TITLE 11. MINES

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TITLE 11. MINING

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ARTICLE 2. EXPLOSIVES AND BLASTING

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. 27-304, 27-305, and 27-321 through 27-325.

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ARTICLE 4. AIR QUALITY, VENTILATION AND RADIATION, AND PHYSICAL AGENTS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. 27-304, 27-305, 27-365, 27-368, 27-371 through 27-373, 27-411, and 27-412.

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ARTICLE 5. MAINTENANCE AND USE OF EQUIPMENT

(Compressors, Mucking Machines, Belts & Guards, Mobile Equipment)

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, 27-313, 27-367, and 27-424.

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The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, 27-345, 27-367, and 27-423.

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The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, and 27-341 through 27-343.

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ARTICLE 8. ELECTRICITY

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305 and 27-314.

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ARTICLE 9. PERSONAL PROTECTION

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305 and 27-312.

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The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304 and 27-305.

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ARTICLE 11. HOISTS AND SHAFTS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, 27-348, 27-351 through 27-354, and 27-356 through 27-359.

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ARTICLE 12. UNDERGROUND OPERATIONS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, 27-344, 27-345, 27-349, 27-350, and 27-366.

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R11-1-1201. Grizzlies kept in good repair
R11-1-1202. Upon entering work area check for hazards
R11-1-1203. Transformer stations to be enclosed
R11-1-1204. Use of grizzlies
R11-1-1205. Carrying material on shoulder
R11-1-1206. Ventilation procedures in case of mine fire
R11-1-1207. Roof bolting in unstable ground
R11-1-1208. Winze or raise in direct line with haulage drift
R11-1-1209. Access to unattended underground mine openings
R11-1-1210. Loading and drilling at same time
R11-1-1211. Chute tapping
R11-1-1212. Repealed
R11-1-1213. Taking "short cuts"
R11-1-1214. Throwing tools or material down a manway
R11-1-1215. Scaling or barring-down
R11-1-1216. Removing bits from drill steel
R11-1-1217. Dangerous places fenced
R11-1-1218. Collars of open draw holes kept free

R11-1-1219. Removing men to safe places before blasting
R11-1-1220. Renumbered
R11-1-1221. Repealed
R11-1-1222. Headlight, reflector or tail light on trains
R11-1-1223. Workmen shall never walk alongside any moving train
R11-1-1224. Train speed when passing men in drifts
R11-1-1225. Repealed
R11-1-1226. Impaired overhead clearance
R11-1-1227. Train shall be pulled
R11-1-1228. Plugging of the trolley locomotives or battery motors
R11-1-1229. While car is in motion
R11-1-1230. No one shall climb over cars while moving
R11-1-1231. Pulling plugs on Mancha battery motors
R11-1-1232. Men working in haulage drifts
R11-1-1233. Operating a motor while out of the cab
R11-1-1234. Men pulling chutes in safe location
R11-1-1235. A motor man shall receive a signal from his swamper or loader before moving train
R11-1-1236. Cars shall not be coupled or uncoupled by hand
R11-1-1237. Transportation of tools, materials and equipment on top of motors and locomotives
R11-1-1238. Speed of mantrips

ARTICLE 13. OPEN PITS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, 27-421, 27-422, 27-424, and 27-425.

Section

R11-1-1301. Warning devices on mobile equipment
R11-1-1302. Dumping over edge not permitted
R11-1-1303. Berms or guards shall be provided
R11-1-1304. Men shall not work between equipment and pit wall
R11-1-1305. Drill holes covered and guarded
R11-1-1306. Drilling near loaded blast holes
R11-1-1307. Emergency signaling device on drill rigs
R11-1-1308. Repair of heavy truck tires (1300 x 24 in. size and over)
R11-1-1309. Loose material stripped from top of pit walls
R11-1-1310. Moving a drill
R11-1-1311. Drill controls during a power failure
R11-1-1312. Straightening a crossed cable on a reel
R11-1-1313. Drills in operation
R11-1-1314. Holding drill steel while collaring hole
R11-1-1315. Drill bit in operation

ARTICLE 14. SAND AND GRAVEL OPERATIONS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305 and 27-441.

Section

R11-1-1401. Sand and gravel operations subject to statutes and rules
R11-1-1402. Reserved
R11-1-1403. Reserved
R11-1-1404. Reserved
R11-1-1405. Reserved
R11-1-1406. Reserved
R11-1-1407. Reserved
R11-1-1408. Reserved
R11-1-1409. Repealed

ARTICLE 15. ACID PLANTS AND LEACHING

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304 and 27-305.

Section

R11-1-1501. Instruction on use of personal protective equipment to employees
R11-1-1502. Storage and distribution of acid
R11-1-1503. Persons working on or with acid storage or distribution shall wear approved eye and body protectors
R11-1-1504. Open lights, flames, etc., forbidden near acid storage
R11-1-1505. Welding, burning or cutting restrictions on acid storage tanks, etc.
R11-1-1506. Acid spillage shall be removed immediately
R11-1-1507. Authorized personnel
R11-1-1508. Personal protective clothing cleaned up after each use
R11-1-1509. Before work started on acid storage tanks, inspection procedure approved
R11-1-1510. Potable water immediately available
R11-1-1511. Safety showers and eye wash fountains; emergency water
R11-1-1512. First-aid procedures must be posted
R11-1-1513. Flush acid from eyes
R11-1-1514. Medical aid
R11-1-1515. Maintenance of plant equipment used in any acid service
R11-1-1516. Reporting suspected leaks or equipment failure
R11-1-1517. Tank trucks, general
R11-1-1518. Fittings and other equipment (See REFERENCES at end of Article)
R11-1-1519. Unloading
R11-1-1520. Applying air to a tank truck
R11-1-1521. Storage tanks lower than unloading site

ARTICLE 16. SMELTERS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304 and 27-305.

Section

R11-1-1601. Walking or standing directly on reverb arch
R11-1-1602. Avoid splashing or exploding of molten material
R11-1-1603. Employees shall be adequately protected
R11-1-1604. Employees shall stand clear of furnace operations
R11-1-1605. Employees shall not enter area unless authorized
R11-1-1606. Transporting material with a crane, audible signal sounded
R11-1-1607. Dumping slag in a new place
R11-1-1608. Wet bars
R11-1-1609. Newly cleaned and mudded matte launders
R11-1-1610. Employees working at the burner end of the reverb furnace
R11-1-1611. Employees alert of crane movement
R11-1-1612. Employees should stay out of the converter aisle
R11-1-1613. When in converter aisles, avoid slag spouts
R11-1-1614. Employees shall not overfill ladles
R11-1-1615. Authorized persons in crane cab
R11-1-1616. Ladles carefully poured
R11-1-1617. Breaking material on skull breaker and trimming bullion bars
R11-1-1618. Coupling and uncoupling cars
R11-1-1619. Trains stopped before uncoupling
R11-1-1620. During electrical storms, slag trains kept inside
R11-1-1621. Access to converter aisle limited
R11-1-1622. Equipment in converter aisle

R11-1-1623. Reserved
R11-1-1624. Hoist cable on cranes
R11-1-1625. Detection equipment, breathing apparatus and portable resuscitating apparatus made available
R11-1-1626. Reserved
R11-1-1627. Shielding and protective clothing shall be provided
R11-1-1628. Signalmen shall be assigned when mechanical signals fail
R11-1-1629. Cabs pressurized and ventilated
R11-1-1630. Converter cranes equipped with safety glass
R11-1-1631. Reserved
R11-1-1632. Entry into hot vessels, precautions
R11-1-1633. When gassy conditions exist
R11-1-1634. Spout doors
R11-1-1635. Environmental hazards monitoring

ARTICLE 17. AERIAL TRAMWAYS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304 and 27-305.

Section

R11-1-1701. Guard nets or other suitable protection
R11-1-1702. Riding aerial tramways
R11-1-1703. Starting aerial tramways

ARTICLE 18. GASSY MINES

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304 and 27-305.

Section

R11-1-1801. Gassy mines operated in accordance with mandatory standards
R11-1-1802. Classifying mines gassy
R11-1-1803. Flammable gases detected
R11-1-1804. Men shall not smoke or carry smoking materials underground
R11-1-1805. Use of open flames
R11-1-1806. Welding or cutting underground
R11-1-1807. Welding or cutting in atmospheres containing more than 1.0 percent of flammable gases
R11-1-1808. Ventilation, main fans -- installation
R11-1-1809. Ventilation, main fans -- operation
R11-1-1810. Main intake and return air currents
R11-1-1811. Single shafts used for intake and return
R11-1-1812. When main fan fails or stops
R11-1-1813. When there has been a failure of ventilation
R11-1-1814. When ventilation is not restored in a reasonable time
R11-1-1815. When main fan or fans have been shut down
R11-1-1816. Booster fans -- operation
R11-1-1817. Booster fans -- inspection, equipment
R11-1-1818. Auxiliary fans -- operation
R11-1-1819. Auxiliary fans -- inspection
R11-1-1820. When auxiliary or booster fans slow down or stop
R11-1-1821. Volume and velocity of the current of air
R11-1-1822. Quantity of air
R11-1-1823. Measuring quantity of air at least once a week
R11-1-1824. Permanently installed battery-charging and transformer stations
R11-1-1825. Intake air
R11-1-1826. Changes in ventilation
R11-1-1827. Flammable gas in excess of 1.0 percent
R11-1-1828. Flammable gas in excess of 1.5 percent
R11-1-1829. Air containing 0.25 percent or more of flammable gas
R11-1-1830. Air inaccessible for inspection shall not be used for ventilation
R11-1-1831. Abandoned areas shall be sealed or ventilated
R11-1-1832. Seals shall be of substantial construction
R11-1-1833. Sampling of atmosphere and measurement of pressure
R11-1-1834. Crosscuts
R11-1-1835. Crosscuts closed
R11-1-1836. Line brattice or other suitable devices
R11-1-1837. Brattice cloth
R11-1-1838. Damaged brattices
R11-1-1839. Crosscuts provided
R11-1-1840. Entries or rooms shall not be started off entries
R11-1-1841. Stoppings in crosscuts between intake and return airways
R11-1-1842. Stoppings airtight
R11-1-1843. Main ventilation
R11-1-1844. Air locks shall be ventilated sufficiently
R11-1-1845. Doors shall be kept closed
R11-1-1846. Overcasts and undercasts
R11-1-1847. Preshift examinations
R11-1-1848. Qualified examiners
R11-1-1849. Danger signs shall not be removed
R11-1-1850. Examinations for dangerous conditions
R11-1-1851. Prompt action to correct dangerous conditions
R11-1-1852. Diesel-powered equipment
R11-1-1853. Trolley wires and trolley feeder wires
R11-1-1854. Only permissible equipment maintained
R11-1-1855. Only permissible distribution boxes shall be used
R11-1-1856. Electrical equipment
R11-1-1857. Illumination
R11-1-1858. Explosives not designated permissible by Bureau of Mines
R11-1-1859. Granting approval of unpermissible explosives
R11-1-1860. Blasts in gassy mines shall be initiated electrically
R11-1-1861. Boreholes stemmed
R11-1-1862. Examinations for flammable gas
R11-1-1863. Shots or rounds shall not be fired
R11-1-1864. Shots or rounds should be fired by qualified persons

ARTICLE 19. MISCELLANEOUS PROVISION

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304 and 27-305.

Section

R11-1-1901. Failure of a water or silt retaining dam
R11-1-1902. Renumbered
R11-1-1903. Prior notification of inspection
R11-1-1904. Repealed

ARTICLE 20. STORAGE AND MIXING OF REAGENTS IN CONCENTRATORS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes and A.R.S. §§ 27-304 and 27-305.

Section

R11-1-2000. Chemicals, general
R11-1-2001. Good housekeeping
R11-1-2002. Personal protective equipment
R11-1-2003. Safety showers and eye wash fountains
R11-1-2004. Adequate fire protection
R11-1-2005. Self-contained breathing equipment in mills where hazardous reagents are present
R11-1-2006. Distinctive warning device
R11-1-2007. Error or omission in these rules and regulations

R11-1-2008. Reserved
R11-1-2009. Reserved
R11-1-2010. Reserved
R11-1-2011. Reserved
R11-1-2012. Reserved
R11-1-2013. Reserved
R11-1-2014. Reserved
R11-1-2015. Tanks labeled
R11-1-2016. Tanks provided with means of measuring
R11-1-2017. Tanks labeled as to contents
R11-1-2018. Liquid storage tanks, suitable means of disposal
R11-1-2019. Storage tanks vented
R11-1-2020. Reagent containers stored
R11-1-2021. Oxidizing agents stored
R11-1-2022. Warning signs at reagent storage areas
R11-1-2023. Reagent tanks emitting toxic vapor
R11-1-2024. Reagent stocks rotated
R11-1-2025. Stacking reagent containers
R11-1-2026. Disposal obsolete reagents
R11-1-2027. Broken containers or spilled reagents
R11-1-2028. Reagent storage facilities well drained
R11-1-2029. Heat applied to storage tanks
R11-1-2030. Reserved
R11-1-2031. Hazardous reagents mixed
R11-1-2032. Personnel mixing reagents
R11-1-2033. Phosphorous pentasulfide
R11-1-2034. Men designated for hazardous reagent mixing certified
R11-1-2035. Mixing tanks and holding tanks labeled
R11-1-2036. Mixing tanks used for different reagents
R11-1-2037. Reagent mixes with exothermic reaction
R11-1-2038. Adequate ventilation in mixing area
R11-1-2039. Suitable warning signs at mixing area
R11-1-2040. Hydrogen storage

ARTICLE 21. ASSAY AND METALLURGICAL LABORATORIES

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes and A.R.S. §§ 27-304 and 27-305.

Section
R11-1-2101. Mixing or heating of chemicals producing noxious fumes or gases
R11-1-2102. Hoods ventilated
R11-1-2103. Velocity of air moving through the hood
R11-1-2104. When hood fails to exhaust properly
R11-1-2105. No unplanned recirculation of exhaust air
R11-1-2106. Involving the use of perchloric acid

ARTICLE 22. CYANIDE LEACH OPERATIONS

Section
R11-1-2201. Reserved
R11-1-2202. Cyanide Safety Training
R11-1-2203. Posting of Emergency Procedures
R11-1-2204. Emergency Provisions, Cyanide Antidote Kits
R11-1-2205. Conditions for Employee Working Alone
R11-1-2206. Attendance
R11-1-2207. Safety Showers and Eyewash Facilities, Emergency Water
R11-1-2208. Reserved
R11-1-2209. Fire protection
R11-1-2210. Reserved
R11-1-2211. Personal Protective Equipment
R11-1-2212. Instruction on Use of Personal Protective Equipment
R11-1-2213. Spillage
R11-1-2214. Reporting Spills or Leaks to State Mine Inspector
R11-1-2215. Reporting Suspected Leaks or Equipment Failure
R11-1-2216. Circuit Identification and Posting
R11-1-2217. "Lock, Tag, and Test" Prior to Work on Electrical Circuit
R11-1-2218. HCN detection instrument
R11-1-2219. Ventilation
R11-1-2220. Reserved
R11-1-2221. Mixing Tank
R11-1-2222. Reserved
R11-1-2223. Reserved
R11-1-2224. Maintaining pH and Records
R11-1-2225. Dry Cyanide Storage
R11-1-2226. Separated Container Storage
R11-1-2227. Fencing
R11-1-2228. Warning Signs
R11-1-2229. Drum Disposal
R11-1-2230. Reserved
R11-1-2231. Cyanide circuit protection
R11-1-2232. Waste Lines
R11-1-2233. Inspections and maintenance
R11-1-2234. Reserved
R11-1-2235. Operator Responsibility - Shutdown
R11-1-2236. Receipt, Off-loading, Storage of Liquid Cyanide Solution
Appendix A Cyanide Spill Release Form

ARTICLE 1. GENERAL PROVISIONS

R11-1-101. Mine Inspector and deputies, qualifications and duties

See A.R.S. §§ 27-121 through 27-127 inclusive, 27-141, and 27-461 through 27-468 inclusive.

Historical Note
Former Rule Section 1.

R11-1-102. Reserved
through
R11-1-120. Reserved

R11-1-121. Definitions

In these rules, unless the context otherwise requires, the following definitions apply:

1. "Acid plant" means any operation that manufactures sulphuric acid.
2. "Adequate" means sufficient, safe, reasonable and feasible for intended use.
3. "American Conference of Governmental Industrial Hygienists" means the "Documentation of the Threshold Limit Values for Substances in Workroom Air", third edition, adopted by ACGIH for 1971, and Supplements for those Substances Added or Changed Year 1978 (V), pages 453 through 476.
4. "American National Standard Specification for Sound Level Meters" means ANSI Standard 1.4-1971 (R1976), approved April 27, 1971.
5. "American National Standard Practices for Respiratory Protection" means ANSI Standard Z88.2-1969, approved August 11, 1969.
6. "American National Standard Safety Code for Elevators, Dumbwaiters, Escalators and Moving Walks" means ANSI Standard A17.1-1978 and ANSI 17.1a-1979, approved February 15, 1979.
7. "American Table of Distances" means the April 1977 edition of "The American Table of Distances for Storage of Explosives" published by the Institute of Makers of Explosives.

8. "Approved" means tested and accepted for a specific purpose by a nationally recognized agency.
9. "Authorized person" means a person approved or assigned by mine management to perform a specific type of duty or duties or to be at specific location or locations in the mine.
10. "Competent person" means a person having abilities and experience to qualify him to perform the duty to which he is assigned.
11. "Compressed air receivers" means any vessels of 100 cubic foot capacity or more which are used for the purpose of receiving and holding compressed air.
12. "Conveyance" means an elevator, dumbwaiter, escalator, moving walk, manlift, personnel hoist, material hoist, stage lift, and special purpose personnel elevator located at mines.
13. "Dam" means any artificial barrier, including appurtenant works, for the purpose of controlling liquid borne material.
14. "Flammable" means capable of being easily ignited and of burning rapidly.
15. "Flammable liquid" means a liquid having a flash point below 1005 F. and having a vapor pressure not exceeding 40 P.S.I. (absolute) at 1005 F.
16. "Imminent danger" means any conditions or practices in any place of employment which are such that a danger exists which could reasonably be expected to cause death or serious physical harm immediately or before the imminence of such danger can be eliminated through the enforcement procedures otherwise provided by this Article.
17. "Leaching" means vat leaching, dump leaching and leaching of ore in place.
18. "National Electrical Code" refers to the code as adopted by the National Fire Protection Association and the American National Standard Institute as NFPA 70-1978 (ANSI).
19. "National Electrical Safety Code" means ANSI Standard C2-1977 Edition.
20. "Powder chest" means a substantial, nonconductive portable container equipped with a lid and used at blasting sites for explosives other than blasting agents.
21. "Suitable" means that which fits and has the qualities or qualifications to meet a given purpose, occasion, condition, function, or circumstance.
22. "Working level (WL)" means any combination of the short-lived radon daughters in one liter of air that will result in ultimate emission of 1.3 x 10^5 MeV (million electron volts) of potential alpha energy, and exposure to these radon daughters over a period of time is expressed in terms of "working level months" (WLM). Inhalation of air containing a radon daughter concentration of 1 WL for 173 hours results in an exposure of 1 WLM.
23. "Working place" means any place in or about a mine where work is being performed.

Historical Note
Former Rule 1:21; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-122. Reserved

R11-1-123. Reserved

R11-1-124. Reserved

R11-1-125. Reserved

R11-1-126. Reserved

R11-1-127. Reserved

R11-1-128. Reserved

R11-1-129. Reserved

R11-1-130. Error or omission in these rules and regulations

No error or omission in these rules and regulations shall be construed as permitting any unsafe, unhealthy or unsanitary condition to exist.

