

U.S. Department of Labor

Office of Inspector General—Office of Audit

**MINE SAFETY AND HEALTH
ADMINISTRATION**



ANALYSIS OF MSHA'S MNM INSPECTION ACTIVITY DOES NOT SHOW EXCESSIVE ENFORCEMENT IN SOUTH DAKOTA

Date Issued: January 15, 2013
Report Number: 05-13-001-06-001

**U.S. Department of Labor
Office of Inspector General
Office of Audit**

BRIEFLY...

Highlights of Report Number 05-13-001-06-001, issued to the Assistant Secretary for Mine Safety and Health.

WHY READ THE REPORT

The Assistant Secretary for Mine Safety and Health is responsible for ensuring that the office of Metal and Nonmetal Safety and Health conducts appropriate safety and health inspections of metal and nonmetal (MNM) mines.

On April 7, 2011, Senator John Thune of South Dakota requested that the Office of Inspector General (OIG) determine if Mine Safety and Health Administration (MSHA) regulations were effectively and consistently applied throughout the mining industry, and particularly in South Dakota. Senator Thune's office had received complaints from a group of South Dakota MNM mine operators alleging that MSHA was unfairly issuing them violations and penalties.

WHY OIG CONDUCTED THE AUDIT

As part of our audit oversight responsibility and in response to the congressional request, we developed two metrics, violations per inspection hour and proposed penalties per violation, and performed work to answer the following questions:

1. How did violations per inspection hour and proposed penalties per violation at the complainant mines compare to those at similar mines in South Dakota?
2. How did violations per inspection hour and proposed penalties per violation at MNM mines in South Dakota compare to those in other states?
3. How did violations per inspection hour and proposed penalties per violation at MNM mines in its Rocky Mountain District compare to those in other Districts?

Our audit work covered all MNM mines and 121,047 completed inspection events from October 1, 2005, through September 30, 2011 (FY 2006 to FY 2011).

READ THE FULL REPORT

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

<http://www.oig.dol.gov/public/reports/oa/2013/05-13-001-06-001.pdf>

January 2013

ANALYSIS OF MSHA'S MNM INSPECTION ACTIVITY DOES NOT SHOW EXCESSIVE ENFORCEMENT IN SOUTH DAKOTA

WHAT OIG FOUND

Overall, our analysis did not find any significant differences between the complainant mines, South Dakota, and similar mines around the country.

We found that both of our metrics increased for all Metal and Nonmetal mines in FY 2009. This increase, however, was directly attributable to the passage and implementation of the Mine Improvement and New Emergency Response Act of 2006, which mandated much higher inspection levels. In addition, Congress provided funding for MSHA to hire 170 new inspectors that same year.

We also found that both metrics were higher for the complainant mines when we compared them to other similar mines and for the state of South Dakota when we compared it to the national average. We determined that the majority of the increases in both metrics could be traced to two of the complainant mine operators. When we excluded the data for these two operators, the results for both the complainants and South Dakota generally fell into line with their respective comparison groups.

Both mine operators appealed their penalties and both were resolved. One operator's penalties were upheld on appeal and the other operator received some reductions in its penalties.

Finally, we did not find any meaningful variances in either metric when we compared the Rocky Mountain District (of which South Dakota is a part) to other Metal and Nonmetal districts.

WHAT OIG RECOMMENDED

We made no recommendation to the Assistant Secretary for Mine Safety and Health. MSHA did not provide a written response to the draft report.

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U.S. Department of Labor

Office of Inspector General
Washington, D.C. 20210



January 15, 2013

Assistant Inspector General's Report

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United States Senator John Thune of South Dakota requested that the Office of Inspector General (OIG) determine if Department of Labor (DOL) Mine Safety and Health Administration (MSHA) regulations were effectively and consistently applied throughout the mining industry, but particularly in South Dakota. Senator Thune had received complaints from 17 South Dakota metal nonmetal (MNM) surface mine operators and contractors (complainants) that alleged MSHA's inspections had resulted in inappropriate citations and excessive monetary penalties. In response to Senator Thune's request, we conducted a performance audit to answer the following questions:

1. How did violations per inspection hour and proposed penalties¹ per violation at the complainant mines compare to those at similar mines in South Dakota?
2. How did violations per inspection hour and proposed penalties per violation at MNM mines in South Dakota compare to those in other states?
3. How did violations per inspection hour and proposed penalties per violation at MNM mines in its Rocky Mountain District (RMD)² compare to those in other Districts?

