

Supporting Statement B

Industrial Minerals Surveys

OMB Control Number 1028-0062

Collections of Information Employing Statistical Methods

The agency should be prepared to justify its decision not to use statistical methods in any case where such methods might reduce burden or improve accuracy of results. When the question "Does this ICR contain surveys, censuses, or employ statistical methods?" is checked "Yes," the following documentation should be included in Supporting Statement B to the extent that it applies to the methods proposed:

- 1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g., establishments, State and local government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.**

All canvasses except Construction sand and gravel and crushed and broken stone (USGS Form 9-4142-Q):

These canvasses are conducted as a complete census. No sampling is performed. The total universe is approximately 16,967 that are business or other for-profit institutions (Table 1 below) and approximately 393 respondents that are State, local or tribal government institutions (Table 2 below). The sources used to create the sampling frame are industry directories (such as the annual Skillings North American Mining Directory) and trade periodicals (such as North American Sulfur Services), and **U.S. Geological Survey** (USGS) commodity specialists' direct contacts with industry specialists. Once a year, commodity specialists update the frame.

Table 1. Consolidated estimates of annual burden (private sector) (excludes USGS Form 9-4142-Q) ¹

			PRIVATE SECTOR			
	Form No.	Frequency	Number of Respondents	Responses	Completion Time	Burden Hours
1	9-4001-A	Annually	100	100	90 min	150
2	9-4004-A	Annually	12	12	1 hour	12
3	9-4005-A	Annually	20	20	30 min	10
4	9-4006-A	Annually	123	123	30 min	62
5	9-4007-A	Annually	4,349	4,349	30 min	2,175
6	9-4008-A	Annually	9,860	9,860	45 min	7,395
7	9-4009-A	Annually	374	374	45 min	281
8	9-4010-A	Annually	385	385	90 min	578
9	9-4011-A	Annually	39	39	30 min	20
10	9-4012-A	Annually	29	29	90 min	44
11	9-4013-A	Annually	69	69	30 min	35
12	9-4014-A	Annually	10	10	30 min	5
13	9-4015-A	Annually	208	208	90 min	312
14	9-4016-A	Annually	50	50	90 min	75
15	9-4017-A	Annually	36	36	90 min	54
16	9-4018-A	Annually	18	18	45 min	14
17	9-4020-A	Annually	11	11	30 min	6
18	9-4021-A	Annually	19	19	30 min	10
19	9-4022-A	Annually	94	94	15 min	24
20	9-4023-A	Annually	29	29	30 min	15
21	9-4024-A	Annually	11	11	20 min	4
22	9-4025-A	Annually	57	57	1 hour	57
23	9-4026-A	Annually	44	44	30 min	22
24	9-4027-A	Annually	145	145	2 hours	290
25	9-4028-A	Annually	296	296	15 min	74
26	9-4029-M	Monthly	106	1,272	15 min	318
27	9-4030-M	Monthly	14	168	15 min	42
28	9-4031-S	Semiannually	30	60	45 min	45
29	9-4032-A	Annually	17	17	30 min	9
30	9-4033-Q	Quarterly	13	52	15 min	13
31	9-4035-S	Semiannually	18	36	1 hour	36
32	9-4036-A	Annually	16	16	15 min	4
33	9-4039-M	Monthly	86	1,032	30 min	516
34	9-4041-A	Annually	167	167	5 hours	835
35	9-4112-A	Annually	27	27	15 min	7
36	9-4115-A	Annually	16	16	30 min	8
37	9-4144-S	Semiannually	69	138	1 hour	138
TOTALS			16,967	19,389		13,695

¹ Based on 100% response rate. Actual response rate is lower.

Table 2. Consolidated estimates of annual burden (State, local or tribal government sector) (excludes USGS Form 9-4142-Q) ¹

			STATE, LOCAL OR TRIBAL GOVERNMENT SECTOR			
	Form No.	Frequency	Number of Respondents	Responses	Completion Time	Burden Hours
5	9-4007-A	Annually	151	151	30 min	76
6	9-4008-A	Annually	240	240	45 min	180
33	9-4039-M	Monthly	1	12	30 min	6
34	9-4041-A	Annually	1	1	5 hours	5
TOTALS			393	404		267

¹ Based on 100% response rate. Actual response rate is lower.

