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PERFORMANCE REVIEW

OFFICE OF MINERS' HEALTH, SAFETY, AND TRAINING

AUDIT OVERVIEW

West Virginia's Office of Miners' Health, Safety, and Training Is Unable to Explain Recent Increases in the Coal Mine Injury Rate. The Agency Needs to Conduct Data Analysis to Determine the Causes and Possible Solutions to Address the Increases.

Despite Significant Duplicative Responsibilities With the U.S. Mine Safety and Health Administration, the West Virginia Office of Miners' Health, Safety, and Training Should Continue to Enforce the State's Mine Safety and Health Standards.



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Note: On Monday, February 6, 2017, the Legislative Manager/Legislative Auditor's wife, Elizabeth Summit, began employment as the Governor's Deputy Chief Counsel. Most or all the actions discussed and work performed in this report occurred after this date. However, the Governor's Deputy Chief Counsel was not involved in the subject matter of this report, nor did the audit team have any communications with her regarding the report. As Deputy Chief Counsel, the Legislative Auditor's wife is not in a policy making position within the Executive Branch. Therefore, the Performance Evaluation and Research Division does not believe there are any threats to independence with regard to this report as defined in A3.06.a and A3.06.b of the Generally Accepted Government Auditing Standards. Furthermore, the Legislative Auditor has instructed the Director of Performance Evaluation and Research Division to document and discuss any issues he believes are a threat to the division's independence with the President of the Senate and the Speaker of the House due to Ms. Summit's position.

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EXECUTIVE SUMMARY

The Legislative Auditor conducted an Agency Review of the Department of Commerce (DOC) pursuant to W.Va. Code §4-10-8(b)(2). As part of this review we conducted a performance audit on the Office of Miners' Health, Safety, and Training within the DOC. The Office of Miners' Health, Safety, and Training provides both financial assistance and management advice to schools, state, and free and public libraries in the state. The objectives of this audit were to answer the following questions:

- Why has West Virginia's injury rate steadily increased since 2012 after years of declines?
- Should MHST's enforcement program be continued despite duplication with the United States Mine Safety and Health Administration?

The highlights of this review are discussed below.

Frequently Used Acronyms in this Report

MHST: Office of Miners' Health, Safety, and Training

MSHA: United State Mine Safety and Health Administration

Report Highlights

Issue 1: West Virginia's Office of Miners' Health, Safety, and Training Is Unable to Explain Recent Increases in the Coal Mine Injury Rate. The Agency Needs to Conduct Data Analysis to Determine the Causes and Possible Solutions to Address the Increases.

- While the State experienced years of declines in the injury rate throughout the 2000s and into the early 2010s, the injury rate reversed course in 2013 steadily increasing since then.
- The MHST offered several reasons for the relatively high injury rate, but cannot state categorically the cause of the increase.
- To assess its own performance and the mine safety environment, MHST must set a standard for achievement.

Issue 2: Despite Significant Duplicative Responsibilities With the U. S. Mine Safety and Health Administration, the West Virginia Office of Miners' Health, Safety, and Training Should Continue to Enforce the State's Mine Safety and Health Standards.

- Two separate government entities regulate mining in West Virginia: the West Virginia Office of Miners' Health, Safety, and Training (MHST), and the United States Mine Safety and Health Administration (MSHA). Both entities inspect the same mines in the state and the same number of times annually.

- West Virginia is 1 of 13 states with state-level mine inspection functions concurrent with the federal government. States with state mine inspections had a higher average injury rate from calendar years 2000 through 2017 and is likely the result of greater scrutiny over mining operations than states without state-level regulations.
- Underreporting is a threat to the safety of miners as accurate injury data are necessary to identify trends and allocate resources to better protect miners. Mines that underreport injuries are inherently less safe. Accurate reporting of injuries is essential to regulatory agencies ability to identify feasible solutions to create safer working environments.
- Both the United Mine Workers' of America and the West Virginia Coal Association agree that MHST's enforcement program should continue.

Recommendations

1. *The Legislative Auditor recommends the MHST benchmark injury rates for both surface and underground mining.*
2. *The Legislative Auditor recommends the MHST take a proactive approach to mine health and safety by conducting West Virginia specific analyses regarding mine health and safety to develop solutions to reduce mine injuries.*
3. *The Legislative Auditor recommends MHST review causes and circumstances surrounding injuries and make recommendations to improve regulations or develop new training programs to address the causes.*
4. *The Legislative Auditor recommends MHST, as part of its increased level of data analysis, look at what influence human behavior has on injuries in West Virginia's mines and consider the use of mine safety analysis visits.*
5. *The Legislative Auditor recommends continuation of the Office of Miners' Health, Safety, and Training.*
6. *The Legislative Auditor recommends the Office of Miners' Health, Safety, and Training work with the Office of the Insurance Commissioner on identifying a reporting mechanism to allow access to workers' compensation injury data to identify instances of underreporting.*
7. *The Legislative Auditor recommends, as part of adding a data analysis function, MHST conduct audits of operators to identify instances of underreporting.*

PERD's Response to Agency's Written Response

On September 8, 2018, PERD received a written response from the Director of the Office of Miners' Health, Safety, and Training, which can be found in Appendix F. The Director did not state if he agreed with

the recommendations contained within the report. The Director did choose sections of the report for which he provided additional information. Selected areas are discussed below:

Agency Response: *“During meetings and conversations with PERD staff agency representatives stated reasons that we believe are contributing factors in the increased injury rates. Some of which are listed below.*

- *With decrease of operations, coal miners are fearful of losing their jobs, therefore will take more risks when performing their job.*
- *Younger coal miners not properly trained by more experienced miners.*
- *Substance abuse problem in the mining industry, with the opioid epidemic.*
- *Older workforce trying to do more, and physically not able, therefore resulting in more injuries.*
- *Tougher mining conditions in WV compared to other underground coal producing states.*
- *Companies filing bankruptcy.”*

PERD Response: While the agency did provide several possible reasons for the increasing injury rate, PERD’s opinion remains unchanged as MHST did not provide data to support its assertions. In addition, the agency did not address the specific injuries driving the increase as PERD notes in the report. PERD believes that following the recommendations contained in the report, specifically data analysis to identify which factor is driving the increasing injury rate and then partnering with either Marshall University or West Virginia University to identify solutions to mitigate the factor would likely lead to a lower injury rate.

Agency Response: *“We believe the following steps could be taken to assist MHST in its accident/injury data analyses.*

- *The agency working with the private sector (BrickStreet) and the WV Insurance Commission by having access to data on reported injuries and accidents would greatly assist MHST in analyzing accidents.*
- *The agency needs immediate access to, and exchange of information with the State Medical Examiners’ Office as it relates to coal mining deaths. This would tremendously assist MHST to understand the cause of death, and a quicker response if needed, to prevent future accidents. MHST understands and is agreeable to the training of pertinent staff for HIPPA compliance to attain this information.”*

PERD Response: PERD agrees with the agency and is supportive of accessing workers’ compensation information as well as any other data that would aid in identifying causes of injuries and fatalities.

Agency Response: *“The agency opposes reducing coal mine inspections in WV. We believe the reduction of compliance (enforcement) inspections would put miners in harm’s way and at a greater risk for serious or fatal injury. We agree that we need to look at human behavior. If you look at the history of coal mine fatalities, it will clearly reflect some were caused by negligence or carelessness of the victim or a co-worker, however it is more accurate to say that almost all coal mine fatalities, violations of the W.Va. Code or Administrative Regulations were violated either by operator, employees, and sometimes the victim when the accident occurred.”*

PERD Response: PERD did not recommend the reduction of coal mine inspections in West Virginia. PERD recommended the agency look at the influence of human behavior and consider the use of mine safety analysis visits. The intent is that the mine safety visits would augment the existing inspections.

Agency Response: *“We strongly disagree with the statement “In addition, MHST is a significant expense to the State, requiring approximately \$14 million annually to fund.” The agency takes the position that we don’t understand why this statement was made during a Performance Review when in our opinion a complete review was not conducted of the agency.”*

PERD Response: This is a statement of fact. In FY 2017, \$9,371,356 in General Fund dollars and special revenue funds of \$4,456,589 represented the majority of the agency’s budget. The intent of this statement was not negative, but rather to justify the audit objective of determining the continued need for a relatively large organization that significantly duplicates the work of a federal agency.

ISSUE 1

West Virginia’s Office of Miners’ Health, Safety, and Training Is Unable to Explain Recent Increases in the Coal Mine Injury Rate. The Agency Needs to Conduct Data Analysis to Determine the Causes and Possible Solutions to Address the Increases.

Issue Summary

The West Virginia Office of Miners’ Health, Safety, and Training’s (MHST) most important outcome measure is the coal mine injury rate. While the State experienced years of declines in the injury¹ rate throughout the 2000s and into the early 2010s, the injury rate reversed course in 2013 steadily increasing since then. The MHST offered several reasons for the relatively high injury rate, but cannot state categorically the cause of the increase. The inability to explain the change in the injury rate is due to two main reasons. First, MHST does not set benchmarks for the overall injury rate, injury rates by mining activity (surface and underground), injury rates by injury type (such as slips and falls), or against other states. Establishing benchmarks allows MHST to not only identify best practices, but to identify potentially correctable issues and improves mine safety. The second reason is the absence of data analysis. Data analysis would enable MHST to identify the root cause of the increasing injury rate. Then, MHST, in conjunction with the Coal Mine Safety Board, can create regulations to address the root cause and potentially improve mine safety.

The MHST offered several reasons for the relatively high injury rate, but cannot state categorically the cause of the increase.

After Years of Declines, West Virginia’s Coal Mine Injury Rate Increased Each Year Since 2013.

Since 1883, when the state hired the first mine inspector, State law provided for the enforcement of regulations meant to protect the health and safety of all persons employed in the state’s mines. In 1905, the Legislature created the West Virginia Department of Mines. Since then, West Virginia has maintained a state agency in some form regulating the mining industry – with the Department of Mines merging with other state agencies to form the Department of Energy in 1985. After a reorganization in 1991, the Department of Energy became the Office of Miners’ Health, Safety, and Training.

Data analysis would enable MHST to identify the root cause of the increasing injury rate.

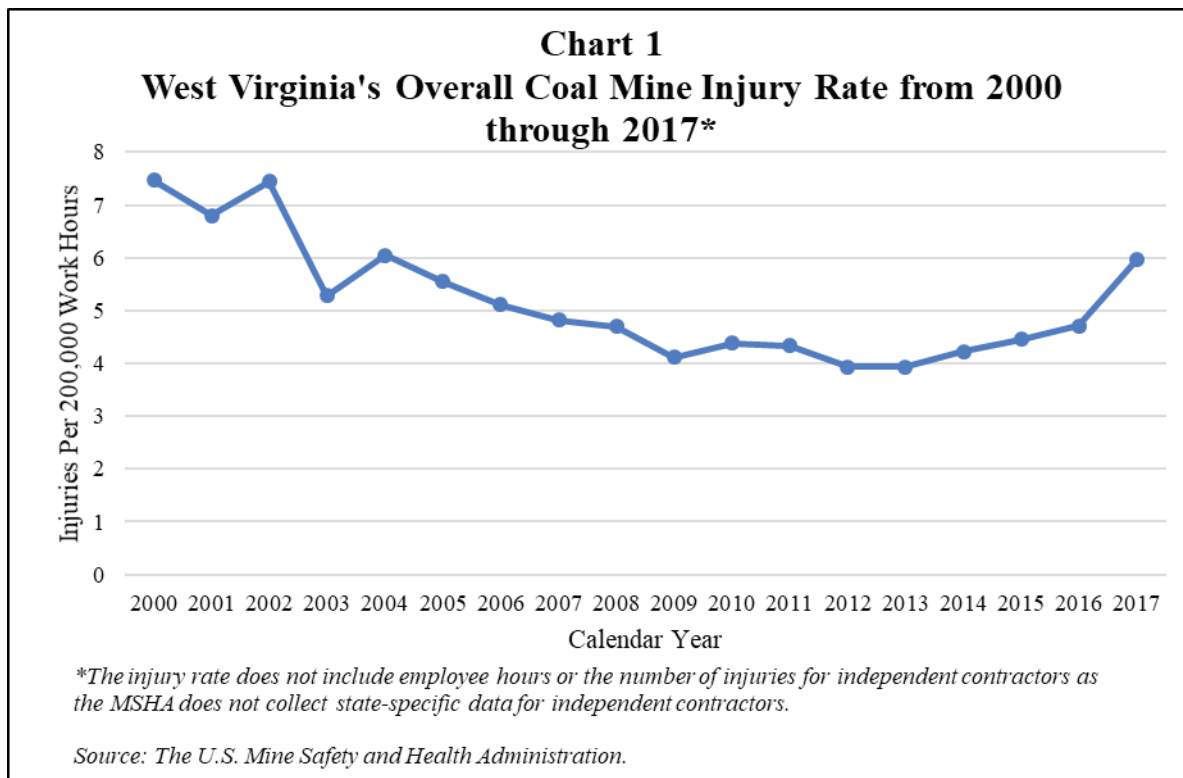
In addition to inspections, MHST operates four mine rescue teams, administers certification examinations, and maintains a safety

¹ *Injuries include all reportable occupational injuries and illnesses resulting from a single incident in the work environment.*

information computer system to track mine production and permits. However, as written in *W. Va. Code §22A-1-1(b)*, the MHST's prime consideration is the "safety and health of persons employed within or at the mines of the state." Therefore, MHST's most important outcome measure is the coal mine injury rate.

