cd 1 – Coal (Anthracite) SIC 12310. Canvass cd 2 – Coal (Bituminous) SIC 122200. Canvass cd 2 – Coal (Lignite) SIC 122100.
* Controller ID	Identification number assigned by MSHA Assessments for a Legal Entity acting as a controller of an operator. If this person is a controller of an operator, this is the controller ID assigned to this person.
Controller Name	Either the business name or a person's name for the legal entity.
Mine Name	Mine name as designated on the Legal Entity ID Form (LID) or Mine Information Form (MIF)
* Current Owner Begin Date	Start date of the operating period at the mine.
* Mine Status	Unique code abbreviation for each mine status entered on the MIF. For current mine status. See Mine Status table for mine history. Original codes were 1 character. MSIS values are Active, NonProdActive; Intermittent; Abandoned or AbandonedSealed; NewMine; TempIdle. Use Data Values to select status.
* Mine ID	Identification number assigned to the mine by MSHA
* Mine Status Desc	Values are Abandoned, Abandoned and Sealed, Active, Intermittent, New Mine, NonProducing and Temporarily Idled.
* Mine Type	From the Legal ID (LID) form. The original codes were one character. The MSIS types are Facility, Surface or Underground.
* Operator ID	ID of the operator from the LID

* Operator Name	The latest operator name as updated by a LID or MIF. If the last action is a LID, it will be updated if Assessments updates the name when it is approved. A new MIF will subsequently overwrite the mines operator name.
Office Code	MSHA code that identifies the office to which the mine is assigned. This is entered on the Mine Information Form (MIF).
* Primary Canvass Code Desc	Unique code abbreviation for the primary industry group code for a mine.
Office_tbl	
District Name	District name.
Office Code	MSHA code that identifies each office.
Office Name	The name of the office.
ACC_INJ_TBL	
* Accident Date	Date the accident/injury/illness occurred.
Schedule Charge (Days)	Charge in days lost for any permanent injury/illness. Example: 6000 days for a death, 2400 days for the loss of a foot at the ankle.
Contractor ID	Identification number assigned by MSHA for contractors working at a mine. It is the contractor ID of the contractor or contractor employee involved in the accident/injury/illness.
Days Lost	Actual days lost from work.
* Degree of Injury Code	Code identifying the degree of injury/illness to the individual: (00) Accident only; (01) Fatality; (02) Perm total or perm partial disability; (03) Days away from work only; (04) Days away from work and restricted activity; (05) Days restricted activity only; (06) Injuries that do not result in death, or days away from work, or days of restricted work activity; (07) Occupational illnesses; (08) Fatal and non-fatal injuries due to the natural causes; (09) Fatal and non-fatal injuries to non-employees; (10) All other cases, including first aid. View "Degree of Injury Codes" for possible updates.
* Mine ID	Identification number assigned to the operation by MSHA. It is the mine ID of the mine where the accident/injury/illness occurred.
ENF_TIME_TBL	
* Activity Code	Activity Code for these hours reported. If an Event is also specified, this Activity Code must match that of the Event. Item #6 on the Weekly Time and Activity Data form.

AR No.	AR number of the employee for whom the time data was submitted. Metal AR and ROE numbers will be 4 characters and Coal will be 5 characters.
* Date Worked	The date the hours were worked for this activity.
* Event No.	Event number related to the inspection and activity.
* Mine ID	Mine ID where inspection took place.
* Coal (C) or Metal (M) Mine	Qualify with a 'C' if only coal information is desired. Qualify with an 'M' if only Metal/nonmetal mines is desired. Leave blank to retrieve data for both types of mines.
* Inspection Time	Total of fields 14a thru 14e on Weekly Time and Activity Data form. Total of On-Site Inspection Time (MNM), MMU Pit Time (Coal), Outby (Coal UG Mines), Surface Area Time (Coal) and C/O Writing On Site (MNM, Coal) Reviews (Coal),
* Task Code	A task code for personnel who perform a variety of tasks that may not be directly related to their title or to identify specialist activity associated with an event. Item #11 on the Weekly Time and Activity Data form.
Insp_tbl	
* Insp Acty Code	Code used to identify the type of enforcement activity. See Common Table "Insp Activities" for more detail. Coal activity codes are characters and Metal activity codes are numbers.
* Beginning Date	Start date of the inspection.
* Ending Date	Inspection close out date.
* Event No.	Unique number identifying an inspection (event).
* Mine ID	Identification number assigned to the operation by MSHA.
MINE_EMPROD _ TBL	
Employees	Average number of employees reported by the operator for the applicable quarter, subunit and year beginning with 1990.
Hours Worked	Total employee hours reported by the operator during the quarter for this subunit, year and quarter.
Production Quarter	The single-digit quarter for which the employment and production data is reported.
*Production Year	The 4-digit year of the employment/production data.
* Mine ID	Identification number assigned to the operation by MSHA.