To answer these questions, we analyzed data for fiscal years (FY) 2006 through 2011. The central focus of the complaints was that MSHA was issuing inappropriate citations and excessive monetary penalties.

We developed two metrics to illustrate how MSHA was performing its enforcement activities: violations per inspection hour and proposed penalties per violation. These metrics allowed us to identify differences between the mines in our analysis. Violations per inspection hour allowed us to compare both large and small mines without regard to the amount of time they were in operation. We used the rate at which violations occurred rather than the total number of violations issued because it was likely that larger mines would receive more citations than smaller mines. In addition,

¹ Penalties are monetary amounts MSHA assesses for each violation and range from \$60 to \$60,000 per violation with a maximum of up to \$220,000 for flagrant violations.

² South Dakota is part of the Rocky Mountain District.

mines frequently open and close throughout the year. A mine open for a full year would be likely to receive more citations than one open for less time. Using the rate at which violations occurred established a common base for large and small mines, and for mines which were open for varying lengths of time.

Proposed penalties per violation illustrated differences in the average amounts of penalties assessed against various groups. We compared the average penalties assessed against four groups of mines: the complainants, South Dakota, the RMD, and all MNM mines nationwide. By comparing these groups against each other, we were able to identify differences in the amounts of penalties each was assessed.

In some cases, we also determined how many of the proposed penalties were upheld on appeal. This step provided a measure of validation to the proposed penalties: if a penalty was upheld on appeal, we concluded that the penalty and associated violation were valid.

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

Overall, after adjusting for some factors discussed below, our analysis did not find any significant differences between the complainant mines, South Dakota, and similar mines around the country.

We found the following: first, both metrics – violations per inspection hour and proposed penalties per violation – increased for all MNM mines in FY 2009. This increase, however, was directly attributable to the passage and implementation of the Mine Improvement and New Emergency Response Act of 2006 (MINER Act), which mandated much higher inspection levels. Further, Congress provided funding for MSHA to hire 170 new inspectors that same year.

Second, both metrics – violations per inspection hour and proposed penalties per violation – were higher for the complainant mines when we compared them to other comparable mines, and for the state of South Dakota, when we compared it to the national average. However, we determined that two of the complainant mine operators were responsible for the majority of the increase in both metrics due to receiving a large number of violations that year, skewing our results. When we excluded these operators, the data for both the complainants and South Dakota generally fell into line with their respective comparison groups. In one case, the operator's penalties were upheld on appeal; in another, the operator received some reductions in its penalties. In both cases, the mine operators appealed their penalties and both were resolved. However,

we excluded these two operators because they were the only two outliers in the group; neither metric for the remaining mines in the complainant group stood out.

Finally, we did not find any meaningful variances in either metric when we compared the RMD to other districts.

MSHA did not provide a written response to the draft report.

Results

Objective 1 — How did violations per inspection hour and proposed penalties per violation at the complainant mines compare to those at similar mines in South Dakota?

