

SURVEY OF COAL MINE SAFETY INTERVENTIONS

Request for Office of Management and Budget (OMB) Review and Approval
for a Federally Sponsored Data Collection

Part A: Justification

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A1. Circumstances Making the Collection of Information Necessary

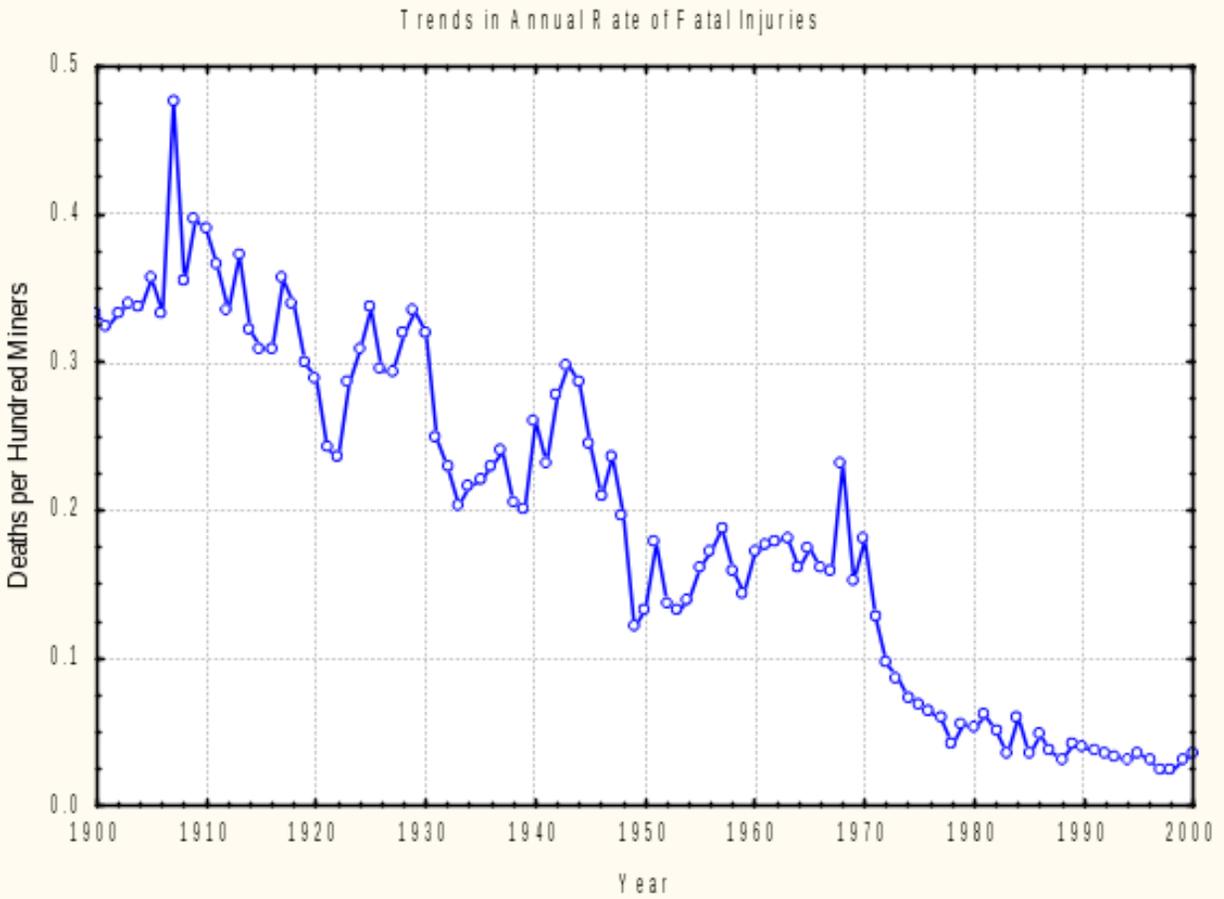
Under the Federal Mine Safety and Health Act of 1977, Section 501 (**Appendix A**), the National Institute for Occupational Safety and Health (NIOSH) is directed to “...conduct such studies, research, experiments, and demonstrations as may be appropriate to:

- (1) Improve working conditions and practices in coal or other mines, and to prevent accidents and occupational diseases originating in the coal or other mining industry;
- (2) Develop new or improved methods of recovering persons in coal or other mines after an accident;
- (3) Develop new or improved means and methods of communication from the surface to the underground area of a coal or other mine;
- (4) Develop new or improved means and methods of reducing concentrations of respirable dust in the mine atmosphere of active workings of the coal or other mine;
- (5) Develop epidemiological information to (a) identify and define positive factors involved in occupational diseases of miners, (b) provide information on the incidence and prevalence of pneumoconiosis and other respiratory ailments of miners, and (c) improve mandatory health standards;
- (6) Develop techniques for the prevention and control of occupational diseases of miners, including tests for hyper-susceptibility and early detection...”

These mandated tasks are a continuation and extension of tasks given to the U.S. Bureau of Mines, created in 1910, for the initial purpose of investigating the causes of mine explosions. This mission was expanded several times, most notably with passage of the Coal Mine Health and Safety Act in 1969, the Federal Mine Safety and Health Act in 1977, and in 1996, when Congress terminated the Bureau of Mines and transferred its mission and many of its functions to NIOSH. There has thus been nearly a century of research and development for the purpose of improving mine safety and health (National Research Council and Institute of Medicine 2007; Weeks, 1993).

This research and development has resulted in an impressive record of accomplishment. The rate of fatal injuries was reduced more than twenty-fold over the course of the 20th century (Exhibit 1). These accomplishments were made possible largely because of hazard control methods that had been developed by the Bureau of Mines and, after 1996, by NIOSH.

