

Safety and Health Audit for Aggregate Operators Surface Metal/Nonmetal



U.S. Department of Labor
Mine Safety and Health Administration
National Mine Health and Safety Academy

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Revised 2005

SAFETY AND HEALTH AUDIT FOR AGGREGATE OPERATORS
SURFACE METAL/NONMETAL
2004 MOST FREQUENTLY CITED STANDARDS

Any effective safety plan has to include a method for checking safety and health precautions and compliance on a systematic basis. Audits are one way for accomplishing this goal. A good audit will establish a baseline from which you can begin to evaluate your operation and make changes to improve safety and health. Attached is an example of a safety audit for you to use to check safety and health conditions at your operation.

This safety audit is focused on the most common violations found at aggregate operations. Twenty condition/practices accounted for a majority of all violations cited at Sand and Gravel and Crushed Stone Mining Operations in 2004. Completing this self-audit package is an important part of a safety program, which will help you identify and correct unsafe conditions/practices at your mining operation. The 20 most frequently cited standards are listed on the charts on the next pages. These charts are broken down into the 20 most frequently cited standards for sand and gravel, surface stone, and stone mill operations.

Remember, this is a focused audit that only lists the most common violations occurring at aggregate operations.

**SAFETY AND HEALTH AUDIT FOR AGGREGATE OPERATORS
SURFACE METAL/NONMETAL
2004 MOST FREQUENTLY CITED STANDARDS**

**SAND AND GRAVEL
JANUARY 1, 2004 – DECEMBER 31, 2004**

Standard Title	Number of Violations	Percent	Standard	Page Number in Audit
Guarding of Moving Machine Parts	2,988	13.3%	56.14107(a)	9
Horns and Backup Alarms	1,377	6.1%	56.14132(a)	9
Safety Defects	1,234	4.5%	56.14100(b)	8
Electrical Conductors	829	3.7%	56.12004	7
Preparation and Submission of MSHA Report Form 7000 – 2 Quarterly Employment and Coal Production Report	662	3.0%	50.30(a)	6
Parking Brakes	642	2.9%	56.14101(a)(2)	8
Berms or Guardrails	609	2.7%	56.9300(a)	7
Guard Construction	565	2.5%	56.14112(b)	9
Inspection and Cover Plates	515	2.3%	56.12032	8
Insulation and Fittings for Power Wires and Cables	514	2.3%	56.12008	7
Testing Grounding Systems	496	2.2%	56.12028	8
Safe Access	477	2.1%	56.11001	7
Housekeeping	407	1.8%	56.20003(a)	10
Handrails and Toe Boards	388	1.7%	56.11002	7
Warning Signs	336	1.5%	56.4101	6
Inspection	299	1.3%	56.4201(a)(2)	11
First Aid	283	1.3%	56.18010	10
Workplace Safety Records	282	1.3%	56.18002(b)	10
Correction of Dangerous Conditions	251	1.1%	56.12030	8
Requirement for Container Labels	246	1.1%	47.41(a)	6

**SAFETY AND HEALTH AUDIT FOR AGGREGATE OPERATORS
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**SURFACE STONE
JANUARY 1, 2004 – DECEMBER 31, 2004**

Standard Title	Number of Violations	Percent	Standard	Page Number in Audit
Guarding of Moving Machine Parts	1768	10.1%	56.14107(a)	9
Horns and Backup Alarms	1240	7.1%	56.14132(a)	9
Safety Defects	1015	5.8%	56.14100(b)	8
Housekeeping	567	3.2%	56.20003(a)	10
Electrical Conductors	540	3.1%	56.12004	7
Parking Brakes	538	3.1%	56.14101(a)(2)	8
Guard Construction	486	2.8%	56.14112(b)	9
Berms or Guardrails	450	2.6%	56.9300(a)	7
Safe Access	435	2.5%	56.11001	7
Inspection and Cover Plates	425	2.4%	56.12032	8
Insulation and Fittings for Power Wires and Cables	419	2.4%	56.12008	7
Testing Grounding Systems	290	1.6%	56.12028	8
Handrails and Toe Boards	282	1.6%	56.11002	7
Preparation and Submission of MSHA Report Form 7000 – 2 Quarterly Employment and Coal Production Report	271	1.5%	50.30(a)	6
Correction of Dangerous Conditions	243	1.4%	56.12030	8
Exposure Limits for Airborne Contaminants	222	1.3%	56.5001(a) / 56.5005	12
Warning Signs	220	1.3%	56.4101	6
Requirement for Container Labels.	197	1.1%	47.41(a)	6
Permissible Exposure Level	175	1.0%	62.130(a)	12
First Aid	168	1.0%	56.18010	10

**SAFETY AND HEALTH AUDIT FOR AGGREGATE OPERATORS
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**MILLS – STONE
JANUARY 1, 2004 – DECEMBER 31, 2004**