Historical Note
Former Section R11-1-1902 renumbered as Section R11-1-130 effective August 18, 1980 (Supp. 80-4).

R11-1-131. General provisions

The provisions of Title 27, Chapter 3, Arizona Revised Statutes, are applicable to and will be enforced in all operations subject to the jurisdiction of the State Mine Inspector unless the type of operations specifically designated in a particular statute or is exempted from a particular statute by its terms, or unless a particular statute or statutes are inapplicable to certain types of operations.

Historical Note
Former Rule 1:31.

R11-1-132. Application of rules

These rules are applicable to and will be enforced in all operations subject to the jurisdiction of the State Mine Inspector unless the terms of the rule or the heading of the Section indicates that a rule or rules will apply only to certain types of operations.

Historical Note
Former Rule 1:32.

R11-1-133. Potable water

Potable water shall be available to all employees during working hours.

Historical Note
Former Rule 1:33.

R11-1-134. Employee responsibility for equipment

Employees operating equipment are responsible for the safe and proper operation of the equipment they use.

Historical Note
Former Rule 1:34.

R11-1-135. Report unsafe conditions

It is the responsibility of each employee to report to his supervisor any unsafe condition he may see which can cause injury or damage property.

Historical Note
Former Rule 1:35.

R11-1-136. Reporting of accidents and injuries

A. Where, in or about a mining operation, an accident occurs, it shall be reported promptly to supervisor in charge.

B. The State Mine Inspector's office shall be immediately notified of:

1. Any accident or injury to an individual resulting in death, or which has reasonable potential to cause death; and/or

2. An entrapment of an individual for more than 30 minutes; and/or
3. An unplanned inundation of a mine by a liquid or gas; and/or
4. An unplanned ignition of a blasting agent or explosive.

C. The State Mine Inspector's office shall be notified within ten days of any accident or injury to an individual that, in the opinion of the attending physician, may result in the injured person being incapacitated for regular work for at least one day beyond the day of injury.

Historical Note
Former Rule 1:36; Amended effective April 7, 1976 (Supp. 76-2). Former Section R11-1-136 repealed, new Section R11-1-136 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-137. Repealed

Historical Note
Former Rule 1:37; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-138. Warnings from unusual hazards
Warning signs and/or lights, ropes and temporary guards shall be placed in order to give adequate warning from all unusual hazards.

Historical Note
Former Rule 1:38.

R11-1-139. Sufficient illumination
Illumination sufficient to provide safe working conditions shall be provided in and on all working places. Individual electric lamps shall be carried for illumination by all persons underground.

Historical Note
Former Rule 1:39.

R11-1-140. Good housekeeping
Passageways, work places, service rooms and storage areas shall be kept clean, orderly and in a safe condition.

Historical Note
Former Rule 1:40; Former Section R11-1-140 repealed, new Section R11-1-140 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-141. New employees
New employees shall be indoctrinated in safety rules and safe work procedures.

Historical Note
Former Rule 1:41.

R11-1-142. Emergency telephone numbers
Emergency telephone numbers shall be posted at appropriate telephones.

Historical Note
Former Rule 1:42.

R11-1-143. Conditions for employees working alone
No employee shall be assigned or allowed or be required to perform work alone in any area where hazardous conditions exist that would endanger his safety unless he can communicate with others, can be heard, or can be seen.

Historical Note
Former Rule 1:43.

R11-1-144. Records of men working below surface
Each operator of an underground mine shall establish a check-in and check-out system which shall provide an accurate record of persons in the mine. These records shall be kept on the surface in a place chosen to minimize the danger of destruction by fire or other hazards. Every person underground shall carry a positive means of being identified.

Historical Note
Former Rule 1:44.

R11-1-145. Injured persons
Arrangements shall be made in advance for obtaining emergency medical assistance and transportation for injured persons.

Historical Note
Former Rule 1:45.

R11-1-146. Instruction of employees
All employees shall be instructed at least once each calendar year on fire alarm signals and applicable procedures to be followed in case of fire or other emergency. Records of instruction shall be kept for two years.

Historical Note
Former Rule 1:46.

R11-1-147. Training in first aid
All supervisors shall be trained in first aid. First-aid training shall be made available to all interested employees.

Historical Note
Former Rule 1:47.

R11-1-148. Overcrowding facilities
Facilities used to transport persons to and from work areas shall not be overcrowded.

Historical Note
Former Section R11-1-1151 renumbered and amended as Section R11-1-148 effective August 18, 1980 (Supp. 80-4).

R11-1-149. Safe means of access
Safe means of access shall be provided and maintained to all working places.

Historical Note
Former Section R11-1-1220 renumbered and amended as Section R11-1-149 effective August 18, 1980 (Supp. 80-4).

R11-1-150. Toilet facilities

A. Toilet facilities shall be provided at locations that are compatible with the mine operations and that are readily accessible to mine personnel.

B. The facilities shall be kept clean and sanitary. Separate toilet facilities shall be provided for each sex except where toilet rooms will be occupied by no more than one person at a time and can be locked from the inside.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-151. Mine Employment Quarterly Report

A. Each mining operation shall submit a Mine Employment Quarterly Report to the State Mine Inspector's office within 15 days after the end of each calendar quarter.

B. Report will include the following information:
1. Operation name and county.
2. Operating company name and address.
3. Name and phone number of person submitting report.
4. Number of reportable injuries or illnesses during the quarter.
5. For each operation sub-unit:
   a. Average number of persons working.

b. Total employee-hours worked.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-152. Rehearing or review of decision

A. Except as provided in subsection (G), any party in a contested case before the Office of State Mine Inspector who is aggrieved by a decision rendered in such case may file with the Office of State Mine Inspector, not later than ten days after service of the decision, a written motion for rehearing or review of the decision specifying the particular grounds therefor. For purposes of this subsection, a decision shall be deemed to have been served when personally delivered or mailed by certified mail to the party at his last known residence or place of business.

B. A motion for rehearing under this rule may be amended at any time before it is ruled upon by the Office of State Mine Inspector. A response may be filed within ten days after service of such motion or amended motion by any other party. The Office of State Mine Inspector may require the filing of written briefs upon the issues raised in the motion and may provide for oral argument.

C. A rehearing or review of the decision may be granted for any of the following causes materially affecting the moving party's rights:

1. Irregularity in the administrative proceedings of the agency or its hearing officer or the prevailing party, or any order or abuse of discretion, whereby the moving party was deprived of a fair hearing;
2. Misconduct of the Office of State Mine Inspector or its hearing officer or the prevailing party;
3. Accident or surprise which could not have been prevented by ordinary prudence;
4. Newly discovered material evidence which could not with reasonable diligence have been discovered and produced at the original hearing;
5. Excessive or insufficient penalties;
6. Error in the admission or rejection of evidence or other errors of law occurring at the administrative hearing;
7. That the decision is not justified by the evidence or is contrary to law.

D. The Office of State Mine Inspector may affirm or modify the decision or grant a rehearing to all or any of the parties and on all or part of the issues for any of the reasons set forth in subsection (C). An order granting a rehearing shall specify with particularity the ground or grounds on which the rehearing is granted, and the rehearing shall cover only those matters so specified.

E. Not later than ten days after a decision is rendered, the Office of State Mine Inspector may on its own initiative order a rehearing or review of its decision for any reason for which it might have granted a rehearing on motion of a party. After giving the parties or their counsel notice and an opportunity to be heard on the matter, the Office of State Mine Inspector may grant a motion for rehearing for a reason not stated in the motion. In either case the order granting such a rehearing shall specify the ground therefor.

F. When a motion for rehearing is based upon affidavits, they shall be served with the motion. An opposing party may within ten days after such service serve opposing affidavits, which period may be extended for an additional period not exceeding 20 days by the Office of State Mine Inspector for good cause shown or by written stipulation of the parties. Reply affidavits may be permitted.

G. If in a particular decision the Office of State Mine Inspector makes specific findings that the immediate effectiveness of such decision is necessary for the immediate preservation of the public peace, health and safety and that a rehearing or review of the decision is impracticable, unnecessary or contrary to the public interest, the decision may be issued as a final decision without an opportunity for rehearing or review. If a decision is issued as a final decision without an opportunity for rehearing, any application for judicial review of the decision shall be made within the time limits permitted for applications for judicial review of the Office of State Mine Inspector's final decisions.

H. For purposes of this Section the terms "contested case" and "party" shall be defined as provided in A.R.S. § 41-1001.

I. To the extent that the provisions of this rule are in conflict with the provisions of any statute providing for rehearing of decisions of the Office of State Mine Inspector, such statutory provisions shall govern.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

ARTICLE 2. EXPLOSIVES AND BLASTING

The Rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, and 27-321 through 27-325.

R11-1-211. Smoking, matches, open flames prohibited in specified areas

Smoking, matches, open flames, spark-producing devices and carrying of firearms or ammunition shall be prohibited in or within 50 feet of the following areas:

1. Explosive and blasting supply magazines.
2. Blasting agent and oxidizer storage sites.
3. Blasting agent mixing plants (fixed or mobile).
4. Vehicles transporting explosives, blasting agents or oxidizers.
5. Blasting sites, except for approved means of firing blasts.

Historical Note
Former Rule 2:11.

R11-1-212. Transporting explosives

No persons shall drive, load, or unload a vehicle transporting explosives, blasting agents, or oxidizers in a careless or reckless manner.

Historical Note
Former Rule 2:12.

R11-1-213. Precautions governing use, transportation and handling

The precautions, rules and regulations governing the use, transportation and handling of explosives shall apply to all blasting agents except as otherwise expressly provided herein.

Historical Note
Former Rule 2:13.

R11-1-214. Repair of vehicles containing explosives

Vehicles containing explosives or detonators shall not be taken to a repair garage or shop for any purpose.

Historical Note
Former Rule 2:14.

R11-1-215. Unattended vehicles containing detonators or other explosives

Vehicles containing detonators or explosives, other than blasting agents, shall not be left unattended except in blasting areas where loading or charging is in progress.

Historical Note
Former Rule 2:15.

R11-1-216. Notification to men responsible for operating hoists and cagers

Men responsible for operating the hoist and cagers shall be notified whenever explosives or detonators are being transported in a shaft conveyance.

Historical Note
Former Rule 2:16.

R11-1-217. Hoisting stopped

Hoisting in adjacent shaft compartments shall be stopped when explosives or detonators are being handled.

Historical Note
Former Rule 2:17.

R11-1-218. Reserved
R11-1-219. Reserved
R11-1-220. Reserved
R11-1-221. Definitions -- explosives

A. "Blasting agent": Shall mean any material or mixture consisting of a fuel and oxidizer, intended for blasting, not otherwise classified as an explosive, and of which none of the ingredients are classified as an explosive, provided that the finished product, as mixed and packaged for use or shipment, cannot be detonated when unconfined by means of a No. 8 test blasting cap. This test should be conducted at a temperature range between 705 and 755 F.

Note 1. A No. 8 test blasting cap is one containing 2 grams of a mixture of 80% mercury fulminate and 20% potassium chlorate, or a cap of equivalent strength.

Note 2. Nitro carbo nitrate. This term applies to any blasting agent which has been classified as nitro carbo nitrate under the Department of Transportation regulations, and which is packaged and shipped in compliance with the regulations of the Department of Transportation.

B. "Explosives": The term "explosive" or "explosives" shall mean any chemical compound, mixture or device, the primary or common purpose of which is to function by explosion, i.e., with substantially instantaneous release of gas and heat, unless such compound, mixture or device is otherwise specifically classified by the Department of Transportation. The term "explosives" shall include all material which is classified as Class A, Class B, and Class C explosives by the Department of Transportation.

Note 1. Classification of explosives by the United States Department of Transportation is as follows:

1. "Class A explosives": Possessing detonating hazards; such as dynamite, nitroglycerin, TNT, black powder blasting caps and cast detonating primers and boosters.
2. "Class B explosives": Possessing flammable hazard; such as propellant explosives, including some smokeless propellants.
3. "Class C explosives": Includes certain types of manufactured articles which contain Class A or Class B explosives, or both, as components but in restricted quantities.
4. "Fuel": A fuel is a substance which may react with the oxygen in the air or with the oxygen yield by an oxidizer to produce combustion.
5. "Magazine": Shall mean any building or structure, other than an explosives manufacturing building, approved for the storage of explosives.
6. "Oxidizer": An oxidizer is a substance such as a nitrate that yields oxygen readily to stimulate the combustion of organic matter or other fuel.

Historical Note
Former Rule 2:21.

R11-1-222. Repealed

Historical Note
Former Rule 2:22; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-223. Repealed

Historical Note
Former Rule 2:23; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-224. Reserved
R11-1-225. Reserved
R11-1-226. Reserved
R11-1-227. Reserved
R11-1-228. Reserved
R11-1-229. Reserved
R11-1-230. Reserved
R11-1-231. Storage of explosives

A. All Class A, Class B, Class C explosives shall be kept in magazines which meet the requirements of this Section. This shall not be construed as applying to fuse lighters, fuse igniters, and safety fuses (slow-burning type containing a core of black powder).

B. Detonators shall not be stored in the same magazine with other explosive materials.

Historical Note
Former Rule 2:31; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-232. Classification of magazines

A. Magazines as required by this Chapter shall be of two classes; namely Class I magazines and Class II magazines.

B. Class I magazines shall be required where the quantity of explosives stored is more than 250 lbs.

C. Class II magazines may be used where the quantity of explosives stored is 250 lbs. or less.

Historical Note
Former Rule 2:32.

R11-1-233. Location of magazines

Magazines shall be detached structures located away from power lines, fuel storage areas, possible sources of fire and from inhabited buildings, public highways, passenger railways and other magazines in conformity with the American Table of Distances for Storage of Explosives as Revised and Approved by The Institute of Makers of Explosives.

Historical Note
Former Rule 2:33; Former Section R11-1-233 repealed, new Section R11-1-233 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-234. Construction of magazines

A. Magazines shall be constructed in conformity with the provisions of this Section or may be of substantially equivalent construction. Magazines for the storage of Class A explosives, other than black powder, shall be reasonably bullet-resistant, weather-resistant, fire-resistant, theft-resistant and ventilated.

B. Magazines shall be posted with warning signs so located that a bullet passing through the face of the sign will not strike the magazine.

C. Ground around magazines shall slope away for drainage. The land surrounding magazines shall be kept clear of brush, dried

grass, leaves and other combustible materials for a distance of at least 25 feet, and other unnecessary combustible materials for a distance of not less than 50 feet.

D. Field magazines shall not be provided with heat or artificial lights, except that if artificial lights are necessary, an electric safety flashlight or safety lantern shall be used.

E. Magazines shall not be grounded but have an overhead lightning protective system that is in no way connected to the magazine.

Historical Note

Former Rule 2:34; Amended effective April 7, 1976 (Supp. 76-2). Amended effective August 18, 1980 (Supp. 80-4).

R11-1-235. Construction of Class I magazines

A. Class I magazines shall be of masonry or wood covered with sheet metal, or of metal construction; or a combination of these types. Hollow masonry units used in construction required to be bullet-resistant shall have all hollow spaces filled with a dry sand/cement mix or well-tamped sand. Wood-constructed walls required to be bullet resistant shall have at least a six-inch space between interior and exterior sheathing and the space between sheathing shall be filled with well-tamped sand or sand/cement mix. Metal wall construction, when required to be bullet-resistant, shall be lined with at least a four-inch thickness of brick, masonry, hardwood or sand.

B. Floors and roofs of masonry magazines may be of wood construction. Wood floors shall be tongue-and-grooved lumber having a minimum thickness of 3/4 inch. Roofs required to be bullet-resistant shall be protected by four inches of hardwood or by a sand tray located at line of eaves and covering the entire area except that necessary for ventilation. Sand in the sand tray shall be maintained at a depth of not less than four inches.

C. All wood at the exterior of magazines, excluding eaves, shall be protected by being covered with black or galvanized steel or aluminum metal of thickness of not less than No. 26 gauge. All nails exposed to the interior of magazines shall be well countersunk.

D. Foundations for permanent magazines shall be of substantial construction and arranged to provide good cross ventilation.

E. Magazines shall be ventilated sufficiently to minimize dampness and heating of stored explosives. Ventilation openings shall be screened to prevent the entrance of sparks.

F. Openings to magazines shall be restricted to that necessary for the placement and removal of stocks of explosives. Doors for magazines for Class A explosives shall be bullet-resistant.

G. Magazines shall be provided with two substantial locks, and magazine doors shall be kept locked except during the time of placement and removal of stocks of explosives.

H. Provisions shall be made to prevent the piling of stocks of explosives directly against the walls; such protection, however, shall not interfere with proper ventilation at interior of side and end walls.

I. Full and semi-trailers are acceptable for the storage of explosives when modified to comply with Class I magazine construction.

Historical Note

Former Rule 2:35; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-236. Construction of Class II magazines

A. Class II magazines shall be of wood or metal construction or a combination thereof.

B. Wood magazines of this class shall have sides, bottom and cover constructed of two-inch hardwood boards well braced at corners and protected by being entirely covered with sheet metal of not less than No. 20 gauge. All nails exposed to interior of magazine shall be well countersunk. All metal magazines of this class shall have sides, bottom and cover constructed of 12-gauge metal and shall be lined with 3/8-inch plywood or the equivalent. Edges of metal covers shall overlap sides at least one inch.

C. Covers for both wood- and metal-constructed magazines of this class shall be provided with substantial strap hinges and shall be provided with substantial means of locking. Covers shall be kept locked except during the placement or removal of explosives. Second class magazines, containing explosives, left at locations where no one is in attendance, shall be adequately secured to prevent theft; or the explosives shall be removed from the magazine when unattended.

D. Magazines of this class shall be painted red and shall bear lettering in white, on all sides and top, at least three inches high, "Explosives -- Keep Fire Away". Where necessary due to climatic conditions, Class II magazines shall be ventilated.

E. Underground detonator-storage magazines shall be of the same construction as explosives-storage magazines and shall be separated by at least 25 feet from explosive-storage magazines.

Historical Note

Former Rule 2:36; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-237. Storage within magazines

A. Containers of explosives shall be laid flat with top side up. Corresponding grades and brands shall be stored together in such a manner that brand and grade marks show. All stocks shall be stored so as to be easily counted and checked. Containers of explosives shall be piled in a stable manner. When any kind of explosive is removed from a magazine for use, the oldest explosive of that particular kind shall be removed first.

B. Only fiberboard containers of explosives may be opened in a magazine. Opened containers of explosives shall be securely reclosed when stored in a magazine.

C. Tools used for opening containers of explosives shall be constructed of non-sparking materials, except that metal slitters may be used for opening fiberboard containers. A wood wedge and fiber, rubber, or wood mallet shall be used for opening or closing wood containers of explosives.

D. Magazines shall be used for the storage of explosives, blasting agents, and oxidizers only. Metal tools, other than non-sparking transfer conveyors, shall not be stored in a magazine.

E. Magazine floors shall be regularly swept, kept clean, dry, free of grit, paper, empty used packages, and rubbish. Brooms and other cleaning equipment shall not have any spark-producing metal parts. Sweepings from floors of magazines shall be disposed of properly. Stained magazine floors shall be cleaned according to instruction obtained from the explosives manufacturer. When any explosive has deteriorated to an extent that it is in a dangerous condition, or if liquid leaks from any explosive, then the person in possession of such explosive shall destroy such explosive in accordance with the instructions obtained from the manufacturer. Only experienced persons shall direct the work of destroying explosives.

