

# U.S. Department of Labor

Office of Inspector General—Office of Audit

## REPORT TO THE MINE SAFETY AND HEALTH ADMINISTRATION



**MSHA LABORATORIES HAVE IMPROVED  
TIMELINESS, BUT THE OVERALL SAMPLING  
PROCESS COULD BE ENHANCED**

Date Issued: September 19, 2014  
Report Number: 05-14-002-06-001

## BRIEFLY...

Highlights of Report Number 05-14-002-06-001, issued to the Assistant Secretary for Mine Safety and Health.

### WHY READ THE REPORT

Mine air can contain toxic substances or flammable concentrations of gases. In addition, coal mining practices can deposit an explosive layer of coal dust on mine surfaces. To help detect these conditions, MSHA operates laboratories (labs) that test samples of air, gases, dusts, and solids sent by mine inspectors and operators around the country in order to improve mine safety and health. Mine inspectors use lab results to validate citations and orders issued at the time of sample collection. Mine operators use lab results to identify hazardous conditions. For both, receipt of timely results is critical to miner safety.

This report highlights actions MSHA should take to establish and implement performance standards that cover the full sampling life cycle from collection to lab processing.

### WHY OIG CONDUCTED THE AUDIT

Since the receipt of timely lab results may be critical for miner safety, we designed our audit to answer the following questions:

- Has MSHA established and implemented timeliness performance standards for sample collection, analysis, and results reporting?
- Is MSHA meeting the established performance standards?

### READ THE FULL REPORT

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

<http://www.oig.dol.gov/public/reports/oa/2014/05-14-002-06-001.pdf>.

September 19, 2014

## MSHA LABORATORIES HAVE IMPROVED TIMELINESS, BUT THE OVERALL SAMPLING PROCESS COULD BE ENHANCED

### WHAT OIG FOUND

MSHA has established timeliness standards for the collection and mailing time for only some sample types. While the remaining types of samples are not as time-sensitive or subject to sample degradation, establishing and implementing performance standards is still important in protecting miners.

MSHA has established performance standards for the analysis and reporting phase of the process for all sample types. Specifically, the labs have implemented standard operating procedures that dictate the turnaround times for timely analysis and reporting of samples and results. While MSHA met most of its turnaround time goals, the labs did not always receive samples or report the analyses results timely.

Without a unified performance standard, which covers the entire cycle time from collection to results, MSHA does not know how quickly it is mailing, analyzing, and reporting sample results that are critical to ensuring the safety and health of miners.

### WHAT OIG RECOMMENDED

The OIG recommended the Assistant Secretary for Mine Safety and Health: (1) re-evaluate the appropriateness of the TATs for mine air/gas and MNM total dust samples; (2) establish and implement collection and mailing time standards for MNM total dust, MNM respirable dust, coal quartz, and coal respirable dust samples not overnighted by an inspector or submitted by a mine operator; (3) establish agency performance standards and supporting policies based on full life cycle sampling, and implement a system for tracking life cycle samples exceeding the goals for all sample types; (4) consider pursuing accreditation for the mobile labs; and (5) take steps needed to ensure IPAL uploads occur timely.

In response, MSHA generally agreed with our findings and either plans to, or has already initiated, various corrective actions.

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**U.S. Department of Labor**

Office of Inspector General  
Washington, D.C. 20210



September 19, 2014

**Inspector General's Report**

Joseph A. Main  
Assistant Secretary  
for Mine Safety and Health  
U.S. Department of Labor  
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The purpose of the Mine Safety and Health Administration (MSHA) is to prevent death, disease, and injury from mining and to promote safe and healthful workplaces for the nation's miners. Mine air can contain toxic substances or flammable concentrations of gases. In addition, coal mining practices can deposit an explosive layer of coal dust on mine surfaces. MSHA operates laboratories (labs) that test samples of air, gases, dusts, and solids sent by mine inspectors and operators around the country in order to improve mine safety and health. MSHA collects and analyzes six different types of samples. Our audit focused on all six sample types.

The Office of Inspector General (OIG) conducted this performance audit to answer the following questions:

- Has MSHA established and implemented timeliness performance standards for sample collection, analysis, and results reporting?
- Is MSHA meeting the established performance standards?

Our audit work covered all six sample types received by MSHA's Pittsburgh Safety and Health Technology Center (PSHTC) and National Air and Dust Laboratory (NADL) labs for Fiscal Years (FY) 2012 and 2013.

We conducted this performance audit to complement a prior OIG report,<sup>1</sup> in which we recommended MSHA re-evaluate the performance standard for timely completion of lab tests on samples that yield enforcement related data. As a result, MSHA made several improvements, including establishing a new mine dust turnaround time (TAT) performance standard of 9 days and implementing new procedures and upgrades for NADL.