Standard Title	Number of Violations	Percent	Standard	Page Number in Audit
Housekeeping	385	8.5%	56.20003(a)	10
Guarding of Moving Machine Parts	326	7.2%	56.14107(a)	9
Inspection and Cover Plates	309	6.9%	56.12032	8
Safety Defects	254	5.6%	56.14100(b)	8
Electrical Conductors	224	5.0%	56.12004	7
Guard Construction	204	4.5%	56.14112(b)	9
Safe Access	143	3.2%	56.11001	7
Horns and Backup Alarms	114	2.5%	56.14132(a)	9
Correction of Dangerous Conditions	103	2.3%	56.12030	8
Insulation and Fittings for Power Wires and Cables	84	1.9%	56.12008	7
Illumination of Surface Working Areas	66	1.5%	56.17001	10
Protection for Openings Around Travel Ways	64	1.4%	56.11012	7
Handrails and Toe Boards	64	1.4%	56.11002	7
Housekeeping	63	1.4%	56.20003	10
High – Pressure Hose Connections	62	1.4%	56.13021	8
Parking Brakes	61	1.4%	56.14101(a)(2)	8
Construction and Maintenance of Guards	59	1.3%	56.14112(a)(1)	9
Grounding Circuit Enclosures	59	1.3%	56.12025	8
Identification of Power Switches	57	1.3%	56.12018	8
Securing Gas Cylinders	55	1.2%	56.16005	9

**SAFETY AND HEALTH AUDIT FOR AGGREGATE OPERATORS
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DIRECTIONS FOR USING THE SELF AUDIT

This safety audit consists of descriptions of safety and health standards for aggregate operations. The first column consists of the description of the regulation with questions (second column) that correspond to that regulation. In some cases only one question may be necessary, in others several questions may be necessary for the description.

Responses should fall into three categories, (YES) (NO) and (N/A). If you answer (YES) generally no further action is necessary.

A (NO) response generally will require further action and an explanation of the defective condition/location/practice. If you answer (NO) to any question, further action will be necessary and you should complete the column (Corrective Action) and indicate action taken or flag this area for corrective action. In order to make this audit a positive vehicle for improving safety at your mining operation, any (NO) answer should include a corrective date entry (the last column on the audit).

Check (N/A) if the description is not applicable to your operation.

DESCRIPTION	YES	NO	N/A	CORRECTIVE ACTION NEEDED	STANDARD	DATE RESOLVED
HAZARD COMMUNICATION (HAZCOM)						
Requirement for Container Labels	The operator must ensure that each container of a hazardous chemical has a label. If a container is tagged or marked with the appropriate information, it is labeled.				47.41(a)	
REPORTING OF ACCIDENTS, INJURIES, AND ILLNESSES						
Preparation and Submission of MSHA Report Form 7000-1	Is Form 7000-1 (Mine Accident, Injury, and Illness Report) completed and submitted to MSHA within ten working days after an accident or occupational injury occurs or an occupational illness is diagnosed?				50.20	
Preparation and Submission of MSHA Form 7000-2	Is Form 7000-2 (Quarterly Employment and Coal Production Report) completed and submitted to the Office of Injury and Employment Information in Denver, Colorado, within 15 days after the end of each quarter?				50.30(a)	
PROCEDURES						
Notification of Commencement of Operations and Closing of Mines	Is MSHA and Metal/Nonmetal Mine Safety and Health District office notified before starting operations?				56.1000	
	Is MSHA and Metal/Nonmetal Mine Safety and Health District office notified when a mine is closed?					
PROHIBITIONS/PRECAUTIONS/HOUSEKEEPING						
Warning Signs	Are readily visible signs prohibiting smoking and open flames posted where a fire or explosion hazard exists?				56.4101	

DESCRIPTION	YES	NO	N/A	CORRECTIVE ACTION NEEDED	STANDARD	DATE RESOLVED
SAFETY DEVICES, PROVISIONS, AND PROCEDURES FOR ROADWAYS, RAILROADS, LOADING, AND DUMPING SITES						
Berms or Guardrails	Are adequate berms or guardrails provided and maintained on the outer banks of elevated roadways?				56.9300(a)	
TRAVELWAYS						
Safe Access	Is safe means of access provided and maintained to all working places (includes access to service equipment)?				56.11001	
Protection for Openings Around Travelways	Openings above, below, or near travelways through which persons or materials may fall shall be protected by railings, barriers, or covers. Where it is impractical to install such protective devices, adequate warning signals shall be installed.				56.11012	
Handrails and Toe Boards	Are substantially constructed handrails provided and maintained on crossovers, elevated walkways, elevated ramps, and stairways?				56.11002	
	Are toe boards provided where necessary?					
ELECTRICITY						
Electrical Conductors	Are electrical conductors (power cables) protected from mechanical damage?				56.12004	
	Are the electrical conductors sufficient in size and current carrying capacity to prevent overheating or damage to the insulating cover?					
Insulation and Fittings for Power Wires and Cable Entrance	Are the power wires and cables adequately insulated where they pass into or out of electrical compartments?				56.12008	
	Are cables entering metal frames of motors, splice boxes, and electrical compartments through proper fittings and bushings?					