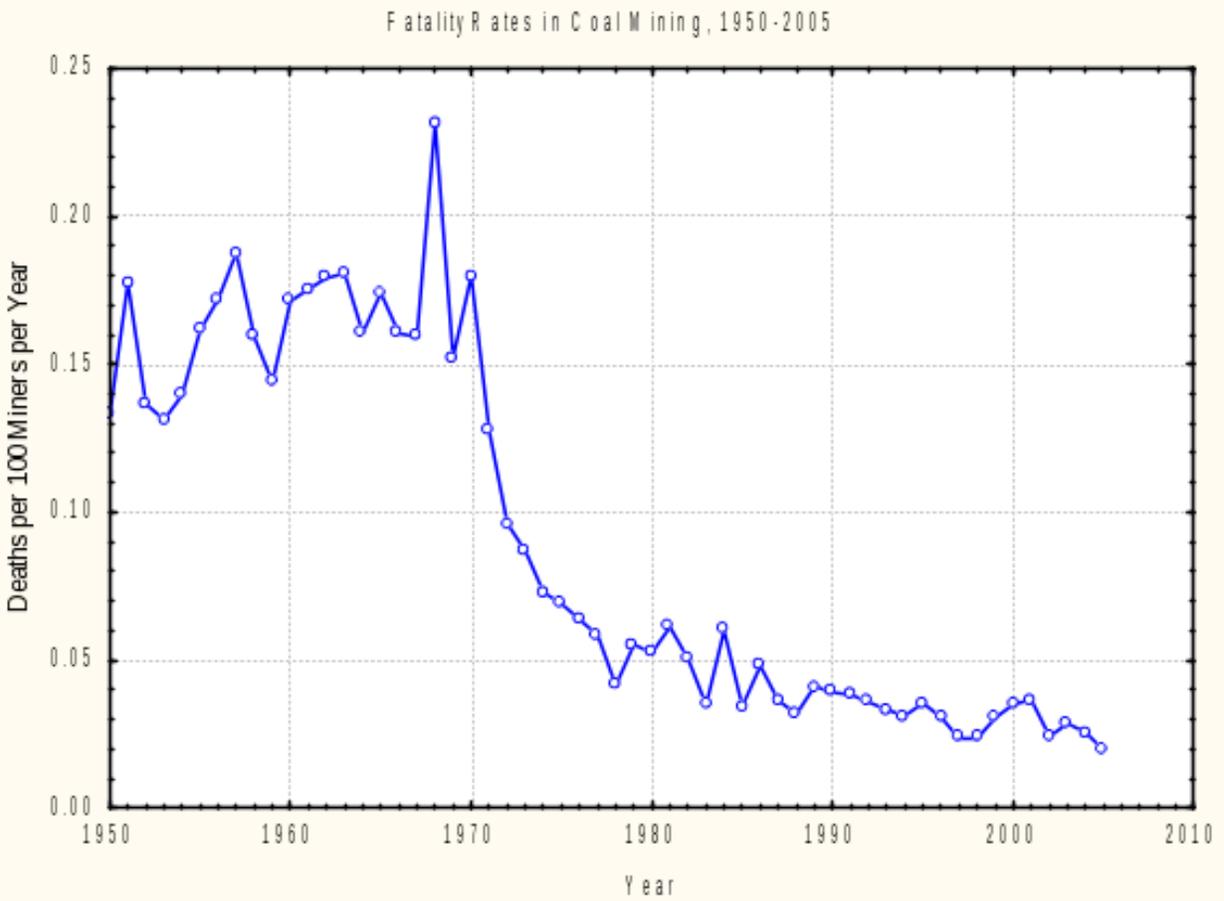
Exhibit 1:



Source: Mine Safety and Health Administration (MSHA)

With the passage of the Federal Coal Mine Health and Safety Act in 1969, the rate of fatal injuries was reduced eight-fold by the end of the 20th century compared to the rate in the decade before the Coal Mine Act was passed (Exhibit 2).

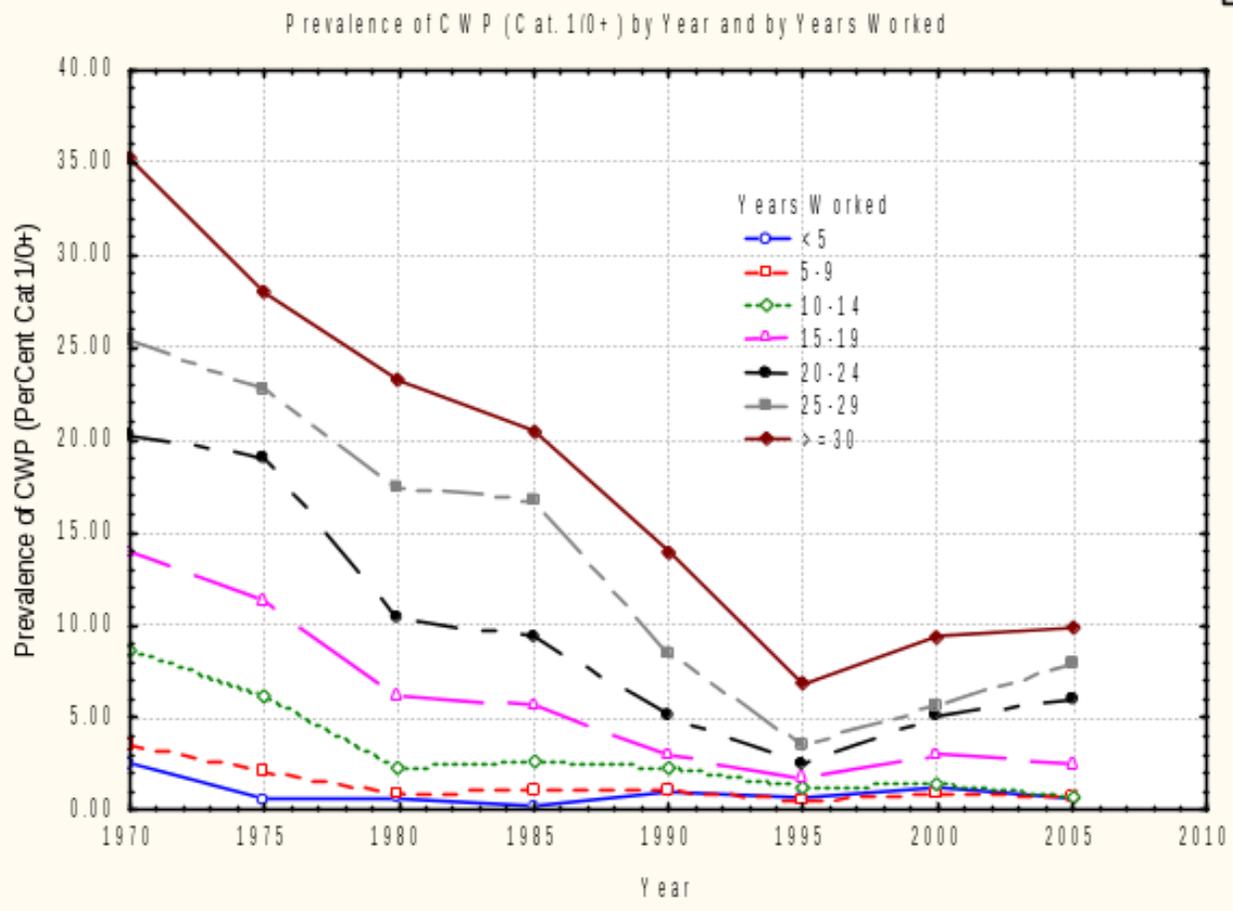
Exhibit 2:



Source: Mine Safety and Health Administration (MSHA)

Furthermore, due to dust control methods developed by NIOSH and the Bureau of Mines (Weeks, 1993), the prevalence of coal workers' pneumoconiosis (CWP), commonly known as black lung, also has been reduced to a tenth of its rate when surveillance was first initiated in 1969 (Exhibit 3).

Exhibit 3:



Source: NIOSH, Division of Respiratory Disease Studies

While accomplishments by the Bureau of Mines and by NIOSH are impressive, problems persist. For example, in September 2001, there was a coal mine disaster in Alabama involving roof collapses and subsequent explosions that killed thirteen miners. In the eighteen months from the beginning of 2006 to the middle of 2007, there were three preventable disasters, taking the lives of nearly twenty miners. These events—including collapses at the Sago Mine in West Virginia and at Crandall Canyon in Utah—resulted in round-the-clock media coverage that focused the nation’s attention on the plight of the trapped miners, the recovery operations (which proved fatal for 3 rescuers in Crandall Canyon), and on mine disaster prevention and response more generally.

Disasters like these, and the persistence of other causes of death among miners, have resulted in a net increase in the rate of fatal injuries among underground coal miners over the past decade. The rate of non-fatal disabling injuries (e.g., back injuries, amputations, strains and sprains) remains unacceptably high. While the incidence rate of all non-fatal injuries in mining is slightly lower than it is in goods-producing industries in the U.S. (4.8 per 100 full time workers in mining vs. 5.9 in goods-producing industries in 2006), the incidence rate of injuries resulting in

days away from work is substantially higher than it is in goods-producing industries (2.9 vs. 1.7, respectively).¹ This measure of mine safety has remained high over the past two decades.

Occupational disease is still a problem in the mining industry. Though the prevalence of CWP has declined significantly, there has been a resurgence of new cases over the past ten years, most evident among miners with more than 20 years experience, as shown in Exhibit 3. These findings are based on recent data from NIOSH, which manages the Coal Workers' Health Surveillance Program (OMB No. 0920-0020, Exp. Date 12/2009), a surveillance program for CWP. Furthermore, clusters of advanced cases of CWP were detected in 2004 (Antao et al. 2005). With more powerful and noisier mine machinery, noise-induced hearing loss continues as a real possibility. The specter of lung cancer also arises with the increasing use of diesel powered equipment underground, exposing underground miners to the highest levels of diesel particulate matter of any population in the U.S. (Stayner et al. 1998).

There is a need to research the causes and means of preventing injuries and illnesses among miners and improve means of controlling respirable dust, noise, and diesel particulate matter. This is the ongoing mission of NIOSH's Mining Program as mandated by the Federal Mine Safety and Health Act. To achieve this mission, NIOSH engages the mining industry—operators, workers, equipment manufacturers, and others—in identifying needs and establishing priorities for research and development. The products of research come in many forms: technologies, mining methods, instruments, computer software, training materials, and others. These products are made available to the mining community through multiple channels, including publications, workshops, conference presentations, and on the Internet. The primary (but not the only) consumers of NIOSH research are mine operators. Occasionally, NIOSH recommendations are adopted by the Mine Safety and Health Administration (MSHA) and become required by regulation.

Despite the potential benefits of its research into ways to improve the safety and health of those working in the coal mining industry, NIOSH currently lacks information on the adoption and use of its products, safety interventions and innovations by the industry. Further, among NIOSH interventions that are being used, few have been systematically evaluated for their utility and effectiveness from the point of view of mine operators and safety managers.

This information collection—the NIOSH *Survey of Coal Mine Safety Interventions*—is intended to fill this gap by providing valid, reliable data to estimate the adoption of a core set of innovations/technologies developed by NIOSH's Mining Program. As such, it represents a new information collection. The survey also aims to identify the characteristics of health and safety interventions that mine operators and safety managers find most useful, to enhance the effectiveness of future interventions.

Privacy Impact Assessment

Overview of the Data Collection System

¹ Bureau of Labor Statistics; accessed 11/26/07 from <http://www.bls.gov/iif/oshwc/osh/os/ostb1765.pdf>

The data collection plan for this survey will employ a paper questionnaire (**Appendix B**) and a Web-based questionnaire (**Appendix C**). A survey packet containing a cover letter (**Appendix D**), a letter of endorsement from several mining organizations (**Attachment E**) and the paper version of the questionnaire will be mailed to all of the sampled mining operations. Instructions for accessing the Web survey, hosted by the sub-contractor ICF International will be included in the cover letter. The research records from this survey will be maintained at NIOSH for a minimum of three years after the study becomes inactive.

Items of Information to be Collected

No individually identifiable information is being collected in this survey.

Identification of Website and Website Content Directed at Children Under 13 Years of Age

A Web-based questionnaire will be available for survey respondents. The web content does not apply to children under 13 years of age. The website will be accessible to the survey respondents for data input 24 hours a day during the data collection period. A unique ID and password, included in the cover letter, will be generated for each sampled mining operation. The website host, ICF International will maintain security procedures (passwords, data encryption) when designing and programming the survey.

