

1Mining Industry and Workforce Survey (MIWS)

Request for Office of Management and Budget (OMB) Review and Approval

Information Collection Request (ICR)

Section B

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Attachments

- Attachment A Federal Mine Safety and Health Act of 1977 - Section 501
- Attachment B 60-day Federal Register Notice
- Attachment C MSHA Form 7000-2 (Quarterly Mine Employment and Coal Production Report)
- Attachment D Mining Industry and Workforce Survey
- Attachment E MSHA Form 7000-1 (Mine Accident, Injury and Illness Report)
- Attachment F Web Survey Screen Shots
- Attachment G Mining Sector-Specific Sampling Plans
- Attachment H Contractor Confidentiality Agreement
- Attachment I NIOSH IRB Research/Non-Research Determination
- Attachment J Telephone / Refusal Conversion Scripts
- Attachment K Non-Response Survey
- Attachment L Pre-Survey Notification Letter
- Attachment M Cover Letter
- Attachment N Directions for Accessing Internet Survey
- Attachment O Questions & Answers Brochure
- Attachment P Thank You / Reminder Postcard
- Attachment Q Thank You Letter
- Attachment R Certificate of Appreciation
- Attachment S Letter to Explain Reason for Non-Response Survey

Section B. Collection of Information Employing Statistical Methods

To improve its surveillance capability related to the occupational risks in mining, the National Institute for Occupational Safety and Health (NIOSH) Office of Mine Safety and Health Research (OMSHR) is planning to conduct a national survey—the Mining Industry and Workforce Survey (MIWS). The major objectives of the survey will be to: (1) collect basic information about mines; (2) establish the demographic and occupational characteristics of mine operator employees for each mining sector; and (3) estimate the number and occupational characteristics of independent contractor employees used by mines. NIOSH plans to subdivide mines into three sector groups: (1) stone mines and sand and gravel mines, (2) metal and nonmetal mines, and (3) coal mines. Data collection will be staggered for the three subgroups beginning with stone/sand and gravel, then metal/nonmetal, and finally coal.

B.1. Respondent Universe and Sampling Methods

Definition of the Target Population

The target population for a survey is the entire set of population units about which the survey data are to be used to make inferences. Business surveys such as the Mining Industry and Workforce Survey must delineate the level of the business organization that constitutes the units of the target population. Because hazards vary across mines, the target population for this survey is defined in terms of the individual mine.

The target population of mines will consist of active mines in current operation and producing the commodity for which they are being sampled. The survey is further restricted to mines that are covered under Title 30 of the U.S. Code, specifically mines whose mineral output is sold or used in commerce. These mines are required to file a *Quarterly Mine Employment and Coal Production Report (MSHA Form 7000-2)* (**Attachment C**) within 15 days after the end of each calendar quarter. Start-up mines with office staff and set-up people in place but not yet in direct production will be included in the survey when the Mine Safety and Health Administration (MSHA) requires them to complete Form 7000-2 to report quarterly employment. The target population of employees will be restricted to those mine employees for whom the mine operator must report hours worked using Form 7000-2. This includes all direct employees working at the mine, but not contract employees brought in periodically or regularly to perform work at the mine.

The final step of the process is to specify the temporal aspect of these target population definitions for mines and for mine employees. Over time, some mines will go in and out of operation. Similarly, employees join and leave the mining labor force over time. The MIWS target population will be defined in terms of a particular calendar quarter, which will be the reference period for the survey. Mines will be included when they are in operation for one or

more days within that reference period. Mine employees will be eligible for the MIWS when they are employed for one or more days during the reference period as direct employees of the mine operator. The second calendar quarter, chosen as the reference period for the MIWS, is a period of active production for the U.S. mining industry.