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<sup>1</sup> *In 32 Years MSHA Has Never Successfully Exercised Its Pattern of Violations Authority* (Report No. 05-10-005-06-001), September 29, 2010.

Overall, we found MSHA has established and implemented performance standards for the time it takes its labs to analyze samples. For some sample types, MSHA also established standards for the time by which a sample must be shipped to the labs after collection. However, it does not have a unified performance measure that covers the entire sample process from collection to reporting results. We also found that while MSHA met most of its TAT goals, the labs did not always receive the samples or report the analyses results in a timely manner.

## Background

The Directorate of Technical Support provides engineering and scientific expertise to assist MSHA, the states, and the mining industry in the resolution of safety and health issues. Among the activities conducted by MSHA are testing of various types of mine samples, including mine dust, metal/nonmetal (MNM) respirable dust, coal respirable dust, MNM total dust, gas and organic samples.

The PSHTC, located in Bruceton, PA, carries out these activities. Specifically, the PSHTC maintains a specialized group of trained personnel who offer expertise in the identification, prevention, and control of health hazards associated with the mining environment, such as hazardous airborne contaminants (i.e., dusts, fumes, gases and/or vapors); non-airborne chemicals; physical agents, such as heat, noise, and radiation; biological agents; and ergonomic factors.

The PSHTC operates an American Industrial Hygiene Association accredited dust lab that weighs and conducts analyses of MNM and coal mine respirable dust samples<sup>2</sup> collected by MSHA enforcement personnel and/or mine operators. Accreditation ensures the methodology utilized by the lab is consistent with industry standards. Other analyses conducted by the PSHTC at the request of enforcement personnel include gas,<sup>3</sup> diesel particulate,<sup>4</sup>



Image 1: Lab technician preparing mine dust for analysis at the NADL

<sup>2</sup> Respirable dust samples are analyzed for quartz (silica) content. Silica is an occupational carcinogen.

<sup>3</sup> Gas samples are analyzed for potential dangerous/explosive mine environments. The following five routine gases are analyzed: carbon dioxide (CO<sub>2</sub>), oxygen (O<sub>2</sub>), methane (CH<sub>4</sub>), ethane (C<sub>2</sub>H<sub>6</sub>), and nitrogen (N<sub>2</sub>). For fire gas analyses, the following are analyzed: acetylene (C<sub>2</sub>H<sub>2</sub>), argon (Ar), carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), ethane (C<sub>2</sub>H<sub>6</sub>), ethylene (C<sub>2</sub>H<sub>4</sub>), hydrogen (H<sub>2</sub>), methane (CH<sub>4</sub>), nitrogen (N<sub>2</sub>), and oxygen (O<sub>2</sub>).

and trace metals.<sup>5</sup> In addition, PSHTC operates four mobile labs, which are used during mine emergencies (mine fire or explosion) and are not accredited. The PSHTC also operates the NADL, located in Mt. Hope, WV. The NADL conducts analyses of mine dust samples to determine the incombustible content of the dust and analyzes air/gas samples. MSHA reported the NADL's application for accreditation has been approved by the American Association for Laboratory Accreditation and anticipates that final action on accreditation will be completed by September 30, 2014. In addition, MSHA informed us that although it lacks the resources and staffing needed to pursue accreditation for the mobile labs, the agency follows standard operating procedures (SOP) and quality control measures.

MSHA inspectors mail samples collected during inspections or investigations to the appropriate lab (PSHTC, NADL, or the mobile labs) for analysis, and upload sample information to the MSHA Standardized Information System (MSIS). Mine operators also mail respirable dust samples collected as required by regulations to the MSHA labs for analysis. After receipt, lab technicians analyze the samples and determine the results, which are then reviewed and approved by the lab supervisor or designee. After approval, the sample analysis results are reported to the submitting party. Inspectors use lab results to validate citations and orders issued at the time of sample collection. Mine operators use lab results to identify and correct hazardous conditions.

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**Objective 1 — Has MSHA established and implemented timeliness performance standards for sample collection, analysis, and results reporting?**

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*MSHA has not established and implemented performance standards for the entire sample analysis cycle.*

MSHA has established turnaround times for the analysis and reporting of all samples. However, it does not have a unified performance standard that measures the time from sample collection to reporting analysis results for all six sample types. Measuring the complete cycle is critical to identifying breakdowns or problems in the sample analysis process. Without performance standards that cover the whole cycle, MSHA does not know how quickly it is mailing, analyzing, and reporting sample results that are critical to ensuring the safety and health of miners.