In Vovici Community, the Web-survey software, two persistent cookies are employed. Persistent cookies are cookies that have a specified expiration date that survives across sessions. The first cookie that Vovici uses is for password protected surveys. It remembers the place in the survey that the participant left off when they stopped taking the survey in the middle of the survey session. If OMB requires it, this cookie can be eliminated during programming. In this case, the survey respondent would login and be taken to the first page of the survey. All of their responses would be saved but they would have to click through their responses to get to the place where they left off. The second cookie that Vovici uses is one that does not allow respondents to change their answers once a survey has been completed. When this cookie is turned on during programming, it prevents a respondent from clicking on the survey link and changing any part of the survey they had already submitted. They will get a message saying that the survey was already completed. These cookies will be implemented in compliance with OMB memo M-10-22 , “Guidance for Online Use of Web Measurement and Customization Technologies. If OMB requires it, this cookie can also be eliminated.

A2. Purpose and Use of Information Collection

Although the NIOSH Mining Program widely disseminates and publicizes research results, recommendations, techniques and products the agency has limited knowledge about the extent to which their innovations in mine safety have been implemented by individual mine operators. This is particularly true of methods and practices that are not mandated by formal regulations. The overarching goal of the *Survey of Coal Mine Safety Interventions* is to gather data from working coal mines on the adoption and implementation of NIOSH practices to mitigate safety

and occupational hazards. Survey results will provide NIOSH with knowledge about which recommended practices, tools and methods have been most widely embraced by the industry, which have not been adopted, and why.

NIOSH has contracted with Advanced Technologies and Laboratories (ATL) International to conduct the *Survey of Coal Mine Safety Interventions*. ATL has sub-contracted the data collection phase of the study to ICF International. ICF will prepare and mail the survey packet, host the Web questionnaire, and provide follow-up for survey non-respondents.

Data gathered in this survey will be used in at least two specific ways: to set research priorities and to evaluate the means of disseminating the results of NIOSH research. Research priorities are usually set by considering significant health and safety problems in the mining industry, conferring with stakeholders, and developing solutions that are feasible and effective, often in collaboration with mine operators and other stakeholders. Results of this survey will reveal mine operators' perceptions of mine health and safety problems and possible solutions and will be an important component of setting priorities for research and development.

The other use for the information gathered in this survey is to evaluate the process by which NIOSH products are disseminated. For products of research to be effective, they need to become known by mine operators and implemented in mines. Technology transfer—fundamentally a marketing process—has a long history in the Mining Program, but it has not been systematically evaluated. Indeed, a principal purpose of this survey is to evaluate whether mine operators are familiar with NIOSH research, whether they recognize it as useful, whether they have adopted such measures in their mines, and whether it has improved health and safety at their mines. Since the Mining Program is devoted to research on health and safety technology, it is of vital interest to NIOSH and to the mining industry in general that the process of technology transfer becomes more efficient and effective. This survey is designed to provide information to evaluate this process.

Findings from this survey could benefit not only the Mining Program, but also could have broader applicability to similar programs within NIOSH. In summary, information from this survey will allow the NIOSH Mining Program to evaluate the use and application of its interventions in active coal mines by obtaining information on the number and characteristics of mines that have adopted them and those mines that have not, as well as the barriers to adoption. Characteristics of the interventions (e.g., Web-based training vs. publications) that are proving most useful to the mine safety community also will be identified.

Privacy Impact Assessment Information

The information from this survey is being collected to allow the NIOSH Mining Program to evaluate the implementation of safety and health practices, including best practices and barriers to implementation, in areas such as respirable coal dust control, explosion prevention, roof support, and emergency response planning and training. The following criteria were developed to assist in identifying NIOSH-developed interventions to be included in the survey:

- The intervention must be voluntary. If the intervention is mandated by regulation, then it must be used by all mining operators and it is not worth surveying.
- The intervention must have the potential for a large reduction in fatalities and serious injuries.
- NIOSH must understand how the intervention was diffused throughout the industry.

For example, one of the interventions included in the survey is Reducing Rock Fall Injuries. Rock falls in coal mines cause serious injuries to miners nearly every working day. In recent years, about 500 injuries annually have resulted from rock falls. Often these injuries are quite serious, resulting in an average of 50 days of lost work time. These injuries are not caused by major roof falls. Rather, they occur when small pieces of rock fall from between the primary roof supports (roof bolts) or around the automated temporary roof support. Small rock falls have also caused fatalities.

NIOSH research has shown that most rock fall injuries can be prevented by using surface controls. These include straps, large plates, and, in particular, wire mesh (roof screen). To help increase the use of surface controls, NIOSH has conducted an intensive research/educational program aimed at:

- Making the coal mining community aware of the magnitude of the rock fall problem;
- Identifying and publicizing "best practices" for preventing rock falls through the use of surface controls; and
- Attempting to change the mining industry culture (which currently accepts a certain level of risk of rock fall injury beneath supported roof).

Research has included extensive analysis of rock fall injury data, in-mine studies of the effectiveness of different surface control techniques, and evaluations of the geologic conditions associated with rock falls. In addition, a new surface control called the personal bolter screen (PBS) was developed for thinner seams and other situations where traditional full screen might not be appropriate.

Educational efforts began with a series of technical papers presented to a broad range of ground control, mining engineering, and mine safety audiences. Numerous visits were made to mines that were at particularly high risk for rock falls. Most recently, a 7-minute video entitled Make It Safer with Roof Screen was developed. One of the survey results will be to provide the NIOSH Mining Program with data regarding whether the reducing rock fall injuries intervention has been widely embraced by the industry and, if not, what are the practical barriers that may prevent its adoption.

No Information in Identifiable Form (IFF) is being collected with the *Survey of Coal Mine Safety Interventions*. Because there is no sensitive information being requested, the proposed data collection will have little or no effect on the respondent's privacy.

A3. Use of Improved Information Technology and Burden Reduction

NIOSH conducted a pilot study for the *National Survey of the Mining Population* project (OMB No. 0920-0633, Exp. Date 3/31/2005) to evaluate the recruitment materials, questionnaire, and survey procedures developed for a nation-wide survey of the mining industry. This allowed NIOSH to explore the feasibility of developing a Web-based version of the questionnaire. The pilot study debriefing interview contained several questions to determine whether mine operators had access to the Internet and whether it would be convenient to complete the questionnaire online. The majority of respondents indicated that an Internet connection was available at their mine and more than 50% reported preferring an electronic response option.