Tera _violations _ vwj	
* CFR Standard Code	The 30 CFR Standard that the operator files to modify.
* Citation No.	Preassigned citation/order/safeguard number of the initial action. Citation number is unique for non-history record
* Citation Type Code	Specifies the type of Citation: Citation, Order. Use Data Values to select code.
* Coal (C) or Metal (M)	One character indicator. (C) Coal or (M) Metal.
* Final Order Date	Date that this Assessment becomes a Final Order. This date is set when the CRR date (Certified Return Receipt date) is set. Note that this can be a projected future date that is set as soon as the CRR is entered.
* Last Action Code	Last action taken against this violation. Listed in common table Last Action Codes. Use Data Values to select code.
* Mine ID	Mine ID at which the violation is issued.
* Occurrence Date	Date of the occurrence.
* Primary Action Code	Primary Section of Act which gives the MSHA Inspector the authority to take the action specified by this Issuance. More than one type of action may be cited. Use Data Values to select code.
* Sig and Sub Indicator	An indicator as to whether or not the gravity is determined by the inspector to be S&S.
Violator Name	The name of the Operator or Contractor at the time of the Assessment.
* Violator Type Code	Specifies the type of Violator, either Operator, Contractor, Agent or Miner (listed in common table Violator Type Codes). Use data Values to select code.
Viol _tbl	
* AR No.	Authorized Representative (AR) number of the MSHA representative who issued the citation or order. Metal AR and ROE numbers will be 4 characters and coal numbers will be 5 characters. However, if an employee transfers from Coal to Metal, they will continue to use the 5-character AR number.
AR Office Code	Organization code for the issuing AR (Coal only).
* Type of Issuance	Type of issuance: Citation, Order, Safeguard or Notice.

*Contractor ID	Code identifying the contractor to whom the citation or order was issued.
* Event No.	Event number of the inspection during which the citation/order was issued.
* Injury /Illness	Value assigned to a violation for gravity of injury. Measure of seriousness of violation being cited as measured by severity of the injury or illness to persons if accident were to occur due to the conditions of the violation: Fatal, LostDays, NoLostDays or Permanent.
* Date Issued	Date the citation or order was issued by the MSHA inspector.
* Time Issued	Time (24 hour) the citation or order was issued by the MSHA inspector.
* Likelihood	Likelihood of an injury occurring due to the cited condition: Highly, NoLikelihood, Occurred, Reasonably or Unlikely.
* Negligence	Codes representing the degree of negligence that the Inspector assigned to the Violator due to the Violation: HighNegligence, LowNegligence, ModNegligence, NoNegligence or Reckless.
* Number Affected	Number of persons affected by the cited condition.
* 30 CFR	Part/section of Title 30 CFR violated.
* Sig and Sub Designation	S&S designation (Y or N).
* Type Action 1	Section of Act which is authority for the action taken.
* Type of Termination	Code identifying the type of termination: Issued, ReplacedByOrder, Terminated or Vacated.
* Violation No.	Citation/order number.
* Violator Type	Agent, Contractor, Miner, or Operator

* = Key Data Element for POV analysis.

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MSHA's Pattern of Violations Authority
Report No. 05-10-005-06-001