The analysis cycle can be broken down into two parts: the sample collection and mailing process, which is performed by mine inspectors and operators, and the sample analysis and reporting process, which is performed by the labs. MSHA has established standards for the time by which inspectors must mail samples after collection only for some types of samples.

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<sup>4</sup> Organic samples are analyzed to determine if elemental and organic carbon in diesel particulates are present in the workplace atmosphere.

<sup>5</sup> This analysis is conducted to determine the amount of metal and metalloid particulates (silver (Ag), arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), magnesium (Mg), manganese (Mn), molybdenum (Mo), Nickel (Ni), lead (Pb), zinc (Zn), vanadium (V), and calcium (Ca) present in the workplace atmosphere.

## Collection and Mailing

MSHA has established timeliness standards for collection and mailing time for only 4 types of samples: mine dust and air/gas samples should be mailed within 3 working days of collection; certain coal respirable dust samples should be shipped overnight; certain air samples should be mailed immediately after collection; and all operator-collected respirable dust samples must be mailed within 24 hours of the end of the sampled shift.<sup>6</sup> MSHA has not established mailing time performance standards for remaining coal respirable dust, coal quartz, MNM total dust, and MNM respirable dust samples.

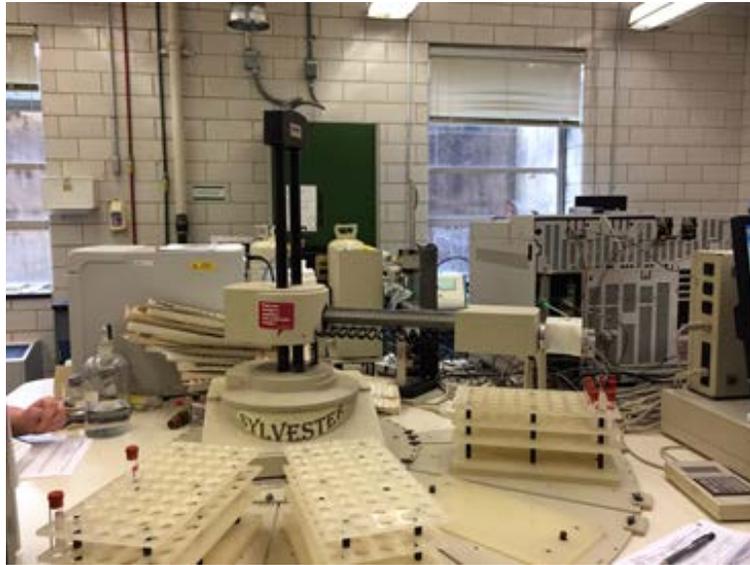


Image 2: Custom Gerstel Autosamplers holding Vacutainers® at the NADL

Because certain air samples have limited shelf lives, MSHA recognizes time is important in the collection, mailing, analysis, and reporting steps. Inspectors typically use a Vacutainer® (glass container), 50 cubic centimeter bottle, or bistable (reusable metal container) to collect routine air samples. According to MSHA, air collected in Vacutainers® has a 7-day shelf life. Because of their relatively short shelf lives, air samples should be mailed immediately after collection. Samples collected during a mine emergency operation are sometimes collected in syringes and have a 24-hour shelf life. These samples are hand-delivered to an MSHA lab and analyzed within hours of collection. Syringe samples are not used for routine sampling during inspections.

While the remaining types of samples are not as time-sensitive or subject to sample degradation, establishing and implementing performance standards is still important in protecting miners. Without performance standards that cover the full cycle, MSHA does not know if there is a breakdown in the process. During the audit, MSHA committed to implementing a performance standard covering the entire cycle time for all sample types.

## Analysis and Reporting

The labs generally process samples on a first-in, first-out basis. In the vast majority of cases, samples are processed immediately upon receipt. However, because the labs have no way to identify if there was a delay in mailing specific samples when they arrive

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<sup>6</sup> Operator-collected respirable dust samples are the same as inspector-collected respirable dust samples, but MSHA has established a separate mailing time requirement for these samples.

in the mail, they do not have a process in place to prioritize the analysis of samples that are received late.

MSHA has established performance standards for the analysis and reporting phase of the process for all sample types. The labs have implemented SOPs that dictate the TATs for timely analysis and reporting of samples and results (see Table 1). The air/gas TAT for NADL became effective on October 1, 2012, and the mine dust TAT became effective on October 22, 2012. The establishment and implementation of these standards ensures MSHA can determine if the labs are analyzing samples and reporting results in a timely manner.

