

Examinations and Testing of Electrical Equipment

OMB Control Number: 1219-0116

OMB Expiration Date: 12/31/2020

**SUPPORTING STATEMENT SUPPORTING STATEMENT FOR:
EXAMINATIONS AND TESTING OF ELECTRICAL EQUIPMENT, INCLUDING
EXAMINATION, TESTING, AND MAINTENANCE OF HIGH VOLTAGE LONGWALLS**

OMB CONTROL NUMBER 1219-0116

This ICR seeks to extend, without change, an existing information collection request.

Provisions: 30 CFR 75.512, 75.703-3, 75.800, 75.800-3, 75.800-4, 75.820, 75.821, 75.900, 75.900-3, 75.900-4, 75.1001-1, 77.502, 77.800, 77.800-1, 77.800-2, 77.900, 77.900-1, and 77.900-2

Collection Instrument(s): None

A. JUSTIFICATION

1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection. Attach a copy of the appropriate section of each statute and regulation mandating or authorizing the collection of information.

Section 103(h) of the Federal Mine Safety and Health Act of 1977 (Mine Act), 30 U.S.C. 813(h), authorizes the Mine Safety and Health Administration (MSHA) to collect information necessary to carry out its duty in protecting the safety and health of miners. Further, section 101(a) of the Mine Act, 30 U.S.C. 811, authorizes the Secretary of Labor (Secretary) to develop, promulgate, and revise as may be appropriate, improved mandatory health or safety standards for the protection of life and prevention of injuries in coal or other mines. The Mine Act and 30 CFR parts 75 and 77, mandatory safety standards for coal mines, make this collection of information necessary.

Inadequate maintenance of electric equipment is a major cause of serious electrical accidents in the coal mining industry. It is imperative that mine operators adopt and follow an effective maintenance program to ensure that electric equipment is maintained in a safe operating condition to prevent electrocutions, mine fires, and mine explosions. MSHA regulations require the mine operator to establish an electrical maintenance program by specifying minimum requirements for the examination, testing, and maintenance of electric equipment. The regulations also contain recordkeeping requirements that help operators in implementing an effective maintenance program.

(a) Examinations of Electric Equipment

- (1) Section 75.512 requires that all electric equipment be frequently examined, tested, and maintained by a qualified person to ensure safe operating conditions

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and that a record be kept of such examinations. Section 75.512-2 specifies required examinations and at least weekly tests.

- (2) Section 75.703-3(d)(11) requires that all grounding diodes be tested, examined, and maintained as electric equipment and records of these activities be kept in accordance with the provisions of section 75.512.
- (3) Section 77.502 requires that electric equipment be frequently examined, tested, and maintained by a qualified person to ensure safe operating conditions and that a record of such examinations be kept. Section 77.502-2 requires examinations and tests at least monthly.

(b) Examinations of High-Voltage Circuit Breakers

- (1) Section 75.800 requires that circuit breakers protecting high-voltage circuits, which enter the underground area of a coal mine, be properly tested and maintained as prescribed by the Secretary. Section 75.800-3 requires that such circuit breakers be tested and examined at least once each month. Section 75.800-4 requires that a record of the examinations and tests be made.
- (2) Section 75.820 requires persons to lock-out and tag disconnecting devices when working on circuits and equipment associated with high-voltage longwalls.
- (3) Section 75.821(a) requires testing and examination of each unit of high-voltage longwall equipment and circuits to determine that electrical protection, equipment grounding, permissibility, cable insulation, and control devices are properly maintained to prevent fire, electrical shock, ignition, or operational hazards. These tests and examinations, including the activation of the ground-fault test circuit, are required once every 7 days. Section 75.821(b) requires that each ground-wire monitor and associated circuits be examined and tested at least once every 30 days. Section 75.821(d) requires that, at the completion of examinations and tests, the person making the examinations and tests must certify that they have been conducted. In addition, a record must be made of any unsafe condition found and any corrective action taken.
- (4) Section 77.800 requires that circuit breakers protecting high-voltage portable or mobile equipment be properly tested and maintained. Section 77.800-1 requires that such circuit breakers be tested and examined at least once each month. Section 77.800-2 requires a record of each test, examination, repair, or adjustment of all circuit breakers protecting high-voltage circuits.