Thus, for the *Survey of Coal Mine Safety Interventions*, a Web-based survey will be available. The website will be readily accessible for data input 24 hours a day during the data collection period. This will help make the collection more convenient and cost effective, and reduce paperwork and respondent burden. The survey sub-contractor has strong capabilities in programming and hosting surveys on the worldwide Web, and maintains effective security and privacy procedures (e.g., unique passwords for respondents, data encryption) when designing and programming Web surveys. The Web address (URL) on which the survey will be hosted and accessed by respondents will be included in the materials sent to mines notifying them of the survey.

It is possible that some smaller mines and/or mines in very rural locations may have limited or no access to the Internet, or that some respondents may be wary of completing an online survey. To ensure all sampled mines have the capability to respond to the survey using the method that is most convenient and appropriate for their circumstances, the *Survey of Coal Mine Safety Interventions* will be administered using a multi-mode approach (that is, through more than one mode of administration). In this case, the Web version of the survey will be supplemented with a hard copy questionnaire that can be completed using a pen or pencil, and mailed back in a pre-addressed, posted-paid envelope. Though respondents will be encouraged to complete the Web-based version during pre-notification, mines that are reluctant to do so or that do not have an Internet connection will have access to the hard copy version of the survey. Both a hard copy of the survey and a postage paid envelope will be included in the survey packet that will be mailed to each mine. The survey packet will also contain instructions for accessing the website and completing the questionnaire over the Web.

Following OMB approval, survey materials displaying the OMB approval number and expiration date will be printed and prepared to mail out to the mines. Each survey packet will be personalized to improve response and ensure that the correct mine is the recipient of the packet. To minimize the burden, the questionnaire (whether Web-based or paper) is designed so that only one person at the mine—the operator or the safety manager—will be required to respond to the questionnaire.

A4. Efforts to Identify Duplication and Use of Similar Information

The information sought in this collection does not currently exist, nor has a survey of this type ever been conducted before by NIOSH or by the Bureau of Mines. In 1986 the Bureau of Mines, U.S. Department of the Interior, conducted a survey of mine operator employees—the *Mining Industry Population Survey* (MIPS) (Butani and Bartholomew, 1988). The purpose of the survey was to identify high risk groups of the entire mining workforce and determine mine employee characteristics. As noted by its title, however, this survey was focused on those employed by the mining industry, not on the types of health and safety technologies in place at individual mines to prevent and respond to disasters.

The *National Survey of the Mining Population* (OMB No. 0920-0754, Exp. Date 10/31/2010), was conducted by NIOSH in 2008. This survey was focused on mining operations and their employees in all five major mining sectors; coal, metal, nonmetal, stone, and sand and gravel. The mine questions included items about the mining operation such as its use of independent contractors, shift work schedules, and safety and communication measures. The employee questions included demographic and occupational items such as age, education level, ethnicity, regular job title, mining experience and primary work location.

The *National Survey of the Mining Population* was not designed to capture any information on the extent to which mine operators/safety managers are aware of, and have adopted, potentially life-saving interventions and technologies developed by the NIOSH mining program. In order to accomplish this, the proposed information collection was developed to focus solely on underground coal mines, a mining sector that historically has shown elevated rates of fatalities and injuries compared to other commodities. Consequently, many NIOSH mining program health and safety intervention have been targeted to these mines. However, no scientific studies have been done to evaluate the dissemination of these interventions. The new survey is unique and will provide valuable evaluation data that is not currently available to the NIOSH mining program.

A5. Impact on Small Businesses or Other Small Entities

As of 2006 there were approximately 515 active, underground coal mines in the U.S., which comprise the universe of participants for this information collection. Mine size will be employed as a stratum during sampling, meaning mines of various sizes will be sampled in proportion to their representation in the population (see Exhibit 4).

| Exhibit 4: Mine Size (Number of Employees) | | | | |
|---|------------------|----------------|----------------------|---------------------------|
| Mine Size | Frequency | Percent | Valid Percent | Cumulative Percent |
| 20 employees or less | 145 | 28.2 | 28.2 | 28.2 |
| 21-40 employees | 128 | 24.9 | 24.9 | 53.0 |
| 41-80 employees | 123 | 23.9 | 23.9 | 76.9 |
| More than 80 employees | 119 | 23.1 | 23.1 | 100.0 |
| Total | 515 | 100.0 | 100.0 | |

As shown in the exhibit, most coal mines employ fewer than 500 workers, and thus are small businesses as defined by the Small Business Administration. Therefore, due to the nature of the industry, there will be an unavoidable impact on small business for this collection. The following steps have been taken, however, to minimize the burden on small businesses that are surveyed:

- A survey pretest was conducted to estimate the overall burden to respondents and to revise the survey, if warranted.

The initial draft of the survey was pretested with nine mine operators during April and May, 2007. The pretest instrument contained 81 questions, including five questions specifically measuring respondents' impressions of the clarity, burden level, and relevance of the survey itself.

Contractor staff with knowledge of the mining community selected the candidate mines for the pretest. Both individual mine operators and the directors of safety at the headquarters level were informed by mail of the nature and purpose of the survey pretest. Eight completed surveys were returned. All respondents indicated that the survey took 30 minutes or less to complete. Respondents also indicated that the survey was not unusually burdensome. On a five-point Likert scale, most respondents rated the survey "very easy" to complete.

- Respondents will have multiple options for completing the survey.

The survey will be available both online and by mail, providing a choice of response options. This mixed-mode approach is likely to maximize the timeliness, efficiency, and response rate during data collection. The basis for providing the option for survey completion via both the Internet and in print stems from the contractor's substantial experience and success in administering dozens of multi-mode surveys which have yielded strong rates of response.

A6. Consequences of Collecting the Information Less Frequently

As noted, a survey of this type has not been conducted previously. If the NIOSH *Survey of Coal Mine Safety Interventions* is not conducted, the NIOSH Mining Program will continue to lack information about the adoption and use of its health and safety research by the mining industry. NIOSH will miss an opportunity to learn from the customer which interventions are being used most often and most effectively, and why. This information is essential to ensure that the activities, strategies and interventions of the Mining Program are:

- Tailored to meet the industry's most current and pressing health and safety needs
- Designed to be user-friendly and practical
- Developed with characteristics that facilitate widespread adoption by mine safety managers
- Reflective of the experience of actual users in the field.