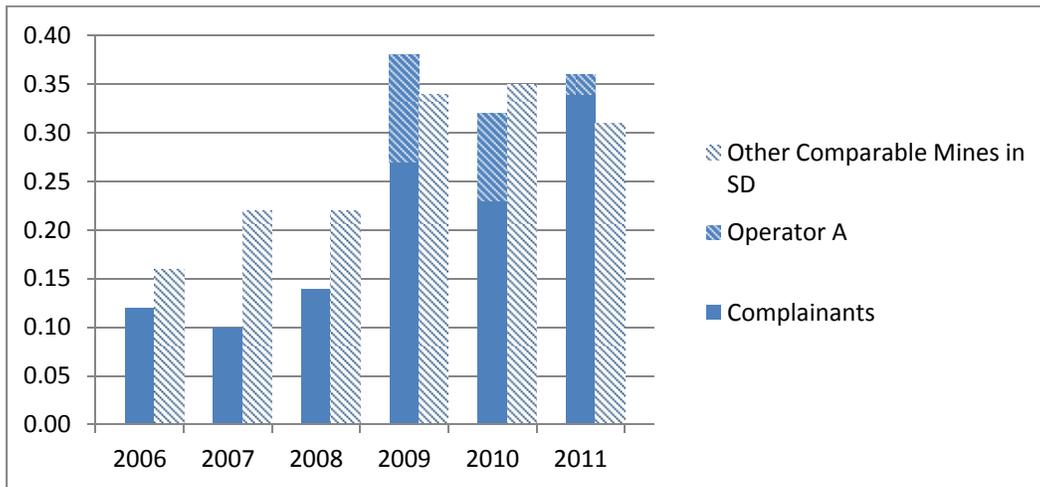
In most of the years we analyzed, the group of complainant mines was collectively issued fewer violations per inspection hour than other comparable mines in South Dakota. In FY 2009, however, violations per inspection hour were higher for the complainant mines because a single mine operator received a large number of violations, skewing the results. Likewise, proposed penalties per violation for most years in our analysis were comparable for both groups. In FY 2010, however, the same mine operator again significantly skewed our results. When we excluded this operator from both metrics in the years in question, the complainant mines, as a group, showed patterns consistent with other comparable mines in South Dakota.

Violations per Inspection Hour

In FY 2009, the complainant mines as a group were issued .38 violations per inspection hour versus the South Dakota average of .33. However, we believe this result is misleading because one complainant (Operator A) was responsible for 41 percent of the violations issued that year. When we excluded Operator A from our analysis, we found that violations per inspection hour at the remaining complainant mines were consistent with other comparable mines in South Dakota. For most other years in our analysis (FYs 2006-2011), the complainant mines as a group were issued fewer violations per inspection hour than other mines in South Dakota.

Operator A skewed the results for the entire complainant group, but none of the other operators in the group stood out in this metric. Excluding Operator A presents results that are more representative for the complainant mines as a whole.

Chart 1: Total Violations per Inspection Hour



Proposed Penalties per Violation

We found that for most years in our analysis, the complainant mines were not assessed greater proposed penalties per violation than other comparable mines. However, in FY 2010 the complainant mines, as a group, were assessed an average of \$3,082 per violation, significantly more than other comparable mines in South Dakota, which were assessed an average of only \$396 per violation. However, as before, we found that Operator A accounted for the vast majority (91 percent) of the penalties assessed against the complainant group in that year. Furthermore, a large percentage of the penalties assessed against Operator A were high-dollar penalties. As a result, and also because the complainant group was comprised of a small number of mines, this single operator severely skewed our results. Even though there was only a single operator with disproportionately large penalties, the small size of the complainant group caused the metrics to be strongly skewed. When we excluded Operator A, the remaining mines in the complainant group followed the overall average and provide a better representation of the complainant group.

We reviewed the inspections and penalties assessed against Operator A and found that this operator’s mines were inspected no more than required by law during the fiscal years in question. Therefore, the operator was not unduly targeted for additional inspections.³ Further, we found that over 89 percent of the penalties assessed during those inspections were upheld on appeal, indicating that the penalties were valid.⁴

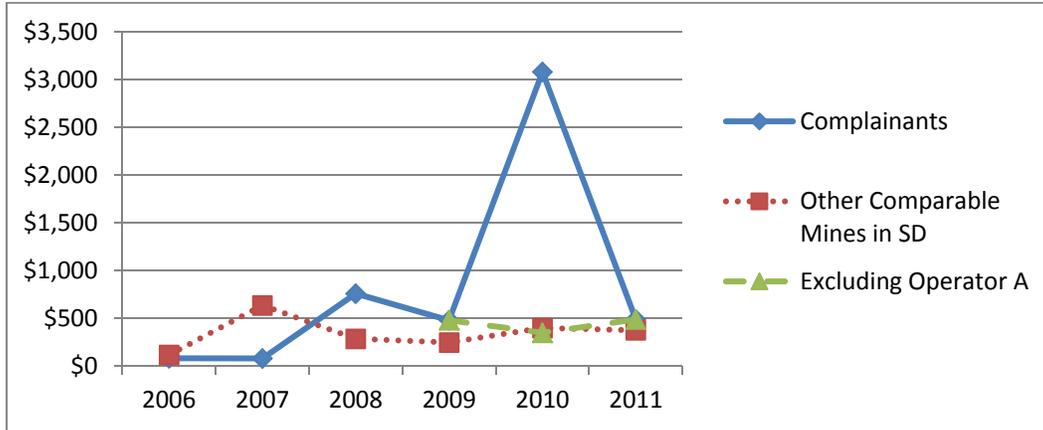
Therefore, because there was only one outlier in this group and the majority of the penalties assessed against it were upheld on appeal, we believe excluding Operator A