<b>Sample Type</b>	<b>Working Days</b>
Coal respirable dust	2
MNM total dust	2
Coal quartz	3
MNM respirable dust	7
Air/gas	7
Mine dust	9

Performance standards are tools government agencies use to measure and improve their performance. Without a unified performance standard that covers the entire cycle time from collection to results, MSHA cannot adequately monitor and assess the timeliness of the sample process. To address our concerns, MSHA indicated it plans to implement a performance standard for all sample types to cover the entire process cycle.

**Objective 2 — Is MSHA meeting the established performance standards?**

*MSHA labs mostly meet their TAT goals, but other factors may delay the process.*

Because MSHA has not established performance standards for all samples that cover collection and mailing time, we used full cycle time standards where those were provided by MSHA, and in the remaining cases, we used a calculation for estimated collection and mailing times. For this section, we focused on the standards for analysis and reporting because MSHA has established these standards for all sample types.

For five out of six types of samples we tested, the labs were meeting their analysis and reporting TATs. However, we also found in some cases the labs were not receiving samples in a timely manner. In other cases, the labs could not report results in a timely manner because mine inspectors did not always transmit sample information within a reasonable time.

The labs followed procedures established in the SOPs for receiving and analyzing samples, and approving and reporting results. The labs received samples directly from inspectors or via mail, Federal Express, or United Parcel Service. The date of receipt was recorded into the Laboratory Information Management System (LIMS). The labs analyzed the samples using techniques specific to the sample type and recorded the date of analysis into LIMS. In addition, MSHA monitors the lab processes and compliance with established SOPs as part of its quality assurance program.

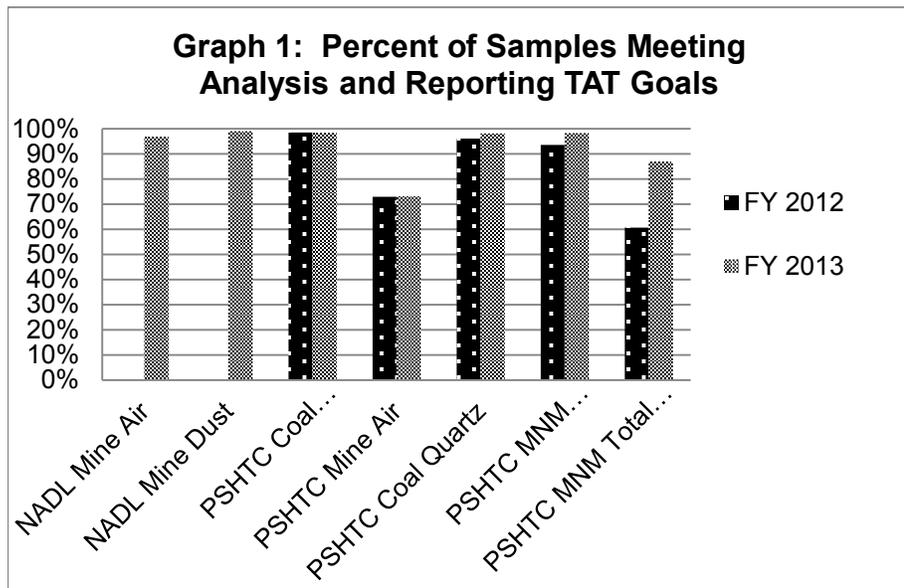
Timely Analysis of Samples

The PSHTC met its TAT goals for MNM and coal mine respirable dust and coal quartz for both fiscal years. The PSHTC, however, did not meet its TAT goals for mine air/gas and MNM total dust samples (see Graph 1 below). On average, 27 percent of mine air/gas samples and 25 percent of MNM total dust samples did not meet established TATs.

According to MSHA, the PSHTC did not always meet its mine air/gas TAT because it lacks sufficient staff to analyze the samples, has only one lab supervisor (who is needed to approve results), and uses mobile testing equipment (that can be taken off-site) to analyze air/gas samples during mine emergencies. MSHA has established a new procedure to re-route samples to another MSHA lab when necessary. MSHA believes the PSHTC was also unable to meet the MNM total dust TATs because the goal MSHA set was too low. MSHA plans to review and revise the testing procedures, including TAT goals, for mine air/gas and MNM total dust samples.

During FYs 2011 and 2012, the NADL established new TAT goals, increased its staffing, modernized the lab, and purchased new equipment to increase testing capacity. As a result, during FY 2013, the NADL

Image 3: Agilent 7890 Gas Chromatographs at the NADL



\* The FY 2012 NADL mine air/gas TAT goal could not be calculated because the data was not available.

met almost 100 percent of its TAT goals for mine dust and mine air/gas, a marked improvement from FY 2012 (see Graph 1).