The mean, median, and mode response rates for this collection are 68%, 65%, and 100% respectively. These response rates are expected to continue, based on the number of establishments that have traditionally responded to this request for information.

The data collected on these forms are used to publish information on the mineral production for each state, including state rankings. Each state typically has only a limited number of establishments for each mineral commodity. In order to have accurate state rankings, it is necessary to canvass all of the establishments. For construction aggregates, crushed and broken stone, and construction sand and gravel, there are a larger number of producers however, the USGS publishes data for aggregates showing a breakdown by end use. There is considerable variation among the aggregates producers in the end use of their output; consequently, it is necessary to canvass all the aggregates producers. In addition, the USGS publishes aggregates data for districts within most states. For each district, there are typically only a limited number of aggregates producers.

Construction sand and gravel and crushed and broken stone canvass (USGS Form 9-4142-Q):

Data are collected quarterly from approximately 65 leading companies with several operations in multiple states from among the approximately 6,000 eligible operations (Table 3 and Table 4 below). The average 98% response rate for this form over the past 3 years is expected to decrease by 3%. Sample size was determined by the need to minimize respondent burden and to ensure the timely processing and publication of data. This is the only canvass that uses cut-off sampling, expressly because the 65 leading companies represent 40% of production.

The sample panel was selected in a fashion intended to produce the best possible estimates of total production of construction aggregates at the national and state levels. The use of a continuing panel also ensures good estimates of production trends.

Total production of construction aggregates for the current quarter is estimated for each level (national and state) by multiplying the approximate total production figure from the most recent available complete industry census by the trend ratio, which is developed from the sample for that level.

Table 3. Consolidated estimates of annual burden (private sector) (USGS Form 9-4142-Q only) ¹

			PRIVATE SECTOR			
	Form No.	Frequency	Number of Respondents	Responses	Completion Time	Burden Hours
1	9-4142-Q	Quarterly	64	256	10 min	43
TOTALS			64	256		43

¹ Based on 100% response rate. Actual response rate is lower.

Table 4. Consolidated estimates of annual burden (State, local or tribal government sector) (USGS Form 9-4142-Q only) ¹

			STATE, LOCAL OR TRIBAL GOVERNMENT SECTOR			
	Form No.	Frequency	Number of Respondents	Responses	Completion Time	Burden Hours
5	9-4142-Q	Quarterly	1	4	10 min	1
TOTALS			1	4		1

¹ Based on 100% response rate. Actual response rate is lower.

2. Describe the procedures for the collection of information including:

- * **Statistical methodology for stratification and sample selection,**
- * **Estimation procedure,**
- * **Degree of accuracy needed for the purpose described in the justification,**
- * **Unusual problems requiring specialized sampling procedures, and**
- * **Any use of periodic (less frequent than annual) data collection cycles to reduce burden.**

All canvasses except Construction sand and gravel and crushed and broken stone (USGS Form 9-4142-Q):

These canvasses do not employ sampling techniques. In some cases, individual establishments, by mutual agreement, have converted to reporting on an annual, rather than a monthly, quarterly, or semiannual basis to reduce their burden. For those establishments, a monthly, quarterly, or semiannual response is imputed from their annual response. Data are imputed for all non-responses. The majority of published statistics are rounded to three significant digits. Estimation procedures for non-respondents are described in item (3) below.

Construction sand and gravel and crushed and broken stone canvass (USGS Form 9-4142-Q):

- a) The USGS quarterly canvass of construction sand and gravel and crushed and broken stone is conducted on a sample basis. Tests have proved that this is the most effective and efficient means of collecting this data. This sample, however, is not a probability sample, but a cutoff-type sample of the largest companies producing construction sand and gravel

and/or crushed and broken stone.

- b) Total production of construction aggregates for the current quarter is estimated for each by multiplying the approximate total production figure from the most recent available complete industry census by the trend ratio which is developed from the sample for that level.
- c) As stated above, for this sampling to be accurate, the total industry census must be known.
- d) There are no unusual problems requiring specialized sampling procedures.
- e) The complete industry census is conducted annually. The quarterly data collections are conducted via telephone, facsimile transmission, the MIFORMS web site forms application, and electronic mail and do not reduce the overall burden.

3. Describe methods to maximize response rates and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.

Paper forms mail-out and facsimile transmissions of paper forms:

Two weeks after the initial request, establishments not responding will receive another copy of the paper form in a second request for information. For larger establishments that still have not responded, statistical assistants or mineral commodity specialists will phone an alternative company contact.