Construction of the Sampling Frame

The sampling frame for a survey is the list or mechanism used to enumerate target population members for sample selection purposes. Individual sampling frames for each of the five major mining sectors (i.e., stone, sand and gravel, metal, nonmetal, and coal) will be constructed using the most recent release of the Form 7000-2 database prepared by MSHA. The unit that is reported for on Form 7000-2 is the individual mine, which is designated by its unique MSHA Mine ID. The coverage of the target population of mines should be accurate, as completion of Form 7000-2 is mandated by law for all mines selling their output or using it in commerce. Inactive and abandoned operations are expected to be identifiable in the database, with the possible exception of recent closures not yet reported to MSHA. The mandatory reporting requirements suggest that reasonably reliable location information should be readily available for frame units.

The MIWS sampling frame, with its associated size measures, will be constructed from the MSHA database for the calendar quarter one year prior to the MIWS reference period to reflect seasonal variations in mine activity. Next, the MIWS sampling frame will be supplemented to capture new entrants to the target population of mines and inactive mines becoming active again. For example, for the MIWS with a reference period expected to be Quarter 2 of 2017, the sampling frame constructed from 2016 Quarter 2 Form 7000-2 derived data would be compared to Quarter 4 of 2016 to identify new startups and formerly dormant mines restarting operations after the frame was compiled.

The MIWS will begin questionnaire mail-outs after the Quarter 2 MSHA Form 7000-2 due date (15 days after the end of the quarter). This will mean that the reference period will be proximate to the data collection and will hopefully improve reporting and data accuracy for the reference period, which is the prior entire calendar quarter. Because its reference period is a full calendar quarter, MIWS has the unique advantage that the survey data being collected can later be compared with the Form 7000-2 data to identify ineligible mines where no employees worked in the reference period. The reference period data will not be available until after MIWS data collection is complete, however. At this point, mines with zero employees will be eliminated from the sampling frame. This action will result in a modest amount of under-coverage of eligible mines that had zero employees in the previous year. This under-coverage should be small overall and can be easily tabulated and accounted for by post-stratification to MSHA population counts for the reference quarter. Excluding frame zeros will free up resources to focus on the urgent task of achieving acceptable response rates for MIWS data collection. After data collection is complete, MSHA Form 7000-2 data for the reference quarter will be used to retrospectively identify zero-employee mines and classify them as ineligible prior to

developing analysis weights. MSHA data for the reference quarter will also be compared with the frame file to identify under-coverage of mines and correct for it in sample weighting.

Specification of Sample Selection Procedures

MIWS's primary objective is to determine employee-level characteristics such as gender, age, job title, primary work location, and years of experience. That makes controlling for the employee size of mines critical in sample selection. The design does this by stratifying mines based upon the total number of employees. Each sector type by surface/underground operation will have at least one strata defined for very small mines with less than 10 employees. For the remaining mines within each sector type, strata will be defined to correspond with appropriate mine size categories such as small, medium, large, and very large mines. The sample of mines from each stratum will be selected with equal probability after sorting the mines by size, where the size measure is the frame count of total employees. MIWS will use a sequential sampling within strata so the resultant sample will more closely resemble the size distribution of the entire population. Within strata, this approach will result in equal weights for sample mines and relatively similar sampling weights for sample employees. This MIWS sampling approach is an added control over the size distribution of each stratum's sample and improves precision for mine-level estimates. The mine-specific sampling plans for stone and sand and gravel, metal/nonmetal, and coal are detailed in **Attachment G**. The sampling plans presented in Attachment G are based on the target response rate of 40%.

Sample mines will be asked to report employment for the entire calendar quarter that defines the reference period. Hence, the ideal size measure for use in defining strata and for sample selection is the number of employees working for the mine in that calendar quarter. The MSHA-reported average number of employees for the reference quarter is the closest we have to this ideal size measure but it is unavailable until after survey data collection is complete. The best available size measure is the average number of employees reported on MSHA Form 7000-2 for the calendar quarter one year prior to the survey's reference period. This size measure will capture seasonal variations in employees working at the mine and hence reflect the reference quarter's employment. However, in frame building, a small number of mines may be discovered to have entered the MIWS target population after that prior quarter based upon reported Form 7000-2 data for subsequent quarters. Therefore, NIOSH will review quarter 3 and quarter 4 data for the same calendar year to see if any new mines have gone into production since the sampling frames were constructed. These mines will be added to the frame and their most recent non-zero employee count will be used as their size measure.