F. When magazines need inside repairs, all explosives shall be removed therefrom and the floors cleaned. In making outside repairs, if there is a possibility of causing sparks or fire, the explosives shall be removed from the magazine. Explosives removed from a magazine under repair shall either be placed in another magazine or placed a safe distance from the magazine where they shall be properly guarded and protected until

repairs have been completed, when they shall be returned to the magazine.

G. Ammonium nitrate fuel oil blasting agents shall be physically separated from other explosives, safety fuse, or detonating cord stored in the same magazine, in such a manner that oil does not contaminate the other explosives, safety fuse or detonating cord.

Historical Note
Former Rule 2:37.

R11-1-238. Reserved

R11-1-239. Reserved

R11-1-240. Reserved

R11-1-241. Transportation of explosives -- transportation vehicles

A. Vehicles used for transporting explosives shall be strong enough to carry the load without difficulty and be in good mechanical condition. All vehicles used for the transportation of explosives shall have tight floors and any exposed spark-producing metal on the inside of the body shall be covered with wood or other non-sparking material to prevent contact with containers of explosives. Vehicles used to transport blasting agents shall have neither zinc nor copper exposed in the cargo space. Containers of explosives shall not be loaded above the sides of an open body vehicle.

B. Motor vehicles transporting explosives shall be marked with appropriate placards or lettering.

C. Motor vehicles transporting explosives must be equipped with not less than two suitable fire extinguishers, each having a rating of at least 10 B:C.

D. Vehicles transporting explosives shall only be driven by and be in charge of a duly licensed driver who is physically fit, careful, capable, reliable and:
1. Able to read and write English.
2. Not addicted to or under the influence of intoxicants or narcotics.
3. Not less than 21 years of age.
4. Familiar with all applicable laws, rules, regulations and policies governing the transportation and handling of explosives.

E. When explosives and detonators are hauled by trolley locomotives, covered, electrically insulated cars shall be used.

F. Explosives and detonators shall be transported in separate vehicles unless separated by four inches of hardwood or the equivalent.

G. When vehicles containing explosives or detonators are parked, the brakes shall be set, the motive power shut off, and the vehicles shall be blocked securely against rolling.

H. Explosives or detonators shall not be transported on mantrips.

I. Substantial nonconductive containers shall be used to carry explosives to blasting sites.

J. Explosives or detonators shall not be transported on locomotives.

Historical Note
Former Rule 2:41; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-242. Transportation of explosives -- miscellaneous

A. No spark-producing metal tools, oils, matches, firearms, ammunition, electric storage batteries, flammable substances, acids, oxidizing materials, or corrosive compounds shall be carried in the body of any motor truck or vehicle transporting explosives unless the loading of such dangerous articles and the explosives comply with Department of Transportation regulations.

B. Unauthorized persons or passengers must not ride on a motor vehicle transporting explosives.

C. Hoisting of ore, muck, or other material in adjacent shaft compartments shall be stopped while explosives are being handled unless the compartment in which the explosives are being handled is adequately separated.

Historical Note
Former Rule 2:42.

R11-1-243. Reserved

R11-1-244. Reserved

R11-1-245. Reserved

R11-1-246. Reserved

R11-1-247. Reserved

R11-1-248. Reserved

R11-1-249. Reserved

R11-1-250. Reserved

R11-1-251. Water gels or slurry explosives and blasting agents -- general provisions

Unless otherwise set forth in this Section, water gels shall be transported, stored, and used in the same manner as explosives or blasting agents in accordance with the classification of the product.

Historical Note
Former Rule 2:51.

R11-1-252. Premixed water gels

A. Premixed water gels containing a substance in itself classified as an explosive shall be classified as an explosive and manufactured, transported, stored, and used as specified for explosives in this Code.

B. Premixed water gels containing no substance in itself classified as an explosive and which are cap-sensitive as defined in R11-1-221 under Blasting Agent, shall be classified as an explosive and manufactured, transported, stored, and used as specified for explosives in this Code.

C. Premixed water gels containing no substance in itself classified as an explosive and which are not cap-sensitive as defined in R11-1-221 under Blasting Agent shall be classified as blasting agents and manufactured, transported, stored, and used as specified for blasting agents in this Code.

Historical Note
Former Rule 2:52.

R11-1-253. On-site mixed water gels

A. Ingredients for on-site mixed water gells shall be stored as set forth in this Section.
1. Ingredients in themselves classified as Class A or Class B explosives shall be stored in conformity with this Code.
2. Prilled, grained, or granulated ammonium nitrate shall be stored in accordance with R11-1-262 of this Code. If ammonium nitrate is stored in the vicinity of explosives or blasting agents, the separation distances specified in R11-1-262 of this Code shall be observed.
3. Liquid ammonium nitrate or ammonium nitrate-sodium nitrate solutions shall be stored in tank cars, tank trucks, or permanent tanks. Spills or leaks which may contaminate combustible materials shall be cleaned up immediately.

B. If electric power is used, it may be furnished by cable from an outside source or by a self-contained motor generator. In the case of a self-contained power source, it shall be located at the end of the storage container opposite that at which the blasting agent is discharged. It shall have adequate capacity for the loads to be expected and be equipped with suitable overload protection devices.

C. Electric wiring carrying voltages greater than 12 volts shall be in armored cable or in conduit and, if dry ingredients are employed, the wiring shall conform to the requirements of Class II, Division 2 of the National Electrical Code. The materials protecting the electric wiring must be of such composition that they will not be chemically attacked by the ingredients being processed.

D. Mixing equipment for on-site mixed water gels shall comply with the requirements of this Section:

1. All electric motors, electrically operated proportioning devices, etc., shall be electrically bonded.
2. All electric motors, electrically operated proportioning devices, etc., used for dry ingredients shall conform to the requirements of Class II, Division 2 of the National Electrical Code.
3. The entire loading and mixing equipment shall be cleaned periodically to insure against accumulations of ingredients.

Historical Note
Former Rule 2:53.

R11-1-254. Reserved
R11-1-255. Reserved
R11-1-256. Reserved
R11-1-257. Reserved
R11-1-258. Reserved
R11-1-259. Reserved
R11-1-260. Reserved
R11-1-261. Dry ammonium nitrate-fuel compositions, "mixing plant"

"Mixing plant" refers to any fixed installation or mobile equipment used in conjunction with a mine, for the processing of various non-explosive materials to produce and/or package a blasting agent for use in a mine.

Historical Note
Former Rule 2:61.

R11-1-262. "Mixing plant", located on mine property

A. At each mining operation where field-mixed ammonium nitrate-fuel oil blasting agents are being used, all mixing shall be done under the supervision of competent personnel, duly instructed in the proper mixing of the blasting agent involved.

B. Mixing plants shall conform to the requirements of this Section unless otherwise specifically approved by the Inspector.

C. Mixing plants shall be located, with respect to the inhabited buildings, passenger railroads, and public highways, in accordance with the American Table of Distances. One-half the quantity of unmixed ammonium nitrate shall be included with the quantity of finished product, the total of which shall be considered as explosive, for determining the proper distances.

D. A mixing plant building shall be of noncombustible construction or sheet metal on wood studs.

E. The layout of a mixing plant building shall be such as to provide physical separation between the finished product storage and the mixing and packaging operations.

F. Floors in a mixing plant building shall be of concrete. Concrete floors must have at least one inch of finished cement, Terra Cotta finish, or other material approved by the Inspector. Floors shall be constructed so as to eliminate open floor drains and piping into which molten materials could flow and be confined in case of fire. The floors and equipment of the mixing and packaging room shall be washed down or cleaned when necessary to prevent accumulation of oxidizers or fuels and other sensitizers.

G. Isolated fuel storage shall be provided at fixed plants to avoid contact between molten oxidizer and fuel in case of fire.

H. The mixing plant shall be well ventilated.

I. Heat, if needed, shall be provided exclusively from a unit outside the building.

J. All electric switches, controls, motors, and lights, if located in the mixing or blasting agent storage area, must conform to the requirements of Class II, Division 2, of the most recent edition of the National Electrical Code. The frame of the mixer and all other equipment that may be used must be electrically bonded together and be provided with a continuous path to ground which is separate from the ground provided for power equipment.

K. The design of the mixer shall minimize the possibility of frictional heating, compaction, and especially confinement. All bearings and gears should be mounted outside the mixer and protected against the accumulation of product dust. All surfaces must be accessible for easy cleaning.

L. Mixing and packaging equipment shall be constructed of materials compatible with the ammonium nitrate composition.

M. All discarded empty ammonium nitrate bags and other trash must be disposed of daily by burning outdoors.

N. All sacks or containers used for storage of blasting agents must be properly marked and must show the mixing date.

O. Blasting agents used underground shall be mechanically mixed in order to insure a homogeneous mixture of the proper composition, but the mixing shall not be done underground.

Historical Note
Former Rule 2:62.

R11-1-263. Composition of blasting agents

A. No hydrocarbon liquid fuel with a flash point lower than that of No. 2 diesel fuel oil (1255 F. minimum or legal) shall be used.

B. Crude oil and crankcase oil shall not be used.

C. No unusual compositions of blasting agents or a composition containing an ingredient classed as high explosive shall be attempted in mixing operations. The finished product shall be tested regularly to determine that it falls within the classification "Blasting Agent". Peroxides, chlorates or perchlorates shall not be used under any conditions.

D. If a blasting agent is used underground, its fuel oil content shall range between 5.5% and 6.5% by weight, except where other carbonaceous material is added, in which case a proper oxygen balance shall be maintained.

Historical Note
Former Rule 2:63.

R11-1-264. Surface storage of materials

A. Unmixed materials:

1. Unmixed ammonium nitrate shall be kept in a clean, well-ventilated building or bin, using good warehouse practice. Floor drains into which molten nitrate could run during a fire should be eliminated. Bagged ammonium nitrate shall not be stacked close to any source of heat which might ignite the combustible material of the bags. Bulk ammonium nitrate shall be stored in clean, dry bins. When stored in warehouses, it shall be stored on dry, clean floors which are of noncombustible construction which is protected against impregnation with ammonium nitrate. Warehouses or other storage facilities shall have adequate ventilation or be of construction that will be self- ventilating to permit escape of products of decomposition and heat in the event of fire.

2. Ammonium nitrate shall not be stored with or near flammable liquids, corrosive acid, chlorates, nitrates, permanganates, sulphur, or finely divided metals.
3. When unmixed ammonium nitrate is stored with blasting agents or high explosives in a high-explosive magazine, one-half the quantity of unmixed ammonium nitrate shall be taken into consideration in computing the total quantity in warehouse or magazine for compliance with the American Table of Distances.
4. Spilled ammonium nitrate shall be cleaned up promptly and removed safely.
5. Dynamite or other explosives shall not be used to break up caked ammonium nitrate.
6. Fuses and igniters shall be stored in a cool, dry place away from oils or grease.

B. Mixed materials (without explosives):
1. Permanent storage of blasting agents shall be in a fire- and weather-resistant, well-ventilated, magazine or warehouse. Temporary storage may be in vans, truck trailers, railroad cars, etc.
2. The location of magazine or warehouse shall comply with the American Table of Distances.
3. Interior of storage buildings shall be kept clean and be maintained in good housekeeping order.
4. Blasting agents shall not be stored with flammable liquids, corrosive acids, chlorates, nitrates, permanganates, sulphur or finely divided metals.

C. Mixed materials (with explosives): All rules and regulations that apply to the storage of explosives shall apply to the storage of blasting agents when stored with explosives.

Historical Note
Former Rule 2:64.

R11-1-265. Loading of blasting agents

General:
1. All fittings used in the construction of the hopper and pickup equipment and hose connections of loading equipment must be constructed of materials compatible with the ammonium nitrate composition.
2. Blasting agents shall not be blown into boreholes that contain electrically nonconducive liners, even if the primer is not inserted until after the blowing has been completed.
3. Primers which contain a blasting cap, electric blasting cap or delay electric blasting cap shall not be handled by persons who have previously been operating pneumatic loading devices unless that person has grounded himself to bleed off any static charges.
4. Loading in boreholes containing electric blasting caps, delay electric blasting caps, or blasting caps:
   a. All pneumatic and air-pressure equipment used for loading blasting agents must be adequately grounded to dissipate static electric charges that may cause premature initiation of the detonator. The machine or hopper, discharge hose, fittings, discharge tube, and loading tube must form a continuous electrically conductive path to a ground. The system ground conductor and loading tube shall have a resistance high enough to prevent hazards from stray currents, yet low enough to adequately maintain static electricity energy below hazardous levels.
   b. Water lines, air lines, fan lines, rails, or the permanent grounding system shall not be used as a ground for pneumatic loading equipment.
   c. Loading equipment mounted on a car and rails must be thoroughly insulated from the car and rails and grounded by a separate, static-dissipating ground.
   d. When loading over electric blasting cap wires, contact between any metal parts of the loader and cap leg wires shall be avoided.
   e. Metal or other low electrical resistance loading tubes shall not be used.
   f. All loading equipment must be removed from the area before leg wire shunts are removed and the loaded holes are tied in for blasting.
   g. Ventilation -- When ammonium nitrate blasting agents are used, Section 27-411 of the Arizona Mining Code shall apply.

Historical Note
Former Rule 2:65.

R11-1-266. Reserved
R11-1-267. Reserved
R11-1-268. Reserved
R11-1-269. Reserved
R11-1-270. Reserved
R11-1-271. Use of explosives and blasting agents, general provisions

A. The handling of explosives may be performed by the person designated to use explosives or by other employees under his direct supervision provided that such employees are at least 18 years of age. Persons who use or handle explosives or detonators shall be experienced men who understand the hazards involved; trainees shall do such work only under the supervision of and in the immediate presence of experienced men. Blasting operations shall be under the direct control of authorized persons.

B. Containers of an approved type shall be used for taking detonators and other explosives from storage magazines to the blasting area.

C. Persons authorized to prepare explosive charges or conduct blasting operations shall use every reasonable precaution, including but not limited to warning signals, flags, barricades or blasting mats to insure the safety of mine personnel.

D. Due precautions shall be taken to prevent accidental discharge of electric blasting caps from current induced by radio transmitters, lightning, dust storms, or other sources of extraneous electricity. All surface, shaft sinking, and tunneling blasting operations shall be suspended and persons removed from blasting area during the ominous approach and progress of an electrical storm, when electric detonators are used.

E. Empty containers and paper and fiber packing materials which have previously contained high explosives shall not be used again for any purpose but shall be destroyed by burning out-of-doors, and no person shall be nearer than 100 feet after the burning has started.

F. Explosives, blasting supplies, or blasting accessories that are obviously deteriorated or damaged shall be destroyed in a safe manner under the instructions of the explosives or blasting agent manufacturer or its designated agent.

G. Explosives or blasting supplies shall not be abandoned. While temporarily unattended, they shall be marked with red flags or some other suitable means of warning persons.

H. Capped primers shall be made up at the time of charging and as close to the blasting site as conditions allow.

I. Fuses shall be cut and capped in safe, dry locations posted with "No Smoking" signs.

J. Fuse shall not be ignited before the primer and the entire charge are securely in place.

K. If any part of a blast is connected in parallel and is to be initiated from powerlines or lighting circuits, the time of current flow shall be limited to a maximum of 25 milliseconds by incorporating a control device in the blasting circuit or by interrupting the circuit with an explosive charge attached to one or both lead lines and initiated by a zero-delay electric blasting cap.

L. Black blasting powder should not be used for blasting except when a desired result cannot be obtained with another type of explosive such as in quarrying certain types of dimension stone.

M. Explosives shall be kept separate from detonators until charging is started.

N. Electric circuits from the blasting switches to the blast area shall not be grounded.

O. Lead wires and blasting lines shall not be strung across power conductors, pipelines, railroad tracks, or within 20 feet of bare powerlines. They shall be protected from sources of static or other electrical contact.

Historical Note
Former Rule 2:71; Amended effective April 7, 1976 (Supp. 76-2). Amended effective August 18, 1980 (Supp. 80-4).

R11-1-272. Loading of explosives (blasting)

A. All drill holes shall be sufficiently large to admit freely the insertion of the cartridges of explosives.

B. Drilling shall not be started until all butts (bootlegs) of old holes are examined. Wash down the face and wash out the butts (bootlegs). If any misfires are found they shall be handled only by, or under the direction of, a competent and experienced person.

C. No person shall be allowed to deepen drill holes which have contained explosives.

D. After loading for a blast is completed, all excess explosives and detonators shall be returned immediately to their separate storage magazines.

E. Double priming with fuse in a drill hole is prohibited.

F. No tamping shall be done directly on a capped primer.

G. Holes shall not be collared in bootlegs.

H. Holes to be blasted shall be charged as near to blasting time as practical and such holes shall be blasted as soon as possible after charging has been completed. In no case shall the time elapsing between completion of charging to the time of blasting exceed 72 hours unless prior approval has been obtained from the State Mine Inspector.

Historical Note
Former Rule 2:72.

R11-1-273. Initiating blasts

A. When fuse is used, the blast cap shall be securely attached to the safety fuse with a standard ring-type (or other approved) cap crimper.

B. No primers shall be assembled or fuse capped closer than 50 feet from any magazine.

C. Only wooden or non-sparking tools shall be used for making holes in a cartridge of explosives.

D. Explosives shall not be extracted from a hole that has once been charged or has misfired unless it is impossible to detonate the unexploded charge by insertion of a fresh additional primer.

E. If there are any misfires while using cap and fuse, all persons shall remain away from the charge for at least one hour. On electrical misfires, all persons shall remain away from the charge for at least 15 minutes. Electrical misfires shall be handled under the direction of the person in charge of the blasting and all wires shall be carefully traced and search made for unexploded charges.

F. Blasters, when testing circuits to charged holes, shall use only blasting galvanometers designed for this purpose.

G. Only the man who makes the leading wire connections in electrical firing shall fire the shot. All connections should be made progressively from borehole back to the source of firing current, and the leading wires shall remain shorted and not be connected to the blasting machine or other source of current until the charge is to be fired.

H. Blasts in shafts or winzes shall be initiated from a safe location outside the shaft or winze.

I. When blasting electrically, the electric blasting cap leg wire shunt shall not be removed from the leg wires until loading operations have been completed.

J. When firing from 1 to 15 blastholes with safety fuse ignited individually using hand-held lighters, the fuses shall be of such lengths to provide the minimum burning time specified in the following table for a particular size round:

Number of Holes in a Round	Minimum Burning Time, Minutes
12	
2-52 2/3	
6-103 1/3	
11-155	

In no case shall any 40-second-per-foot safety fuse less than 36 inches long or any 30-second-per-foot safety fuse less than 48 inches long be used.

K. Not over 15 fuses shall be spit by each blaster if being individually ignited. At least two men shall be present when lighting fuses, and no man shall light more than 15 individual fuses. To avoid an unsafe delay in the operation, all men shall carry out the lighting of fuses simultaneously. If more than 15 holes per man are to be fired, igniter cord and connectors or electric blasting shall be used.

L. No fuse shall be used that burns faster than 1 foot in 30 seconds or slower than 1 foot in 55 seconds. The burning rate of every shipment of fuse received at a mine shall be determined. If a shipment of fuse lasts more than 60 days, the burning rate must be rechecked each 60 days. The burning rate of the safety fuse in use at any time shall be measured, posted in conspicuous locations, and brought to the attention of all men concerned with blasting.

M. Fuse shall be ignited with hot wire lighters, lead spitters, igniter cord or other such approved type device as designed for this purpose. Carbide lights shall not be used to light fuses.

N. Where electric blasting is to be performed, electric circuits to equipment in the immediate area to be blasted shall be de-energized before electric detonators are connected to the blasting circuit; the power shall not be turned on until after the shots are fired or the blast is deactivated by removing or shunting each electric detonator.