Timely Receipt of Samples

The PSHTC and NADL did not always receive air/gas and dust samples on a timely basis. MSHA enforcement personnel and mine operators are directed to take samples, record the collection date, and mail them to the labs for analysis. According to MSHA, MNM mine inspectors typically report to their assigned field office on Monday and prepare the samples collected the previous week for mailing to the labs. However, depending on the inspector’s travel area, there are times when he or she cannot return to their field office with the collected samples for two weeks. This could affect the integrity of certain types of samples.

As noted earlier, MSHA has established collection and mailing time

**Table 2: Total Cycle Time in Working Days**

Lab	Sample Type	Mailing Time	TAT Goal	Total Cycle Time
PSHTC	Coal Respirable Dust	7*	2	9
PSHTC	MNM Total Dust	10*	2	12
PSHTC	Coal Quartz	7*	3	10
PSHTC	MNM Respirable Dust	10*	7	17
PSHTC & NADL	Mine Air/Gas	3	7	10
NADL	Mine Dust	3	9	12

\* Value calculated by OIG

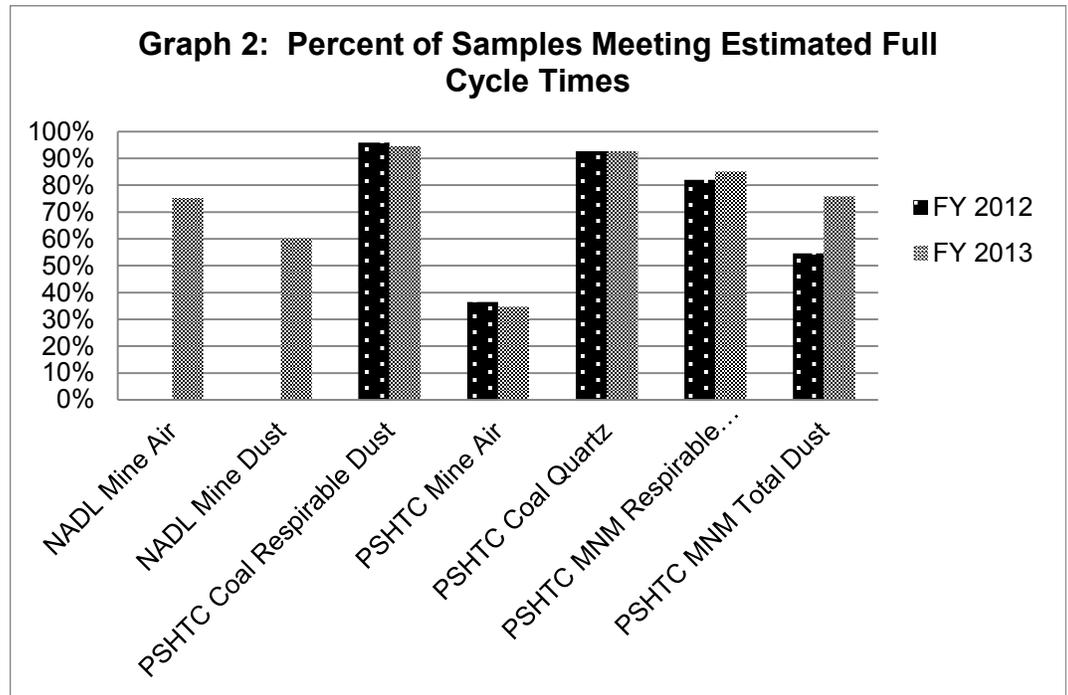
performance standards for mine dust and air/gas and coal respirable dust. MSHA’s policies for the remaining sample types state the samples should be submitted to the labs “as soon as possible.” The Government Accountability Office (GAO) *Standards for Internal Control in the Federal Government* require agencies to establish performance measures. Prior GAO work identified specific attributes that are key to successful performance measures.<sup>7</sup> Specifically, performance measures should be clearly stated, measurable, and reliable.<sup>8</sup> MSHA’s standard for submitting samples “as soon as possible” does not meet these requirements. Because MSHA has not established performance measures for every sample type, we based our calculations of late samples on 7 or 10 working days as the maximum number of days it should take from collection in the field to receipt in the labs. We based this on MSHA’s 3-day air and mine dust mailing standard and added 4 days for mail delivery for coal samples and 7 days mail delivery for MNM samples. Based on this 7 or 10-day calculation, the PSHTC received approximately 16 percent of its samples late in FYs 2012 and 2013. Without a clearly defined performance standard, MSHA cannot adequately monitor if samples are submitted timely. Table 2 shows the total calculated cycle time for each sample type.

<sup>7</sup> *Four People Performance Measures: Many Attributes of Successful Measures Met; Opportunities Exist for Further Enhancements* (GAO/OIG-09-3), August 2009.