As shown in Chart 1, West Virginia's overall coal mine injury rate gradually declined from calendar years 2000 through 2012. However, in 2013 the trend reversed and the injury rate steadily increased². Due to data indicating an increasing injury rate, PERD staff sought to determine why the injury rate increased from 2013 to 2017 and determine steps MHST can take to address the issue.

West Virginia's overall coal mine injury rate gradually declined from calendar years 2000 through 2012. However, in 2013 the trend reversed and the injury rate steadily increased.



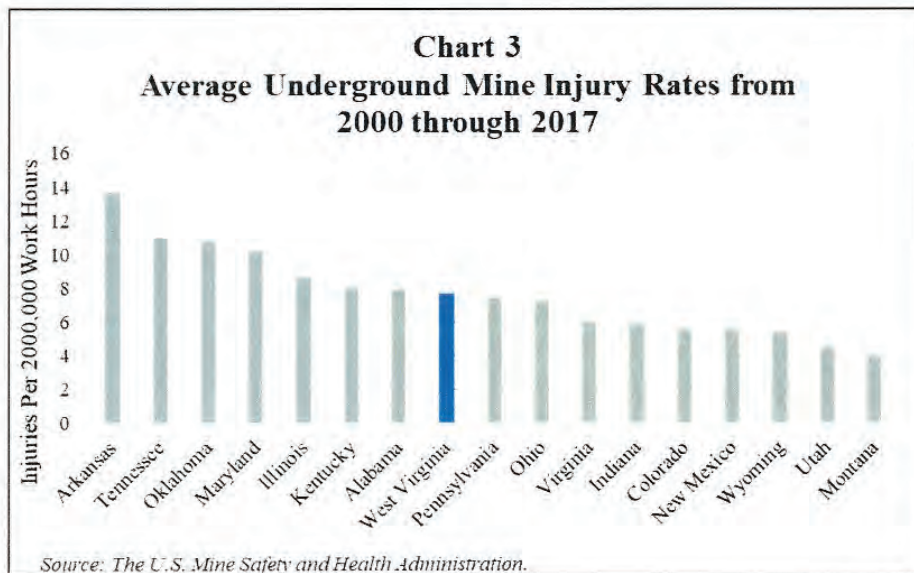
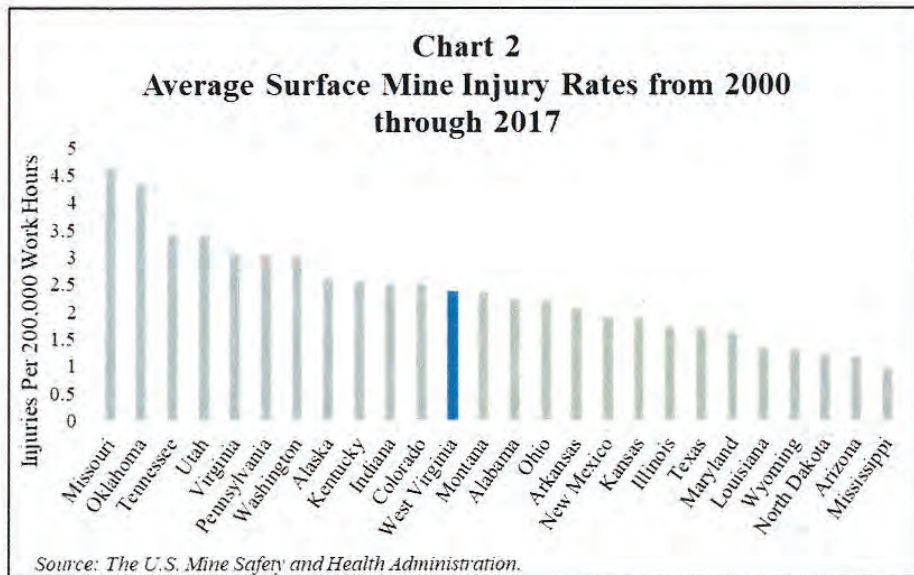
West Virginia's Underground and Surface Mine Injury Rates Are Close to the National Average.

For comparison, PERD calculated the injury rates for all coal producing states from 2000 through 2017. During that time, 26 states reported coal production to the U. S. Mine Safety and Health

² In 2017, West Virginia also experienced the highest level of fatalities since 2010, the year of the Upper Big Branch mine disaster.

Administration (MSHA); however, not all states producing coal have underground coal mining. In fact, underground coal mining occurred in 17 of the 26 states reporting coal production from 2000 through 2017. Since data show surface mines generally experience fewer injuries than underground mines, PERD calculated surface coal mine injury rates and underground coal mine injury rates for all coal producing states. As shown below in Charts 2 and 3, West Virginia’s injury rates are near the center of all states for both surface and underground mines despite the recent uptick in the overall injury rate. While West Virginia is near the middle of all coal producing states, the State still has room for improvement.

Underground coal mining occurred in 17 of the 26 states reporting coal production from 2000 through 2017.



West Virginia’s injury rates are near the center of all states for both surface and underground mines despite the recent uptick in the overall injury rate.

MHST's Achievable Injury Rate

Although West Virginia's injury rates are in the middle when compared nationally, the data, in isolation, provides no information about the performance of MHST nor state of mine safety in West Virginia. To assess its own performance and the mine safety environment, MHST must set a standard for achievement. MHST's standard identified in the Governor's Executive Budget Operating Detail is "reduce the miners' accident incidence rate each year." Following the statement, the budget includes actual accident incidence rates in the past and the estimated rates going forward. However, MHST does not state a specific goal or identify a benchmark. In fact, the absence of benchmarks prohibits MHST from measuring and assessing against a standard to identify areas for improvement.

While no level of injuries is acceptable, it is important to establish defined, achievable goals. Statistics derived from data analysis, such as mean, median, correlation coefficient, and normal operating range, help an agency produce a gap analysis. The gap analysis, which identifies the difference between operational performance and the benchmark, can then be used to develop solutions towards meeting the benchmark.

As part of this audit, PERD conducted an analysis to determine an achievable injury rate for the state. Since there is a wide variance in the amount of coal mining throughout the U. S., PERD first looked at state coal mining production comparable to West Virginia. As shown in Table 1, Wyoming is clearly the largest coal producing state in terms of tonnage of coal produced. However, behind Wyoming is West Virginia and two neighboring states: Kentucky and Pennsylvania.

The absence of benchmarks prohibits MHST from measuring and assessing against a standard to identify areas for improvement.

West Virginia had more employee hours than any other coal producing state from 2000 through 2017.

Table 1		
Top 5 Coal Producing States by Production		
Ranking	State	Coal Production* from 2000 through 2016
1	Wyoming	6,796,170
2	West Virginia	2,303,534
3	Kentucky	1,765,708
4	Pennsylvania	1,052,007
5	Texas	733,200
*In thousands of tons		
Source: PERD analysis of the U. S. Energy Information Administration data.		

PERD then reviewed the number of employee hours worked for all coal producing states. As shown in Table 2, West Virginia had more employee hours than any other coal producing state from 2000 through 2017. Once again, Kentucky and Pennsylvania followed West Virginia

in the rankings. Given this fact and the fact that all three states have a relatively high amount of underground coal production, PERD used Kentucky and Pennsylvania as similar states in our effort to establish an achievable injury rate.

Ranking	State	Total Employee Hours from 2000 through 2017
1	West Virginia	771,010,006
2	Kentucky	611,736,088
3	Pennsylvania	292,502,525
4	Wyoming	220,230,631
5	Virginia	179,005,346

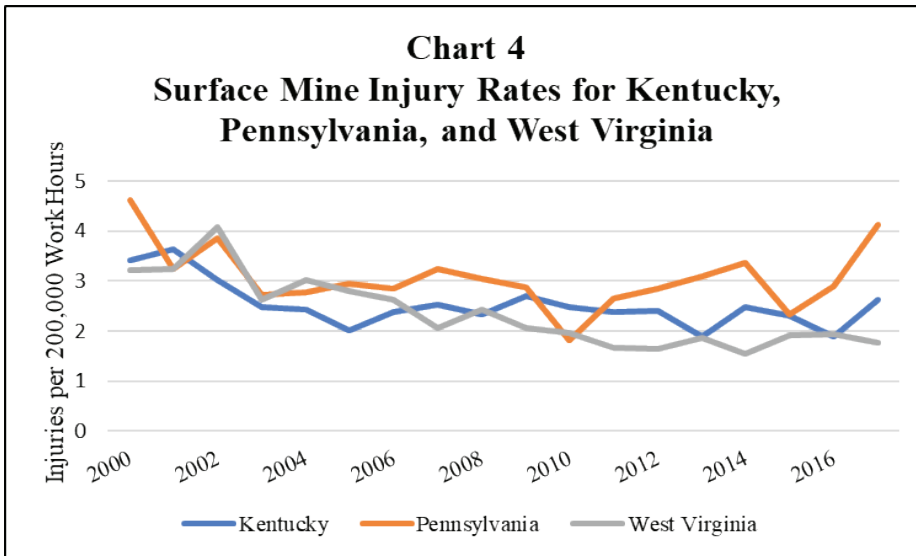
Source: PERD analysis of the U. S. Mine Safety and Health Administration data.

As previously mentioned, surface mines typically experience fewer injuries than underground mines. To ensure a fair comparison, it is important to have achievable injury rates for both surface and underground mines.

As shown in Chart 4, when comparing West Virginia’s surface mine injury rates to Kentucky and Pennsylvania’s surface mine injury rates, West Virginia compares favorably. Since 2009, West Virginia’s surface mine injury rate consistently remained below 2.0³ injuries per 200,000 work hours, and averaged 1.8 since the overall uptick began in 2013. In addition, with limited exceptions, West Virginia’s surface mine injury rate is below both Kentucky and Pennsylvania. However, rather than accept an injury rate of 2.0 as the status quo and set it as the benchmark, MHST should strive to reduce the injury rate to the greatest degree possible. **Given the lowest injury rate achieved by any of the three states within the last 18 years is West Virginia’s injury rate of 1.55 injuries per 200,000 work hours in 2014, MHST should set a benchmark between 1.55 and 2.0 as an achievable goal for West Virginia’s surface mines.**

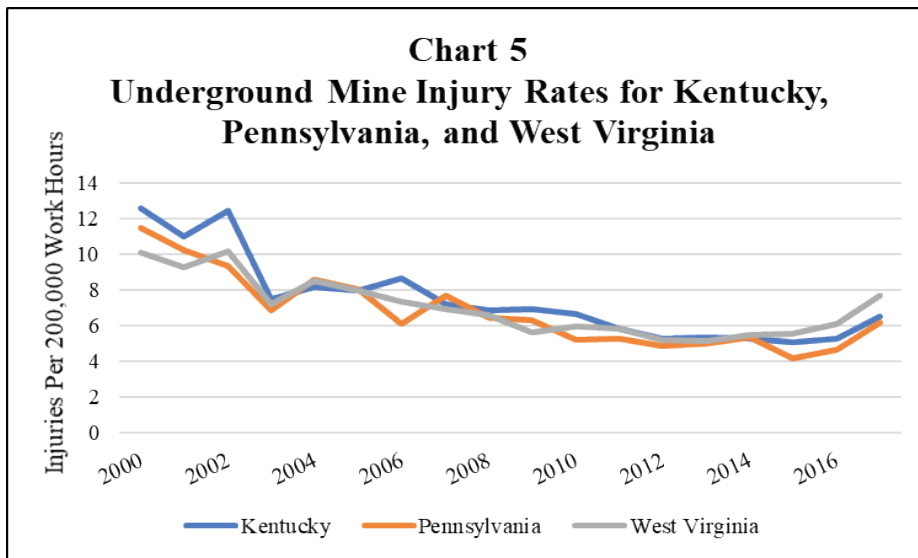
MHST should set a benchmark between 1.55 and 2.0 as an achievable goal for West Virginia’s surface mines.

³ The injury rate is the number of fatal and non-fatal injuries per employee hours multiplied by 200,000 for standardization.