O. Trunklines, in multiple-row blasts initiated by detonating cord, shall make one or more complete loops, with crossties between loops at intervals of not over 200 feet.

Historical Note
Former Rule 2:73.

R11-1-274. Explosives stored underground

Explosives stored in a mine shall be so located that, should they explode or burn, escape of the men will not be cut off.

Historical Note
Former Rule 2:74.

R11-1-275. Underground magazines, construction

Underground magazines shall be well constructed but need not comply with the standards set by Class I or Class II magazines.

Historical Note
Former Rule 2:75.

R11-1-276. Warning required

No blast shall be fired until the person in charge has made certain that all surplus explosives are in a safe place, all persons and equipment are at a safe distance or under sufficient cover, and that an adequate warning signal has been given.

Historical Note
Former Rule 2:76.

R11-1-277. Permanent blasting lines

Permanent blasting lines shall be properly supported, insulated and kept in good repair.

Historical Note
Former Rule 2:77.

R11-1-278. Location of safety switches

If branch circuits are used when blasts are fired from power circuits, safety switches located at safe distances from the blast area shall be provided in addition to the main blasting switch.

Historical Note
Former Rule 2:78.

R11-1-279. Blasting switches

Blasting switches shall be locked in the open position except when closed to fire the blast. Lead wires shall not be connected to the blasting switch until the shot is ready to be fired.

Historical Note
Former Rule 2:79.

R11-1-280. Detonating cord knots and connections

All detonating cord knots shall be tight and all connections shall be kept at right angles to the trunk lines. No trunk lines shall be tied in until all equipment is moved out of the area within 50' of the blast.

Historical Note
Former Rule 2:80; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-281. Misfires

Misfires shall be disposed of by the following methods:

1. Re-attempting to fire the holes if leg wires are exposed.
2. Washing the stemming and the charge from the borehole with water.
3. Inserting new primers after the stemming has been washed out.

Historical Note
Former Rule 2:81.

R11-1-282. Compressed air

Compressed air shall not be used to remove explosives from misfires.

Historical Note
Former Rule 2:82.

R11-1-283. Electric detonators

Electric detonators of different brands shall not be used in the same round.

Historical Note
Former Rule 2:83.

R11-1-284. Power sources

Power sources shall be suitable for the number of electric detonators to be fired and for the type of circuits used.

Historical Note
Former Rule 2:84.

R11-1-285. Use of black blasting powder

In the use of black blasting powder:

1. Containers shall not be opened in, or within 50 feet of any magazine; within any building in which a fuel-fired or exposed-element electric heater is in operation; where electrical or incandescent-particle sparks could result in power ignition; or within 50 feet of any open flame.
2. Granular powder shall be transferred from containers only by pouring. Spills of granular powder shall be cleaned up promptly with non-sparking equipment; contaminated powder shall be put into a container of water and its content disposed of promptly after the granules have disintegrated, or the spill area shall be flushed with a copious amount of water to completely disintegrate the granules.
3. Containers of powder shall be kept securely closed at all times other than when the powder is being transferred from or into a container.
4. Containers of powder transported by vehicles shall be in a wholly enclosed cargo space.
5. Misfires shall be disposed of by:
   a. Washing the stemming and powder charge from the borehole, and
   b. Removal and disposal of the initiator as a damaged explosive.
6. Boreholes of shots that fire but fail to break, or fail to break properly, shall not be recharged for at least 12 hours.

Historical Note
Former Rule 2:85.

R11-1-286. Explosives burning in hole, move from area

If explosives are suspected of burning in a hole, all persons in the endangered area shall move to a safe location and no one shall return to the hole until the danger has passed, but in no case within one hour.

Historical Note
Former Rule 2:86.

ARTICLE 3. FIRE PREVENTION AND CONTROL

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305 and 27-311.

R11-1-301. Fire fighting equipment

Fire fighting equipment shall not be tampered with or removed by any person except for its authorized use.

Historical Note
Former Rule 3:01.

R11-1-302. Smoking or use of open flame prohibited

A. No person shall smoke or use an open flame where flammable solvents, liquids, fluids or other flammable materials are stored, transported, handled or used, nor within an unsafe distance of any area or place where such practices may cause a fire or explosion, or where the temperature of the air can be elevated to a temperature above a solvent's flash point.

B. Signs warning against such smoking and open flames shall be posted.

Historical Note
Former Rule 3:02; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-303. Use of carbon tetrachloride
The use of carbon tetrachloride (CCl_4) in fire extinguishers or for cleaning purposes is prohibited.

Historical Note
Former Rule 3:03.

R11-1-304. Fire extinguisher -- maintenance
Fire extinguishers and fire suppression devices shall be:
1. Of the appropriate type for the particular fire hazard involved.
2. Adequate in number and size for the particular fire hazard involved.
3. Recharged or replaced after any discharge is made from the extinguisher or device.
4. Inspected, tested, and maintained at regular intervals according to the manufacturer's recommendations, and a record showing the date of same be kept by the operator for a period of one year and be made available for review by the inspector.
5. Approved by the Underwriter's Laboratories, Inc.

Historical Note
Former Rule 3:04; Former Section R11-1-304 repealed, new Section R11-1-304 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-305. Tanks, pipes, other containers -- made safe before welding
All tanks, pipes, or other containers which have held flammable, explosive or corrosive material shall be vented, cleaned, purged, and tested for safe and non-explosive atmosphere before entering, burning, cutting, or welding on them is permitted.

Historical Note
Former Rule 3:05.

R11-1-306. Flammable liquids -- storage
Flammable liquids shall be stored in accordance with standards of the National Fire Protection Association or other recognized agencies approved by the Inspector. Small quantities of flammable liquids drawn from storage shall be kept in appropriately labeled safety cans.

Historical Note
Former Rule 3:06.

R11-1-307. Fuel lines -- valves
Fuel lines shall be equipped with valves to cut off fuel at the source and shall be located and maintained to minimize fire hazards.

Historical Note
Former Rule 3:07.

R11-1-308. Insulation of power lines and cables
Power wires and cables shall be adequately insulated where they pass through doors or walls or where they present a fire hazard.

Historical Note
Former Rule 3:08.

R11-1-309. Valves on oxygen and acetylene tanks
Valves on oxygen and acetylene tanks shall be kept closed when the contents are not being used.

Historical Note
Former Rule 3:09.

R11-1-310. Flammable liquids' storage when not buried
Gasoline, diesel fuel, liquified petroleum gases, and other flammable liquids, when not buried, shall not be stored within 100 feet of the following:
1. Mine openings.
2. Buildings or snowsheds connected to mine openings.
3. Fan installations or housings.
4. Hoist houses.

Historical Note
Former Rule 3:10.

R11-1-311. Abandoned electrical circuits
Abandoned electrical circuits shall be de-energized and isolated so that they cannot become energized inadvertently.

Historical Note
Former Rule 3:11.

R11-1-312. Solvents with flash points lower than 1005 F.
Solvents with flash points lower than 1005 Fahrenheit (385 C.) shall not be used for cleaning.

Historical Note
Former Rule 3:12.

R11-1-313. Oxygen cylinders -- storage
Oxygen cylinders shall not be stored near oil or grease.

Historical Note
Former Rule 3:13.

R11-1-314. Gauges and regulators used with oxygen or acetylene cylinders
Gauges and regulators used with oxygen or acetylene cylinders shall be kept clean and free from oil and grease.

Historical Note
Former Rule 3:14.

R11-1-315. All heat sources capable of combustion, insulated or isolated
All heat sources, including lighting equipment, capable of producing combustion shall be insulated or isolated from combustible materials.

Historical Note
Former Rule 3:15.

R11-1-316. Battery charging stations
Battery charging stations shall be located in well ventilated areas.

Historical Note
Former Rule 3:16.

R11-1-317. When welding or cutting safety precautions
When welding or cutting, suitable precautions shall be taken to ensure that smoldering metal or sparks do not result in a fire. Fire extinguishing equipment shall be immediately available at the site.

Historical Note
Former Rule 3:17.

R11-1-318. Internal combustion engines -- refueling
Internal combustion engines, except diesels above ground, shall be shut off and stopped before being fueled.

Historical Note
Former Rule 3:18.

R11-1-319. Drip pans, etc.
Drip pans shall be provided to catch leakage or spillage when oil or flammable liquids are dispensed in a place or manner which may create a hazard.

Historical Note
Former Rule 3:19.

R11-1-320. Fire alarm systems
Fire alarm systems shall be provided and maintained in operating condition or adequate fire alarm procedures shall be established to warn promptly all persons endangered by fire.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-321. Fuel stored underground
Fuel stored underground will be in a return air split provided with adequate firefighting equipment. No oil line shall be allowed to pass down the shaft.

Historical Note
Former Rule 3:21.

R11-1-322. Tightly sealed containers used for combustible materials
Oil, grease or diesel fuel stored underground shall be kept in suitable tightly sealed containers in fire-resistant areas at safe distances from explosives, magazines, electrical installations and shaft stations.

Historical Note
Former Rule 3:22.

R11-1-323. Fire control -- underground diesel units
A fire extinguisher of suitable type and size must be carried at all times with each diesel powered unit. In addition, a fire control system shall be installed in each piece of equipment operating underground regardless of make and model. The system shall be approved by the Inspector for automatic, remote, pneumatic, push button or lever control.

Historical Note
Former Rule 3:23; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-324. Starting mechanism of the diesel engine
The starting mechanism of the diesel engine shall be powered by electricity, air or some other source considered safe. The use of gasoline powdered starters for underground diesel equipment is specifically prohibited.

Historical Note
Former Rule 3:24.

R11-1-325. Underground refueling stations
Underground refueling stations must be well ventilated and separate from any underground equipment repair areas. Diesel fuel must be carried in tight containers.

Historical Note
Former Rule 3:25.

R11-1-326. Supply of diesel fuel allowed underground
Only a day's supply of diesel fuel will be allowed underground at any time and this must be stored in tight containers in a cool, well-ventilated place. The container will be set in a sufficient amount of suitable absorbent material to absorb all of the fuel being stored or shall be set in an area which is curbed or otherwise blocked off so that the fuel cannot spread beyond the storage area.

Historical Note
Former Rule 3:26.

R11-1-327. Fires prohibited underground
Fires shall not be built underground; open-flame torches and candles shall not be left underground.

Historical Note
Former Rule 3:27.

R11-1-328. Approved mine rescue apparatus -- maintenance
Approved mine rescue apparatus shall be properly maintained for immediate use. The equipment shall be tested at least once a month and records kept of the tests.

Historical Note
Former Rule 3:28.

R11-1-329. Diesel fuel storage areas
No smoking is permitted in or around diesel fuel storage areas. No open lights are permitted in diesel storage or refueling areas. There must be adequate firefighting equipment at all refueling stations and storage tanks for diesel fuel.

Historical Note
Former Rule 3:29.

R11-1-330. Gasoline storage or use in underground operations prohibited
Gasoline shall not be taken, stored or used in underground operations.

Historical Note
Former Rule 3:30; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-331. Use of liquified petroleum gases
The use of liquified petroleum gases shall be limited to maintenance work.

Historical Note
Former Rule 3:31.

R11-1-332. Fuel used in underground diesel equipment
Fuel used in underground diesel equipment must conform to the manufacturer's specifications for viscosity pour point, cetane number, carbon residue and water. The flash point must not be less than 1505 Fahrenheit and sulphur content must not be greater than 0.2% by weight.

Historical Note
Former Rule 3:32.

R11-1-333. Renumbered

Historical Note
Former Rule 3:33; Former Section R11-1-333 renumbered as Section R11-1-412 effective August 18, 1980 (Supp. 80-4).

R11-1-334. Mine rescue station
A mine rescue station equipped with at least ten sets of suitable and properly maintained two-hour minimum capacity self-contained breathing apparatus, adequate supplies, and spare parts shall be maintained at mines employing 75 or more persons underground or, in lieu thereof, the mine shall be affiliated with a central mine rescue station.

Historical Note
Former Rule 3:34; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-335. Mine rescue crews
At mines employing 75 or more persons underground, at least two rescue crews (ten persons) shall be trained at least annually in the use, care, and limitations of self-contained breathing and firefighting apparatus and in mine-rescue procedures. Other mines shall have at least one person so trained for each ten persons employed underground.

Historical Note
Former Rule 3:35; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-336. Repealed

Historical Note
Former Rule 3:36; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-337. Reserved

R11-1-338. Fire protection for timbered mine entrances
Timber in mine entrances shall be fire retardant for at least 200 feet inside the mine portal or collar, or the mine entrance shall be provided with fire protection adequate to control a fire for at least 200 feet inside the mine portal or collar.

Historical Note
Former Section R11-1-1183 renumbered and amended as Section R11-1-338 effective August 18, 1980 (Supp. 80-4).

R11-1-339. Reserved

R11-1-340. Reserved

R11-1-341. Fire extinguisher -- mobile equipment
Suitable fire extinguishers shall be provided on self-propelled mobile equipment with enclosed cabs, used in surface operations.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-342. Reserved

R11-1-343. Reserved

R11-1-344. Reserved

R11-1-345. Reserved

R11-1-346. Reserved

R11-1-347. Reserved

R11-1-348. Reserved

R11-1-349. Reserved

R11-1-350. Reserved

R11-1-351. Accumulation of flammable materials
Flammable and combustible waste materials, grease, lubricants or flammable liquids shall not be allowed to accumulate where they can create a fire hazard.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-352. Reserved

R11-1-353. Fire protection sensor for underground stationary diesel equipment
Where there is a potential for exposure of workers to a fire hazard, unattended stationary diesel equipment used in underground operations shall be provided with a thermal sensor which automatically stops the diesel engine should overheating occur.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-354. Fire protection sensor for belt conveyors
Where there is a potential for exposure of workers to a fire hazard, unattended belt conveyors shall be provided with a thermal sensor which automatically stops the drive pulley should excessive slippage create an ignition of the belt.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

ARTICLE 4. AIR QUALITY, VENTILATION AND RADIATION, AND PHYSICAL AGENTS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, 27-365, 27-368, 27-371 through 27-373, 27-411, and 27-412.

R11-1-401. Discharge of exhaust pipe
The discharge of any exhaust pipe for an internal combustion engine used for fans, power plant or engine driven compressor shall be located and so arranged that the exhaust fumes from this engine cannot under any conditions get into the intake air of the mine or the intake air of the compressors.

Historical Note
Former Rule 4:01.

R11-1-402. Dust suspected of being explosive
Dust suspected of being explosive shall be tested for explosability. If tests prove positive, appropriate control measures shall be taken.

Historical Note
Former Rule 4:02.

R11-1-403. Air intake of compressors
The air intake of all compressors must be located so that no hazardous fumes or smoke can get into the air intake. The use of compressors that have a common crankcase with the internal combustion engine used to drive it is prohibited except for modern machines specifically designed to eliminate the hazard.

Historical Note
Former Rule 4:03.

R11-1-404. Airborne contaminants
Except as permitted by R11-1-406:

1. Except as provided in paragraph (2) 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. Excursions above the listed thresholds shall not be of a greater magnitude than is characterized as permissible by the conference.
2. Employees shall be withdrawn from areas where there is present an airborne contaminant given a "C" designation by the conference and the concentration exceeds the threshold limit value listed for that contaminant.
3. The 8-hour time weighted average airborne concentration of asbestos dust to which employees are exposed shall not exceed 2 fibers per millimeter greater than 5 microns in length, as determined by the membrane filter method at 400-450 magnification (4 millimeter objective) phase contrast illumination. No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers longer than 5 micrometers, per milliliter of air as determined by the membrane filter method over a minimum sampling time of 15 minutes. "Asbestos" is a generic term for a number of hydrated silicates that, when crushed or processed, separate into flexible fibers made of fibrils. Although there are many asbestos minerals, the term "asbestos" as used herein is limited to the following minerals: Chrysotile, Amosite, Crociodolite, Anthophylite, Tremolite, and Actinolite.

Historical Note
Former Rule 4:04; Amended effective April 7, 1976 (Supp. 76-2). Amended effective August 18, 1980 (Supp. 80-4).

R11-1-405. Dust, gas, mist, and fume surveys

Dust, gas, mist, and fume surveys shall be conducted as frequently as necessary to determine the adequacy of control measures.

Historical Note

Former Rule 4:05.

R11-1-406. Control of employees' exposure to harmful airborne contaminants

Control of employees' exposure to harmful airborne contaminants shall be, insofar as feasible, by prevention of contamination, removal by exhaust ventilation, or by dilution with uncontaminated air. However, where accepted engineering control measures have not been developed or when necessary by the nature of the work involved (for example, while establishing controls or occasional entry into hazardous atmospheres to perform maintenance or investigation), employees may work for reasonable periods of time in concentrations of airborne contaminants exceeding permissible levels if they are protected by appropriate respiratory protective equipment. Whenever respiratory protective equipment is used a program for selection, maintenance, training, fitting, supervision, cleaning, and use shall meet the following minimum requirements:

1. Respirators which are applicable and suitable for the purpose intended shall be furnished, and employees shall use the protective equipment in accordance with training and instruction.
2. A respirator program consistent with the requirements of "American National Standard Practices for Respiratory Protection", which is hereby incorporated by reference and made a part thereof. This publication may be examined in the Arizona State Mine Inspector's office.
3. When respiratory protection is used in atmospheres immediately harmful to life, the presence of at least one other person, with backup equipment and rescue capability shall be required in the event of failure of the respiratory equipment.

Historical Note

Adopted effective April 7, 1976 (Supp. 76-2). Amended effective August 18, 1980 (Supp. 80-4).

R11-1-407. Air quality at underground working places

Air at all active underground working places shall contain at least 19.5 volume percent oxygen.

Historical Note

Adopted effective April 7, 1976 (Supp. 76-2). Former Section R11-1-407 repealed, new Section R11-1-407 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-408. Construction of underground ventilation doors

Ventilation doors shall be:

1. Substantially constructed.
2. Covered with fire-retardant materials, if constructed of wood.
3. Maintained in good condition.
4. Self-closing, if manually operated.
5. Equipped with audible or visual warning devices, if mechanically operated.

Historical Note

Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-409. Keeping ventilation doors closed

When ventilation control doors are opened as a part of the normal mining cycle, they shall be closed as soon as possible to re-establish normal ventilation to working places.

Historical Note

Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-410. Reserved

R11-1-411. Reserved

R11-1-412. Fan housings and air ducts

Fan housings and air ducts connecting main fans to underground openings shall be fire resistant.

Historical Note

Former Section R11-1-333 renumbered as Section R11-1-412 effective August 18, 1980 (Supp. 80-4).

R11-1-413. Reserved

R11-1-414. Reserved

R11-1-415. Reserved

R11-1-416. Reserved

R11-1-417. Reserved

R11-1-418. Reserved

R11-1-419. Reserved

R11-1-420. Reserved

R11-1-421. Use of underground diesel equipment

Pursuant to A.R.S. § 27-365, the underground use of any internal combustion engine is unlawful unless the Inspector has approved the equipment. In addition to the approval of the Inspector for use of the equipment, the equipment shall conform in all respects to the requirements of the rules set forth in this Article.

Historical Note

Former Rule 4:21.

R11-1-422. Underground diesel-powered equipment -- toxic gas diluting device

Underground diesel-powered equipment shall be equipped with a stainless steel exhaust system including conditioner and satisfactory diluting device, which will reduce toxic gases to a minimum before they are released into the mine atmosphere. (Except if limestone and water are used, scrubbers may be carbon steel.)

Historical Note

Former Rule 4:22.