(c) Examinations of Low- and Medium-Voltage Circuits

- (1) Section 75.900 requires that circuit breakers protecting low- and medium-voltage power circuits serving three-phase alternating-current equipment be properly tested and maintained. Section 75.900-3 requires that such circuit breakers be tested and examined at least once each month. Section 75.900-4 requires that a record of the required examinations and tests be made.
- (2) Section 77.900 requires that circuit breakers protecting low- and medium-voltage circuits which supply power to portable or mobile three-phase alternating-current equipment be properly tested and maintained. Section 77.900-1 requires that

such circuit breakers be tested and examined at least once each month.
Section 77.900-2 requires that a record of the examinations and tests be made.

(d) Tests and Calibrations of Automatic Circuit Interrupting Devices

Section 75.1001-1(b) requires that automatic circuit interrupting devices that protect trolley wires and trolley feeder wires be tested and calibrated at intervals not to exceed 6 months. Section 75.1001-1(c) requires that a record of the tests and calibrations be kept.

2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection.

The respondents are coal mine operators. The records of tests and examinations are reviewed by coal miners, coal mine officials, and MSHA and State inspectors. The records are intended to verify that examinations and tests were conducted and give insight into the actual and potentially hazardous conditions at the mine. These records greatly assist those who use them in making decisions during accident investigations to establish root causes and to prevent similar occurrences. These decisions will ultimately affect the safety and health of miners.

Miners examine the records to determine if electric equipment is safe to operate and to determine if reported safety defects have been corrected. Mine officials examine the records to evaluate the effectiveness of their electrical maintenance programs, to determine that the required tests and examinations have been conducted, and to determine if reported safety defects have been corrected. MSHA and State inspectors review the records to determine if the required tests and examinations have been conducted and to identify units of electric equipment that may pose a potential safety hazard, and to evaluate the effectiveness of the coal mine operator's electrical maintenance programs. By comparing the records with the actual condition of the electric equipment, MSHA inspectors may be able to identify weaknesses in the coal mine operator's electrical maintenance program and require that these weaknesses be corrected.

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also, describe any consideration of using information technology to reduce burden.

Mine operators may retain the records in whatever method they choose, which may include using computer technology. The subject regulations do not specify how the required records must be kept. They may be kept in the traditional manner or stored electronically, provided the records are secure and not susceptible to loss or alteration. No improved information technology has been identified that would reduce the burden.

4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Item A.2 above.

MSHA knows of no other Federal or State reporting requirements that would duplicate the reporting requirements contained in these standards. The information collected is unique to each mine operation.

5. If the collection of information impacts small businesses or other small entities, describe any methods used to minimize burden.

This information does not have a significant impact on small businesses or other small entities.

6. Describe the consequence to federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.

Reduction of these requirements could result in increased hazards to miners. A reduction in the frequency of examinations and tests could allow unsafe conditions to develop, jeopardizing the safety of miners.

7. Explain any special circumstances that would cause an information collection to be conducted in a manner:

- **requiring respondents to report information to the agency more often than quarterly;**
- **requiring respondents to prepare a written response to a collection of information in fewer than 30 days after receipt of it;**
- **requiring respondents to submit more than an original and two copies of any document;**
- **requiring respondents to retain records, other than health, medical, government contract, grant-in-aid, or tax records for more than three years;**
- **in connection with a statistical survey, that is not designed to produce valid and reliable results that can be generalized to the universe of study;**
- **requiring the use of statistical data classification that has not been reviewed and approved by OMB;**
- **that includes a pledge of confidentiality confidentially that is not supported by authority established in statute or regulation, that is not supported by**

disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use; or

· requiring respondents to submit proprietary trade secret, or other confidential information unless the agency can demonstrate that it has instituted procedures to protect the information's confidentiality to the extent permitted by law.

This collection of information is consistent with the guidelines in 5 CFR 1320.5.

8. If applicable, provide a copy and identify the date and page number of publication in the Federal Register of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection prior to submission to OMB. Summarize public comments received in response to that notice and describe actions taken by the agency in response to these comments. Specifically address comments received on cost and hour burden.

Describe efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every 3 years -- even if the collection-of-information activity is the same as in prior periods. There may be circumstances that may preclude consultation in a specific situation. These circumstances should be explained.

MSHA published a 60-day *Federal Register* notice on July 23, 2020 (85 FR 44546). MSHA received no public comments.

9. Explain any decision to provide any payments or gifts to respondents, other than remuneration of contractors or grantees.

MSHA does not provide payments or gifts to the respondents.

10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.

MSHA has made no assurance of confidentiality.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of

the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.

There are no questions of a sensitive nature.