³ Operator A had two mines: the first had a Regular Safety & Health Inspection in FY 2009 and a combined spot and verbal inspection in FY 2010. The second had a Regular Safety & Health Inspection in FY 2009 and a spot and a verbal inspection that was also a Regular Safety & Health Inspection in FY 2010.

⁴ To date, 89 percent of the proposed penalty amounts assessed against this operator have been resolved, and only 6 percent of those have been vacated.

provides a more accurate picture of the overall group of complainants with respect to penalties per inspection hour.

Chart 2: Proposed Penalties per Violation



Objective 2 — How did violations per inspection hour and proposed penalties per violation at MNM mines in South Dakota compare to those in other states?

Violations per inspection hour for MNM mines in South Dakota increased slightly more than those in other states; however, the data we analyzed consisted of small numbers which can be disproportionately influenced by very small changes. Further, although MNM mines in South Dakota generally followed the trend in other states, there were spikes in proposed penalties per violation in two fiscal years of our analysis. Both of these spikes, however, could be traced to two operators that significantly skewed our results. Once we excluded these two operators, the remaining mines in South Dakota followed the overall averages in other states. Our analysis did not provide any evidence indicating that mines in South Dakota were unduly targeted for enforcement.

Violations per Inspection Hour in South Dakota

While violations per inspection hour increased slightly more in South Dakota than they did nationwide, we found no evidence this increase was due to any factor other than regular mine operations and inspections.

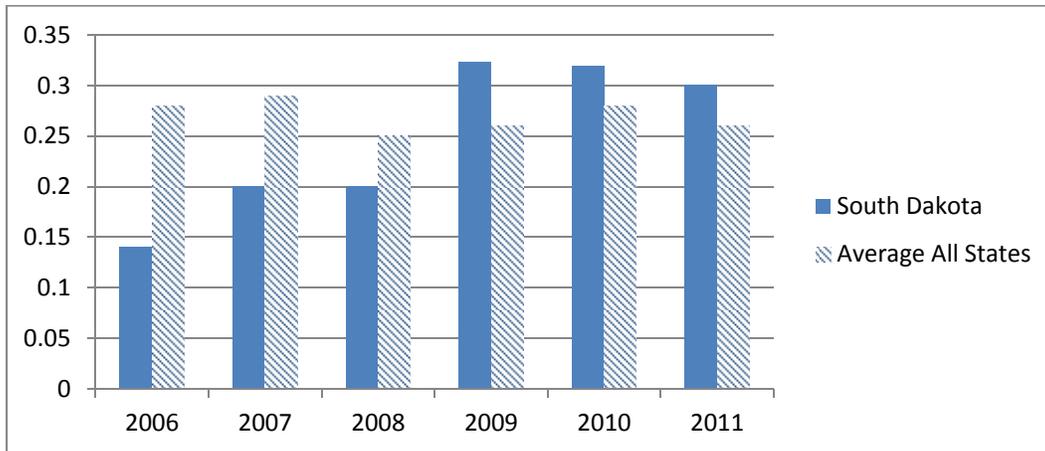
In FY 2006, South Dakota mines received approximately .14 violations per inspection hour, versus the national average of about .28 violations per inspection hour. In FY 2011, South Dakota mines increased to approximately .30 violations per inspection hour, coming closer into line with the national average of about .24 violations per inspection hour (a difference of less than ½ violation per 8-hour inspection day).

We did not exclude Operator A from our analysis in this section because it had only a minimal effect, as only a small contributor to the larger overall base of all South Dakota mines.