R11-1-423. The conditioner specifications

The conditioner must not increase the engine back pressure above 18 inches of water or 1 1/2 inches of mercury when the diesel equipment is developing its rated horsepower. The conditioner must hold sufficient water for four hours of operation without replenishing and at the end of four hours of operation, the exhaust temperature again must not exceed (180°) Fahrenheit. Water to be completely drained and replenished once each shift. The conditioner must be checked, serviced, and cleaned once each week. Any other conditioner approved by the Arizona State Mine Inspector may be used.

Historical Note

Former Rule 4:23.

R11-1-424. Inspection of diesel engine and gas conditioner

At least once each week an inspection of the diesel engine and the gas conditioner MUST be made and a written report of its condition be put on file for examination by the Mine Inspector or his deputies.

Historical Note

Former Rule 4:24.

R11-1-425. Use of flexible tubing

When flexible tubing is used on exhaust from diesel motor to the air conditioner or scrubber, it must be the type that will withstand back pressure and not leak.

Historical Note
Former Rule 4:25.

R11-1-426. Use of diesel-powered equipment shall be restricted

The use of diesel-powered equipment shall be restricted to haulageway or other working places where positive ventilation is maintained by mechanical means. If possible, the ventilation in places where diesel equipment is used shall be arranged so that the air carrying exhaust gases from the engine are returned to the main air exhaust ways so as not to traverse working places.

Historical Note
Former Rule 4:26.

R11-1-427. Operation of diesel engines -- toxic gases

Diesel engines must not be operated when the atmosphere adjacent to its engine contains toxic gases above the tolerance set by the United States Bureau of Mines as listed below:

Carbon dioxide0.5% by vol.
Carbon monoxide0.01% by vol.
Nitrogen dioxide0.0005%by vol.
Oxygen must be at least19.5%by vol.

Historical Note
Former Rule 4:27; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-428. Diesel engine in underground mine operations -- ventilation

When a diesel engine is used in underground mine operations, all dead-end headings shall be separately ventilated by auxiliary ventilation with a minimum air velocity of not less than 50 linear feet per minute in the working face itself. The intake of the auxiliary system must be so located that air entering it will not be contaminated by exhaust gases from the diesel engine when operating between the intake and the face of the working area. When any portion of the primary or auxiliary exhaust system is not functioning, no diesel engine shall be allowed to operate in the area of no ventilation.

Historical Note
Former Rule 4:28.

R11-1-429. Diesel equipment other than approved by U.S. Bureau of Mines

If diesel equipment other than that approved by U.S. Bureau of Mines is utilized, 150 C.F.M. per brake horsepower is the required ventilating air for safe operation.

Historical Note
Former Rule 4:29.

R11-1-430. Repealed

Historical Note
Former Rule 4:30; Amended effective April 7, 1976 (Supp. 76-2). Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-431. Suitable lights and audible warning devices, installation, maintenance

Suitable lights and audible warning devices shall be installed and maintained in good working condition on all mobile diesel equipment operated underground.

Historical Note
Former Rule 4:31.

R11-1-432. Reserved

R11-1-433. Fuel leaks -- diesel equipment

All diesel equipment must be checked for fuel leaks and any leaks found must be noted and reported.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-434. Diesel engine air cleaners

All connections and tubing from air cleaner to the intake manifold must be closely checked for cracks, breaks, or loose connections. The intake manifold must be secure and properly gasketed to cylinder heads and be free of holes and cracks.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-435. Reserved
thru
R11-1-469. Reserved

R11-1-470. Sampling for radon daughters

In all underground mines at least one sample shall be taken each year in exhaust mine air by a competent person to determine if concentrations of radon daughters are present. If concentrations of less than 0.1 WL are found:

1. Where uranium is not mined, no further exhaust mine air sampling is required during that year.
2. Where uranium is mined, at least one sample shall be taken in the exhaust air each month.
3. Results of these tests shall be recorded and retained at the operation and be made available for inspection.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-471. Exposure of radon daughters

No employee shall be permitted to receive an exposure of radon daughters in excess of 4 WLM in any calendar year.

Historical Note
Former Rule 4:71; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-472. Concentration of radon daughters

When radon daughters concentrations between 0.1 and 0.3 WL are found in an active working area, measurements representative of worker's breathing zone shall be determined as follows:

1. Where uranium is not mined -- at least three months at random times until concentrations are below 0.1 WL and annually thereafter.
2. Where uranium is mined -- at least every two weeks at random times at all areas where persons work, travel or congregate. If concentrations are found in excess of 0.3 WL in an active working area, radon daughters concentrations shall be determined weekly until such time as the weekly determinations have been 0.3 WL or less for five consecutive weeks.
3. Sample date, locations and results obtained shall be recorded and retained at the mine office for at least two years and shall be made available for inspection.

Historical Note
Former Rule 4:72; Former Section R11-1-472 repealed, new Section R11-1-472 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-473. Smoking prohibited

Smoking is prohibited where uranium is mined.

Historical Note
Former Rule 4:73.

R11-1-474. Repealed

Historical Note
Former Rule 4:74; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-475. Noise control

A. No employee shall be permitted an exposure to noise in excess of that specified in the table below. Noise level measurements shall be made using a sound level meter meeting specifications contained in "American National Standard Specification for Sound Level Meters", which is hereby incorporated by reference and made a part hereof, or by a dosimeter with similar accuracy. This publication may be examined in the Arizona State Mine Inspector's office.

PERMISSIBLE NOISE EXPOSURES

DURATION PER DAY HOURS OF EXPOSURE:	SOUND LEVEL dBA SLOW RESPONSE
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 or less	115

No exposure shall exceed 115 dBA. Impact or impulsive noises shall not exceed 140 dB, peak sound pressure level.

NOTE: When the daily exposure is composed of two or more periods of noise exposure at different levels, their combined effect shall be considered rather than the individual effect of each. If the sum

(Cl/Tl) + (C2/T2) + . . . (Cn/Tn)

exceeds unity, then the mixed exposure shall be considered to exceed the permissible exposure. Cn indicates the total time of exposure at a specified noise level, and TN indicates the total time of exposure permitted at that level. Interpolation between tabulated values may be determined by the following formula:

log T = 6.322 - 0.0602 SL

There T is the time in hours and SL is the sound level dBA.

B. When employees' exposure exceeds that listed in the above table, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce exposure to within permissible levels, personal protective equipment shall be provided and used to reduce sound levels to within the levels of the table.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2). Amended effective August 18, 1980 (Supp. 80-4).

R11-1-476. Heat stress control

A. Persons repeatedly exposed to hot environments will be suitably trained to recognize heat disorders and to render first aid for heat disorders.

B. Work requirements will be adjusted to reduce the risk of heat disorders.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

ARTICLE 5. MAINTENANCE AND USE OF EQUIPMENT

(Compressors, Mucking Machines, Belts & Guards, Mobile Equipment)

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, 27-313, 27-367, and 27-424.

R11-1-501. Employees operating mobile equipment -- unauthorized personnel

Employees operating equipment shall not allow unauthorized personnel to operate or ride on equipment to which they have been assigned.

Historical Note
Former Rule 5:01.

R11-1-502. Mounting and dismounting mobile equipment

All employees shall use steps, handrails and/or grab irons when mounting and dismounting mobile equipment.

Historical Note
Former Rule 5:02.

R11-1-503. Precautions before starting machinery

Employees operating equipment shall take appropriate precautions to insure that everyone is in the clear before starting machinery or moving equipment.

Historical Note
Former Rule 5:03.

R11-1-504. Starting and stopping devices

Starting and stopping devices on all machinery and equipment shall be clearly marked and readily accessible.

Historical Note
Former Rule 5:04.

R11-1-505. Design of guards

Guards shall be properly designed and sufficiently strong to provide the required protection and withstand the wear of normal operation.

Historical Note
Former Rule 5:05.

R11-1-506. Speed of mobile equipment

Mobile equipment shall be operated at a speed which will not endanger any person or property.

Historical Note
Former Rule 5:06.

R11-1-507. Mobile equipment shall be secured when without operator

Mobile equipment shall be secured against accidental movement whenever the equipment operator leaves the equipment.

Historical Note
Former Rule 5:07.

R11-1-508. Mobile equipment shall be secured while repair work is being performed

All equipment and parts of equipment shall be blocked or otherwise secured so that it cannot be accidentally moved while repair work is being performed.

Historical Note
Former Rule 5:08.

R11-1-509. Cabs of mobile equipment -- housekeeping
Cabs of mobile equipment shall be kept free of extraneous materials.

Historical Note
Former Rule 5:09.

R11-1-510. Compressed-air receivers
A. Compressed-air receivers and other unfired pressure vessels shall be constructed, installed and maintained according to manufacturers recommendations; and
B. Shall be inspected at regular intervals by a competent person, and a record of such inspection shall be made available to the Inspector for examination.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-511. Compressed air
Compressed air shall be bled from air tools and hoses not equipped with automatic air cutoff devices before disconnecting the hoses or leaving the tools unattended. Repairs involving the pressure system of compressors, receivers, or compressed-air-powered equipment shall not be attempted until the pressure has been bled off.

Historical Note
Former Rule 5:11.

R11-1-512. Mobile equipment utilizing air brakes
All mobile equipment utilizing air brakes shall have an operating air pressure gauge.

Historical Note
Former Rule 5:12.

R11-1-513. Repealed

Historical Note
Former Rule 5:13; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-514. Compressed air receivers -- safety devices
Each compressed air receiver shall be equipped with a pressure gauge, a pop-off valve and a blow-off valve at its lowest point.

Historical Note
Former Rule 5:14.

R11-1-515. Pipelines from air receivers
All pipelines from air receivers shall be adequately supported.

Historical Note
Former Rule 5:15.

R11-1-516. Quick-close type air valve provided on pneumatic- powered equipment
A quick-close type air valve shall be provided on each piece of pneumatic-powered loading, hauling, and dumping equipment. The valve shall be closed except when the equipment is being operated.

Historical Note
Former Rule 5:16; Former Section R11-1-516 repealed, new Section R11-1-516 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-517. Air valves on mucking machines
The air valves on the mucking machines must be kept in a closed position when the machine is not being used.

Historical Note
Former Rule 5:17.

R11-1-518. Reserved
R11-1-519. Reserved
R11-1-520. Reserved
R11-1-521. Welding operations shielded and properly ventilated
Welding operations shall be shielded and properly ventilated.

Historical Note
Former Rule 5:21; Amended effective April 7, 1976 (Supp. 76-2). Amended effective August 18, 1980 (Supp. 80-4).

R11-1-522. Guarding of moving parts
A. Moving parts such as gears, sprockets, or chain drive, head, tail and take-up pulleys, flywheels, couplings, shafts, fan inlets, and similar exposed moving machine parts which may be contacted by persons and which may cause injury to persons must be guarded.
B. Guards at conveyor-drive, conveyor-head and conveyor-tail pulleys shall extend a distance sufficient to prevent a person from reaching behind the guard and becoming caught between the belt and pulley.

Historical Note
Former Rule 5:22; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-523. Safety devices for air hoses
All air hoses with an inside diameter of 3/4 inch or larger shall have suitable safety devices set inside or attached to those hoses such that accidental disconnection will not flail hose ends.

Historical Note
Former Rule 5:23.

R11-1-524. Men working on a piece of mobile equipment
Men shall not work from or on a piece of mobile equipment in a raised position until it is blocked in place securely. This does not preclude the use of equipment specifically designed as elevated mobile work platforms.

Historical Note
Former Rule 5:24.

R11-1-525. Drive belts
Drive belts shall not be shifted while in motion unless the machines are provided with mechanical shifters.

Historical Note
Former Rule 5:25.

R11-1-526. Guiding belts, chains, ropes on moving pulleys
Belts, chains, ropes will not be guided on power-driven moving pulleys, sprockets or drums with the hands except on slow-moving equipment especially designed for hand feeding.

Historical Note
Former Rule 5:26.

R11-1-527. Power off when working on machinery
No work shall be performed on machinery until the power is off and the machinery is blocked against motion, except where machinery motion is necessary to make adjustments.

Historical Note
Former Rule 5:27.

R11-1-528. Belt dressings
Belt dressings shall not be applied manually where belts are in motion unless an aerosol-type dressing is used.

Historical Note
Former Rule 5:28.

R11-1-529. Lubricating machinery while in motion
Machinery shall not be lubricated while in motion or when hazard exists unless equipped with standard fitting or cups.

Historical Note
Former Rule 5:29.

R11-1-530. Guarding protruding set screw keys
Protruding set screw keys on revolving parts shall be guarded.

Historical Note
Former Rule 5:30.

R11-1-531. Unsafe equipment or machinery
Unsafe equipment or machinery presenting an immediate danger must either be repaired immediately or be otherwise rendered not subject to further use until repaired.

Historical Note
Former Rule 5:31.

R11-1-532. Renumbered

Historical Note
Former Rule 5:32; Former Section R11-1-532 renumbered as Section R11-1-660 effective August 18, 1980 (Supp. 80-4).

R11-1-533. Directing compressed air
At no time shall compressed air be directed toward a person. When compressed air is used, all necessary precautions shall be taken to protect persons from injury.

Historical Note
Former Rule 5:33.

R11-1-534. Overhead belts guarded
Overhead belts shall be guarded if the whipping action from a broken line would be hazardous to persons below.

Historical Note
Former Rule 5:34.

R11-1-535. Reserved

R11-1-536. Welding, cutting or soldering performed by a competent person
Welding, cutting, or soldering shall be performed by a competent person.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-537. Reserved

R11-1-538. Reserved

R11-1-539. Reserved

R11-1-540. Reserved

R11-1-541. Renumbered

Historical Note
Former Rule 5:41; Former Section R11-1-541 renumbered and amended as Section R11-1-1315 effective August 18, 1980 (Supp. 80-4).

R11-1-542. Renumbered

Historical Note
Former Rule 5:42; Former Section R11-1-542 renumbered as Section R11-1-1310 effective August 18, 1980 (Supp. 80-4).

R11-1-543. Renumbered

Historical Note
Former Rule 5:43; Former Section R11-1-543 renumbered and amended as Section R11-1-1311 effective August 18, 1980 (Supp. 80-4).

R11-1-544. Renumbered

Historical Note
Former Rule 5:44; Former Section R11-1-544 renumbered as Section R11-1-1312 effective August 18, 1980 (Supp. 80-4).

R11-1-545. Renumbered

Historical Note
Former Rule 5:45; Former Section R11-1-545 renumbered as Section R11-1-1313 effective August 18, 1980 (Supp. 80-4).

R11-1-546. Renumbered

Historical Note
Former Rule 5:46; Former Section R11-1-546 renumbered and amended as Section R11-1-1314 effective August 18, 1980 (Supp. 80-4).

R11-1-547. Reserved

R11-1-548. Reserved

R11-1-549. Reserved

R11-1-550. Reserved

R11-1-551. Safety devices on stationary grinding machines other than special bit grinders
Stationary grinding machines other than special grinders shall be equipped with:
1. Peripheral hoods (less than 905 throat openings) capable of withstanding the force of a bursting wheel.
2. Adjustable tool rests set as close as practical to the wheel.
3. Safety washers.

Historical Note
Former Rule 5:51.

R11-1-552. Operation of grinding wheels
Grinding wheels shall be operated within the specifications of the manufacturer of the wheel.

Historical Note
Former Rule 5:52.

ARTICLE 6. LOADING, HAULING AND DUMPING

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, 27-345, 27-367, and 27-423.

R11-1-601. Flying switches prohibited
Flying switches are prohibited on all rail equipment.

Historical Note
Former Rule 6:01.

R11-1-602. Operator of a crane
Only one designated employee shall direct the operator of a crane at a given time.

Historical Note
Former Rule 6:02.

R11-1-603. Roll-over protection for surface mobile equipment

A. Self-propelled scrapers, front-end loaders, dozers, and tractors, manufactured after June 30, 1969, used in surface mining operations shall be equipped with suitable roll-over protection structures (ROPS).

B. Each ROPS shall have the following information permanently affixed to the structure:
1. Manufacturer's or fabricator's name and address; and
2. ROPS model number, if any; and
3. Make and model numbers of the equipment on which the ROPS is designed to fit.
4. For equipment already in use as of February 4, 1977, a satisfactory substitute for the above-required information will be a certificate from either the manufacturer of the ROPS or a registered professional engineer to the effect that the ROPS does meet the performance standards and is appropriate for the piece of equipment upon which it is installed.

C. Any alteration, repair, or welding of the ROPS and ROPS-to-vehicle frame mounts shall be performed only with prior approval and with instructions from the ROPS manufacturer or under the instructions of a registered professional engineer; and the manufacturer, or engineer as the case may be, shall decide what qualifications the welders involved in this operation must have.

D. Nothing in this rule shall preclude the issuance of an order because of imminent danger.

E. Fork-lift trucks, front-end loaders, and dozers shall be provided with substantial canopies when necessary to protect the operator.

Historical Note
Former Rule 6:03; Former Section R11-1-603 repealed, new Section R11-1-603 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-604. Protection of truck cabs by substantial shields

The top and backs of all haulage truck cabs working under shovels or under similar hazardous conditions shall be protected by substantial shields.

Historical Note
Former Rule 6:04.

R11-1-605. Haulage equipment shall be kept in gear when moving

Haulage equipment shall be kept in gear or appropriate drive range at all times when moving and shall be put in the proper designated gear or range before starting down grade.

Historical Note
Former Rule 6:05.

R11-1-606. Dust control of roadways and banks

Haulage roadways and banks where equipment is working shall be properly maintained and adequate provisions shall be taken to control dust.

Historical Note
Former Rule 6:06.

R11-1-607. Demounting vehicle tires

Haulage vehicle tires shall be deflated to a safe pressure before they are demounted from the vehicle.

Historical Note
Former Rule 6:07.

R11-1-608. Inflating tires

Adequate safety devices and/or procedures appropriate to the vehicle shall be used when inflating tires.

Historical Note
Former Rule 6:08.

R11-1-609. Lights on both ends of vehicles operating at night

All trucks, front-end loaders, graders and dozers that are operated at night must have lights on both ends as required for safe operations.

Historical Note
Former Rule 6:09.

R11-1-610. Lower moving parts of machinery when not in use

Dippers, buckets, scrapper blades and similar movable parts shall be lowered to the ground when not in use.

Historical Note
Former Rule 6:10.

R11-1-611. Stop cords on unguarded conveyors with walkways

Unguarded conveyors with walkways shall be equipped with emergency stop devices or cords along their full length.

Historical Note
Former Rule 6:11.

R11-1-612. Operators shall sound warning before starting trains

Operators shall sound warning before starting trains, when trains approach crossings, persons, or other trains on adjacent tracks and where vision is obscured.

Historical Note
Former Rule 6:12; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-613. Cab windows

Cab windows shall be of safety glass or equivalent in good condition and shall be kept clean.

Historical Note
Former Rule 6:13.

R11-1-614. Adequate back stops or brakes on inclined conveyor drive units

Adequate backstops or brakes shall be installed on inclined conveyor drive units to prevent conveyors from running in reverse if a hazard to personnel would be caused.

Historical Note
Former Rule 6:14.

R11-1-615. Getting on or off equipment, notification to operator

When an operator is present, men shall notify him before getting on or off equipment.

Historical Note
Former Rule 6:15.

R11-1-616. Switch throws

Switch throws shall be installed so as to provide adequate clearance for switchmen.

Historical Note
Former Rule 6:16.

R11-1-617. Equipment traveling between work areas

When traveling between work areas, the equipment shall be secured in the travel position.

Historical Note
Former Rule 6:17.