12. Provide estimates of the hour burden of the collection of information. The statement should:

- **Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Unless directed to do so, agencies should not conduct special surveys to obtain information on which to base hour burden estimates. Consultation with a sample (fewer than 10) of potential respondents is desirable. If the hour burden on respondents is expected to vary widely because of differences in activity, size, or complexity, show the range of estimated hour burden, and explain the reasons for the variance. General, estimates should not include burden hours for customary and usual business practices.**
- **If this request for approval covers more than one form, provide separate hour burden estimates for each form.**
- **Provide estimates of annualized cost to respondents for the hour burdens for collections of information, identifying and using appropriate wage rate categories. The cost of contracting out or paying outside parties for information collection activities should not be included here. Instead, this cost should be included in Item 13.**

All hourly wages for estimating hour burden costs are from the Bureau of Labor Statistics, Occupational Employment Statistics (OES) May 2018 Survey¹. MSHA increased the OES hourly wage rates for benefits by a 1.49 benefit-scaling factor² and a 1.045 inflation factor³ to obtain fully loaded wages.

Respondents: There are currently 148 underground coal mines, 313 surface coal mines, and 213 surface facilities covered by the requirements to examine and test electrical equipment, totaling 674 respondents.

¹ For those not familiar with the OES survey, see item “E3. How to get OES data. What are the different ways to obtain OES estimates from this website?” at http://www.bls.gov/oes/oes_ques.htm

² The benefit-scaler comes from BLS Employer Costs for Employee Compensation access by menu <http://www.bls.gov/data/> or directly with <http://download.bls.gov/pub/time.series/cm/cm.data.0.Current>. The data series CMU2030000405000P, Private Industry Total benefits for Construction, extraction, farming, fishing, and forestry occupations, is divided by 100 to convert to a decimal value. MSHA used the latest 4-quarter moving average 2019Qtr4-2019Qtr1 to determine that 33 percent of total loaded wages are benefits. The scaling factor may be approximated with the formula and values $1 + (\text{benefit percentage}/(1-\text{benefit percentage})) = 1 + (.33/(1-.33)) = 1.49$.

³ Wage inflation is the change in Series ID: CIS2020000405000I, <https://data.bls.gov/cgi-bin/srgate>; Seasonally adjusted; Series Title: Wages and salaries for Private industry workers in Construction, extraction, farming, fishing, and forestry occupations, Index. (Qtr 4 2019/Qtr 2 2018 = 138.1/132.1 = 1.045).

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Examinations of High-Voltage Longwall Equipment: An electrician earning an hourly wage rate⁴ of \$45.96 conducts the examination and testing of high-voltage longwall equipment. In underground coal mines, there are currently 26 longwall units affected by sections 75.820 and 75.821.

Section 75.820: MSHA estimates that it will take an electrician an average of 5 minutes to lock out and tag a disconnecting device as specified in section 75.820(b) and (e) and that an average of one lock out and tag out procedure will occur each day at each longwall unit. Longwall mines operate an average of 350 workdays/year (7 days/week x 50 weeks/year).

350 days/year x 26 longwall units =	9,100 responses
5 minutes x 350 days/year x 26 longwall units =	758.33 burden hours
758 hours x \$45.96 per hour =	\$34,853.00 burden-hour cost

Section 75.821: Section 75.821(d) requires that each unit of high-voltage longwall equipment and circuits must be examined every 7 days (50 responses). Section 75.821(b) requires that ground-wire monitors and circuits be tested every 30 days (12 responses). Section 75.821(d) requires the electrician to certify by signature and date that the examinations required by section 75.821 have been conducted and to make a record of any unsafe conditions found and any corrective action taken. MSHA estimates that an electrician would find and correct an unsafe condition, on average, once every 2 weeks (26 responses). It takes an electrician about 6 minutes to produce each record and certify that the examinations were conducted.

88 (50 + 12 + 26) responses/longwall x 26 longwalls =	2,288 responses
6 minutes x 2,288 responses/year =	228.80 burden hours
228.80 hours x \$45.96 =	\$10,515.65 burden-hour cost

Examinations of Electric Equipment: MSHA estimates that a mine supervisor earning an hourly wage rate⁵ of \$62.01 records the examinations of electric equipment.