Ultimately, this information is required to maximize the health and safety of those who work in the mining industry.

This survey will be a one-time data collection. There are no legal obstacles to reduce the burden.

A7. Special Circumstances Relating to the Guidelines of 5 CFR 1320.5

There are no special circumstances for this data collection. The survey is designed to produce valid and reliable results that can be generalized to the underground coal mining industry.

A8. Comments in Response to the Federal Register Notice and Efforts to Consult Outside the Agency

- A. In accordance with 5 CFR 1320.8(d) a review of the proposed study was sought through a 60-day publication period in the *Federal Register* (October 7, 2009, Vol. 74, No. 193, pages 51608-51609) (**Appendix F**). No comments were received in response to the Federal Register Notice.
- B. Prior to the development of the draft survey, NIOSH staff at the Pittsburgh Research Laboratory met with staff from ATL International and ICF International—researchers contracted to conduct this project—to discuss the potential timeline, goals and parameters of the survey and to decide on the number and types of interventions to include in the survey. Also present were external Subject Matter Experts (SME) with significant knowledge of the mining industry.

While the NIOSH Mining Program has developed a broad array of interventions available to the mining industry, it was determined that the survey must keep the number of interventions assessed to a relatively small number to minimize burden and maximize response rates. Through a day-long meeting between NIOSH staff, external SMEs and staff from the prime contractor (ATL International) and its sub-contractor (ICF International), it was concluded that the survey should assess those interventions designed to address the most persistent and dangerous health and safety hazards faced by coal miners. These interventions include: Respirable coal dust control methods; Technologies, techniques and strategies for explosion prevention; Suppression, and mitigation of mine fires; Ground control techniques for preventing roof falls; and Emergency response planning and training.

The following individuals participated in the consultations:

| Agency/Organization | Contact Name | Contact Telephone Number | Date |
|--|--|---|-------------|
| NIOSH/Office of Mine Safety and Health | Jeffery Kohler NIOSH Associate Director for Mining | 412-386-5301 JKohler@cdc.gov | 2006 |
| NIOSH/Pittsburgh Research Laboratory | Güner Gurtunca Laboratory Director | 412-386-6601 GGurtunca@cdc.gov | 2006 |
| NIOSH/Pittsburgh Research Laboratory | Edward Thimons Branch Chief | 412-386-6683 EThimons@cdc.gov | 2006 |
| NIOSH/Pittsburgh Research Laboratory | Steven Tadolini Branch Chief (retired) | | 2006 |
| NIOSH/Pittsburgh Research Laboratory | Alex Smith Team leader | 412-386-6766 ASmith@cdc.gov | 2006 |
| West Virginia University | Christopher Bise Chairman, Department of Mining Engineering | 304-293-7680 ext. 3302 Chris.Bise@mail.wvu.edu | 2006 |

A9. Explanation of Any Payment or Gift to Respondents

There will be no payment or gift to respondents.

A10. Assurance of Confidentiality Provided to Respondents

The NIOSH *Survey of Coal Mine Safety Interventions* is an establishment survey of mines, to be completed by the mine operators or the safety managers of the sampled mines. No assurances of confidentiality will be provided. While the full names of respondents will be collected, individuals will respond as mine health and safety directors, and will not be asked to provide personal information. Furthermore, no information will be collected about individual mine employees through this survey. The name and contact information (mine mailing address and telephone number) of the person responding for the mining operation will only be used to facilitate mailing of the survey packet and reminders, as needed. The survey packet will be mailed to the sampled mining operation. The contact information will not be part of the analysis data file for the survey. Only the survey contractor and NIOSH project staff will have access to this information.

The NIOSH Human Subjects Review Board (HSRB) has determined that this project does not meet the criteria of research as defined by DHHS. Because this data collection is not research, HSRB approval is not required.

Privacy Impact Assessment Information

A. This submission has been reviewed by the Information Collection Review Office (ICRO), who determined that the Privacy Act does not apply.

B. Only authorized project staff of NIOSH and the survey contractor, ATL/ICF, will have access to the names of sampled mines. Completed questionnaires will be kept in a locked file cabinet when not in use. The survey sub-contractor, ICF, has developed tools and techniques for the exchange of file-based data with outside parties that protect the security and integrity of the data throughout the transfer process for Web surveys. For example, ICF maintains a Secure Transfer Web Site with FTP that allows data file transfer through a Web browser. This site features user authentication based on accounts and passwords, the ability to limit users to upload-only, download only, or bidirectional transfer functions, and the use of data encryption.

Data processing will be done in a password-protected computing environment. For identification purposes, a unique, anonymous ID number will be created by ICF and assigned to each mine. This anonymous ID, and not the MSHA ID, will be used on the labels of the hard-copy questionnaire and on the log-in page of the Web survey. Additionally, the analysis will only contain these anonymous IDs. A separate linkage file will be maintained by NIOSH that contains the mine name and MSHA ID number. The linkage file will only be used when the mine name or MSHA ID is needed to interpret the study data and/or to merge data from administrative records into the analysis data file(s). Only NIOSH and ATL/ICF project staff will be allowed access to these databases, which will be stored in a safe, secure location.

C. Prior to mailing any materials, the survey contractor will make telephone contact with each sampled coal mining operation (**Appendix G**). The introductory telephone contact will be made via the business telephone number of the mining operation (e.g., the mine office). The purpose of this call will be to verify the name of the contact person and the mailing address of the mine and also to provide an overview of the survey (e.g., the results will be used by NIOSH to

enhance the awareness, use and effectiveness of its safety interventions for underground coal mines).

D. NIOSH will inform respondents that the survey is voluntary, there is no penalty for non-response, and only aggregate findings will be published. This information appears prominently on page one of the questionnaire and on the homepage for the Web version of the survey.

A11. Justification for Sensitive Questions

The survey does not contain any questions of a sensitive nature.