R11-1-618. Persons riding mobile equipment for transportation

Persons shall not be transported:

1. In or on buckets (except shaft buckets), clamshells, dippers, forks, beds of ore haulage trucks, beds of dump trucks.
2. On top of loaded haulage equipment.
3. Outside the cabs and beds of mobile equipment, except trains.
4. Between cars of trains.
5. In conveyances equipped with unloading devices unless means are provided to prevent accidental starting of the unloading mechanism.
6. On loads being moved by cranes or derricks, nor shall they ride the hoisting hooks unless such method eliminates a greater hazard.
7. On locomotives or trains unless authorized.
8. On flat cars except when the flat cars contain special equipment requiring attention; in this case the motor shall proceed very slowly.
9. On the front platform of a motor moving forward.
10. On the draw-head of a car when it is backing.
11. In rail cars or other vehicles or conveyances with tools, materials, and equipment unless means have been provided to make such transportation safe.

Historical Note
Former Rule 6:18; Former Section R11-1-618 repealed, new Section R11-1-618 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-619. Electrically powered mobile equipment left unattended

Electrically powered mobile equipment shall not be left unattended unless the master switch is in the off position, all operating controls are in neutral position, and the brakes are set or equivalent precautions are taken against rolling.

Historical Note
Former Rule 6:19.

R11-1-620. Getting on or off moving equipment

Persons shall not get on or off moving equipment, except trainmen may get on or off slowly moving trains.

Historical Note
Former Rule 6:20; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-621. Equipment to be hauled prevented from sliding or spillage

Equipment which is to be hauled should be loaded and protected so as to prevent sliding or spillage.

Historical Note
Former Rule 6:21.

R11-1-622. Rail cars on side tracks

Rail cars shall not be left on side tracks unless ample clearance is provided for traffic on adjacent tracks.

Historical Note
Former Rule 6:22.

R11-1-623. Motorman recognizing brakeman's signals

The inability of a motorman to clearly recognize his brakeman's signals when the train is under the direction of the brakeman shall be construed by the motorman as a stop signal.

Historical Note
Former Rule 6:23.

R11-1-624. Preventing overtravel and overturning at dumping locations

Berms, bumper blocks, and safety hooks or similar means shall be provided to prevent overtravel and overturning at dumping locations.

Historical Note
Former Rule 6:24.

R11-1-625. Location of spotters, when used

If spotters are used, they shall be well in the clear when trucks are backing into dumping position and dumping. Lights should be used at night to direct trucks.

Historical Note
Former Rule 6:25.

R11-1-626. Public and permanent railroad crossings, posted or guarded

Public and permanent railroad crossings shall be posted with warning signs or signals or shall be guarded when trains are passing and shall be planked or otherwise filled between the rails.

Historical Note
Former Rule 6:26.

R11-1-627. At least 30 inches continuous clearance for moving railroad equipment

Where possible, at least 30 inches continuous clearance from the widest projection of moving railroad equipment shall be provided on at least one side of the track. At all places where it is not possible to provide 30-inch clearance, it shall be marked conspicuously.

Historical Note
Former Rule 6:27.

R11-1-628. Makeshift couplings

Makeshift couplings shall not be used.

Historical Note
Former Rule 6:28.

R11-1-629. Protection from runaway or moving railroad equipment

Positive-acting stopblocks, derail devices, track skates, or other adequate means shall be installed wherever necessary to protect persons from runaway or moving railroad equipment.

Historical Note
Former Rule 6:29.

R11-1-630. Parked railcars securely blocked

Parked railcars, unless held effectively by brakes, shall be blocked securely.

Historical Note
Former Rule 6:30.

R11-1-631. Effective brake shoes for railroad cars

Railroad cars with braking systems, when in use, shall be equipped with effective brake shoes.

Historical Note
Former Rule 6:31.

R11-1-632. Warning devices posted for parked equipment

Lights, flares, or other warning devices shall be posted when parked equipment creates a hazard to vehicular traffic.

Historical Note
Former Rule 6:32.

R11-1-633. Rocks too large to be handled safely
Rocks too large to be handled safely shall be broken before loading.

Historical Note
Former Rule 6:33.

R11-1-634. Reserved
R11-1-635. Reserved
R11-1-636. Ground conditions at dumpsite
Where there is evidence that the ground at a dumping place may fail to support the weight of a vehicle, loads shall be dumped back from the edge of the bank.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-637. Loading haulage equipment
Haulage equipment shall be loaded in a manner to minimize spillage during haulage.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-638. Posting traffic rules
Traffic rules including speed, signals, and warning signs shall be posted.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-639. Reserved
thru
R11-1-650. Reserved

R11-1-651. Supplies, materials, etc., not transported with men
Supplies, materials and tools other than small hand tools shall not be transported with men on mantrip cars. Mantrips shall be operated independently of ore and supply trips.

Historical Note
Former Rule 6:51.

R11-1-652. Warning from chute pulling operations
Ample warning shall be given to men who may be affected by a draw or otherwise exposed to danger from chute pulling operations.

Historical Note
Former Rule 6:52.

R11-1-653. Danger from chute being pulled
Workers shall not stand on broken rock or ore over draw points if there is danger that the chute will be pulled. Suitable platforms or safety lines shall be provided when work must be done in such areas.

Historical Note
Former Rule 6:53; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-654. Boarding and leaving moving mantrip cars
Where mantrips are used, discharge and boarding points shall be designated. Men shall not board or leave moving mantrip cars.

Historical Note
Former Rule 6:54.

R11-1-655. Movement of rock or material trains during shift changes
In underground mines during shift changes, the movement of rock or material trains shall be limited to areas where such trains could not present a hazard to men coming on or going off shift.

Historical Note
Former Rule 6:55.

R11-1-656. Repealed

Historical Note
Former Rule 6:56; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-657. Warning where overhead clearance restricted
Where overhead clearance is restricted, warning devices shall be installed and the restricted area shall be conspicuously marked.

Historical Note
Former Rule 6:57.

R11-1-658. Stockpile and muckpile faces trimmed
Stockpile and muckpile faces shall be trimmed to prevent hazards to personnel.

Historical Note
Former Rule 6:58.

R11-1-659. Position of signalman during slushing operations
When a signalman is used during slushing operations, he shall be positioned in a safe place.

Historical Note
Former Rule 6:59.

R11-1-660. Slushers in excess of 10 horsepower
Unless the operator is otherwise protected, slushers in excess of 10 horsepower shall be provided with backlash guards. All slushers shall be equipped with rollers and drum covers and anchored securely before slushing operations are started.

Historical Note
Former Section R11-1-532 renumbered as Section R11-1-660 effective August 18, 1980 (Supp. 80-4).

R11-1-661. Walking or riding on a moving conveyor prohibited
Walking or riding on a moving conveyor is prohibited unless it is designed for the transportation of persons. Suitable crossovers shall be provided where it is necessary to cross conveyors.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-662. Reserved
R11-1-663. Crossovers -- substantial, provided with handrails, well maintained
Crossovers, elevated walkways, elevated ramps, and stairways shall be of substantial construction, provided with handrails, and maintained in good condition. Where necessary, toeboards shall be provided.

Historical Note
Former Section R11-1-703 renumbered as Section R11-1-663 effective August 18, 1980 (Supp. 80-4).

R11-1-664. Railed walkways where persons walk along conveyors
Walkways with outboard railings shall be provided wherever persons are required to walk alongside elevated conveyor belts. Inclined railed walkways shall be nonskid or provided with cleats.

Historical Note
Former Section R11-1-704 renumbered and amended as Section R11-1-664 effective August 18, 1980 (Supp. 80-4).

R11-1-665. Cleaning pulleys of conveyors

Pulleys of conveyors shall not be cleaned manually while the conveyor is in motion.

Historical Note

Former Section R11-1-706 renumbered as Section R11-1-665 effective August 18, 1980 (Supp. 80-4).

R11-1-666. Before starting conveyor

When the entire length of a conveyor is visible from the starting switch, the conveyor operator shall visually check to make certain that all persons are in the clear before starting the conveyor. When the entire length of a conveyor is not visible from the starting switch, a positive audible or visible warning system shall be installed and operated to warn persons that the conveyor will be started.

Historical Note

Former Section R11-1-707 renumbered as Section R11-1-666 effective August 18, 1980 (Supp. 80-4).

ARTICLE 7. TRAVELWAYS AND ESCAPEWAYS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, and 27-341 through 27-343.

R11-1-701. Repealed

Historical Note

Former Rule 7:01; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-702. Repealed

Historical Note

Former Rule 7:02; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-703. Renumbered

Historical Note

Former Rule 7:03; Former Section R11-1-703 renumbered as Section R11-1-663 effective August 18, 1980 (Supp. 80-4).

R11-1-704. Renumbered

Historical Note

Former Rule 7:04; Former Section R11-1-704 renumbered and amended as Section R11-1-664 effective August 18, 1980 (Supp. 80-4).

R11-1-705. Repealed

Historical Note

Former Rule 7:05; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-706. Renumbered

Historical Note

Former Rule 7:06; Former Section R11-1-706 renumbered as Section R11-1-665 effective August 18, 1980 (Supp. 80-4).

R11-1-707. Renumbered

Historical Note

Former Rule 7:07; Former Section R11-1-707 renumbered as Section R11-1-666 effective August 18, 1980 (Supp. 80-4).

R11-1-708. Reserved

R11-1-709. Reserved

R11-1-710. Reserved

R11-1-711. Fire and evacuation procedures

All employees involved in the escape and evacuation plan for an underground operation shall be instructed at least once each calendar year on current escape and evacuation plans, fire alarm signals, and applicable procedures to be followed in case of fire or other emergency. New employees shall receive such instructions before going underground. Whenever an employee is assigned to work in another area of the mine, he shall be instructed on the escapeway for that area at the time of such assignment. However, employees who normally work in more than one area of the mine shall be instructed at least once each calendar year in the location of escapeways for all areas of the mine in which they normally work or travel. Whenever a change is made in escape and evacuation plans and procedures for any area of the mine, all affected employees shall be instructed of such change. Records of instruction shall be kept for two years.

Historical Note

Former Rule 7:11.

R11-1-712. Refuge areas

Any refuge area shall be:

1. Of fire resistant construction, preferably in untimbered areas of the mine.
2. Large enough to accommodate readily the normal number of men in the particular area of the mine.
3. Constructed so they can be made gas tight.
4. Provided with compressed air lines, water lines, suitable hand tools and stopping materials.

Historical Note

Former Rule 7:12.

R11-1-713. Posting evacuation information in underground mines

In underground mines, information shall be posted and made available showing escape routes, directions of principal air flow, locations of telephones, fire doors and ventilation doors.

Historical Note

Former Rule 7:13.

R11-1-714. Telephone or other voice communications provided underground

Telephone or other voice communications shall be provided between the surface in any underground refuge chambers and such systems shall be independent of the mine power supply.

Historical Note

Former Rule 7:14.

R11-1-715. Designated escapeways inclined more than 30 shall be equipped with stairways, etc.

Designated escapeways inclined more than 30 degrees horizontal shall be equipped with stairways, ladders, cleared walkways or emergency hoisting facilities.

Historical Note

Former Rule 7:15.

R11-1-716. Underground mine evacuation drills

Underground mine evacuation drills shall be held for each shift once every six months. These evacuation drills shall involve all employees on each shift and shall include:

1. Activation of fire alarm system.

2. Evacuation of all men from their work areas to the surface of designated central evacuation points at some time other than shift change.

Records of such drills, showing the time and date, shall be kept for at least two years after each drill.

Historical Note
Former Rule 7:16.

R11-1-717. Underground escape and evacuation plan

A specific escape and evacuation plan and revisions thereof suitable to the conditions and mining system of the mine and showing assigned responsibilities of all key personnel in the event of an emergency shall be developed by the operator and set out in written form. Within 45 calendar days after promulgation of this standard, a copy of the plan and revisions thereof shall be available to the Mine Inspector or his authorized representative. Also, copies of the plans and revisions thereof shall be posted at locations convenient to all persons on the surface and underground. Such a plan shall be updated as necessary and shall be reviewed jointly by the operator and the inspector or his authorized representative at least once every six months from the date of the last review. The plan shall include:

1. Mine maps or diagrams showing directions of principal air flow, location of escape routes and locations of existing telephones, primary fans, primary fan controls, fire doors, ventilation doors, and refuge chambers. Appropriate portions of such maps or diagrams shall be posted at all shaft stations and in underground shops, lunchrooms, and elsewhere in working areas where men congregate.
2. Procedures to show how the miners will be notified of emergency.
3. An escape plan for each working area in the mine to include instructions showing how each working area should be evacuated. Each such plan shall be posted at appropriate shaft stations and elsewhere in working areas where men congregate.
4. A fire fighting plan.
5. Surface procedure to follow in an emergency, including the notification of proper authorities, preparing rescue equipment, and other equipment which may be used in rescue and recovery operations.
6. A statement of the availability of emergency communication and transportation facilities, emergency power and ventilation and location of rescue personnel and equipment.
7. Evacuation routes shall be posted with conspicuous signs.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2). Amended effective August 18, 1980 (Supp. 80-4).

R11-1-718. Self-rescue devices made available

A suitable and properly maintained one-hour minimum capacity self-rescue device shall be made available by the operator to all personnel underground.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2). Amended effective August 18, 1980 (Supp. 80-4).

R11-1-719. Self-rescue devices to be worn underground

A. Except as provided in subsections (B) and (C) of this Section, self-rescue devices meeting the requirements of standard R11-1-718 shall be worn or carried by all persons underground.

B. Where the wearing or carrying of self-rescue devices meeting the requirements of standard R11-1-718 is hazardous to a person, such self-rescue devices shall be located at a distance no greater than 25 feet from such person.

C. Where a person works on or around mobile equipment, self-rescue devices may be placed in a readily accessible location on such equipment.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-720. Emergency training

A. All persons who are required to perform services underground shall be instructed on an annual basis in the Mine Safety and Health Administration approved course in Mine Emergency Training. The instruction to be given by persons who are certified by the Mine Safety and Health Administration Division of Education and Training Operations to give such instruction.

B. Records of all instruction shall be available for review by the Inspector.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2). Former Section R11-1-720 repealed, new Section R11-1-720 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-721. Nonslip safety shoes for portable ladders

Portable ladders other than stepladders shall be equipped with nonslip safety shoes. Whenever practical, ladders should be secured against tipping or falling.

Historical Note
Former Rule 7:21.

R11-1-722. Scaffolding, staging or temporary work platforms

All scaffolding, staging or temporary work platforms shall be adequate in strength and design and shall be secured against tipping or falling.

Historical Note
Former Rule 7:22.

R11-1-723. Adequate ladders provided

Adequate ladders and ladderways shall be provided wherever necessary. All fixed ladders shall be securely fastened and shall provide at least three inches of toe clearance. Ladders shall extend at least three feet above the top landings or substantial handholds shall be provided above the landings.

Historical Note
Former Rule 7:23.

R11-1-724. Tops of manways and open holes covered

Tops of manways and open holes shall be adequately covered or guarded.

Historical Note
Former Rule 7:24.

R11-1-725. Regularly used walkways and travelways

Regularly used walkways and travelways should be sanded, salted or cleared of snow and ice as soon as practical.

Historical Note
Former Rule 7:25.

R11-1-726. Trap doors or adequate guarding for ladderways

Trap doors or adequate guarding shall be provided in ladderways at each level. Doors shall be kept operable.

Historical Note
Former Rule 7:26.

R11-1-727. Adequate protection for surface ladders

Fixed ladders 70 degrees to 90 degrees from the horizontal and 30 feet or more in length shall have backguards, cages or equivalent

protection, starting at a point not more than seven feet from the bottom of the ladders.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

ARTICLE 8. ELECTRICITY

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305 and 27-314.

R11-1-801. New electrical equipment
New electrical equipment shall be installed, maintained and used in accordance with the National Electrical Code.

Historical Note
Former Rule 8:01.

R11-1-802. Electrical equipment maintenance
All electrical equipment shall be maintained so as to reduce the accident hazard so far as is reasonably possible.

Historical Note
Former Rule 8:02; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-803. Performing electrical work
Electrical work shall be performed or supervised by qualified persons.

Historical Note
Former Rule 8:03.

R11-1-804. Removal of "lock on switch" from electric drills or other electrically operated hand rotating tools
Electric drills or other electrically operated hand rotating tools shall have the electric switch constructed so as to break the circuit when the hand releases the switch or shall be equipped with friction or safety devices, and shall be properly grounded.

Historical Note
Former Rule 8:04.

R11-1-805. Repealed

Historical Note
Former Rule 8:05; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-806. "Tag out" necessary prior to work on lines or equipment
Switches which are open to permit work on lines or equipment must be tagged with warning signs and no persons, other than the person placing these signs or his supervisor may remove them. These warning signs must be signed and dated (including the time of day) by the person placing them.

Historical Note
Former Rule 8:06.

R11-1-807. Electrical equipment properly grounded
A. All electrical equipment, motors, switch boxes, controllers, cable casings, both underground and surface, must be properly grounded.
B. Equipment operating off portable A.C. power supply shall be frame grounded back to the generator.

Historical Note
Former Rule 8:07; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-808. Switches and electric controls on electrical equipment
Electrical equipment and circuits shall be provided with switches or other controls. Said switches or controls shall be of approved design and construction and shall be properly installed.

Historical Note
Former Rule 8:08.

R11-1-809. Trailing cables of mobile equipment
Individual overload protection or short circuit detection shall be provided for the trailing cables of mobile equipment.

Historical Note
Former Rule 8:09.

R11-1-810. Trailing cable and power cable connections
Trailing cable and power cable connections to junction boxes shall not be made or broken under load.

Historical Note
Former Rule 8:10.

R11-1-811. Installation of high potential transmission cables
High potential transmission cables shall be covered, insulated, or placed according to acceptable electrical codes to prevent contact with low potential circuits.

Historical Note
Former Rule 8:11.

R11-1-812. Moving shovel trailing cables
Shovel trailing cables shall not be moved with the shovel dipper unless cable slings or sleds are used.

Historical Note
Former Rule 8:12.

R11-1-813. Repealed

Historical Note
Former Rule 8:13; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-814. Transformer enclosures kept locked
Transformer enclosures shall be kept locked against unauthorized entry.

Historical Note
Former Rule 8:14.

R11-1-815. Principal power switches shall be labeled
Principal power switches shall be labeled to show which units they control unless identification can be made readily by location.

Historical Note
Former Rule 8:15.

R11-1-816. Provisions for shock hazards at switchboards and power control switches
Dry wooden platforms, insulating mat or other electrical nonconductive material shall be kept in place at all switchboards and power control switches where shock hazards exist. However, metal plates on which a person normally would stand and which are kept at the same potential as the grounded metal, noncurrent carrying parts of the power switches to be operated may be used.

Historical Note
Former Rule 8:16.

R11-1-817. Posting danger signs
Suitable danger signs shall be posted at all major electrical installations.

Historical Note
Former Rule 8:17.

R11-1-818. Grounding metal buildings, metal fencing and switch gear
Metal fencing and metal buildings enclosing transformers and switch gear shall be grounded.

Historical Note
Former Rule 8:18.

R11-1-819. Circuits de-energized
Circuits shall be de-energized before fuses are removed or replaced. Fuse tongs or hot-line tools shall be used when fuses are removed or replaced in high potential circuits.

Historical Note
Former Rule 8:19; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-820. Switches and starting boxes
Switches and starting boxes shall be of safe design and capacity.

Historical Note
Former Rule 8:20.

R11-1-821. Precautions taken for moving equipment under energized power lines
When equipment must be moved under energized power lines and the clearance is less than ten feet, the power lines shall be de-energized or other precautions shall be taken.

Historical Note
Former Rule 8:21.

R11-1-822. Power circuits de-energized, switches "locked out"
Power circuits shall be de-energized before work is done on such circuits unless hot-line equipment is used. Switches shall be locked out or other measures taken which shall prevent the power circuits from being energized without the knowledge of the individuals working on them. Such locks, signs, or preventive devices shall be removed only by the person who installed them or by authorized personnel.