When comparing West Virginia's underground mines injury rates to Kentucky's and Pennsylvania's underground mine injury rates, West Virginia does not compare as favorably. As shown in Chart 5, all three states injury rates decreased until 2013, and then trended upwards. However, West Virginia's injury rate is consistently higher than Kentucky and Pennsylvania. Since 2013, West Virginia's underground mine injury rate averaged 6.0 injuries per 200,000 work hours while Kentucky averaged 5.5, and Pennsylvania averaged 5.0. In addition, Pennsylvania's injury rate dropped as low as 4.2 in 2015, and 4.7 in 2016. As with surface mining, PERD believes MHST should strive to reduce the injury rate to the greatest level possible. **Since the lowest underground injury rate West Virginia experienced is 5.2 injuries per 200,000 work hours in 2013, PERD concludes that MHST should set a benchmark between 5.0 to 5.5 as an achievable goal for West Virginia's underground mines.**

MHST should set a benchmark between 5.0 to 5.5 as an achievable goal for West Virginia's underground mines.



The goal of benchmarking is to improve performance by providing a starting point for establishing the gap between where the agency currently is and where it desires to be. Moreover, while PERD recommends MHST establish agency targets, the agency should develop action plans to move toward its goals as part of the process. Benchmarking is a continuous process and should not end with the initial establishment of goals. Rather, as technology and equipment advances, MHST should adjust the achievable injury rates going forward.

The Legislative Auditor finds it concerning that the agency responsible for ensuring the safety of miners is unable to explain the recent increase in the injury rate.

MHST’s Lack of Data Analysis Hinders the Agency’s Ability to Identify Causes of Fluctuations in the Injury Rate.

PERD staff met with MHST leadership to determine why West Virginia’s overall coal mine injury rate is increasing. MHST leadership discussed several possible reasons but did not provide any data or research to support their reasons. **The Legislative Auditor finds it concerning that the agency responsible for ensuring the safety of miners is unable to explain the recent increase in the injury rate.**

Through discussions with MHST leadership, PERD identified MHST’s lack of data analysis as one of the main reasons the agency is unable to explain the increasing injury rate. MHST’s annual reports demonstrate the agency collects a substantial amount of data on the State’s mining industry. MHST informed PERD that “each regional supervisor regularly reviews accidents that have occurred in his region. Also, the safety instructors in each regional office reviews an operation’s accidents

and frequency rates when evaluating their annual comprehensive mine safety review.” However, MHST does not have an in-house function dedicated to analyzing the data the agency collects. The agency does contract with an in-state information technology company to perform limited data analysis for the agency. However, the data analysis focuses on injuries during individual years rather than analyzing injuries over time, looking at the causes of injuries, any geographical or seasonal relationships, or types of analyses. **Consequently, the Legislative Auditor finds MHST can greatly improve upon its current level of data analysis.**

Many major pieces of federal legislation regarding mine safety result from major mining disasters, and, overall, the mining industry is reactive in terms of health and safety regulations. Data analysis would allow MHST to become proactive in its approach to mine health and safety. At the federal level, the National Institute for Occupational Safety and Health (NIOSH) conducts research and data analysis to identify trends in injuries and illnesses, develop solutions to reduce mine injuries and illnesses, and propose new regulations to prevent more injuries and illnesses. While MHST and the WV Board of Coal Mine Health and Safety can use NIOSH research to influence mine health and safety regulations, it is important to conduct West Virginia-specific data analysis using the data MHST collects. **Therefore, the Legislative Auditor recommends MHST take a proactive approach to mine health and safety by conducting West Virginia specific analyses regarding mine health and safety to develop solutions to reduce mine injuries. Specifically, MHST should partner with the Marshall University Center for Environmental, Geotechnical, and Applied Sciences or the West Virginia University Department of Occupational and Environmental Health Sciences to further assist in identifying solutions to reduce injuries.**

Injuries Classified by MSHA as “Handling of Materials” and “Slip or Fall of Person” Have Contributed the Most to the Increasing Injury Rate.

To answer the question of why West Virginia’s injury rate increased each year since 2013, PERD conducted an analysis of coal mine injuries to identify the more prevalent injuries. As shown below in Table 3, PERD calculated the average injury rate for all injury classifications for the four years before and after 2013. Comparing the average injury rates for the four years before and after 2013 identifies the types of injuries that became prevalent. At the top of the list are injuries classified by MSHA as “Handling of Materials” and “Slip or Fall of Person.” Compared to the rest of the injury classifications, these two types of injuries contributed the most to the increasing injury rate.

The Legislative Auditor finds MHST can greatly improve upon its current level of data analysis.

The Legislative Auditor recommends MHST take a proactive approach to mine health and safety by conducting West Virginia specific analyses regarding mine health and safety to develop solutions to reduce mine injuries.

Table 3
Differences in Injury Rates for Years 2009-2012 and 2014-2017

Injury Classification⁴	Average Injury Rate from 2009-2012	Average Injury Rate from 2014-2017	Injury Rate Difference
Handling Material	1.254	1.677	0.423
Slip or Fall of Person	0.797	0.911	0.115
Exploding Vessels Under Pressure	0.006	0.034	0.028
Stepping or Kneeling on Object	0.073	0.099	0.026
Other	0.058	0.083	0.025
Striking or Bumping	0.069	0.093	0.024
Electrical	0.034	0.056	0.022
Hand Tools	0.495	0.516	0.021
Powered Haulage	0.433	0.449	0.016
Fall of Roof or Back	0.387	0.401	0.015
Explosives and Breaking Agents	0.000	0.003	0.003
Falling, Rolling, or Sliding Rock or Material of Any Kind	0.018	0.020	0.002
Fire	0.003	0.005	0.002
Non-Powered Haulage	0.006	0.007	0.002
Entrapment	0.000	0.000	0.000
Inundation	0.000	0.000	0.000
Impoundment	0.001	0.000	-0.001
Hoisting	0.004	0.001	-0.003
Fall of Face, Rib, Side or Highwall	0.115	0.110	-0.005
Machinery	0.404	0.374	-0.029
Ignition or Explosion of Gas or Dust	0.035	0.002	-0.033

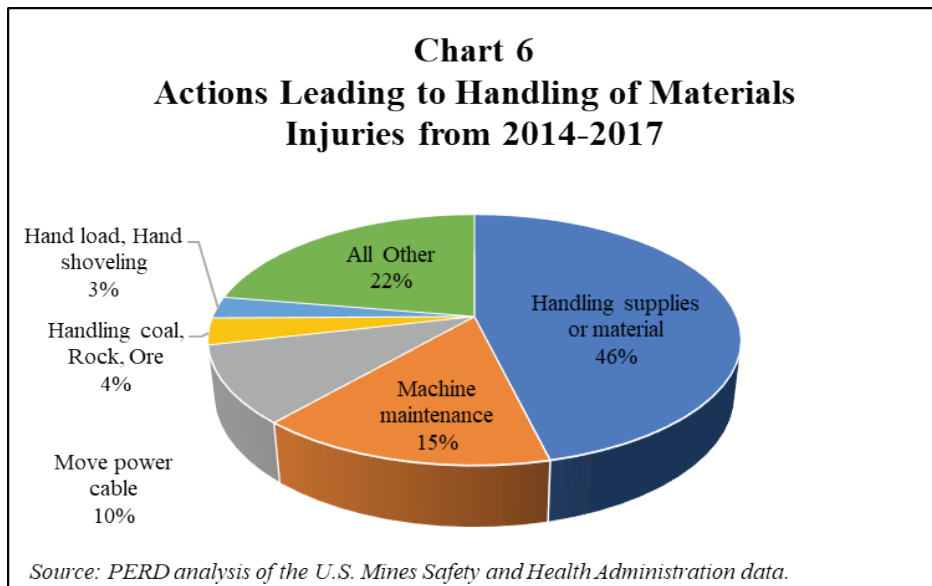
Source: PERD analysis of the U. S. Mine Safety and Health Administration's data.

Unlike some of the other injury classifications, “Handling of Materials” and “Slip or Fall of Person” are not injuries unique to the mining industry. Given the challenging working conditions, it is not reasonable to expect complete elimination of these two types of injuries. However, MHST needs to address the increased prevalence of “Handling of Materials” and “Slip or Fall of Person” injuries. To address these two types of injuries, it is important to determine the causes of the injuries. This is where data analysis can help MHST.

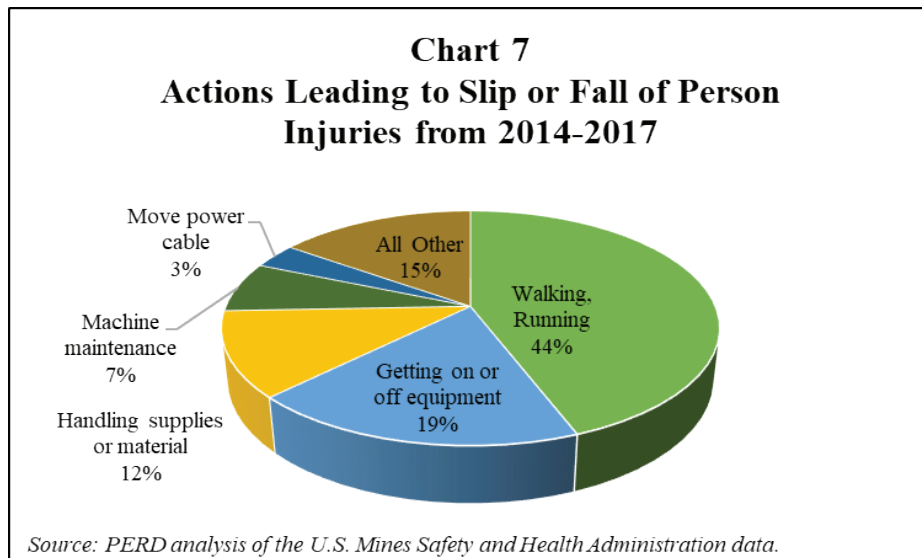
⁴ See Appendix E for a description of each injury classification.

PERD Found That Over-Exertion Is a Leading Cause of “Handling of Materials” Injuries and “Slip or Fall of Person” Injuries.

To determine the cause of the increased prevalence of “Handling of Materials” and “Slip or Fall of Person” injuries, PERD first evaluated the actions performed by an individual at the time of injury. As shown below in Chart 6, handling of supplies or material is most common cause for “Handling of Materials” injuries. Handling supplies or material covers a wide array of actions such as pulling rope, loading cinder blocks into a bucket, or removing tires from a truck.



In addition, walking and running are the top activities performed that lead to “Slip or Fall of Person” injuries (see Chart 7). Walking and running include a wide range of actions, such as slipping while walking on a coal pile to twisting an ankle after stepping in a hole.



In addition, PERD reviewed the events that directly triggered “Handling of Materials” and “Slip or Fall of Person” injuries. As shown in Chart 8 and Chart 9, over-exertion is a major cause of the two types of injuries. For “Handling of Materials” injuries, over-exertion can include lifting heavy objects like rock dust bags from a pallet to a transport vehicle. On the other hand, PERD found over-exertion in “Slip or Fall of Person” injuries occur in a variety of ways, including: when employees attempt to enter or exit machinery and trip or fall, tripping over a hole while conducting equipment examinations, or slipping on a pile of coal while servicing equipment.

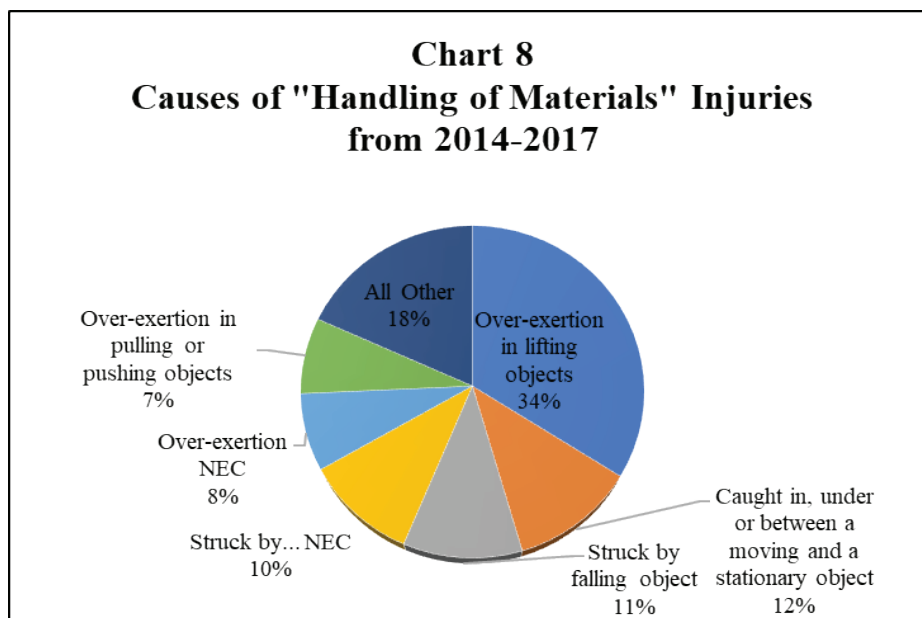
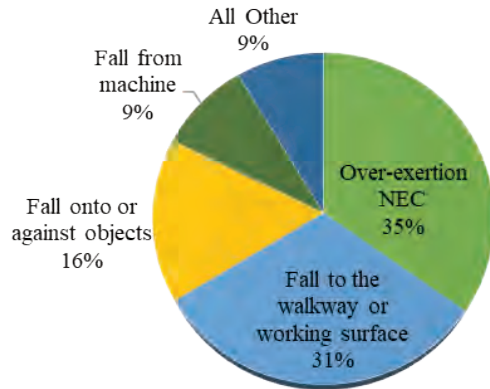


Chart 9
Causes of "Slip or Fall of Person" Injuries
from 2014-2017



MHST Needs to Evaluate Potential Solutions to Reduce the Increasing Prevalence of “Handling of Materials” and “Slip or Fall of Person” Injuries.