<sup>8</sup> Performance measures should also be: (1) aligned with division and agency-wide goals and mission (the measure covers a priority, such as quality or timeliness); (2) reasonably free from significant bias or manipulation; (3) cover the activities that an entity is expected to perform; and (4) provide new information.

When we included estimated collection and mailing time as part of a full cycle time measurement, we found MSHA met these standards for 95 percent of its coal respirable dust samples, 35 percent of its mine air/gas samples, 93 percent of its coal quartz samples,

85 percent of its MNM respirable dust samples, and 76 percent of its MNM total dust samples during FY 2013. MSHA met these standards for 75 percent of its mine air samples and 60 percent of its mine dust samples during FY 2013, the year the standards were adopted by that lab (see Graph 2).



\* The FY 2012 NADL mine air/gas TAT goal could not be calculated because the data was not available.

Timely Reporting

MSHA could not always report sample analysis results within established TATs to the submitting field offices. This occurred because mine inspectors did not always successfully upload sample data to MSIS in a timely manner. Failure to timely upload data causes the labs to report sample analysis results beyond the established TAT goals. As a result, MSHA may not be able to utilize the sample analysis results to support the gravity of the enforcement action in settlement negotiations or legal hearings.

The Inspector’s Portable Application for Laptops (IPAL) is an MSHA computer program that assists inspectors in maintaining inspection data. The program interfaces with MSIS and allows a seamless transfer of enforcement and inspector data into and out of the system. The implementation of IPAL was intended to minimize transcription errors and to expedite processing by reducing the labor needed to input sample data into LIMS.

According to GAO’s *Standards for Internal Control in the Federal Government*, “information should be recorded and communicated to management and others within a timeframe that enables them to carry out their responsibilities.” MSHA’s policy states, “Inspectors are responsible for assuring that information they have entered into the IPAL program occurs on a regular and **timely** [emphasis added] basis.” Because

MSHA's policies and procedures do not define "regular and timely," this guidance is open to interpretation. The MSHA labs rely on inspectors to input and upload sample identifying data to IPAL within reasonable timeframes. We found inspectors did not always transmit data to MSIS on a timely basis for MNM respirable dust, MNM total dust, mine dust, and the NADL air/gas samples. Specifically, in 10 percent of the samples we reviewed, data uploads occurred more than 5 working days after receipt.

MSHA is in the process of upgrading its systems to automate the uploading process. According to MSHA, the automated uploads would eliminate this issue. In the interim, MSHA is developing an IPAL enhancement to make the upload notification messages received by inspectors more noticeable to ensure inspectors are aware when uploads fail or further action is needed. MSHA also plans to provide additional guidance and training to inspectors.

### **Recommendations**

We recommend the Assistant Secretary for MSHA:

1. Re-evaluate the appropriateness of the TATs for mine air/gas and MNM total dust samples;
2. Establish and implement collection and mailing time standards for MNM total dust, MNM respirable dust, coal quartz, and coal respirable dust samples not overnighted by an inspector or submitted by a mine operator;
3. Establish agency performance standards and supporting policies based on full life cycle sampling, from sample collection through lab processing, and implement a system for tracking life cycle samples exceeding the goals for all sample types;
4. Consider pursuing accreditation for the mobile labs if practical and economically feasible; and
5. Take steps needed to ensure IPAL uploads occur within specific timeframes by defining timeliness goals for all sample types and addressing any technical issues that may prevent timely and successful IPAL uploads.

### **MSHA's Response**

The Assistant Secretary for MSHA generally agreed with the audit results. MSHA re-evaluated and adjusted the TATs for mine dust, air and MNM total dust samples. Specifically, MSHA reduced the TAT for mine dust from 9 days to 5 days and air samples from 7 days to 5 days. MSHA increased the MNM total dust TAT from 2 days to 5 days. MSHA also plans on revising its procedures to reflect goals for full life cycle sampling, from sample collection through lab processing, and to implement a system for monitoring life cycle samples. However, MSHA noted this cannot be completed without

modifications to both IPAL and MSIS. MSHA estimates this would cost \$400,000. MSHA indicated that based on technical and resource issues, it is not practical or feasible to pursue accreditation for its mobile labs. MSHA believes the quality control measures and SOPs already in place are adequate and have been effective for the past 30 years of mine emergency operations. Further, MSHA has already begun the process of making system upgrades to automate the IPAL upload process. In August 2014, MSHA's Directorate of Program Evaluation and Information Resources developed and implemented a modification to the IPAL computer application, which notifies inspectors when data upload errors occur. MSHA indicated this application has improved the timeliness of uploads, further reducing the possibility of delays in reporting sample analyses to enforcement.