Sensitivity Analysis – It is important to note that while there appears to have been a greater increase in violations per inspection hour in South Dakota than in other states, the number of mines located in South Dakota is small. As such, small numbers tend to exaggerate small variations. For example, a change of only five violations in our data could result in an increase of as much as seven percent in violations per inspection hour. Therefore, although there appears to be a variance between South Dakota and the other states, this variance could be the result of small changes in data having disproportionate effects on our analysis.

Overall, mines in South Dakota appear to have experienced a slightly greater increase in violations per inspection hours than those in other states. However, nothing in our analysis indicated to us that this resulted from enforcement actions. In addition, because the data points were so small – two tenths to about three tenths of a violation per hour – very small changes in the data tended to have a disproportionate impact on the metrics. As a result, we had no evidence that this increase resulted from anything other than regular mine operations and inspections.

Chart 3: Total Violations per Inspection Hour

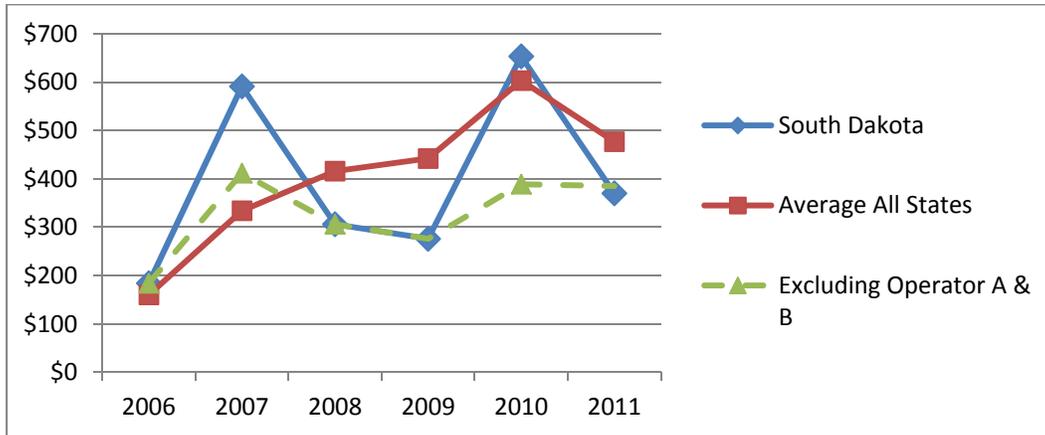


Proposed Penalties per Violation in South Dakota

We found that for most years in our analysis, mines in South Dakota were not assessed greater proposed penalties per violation than mines in all other states. However, mines in South Dakota experienced a spike in proposed penalties in FYs 2007 and 2010. In FY 2010, we found that Operator A accounted for 43 percent of the proposed penalties in South Dakota. In FY 2007, we found another mine operator (Operator B) that accounted for 36 percent of the penalties in South Dakota. Including both of these operators skewed our results. When we excluded these outlier operators, we found that the remaining mines in South Dakota generally followed the nationwide average and

have been tracking lower proposed penalties per violation than the national average since 2008. As noted earlier, the vast majority of the penalties assessed against Operator A were upheld on appeal. Conversely, Operator B contested 14 of the 23 violations assessed against it and obtained significant reductions in the associated penalties. However, in neither case were the underlying violations vacated, only the penalty amounts were reduced.

Chart 4: Proposed Penalties per Violation



Overall, we found that in the period of FYs 2006 to 2011, violations per inspection hour in South Dakota rose, but only to come into line with the national average. Further, proposed penalty amounts in South Dakota, when adjusted to exclude the two outlier operators, tracked generally lower than the average in other states. These two facts indicate to us that there is no evidence that South Dakota mines fare any differently than their counterparts in other states.