While PERD identified “Handling of Materials” and “Slip or Fall of Person” as the leading cause of the increasing injury rate, PERD is unable to identify the cause of the increase in these injuries due to the volume of data needed to complete the analysis as well as the technical expertise needed to interpret the information. Additional analysis, such as conditions of the mine at the time of accident, location, age of the miner, experience of the miner, and specific details from the injury report about the events happening as the injury occurred are needed to thoroughly identify the cause of the spike in injuries. As previously stated, it is unlikely these two types of injuries will be eliminated due to the challenging work in the mining industry. However, by examining the causes, MHST can research potential solutions to reduce the incidence rate of the injuries. At the federal level, NIOSH conducted or sponsored several reports on materials handling injuries and slip, trip, or fall injuries/fatalities, including some that are specific to the mining industry. PERD conducted a survey of several NIOSH reports identifying potential solutions for the two types of injuries. Below is a summary of a few of the solutions found in the NIOSH reports:

By examining the causes, MHST can research potential solutions to reduce the incidence rate of the injuries.

Potential solutions for “Handling of Materials” injuries:

- *Mobile Manipulator System:* An assisted lifting device that allows workers to lift heavy objects. The system can be effective at loading and unloading object, which is a leading cause of “Handling of Materials” injuries. However, NIOSH researchers point out several drawbacks, including: lack of mobility, instability, no self-leveling, and excessive height and length. The system may also be cost-prohibitive for some mining operations.
- *In-Mine Hoist System:* As its name suggests, an in-mine hoist system is a system often suspended from a place of height that hoists objects using chains/ropes and pulleys. NIOSH researchers pointed out that an in-mine hoist system is especially beneficial in situations where other materials handling equipment is unavailable or inaccessible since the hoisting system does not require power and can be used in areas with space limitations.
- *Training/Behavior Modification/Safety Criteria:* NIOSH researchers pointed out that “on-site training is an effective tool for the prevention of job-related injuries or deaths.” With training, the goal is to show miners the correct way to lift an object before a miner risks an injury by lifting an object incorrectly. The researchers also stress the importance for mining companies to provide safety criteria and for miners to follow the safety criteria, “even if the lifting job is delayed waiting for proper help or equipment.”

Potential solutions for “Slip or Fall of Person” injuries:

- *Improved Lighting:* In a 2007 study, NIOSH research indicates increased illuminance from cap lamps corresponds with an increase in visual performance. Specifically, the researchers found that LED lights enabled test subjects to detect objects more quickly than incandescent lights. The practical implications of the NIOSH study are that lighting effects a person’s visual performance, which subsequently affect the person’s ability to prevent slip, trip, or fall injuries.
- *Improved Surfaces:* NIOSH researchers point out that MSHA does not list “specific guidelines or regulations... for the use of grated metal inclines in mining plants.” However, the researchers found that the level of inclines and the pattern of the metal can affect the friction of the surface, which in turn affects the likelihood of a slip or fall injury. By setting guidelines on the level of inclines and the pattern of metal, MHST could help reduce future slip or fall injuries.

- *Hazardous Area Barriers:* When examining the cause of slip, trip, and fall fatalities at surface mines, NIOSH researchers concluded that most fatalities occurred as a result of falling from heights. The researchers reasoned that restricting access to hazardous areas could prevent some of the fatalities.

PERD staff cannot make recommendations for specific MHST regulations on pieces of equipment or safety criteria. However, as handling of materials injuries and slip, trip, or fall injuries become more prevalent, MHST and the WV Board of Coal Health and Safety must develop and address solutions for these injuries.

In addition, given the potential for human error to be a factor in these injuries, PERD reached out to the United Mine Workers of America (UMWA) and the West Virginia Coal Association (Coal Association) regarding behavior-based inspections. Specifically, PERD asked the organizations opinion on Kentucky's House 384, which allows the commissioner of the Department for Natural Resources to replace up to three of the six required annual underground mine inspections with mine safety analysis visits and reduce the minimum number of annual full electrical inspections from two to one. When asked for thoughts on the bill, the UMWA representatives stated they "did not agree with it at all" while the Coal Association agreed with the move away from the "old school method" of inspections. Specifically, the Coal Association referenced the fact that mine inspections tend to focus on the conditions of a mine (i.e. roof bolts, airflow, electrical equipment) rather than human behavior or human performance. The Coal Association argued many accidents today are due to human performance. The UMWA agreed that human error causes most accidents at some level, but also emphasized the importance of looking at the culture of mining and its impact on human behavior.

Kentucky's mine safety analysis visits focus on the work habits of miners by "providing on-the-job counseling to the individual miner and assist in correcting any unsafe or potentially hazardous actions." So far, Kentucky is the only state to implement a mine safety analyst program. Through our analysis of West Virginia's injury rate in this issue, PERD found that the two most common types of injuries in West Virginia ("Slip or Fall of Person" and "Handling of Materials") likely have some element of human behavior involved in the accident. However, due to the limited timeframe in which the law has been in effect, data are unavailable regarding the effectiveness of mine safety analysis visits. **The Legislative Auditor recommends MHST, as part of its increased level of data analysis, look at the influence human behavior has on injuries in West Virginia's mines and consider the use of mine safety analysis visits.**

The Legislative Auditor recommends MHST, as part of its increased level of data analysis, look at the influence human behavior has on injuries in West Virginia's mines and consider the use of mine safety analysis visits.

Conclusion

Given the increasing prevalence of “Handling of Materials” and “Slip or Fall of Person” injuries, and MHST’s inability to explain the increasing injury rate, it is clear the agency needs to conduct additional research to identify the causes of the injuries and determine practical solutions to protect miners. **Consequently, the Legislative Auditor recommends MHST review the causes and circumstances surrounding the injuries and develop new regulations or new training programs to address the causes.**

Recommendations

1. *The Legislative Auditor recommends the MHST benchmark injury rates for both surface and underground mining.*
2. *The Legislative Auditor recommends the MHST take a proactive approach to mine health and safety by conducting West Virginia specific analyses regarding mine health and safety to develop solutions to reduce mine injuries.*
3. *The Legislative Auditor recommends MHST review causes and circumstances surrounding injuries and make recommendations to improve regulations or develop new training programs to address the causes.*
4. *The Legislative Auditor recommends MHST, as part of its increased level of data analysis, look at what influence human behavior has on injuries in West Virginia’s mines and consider the use of mine safety analysis visits.*

The Legislative Auditor recommends MHST review the causes and circumstances surrounding the injuries and develop new regulations or new training programs to address the causes.

ISSUE 2

Despite Significant Duplicative Responsibilities With the U. S. Mine Safety and Health Administration, the West Virginia Office of Miners’ Health, Safety, and Training Should Continue to Enforce the State’s Mine Safety and Health Standards.

Issue Summary

Two separate government entities regulate mining in West Virginia: the West Virginia Office of Miners’ Health, Safety, and Training (MHST), and the United States Mine Safety and Health Administration (MSHA). Both entities inspect the same mines in the state and the same number of times annually. West Virginia is 1 of 13 states that has state-level mine inspection functions concurrent with the federal government. The remaining 13 states with significant mining operations rely solely on MSHA for oversight. In addition, MHST is a significant expense to the State, requiring approximately \$14 million annually to fund. Given the overlapping functions of state and federal mining regulations, the significant expense to the State, and the option to rely solely on federal mining regulations, the Legislative Auditor evaluated the continued need for MHST. Overall, PERD determined that while the two entities significantly overlap, the benefit of the MHST outweighs the cost. The factors that justify this conclusion are the significant mining operations in West Virginia, the increasing injury rate (see Issue 1), the state-specific regulations, the qualifications of MHST inspectors, and the ability to promulgate rules timelier. Therefore, the Legislative Auditor recommends that the MHST be continued.

PERD determined that while the two entities significantly overlap, the benefit of the MHST outweighs the cost.

The Legislative Auditor recommends that the MHST be continued.

Both the Federal Government and West Virginia’s Government Created Agencies in the Early 20th Century to Regulate Safety and Health Standards in Mines.

Shortly after the creation of the West Virginia Department of Mines in 1905 (see Issue 1 for MHST background), the U. S. Congress established the Bureau of Mines in 1910. However, the Bureau of Mines denied its employees “any right of authority in connection with the inspection or supervision of mines...”⁵ Congress granted the Bureau authority to inspect mines in 1952 with passage of the Federal Coal Mine Safety Act. Further revisions to mine health and safety standards occurred in 1969 with the passage of the Federal Coal Mine Health and Safety

⁵ *25 Years of Success, U.S. Mine Safety and Health Administration, p. 4.*

Act, and again in 1978 with the creation of the U. S. Mine Safety and Health Administration (MSHA). Established under the U. S. Department of Labor by the Federal Mine Safety and Health Act of 1977, MSHA administers “a broad regulatory program to reduce injuries, illness and fatalities in mining.”⁶

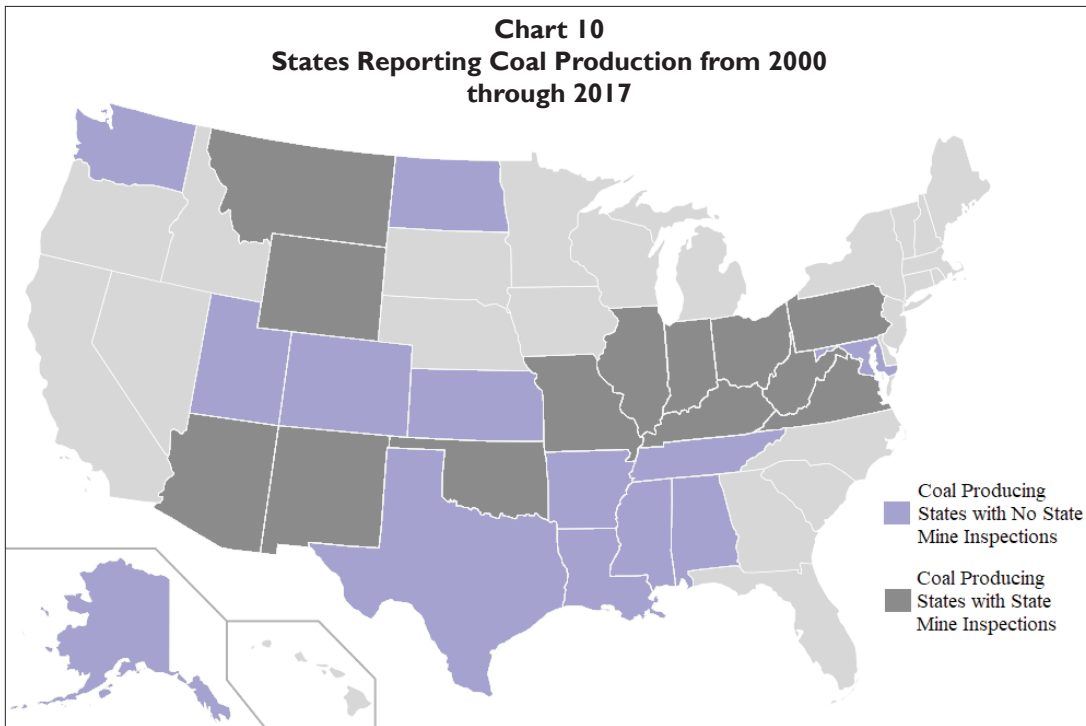
To this day, both the federal government and West Virginia state government set mine safety and health standards. Likewise, both levels of government have regulatory agencies sharing responsibilities when enforcing mine safety and health standards. For example, both MSHA and MHST have the power to conduct mine inspections and investigate injuries/fatalities. MSHA and MHST also have similar power to levy notices/citations, monetary penalties, and closure orders when disciplinary action is necessary. These facts, coupled with the decline in coal mining employment and output, beg the question of whether there is a continued need for MHST.