On-line electronic forms, telephone, and electronic mail:

Two weeks after the initial request, statistical assistants will phone establishments that have not responded. For larger establishments that still have not responded, statistical assistants or mineral commodity specialists will phone an alternative company contact.

Non-response:

Several sources of information are used to impute data for non-respondents. One important source of information is the data on the number of employees and employee hours that mining operations are required to submit to the **Mine Safety and Health Administration (MSHA)**. These employment data are closely related to production. Ratios of employee hours to production can be computed for companies that respond, and those ratios can be used to estimate production for non-respondents.

Forms 10-K or 10-Q filed with the Securities and Exchange Commission and company annual reports can also provide valuable sources of information. Publicly traded companies must file annual reports on Form 10-K (OMB Control Number 3235-0063) including comprehensive overviews of their business and financial conditions and audited financial statements. This form may also contain production and sales information. Publicly traded companies sometimes elect to send Form 10-K to shareholders in lieu of less detailed annual reports.

Publicly traded companies must also file Form 10-Q (OMB Control Number 3235-0070) quarterly. Firms include information for the final quarter of a firm's fiscal year in the annual Form 10-K; therefore only three Form 10-Q filings are made each year. Form 10-Q contains similar information to the annual Form 10-K; however the information is generally less detailed, and the financial statements are generally

unaudited.

The USGS believes that there is no significant non-response bias because of the suitable information on which to base imputations. This Information Collection Request does not contain canvasses of opinion.

Industry acceptance of these canvasses and response to the USGS publication of the data continue to be extremely positive.

Bias investigations were performed for the following canvasses with low response rates: 9-4007-A, 9-4008-A, 9-4015-A, 9-4016-A, 9-4017-A, 9-4022-A, 9-4025-A, and 9-4112-A. USGS mineral commodity specialists for these canvasses drew random samples of respondents and non-respondents. We rank ordered the sample by key statistic and conducted a Mann-Whitney U Test. No statistically significant difference was detected between respondents and non-respondents.

A correlation study over varying time frames was conducted for an establishment representative of respondents for our clay canvasses to determine if the commonly used Mine Safety and Health Administration (MSHA) employee hours data set would be an appropriate surrogate to make estimates for non-respondents. The following R-squared correlations were produced: 0.52 (2003 through 2011) and 0.99 (2009 through 2011). We believe this initial correlation study supports our conclusion that MSHA employee hours is an appropriate surrogate for making estimates for non-respondents; our confidence is particularly supported in making estimates for post-recession years.

With the exception of the construction sand and gravel and crushed and broken stone canvass (USGS Form 9-4142-Q), the canvasses with the lowest response rates are in small and consolidating industries. Given that our R-squared correlation across the business cycle ranges from 0.52 and 0.99, and given that we find no statistically significant difference between respondents and non-respondents, the USGS believes that cut-off sampling provides no benefit over conducting a census and using MSHA data to make estimates.

4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of tests may be submitted for approval separately or in combination with the main collection of information.

Many of the USGS' information customers are also businesses that respond to the canvasses in this information collection. USGS mineral commodity specialists are in frequent contact with companies by way of industry associations and conferences [for example, the Portland Cement Association, Inc., the National Lime Association, Inc., and the Gypsum Association, Inc.; the USGS attends The Fertilizer Institute's annual outlook meeting]. The information exchanged with these industry associations and at conferences includes trade, consumption, and production statistics, as well as information on technology developments within the particular industry.

Informal communications during periodic contacts with our customers allow us to determine if the published canvass data are meeting their needs. Any feedback concerning this information collection discussed during these communications or non-response follow-up telephone contacts is used as suggestions that might facilitate clarification or ease respondent burden. Respondents are also encouraged to submit comments via a feedback link on the Web site at <https://miforms.er.usgs.gov/General/FeedBackForm.asp>. An annual letter is sent to our voluntary

canvass respondents thanking them for their support and encouraging them to view our data products. At present, no formal tests are in progress that would require clearance.

5. Provide the names and telephone numbers of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

For further information concerning this information collection, please contact:

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or
- Shonta Osborne, Chief, Data Collection and Coordination Section, 703-648-7960, sosborne@usgs.gov.