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Appendix J

Affects on the Results of MSHA's POV Model from Criteria Changes

Description of Scenario		# of Potential POV Mines Compared to Baseline			
		Total Mines	Same Mines	Added Mines	Dropped Mines
	Baseline – MSHA's Criteria	21			
1	Eliminate ONLY Criteria #1	21	21	0	0
2	Eliminate ONLY Criteria #2	23	21	2	0
3	Eliminate ONLY Criteria #3	28	21	7	0
3a	Reduce Criteria #3 to 50%	27	21	6	0
4	Eliminate ONLY Criteria #4	28	21	7	0
4a	Reduce Criteria #4 to 110%	23	21	2	0
4b	Increase Criteria #4 to 140%	15	15	0	6
5	Eliminate ONLY Criteria #5	23	21	2	0
6	Eliminate ONLY Criteria #6	22	21	1	0
6a	Reduce Criteria #6 to 1	23	21	2	0
6b	Increase Criteria #6 to 3	19	19	0	2
6c	Reduce Criteria #6 analysis period to 12 mos.	17	17	0	4
6d	Reduce Criteria #6 analysis period to 12 mos. and reduce filter criteria to 1.	18	18	0	3
7	Eliminate ONLY Criteria #7	30	21	9	0
7a	Reduce Criteria #7 analysis period to 12 mos.	16	16	0	5
8	Eliminate ONLY Criteria #8	23	21	2	0
9	Eliminate ONLY Criteria #9	25	21	4	0
9a	Reduce Criteria #9 multiplier to 3	20	20	0	1
9b	Reduce Criteria #9 review period to 12 mos. in the raw weighted score calculation	22	20	2	1
9c	Reduce Criteria #9 ranges for multiplier to (>1, =<1.5) (>1.5, =<2) (>2, =<2.5)	22	21	1	0
9d	Reduce Criteria #9 multiplier to 3, analysis period to 12 mos. and multiplier ranges as in 9c.	22	20	2	1
10	Eliminate the "Active" status requirement	25	21	4	0
11	Reduce review period to 12 mos.	29	9	20	12
12	Use only "Issued" orders/citations in all criteria	91	19	72	2

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Appendix K**Acronyms and Abbreviations**

ANPRM	Advanced Notice of Proposed Rulemaking
CDEM	Coal Dust Explosibility Meter
CFR	Code of Federal Regulations
CMS&H	Coal Mine Safety and Health
Coal	Office of Coal Mine Safety and Health
CY	Calendar Year
Commission	Federal Mine Safety and Health Review Commission
IR	Injury Rate
ISR	Injury Severity Rate
Mine Act	Federal Mine Safety and Health Act of 1977
Metal/Nonmetal	Office of Metal/Nonmetal Safety and Health
MSHA	Mine Safety and Health Administration
MSIS	MSHA Standardized Information System
NADL	National Air and Dust Laboratory
NIOSH	National Institute for Occupational Safety and Health
OIG	Office of Inspector General
OSRV	Office of Standards, Regulations, and Variances
POV	Pattern of Violations
POV model	Pattern of Violations Screening Criteria and Scoring Model
S&S	Significant and Substantial
SOL	Office of the Solicitor
UBB	Upper Big Branch Mine-South
VPIH	Violations per Inspector hour

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Appendix L

MSHA Response to Draft Report

U.S. Department of Labor

Mine Safety and Health Administration
1100 Wilson Boulevard
Arlington, Virginia 22209-3939




SEP 27 2010

MEMORANDUM FOR ELLIOT P. LEWIS

Assistant Inspector General of Audit

FROM:

JOSEPH A. MAIN 
Assistant Secretary of Labor for
Mine Safety and Health

SUBJECT:

Response to OIG Draft Audit Report No. Report No. 05-10-005-06-001, "In 32 years MSHA has never Successfully Exercised its Pattern of Violation Authority"

Thank you for the opportunity to review your draft audit report. The Mine Safety and Health Administration (MSHA) will use the audit results to help the Agency improve its pattern of violations (POV) enforcement authority—both the regulations and the administrative implementation process. As you know, we agree that the POV and potential pattern of violations (PPOV) process discussed in your report was flawed and needs to be fixed. The fact that no mine has ever been subject to the full provisions of the POV statute that has been in the Mine Safety and Health Act for over 32 years is a testament to that. I have given high priority to this issue, not only in my Congressional testimony, but also by placing the POV regulations on MSHA's regulatory agenda for revision and undertaking a revision of the POV criteria and implementation before the next mandated POV screening. We are fully committed to correcting the problems in this process. We welcome your audit recommendations which will help us improve the process already underway at MSHA. Our efforts are focused on ensuring that future PPOV and POV determinations are used as an effective part of MSHA's enforcement strategy in a manner that advances the Congressional intent that operators find and fix the root causes of violations before they become a hazard to miners.

As previously announced, MSHA will implement new procedures and criteria for the next round of PPOV/POV decisions under the existing regulations. We also intend to propose new POV regulations in order to, among other things, simplify the criteria for placing mines on a POV notice and make the POV system a more effective tool in identifying problem mines and changing the behavior of the operators who run those mines. In addition, we will continue to provide assistance as Congress develops legislation to fix to the POV system.