Historical Note
Former Rule 8:22.

R11-1-823. Hand-held electric tools
Hand held electric tools shall not be operated at high potential voltages.

Historical Note
Former Rule 8:23.

R11-1-824. Guy wires of poles
Guy wires of poles supporting high-voltage transmission lines shall meet the requirements for grounding or insulator protection of the National Electrical Safety Code.

Historical Note
Former Rule 8:24.

R11-1-825. Telegraph, telephone or signal wires installed
Telegraph, telephone, or signal wires shall not be installed on the same crossarm with power conductors. When carried on poles supporting power lines, they shall be installed as specified by the National Electrical Safety Code.

Historical Note
Former Rule 8:25.

R11-1-826. Electrical connections and resistor grids guarded
Electrical connections and resistor grids that are difficult or impractical to insulate shall be guarded unless protection is provided by location.

Historical Note
Former Rule 8:26.

R11-1-827. Continuity and resistance of grounding systems tested
Continuity and resistance of grounding systems shall be tested by a competent person after installation, repair and modification; and annually thereafter, and records of the resistance measured during the most recent tests shall be made available for examination by the inspector.

Historical Note
Former Rule 8:27; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-828. Inspection and cover plates
Inspection and cover plates on electrical equipment and junction boxes shall be kept in place at all times except during testing and repairs.

Historical Note
Former Rule 8:28; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-829. Reserved

R11-1-830. Reserved

R11-1-831. Protection against short circuits and lightning
Power lines, including trolley wires and telephone circuits shall be protected against short circuits and lightning.

Historical Note
Former Rule 8:31.

R11-1-832. Guarding and de-energizing lines from metallic tools or equipment
Where metallic tools or equipment can come in contact with trolley wires or bare power lines, the lines shall be guarded or de-energized.

Historical Note
Former Rule 8:32.

R11-1-833. Separating and insulating power lines from water lines, etc.
Power lines shall be well separated or insulated from water lines, telephone lines, and air lines.

Historical Note
Former Rule 8:33.

R11-1-834. Transformers -- enclosed, 8 ft. above ground, or otherwise protected
Transformers shall be totally enclosed or shall be placed at least 8 feet above the ground, or installed in a transformer house, or surrounded by a substantial fence at least 6 feet high and at least 3 feet from any energized parts, casings, or wiring.

Historical Note
Former Rule 8:34.

R11-1-835. Handling energized shovel or drill power cable
No employee shall take hold of energized shovel or energized drill power cable without suitable equipment designed for such a job.

Historical Note
Former Rule 8:35.

ARTICLE 9. PERSONAL PROTECTION

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305 and 27-312.

R11-1-901. Suitable protection against falling

Suitable protection against falling shall be provided for any work required above ground or floor level.

Historical Note
Former Rule 9:01.

R11-1-902. Safety belts and lines shall be worn

Safety belts and lines shall be worn when men work where there is danger of falling. A second person shall tend the lifeline when bins, tanks or other dangerous areas are entered. Life jackets or belts shall be worn where there is danger from falling into water.

Historical Note
Former Rule 9:02.

ARTICLE 10. MATERIALS STORAGE AND HANDLING

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304 and 27-305.

R11-1-1001. Storage of materials that can create hazards

Materials that can create hazards if accidentally liberated from their container shall be stored in a manner that minimizes the dangers.

Historical Note
Former Rule 10:01.

R11-1-1002. Storage of hazardous materials, labeling of containers

Hazardous materials shall be stored in containers of the type approved for such use by recognized agencies. Such containers shall be labeled appropriately.

Historical Note
Former Rule 10:02.

R11-1-1003. Securing compressed and liquid gas cylinders

Compressed and liquid gas cylinders shall be secured in a safe manner.

Historical Note
Former Rule 10:03.

R11-1-1004. Valves on compressed gas cylinders

Valves on compressed gas cylinders shall be protected by covers when being transported or stored, and by a safe location when the cylinders are in use.

Historical Note
Former Rule 10:04.

R11-1-1005. Suspended loads

Men shall stay clear of suspended loads.

Historical Note
Former Rule 10:05.

R11-1-1006. Operator-carrying overhead cranes

Operator-carrying overhead cranes shall be provided with:

1. Bumpers at the end of each rail.
2. Automatic switches to halt uptravel of the blocks before they strike the hoist.
3. Effective audible warning signals within easy reach of the operator.
4. A means to lock out the disconnect switch.

Historical Note
Former Rule 10:06.

ARTICLE 11. HOISTS AND SHAFTS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, 27-348, 27-351 through 27-354, and 27-356 through 27-359.

R11-1-1101. Construction of headframes and material used

The construction of any headframes and the material used therein shall be sufficiently strong and durable to assure its withstanding any working stress put upon it.

Historical Note
Former Rule 11:01.

R11-1-1102. Design of headframes

All headframes shall be so designed that they will withstand a greater load than the calculated breaking strength of all hoisting attachments.

Historical Note
Former Rule 11:02.

R11-1-1103. Headframes constructed of flammable material

Any headframes which are constructed of flammable material must be provided with adequate fire protection.

Historical Note
Former Rule 11:03.

R11-1-1104. The sheave wheel platform and stairway

The ladder or stairway leading to the sheave wheel platform shall have a handrail or other guarding as needed and the platform at the sheave wheel shall be protected with guard rails and toe boards.

Historical Note
Former Rule 11:04.

R11-1-1105. Reserved

R11-1-1106. Maintenance of information contained in Rope Record Book for friction hoists

A. The manager shall keep, or cause to be kept, at the mine, a book called the Rope Record Book in which shall be recorded the following information on friction hoist ropes:
   1. A history of the rope, giving the date on which the rope was first put on.
   2. Dates of shortening.
   3. Dates and results of inspection and tests.
   4. Date and reason for taking out of service for each occasion the rope is put into and taken out of service.

B. When a rope is put into service, the following information shall be entered into the Rope Record Book:
   1. Name of person from whom purchased.
   2. Date of purchase.
   3. Date put on in present location.
   4. Identification number of rope.
   5. Name of shaft or winze and compartment in which rope is used.
   6. Weight of shaft conveyance.
   7. Weight of material carried, or weight or tension applied to guide or rubbing rope.
   8. Maximum length of rope in service below sheave, or total length of guide or rubbing rope.
   9. Maximum length of rope in service below sheave, or total weight of guide or rubbing rope.
   10. Static factors of safety at conveyance suspension and on head sheave with rope fully let out, or at guide or rubbing rope suspension.

11. Date put in and removed from previous location, if any.

A copy of such entries shall be made available to the Mine Inspector at the hoisthouse.

C. No hoisting rope, tail rope, guide rope, or rubbing rope shall be used that is not accompanied by a certificate from the manufacturer giving the following information which shall be entered in the Rope Record Book:

1. Name and address of manufacturer.
2. Manufacturer's rope number.
3. Date of manufacture.
4. Diameter of rope in inches.
5. Weight per foot in pounds.
6. Rope construction.
7. Class of core.
8. Trade name of interior rope lubricant.
9. Number of wires in strands.
10. Grade of steel.
11. Diameter of wires in decimals of an inch.
12. Breaking stress of steel of which the wire is made in pounds per square inch.
13. Standard torsion test of wires.
14. Actual breaking load of rope, as provided by certificate by a recognized testing laboratory.
15. Length of rope.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1107. Safety factors for friction hoist ropes, tail ropes, and guide and rubbing ropes

A. Hoisting rope installed on a friction hoist shall have a factor of safety of not less than that determined from the following formula: F. of S. = 8.0 - .0005d, where "d" is the maximum length of rope suspended below the head sheave in feet.

B. For friction hoists, the factor of safety in the hoisting ropes shall be not less than 5.5 for any depth of shaft when the ropes are installed.

C. The factor of safety of tail ropes shall be not less than 7 when installed.

D. The factor of safety of guide and rubbing ropes shall be not less than 5 when installed.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1108. Use of hoisting rope, tail rope, guide or rubbing rope on friction hoist

A. No hoisting rope on a friction hoist shall be used in a shaft or winze of a mine where, in any part of the rope:

1. The existing strength has decreased to less than 90 percent of the original strength of the rope.
2. The extension of a test piece has decreased to less than 60 percent of its original extension when tested to destruction.
3. The number of broken wires in any section of the rope equalling the length of one lay of the rope exceeds six.
4. Marked corrosion occurs.
5. The rate of stretch in a friction hoisting rope begins to show a rapid increase over the normal stretch noted during its service.

B. No tail rope, guide or rubbing rope shall be used in shaft where, in any part of the rope:

1. The existing strength has decreased to less than 75 percent of the original strength of the rope.
2. The extension of a test piece has decreased to less than 60 percent of its original extension when tested to destruction.
3. The number of broken wires in any section of the rope equalling the length of one lay exceeds six.
4. Marked corrosion occurs.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1109. Drum diameter of friction hoist

The drum diameter of every friction hoist shall not be less than 80 times the diameter of the rope in use.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1110. Design of friction hoist drives, controls, and brakes

Friction hoist drives, controls, and brakes shall be so designed and maintained that slippage of the rope on the drum will not occur under normal operating conditions.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1111. Inspection of friction hoist rope treads

Friction rope treads shall be inspected regularly and maintained in good condition.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1112. Installation of tapered guides or other approved installations on friction hoists

Friction hoist installations shall be equipped with tapered guides or other approved devices which shall be installed above and below the limits of regular travel of the conveyance and arranged so as to brake and stop an overwind or overtravel occurring in the event of failure of the device.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1113. Emergency stopping device for friction hoists

A device shall be provided which will initiate emergency stopping to bring the drum to rest in the event of occurrence of slip between the hoisting rope or ropes and the hoist drum, such as might occur with a conveyance or counterweight jammed in the shaft or caught at the end of the travel.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1114. Emergency stopping device provided for friction hoists when tail rope is used

A device shall be provided which will initiate emergency stopping action in the event of abnormal movement of the tail rope loop when a tail rope is used.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1115. Means provided to adjust depth indicator on friction hoist

Means shall be provided on a friction hoist to adjust the depth indicator and protective device on the hoist to the position of the conveyance in the shaft.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1116. Level of water and spillage in shaft sump when friction hoist used

Water and spillage in a shaft sump in mine shall be kept at such a level at all times that:

1. Tail ropes have clear passage.
2. Guide and rubbing rope connections and tension devices are clear.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1117. Positions of hoisting ropes within clamps, for friction hoists, examined
On friction hoist installations, after every six months of service, the positions of the hoisting rope within the clamps shall be changed, if practicable, or that portion of the rope within the clamps shall be thoroughly cleaned and examined.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1118. Manufacturer shall provide certificate giving maximum rated unbalanced load and maximum rated suspended load for friction hoist
Every friction hoist shall be accompanied by a certificate from the manufacturer, or an independent person approved by the Mine Inspector, giving the maximum rated unbalanced load and the maximum rated suspended load of the hoist, and the hoist shall not be located beyond the maximum loads so specified.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1119. Alterations of friction hoist capacity prohibited
No alterations designed to increase the hoisting capacity shall be made to a friction hoist unless approval is given by its manufacturers or an independent person approved by the Mine Inspector.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1120. Determination of maximum material load allowed on conveyance of friction hoist
The maximum material allowed on the conveyance of a friction hoist shall be determined from the lesser of the following calculations:

1. Maximum allowable suspended load on the hoist, less the weight of the hoisting ropes, less the weight of tail ropes, less the weight of the conveyances and attachments.
2. The breaking strength of the rope, divided by the required factor of safety, minus the maximum weight of rope suspended in one compartment, minus the weight of the conveyance and attachments in that compartment; and where multiple ropes are used, the lowest breaking strength at any rope shall be used for all ropes in load calculations.
3. The unbalanced load on the hoist as rated by the manufacturer, which shall not be exceeded.
4. The maximum allowable load on any conveyance, which shall not be greater than that for which the conveyance was rated by the manufacturer.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1121. Inspection of shafts used for hoisting or lowering men
All compartments of shafts used for hoisting or lowering men shall be inspected at least once every two weeks and a record of such inspection shall be kept.

Historical Note
Former Rule 11:21.

R11-1-1122. Protection from falling ground
In shaft sinking, adequate protection from falling ground must be provided. The timber, steel, roof bolts, concrete or any device used for restraining ground must be kept a reasonable distance from the bottom of the shaft.

Historical Note
Former Rule 11:22.

R11-1-1123. Repealed

Historical Note
Former Rule 11:23; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-1124. Platform suspended by wire ropes in shaft sinking
In shaft sinking where a platform is suspended by wire ropes, such ropes shall have an approved rate for the suspended load.

Historical Note
Former Rule 11:24.

R11-1-1125. Rope guides
Where rope guides are used in shafts, they shall be of locked coil construction.

Historical Note
Former Rule 11:25.

R11-1-1126. Substantial platforms required for shaft inspection and repair work
Shaft inspection and repair work in vertical shafts shall be performed from substantial platforms equipped with bonnets or equivalent over-head protection.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1127. Use of crane in shaft sinking operations
In shaft sinking operations where a crane is used, the allowable depth shall be 125 feet from shaft collar.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1128. Reserved
R11-1-1129. Reserved
R11-1-1130. Reserved
R11-1-1131. Mine hoist drives
All mine hoists shall consist of one of the following drives:

1. V-belt driven and not less than four V-belts with a designed safety factor of 10.
2. Gear driven. Fiber gears shall not be used.
3. Friction driven.
4. Direct drive.

There shall be no chain-driven hoists used for underground operations. All hoists other than automatic hoists must have hand-operated brakes and the brakes must be on the drum.

Historical Note
Former Rule 11:31; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-1132. Rated capacities of hoists
Hoists shall have rated capacities consistent with the loads handled and the recommended safety factor of the ropes used.

Historical Note
Former Rule 11:32.

R11-1-1133. Automatic hoists
Automatic hoists shall be provided with devices that automatically apply the brakes in the event of power failure.

Historical Note
Former Rule 11:33.

R11-1-1134. Flanges on drums
Flanges on drums should extend radially a minimum of 3 rope diameters beyond the last wrap.

Historical Note
Former Rule 11:34.

R11-1-1135. Maximum fleet angle
The maximum fleet angle shall not exceed one and one-half degrees for smooth drums and two degrees for grooved drums.

Historical Note
Former Rule 11:35.

R11-1-1136. Brakes on man hoists
Any hoist used to hoist men shall be equipped with a brake or brakes fully capable of holding a fully loaded cage, skip or bucket at any point in the shaft.

Historical Note
Former Rule 11:36.

R11-1-1137. Lock mechanism on hoists to prevent accidental clutch withdrawal
The operating mechanism of the clutch of every man hoist's drum shall be provided with a lock mechanism, or be interlocked electrically or mechanically with the brake to prevent accidental withdrawal of the clutch.

Historical Note
Former Rule 11:37.

R11-1-1138. Devices for man hoists to prevent overtravel
Man hoists shall be provided with devices to prevent overtravel and overspeed and shall be anchored securely.

Historical Note
Former Rule 11:38.

R11-1-1139. Indicator of cage, skip bucket or cars
An accurate and reliable indicator of the position of the cage, skip bucket or cars in the shaft shall be provided.

Historical Note
Former Rule 11:39.

R11-1-1140. Placement of hoist controls
Hoist controls shall be placed or housed so that the noise from machinery or other sources will not prevent hoistmen from hearing signals.

Historical Note
Former Rule 11:40.

R11-1-1141. Physical examination for hoisting engineers and trainees
The hoisting engineers and hoistmen trainees, at the beginning of employment, and annually thereafter, shall be given a physical examination by a competent physician to determine their physical ability to safely operate such hoists. A certificate or letter, attesting to the currency of such examinations, shall be posted in the hoist house for examination by the State Mine Inspector.

Historical Note
Former Rule 11:41; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-1142. Hoisting engineer's duties while hoist in motion
Only authorized persons shall be in hoist rooms. The hoisting engineer shall hold no conversation with anyone while the hoist is in motion or while attending to signals.

Historical Note
Former Rule 11:42; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-1143. Due caution while hoist in motion
The hoisting engineer shall familiarize himself with all signals and use due caution at all times especially when men are being hoisted or lowered.

Historical Note
Former Rule 11:43.

R11-1-1144. Hoisting engineer report all defects
The hoisting engineer shall report all defects in the shaft, hoist or bell cord to his supervisor as soon as possible.

Historical Note
Former Rule 11:44.

R11-1-1145. Hoisting engineer must understand signal
The hoisting engineer shall not move the cage, skip or bucket until a signal is received and he completely understands the signal.

Historical Note
Former Rule 11:45.

R11-1-1146. If hoist down for eight hours
If for any reason the hoist has been down for eight hours or more, the engineer shall run his cage through the shaft before hoisting or lowering men.

Historical Note
Former Rule 11:46.

R11-1-1147. Hoisting engineer qualifications
The hoisting engineer must be able to read, write and speak the English language.

Historical Note
Former Rule 11:47.

R11-1-1148. Experienced hoistmen shall operate hoist
Only experienced hoistmen shall operate the hoist except in cases of emergency and in the training of new hoistmen.

Historical Note
Former Rule 11:48.

R11-1-1149. Hoisting engineer shall familiarize himself with all signals
The hoisting engineer shall familiarize himself with all signals and use due caution at all times, especially when men are being hoisted or lowered.

Historical Note
Former Rule 11:49.

R11-1-1150. Notification to hoisting engineer when men are working in compartment
Hoistmen shall be informed when men are working in a compartment affected by the hoisting operation and a "Men Working in Shaft" sign shall be posted at the hoist, at the shaft collar and at all devices controlling hoisting operations that may endanger such men.

Historical Note
Former Rule 11:50.

R11-1-1151. Renumbered

Historical Note
Former Rule 11:51; Former Section R11-1-1151 renumbered and amended as Section R11-1-148 effective August 18, 1980 (Supp. 80-4).

R11-1-1152. Hoist ropes inspected
Hoist ropes must be inspected regularly and a record of these inspections kept.

Historical Note
Former Rule 11:52.

R11-1-1153. Discarding of wire cable or rope used for hoisting
All wire cable or rope which is used for hoisting or lowering employees or other persons shall be discarded for such use when:

1. There are six broken wires in pitch length of cable or rope.
2. The wires on the crown are worn 65% or more of their original diameter.
3. More than three wires which have been reduced by wear more than 30% in cross section are broken in one strand of the cable or rope lay.
4. Marked corrosion appears.
5. The minimum safety factor falls below approved specifications.

Historical Note
Former Rule 11:53.

R11-1-1154. Splicing wire cable or hoisting rope
It is strictly forbidden to splice any wire cable or rope which is used in hoisting or lowering employees.

Historical Note
Former Rule 11:54.

R11-1-1155. Static-load safety factors for selecting ropes for hoisting men
The following static-load safety factors shall be used for selecting ropes to be used for hoisting men and for determining when such ropes shall be removed from man hoists:

Length of rope in shaft feet	Minimum factor of safety (new rope)	Minimum factor of safety (remove)
500 or less	8	6.4
501 - 1,000	7	5.8
1,001 - 2,000	6	5.0
2,001 - 3,000	5	4.3
3,001 - or more	4	3.6

Historical Note
Former Rule 11:55.