Prior to selecting the sampled mines from each stratum, the frame will be sorted by the number of mine employees as recorded in the frame. For selection of sampled mines, Chromy's sequential probability-minimum-replacement sampling procedure will be used with 1 as the size measure, ensuring that mines are selected with equal probability (Chromy, 1979). Chromy's procedure will enable MIWS to reap the benefits of deep, implicit stratification through sorting by mine size while avoiding the clustering attribute of systematic samples. Depending upon the

correlation between sorting variables and the data items being analyzed, this deep control of the sample distribution has the potential of producing design effects for mines within strata equal to or even less than that of a simple random sample, resulting in enhanced precision for survey estimates.

The recommended strategy of sorting the mines within strata will control for mine size and can be modified so that selection of multiple mines managed by the same mine operator can be minimized. The latter can be done by sorting the mines for each stratum so that an operator's mines are physically adjacent in the file. Three sorting variables will create this desired sort order for Stratum *h* mines:

- The first sorting variable, OP_MINES, is an operator-level variable attached to the mine data record that records the total number of mines within Stratum *h* that are managed by that mine's operator.
- The second sort variable, OP-ORDER, is another operation-level variable attached to the mine data record. This variable ranks each Stratum *h* operation from smallest to largest based upon the operator's Stratum *h* size measure. An operation's Stratum *h* size measure is defined as the aggregated total size for all Stratum *h* mines under its operation in Stratum *h*.
- The third sort variable, MINE-SIZE, is a mine-level variable that records the mine's frame count of average employees.

Mines within Stratum *h* will be sorted by OP-MINES, then by OP-ORDER, and then by MINE-SIZE to create the desired sorted file for sample selection. Technically, two different mines could have the same values for these three sort variables. For quality assurance purposes, mine identification number will be added as the fourth sort variable to create a unique and replicable sort. For operators who manage one mine only within Stratum *h*, this sampling approach will select a sample of mines whose size distribution is similar to the frame's distribution. For operators managing many mines within a stratum, this approach will minimize the number of sample mines for which the operation is asked to report. For all the mines, this sampling approach will select a sample of mines whose operation characteristics are similar to the frame's distribution in terms of number of mines their operation manages from that stratum.

The survey will be a mixed-mode mail/web survey where the mine respondent selects a sample of employees from all those who worked at some time during the reference quarter. Once mine-level questions have been answered, the mine operator will be asked to print out the list of employees working during the reference period. If this list indicates the mine had 10 or fewer employees working in the reference period, the sampled mine will be instructed to include all employees in the employee sample. For mines with more than 10 employees, Internet respondents will record the total number of employees employed in the reference quarter. The program will then use systematic sampling to select up to 15 item numbers (depending on mine size) from the operator's sequential list for inclusion in the sample. For mines with more than 10 employees that choose to respond via the paper questionnaire, the

questionnaire will include a personalized employee sample selection table. They will first circle the number of mine employees in the left column (“Number of Mine Employees”). Next, they will circle the employee sample numbers on their employee list that match the employee sample numbers in the table for the row they circled. If their number of employees does not fall within the range of number of mine employees found in the table, respondents will be asked to call the survey contractor or visit the online Employee Sampling System to determine which employees they should report for.

NIOSH needs separate estimation capability for each of the five major mining sectors—stone, sand and gravel, metal, nonmetal, and coal. In addition, for every sector type except sand and gravel, NIOSH also requires separate estimation capability for surface versus underground mines. For each sector type by surface/underground operation, mines will be stratified by number of employees. The stratification by size recommended for this study has been defined to produce strata for which separate estimation is possible. Each sector is expected to have some mines so large that they employ a substantial percentage of the sector’s total employees. Therefore, very large mines will be partitioned into separate strata and sampled with certainty.