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



Elliot P. Lewis  
Assistant Inspector General  
for Audit

## Appendices

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**Appendix A**

**Objectives, Scope, Methodology, and Criteria**

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Objectives

The OIG conducted this performance audit to answer the following questions:

- Has MSHA established and implemented timeliness performance standards for sample collection, analysis, and results reporting?
- Is MSHA meeting the established performance standards?

Scope

Our audit work covered all samples received by the PSHTC and NADL labs for FYs 2012 and 2013.

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

Methodology

To accomplish our audit objectives, we: (1) reviewed MSHA’s policies and procedures, including lab SOPs, to determine if the PSHTC and NADL established and implemented timeliness performance standards; (2) interviewed MSHA Headquarters, PSHTC and NADL staff; (3) conducted walkthroughs of the various labs at the PSHTC and NADL to gain an understanding of the sample receipt, analysis and reporting processes; and (4) reviewed information provided by MSHA.

To determine if the labs met the established performance standards, we used the data provided by MSHA to calculate the length of time from: (1) sample collection to sample receipt; (2) sample receipt to reported/approved date; and (3) sample collection to IPAL upload. Our calculations excluded the sample collection date or sample receipt date, weekends, and federal holidays. We reviewed all samples received at the PSHTC and NADL during FYs 2012 and 2013.

Data Reliability

To determine the reliability of MSHA’s sample data, we: (1) identified specific data elements from MSIS that were critical to supporting our audit analyses; (2) obtained data for all samples the two MSHA labs received during FYs 2012 and 2013; (3) developed and completed steps to assess the completeness and accuracy

(i.e., reliability) of the data; (4) traced dates (sample collection, sample receipt, reported/approved) input into LIMS to source documents (MSHA forms, dust data cards, daily batch reports); and (5) followed up with MSHA to clarify the meaning of the data and address discrepancies identified. We determined the data was sufficiently reliable for our testing purposes.

### Internal Controls

In planning and performing our audit, we considered MSHA's internal controls that were relevant to our audit objectives by obtaining an understanding of those controls and assessing control risk for the purposes of achieving our objectives. The objective of our audit was not to provide assurance on the internal controls. Therefore, we did not express an opinion on the internal controls as a whole. Our consideration of MSHA's internal controls relevant to our audit objectives would not necessarily disclose all matters that might be reportable conditions. Because of the inherent limitations on internal controls, noncompliance may nevertheless occur and not be detected.

### Criteria

- Federal Mine Safety and Health Act of 1977, Sections 202 – 206
- MSHA Coal Mine Health Inspection Procedures Handbook (PH89-V-1(23), July 2012)
- MSHA Metal Nonmetal Health Inspection Procedures Handbook (PH06-IV-1(1)), October 2006
- Coal Mine Safety and Health General Inspection Procedures Handbook (PH13-V-1), February 2013
- Metal and Nonmetal General Inspection Procedures Handbook (PH13-IV-1), April 2013
- PSHTC Standard Operating Procedures
- NADL Standard Operating Procedures

**Appendix B**

**Acronyms and Abbreviations**

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FY	Fiscal Year
GAO	Government Accountability Office
IPAL	Inspector’s Portable Application for Laptops
LIMS	Laboratory Information Management System
MNM	Metal/Nonmetal
MSHA	Mine Safety and Health Administration
MSIS	MSHA Standardized Information System
NADL	National Air and Dust Laboratory
OIG	Office of Inspector General
PSHTC	Pittsburgh Safety and Health Technology Center
SOP	Standard Operating Procedures
TAT	Turnaround Time

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MSHA Response to Draft Report

U.S. Department of Labor

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



SEP 04 2014

MEMORANDUM FOR ELLIOT P. LEWIS

Assistant Inspector General for Audit

A handwritten signature in black ink, appearing to read "Joseph A. Main", is written over the typed name.

FROM:

JOSEPH A. MAIN

Assistant Secretary of Labor for  
Mine Safety and Health

SUBJECT:

Response to OIG Draft Audit Report: "MSHA Laboratories Have  
Improved Timeliness. But the Overall Process Could Improve"  
(05-14-002-06-001)

Thank you for the opportunity to review your Draft Audit Report referenced above. The Mine Safety and Health Administration (MSHA) will use the audit results to continue to improve upon our laboratory programs. MSHA is continuously evaluating its processes and procedures.

We appreciate the OIG's recognition of the improvements MSHA has already made in the timeliness of processing mine air and dust samples. The upgrades in equipment and increased staffing at the National Air and Dust Laboratory (NADL) in Mt. Hope, WV are providing enforcement with the support they need to protect our Nation's miners. Recently, MSHA was notified that the NADL has been accredited by the American Association for Laboratory Accreditation (A2LA); we anticipate final action will be completed by September 30, 2014.