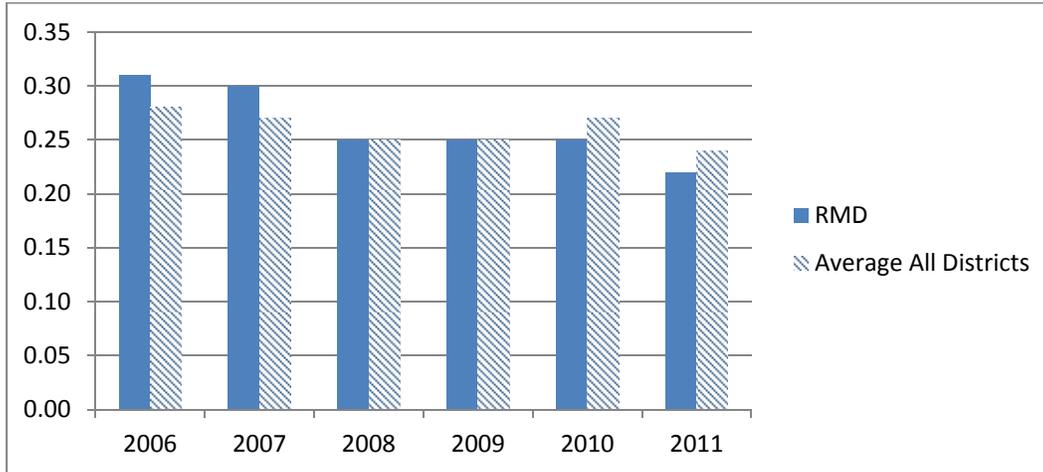
Objective 3 — How did violations per inspection hour and proposed penalties per violation at MNM mines in the Rocky Mountain District compare to those in MSHA's other Districts?

Compared to the other districts, violations per inspection hour decreased for the RMD. Further, the RMD experienced lower proposed penalties per violation for three of the six years we analyzed. In addition, the RMD had only slightly higher proposed penalties per violations for the remaining three years.

Violations per Inspection Hour in the RMD

In FY 2006, mines in the RMD were issued an average of .31 violations per inspection hour, slightly more than the nationwide average of .28. In 2011, the latest year for which information is available, mines in the RMD were issued .22 violations per inspection hour, slightly lower than the nationwide average of .24. Our results indicate that the RMD experienced a decline in violations per inspection hour from FY 2006 through FY 2011.

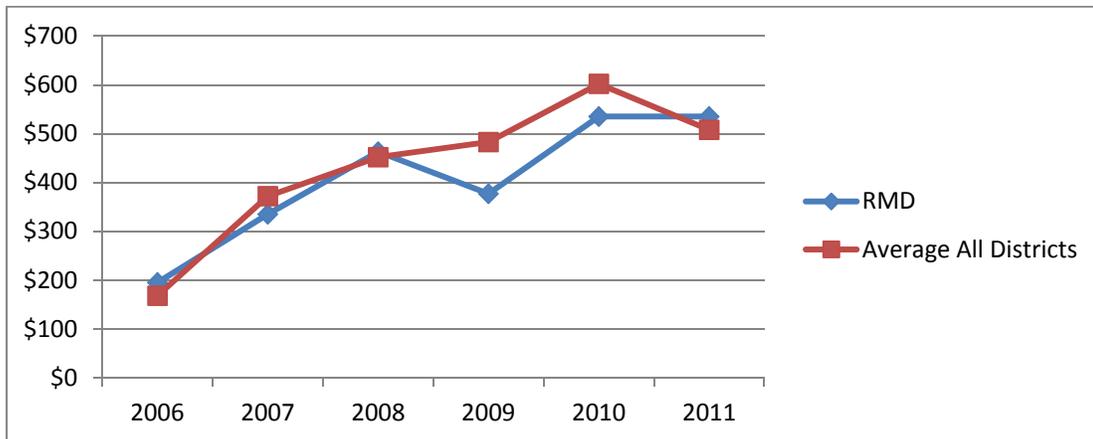
Chart 5: Total Violations per Inspection Hour



Proposed Penalties per Violation in the RMD

The RMD experienced lower proposed penalties per violation for 3 of the 6 years (FYs 2007, 2009, and 2010) we analyzed and only slightly higher proposed penalties per violation for the other 3 years (FYs 2006, 2008 and 2011) when compared to the national average for all MNM mines. For example, in FY 2007 the average proposed penalty per violation for mines in the RMD was \$335, less than the national average of \$372. Conversely, in FY 2011, proposed penalties for mines in the RMD were \$535, which was more than the national average of \$508.

Chart 6: Proposed Penalties per Violation



Conclusion

Overall, there were no significant differences between the complainants, South Dakota mines, and their respective comparison groups. We found some variations in the data in some years; however, most of the variations could be traced to two mine operators, who significantly skewed the results for their group. When these operators were excluded, we did not find any meaningful differences in the results.