B.2. Procedures for the Collection of Information

Overview of Data Collection Methodology

All data collection begins in the third quarter of a calendar year with the referent reporting period being the prior quarter (the second quarter) of that same year. The design is multi-modal mail/web with telephone prompting pre- and post-survey mail-out. The questionnaire captures mine-level data with a sector-specific sector module, and a module pertaining to a random sample of mine employees. The mine employee sampling approach is simplified from NIOSH’s 2008 National Survey of the Mining Population, with fewer employees selected and fewer demographic questions. Most demographic variables should be extractable from payroll systems. These modifications are expected to reduce the need for multiple respondents (i.e., supervisor, human resources representative, etc.) within sampled mines.

The sample file will be prepared by examining it for missing variables, identifying multiple mines represented by the same point of contact, and determining any residual ineligible mines (e.g., zero-employee count mines). Where multiple mines are represented by the same owner, operator, or point of contact, outreach attempts and survey packets will be bundled. For survey implementation, the sampled mines may be considered in two groupings: 1) owner or operator with multiple sampled mines, and 2) standalone mines. Special care will be taken with owners/operators with multiple sampled mines, as they are more likely to have barriers to participation based on operation size and the time it will take to complete questionnaires for the collective set of selected mines. Standalone mines are those mines in which only one mine is sampled from a multi-mine enterprise or the enterprise is composed of one mine only. Standalone mines also have barriers to participation including lack of resources to complete the questionnaire for small mines.

Data collection will begin in the third quarter of the year for a specific mining sector, with mines providing data for the survey's reference period of Quarter 2 of that year (April 1 to June 30).

Understanding and closely following the status of each sampled mine is critical to the success of achieving a response rate of 40%. The following approach will be employed to achieve that response rate:

- A senior negotiator will review the list of sampled mines to determine which ones require special attention or special handling. This will ensure that a mine is assigned to the appropriate interviewer based on any unique skill set required. This review will continue regularly throughout the data collection period.
- Each mine or group of mines will be assigned to an individual interviewer. This will allow the survey respondent to have direct contact with a specific person if there are any questions, issues, or problems.
- A mixture of telephone and email contacts will be employed. Respondents often have a preference for one type of contact or the other and interviewers will honor these preferences.
- A toll-free number will be provided to all sampled mines. During business hours all calls will be answered. Each call will be logged as to why the respondent called and what action was taken.
- A study management system (SMS) will be used as a repository for all data relating to interactions with mine respondents, the contact efforts, and the receipt of completed questionnaires. This will be an invaluable tool used to closely monitor the contact and response rates on an ongoing basis.
- Beginning one month after the survey packets have been mailed to the mines, the rates of completed questionnaires and refusals will be closely reviewed. If response rates are not approaching the 40% target, the negotiator talent will be increased and contact will be initiated at a level higher than the individual mine (i.e., the corporate entity). If approval and survey buy-in is obtained at this level of the business enterprise, then participation of the associated mines should occur.

Details of the Data Collection Methodology

Initial mine contact will begin with pre-survey outbound telephone calls made to the mine operator to identify the most appropriate person to receive the mail-out packet and to encourage survey response. These occur following the Pre-Survey Notification letter (**Attachment L**) but prior to mailing the survey packet.

All outbound calls will be used to:

- describe the miner health and safety relevance of the survey,
- address questions and concerns,
- gather mine eligibility information,
- identify possible barriers to participation and address each barrier,

- identify relevant points of contact and current contacting information and,
- update contact information.

All mines will be mailed a survey packet including mines that could not be reached in these outbound calls. The survey contractor will be responsible for printing all materials necessary for study implementation.