DESCRIPTION		YES	NO	N/A	CORRECTIVE ACTION NEEDED	STANDARD	DATE RESOLVED
Identification of Power Switches	Principal power switches shall be labeled to show which units they control, unless identification can be made readily by location					56.12018	
Circuit Enclosure Grounding	Are all metal enclosing or metal encased electrical circuits grounded or provided with equivalent protection?					56.12025	
Testing Grounding Systems	Are grounding systems tested immediately after installation, repair, or modification, and annually thereafter?					56.12028	
	Is a record of the most recent test available for inspection?						
Correction of Dangerous Conditions	Are potentially dangerous electrical conditions corrected before the equipment or wiring is energized?					56.12030	
Inspection and Cover Plates	Are inspection and cover plates on electrical equipment and junction boxes?					56.12032	
Guarding Around Lights	Are guards used where portable extension lights and other lights that by their location, present a shock or burn hazard?					56.12034	
COMPRESSED AIR AND BOILERS							
High Pressure Hose Connections	Are safety chains or other suitable locking devices used at connections to machines of high pressure hose lines of 3/4" inside diameter or larger where a connection failure would create a hazard?					56.13021	
MACHINERY AND EQUIPMENT							
Safety Defects, Examination, Correction, and Records	Are defects that affect safety corrected in a timely manner?					56.14100(b)	
Brakes	Is self-propelled mobile equipment equipped with a service brake system capable of stopping and holding the equipment with its typical load on the maximum grade it travels? (Does not apply to rail equipment)					56.14101(a) (2)	

DESCRIPTION	YES	NO	N/A	CORRECTIVE ACTION NEEDED	STANDARD	DATE RESOLVED
Moving Machine Parts					56.14107 56.14107(a)	
Construction and Maintenance of Guards					56.14112(a) (1) (2), and (b)	
Horns and Backup Alarms					56.14132 56.14132(a)	
PERSONAL PROTECTION						
Safety Belts and Lines					56.15005	
MATERIALS STORAGE AND HANDLING						
Securing Gas Cylinders					56.16005	
Protection of Gas Cylinder Valves					56.16006	

DESCRIPTION	YES	NO	N/A	CORRECTIVE ACTION NEEDED	STANDARD	DATE RESOLVED
Examination of Working Places (Workplace Safety Record)	A record that such examinations were conducted shall be kept by the operator for a period of one year, and shall be made available for review by the Secretary or his authorized representative				56.18002(b)	
ILLUMINATION						
Illumination of Surface Working Areas.	Is illumination sufficient to provide safe working conditions in and on all surface structures, paths, walkways, stairways, switch panels, loading and dumping sites, and work areas?				56.17001	
SAFETY PROGRAMS						
First Aid	Is an individual capable of providing first aid available on all shifts? Is first aid training made available to all interested miners?				56.18010	
Housekeeping	Are workplaces, passageways, storerooms, and service rooms kept clean and orderly? Are floors of every workplace maintained in a clean and dry condition? Is every floor, working place, and passageway kept free from protruding nails, splinters, holes, or loose boards?				56.20003(a) 56.20003(b) 56.20003(c)	

DESCRIPTION	YES	NO	N/A	CORRECTIVE ACTION NEEDED	STANDARD	DATE RESOLVED
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FIREFIGHTING EQUIPMENT

Inspection	<p>Firefighting equipment shall be inspected according to the following schedule:</p>					
	<p>At least once every twelve months, maintenance checks shall be made of mechanical parts, the amount and condition of extinguishing agent and expellant, and the condition of the hose, nozzle, and vessel to determine that the fire extinguishers will operate effectively.</p>					56.4201(a) (2)

DESCRIPTION	YES	NO	N/A	CORRECTIVE ACTION NEEDED	STANDARD	DATE RESOLVED
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AIR QUALITY AND PHYSICAL AGENTS

Exposure limits for airborne contaminants	<p>Except as provided in paragraph (b) of this section, the exposure to airborne contaminants shall not exceed, on the basis of a time weighted average, the threshold limit values adopted by the American Conference of Governmental Industrial Hygienists, as set forth and explained in the 1973 edition of the Conference's publication, entitled "TLV's Threshold Limit Values for Chemical Substances in Workroom Air Adopted by ACGIH for 1973," pages 1 through 54, which are hereby incorporated by reference and made a part hereof. This publication may be obtained from the American Conference of Governmental Industrial Hygienists by writing to the Secretary-Treasurer, P.O. Box 1937, Cincinnati, Ohio 45201, or may be examined in any Metal and Nonmetal Mine Safety and Health District Office of the Mine Safety and Health Administration. Excursions above the listed thresholds shall not be of a greater magnitude than is characterized as permissible by the Conference.</p>					<p align="center">56.5001(a)/ 56.5005</p>	
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OCCUPATIONAL NOISE EXPOSURE

Action Level	<p>If during any work shift a miner's noise exposure equals or exceeds the action level, is the miner enrolled in a hearing conservation program?</p>					<p align="center">62.120</p>	
Permissible Exposure Level	<p>If during any work shift a miner's noise exposure exceeds the permissible exposure level, are all feasible engineering and administrative controls to reduce the noise exposure used?</p>					<p align="center">62.130(a)</p>	