Section 75.512: There are approximately 346 underground coal mining sections utilizing electric equipment. Each mining section has on average six pieces of electrical equipment. The total number of underground electric equipment is approximately 2,076 (346 x 6). Each piece of equipment is required to be examined weekly and the results

⁴ Hourly wages from OES May 2018 survey, Standard Occupational Classification (SOC) code 47-2110, Electricians, General (NAICS codes 212100, Coal Mining). MSHA multiplied the mean wage rate of \$29.52 times the 1.49 benefit-scaler factor and 1.045 inflation factor to obtain a fully loaded hourly wage of \$45.96 (\$29.52 x 1.49 x 1.045).

⁵ Hourly wages from OES May 2018 survey, Standard Occupational Classification (SOC) codes of 47-1010, 51-1010, and 53-1040, First-Line Supervisors, General (NAICS codes 212100, Coal Mining weighted by employment). MSHA multiplied the employment weighted mean wage rate of \$39.83 times the 1.49 benefit-scaler factor and 1.045 inflation factor to obtain a fully loaded hourly wage of \$62.01 (\$39.83 x 1.49 x 1.045).

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of each examination are required to be recorded. MSHA estimates that it will take 6 minutes to create the record for the average number of electrical equipment located on an underground coal mining section.

2,076 exams/week x 1 record/exam x 50 weeks =	103,800 responses
103,800 responses x 6 minutes/response =	10,380.00 burden hours
10,380 hours x \$62.01/hour =	\$643,663.80 burden-hour cost

Section 75.703-3(d)(11): All grounding diodes must be tested, examined, and maintained as electrical equipment in accordance with the provisions of section 75.512; therefore, recordkeeping in connection with diode testing calculations are included as part of the recordkeeping burden under section 75.512 above.

Sections 77.502 and 77.502-2: The number of electric equipment at surface coal mines and surface facilities is approximately 7,964. Section 77.502-2 requires the equipment to be examined monthly and section 77.502 requires the results of each examination to be recorded. MSHA estimates that the results of each examination will take 15 minutes to record.

7,964 exams/month x 1 response/exam x 12 months =	95,568 responses
95,568 responses x 15 minutes =	23,892.00 burden hours
23,892 burden hours x \$62.01 =	\$1,48,542.92 burden-hour cost

Examinations of High-Voltage Circuit Breakers:

Sections 75.800-3 and -4: The number of circuit breakers protecting high-voltage circuits extending underground is approximately 613. Each circuit breaker is required to be examined and tested once a month and the results of each examination and test must be recorded. It is estimated that the results of each examination will take 15 minutes to record.

613 exams/month x 1 response/exam x 12 months =	7,356 responses
7,356 responses x 15 minutes/response =	1,839.00 burden hours
1,839 hours x \$62.01 =	\$114,036.39 burden-hour cost

Sections 77.800-1 and -2: The number of circuit breakers protecting high-voltage circuits extending to portable and mobile surface equipment is approximately 1,127. Each circuit breaker is required to be examined and tested once a month and the results of each examination and test must be recorded. It is estimated that the results of each examination will take 15 minutes to record.

1,127 exams/month x 1 response/exam x 12 months =	13,524 responses
13,524 responses x 15 minutes/response =	3,381.00 burden hours
3,381 hours x \$62.01 =	\$209,656.81 burden-hour cost

Examinations of Low- and Medium-Voltage Circuit Breakers:

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Section 75.900-3 and -4: The number of power centers containing circuit breakers protecting low- and medium-voltage power circuits serving three-phase underground equipment is approximately 4,082. The circuit breakers in each power center are required to be examined and tested once a month and the results of the examination and tests recorded. It is estimated that the results of each examination and test will take 15 minutes to record.

4,082 power centers x 1 exam and test/month x 12 months = 48,984 responses
 48,984 responses x 15 minutes/response = 12,246.00 burden hours
 12,246 hours x \$62.01/hour = \$759,374.46 burden-hour cost

Section 77.900-1 and -2: The number of installations containing circuit breakers protecting low- and medium voltage alternating-current equipment located on the surface is approximately 867. The circuit breakers in each installation are required to be examined and tested once a month and the results of the examination and test recorded. It is estimated that the results of each examination and test will take an average of 15 minutes to record.

867 installations x 1 exam and test/month x 12 months = 10,404 responses
 10,404 responses x 15 minutes/response = 2,601.00 burden hours
 2,601 hours x \$62.01/hour = \$161,288.01 burden-hour cost

Tests and Calibrations of Automatic Circuit Interrupting Devices:

Section 75.1001-1(b) and (c). The number of trolley automatic circuit interrupting devices in underground coal mines is approximately 25. Each circuit breaker is required to be tested and calibrated once every 6 months and the results of the tests and calibrations recorded. It is estimated that the results of each test will take approximately 15 minutes to record.