Following the Office of Management and Budget (OMB) approval, survey materials displaying the OMB approval number and expiration date will be printed and prepared for mail-out. Approximately 485 stone mines, and 590 sand and gravel mines will be sent a survey packet. In subsequent rounds of data collection approximately 270 metal mines, 427 nonmetal mines, and 644 coal mines will be sent a survey packet. The survey packet will contain a cover letter (**Attachment M**), a questionnaire booklet with employee sampling instructions (**Attachment D**), directions for accessing the internet version of the questionnaire (**Attachment N**), a Questions and Answers (Q&A) brochure (**Attachment O**), and a stamped, self-addressed return envelope. Each survey packet will be personalized to improve response and ensure that data for the correct mine is reported. The cover letter will be on NIOSH stationary, personalized to the respondent, and signed by the Director of the Pittsburgh Mining Research Division. Each questionnaire will be labeled with the MSHA Mine ID number and the mine name.

Prior to mailing the survey packet, sampled mines will be contacted by telephone to confirm the mine address information, and determine the best person to receive the initial mailing. This pre-mail-out telephone call will also be used to confirm the estimated total number of employees at the mine, and the status of the mine (e.g., active, temporarily closed). NIOSH is proposing to send the survey packet to the sampled mine's designated contact or, if unspecified, to MSHA's point of contact of record for the mine.

Once the designated respondent is identified, the name, job title, and contact information of the person assigned to complete the questionnaire will be recorded in a sample tracking database. The sample tracking database will be updated with the date, time, status, and other pertinent information after each telephone prompting. The initial mailing to this sample of mines is expected to get return responses from about 20% to 30% of the sample. To achieve the target response rate of 40%, experienced interviewers will be used to prompt by telephone and arrange re-mailing of the survey packet, as needed. All mines will also receive a Thank You / Reminder Postcard (**Attachment P**) that will thank them if they have already submitted the questionnaire and remind them to submit it if they have not already. Mines that submit their questionnaire will receive a Thank You Letter (**Attachment Q**) that expresses gratitude for their assistance. They will also receive a certificate of appreciation for their participation (**Attachment R**).

Surveys should be edited and scanned at least weekly. Editing will be done following an editing guide created by the survey contractor. Editing will be used to discover major survey issues that may affect scanning and comments written in the margins. Editing will not be used to check skip

logic, answer completeness or consistency, as these issues can be discovered by the data entry program. If issues are discovered that cannot be rectified internally, the survey contractor will call the respondent for clarification. The data entry program will be established with quality assurance rules, such as percent of a box filled to indicate an answer and flagging questions with more than one response when a single answer is required. If errors or inconsistencies are noted, a follow-up call will be placed to the respondent recorded on the questionnaire, to request clarification and correction.

B.3. Methods to Maximize Response Rates and Deal with Nonresponse

In 2008, NIOSH conducted the National Survey of the Mining Population (NSMP) (OMB Control No. 0920-0754, Expiration October 31, 2010), the first comprehensive survey of the U.S. mining industry in more than 20 years. Randomly selected mining operations in all of the major mining sectors (coal, metal, nonmetal, stone, and sand and gravel) received the survey and had the option of completing a paper or web-based questionnaire. A total of 737 mining operations returned completed questionnaires and reported data for 9,008 employees. The overall weighted response rate for this survey was 36.7% with the lowest response rate for coal mines (25.8%) and the highest for nonmetal mines (48.8%). Underground mines responded at 30.1 % compared to surface mines at 37.1 %.

The Mining Industry and Workforce Survey (MIWS) has been designed to respond to lessons learned from the 2008 NSMP. These lessons are reflected in the sampling plan, survey plan, questionnaire, and supporting survey documents. Based on the response rates for the NSMP, NIOSH is expecting to achieve an overall response rate of 40% with the MIWS. The changes to maximize response rate and minimize nonresponse are summarized as follows:

1. The use of an advance letter to prepare the mine for receipt of a pre-survey telephone call or the survey packet and to legitimize subsequent survey efforts.
2. Notable effort to identify an appropriate respondent for the mine, which is likely to engage the necessary approval process and remove administrative barriers.
3. A protocol that locates and contacts the person in the sampled mine who has the authority to say "yes" to the survey.
4. A pre-survey telephone script and survey documents that clearly explain the value and use of the data being requested and the mine's likely return on investment.
5. Use of a protocol that determines mine eligibility first, thus reducing burden for the sampled but ineligible mines and enhancing response.
6. A sampling plan that minimizes the number of individual mines sampled for any given owner or operator.
7. A questionnaire that minimizes the number of questions asked, thus reducing perceived burden.
8. Employee questions that reduce the amount of look-up necessary to produce an accurate questionnaire response.