A12. Estimates of Annualized Burden Hours and Costs

A. Estimated Annual Burden Hours

As discussed in Part B, the survey will be sent to approximately 300 mines, including all coal mines operating longwall sections. The sampled mining operations will be initially contacted by telephone to verify the mailing address for the mine, establish the appropriate person to receive and complete the questionnaire, and to record alternative contact methods (e.g., e-mail address). It is estimated that this introductory telephone call will average 5 minutes per response. Based on data from the pretest, it is estimated that the paper survey will require 30 minutes to complete. The average time for the Web survey is 25 minutes, due to the skip patterns that are integrated into the software and the fact that the respondent does not ever see “not applicable” questions. Based on the Contractor’s previous experience conducting multimode surveys, approximately 40% of respondents (n = 96) are expected to complete the Web version and 60% (n = 144) will complete the paper questionnaire. In addition, there will be a telephone (**Appendix H**) and postcard reminder (**Appendix I**) follow-up with non-respondents which will also average 5 minutes. Assuming a response rate of 80%, 240 mines are expected to participate in the *Survey of Coal Mine Safety Interventions* for a total of 142 burden hours (Exhibit 5).

Exhibit 5: Estimated Annualized Burden Hours

| Type of response | Number of respondents | Number of responses per respondent | Average burden per response (in hours) | Total burden hours |
|---|-----------------------|------------------------------------|--|--------------------|
| Initial telephone screening contact with coal mines | 300 | 1 | 5/60 | 25 |
| Respondents completing paper survey | 144 | 1 | 30/60 | 72 |
| Respondents completing Web survey | 96 | 1 | 25/60 | 40 |
| Non-respondent follow-up | 60 | 1 | 5/60 | 5 |
| Total | _____ | _____ | _____ | 142 |

B. Estimated Annual Burden Cost

Based on wage estimates calculated by the U.S. Bureau of Labor statistics in May 2008, the median hourly salary for managers in the coal mining industry was \$45.66. This dollar amount is used to estimate the monetary burden on the sampled mining operations (Exhibit 6).

Exhibit 6: Estimated Monetary Burden

| Respondents | Number of Respondents | Estimated Hourly Wage | Average Burden per Response (in hours) | Total Cost to All Businesses |
|---|-----------------------|-----------------------|--|------------------------------|
| Initial telephone screening contact with coal mines | 300 | \$45.66 | 5/60 | \$1,142 |
| Respondents completing paper survey | 144 | \$45.66 | 30/60 | \$3,288 |
| Respondents completing Web survey | 96 | \$45.66 | 25/60 | \$1,826 |
| Non-respondent follow-up | 60 | \$45.66 | 5/60 | \$228 |
| Total | ----- | ----- | ----- | \$6,484 |

A13. Estimates of Other Total Annual Cost Burden to Respondents or Record Keepers

There will be no additional cost burden.

A14. Annualized Cost to the Government

A contractor has been hired to assist NIOSH with the *Survey of Coal Mine Safety Interventions*. The amount paid to the contractor represents development, administration and data analysis/reporting costs for the survey. These costs include development of the instrument, development of the sampling plan, review of the instrument, contacting respondents, programming of the questionnaire for Web administration, a pretest of the questionnaire, validation, data processing, providing a clean data file, project management and analysis, and reporting. The total cost is projected to be \$203,500. An itemized breakdown of this figure is presented in Exhibit 7.

Exhibit 7: Itemized Contractor Costs

| Labor Category | Name | Hours | Rate | Subtotal | Total |
|------------------------------|--------------------------|--------------|-------------|-----------------|--------------|
| Task 1 | | | | | |
| Kick-Off Meeting | | | | | |
| Project Manager | <i>McCaughey</i> | 21 | \$ 39.66 | \$ 833 | |
| Subject Matter Expert | <i>Weeks</i> | 40 | \$ 48.00 | \$ 1,920 | |
| Subject Matter Expert | <i>Bise (Consultant)</i> | 20 | \$ 100.00 | \$ 2,000 | \$ 4,753 |
| Task 2 | | | | | |
| Develop Questionnaire | | | | | |
| Project Manager | <i>McCaughey</i> | 12 | \$ 39.66 | \$ 476 | |
| Subject Matter Expert | <i>Weeks</i> | 56 | \$ 48.00 | \$ 2,688 | |
| Subject Matter Expert | <i>Bise (Consultant)</i> | 24 | \$ 100.00 | \$ 2,400 | \$ 5,564 |
| Task 3 | | | | | |
| Sampling Plan | | | | | |
| Project Manager | <i>McCaughey</i> | 5 | \$ 39.66 | \$ 198 | |
| Subject Matter Expert | <i>Weeks</i> | 32 | \$ 48.00 | \$ 1,536 | |
| Subject Matter Expert | <i>Bise (Consultant)</i> | 20 | \$ 100.00 | \$ 2,000 | \$ 3,734 |
| Task 4 | | | | | |
| Pre-test | | | | | |
| Project Manager | <i>McCaughey</i> | 8 | \$ 39.66 | \$ 317 | |
| Subject Matter Expert | <i>Weeks</i> | 16 | \$ 48.00 | \$ 768 | |
| Subject Matter Expert | <i>Bise (Consultant)</i> | 0 | \$ 100.00 | \$ - | \$ 1,085 |
| Task 5 | | | | | |
| OMB Package | | | | | |
| Project Manager | <i>McCaughey</i> | 5 | \$ 39.66 | \$ 198 | |
| Subject Matter Expert | <i>Weeks</i> | 16 | \$ 48.00 | \$ 768 | |
| Subject Matter Expert | <i>Bise (Consultant)</i> | 8 | \$ 100.00 | \$ 800 | \$ 1,766 |