As such, we conclude that any variations observed in the data may have been the result of a combination of factors, namely, increased levels of enforcement stemming from the passage of the MINER Act, higher MSHA inspector staffing levels, exaggerated effects of small changes in data, and routine mine operations and inspections. We found no evidence that the variations in the data were the result of qualitative or quantitative differences in inspections by MSHA.

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



Elliot P. Lewis
Assistant Inspector General for Audit

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Appendices

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Appendix A**Background**

The DOL OIG conducted a performance audit in response to a congressional request on April 7, 2011, by Senator John Thune of South Dakota. Based on complaints from some MNM surface mine operators, Senator Thune was concerned that MSHA regulations were not effectively applied throughout the mining industry, and particularly in South Dakota (Rocky Mountain District). The Senator provided copies of correspondence he received from mine operators and contractors alleging that MSHA's inspections had resulted in the issuance of inappropriate and unfair citations and the assessment of excessive monetary penalties.

The Federal Mine Safety and Health Act of 1977, as amended, mandates that MSHA conduct regular safety and health inspections of the Nation's mines – four times per year for underground mines and twice per year for surface mines. If inspectors find violations of mandatory health and safety standards, MSHA issues a citation or closure order and could assess a civil monetary penalty. Mine operators have the right to contest citations and orders before the Federal Mine Safety and Health Review Commission (FMSHRC).

After a series of fatal mining accidents in 2006 (Sago, Darby, and Aracoma Alma #1 mines), Congress significantly increased the minimum monetary penalties for certain types of violations through the MINER Act and appropriated funds to hire an additional 170 mine inspectors. As a result, the annual number of citations and orders MSHA issued increased by 13 percent from 140,082 in calendar year 2006 to 157,613 in calendar year 2011 and annual civil monetary penalties increased by 261 percent from \$42.8 million to \$154.3 million during the same period. As the number of citations and the amount of assessed penalties rose, so did the number and percentage of contests filed with FMSHRC.

MSHA's oversight responsibilities are divided between the Office of Coal Mine Safety and Health and Office of Metal and Nonmetal Mine Safety and Health (MNMS&H). MNM mines are located in 50 states, Puerto Rico, and the Virgin Islands. These MNM mines were assigned to 1 of the 6 MNMS&H district offices (Northeastern District, Southeastern District, North Central District, South Central District, Rocky Mountain District, or the Western District). Inspectors from the Rocky Mountain District conduct mine inspections in South Dakota as well as Arizona, Colorado, Kansas, Montana, Nebraska, North Dakota, Utah, Wyoming, and part of Idaho.

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Appendix B**Objectives, Scope, Methodology, and Criteria**

Objectives

Upon receiving the letter from Senator Thune, OIG officials met with the Senator's staff to discuss the request. Following the meeting, the OIG decided to perform an audit to address the Senator's concerns by answering the following questions:

1. How did violations per inspection hour and proposed penalties per violation at the complainant mines compare to those at similar mines in South Dakota?
2. How did violations per inspection hour and proposed penalties per violation at MNM mines in South Dakota compare to those in other states?
3. How did violations per inspection hour and proposed penalties per violation at MNM mines in its RMD⁵ compare to those in other Districts?

Scope

The audit covered all MNM mines and 121,047 completed inspection events from October 1, 2005, through September 30, 2011 (FY 2006 to FY 2011).

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

Using audit software, we created tables that combined the MNM enforcement data records contained in the different files (see Data Reliability Assessment below). Using these tables, we identified the records that were relevant to the analysis and created tables that contained only these records. The records that were relevant included the inspection events that involved the following activities.

- E01 – Regular Safety and Health Inspection
- E02 – 103 (i) Spot Inspections
- E03 – 103 (g) Written Notification Hazard Complaint Inspection
- E04 – Verbal Hazard Complaint Inspections
- E16 – Spot Inspection
- E18 – Shaft, Slope, or Major Construction Spot Inspection

⁵ South Dakota is part of the Rocky Mountain District.

E23 – Impoundment Inspection

We also included 356,974 violations issued to MNM mine operators⁶ and 353,413 violation assessments⁷ related to the 121,047 inspection events.