9. When lookup is necessary, easy-to-follow steps and the use of data systems that are easily accessed—preferably just one data system (e.g., payroll).
10. A revised employee sampling approach that requires no employee sampling by the mine respondent, with steps as simple as possible.
11. An employee sampling approach that minimizes the total number of sampled employees to no more than 10 to 15 (depending on mine size), thus reducing response burden.

At a more granular level, response rate enhancement will occur at each step in the sequence of data collection activities. For example, telephone prompting (**Attachment J**) will be done by experienced interviewers who are chosen for their skill and experience in getting past gatekeepers, talking with busy executives and managers, and effectively obtaining cooperation. The prompting calls are expected to yield one of five basic outcomes. The categories of outcomes from the first prompting call are: (1) no contact; (2) requests to re-send the packet; (3) change in designated respondent; (4) receipt of the completed questionnaire; or (5) refusal to participate. Each outcome will dictate separate courses of action to achieve the study response rate goal of 40%. These courses of action are detailed below.

Noncontact may be due to a change in management, incorrect contact information, or temporary unavailability of the respondent. The interviewer will attempt to identify the appropriate respondent, confirm contact information, or schedule a prompting call at a time when the designated respondent is available.

When respondents report not having received the survey packet or claim to have thrown it away, the interviewer will encourage participation, initiate a second mailing, and schedule a second prompting call following anticipated receipt of the survey packet. Claims of non-receipt and changes to the mailing address and/or telephone number will be logged in sample management reports.

If the designated point of contact identifies an alternate respondent, the interviewer will obtain contact information for the new respondent. The name, title, and contact information will be logged and recorded. A new survey packet will be mailed to the alternate respondent as necessary. The interviewer will place a prompting call to the new respondent to acquire information about the status of the questionnaires and data pertinent to the evaluation of the data collection protocol.

The respondent may report having returned the paper survey. For survey tracking purposes, the interviewer will record the date the questionnaires were purported to have been mailed. If the package is not received within a reasonable length of time, the interviewer will place a prompting call to request a replacement copy and obtain mailing instructions for sending a replacement return envelope. Respondents may report having completed the internet survey, but they may have failed to select the final submit button. In this case, we can verify this in our system and submit the survey for them.

If the designated point of contact declines to participate, the interviewer will first attempt to convert the refusal and, failing that, will attempt to administer the Nonresponse Survey (**Attachment K**) to obtain the reasons for the refusal and to determine barriers to participation (e.g., it will take too much staff time).

The data collection plan assumes that multiple questionnaires may need to be mailed to many of the sampled mines. We expect that the interviewers will make an average of six attempts to contact each sampled mine that did not return the questionnaire after the initial mailing. The purpose of the contact will be to encourage participation and provide guidance on questionnaire completion (e.g., operational definitions and time references). If employee sampling issues arise, interviewers will arrange assistance from contractor research staff. If the mine explicitly declines to participate in the survey, no additional attempts will be made to contact the mine.

Refusal Conversion Script

Mine representatives may call the hotline to decline participation or they may simply not respond to the survey. Clear refusals will be honored and no additional contact will be made, although we will try to administer **Attachment K** at this point in time. If the respondent appears open we will attempt a soft refusal conversion using **Attachment J**. Mines not responding within the prescribed survey timeline will be contacted by phone and an attempt will be made to recruit participation in the survey. Questions regarding appropriate points of contact will be asked in situations where chain of command is identified as the barrier. A second survey will be sent to mines that request one. For mines that say they will not respond, the interviewer will attempt to administer the nonresponse survey.