State-Level Mine Safety Programs

Coal mining is widespread across the United States. From 2000 through 2017, twenty-six (26) states reported coal production to MSHA. As shown in Chart 10, these states stretch from Maryland to Alaska. Nonetheless, only half of these states conduct state-level mine safety inspections in addition to MSHA inspections.

From 2000 through 2017, twenty-six (26) states reported coal production to MSHA. Nonetheless, only half of these states conduct state-level mine safety inspections in addition to MSHA inspections.

⁶ *Ibid.*, p. 6.



Source: MSHA and states' statutes, codes, and mine agency websites

The requirements and levels of inspection for states with state mine inspections vary widely. Some states, such as West Virginia and Kentucky, require a minimum number of inspections every year for both surface and underground mines and have the authority to issue penalty assessments to mine operators for mine safety and health violations. Conversely, New Mexico does not require annual mine inspections and can only issue penalty assessments in very limited circumstances. Moreover, Oklahoma's Department of Mines only employs one underground inspector who inspects all five of the state's coal mine sites. Table 4 lists states with state-level inspection programs versus states without.

States With State-Level Mine Inspections	States Without State-Level Mine Inspections
Arizona	Alabama
Illinois	Alaska
Indiana	Arkansas
Kentucky	Colorado
Missouri	Kansas
Montana	Louisiana
New Mexico	Maryland
Ohio	Mississippi
Oklahoma	North Dakota
Pennsylvania	Tennessee
Virginia	Texas
West Virginia	Utah
Wyoming	Washington

Source: U. S. Mine Safety and Health Administration.

To help answer the question of whether MHST's enforcement program should continue, despite duplication with MSHA, PERD sought to determine if states with state mine inspections have lower injury rates than states without state mine inspections. As shown in Table 5, states with state mine inspections had a higher average injury rate from calendar years 2000 through 2017.

States with state mine inspections had a higher average injury rate from calendar years 2000 through 2017.

States With State Mine Inspections		States Without State Mine Inspections	
State	Average Injury Rate from 2000-2017	State	Average Injury Rate from 2000-2017
Illinois	6.83	Arkansas	7.41
Oklahoma	6.46	Tennessee	5.51
Kentucky	5.37	Alabama	5.51
Pennsylvania	5.31	Maryland	4.38
West Virginia	5.18	Utah	3.70
Virginia	4.39	Colorado	3.56
Ohio	4.26	Alaska	2.27
Indiana	3.63	Washington	2.01
Missouri	2.95	Kansas	1.73
New Mexico	2.37	Texas	1.67
Montana	2.34	Louisiana	1.48
Wyoming	1.45	North Dakota	1.24
Arizona	1.13	Mississippi	1.00
Average:	3.97	Average:	3.20

Source: U. S. Mine Safety and Health Administration.

The higher average injury rate in states with state-level inspection programs is likely the result of greater scrutiny over mining operations than states without state-level regulations. The presence of both state and federal inspectors several times annually significantly increases the likelihood of detecting injuries and thus reduces underreporting injuries. Underreporting is a threat to the safety of miners as accurate injury data are necessary to identify trends and allocate resources to better protect miners. Mines that underreport injuries are inherently less safe. Accurate reporting of injuries is essential to regulatory agencies ability to identify feasible solutions to create safer working environments.

Access to Workers' Compensation Data Would Enable MHST to Identify Instances of Underreporting.

PERD discussed the finding from our comparison with the UMWA. Representatives for the UMWA stated that one reason for a lower injury rate in states without state inspections is due to a lack of reporting injuries. It is the UMWA's opinion that coal operators in states without state mine inspections are more likely to leave injuries off the books. While states without state-level mine inspections may not have injury/illness reporting requirements, PERD notes all coal, metal, and non-metallic mines throughout the United States are subject to the same reporting requirements established by MSHA. Furthermore, MSHA conducts audits of mines to ensure accurate and complete reporting of injuries and illnesses and through these audits MSHA identified several cases of underreporting. PERD attempted to assess the distribution of underreporting; however, PERD could not obtain data to determine the prevalence of underreporting.

However, one study conducted on behalf of the U.S. Department of Labor on underreporting of mining injuries determined underreporting in two states to be between 22.8 and 45.9 percent. The study relied on a comparison of workers' compensation data to MSHA Part 50 data and then determining the percentage of workers' compensation cases not found in MSHA Part 50 data. This method for identifying underreporting is known in West Virginia. In the past, MHST used worker's compensation data to identify unreported injuries and illnesses in West Virginia mines. However, workers' compensation was privatized in 2005. This presents a major challenge to MHST as it can no longer review workers' compensation claims. The inability to compare reported injuries and illnesses to workers' compensation claims hinders MHST's efforts to ensure the safety of all individuals employed in West Virginia's mines and verify reporting compliance. Prior to privatization, the Workers' Compensation Commission managed workers' compensation claims in West Virginia. After privatization, the number of workers' compensation insurance coverage providers climbed to as many as 270 separate entities.

The higher average injury rate in states with state-level inspection programs is likely the result of greater scrutiny over mining operations than states without state-level regulations.

The inability to compare reported injuries and illnesses to workers' compensation claims hinders MHST's efforts to ensure the safety of all individuals employed in West Virginia's mines and verify reporting compliance.

Since there is no longer a single repository for claims, MHST no longer receives the claims data necessary to identify underreporting. Moreover, the number of workers' compensation insurance providers may be too many for MHST to successfully obtain data from. **Consequently, the Legislative Auditor recommends MHST work with the Office of the Insurance Commissioner on identifying a reporting mechanism to allow access to workers' compensation injury data to identify instances of underreporting.**

In addition to underreporting rates, the study also reviewed the results of MSHA's activities to detect underreporting. The report found that MSHA inspections do not routinely identify underreporting, whereas audits, both Part 50 audits and potential pattern of violation audits (PPOV), identified 52 percent of underreporting instances. The single largest action responsible for identifying the most instances of underreporting were PPOV audits. Both audits include a review of accident forms, reports of accidents and injuries, timesheets, payroll records, sick leave requests, medical records, and medical claim forms. However, the PPOV audits are more detailed as the audits focus on accuracy of data provided, not compliance with reporting requirements. **The Legislative Auditor recommends, as part of adding a data analysis function, MHST conduct audits of operators to identify instances of underreporting.**

Duplication Exists Between MSHA's and MHST's Enforcement Programs.

As shown in Table 6, several similarities exist between MSHA's and MHST's enforcement programs. For example, both agencies conduct a minimum of four underground mine inspections and two surface mine inspection per year on the same mines. Furthermore, both agencies may conduct additional inspections as necessary. MSHA and MHST inspectors also have the authority to issue penalty assessments against mine operators and individual miners; however, MSHA inspectors can assess significantly higher monetary penalties. Moreover, both agencies have the authority to issue Pattern of Violations/Conduct orders against mines with repeated violations. For mines with a history of repeated significant and substantial violations, both agencies have the authority to issue a closure order until inspectors determine the imminent danger no longer exists. However, in the past, the U.S. Department of Labor's Inspector General found MSHA did not complete its required inspections. In fact, a 2007 report noted MSHA did not complete 125 inspections (19 percent) for southern West Virginia coal mines in federal fiscal year 2006 alone. A similar report in 2011 focusing on metal/non-metal mines found MSHA completed fewer inspections than required by allowing

The Legislative Auditor recommends MHST work with the Office of the Insurance Commissioner on identifying a reporting mechanism to allow access to workers' compensation injury data to identify instances of underreporting.

The Legislative Auditor recommends, as part of adding a data analysis function, MHST conduct audits of operators to identify instances of underreporting.

attempted inspections⁷ to eliminate the requirement to complete a regular safety and health inspection.

Table 6 Comparison of MSHA’s and MHST’s Enforcement Programs		
	MSHA	MHST
Required Underground Mine Inspections	4 inspections per year	Same
Required Surface Mine Inspections	2 inspections per year	Same
Required Electrical Inspections	None	2 inspections per year
Penalty Assessments Against Mine Operators	Maximum per violation: \$259,725 for “flagrant violations”	Maximum per violation: \$10,000 for “subsequent knowing violations”
Penalty Assessments Against Individual Miners	Maximum per violation: \$324	Maximum per violation: \$250
Authority to Issue Pattern of Violations/Conduct	Yes	Yes
Authority to Issue Mine Closure Orders	Yes	Yes
<i>Source: W. Va. Code Chapter 22A, United States Code Title 30, Chapter 22 et seq., and Code of Federal Regulations Chapter 30, Title 1, Sub Chapter P, Part 100</i>		

While MHST’s Enforcement Program Overlaps with MSHA’s Enforcement Program, MHST’s Enforcement Program Should Continue.

On the surface, MHST’s and MSHA’s enforcement programs perform several of the same activities; however, there are some major differences between the two programs identified during the audit. The first major difference is West Virginia’s health and safety regulations. MHST rules are specific to West Virginia mines whereas MSHA rules apply to all mines nationwide. This is likely the result of the unique nature of West Virginia’s coal mining industry. In addition, MHST is typically able to act more timely to implement mine health and safety regulations than the federal government. This is beneficial because if a known danger exists in mines, West Virginia can quickly take measures to mitigate or eliminate the threat of harm rather than waiting months or years for the federal government to pass regulations. Some examples of the State of West Virginia acting timelier than the federal government

MHST is typically able to act more timely to implement mine health and safety regulations than the federal government.

⁷ Attempted inspections are events where an inspector arrives on-site, but the inspector is unable to access the ground to complete the inspection.

include the state's rules on the use of shelters, drug rules, and proximity detection systems.

It should be noted that in November 2017, MHST compared state regulations to those of MSHA. Overall, MHST concluded state regulations are more stringent than federal regulations in 52 percent of the rules reviewed, while 44 percent are equal. However, PERD did not conduct an analysis to determine the veracity of this conclusion, due in part because of the subjectivity of stringency. PERD reviewed a sample of rules and determined the West Virginia regulations are more detailed. For example, both MSHA and MHST require life jackets when an employee is working near water. However, MHST requires the life jacket be United States Coast Guard approved, and thus is more stringent. Similarly, regarding tools, MSHA specifies "defects on any equipment, machinery, and tools that affect safety shall be corrected...", whereas MHST details specific tools and describes defects for tool types.

The second major difference is the qualifications and experience of mine inspectors employed by both MSHA and MHST. *West Virginia Code* requires MHST inspectors to have "at least five years of practical experience in coal mines, at least two years of which have been in the mines of the state," whereas, mining experience is not necessary to become an MSHA inspector. Previous experience in coal mines, especially in mines located in the state, allows MHST inspectors specialized knowledge of the mines they are inspecting. The UMWA also indicated that miners tend to have greater respect for state inspectors versus their federal counterparts because of their greater familiarity with mining. This in turn leads to better relations between mine operators and state inspectors.

Lastly, West Virginia has a history of largescale mining disasters in which many miners lost their lives (see Appendix C for a complete list of disasters since 1884), such as:

- in 1907, 361 miners died in an explosion in the Fairmont Coal Company's Number 6 and Number 8 mines near Monongah, West Virginia;
- in 1968, an explosion in the Consol Number 9 mine near Farmington, West Virginia killed 78 miners;
- in 2006 an explosion at the International Coal Group's Sago mine in Sago, West Virginia killed 12 miners; and
- in 2010 an explosion killed 29 miners at Massey Energy's Upper Big Branch mine near Montcoal, West Virginia.

In addition, although the number of mine fatalities has decreased, in 2017 West Virginia experienced eight miner fatalities, the highest since 2010, and has experienced three fatalities thus far in 2018. Continuation of MHST and, consequently, the presence of both federal and state inspectors will provide additional protection to miners and continue

West Virginia Code requires MHST inspectors to have "at least five years of practical experience in coal mines, at least two years of which have been in the mines of the state."

Continuation of MHST and, consequently, the presence of both federal and state inspectors will provide additional protection to miners.

the requirement of safe procedures and technology that will likely help prevent future disasters and minimize the loss of life in mining operations.

Mine Industry Stakeholders Agree MHST's Enforcement Program Should Continue.

Given the importance of the coal industry to West Virginia, PERD staff met with representatives of the UMWA and the West Virginia Coal Association (Coal Association) to gain stakeholder input on MHST operations.

While the organizations did not agree in all areas, both agreed on two main points. First, and, perhaps most notably, both organizations agreed that MHST's enforcement program should continue. However, the entities differ on the structure of the program. For example, the UMWA stated MHST should conduct more inspections, including inspections on weekends and off-shifts. Whereas the Coal Association indicated MHST provides an incentive for mine companies to perform better, they also stated MHST should reduce its inspection force. In addition, the Coal Association also responded that the MHST should focus on filling deficiencies in federal oversight as well as focusing on small mines, which are more dangerous than large mines. Lastly, the Coal Association responded that MHST could aid mine operators in developing and maintaining mine safety programs. **The Legislative Auditor's opinion is that data analysis as suggested in Issue 1 could address these differences through identification of needed operational changes.** For example, data analysis could determine injuries are occurring more frequently on overnight shifts, leading to MHST to conduct more off-hour inspections. Similarly, data analysis could indicate the need to shift focus toward human behavior and lead MHST to add a new behavioral-based component to inspection programs.