Although we welcome the independent analysis provided by the OIG, we do wish to correct several inaccuracies in your report. The draft report stated that "MSHA's responsibility is to assure that mine operators protect all workers from mining hazards at all times..." and that "...MSHA's exclusion of certain mines from POV analysis ... potentially placed workers at risk."

You can now file your MSHA forms online at www.MSHA.gov. It's easy, it's fast, and it saves you money!

Simply put, Congress gave mine operators the primary responsibility to prevent unsafe conditions and practices in mines. We are concerned that your articulation of MSHA's responsibilities obscures the proper placement of that critical legal and moral responsibility to keep miners safe. MSHA cannot be in every mine, every day, on every shift. That is why miners are safest when employers take responsibility for anticipating, recognizing, and eliminating or controlling hazards. Operators cannot simply wait to correct hazards until after MSHA cites them for violations of regulations. Operators' failure to recognize and eliminate or control hazards – whether MSHA cites them or not – is what puts miners at risk. A more accurate description of MSHA's responsibility is to enforce the law as effectively as possible by using all the enforcement tools at our disposal, including an improved POV system, in order to promote safe and healthful working conditions for our nation's miners.

Below are specific responses to your recommendations. We look forward to responding in more detail in our 60-day response to your final report. If you have any questions, please contact Brent Carpenter at (202) 693-9782.

OIG Recommendation No 1: *Evaluate the appropriateness of eliminating or modifying limitations in the current regulations, including the use of only final orders in determining a pattern of violations and the issuance of a warning notice prior to exercising POV authority.*

We agree with this recommendation. MSHA's concerns regarding its POV regulation pre-dated the Office of the Inspector General's (OIG's) review. Reforming the POV process was one of the first priorities established by Assistant Secretary for Mine Safety and Health, Joe Main, upon his confirmation. As the OIG stated in its report, in testimony before the U.S. House Committee on Education and Labor on February 23, 2010, Assistant Secretary Main made public his commitment to reforming the POV process:

We are...reviewing the current pattern of violation criteria contained in [regulations]...considering a review of the pattern of violation process to determine whether our current approach is the best one for providing timely protection for miners.

In addition to internal meetings to discuss improvements in the process within the current regulatory restrictions, MSHA took the first step forward in making good on that commitment in the Department of Labor's Spring Semi-Annual Regulatory Agenda, posted on April 26, 2010, in which MSHA announced its intention to issue a proposed rule by January 2011 to simplify the pattern criteria, improve the process, and improve consistency in the application of the POV notice. MSHA recognizes that the POV regulation has not been effective in stopping chronic violators and reducing the risk of recurring hazardous conditions. During the development of the proposed rule, MSHA will evaluate all issues pertaining to the POV regulation, including whether to continue the use of only final orders in determining POV status and the issuance of a warning notice prior to exercising POV authority.

OIG Recommendation No 2: *Seek stakeholders' input (e.g., miners, miner representatives, mine operators, etc.) in the development of POV screening criteria, but assure that the process, including any rulemaking, is not stalled or improperly affected because of competing viewpoints.*

We concur with the intent of this recommendation and plan to request stakeholder input in future development of POV screening criteria. Consistent with the Federal Mine Safety and Health Act of 1977 and the Administrative Procedures Act, MSHA will seek stakeholder input by engaging in notice and comment rulemaking, including public hearings. MSHA is considering appropriate methods for obtaining stakeholder input in the development of POV screening criteria.

MSHA intends to incorporate the findings in this OIG report into the development of new screening criteria. Because a POV screening must be conducted now in order to comply with the existing regulations, MSHA will not have time to seek stakeholder input before the next POV screening. MSHA is committed to securing stakeholder input before the following screening.

OIG Recommendation No 3: *Assure that POV selection criteria are sufficiently transparent to allow stakeholders to reasonably determine an individual mine's status at any point in time.*

We agree with this recommendation and will work to ensure that the new POV selection criteria are sufficiently transparent. For example, we plan to develop a service accessible through MSHA's Web site that will allow mine operators and other stakeholders to monitor each mine's inspection and violation data against the POV screening criteria. The data will be updated frequently so that mine operators and others will have the ability to identify troubling trends, and mine operators will have the opportunity to take timely remedial action.