Senator Thune provided the OIG complaints from 20 mine operators located in the RMD, of which 17 were in South Dakota. Since the majority of the complainants were in South Dakota, we focused on that state. From the 17 South Dakota complaints, we identified 9 mine operators. Of the 17 mines, 4 performed stone mining and 13 performed sand and gravel mining. For comparison, we also identified 182 other stone or sand and gravel mines in South Dakota.

We calculated our metrics by grouping together: (1) MNM mines in each location (50 States, Puerto Rico, and the Virgin Islands), (2) MNM mines assigned to each MNM District, (3) complainant MNM mines, and (4) the other stone or sand and gravel MNM mines located in South Dakota for each FY within our audit scope.

We analyzed two metrics for inspection events that ended in each year for FY 2006 through FY 2011.

- Total violations (citations + orders) per inspection hour⁸
- Proposed penalties per violation⁹

To determine how South Dakota compared to the other 51 states, the Rocky Mountain District compared to other five MNM Districts, and the complainants' mines compared to similar mines in South Dakota, we ranked the ratios in descending order. We also identified FYs in which South Dakota, the RMD or the complainants' mines had significant ratios changes. To determine if significant changes in the ratios were an indication of elevated enforcement by MSHA, we determined whether these changes coincided with specific events (for example, enactment of new laws, MSHA special enforcement activities, etc.).

Data Reliability Assessment

To determine the reliability of the enforcement data obtained from MSHA's Program Evaluation & Information Resources (PEIR) office, 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). MSHA's PEIR office provided the following enforcement data for MNM mines:

⁶ This included some events that began in FY 2005 but were completed in FY 2006. Therefore, some violations MSHA issued during FY 2005 were included.

⁷ Of the 356,974 violations that MSHA issued from FY 2005 to FY 2011, it could have assessed penalties for 354,212, but only assessed penalties for 353,413 of the violations.

⁸ Total violations per inspection hour ratios were calculated using total on-site hours.

⁹ We determined that some violations that are assessable have not been assessed. The violations that have not been assessed were not included in the proposed penalty per violation ratio calculations, and we labeled these violations as 'unassessed violations.'

Delimited text file name	Number of records	Number of attributes	Time Period
ASSESSED_VIOLATIONS.txt	394,066	11	Violations assessed from October 1, 2005, to present (December 2011).
INSPECTIONS.txt	176,363	43	Inspection events with an end date from October 1, 2005, through September 30, 2011.
MINES.txt	48,323	64	MNM mines as of December 2011.
QTR_OPERATOR_EMPROD.txt	535,685	10	Quarterly operator employment data from FY 2006 to FY 2012.
VIOLATIONS.txt	455,353	53	Violations issued from October 1, 2004, through September 30, 2011.
	Total	181	

To determine the reliability of the data, we: (1) reviewed existing information for data attributes that we identified as key attributes, and (2) performed tests on the data, such as missing data, duplicate records, invalid data, values outside a designated range, computer processing accuracy and completeness, etc.

Specifically, we used MSHA’s data dictionary to gain an understanding of the attributes for the data MSHA provided and identified the 36 data attributes that were key to the analysis. For each key attribute, we: (1) identified input control points through review of prior OIG audit documentation and written responses provided by MSHA’s PEIR office personnel, and (2) tested the reliability and validity of the data using audit software. Based on these tests and assessments, we concluded the data were sufficiently reliable to be used in meeting the objectives.

Criteria

Federal Mine Safety and Health Act of 1977

Mine Improvement and New Emergency Response Act of 2006

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Appendix C

Acronyms and Abbreviations

DOL	U.S. Department of Labor
FMSHRC	Federal Mine Safety and Health Review Commission
FY	Fiscal Year
MINER Act	Mine Improvement and New Emergency Response Act of 2006
MNM	Metal and Nonmetal
MNMS&H	Office of Metal and Nonmetal Mine Safety and Health
MSHA	Mine Safety and Health Administration
OIG	Office of Inspector General
PEIR	Program Evaluation and Information Resources

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Appendix D

Acknowledgements

Key contributors to this report were Nicholas Christopher (Audit Director), Robert Swedberg (Audit Manager), Richard Bryan, Elizabeth Garcia, and Mary Lou Casazza.

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