Second, both organizations report a positive relationship with MHST. The UMWA described the relationship as professional, while the Coal Association described the relationship as positive and engaging. Both organizations have positions on the Board of Coal Mine Health and Safety, which is involved in the process of promulgating mine health and safety rules.

Conclusion

While there is significant duplication between MHST's and MSHA's enforcement programs, PERD recommends continuation of MHST for the two following reasons. First, West Virginia's regulations are specific to the state and implemented and enforced timelier than those

Both organizations agreed that MHST's enforcement program should continue.

While there is significant duplication between MHST's and MSHA's enforcement programs, PERD recommends continuation of MHST.

at the federal level. The ability to react timely to changes in the mining industry (such as innovative technology or new threats) provides a layer of safety not available if MSHA is the only regulatory entity. Second, instances of MSHA failing to conduct required inspections could leave West Virginia's mining industry with insufficient oversight if the state health and safety function is eliminated. Finally, restoring the ability of MHST to access workers' compensation data may reduce the likelihood of underreporting and increase MHST's effectiveness. **Consequently, the Legislative Auditor recommends the continuation of MHST to continue providing a safer operating environment for the mining industry.**

Recommendations

5. *The Legislative Auditor recommends continuation of the Office of Miners' Health, Safety, and Training.*
6. *The Legislative Auditor recommends the Office of Miners' Health, Safety, and Training work with the Office of the Insurance Commissioner on identifying a reporting mechanism to allow access to workers' compensation injury data to identify instances of underreporting.*
7. *The Legislative Auditor recommends, as part of adding a data analysis function, MHST conduct audits of operators to identify instances of underreporting.*

The Legislative Auditor recommends the continuation of MHST to continue providing a safer operating environment for the mining industry.

Appendix A Transmittal Letter

WEST VIRGINIA LEGISLATURE *Performance Evaluation and Research Division*

Building 1, Room W-314
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(304) 347-4890
(304) 347-4939 FAX



John Sylvia
Director

August 23, 2018

Greg Norman, Director
Office of Miners' Health, Safety, and Training
7 Players Club Drive
Charleston, WV 25311

Dear Director Norman:

This is to transmit a draft copy of the Performance Review of the Office of Miners' Health, Safety, and Training. This report is tentatively scheduled to be presented during the September 16-18 interim meetings of the Joint Committee on Government Operations, and the Joint Committee on Government Organization. We will inform you of the exact time and location once the information becomes available. It is expected that a representative from your agency be present at the meeting to orally respond to the report and answer any questions committee members may have during or after the meeting.

We need to schedule an exit conference to discuss any concerns you may have with the report. We would like to have the meeting the week of August 27, 2018 through August 31, 2018. Please notify us to schedule a time. In addition, we need your written response by noon on Thursday, September 6, 2018 in order for it to be included in the final report. If your agency intends to distribute additional material to committee members at the meeting, please contact the House Government Organization staff at 304-340-3192 by Thursday, September 13, 2018 to make arrangements.

We request that your personnel not disclose the report to anyone not affiliated with your agency. Thank you for your cooperation.

Sincerely,


John Sylvia

Enclosure

C:

Clayton Burch, Acting Cabinet Secretary, Department of Commerce

Joint Committee on Government and Finance

Appendix B

Objective, Scope and Methodology

The Performance Evaluation and Research Division (PERD) within the Office of the Legislative Auditor conducted this performance review of the West Virginia Office of Miners' Health, Safety, and Training (MHST) as part of the agency review of the Department of Commerce as required by W. Va. Code §4-10-8(b) (1). The purpose of MHST, as established in W. Va. Code §22A-1-1(b), is the execution and enforcement of the state's mine health and safety laws.

Objectives

The objectives of this audit are: (1) to determine why the coal mine injury rate in West Virginia has increased each year since 2013, and (2) to evaluate whether there is a continued need for MHST's enforcement program.

Scope

The scope of Issue 1 is limited to analysis of injuries and injury rates in coal mines from calendar years 2000 through 2017. The scope of Issue 2 is limited to an analysis of MHST's enforcement program, which includes: (1) the inspection of the state's mines and independent contractors, (2) the authority to issue monetary penalty assessments for mine health and safety violations, and (3) the authority to issue mine closure orders.

Methodology

The primary source of information for Issue 1 is mine industry data made publicly available through the U.S. Mine Safety and Health Administration's (MSHA) Open Government Initiative. The mine industry data includes detailed information on injuries and employee hours reported by mine operators. As an authoritative source, PERD determined that MSHA's data is sufficient and reliable. Since West Virginia has a limited number of non-coal mines, the audit team only used MSHA's coal mine injury data for the performance review. Moreover, MSHA does not collect state-level data for independent contractor work hours; therefore, PERD excluded independent contractor injuries from the analysis.

As MHST's most important performance measure, PERD used MSHA's incidence rate formula to calculate injury rates. The injury rate is computed as follows:

$$\text{Injury Rate} = \frac{\text{Number of Injuries}}{\text{Number of Employee Hours}} \times 200,000$$

Using the above formula, PERD calculated four different types of injury rates: (1) overall coal mine injury rates, (2) underground coal mine injury rates, (3) surface coal mine injury rates, and (4) injury rates for individual injury classifications. The overall coal mine injury rate only includes the number of injuries and employee hours reported by mine operators that occurred in underground mines, surface mines, preparation plants, independent shops, and from office workers at mine sites. The underground coal mine injury rate only includes the number of injuries and employee hours reported by mine operators that occurred in underground locations and surface locations at underground mines. The surface coal mine injury rate only includes the number of injuries and employee hours reported by mine operators that occurred in strip, quarry, open pit locations, auger locations, culm bank/refuse pile locations, and dredge locations at surface mines. Lastly, the injury rates for individual injury classifications includes injuries and employee hours for all of the same locations as the overall coal mine injury rate.

To analyze individual injury classifications, PERD used MSHA's Accident-Injury Data Set. Using Excel features, such as PivotTables, PERD ran analysis on the severity of injuries, body parts injured during accidents, and the events that led to injuries, among other statistics. PERD's findings were then compared to past findings by the U.S. National Institute for Occupational Safety and Health.

In addition, PERD conducted interviews of staff of MHST, as well as a data firm contracted by MHST to both house data and provide reports. Where necessary, PERD obtained corroborating information to support assertions made in interviews.

The primary sources for Issue 2 were *W. Va. Code Chapter 22A*, *W. Va. CSR Title 56*, and the *U.S. Code of Federal Regulations Title 30*. PERD used West Virginia's code and rules sections as well as the federal code sections on mine health and safety to compare MHST's enforcement responsibilities to MSHA's enforcement responsibilities. PERD noted areas of overlap between the two enforcement programs.

In order to receive input from stakeholders of decision affecting mine health and safety regulations; the audit team met with representatives from the United Mine Workers of America and the West Virginia Coal Association. Moreover, members of the audit team toured a mine with an MHST inspector and mine employees to gain a better understanding of a mine inspector's job.

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.

Appendix C

Mining Deaths in West Virginia

DATE	MINE	LOCATION	NATURE OF ACCIDENT	NUMBER OF VICTIMS
JAN. 21, 1886	MT. BROOK	NEWBURG	EXPLOSION	39
NOV. 20, 1894	BLANCH	STANDARD	EXPLOSION	8
MAR. 06, 1900	RED ASH	RED ASH	EXPLOSION	46
NOV. 02, 1900	BERRYBURG	BERRYBURG	POWDER EXPL	15
MAY 15, 1901	CHATHAM	FARMINGTON	EXPLOSION	10
SEP. 15, 1902	ALGOMA NO. 7	ALGOMA	EXPLOSION	17
SEP. 22, 1902	STAFFORD	STAFFORD	EXPLOSION	6
FEB. 26, 1905	GRAPEVINE	WILCOE	EXPLOSION	7
MAR. 19, 1905	RUSHRUN/REDASH	RED ASH	EXPLOSION	24
APR. 20, 1905	CABIN CREEK	KAYFORD	POWDER EXPL	6
JUL. 05, 1905	TIDEWATER	VIVIAN	EXPLOSION	5
NOV. 04, 1905	TIDEWATER	VIVIAN	EXPLOSION	7
DEC. 04, 1905	HORTON	CABIN CREEK	MINE FIRE	7
JAN. 04, 1906	COALDALE	COALDALE	EXPLOSION	22
JAN. 18, 1906	DETROIT	PAINT CREEK	EXPLOSION	18
FEB. 08, 1906	PARRAL	PARRAL	EXPLOSION	23
MAR. 22, 1906	CENTURY	CENTURY	EXPLOSION	23
DEC. 14, 1906	PULASKI	ECKMAN	POWDER EXPL	6*
JAN. 26, 1907	LORENTZ	PENCO	POWDER EXPL	12
JAN. 29, 1907	STUART	STUART	EXPLOSION	85
FEB. 04, 1907	THOMAS	THOMAS	EXPLOSION	25
MAY 01, 1907	WHIPPLE	SCARBRO	EXPLOSION	46
DEC. 06, 1907	MONONGAH 6 & 8	MONONGAH	EXPLOSION	361
JAN. 30, 1908	BACKMAN	HAWKS NEST	EXPLOSION	9
DEC. 29, 1908	LICK BRANCH	SWITCHBACK	EXPLOSION	50
JAN. 12, 1909	LICK BRANCH	SWITCHBACK	EXPLOSION	67
MAR. 31, 1909	ECHO	BEURY	DYNAMITE EXPL	16
DEC. 31, 1910	LICK FORK	THACKER	HAULAGE	10
APR. 24, 1911	OTT NO. 20	ELK GARDEN	EXPLOSION	23
AUG. 01, 1911	STANDARD	CAPLES	EXPLOSION	6
NOV. 18, 1911	BOTTOM CREEK	VIVIAN	EXPLOSION	18
MAR. 26, 1912	JED	JED	EXPLOSION	80
11-Jul-12	PANAMA	MOUNDSVILLE	EXPLOSION	8
APR. 28, 1914	ECCLES NO. 5 & 6	ECCLES	EXPLOSION	183
30-Jun-14	CINDERELLA	CINDERELLA	SUFFOCATION	5
FEB. 6, 1915	CARLISLE	CARLISLE	EXPLOSION	22
MAR. 2, 1915	LAYLAND NO. 3	LAYLAND	EXPLOSION	112
MAR. 30, 1915	BOOMER NO. 2	BOOMER	EXPLOSION	23

MAR. 28, 1916	KING NO. 28	VIVIAN	EXPLOSION	10
OCT. 19, 1916	JAMISON NO. 7	BARRACKVILLE	EXPLOSION	10
APR. 18, 1917	LYNDEN	MASON	EXPLOSION	5
DEC. 15, 1917	YUKON NO. 1	SUSANNA	EXPLOSION	18
MAY 20, 1918	VILLA	CHARLESTON	MINE FIRE	13
18-Jul-19	CARSWELL	KIMBALL	EXPLOSION	7
AUG. 6, 1919	WEIRWOOD	WEIRWOOD	EXPLOSION	7
MAY 22, 1920	MALLORY NO. 3	MALLORY	ROOF FALL	5
SEPT.23, 1922	GLEN ROGERS #2	GLENROGERS	FALLING CAGE	5
MAR. 2, 1923	ARISTA	ARISTA	EXPLOSION	10
NOV. 06, 1923	GLEN ROGERS	BECKLEY	EXPLOSION	27
MAR. 28, 1924	YUKON NO. 2	YUKON	EXPLOSION	24
APR. 28, 1924	BENWOOD	BENWOOD	EXPLOSION	119
MAR. 17, 1925	BARRACKSVILLE	BARRACKSVILLE	EXPLOSION	33
JAN. 14, 1926	JAMISON NO. 8	FARMINGTON	EXPLOSION	19
MAR. 8, 1926	ECCLES NO. 5	ECCLES	EXPLOSION	19
NOV. 15, 1926	MOUND SHAFT	MOUNDSVILLE	EXPLOSION	5
APR. 30, 1927	FEDERAL NO. 3	EVERTTVILLE	EXPLOSION	97
MAY 13, 1927	SHANNON BR. 3	CAPELS	EXPLOSION	8
APR. 2, 1928	KEYSTONE NO. 2	KEYSTONE	EXPLOSION	8
MAY 22, 1928	YUKON NO. 1	YUKON	EXPLOSION	17
20-Jun-28	NO. 1	NATIONAL	EXPLOSION	7
OCT. 22, 1928	MCALPIN	MCALPIN	EXPLOSION	6
NOV. 30, 1928	PRINCESS POCAHONTAS	RODERFIELD	EXPLOSION	6
JAN. 26, 1929	KINGSTON NO. 5	KINGSTON	EXPLOSION	14
JAN. 19, 1930	NO. 1	LILLYBROOK	EXPLOSION	8
MAR. 26, 1930	YUKON	ARNETTSVILLE	EXPLOSION	12
JAN. 6, 1931	GLEN ROGERS #2	GLEN ROGERS	EXPLOSION	8
NOV. 3, 1931	NO. 20	WHITMAN	EXPLOSION	5
MAY 12, 1935	NO. 41	BARRACKVILLE	FIRE IN SHAFT	6
SEPT. 2, 1936	MACBETH	MACBETH	EXPLOSION	10
MAR. 11, 1937	MACBETH	MACBETH	EXPLOSION	18
JAN. 10. 1940	NO. 1	BARTLEY	EXPLOSION	91
DEC. 17, 1940	NO. 4	RALEIGH	EXPLOSION	9
JAN. 22, 1941	CARSWELL	CARSWELL	EXPLOSION	6
MAY 12, 1942	CHRISTOPHER #3	OSAGE	EXPLOSION	56
MAY 18, 1942	HITCHMAN	BENWOOD	EXPLOSION	5
JULY 9, 1942	PURSGLOVE NO. 2	PURSGLOVE	EXPLOSION	20
DEC. 15, 1942	LAING NO. 1	LAING	RUN AWAY TRIP	5
JAN. 8, 1943	PURSGLOVE NO. 15	PURSGLOVE	MINE FIRE	13
NOV. 8, 1943	NELLIS NO. 3	NELLIS	EXPLOSION	11