For the most part, MSHA sample analyses from the Pittsburgh Safety and Health Technology Center (PSHTC) and NADL are generally considered validation samples that verify enforcement data already gathered by MSHA inspectors in the field. Inspectors carry well-maintained and calibrated hand-held detectors that give instantaneous read-outs to provide a determination of whether an immediate hazard that presents a risk to miners exists. As such, PSHTC and NADL analyses provide secondary results that are generally used to support enforcement actions and litigation on contested violations. The timeliness of the sampling collection has not adversely affected litigation.

As further outlined below, there will be additional costs associated with implementing some of the OIG recommendations; MSHA has not yet received its funding level for FY2015 and will likely need additional resources that fall outside its current budgetary projections.

**OIG Recommendation No. 1:** *Re-evaluate the appropriateness of the TATs for mine air/gas and MNM total dust samples.*

As MSHA continues to assess areas for improvement throughout the agency, it concurs with this recommendation. The turnaround times (TATs) for mine dust and air samples processed in the NADL were tracked for months after MSHA set goals for the lab. We have evaluated the data and have determined that we can further reduce the TAT for mine dust from nine days to five days, and air samples from seven days to five days. We expect these TATs to be met 90 percent of the time.

The TAT for Metal and Nonmetal total dust samples was also re-evaluated. This goal has been increased from two days to five days, which is more appropriate for nuisance dusts.

**OIG Recommendation No. 2:** *Establish and implement collection and mailing time standards for MNM total dust and MNM respirable dust samples.*

MSHA's assessment concurs with this recommendation. MSHA planned improvements include revising procedures to reflect full life cycle goals for Metal and Nonmetal dust samples.

**OIG Recommendation No. 3:** *Establish agency performance standards and supporting policies based on full life cycle sampling, from sample collection through lab processing, and implement a system for tracking life cycle samples exceeding the goals for all sample types.*

MSHA agrees with the spirit of this recommendation. MSHA's planned improvements include revising procedures to reflect goals for full life cycle sampling, from sample collection through lab processing, and to implement a system for monitoring life cycle samples. This revision cannot be completed without modifications to both IPAL and MSIS. MSHA estimates that it would cost \$400,000 for these modifications. MSHA will assess timing of this with other competing budgetary priorities and in consideration of the current budgetary constraints.

**OIG Recommendation No.4:** *Consider pursuing accreditation for the Denver and mobile labs if practical and economically feasible.*

MSHA assessed the OIG recommendation to accredit mobile labs that support mine emergency operations. However, based on technical and resource issues, it is not practical or feasible to pursue accreditation for these mobile labs. Accreditation requires both a Technical Director and a Quality Assurance Manager to be on site at least 50% of the time and does not permit both positions to be held by the same person, pushing the total costs for accreditation beyond \$700,000. MSHA does not believe that accreditation is necessary. We believe the quality control measures and standard

operating procedures already in place are adequate and have been effective for the past 30 years of mine emergency operations.

**OIG Recommendation No. 5:** *Take steps needed to ensure IPAL uploads occur within specific timeframes by defining timeliness goals for all sample types and addressing any technical issues that may prevent timely and successful IPAL uploads.*

MSHA's assessment of agency improvements concurs with this recommendation. As we have noted, MSHA has already begun the process of making system upgrades to automate the Inspector's Portable Application for Laptops (IPAL) uploading process, which has improved the inspector reporting process. In September 2012, our Program Evaluation and Information Resources (PEIR) Directorate released an enhancement, which allowed MSHA inspectors to directly upload sample data from IPAL into MSHA's Standardized Information System (MSIS) and allowed both Enforcement and Lab personnel to compare the information each has input in MSIS.

In August 2014, PEIR developed and implemented a modification to the IPAL computer application, which notifies inspectors when data upload errors occur. This application has improved the timeliness of uploads, further reducing the possibility of delays in reporting sample analyses to enforcement.

We appreciate the information provided as a result of this audit. We also ask that the OIG be mindful of the costs associated with the implementation of its recommendations. As the OIG is aware, Federal agencies are operating with very tight budget constraints, and implementing recommendations that require additional spending, place agencies in the difficult position of reducing funding to other priorities so that recommendations can be implemented.

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**Appendix D**

**Acknowledgements**

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Key contributors to this report were Nicholas Christopher (Audit Director), Robert Swedberg (Audit Manager), S. Marisela Sookraj (Audit Manager), Kathleen Mitomi, Richard Bryan, Charmane Miller, Carmelle Paytes, and Mary Lou Casazza.

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