25 trolley circuit breakers x 2 tests/year x 1 response/test = 50 responses
 50 responses x 15 minutes/response = 13.00 burden hours
 12.50 hours x \$62.01/hour = \$775.13 burden-hour cost

Estimated Annualized Respondent Cost and Hour Burden

Activity	No. of Respondents	No. of Responses per Respondent	Total Responses	Average Burden per Response (Hours)	Total Burden (Hours)	Hourly Wage Rate	Total Burden Cost
30 CFR 75.820	26	350	9,100	5 m	758.33	\$45.96	\$34,853.00

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30 CFR 75.821	26	88	2,288	6 m	228.80	\$45.96	\$10,515.65
30 CFR 75.512	2,076	50	103,800	6 m	10,380.00	\$62.01	\$643,663.80
30 CFR 77.502 and 77.502-2	7,964	12	95,568	15 m	23,892.00	\$62.01	\$1,481,542.92
30 CFR 75.800-3 and 75.800-4	613	12	7,356	15 m	1,839.00	\$62.01	\$114,036.39
30 CFR 77.800-1 and 77.800-2	1,127	12	13,524	15 m	3,381.00	\$62.01	\$209,655.81
30 CFR 75.900-3 and 75.900-4	4,082	12	48,984	15 m	12,246.00	\$62.01	\$759,374.46
30 CFR 77.900-1 and 77.900-2	867	12	10,404	15 m	2,601.00	\$62.01	\$161,288.01
30 CFR 77.1001 1(b) and (c)	25	2	50	15 m	12.50	\$62.01	\$775.13
TOTAL			291,074		55,338.63 (55,339 rounded)		\$3,415,705.17 (\$3,415,705 rounded)

13. Provide an estimate of the total annual cost burden to respondents or recordkeepers resulting from the collection of information. (Do not include the cost of any hour burden shown in Items 12 and 14).

- **The cost estimate should be split into two components: (a) a total capital and start up cost component (annualized over its expected useful life); and (b) a total operation and maintenance and purchase of service component. The estimates should take into account costs associated with generating, maintaining, and disclosing or providing the information. Include descriptions of methods used to estimate major cost factors including system and technology acquisition, expected useful life of capital equipment, the discount rate(s), and the time period over which costs will be incurred. Capital and start-up costs include, among other items, preparations for collecting information such as purchasing computers and software; monitoring, sampling, drilling and testing equipment; and record storage facilities.**
- **If cost estimates are expected to vary widely, agencies should present ranges of cost burdens and explain the reasons for the variance. The cost of purchasing or contracting out information collection services should be a part of this cost burden estimate. In developing cost burden estimates, agencies may consult with a sample of respondents (fewer than 10), utilize the 60-day pre-OMB submission public comment process and use existing economic or regulatory impact analysis associated with the rulemaking containing the information collection, as appropriate.**
- **Generally, estimates should not include purchases of equipment or services, or portions thereof, made: (1) prior to October 1, 1995, (2) to achieve regulatory compliance with requirements not associated with the information collection, (3) for reasons other than to provide information or keep records for the government, or (4) as part of customary and usual business or private practices.**

MSHA does not anticipate that there will be any costs associated with this information collection other than those indicated in Item 12 above.

14. Provide estimates of the annualized cost to the Federal Government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), any other expense that would not have been incurred without this collection of information. Agencies also may aggregate cost estimates from Items 12, 13, and 14 into a single table.

There is no significant cost to the Federal Government. The review and inspection of records is just one aspect of the mine inspection. Complete inspections are required

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under section 103(a) of the Mine Act four times per year for underground mines and twice a year for surface operations.

15. Explain the reasons for any program changes or adjustments.

There is a decrease in responses (405,606 to 291,074) and a decrease of 41,997 burden hours (73,784 to 55,339) due to a decrease in respondents (843 mining operations to 674 mining operations). Costs remain \$0.

16. For collections of information whose results will be published, outline plans for tabulations, and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.

MSHA has no plans to publish the information obtained through this information collection.

17. If seeking approval not to display the expiration date for OMB approval of the information collection, explain the reasons that display would be inappropriate.

There are no forms associated with this request, therefore MSHA is not seeking approval to not display the expiration date for OMB approval of this information collection.

18. Explain each exception to the topics of the certification statement.

There are no certification exceptions identified with this information collection.

B. COLLECTION OF INFORMATION EMPLOYING STATISTICAL METHODS

This collection of information does not employ statistical methods.