Exhibit 7: Itemized Contractor Costs (Continued)

| Labor Category | Name | Hours | Rate | Subtotal | Total |
|---|--------------------------|--------------|-------------|-----------------|--------------|
| Task 6 | | | | | |
| Sample Selection | | | | | |
| Project Manager | <i>McCaughey</i> | 4.5 | \$ 39.66 | \$ 178 | |
| Subject Matter Expert | <i>Weeks</i> | 24 | \$ 48.00 | \$ 1,152 | |
| Subject Matter Expert | <i>Bise (Consultant)</i> | 8 | \$ 100.00 | \$ 800 | \$ 2,130 |
| Task 7 | | | | | |
| Survey Packet | | | | | |
| Project Manager | <i>McCaughey</i> | 9 | \$ 39.66 | \$ 357 | |
| Subject Matter Expert | <i>Weeks</i> | 24 | \$ 48.00 | \$ 1,152 | |
| Subject Matter Expert | <i>Bise (Consultant)</i> | 20 | \$ 100.00 | \$ 2,000 | \$ 3,509 |
| Task 8 | | | | | |
| Sample Tracking - Subcontractors ICF will be performing the work. See attached Subcontractor cost proposal. | | | | | \$ - |
| Task 9 | | | | | |
| Data Receipt - Subcontractors ICF will be performing the work. See attached Subcontractor cost proposal. | | | | | \$ - |
| Task 10 | | | | | |
| Data Entry - Subcontractors ICF will be performing the work. See attached Subcontractor cost proposal. | | | | | \$ - |
| Task 11 | | | | | |
| Data Analysis | | | | | |
| Project Manager | <i>McCaughey</i> | 9.5 | \$ 39.66 | \$ 377 | |
| Subject Matter Expert | <i>Weeks</i> | 40 | \$ 48.00 | \$ 1,920 | |
| Subject Matter Expert | <i>Bise (Consultant)</i> | 20 | \$ 100.00 | \$ 2,000 | \$ 4,297 |

Exhibit 7: Itemized Contractor Costs (Continued)

| Labor Category | Name | Hours | Rate | Subtotal | Total |
|--|--------------------------|------------------|-------------------------|-----------------|-------------------|
| Task 12 | | | | | |
| Report | | | | | |
| Project Manager | <i>McCaughey</i> | 13 | \$ 39.66 | \$ 516 | |
| Subject Matter Expert | <i>Weeks</i> | 56 | \$ 48.00 | \$ 2,688 | |
| Subject Matter Expert | <i>Bise (Consultant)</i> | 20 | \$ 100.00 | \$ 2,000 | \$ 5,204 |
| TOTAL ATL DIRECT LABOR | | | | | \$ 18,042 |
| TOTAL CONSULTANT LABOR | | | | | \$ 14,000 |
| Overhead | 75% | | | | \$ 13,532 |
| Subtotal | | | | | \$ 45,574 |
| Subcontractor (including Option 1 - Web Survey) (including subcontractor's travel for the kick-off meeting) | | | | | \$ 131,151 |
| OTHER DIRECT COST | | | | | |
| Travel | | | | | \$ 564 |
| | | <u># of Unit</u> | <u>Mo. Subscription</u> | | |
| Webex Teleconference - Monthly Subscription @\$75.00 | | 16 | \$75.00 | | \$ 1,200 |
| Phone/Fax | | | | | \$ 125 |
| Copying | | | | | \$ 500 |
| Postage / Fed-ex | | | | | \$ 250 |
| Subtotal | | | | | \$ 2,639 |
| Subcontractor Handling Fee | 3.50% | | | | \$ 5,080 |
| G&A | 11.50% | | | | \$ 3,935 |
| TOTAL ESTIMATED COSTS | | | | | \$ 188,379 |
| Fixed Fee | 8% | | | | \$ 15,070 |
| TOTAL COST PLUS FIXED FEE | | | | | \$ 203,449 |

A15. Explanation for Program Changes or Adjustments

This is a new data collection.

A16. Plans for Tabulation and Publication and Project Time Schedule

A research contractor will be assisting NIOSH with this survey. NIOSH will prepare the sampling frame using Mine Safety and Health Administration mine employment data. Using a stratified sampling strategy, the contractor will select the sample of mines for the study. NIOSH will provide the contact information for the sampled mining operations. The contractor will verify this contact information. The contractor will be responsible for the development of the Web questionnaire, the preparation and mail-out of survey packets, recruitment and follow-up, data verification and entry, and the statistical analysis of the data.

The survey data will be analyzed by examining frequencies for all items (e.g., percent of mines that have used NIOSH's Fire Preparedness Checklist), conducting cross-tabulations, quadrant analyses (a visual way to plot performance using a variety of metrics) and other analyses as required by NIOSH. The analyses will be geared toward providing NIOSH with a complete picture of the Mining Program interventions/technologies being used by the coal mining industry, barriers to adoption, and identification of strengths and weakness in the technology transfer process. The survey contractor will also work with NIOSH to identify topics/questions requiring in-depth analysis. The data are expected to provide many opportunities to utilize inferential statistics (e.g., logistic regression) to identify factors related to the adoption and use of specific interventions.

The project time schedule for the *Survey of Coal Mine Safety Interventions* is shown in detail in Exhibit 8.

| Exhibit 8: Project Time Schedule | |
|---|---------------------------------|
| Activity | Time Schedule |
| Pretest of Survey | Completed |
| Sampling Plan | Completed |
| OMB Review | |
| Sample Selection | 1 month after OMB approval |
| Survey Packet Preparation & Mailing | 1 - 2 months after OMB approval |
| Sample Tracking | 1 – 3 months after OMB approval |
| Data Receipt & Processing | 3 months after OMB approval |
| Task 10: Data Entry | 4 months after OMB approval |
| Task 11: Data Analysis | 5 months after OMB approval |
| Task 12a: Draft of Final Report | 6 months after OMB approval |
| Task 12b: Final Report | 7 months after OMB approval |
| Task 12c: Data Delivery | 7 months after OMB approval |

A17. Reason(s) Display of OMB Expiration Date is Inappropriate

There is no request for an expiration date display exemption.

A18. Exceptions to Certification for Paperwork Reduction Act Submissions

There are no exceptions being sought to the certification statement.

List of Appendices

- A. Federal Mine Safety and Health Act of 1977 – Section 501
- B. Paper Copy of Questionnaire
- C. Screen Shots of Web Questionnaire
- D. Cover Letter
- E. Letter of Support from National Mining Association and Bituminous Coal Operators
- F. Federal Register Notice
- G. Introductory Telephone Script
- H. Telephone Follow-Up Script
- I. Reminder Postcard
- J. MSHA Form 7000-2 (Quarterly Mine Employment and Coal Production Report)
- K. Pre-Notification Letter