MAR. 25, 1944	KATHRINE NO. 4	LUMBERPORT	EXPLOSION	16
JAN. 15, 1946	HAVACO NO. 9	HAVACO	EXPLOSION	15
AUG. 6, 1948	BERWIND NO. 11	CAPELS	ROOF FALL	6
JAN. 18, 1951	BURNING SPRINGS	KERMIT	GAS EXPLOSION	11
OCT. 15, 1951	BUNKER	CASSVILLE	GAS EXPLOSION	10
OCT. 31, 1951	UNITED NO. 1	WEVACO	DUST EXPLOSION	12
NOV. 13, 1954	NO. 9	FARMINGTON	EXPLOSION	16
FEB. 4, 1957	NO. 35	BISHOP	GAS EXPLOSION	37
DEC. 9, 1957	GLEN ROGERS NO.2	GLEN ROGERS	MOUNTAIN BUMP	5
DEC. 27, 1957	NO. 31	AMONATE	EAS EXPLOSION	11
FEB. 12, 1958	LUNDALE	LUNDALE	ROOF FALL	6
OCT. 27, 1958	NO. 35	BISHOP	GAS EXPLOSION	22
OCT. 28, 1958	BURTON	CRAIGSVILLE	GAS EXPLOSION	14
MAR, 8, 1960	NO. 22	HOLDEN	MINE FIRE	18
NOV. 9, 1962	NO. 28	VERDUNVILLE	HAULAGE	3
APR. 25, 1963	COMPASS NO. 2	DOLA	GAS EXPLOSION	22
SEPT.28, 1964	NO. 6	BARTLEY	GAS EXPLOSION	3
APR. 30, 1965	CONSOL NO. 9	FARMINGTON	GAS EXPLOSION	4
MAY, 3, 1965	NO. 1	GARRISON	ROOF FALL	3
OCT. 16, 1965	MARS NO. 2	SARDIS	MINE FIRE	7
JUL. 23, 1966	SILTIX	MOUNT HOPE	GAS EXPLOSION	7
SEP. 10, 1966	NO. 3	TRIDELPHIA	HAULAGE	4
MAY 06, 1968	NO. 8	HOMINY FALLS	MINE INUNDATION	4
AUG. 14, 1968	LUNDALE NO. 1	LOGAN	ROOF FALL	3
NOV. 20, 1968	NO. 9	FARMINGTON	EXPLOSION	78
DEC. 12, 1968	NO. 8B	LYBURN	MINE FIRE	3
JUN. 11, 1971	FEDERAL NO. 2	FAIRVIEW	ROOF FALL	3
JUL. 22, 1972	BLACKSVILLE	BLACKSVILE	MINE FIRE	9
DEC. 16, 1972	ITMANN NO. 3	ITMANN	GAS EXPLOSION	5
OCT. 02, 1974	MAPLE MEADOW MINE	FAIRDALE	FALLING MATERIAL	3
OCT. 07, 1974	BOLT SEWELL	BOLT	FALL IN SHAFT	3
JUN. 05, 1975	HARRIS NO. 2	BALD KNOB	RIB FALL	3
NOV. 26, 1975	NO. 105	CENTURY	ROOF FALL	3
NOV. 07, 1980	FERRELL	UNEEDA	GAS EXPLOSION	5
DEC. 03, 1981	STILL HOUSE NO. 1	BERGOO	ROOF FALL	3
FEB. 06, 1986	LOVERIDGE NO. 22	FAIRVIEW	COAL STORAGE ENTRAPMENT	5
MAR. 19, 1992	BLACKSVILLE NO. 1	WANA	EXPLOSION IN SHAFT	4
JAN. 22, 2003	MCELROY MINE	GRAYSVILLE	EXPLOSION IN SHAFT	3
JAN. 2, 2006	SAGO MINE	TALLMANVILLE	EXPLOSION AND ENTRAP.	12
APR. 5, 2010	UBBMC MONTCOAL EAGLE	NAOMA	EXPLOSION	29

Appendix D

Number of Injuries/Illnesses in West Virginia Mines from 2000 through 2017 by Injury/Illness Type

Number of Injuries/Illnesses in West Virginia Mines from 2000 through 2017 by Injury/Illness Type		
Injury/Illness Classification	Number of Injuries	Percent of Total Injuries
Handling of Materials	5,911	26.97%
Slip or Fall of Person	3,527	16.09%
Machinery	2,311	10.54%
Handtools (Nonpowered)	2,160	9.85%
Powered Haulage	2,119	9.67%
Fall of Roof or Back	1,639	7.48%
Disorders (Repeated Trauma)*	1,185	5.41%
Dust Disease of Lungs*	1,101	5.02%
Fall of Face/Rib/Pillar/Side/Highwall	468	2.14%
Other	319	1.46%
Stepping or Kneeling on Object	291	1.33%
Striking or Bumping	271	1.24%
Electrical	180	0.82%
All Other Occupational Illnesses*	144	0.66%
Exploding Vessels Under Pressure	69	0.31%
Falling/Sliding/Rolling Materials	67	0.31%
Ignition or Explosion of Gas or Dust	60	0.27%
Nonpowered Haulage	30	0.14%
Fire	17	0.08%
No Value Found	15	0.07%
Disorders (Physical Agents)*	11	0.05%
Hoisting	9	0.04%
Explosives and Breaking Agents	7	0.03%
Occupational Skin Diseases*	3	0.01%
Poisoning (Toxic Materials)*	2	0.01%
Respiratory Conditions (Toxic Agents)*	1	0.00%
Entrapments	1	0.00%
Impoundment	1	0.00%
Inundation	0	0.00%
Grand Total	21,919	100.00%
*Denotes illnesses Source: U. S. Mine Safety and Health Administration		

Appendix E

MSHA's Classification of Mine Accidents From Accident/Illness Investigations Handbook (PHI-I-I)

The classifications are listed in alphabetical order:

ELECTRICAL - Accidents in which electric current is most directly responsible for the resulting accident.

ENTRAPMENT - In accidents involving no injuries or nonfatal injuries which are not serious, entrapment of mine workers takes precedence over roof falls, explosives accidents, inundations, etc. If a roof fall results in an entrapment accident, the accident classification is "Entrapment. "

EXPLODING VESSELS UNDER PRESSURE - These are accidents caused by explosion of air hoses, air tanks, hydraulic lines, hydraulic hoses, and other accidents precipitated by exploding vessels.

EXPLOSIVES AND BREAKING AGENTS - Accidents involving the detonation of manufactured explosives that can cause flying debris, concussive forces, or fumes.

FALLING, ROLLING, OR SLIDING ROCK OR MATERIAL OF ANY KIND -Injuries caused directly by falling material require great care in classification. Remember that it is the accident we want to classify. If material was set in motion by machinery, haulage equipment, or hand tools, or while material is being handled or disturbed, etc. , charge the force that set the material in motion. For example, where a rock was pushed over a highwall by a dozer and the rock hit another rock which struck and injured a worker - charge the accident to the dozer (machinery). Charge the accident to that which most directly caused the resulting accident. Without the dozer, there would have been no resulting accident. This includes accidents caused by improper blocking of equipment under repair or inspection.

FALL OF FACE, RIB, SIDE OR HIGHWALL - Accidents in this classification include falls of material (from in-place) while barring down or placing props; also pressure bumps and bursts. Since pressure bumps and bursts which cause accidents are infrequent, they are not given a separate category. Not included are accidents in which the motion of machinery or haulage equipment caused the fall either directly or by knocking out support; such accidents are classified as machinery or haulage, whichever is appropriate.

FALL OF ROOF OR BACK - Underground accidents which include falls while barring down or placing props; also pressure bumps and bursts. Not included are accidents in which the motion of machinery or haulage equipment caused the fall either directly or by knocking out support; such falls are classified as machinery or haulage, whichever is appropriate.

FIRE - An unplanned underground mine fire not extinguished within 10 minutes of discovery; or an unplanned mine fire in a surface mine or in the surface area of an underground mine that is not extinguished in 30 minutes. Fires of shorter duration may be responsible for reportable injuries. In those cases, the fire would still be the cause of the accident. Not included are fires initiated by electricity or by explosion of gas or dust.

HANDLING MATERIAL (lifting, pulling, pushing, shoveling material) - The material may be in bags or boxes, or loose sand, coal, rock, timber, etc. The accident must have been most directly caused by handling material.

HAND TOOLS - Accidents related to non-powered tools when being used as hand tools. Do not include electric tools or air-powered tools.

NON-POWERED HAULAGE - Accidents related to motion of non-powered haulage equipment. Included are accidents involving wheelbarrows, manually pushed mine cars and trucks, etc.

POWERED HAULAGE - Haulage includes motors and rail cars, conveyors, belt feeders, longwall conveyors, bucket elevators, vertical manlifts, self-loading scrapers or pans, shuttle cars, haulage trucks, front-end loaders,

load-haul-dumps, forklifts, cherry pickers, mobile cranes if traveling with a load, etc. The accident is caused by the motion of the haulage unit. Include accidents that are caused by an energized or moving unit or failure of component parts. If a car dropper suffers an injury as a result of falling from a moving car, charge the accident to haulage.

HOISTING - Damage to hoisting equipment in a shaft or slope which endangers an individual or interferes with use of the equipment for more than 30 minutes. Hoisting may also be the classification where a victim was injured by hoisting equipment but there was no damage to the equipment, such as accidents involving cages, skips, buckets, or elevators. The accident results from the action, motion, or failure of the hoisting equipment or mechanism. Included is equipment such as derricks and cranes only when used in shaft sinking; suspended work platforms in shafts; mine cars being lowered or raised by hoisting equipment on slopes or inclines; a skip squeezed between shaft structural members or rails resulting in an accident; or an ore bucket tipped for any reason causing an accident.

IGNITION OR EXPLOSION OF GAS OR DUST - Accidents resulting as a consequence of the ignition or explosion of gas or dust. Included are exploding gasoline vapors, space heaters, or furnaces. **Methane Ignition** - A methane ignition occurs when methane burns without producing destructive forces. Damage resulting from an ignition is limited to that caused by flame and heat. Personnel in the immediate vicinity of an ignition may be burned and line brattice or other materials in close proximity may be discolored, melted or burned. Ignitions generally involve small quantities of methane and are usually confined to a small area; however, in the case of methane roof layering, flame spread may be more extensive.

Methane Explosion - A methane explosion occurs when methane is ignited and burns violently. The flame of the explosion accelerates rapidly, heating the environment and causing destructive forces. Evidence of the destructive forces may be manifest on victims, equipment, structures, etc. Witnesses to an explosion may hear the noise generated by the resulting sound pressure wave.

IMPOUNDMENT - An unstable condition at an impoundment, refuse pile, or culm bank which requires emergency action in order to prevent failure, or which causes individuals to evacuate an area. Also the failure of an impoundment, refuse pile, or culm bank.

INUNDATION - An unplanned inundation of a mine by a liquid or gas. The mine may be either a surface or underground operation.