OIG Recommendation No 4: *Assure that POV decisions are based solely on the health and safety conditions at each mine.*

We concur, as stated in MSHA's response to your Alert Memo. Future decisions about POV enforcement actions will be based solely on what is best for the safety and health of the miners, within legal and regulatory constraints.

OIG Recommendation No 5: *Implement a standard process for documenting all factors – both quantitative and non-quantitative – used to make POV decisions.*

We agree with this recommendation. MSHA will implement procedures in order to document the factors used in making each POV determination. The new POV process will analyze both quantitative and non-quantitative factors. As stated in our Alert Memo response, this process will involve the creation of a screening system that will identify mines that chronically fail to implement proper safety and health controls.

The mines that are screened into a pool for consideration will then be carefully examined in order to confirm the accuracy of the data used and to assure that their current conditions merit inclusion in this enhanced enforcement program.

OIG Recommendation No 6: *Establish guidance on the preparation, review, and monitoring of mine operators' POV corrective action plans.*

We agree with this recommendation. MSHA plans to establish and provide written guidance to the Agency's enforcement personnel and mine operators about what constitutes an appropriate corrective action program for POV purposes. In addition to monitoring the violation histories of each mine identified as exhibiting a potential pattern of violations under the existing regulation, MSHA will review the corrective action programs against established guidelines for these programs and monitor operators' progress in implementing the various components of each.

OIG Recommendation No 7: *Eliminate the requirement that mines be in an "active" status to be screened for a pattern of violations.*

MSHA agrees with this recommendation that all mines be considered in the initial screening process. Following the screening process, in determining which mines are actually placed on POV, however, we anticipate legitimate case-by-case situations where mine operators are not placed on a POV because of qualitative factors, possibly including a mine's nonproductive status. As stated in our Alert Memo response, it is critical that MSHA focus its POV enhanced inspection resources on those mine operators that have chronically failed to protect the safety and health of the miners and that continue to put miners at risk.

OIG Recommendation No 8: *Use system development life cycle techniques (analysis, design, test, implement, and maintain) to reduce the risk of errors in any POV related computer program.*

We agree with this recommendation. MSHA plans to use system development life cycle techniques to reduce the risk of errors in any POV-related computer application.

OIG Recommendation No 9: *Re-evaluate the performance standard for timely completion of laboratory tests on rock dust or any other samples that yield enforcement related data, including addressing workload fluctuations and resources needs.*

We agree that more timely testing results regarding the combustibility of coal mine dust in mines are needed to assess operator compliance with rock dusting standards. MSHA has already begun implementing improvements in this area that would also speed up the time to analyze the samples by adding new equipment and repairing an out-of-service robot that will be added to the existing robotic system.

Plans are also underway to upgrade the Mount Hope Lab to accommodate new ovens and other necessary components that will be purchased in order to keep pace with the robotics system. These steps will enable MSHA to increase testing capacity while, at the same time, implementing short-term programmatic and administrative improvements. Further, MSHA plans to contract for temporary personnel to staff the expanded laboratory. We expect significant improvements will be made to the sample turn-around times as a result of these actions.

Additionally, MSHA is encouraging actions through support of NIOSH research that will lead to use of Explosibility Meters (CEM) by mine operators. These devices would provide immediate, on-site results on combustible content to help ensure that coal dust is kept below explosive levels.

OIG Recommendation No 10: *Examine its current process and metrics for monitoring the improvement of potential POV mines to increase the likelihood that improvements are not temporary.*

MSHA agrees with this recommendation. MSHA is considering both administrative and regulatory approaches to respond to this recommendation most effectively in order to assure that mines placed in PPOV or POV status have a sustained and productive focus on hazard control and elimination.

In summary, we appreciate the careful and comprehensive work done by the OIG in reviewing the PPOV and POV program. The program, and the miners the program is intended to protect, will be improved by the insights and recommendations the OIG has provided and by MSHA's response.

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Appendix M

Acknowledgements

Key contributors to this report were Charles Allberry (Audit Director), Keith Galayda (IT Audit Director), Stephen Fowler, Michael Kostrzewa, Robert Swedberg, Jennifer Leung, Melvin Reid, Susan Rosenblum, Benjamin Brady, Samantha Cash-Johnson, Donald Evans, Richard Bryan, Aaron Talbert, Elizabeth Garcia, Norlean (Renee) Kelly, and Jennisa Paredes.

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TO REPORT FRAUD, WASTE, OR ABUSE, PLEASE CONTACT:

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