Nonresponse Survey

Following the survey cut-off date, nonresponding mines will be mailed a nonresponse survey and a business reply envelope. A letter (**Attachment S**) will explain the reason for the survey. The brief nonresponse survey (**Attachment K**) will include items that are relevant for characterizing nonresponding mines, such as who operates the mine and what activities the mine was engaged in during the reference period. It will also capture reasons for nonresponse. Data for all sampled mines from Form 7000-2 can be used to determine survey eligibility and the size of the operation.

Because NIOSH is anticipating a 40% response rate for the MIWS, an analysis of nonresponse bias will be conducted. An initial assessment will be made regarding whether the data are missing at random (MCAR). Within the three mining sectors: (1) stone and sand and gravel mines, (2) metal and nonmetal mines, and (3) coal mines, characteristics of the mines, such as type (underground or surface) size, and injury rate, will be compared between respondents and nonrespondents. These same characteristics will be used to compare responding mines to the population of mines captured by MSHA. The characteristics of mines returning partial responses

with missing employee data will be compared to mines which submitted data for their workers. These analyses will be used to show whether or not there is meaningful bias in the survey estimates.

B14. Tests of Procedures or Methods to be Undertaken

The 2008 NSMP was conducted in March through August of 2008. In relation to the design of the MIWS, the NSMP has been treated as a very large pilot study. Lessons learned from the 2008 NSMP identified the following redesign needs: 1) simplify employee enumeration, 2) simplify employee sampling, 3) reduce the time burden for response, 4) make the relevance of the questionnaire to health and safety issues clear, 5) focus on one mining sector at a time or a related set of sectors such as stone and sand and gravel, and 6) engage large mines early in the survey process. These were the primary redesign areas for the MIWS, as described below.

The employee portion of the questionnaire has reduced the number of variables so that most payroll systems can address both employee enumeration and the by-employee variables asked in the questionnaire. This change should significantly reduce the need for multiple office workers to supply the sampling and reporting information. Sampling assistance will be more readily available online and by telephone, and mines with 11 or more employees will have the sample pre-selected.

The instructions for sampling have been streamlined and are much less daunting than in the 2008 version. The time burden for the respondent has also been minimized through a reduction of questions for both the mine level and the employee sections of the questionnaire. Questions retained in the questionnaire have been edited to be easier to understand and instructions are more clearly presented to reduce burden. The relevance of the questions to health and safety issues is pronounced, but the content of the questions themselves has not changed substantially.

The data collection design calls for focusing attention on one mining sector at a time to be responsive to the special characteristics of that sector. Three mining sectors have been defined that align with categories used by national mining associations: (1) stone and sand and gravel mines, (2) metal and nonmetal mines, and (3) coal mines. The data collection design calls for pre-survey, early engagement with large mines to gain cooperation and identification of designated respondents for each sampled mine within their operation.

The survey contractor has conducted desk audits of the revised survey materials. NIOSH has also conducted similar audits using colleagues and experts. These audits have produced multiple rounds of recommendations for improvement. The attached materials are the product of these desk audits.

B5. Individuals Consulted on Statistical Aspects and/or Analyzing Data

NIOSH contracted with Social & Scientific Systems, Inc., for assistance with the development of the study design for the MIWS. The following individuals worked as consultants on the initial design of the survey materials and the study methodology.

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NIOSH has contracted with Social & Scientific Systems, Inc., for assistance with conducting the Mining Industry and Workforce Survey in the stone and sand and gravel mining sector. The following individuals are the key project staff who will be working on the data collection phase of the project, and providing consultation to NIOSH on the calculation of the sampling weights and the statistical analysis of the study data.

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NIOSH has contracted with RTI International for assistance with conducting the Mining Industry and Workforce Survey in the metal and nonmetal mining sector. The following individuals are the key project staff who will be working on the data collection phase of the project, and providing consultation to NIOSH on the calculation of the sampling weights and the statistical analysis of the study data.

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