MACHINERY - Accidents that result from the action or motion of machinery or from failure of component parts. Included are all electric and air-powered tools and mining machinery such as drills, tuggers, slushers, draglines, power shovels, loading machines, compressors, etc. Include derricks and cranes except when they are used in shaft sinking (see **HOISTING**) or mobile cranes traveling with a load (see **POWERED HAULAGE**).

SLIP OR FALL OF PERSON - Includes slips or falls from an elevated position or at the same level while getting on or off machinery or haulage equipment that is not moving. Also includes slips or falls while servicing or repairing equipment or machinery; includes stepping in a hole.

STEPPING OR KNEELING ON OBJECT - Accidents are classified in this category only where the object stepped or kneeled on contributed most directly to the accident.

STRIKING OR BUMPING - This classification is restricted to those accidents in which an individual, while moving about, strikes or bumps an object but is not handling material, using hand tools, or operating equipment.

OTHER - Accidents not elsewhere classified. This is a last resort category.

Appendix F

Correlation Between a State's Injury Rate and The Percent of Underground Coal Mining

Correlation Between a State's Injury Rate and the Percent of Underground Coal Mining		
State	Average Injury Rate from 2000 through 2017	Percent of Total Coal Production in Underground Mines
AR	7.41	87.78%
IL	6.83	86.75%
OK	6.46	30.69%
TN	5.51	35.79%
AL	5.51	68.59%
KY	5.37	62.15%
PA	5.31	82.19%
WV	5.18	62.58%
VA	4.39	66.23%
MD	4.38	50.92%
OH	4.26	63.87%
UT	3.70	99.14%
IN	3.63	34.19%
CO	3.56	75.14%
MO	2.95	0.00%
NM	2.37	22.08%
MT	2.34	6.63%
AK	2.27	0.00%
WA	2.01	0.00%
KS	1.73	0.00%
TX	1.67	0.00%
LA	1.48	0.00%
WY	1.45	0.52%
ND	1.24	0.00%
AZ	1.13	0.00%
MS	1.00	0.00%
	Correlation:	0.80433377
Sources: U. S. Mine Safety and Health Administration (injury rates); U. S. Energy Information Administration (underground versus surface coal production)		

Appendix G Agency Response



State of West Virginia

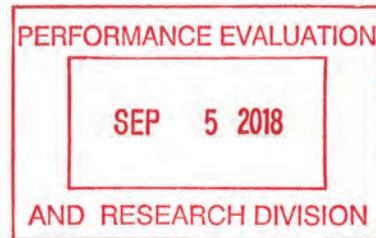
WV Office of Miners' Health, Safety & Training
Greg Norman, Director

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www.wvminesafety.org

September 5, 2018

John Sylvia
West Virginia Legislature
Performance Evaluation and Research Division
Building 1, Room W-314
1900 Kanawha Boulevard East
Charleston, WV 25305-0610



Mr. Sylvia:

After reviewing and our subsequent meeting with Noah Browning and Michael Midkiff to discuss the draft copy of the *Performance Review of the Office of Miners' Health, Safety and Training* we offer the following response and comments.

Issue 1: WV OMHST is unable to explain recent increases in the coal mine injury rate.
Response: During meetings and conversations with PERD staff agency representatives stated reasons that we believe are contributing factors in the increased injury rates. Some of which are listed below.

- With decrease of operations, coal miners are fearful of losing their jobs, therefore will take more risks when performing their job.
- Younger coal miners not properly trained by more experienced miners.
- Substance abuse problem in the mining industry, with the opioid epidemic.
- Older workforce trying to do more, and physically not able, therefore resulting in more injuries.
- Tougher mining conditions in WV compared to other underground coal producing states.
- Companies filing bankruptcy.

The primary responsibility must be on the coal mine operator to oversee their safety programs and employee behavior. We feel that by enforcing the safety provisions, we are preventing accidents that would otherwise occur in this industry and when we see a trend in accidents, we specifically address it and beef up our contacts with the miners and supervisors.

Region One • 14 Commerce Dr. Ste 1 - Westover, West Virginia 26501 • Telephone 304-285-3268 • Fax 304-285-3275
Region Two • 830 Virginia Ave - Welch, West Virginia 24801-2311 • Telephone 304-436-8421 • Fax 304-436-2100
Region Three • 137 Peach Court, Suite 2 - Danville, West Virginia 25053 • Telephone 304-369-7823 • Fax 304-369-7826
Region Four • 550 Industrial Dr. - Oak Hill, West Virginia 25901-9714 • Telephone 304-469-8100 • Fax 304-469-4059

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The agency certifies all WV miners and on a day-to-day basis we make contact with our coal miners through safety talks and contacts at the operations and in our regional offices when we have opportunities to talk with them.

Page 1, 3rd paragraph: The performance report states that MHST's prime consideration is the "safety and health of persons employed within or at the mines of the state".

Response: We believe and highly suggest that the report reflect the entire mission statement for the agency as outlined under W.Va. Code §22A-1-1(b), emphasis on underlined text. "The division of health, safety and training shall have as its purpose the supervision of the execution and enforcement of the provisions of this chapter and, in carrying out the aforesaid purposes, it shall give prime consideration to the protection of the safety and health of persons employed within or at the mines of this state. In addition, the division shall, consistent with the aforesaid prime consideration, protect and preserve mining property and property used in connection therewith.

Page 2, Chart 1: West Virginia's Overall Coal Mine Injury Rate from 2000-2017

Response: The chart was generated from data collected from the U.S. Mine Safety and Health Administration. The WV Office of MHST has a data base for all accidents reported in WV. The agency has enforcement rules and regulations that require coal companies to report accidents. The report should reflect that we do review accidents reported and data is entered into a database available to all supervisors and inspectors. The agency investigates all serious accidents, potential life threatening injuries and all mine fatalities. Mine fatalities are investigated, the agency prepares a written report of its findings, recommendations, contributing factors, and violations imposed if warranted. Also, the report does not reflect any data using independent contractors. West Virginia collects data of independent contractor manhours and number of employees. Approximately 35,880 independent contractors could be working at WV mine sites on any given day, compared with 9,971 underground WV miners and 3,110 surface coal miners, 1,895 preparation plant workers, and 537 quarry miners. WV MHST inspects independent contractors statewide every quarter as stated in the Commerce report as, defined in the Governor's Executive budget operating detail. WV OMHST always has a goal and benchmark for "0" fatalities and "0" accidents. We feel that through enforcement we have prevented many "could have" or "would have" accidents from occurring by talking with miners and companies, and issuing penalties when violations are found.

Of course, we realistically know there is always room for improvement when it comes to the safety and health of our miners, and we agree that the agency needs to make changes to do a better job in data analysis of reported injuries. We believe the following steps could be taken to assist MHST in its accident/injury data analyses .

- The agency working with the private sector (BrickStreet) and the WV Insurance Commission by having access to data on reported injuries and accidents would greatly assist MHST in analyzing accidents.
- The agency needs immediate access to, and exchange of information with the State Medical Examiners' Office as it relates to coal mining deaths. This would tremendously assist MHST to understand the cause of death, and a quicker response if needed, to prevent future accidents. MHST understands and is agreeable to the training of pertinent staff for HIPPA compliance to attain this information.

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Page 4, Table 2

Response: One very important fact to consider when comparing accident rates is man-hours worked. You can see on page 4, table 2 that West Virginia has more than 160 million more man-hours worked than any other state and this number does not reflect the man-hours worked by independent contractors.

Page 6, 2nd paragraph – MHST’s Lack of Data Analysis Hinders the Agency’s Ability to Identify Causes and Fluctuations in the Injury Rate.

Response: There are many reasons to consider why the injury rates have increased but none worthier of noting than the opioid epidemic. Since January of 2013, our agency has received over fifteen hundred (1,500) failed drug screenings. While the underground mining atmosphere possess many challenges to someone who is alert and in full control of their senses, it is a situation where someone who is high on drugs or alcohol possess a terrible danger to not only themselves but their co-workers as well.

Page 12, 2nd paragraph – Comparison of Kentucky’s new law reducing/replacing the number of inspections to include mine safety analysis visits.

Response: The agency opposes reducing coal mine inspections in WV. We believe the reduction of compliance (enforcement) inspections would put miners in harm’s way and at a greater risk for serious or fatal injury. We agree that we need to look at human behavior. If you look at the history of coal mine fatalities, it will clearly reflect some were caused by negligence or carelessness of the victim or a co-worker, however it is more accurate to say that almost all coal mine fatalities, violations of the W.Va. Code or Administrative Regulations were violated either by operator, employees, and sometimes the victim when the accident occurred.

Issue 2

Issue summary – page 14, 1st paragraph

Response: We strongly disagree with the statement *“In addition, MHST is a significant expense to the State, requiring approximately \$14 million annually to fund.”* The agency takes the position that we don’t understand why this statement was made during a Performance Review when in our opinion a complete review was not conducted of the agency.

Page 14, 2nd paragraph: Both Federal Government and West Virginia’s Government Created Agencies in the Early 20th Century to Regulate Safety and Health Standards in Mines.

Response: The agency would like to clarify the dates of its creation. The West Virginia Office of Miners' Health, Safety and Training is one of the oldest state agencies, tracing its roots to February 22, 1883 when the first West Virginia mine safety act was passed by the legislature. The first code section called for the appointment of a mine inspector to make certain the mines in the state were "properly drained and ventilated". Not until 1887 would any major revisions of the mining laws occur. Prior to 1905, the state was divided into several inspection districts with a Chief Mine Inspector as head of the agency.

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Page 15, 1st paragraph: "...coupled with the decline in coal mining employment and output, beg the question of whether there is a continued need for MHST.

Response: None of the data or charts reflect the number of independent contractors who work as miners or perform mining related work.

This response is two-fold, as it also responds to the statement on page 14, 1st paragraph in part, "...MHST is a significant expense to the State" as well as the "...continued need for MHST".

In recent years, additional mandated responsibilities and programs have been added to MHST, requiring compliance/enforcement action or additional training for MHST staff with no additional personnel or funding. Some of those are listed below, others are programs implemented by the agency.

Substance Abuse Program

- MHST has an in-house substance abuse and alcohol rules for 100% of inspection staff and persons who operate state vehicles. These procedural rules were implemented to ensure the agency had a "clean" drug/alcohol free enforcement/training personnel.
- MHST is mandated by regulations to enforce substance and alcohol abuse industry-wide. Consisting of hearings before the Coal Mine Safety Board of Appeals to decertify violators of those regulations, witness/travel payment for MRO and Vendors who performed the collection of specimens to appear before the board. To date, over 1,530 persons have been decertified due to substance and/or alcohol abuse in the mining industry.

Diesel Commission

- MHST was mandated by the Legislature to take over the duties and responsibilities of the Diesel Commission which was eradicated.

EMT-M Program

- MHST is now responsible for conducting and managing the EMT-M program for the coal mining industry. This was previously under the responsibility of the Office of Emergency Medical Services under WV DHHR.

Mine Rescue Teams

- MHST maintains in accordance with Rules and Regulations four (4) trained mine rescue teams.
- MHST personnel participate in mine rescue contests as judges.
- MHST participates in Mine Emergency Response Disasters (MERD) training
- MHST mine rescue team members mandated to train 96 hours annually.

Retraining/Continuing Education

- MHST provides and teaches free annual electrical retraining to laid-off coal miners.
- MHST provides and teaches free continuing education classes to laid-off coal miners.
- MHST provides and teaches free annual EMT-M retraining to laid-off miners.

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Accident Investigations

- MHST implemented and developed a trained and qualified accident investigation team. This team is comprised of personnel (including inspectors, safety instructors, and supervisors) from each regional office. Team members respond to all serious, and fatal accidents to conduct the agency's investigation

Hotline/Safety Tips and Safety Complaints

- Annually, MHST receives approximately 1,000 calls from the Anonymous Mine Safety Tips Safety Compliance Hotline. The agency checks out each tip/complaint

Page 18, 3rd paragraph: Duplication Exists Between MSHA's and MHST's Enforcement Program

Response: MSHA's authority in issuing individual penalty assessments is limited to violations of smoking and smoking articles. MHST has authority to assess penalties to individual miners for any infraction of the W. Va. Code or Administrative Regulations.

Page 21, 1st paragraph: MHST should conduct more inspections, including inspections on weekends and off-shifts.

Response: MHST inspection staff conducts inspections on all three shifts, including weekends, and holidays (except for July 4th, Thanksgiving Day, and Christmas Day). Inspectors are on call 24/7, 365 days a year. In the unfortunate event, that an accident occurs on one of the three excluded holidays, inspection personnel would be required to respond.

MHST believes that small mines can be as safe, or unsafe in comparison to a large mine. The conditions and company practices and policy play a bigger role than the size when it comes to the safety and health of the miners.

We thank you for your time, and your consideration to change and/or add to your report based on our responses and comments.

Sincerely,



Greg Norman
Director

JGN:ks



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