R11-1-1156. Attaching the rope to the load
The rope shall be attached to the load by the thimble-and-clip method, the socketing method, or other approved method. If the socketing method is employed, zinc or its equivalent shall be used. The use of Babbit metal or lead for socketing wire ropes is prohibited. If the thimble-and-clip method is used, the following shall be observed:

1. The rope shall be attached to the load by passing one end around an oval thimble that is attached to the load bending the end back so that it is parallel to the long or "live" end of the rope and fastening the two parts of the rope together with clips.
2. The U-bolt of each clip shall encircle the short or "dead" end of the rope and the distance between clips shall not be less than the figures given in the accompanying table.
3. As a minimum the following number of clips or equivalent shall be used for various diameters of six-strand 19-wire plow steel ropes (follow manufacturer's recommendations for other kinds of wire rope and clips):

Diameter of rope inches	Number of clips	Center-to-center spacing of clips, inches
3/4	4	4 1/2
7/8	4	5 1/4
1	4	6
1 1/8	5	6 3/4
1 1/4	5	7 1/2
1 3/8	6	8 1/4
1 1/2	6	9
1 5/8	6	9 3/4
1 3/4	7	10 1/2
1 7/8	8	11 1/4
2	8	12
2 1/8	8	13
2 1/4	8	14

4. For all ropes less than three-quarter inch in diameter, at least four clips or equivalent shall be used.
5. When special conditions require the attachment of a sling to the hoisting cable to handle equipment in the shaft, the sling shall be attached by clips or equivalent in accordance with the table in paragraph (3) of this standard.

Historical Note
Former Rule 11:56.

R11-1-1157. Inspection of materials
Hoist and rigging materials, cables, slings and hooks shall be inspected for defects as often as is necessary to insure adequate safety for the operation and personnel involved.

Historical Note
Former Rule 11:57.

R11-1-1158. Use of emergency chains
Emergency chains shall be used from the cable to the cage in case of a breakage in the king bolt or clevis pin; and also between the upper and lower decks in case of a breakage of the connecting pins for these decks.

Historical Note
Former Rule 11:58.

R11-1-1159. Signal by the cager
The cager shall, when men are being hoisted and lowered, see that the gates are closed before giving the signal to move the cage and shall be responsible for their closing.

Historical Note
Former Rule 11:59.

R11-1-1160. Cagers shall report all defects
The cagers shall keep a careful watch over the cage during their shift's work and immediately report all defects for repair.

Historical Note
Former Rule 11:60.

R11-1-1161. Getting on cages
Employees shall not crowd or rush while getting on cages.

Historical Note
Former Rule 11:61.

R11-1-1162. After signal given to move cage
No person shall attempt to enter or leave the cage after a signal to move the cage has been given.

Historical Note
Former Rule 11:62.

R11-1-1163. Signal to move cage
To release the cage, the signal shall be given while standing upon the station and not upon the cage.

Historical Note
Former Rule 11:63.

R11-1-1164. Use of metal bonnet
Man cages and skips used for hoisting or lowering employees or other persons in any vertical shaft or any inclined shaft with an angle or inclination of 45% from the horizontal shall be covered with a metal bonnet.

Historical Note
Former Rule 11:64.

R11-1-1165. Providing means for blocking cars when hoisted
Where mine cars are hoisted by cage or skip, means for blocking cars shall be provided at all landings and also on the cage.

Historical Note
Former Rule 11:65.

R11-1-1166. Reporting materials or tools dropped in shaft
If an employee drops any materials or tool down the shaft, he shall immediately report the same to the hoisting engineer, who will have the shaft inspected before continuing regular work.

Historical Note
Former Rule 11:66.

R11-1-1167. Hoisting materials or tools
When hoisting or lowering tools, timber or other material in the shaft, the ends, if projecting above the top of the cage of the bucket, shall be securely lashed to the cable or to the upper part of the cage; and tools, timbers or other materials loaded erectly upon a cage shall be securely lashed before being hoisted or lowered.

Historical Note
Former Rule 11:67.

R11-1-1168. Testing of safety devices
A. The safety dogs on any conveyance used to lower or hoist men must be tested at least once every 24 hours during regular operation. If the mine is shut down for more than eight hours, the safety dogs must be tested before lowering men. A record of such inspection shall be kept and signed by the person making the test.
B. Hoistmen shall examine their hoists and shall test overtravel, position indicators, and braking mechanisms at the beginning of each shift. A record of such inspection shall be kept in the hoisthouse and must be signed by the person making the test.

Historical Note
Former Rule 11:68; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-1169. Smoking on conveyance used to lower or hoist men, ore or equipment
No person shall smoke on any conveyance used to lower or hoist men, ore or equipment.

Historical Note
Former Rule 11:69.

R11-1-1170. No open hooks used to hoist
No open hooks shall be used to hoist equipment or materials in any shaft.

Historical Note
Former Rule 11:70.

R11-1-1171. Use of buckets to hoist men
Buckets shall not be used to hoist men except during the shaft sinking operations, inspection, maintenance and repair.

Historical Note
Former Rule 11:71.

R11-1-1172. Buckets to hoist men during shaft sinking
Buckets used to hoist men during vertical shaft sinking operations shall have:
1. Crossheads equipped with safety devices and protective bonnets when the shaft depth exceeds 50 feet.
2. Devices to prevent accidental dumping.
3. Sufficient depth to transport men safely in a standing position.

Historical Note
Former Rule 11:72.

R11-1-1173. Lowering of conveyances
Conveyances shall not be lowered by the brakes alone except in emergencies.

Historical Note
Former Rule 11:73; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-1174. Hoisting materials and men in same shaft
Rocks or supplies shall not be hoisted in the same shaft as men during shift changes unless the compartments and dumping bins are partitioned to prevent spillage into the cage compartment.

Historical Note
Former Rule 11:74.

R11-1-1175. Lowering and hoisting buckets
A. Buckets shall be stopped about 15 feet from the bottom to await a signal from one of the crew on the bottom for further lowering. After the bucket is loaded, it shall be raised about 3 feet from the bottom of the shaft and stabilized before the second signal is given.
B. After hoisting signal is given, hoisting to the crosshead shall be at a slow or minimum speed. The signaling device shall be attended constantly until a bucket reaches the guides. When persons are hoisted, the signaling devices shall be attended until the crosshead has been reached.

Historical Note
Former Rule 11:75; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-1176. Approved methods of signaling
There shall be at least two effective approved methods of signaling between each of the shaft stations and hoist room, one of which shall be a telephone or speaking tube.

Historical Note
Former Rule 11:76.

R11-1-1177. Gates for shaft landings
Shaft landing shall be equipped with substantial safety gates, so constructed that materials will not go through or under them. Gates shall be closed except when loading or unloading shaft conveyances.

Historical Note
Former Rule 11:77.

R11-1-1178. Stop blocks
Positive stop blocks or a derail switch shall be installed on all tracks leading to a shaft collar or landing.

Historical Note
Former Rule 11:78.

R11-1-1179. Getting on or off moving cage
No employee shall get on or off a moving cage, bucket or cross-head, nor shall he open cage doors while the cage is moving.

Historical Note
Former Rule 11:79.

R11-1-1180. Method provided to signal hoist operator from cage
A method shall be provided to signal the hoist operator from cages or other conveyances at any point in the shaft.

Historical Note
Former Rule 11:80.

R11-1-1181. Reserved

R11-1-1182. Diesel or fuel-injection engine used to power hoist
Where any diesel or similar fuel-injection engine is used to power a hoist, the engine shall be equipped with a damper or other cutoff in its air intake system. The control handle shall be clearly labeled to indicate that its intended function is for emergency stopping only.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1183. Renumbered

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2). Former Section R11-1-1183 renumbered and amended as Section R11-1-338 effective August 18, 1980 (Supp. 80-4).

R11-1-1184. Cable secured to hoist drum
The end of the rope at the drum shall make at least one full turn on the drum shaft, or a spoke of the drum in the case of a free drum, and shall be fastened securely by means of rope clips or clamps. There shall be three full turns of cable or rope on the hoisting drum when the cable or rope is extended to its maximum working length. This rule does not apply to friction hoists.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-1185. Location of hoisting signal devices during shaft sinking
Hoisting signal devices shall be positioned within easy reach of persons on the shaft bottom or constantly attended by a person stationed on the lower deck of the sinking platform.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-1186. Construction of loading pockets
Dumping facilities and loading pockets shall be constructed so as to minimize spillage into the shaft.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-1187. Reserved

R11-1-1188. Reserved

R11-1-1189. Reserved

R11-1-1190. Elevator inspection

A. Every elevator located at mining operations shall be installed and maintained under the provisions of the "American National Standard Safety Code for Elevators, Dumbwaiters, Escalators and Moving Walks".

B. Every elevator shall have an identification number for record-keeping purposes. Such number shall be on a tag so located as to be available for inspection.

C. Every elevator shall be inspected at time of installation and then at least once each year.

D. A Certificate of Inspection shall be issued at such time elevator has been inspected and approved and shall be posted in a place determined by the Inspector.

E. The Inspector shall be notified prior to any installation, relocation or alteration of any elevator under his jurisdiction.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

ARTICLE 12. UNDERGROUND OPERATIONS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, 27-344, 27-345, 27-349, 27-350, and 27-366.

R11-1-1201. Grizzlies kept in good repair
Grizzlies shall be kept in good repair.

Historical Note
Former Rule 12:01.

R11-1-1202. Upon entering work area check for hazards
Upon entering a working place employees shall check carefully for hazards such as loose ground and loose timber, bootlegs and missed holes, shall check muck piles for unexploded powder and caps and shall wet down the working area if the ground conditions permit.

Historical Note
Former Rule 12:02.

R11-1-1203. Transformer stations to be enclosed
Transformer stations shall be enclosed to prevent persons from unintentionally or inadvertently contacting energized parts.

Historical Note
Former Rule 12:03.

R11-1-1204. Use of grizzlies
Grizzlies shall be used, or adequate guards provided, where muck is dumped or slushed into a raise.

Historical Note
Former Rule 12:04.

R11-1-1205. Carrying material on shoulder
No employee shall carry any material on his shoulder while walking under trolley wires.

Historical Note
Former Rule 12:05.

R11-1-1206. Ventilation procedures in case of mine fire
In the event of a mine fire, no employee shall attempt any change in ventilation procedures unless so authorized.

Historical Note
Former Rule 12:06.

R11-1-1207. Roof bolting in unstable ground
Employees engaged in roof bolting in unstable ground shall use stulls and headboards to protect themselves until such time as the bolts are installed and properly tightened.

Historical Note
Former Rule 12:07.

R11-1-1208. Winze or raise in direct line with haulage drift
No winze or raise shall be in a direct line with a haulage drift unless such a location is essential to the usage to which the winze or raise is to be put. In such exceptions, guards and protective covering must be provided so that hazards of personnel are no greater than would exist if the winze or raise was not in a direct line with haulage drift.

Historical Note
Former Rule 12:08.

R11-1-1209. Access to unattended underground mine openings
Access to unattended underground mine openings shall be restricted by gates or doors and the openings shall be fenced and posted.

Historical Note
Former Rule 12:09.

R11-1-1210. Loading and drilling at same time
Loading and drilling at the same time in the same working place is prohibited.

Historical Note
Former Rule 12:10.

R11-1-1211. Chute tapping
A bar used in chute tapping must be blunt on one end.

Historical Note
Former Rule 12:11; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-1212. Repealed

Historical Note
Former Rule 12:12; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-1213. Taking "short cuts"
All workmen shall be forbidden to take "short cuts" across or through dangerous places and shall travel the regular passageway provided for such purpose.

Historical Note
Former Rule 12:13.

R11-1-1214. Throwing tools or material down a manway
No workman shall throw tools or material down a manway or raises unless there is a person at the bottom instructed to warn other employees.

Historical Note
Former Rule 12:14.

R11-1-1215. Scaling or barring-down
Where manual scaling may be required at a work place, a scaling bar of sufficient length to place the user out of danger of falling material shall be provided. The scaling bar shall be blunt on the end held by the user. Picks or other short tools shall not be used for scaling when their use places the user in danger of falling material.

Historical Note
Former Rule 12:15; Former Section R11-1-1215 repealed, new Section R11-1-1215 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-1216. Removing bits from drill steel
Only a tool constructed for this purpose shall be used to remove bits from drill steel.

Historical Note
Former Rule 12:16.

R11-1-1217. Dangerous places fenced
All dangerous places shall be properly fenced off and proper danger signals shall be so hung on such fencings that they may be plainly seen.

Historical Note
Former Rule 12:17.

R11-1-1218. Collars of open draw holes kept free
Collars of open draw holes shall be kept free of muck and material.

Historical Note
Former Rule 12:18.

R11-1-1219. Removing men to safe places before blasting
In areas where dangerous accumulations of water, gas, mud, or fire atmosphere could be encountered, men shall be removed to safe places before blasting.

Historical Note
Former Rule 12:19.

R11-1-1220. Renumbered

Historical Note
Former Rule 12:20; Former Section R11-1-1220 renumbered as Section R11-1-149 effective August 18, 1980 (Supp. 80-4).

R11-1-1221. Repealed

Historical Note
Former Rule 12:21; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-1222. Headlight, reflector or tail light on trains
The headlight on the front end of the motor shall be kept lighted at all times when the motor is in use. A reflector or tail light must be on the last car of the train.

Historical Note
Former Rule 12:22.

R11-1-1223. Workmen shall never walk alongside any moving train
Workmen shall never walk alongside any train or motor while same is in motion; workmen stationing themselves alongside a drift when a train is passing should do so in such a manner that they are protected in case of derailments.

Historical Note
Former Rule 12:23.

R11-1-1224. Train speed when passing men in drifts
Train speed shall be reduced when train is passing men in drifts.

Historical Note
Former Rule 12:24.

R11-1-1225. Repealed

Historical Note
Former Rule 12:25; Repealed effective August 18, 1980 (Supp. 80-4).

R11-1-1226. Impaired overhead clearance
Where impaired overhead clearance exists, no person may ride or be placed on top of a motor.

Historical Note
Former Rule 12:26.

R11-1-1227. Train shall be pulled
Trains shall be pulled when practical rather than pushed.

Historical Note
Former Rule 12:27.

R11-1-1228. Plugging of the trolley locomotives or battery motors
Plugging of the trolley locomotives or battery motors not designed for this method of operation shall be permissible IN CASE OF EMERGENCY ONLY.

Historical Note
Former Rule 12:28.

R11-1-1229. While car is in motion
No one shall sit or stand on the car edge while it is in motion.

Historical Note
Former Rule 12:29.

R11-1-1230. No one shall climb over cars while moving
No one shall climb over cars without first making sure the train isn't going to move. No one shall climb over trains where there is a live trolley wire.

Historical Note
Former Rule 12:30.

R11-1-1231. Pulling plugs on Mancha battery motors
Plugs must be pulled on Mancha battery motors when operator leaves cab.

Historical Note
Former Rule 12:31.

R11-1-1232. Men working in haulage drifts
Men working in haulage drifts must keep the drifts clear of obstruction.

Historical Note
Former Rule 12:32.

R11-1-1233. Operating a motor while out of the cab
No one shall attempt to operate a motor while out of the cab.

Historical Note
Former Rule 12:33.

R11-1-1234. Men pulling chutes in safe location
Chute loading installations shall be designed so that men pulling chutes are not required to assume hazardous positions while loading cars.

Historical Note
Former Rule 12:34.

R11-1-1235. A motor man shall receive a signal from his swamper or loader before moving train
When coupling, uncoupling, re-railing cars, backing into a drift where men are working, or when spotting cars under chutes, a motor man shall not move his train or motor without first receiving a signal from his swamper or loader.

Historical Note
Former Rule 12:35.

R11-1-1236. Cars shall not be coupled or uncoupled by hand
Cars shall not be coupled or uncoupled by hand where there is not ample room for a person to stand between sides of cars and side of drift. Cars shall not be coupled or uncoupled by hand while a train is in motion.

Historical Note
Former Rule 12:36.

R11-1-1237. Transportation of tools, materials and equipment on top of motors and locomotives
Tools, materials and equipment, except properly secured rerailing devices, shall not be carried on top of locomotives or motors unless permanently installed boxes have been provided for that purpose.

Historical Note
Former Rule 12:37; Former Section R11-1-1237 repealed, new Section R11-1-1237 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-1238. Speed of mantrips
Mantrips shall be operated at speeds consistent with the condition of tracks and equipment used.

Historical Note
Former Rule 12:38.

ARTICLE 13. OPEN PITS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305, 27-421, 27-422, 27-424, and 27-425.

R11-1-1301. Warning devices on mobile equipment
Mobile equipment assigned to a working place shall be provided with:

1. Suitable warning devices visible at all times to the operator of the highest mobile equipment.
2. When the operator of heavy duty mobile equipment has an obstructed view to the rear, the equipment shall have either an automatic reverse signal alarm which is audible above the surrounding noise level, or an observer to signal when it is safe to back up.

Historical Note
Former Rule 13:01; Amended effective April 7, 1976 (Supp. 76-2). Former Section R11-1-1301 repealed, new Section R11-1-1301 adopted effective August 18, 1980 (Supp. 80-4).

R11-1-1302. Dumping over edge not permitted
Dumping over the edge of an undercut stockpile or undercut dumps shall not be permitted.

Historical Note
Former Rule 13:02.

R11-1-1303. Berms or guards shall be provided
Berms or guards shall be provided on the outer banks of elevated roadways. A higher berm must be built from beginning of curve to end of curve, where applicable.

Historical Note
Former Rule 13:03; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-1304. Men shall not work between equipment and pit wall
Men shall not work between equipment and the pit wall or bank where the equipment may hinder escape from falls or slide of the bank.

Historical Note
Former Rule 13:04.

R11-1-1305. Drill holes covered and guarded
Drill holes large enough to constitute a hazard shall be covered and guarded.

Historical Note
Former Rule 13:05.

R11-1-1306. Drilling near loaded blast holes
No drilling shall be done within 50 feet of loaded blast holes.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1307. Emergency signaling device on drill rigs
An emergency signaling device shall be available on rotary drill rigs.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1308. Repair of heavy truck tires (1300 x 24 in. size and over)

A. All persons who work with tires and rims must fully understand the primary hazards of "Blow-Out" and "Blow-Off".
B. Tire roll-in cages to restrain possible blow-outs and blow-offs while inflating tires shall not be used on tires over 1300 x 24 in. size.
C. When tire mounting, lock rings, flanges, and ring cutter shall be cleaned with a wire brush or buffer and inspected for the following defects: Distorted rims, distorted and twisted rings, rim or ring bent out of round, bent rims or ring bead, hair cracks in wheel at ring gutter area.
D. Deflate tires to 20 PSI before loosening wheel nuts.
E. Lock ring must be properly seated before tire is inflated to 20 PSI.
F. The air control valve shall be located some distance from the tire.
G. All personnel shall stand away from restraining device during inflation.
H. Tires, rims, and lock rings shall visually be inspected daily while in service. Any suspected part should be checked by magnetic-particle or dry-check methods.
I. A tire that has run flat shall never be inflated until it has been unmounted first.
J. Tire pressure shall be released by removing the valve core before making adjustments to ring and flange.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1309. Loose material stripped from top of pit walls
Loose, unconsolidated material shall be stripped for a safe distance, but in no case less than 10 feet, from the top of pit or quarry walls.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

R11-1-1310. Moving a drill
When a drill is being moved from one drilling area to another, drill steel, tools and other equipment shall be secured and the mast placed in a safe position.

Historical Note
Former Section R11-1-542 renumbered as Section R11-1-1310 effective August 18, 1980 (Supp. 80-4).

R11-1-1311. Drill controls during a power failure
In the event of power failure, drill controls shall be placed in the neutral position until power is restored.

Historical Note
Former Section R11-1-543 renumbered and amended as Section R11-1-1311 effective August 18, 1980 (Supp. 80-4).

R11-1-1312. Straightening a crossed cable on a reel
The drill stem shall be resting on the bottom of the hole or on the platform with the stem secured to the mast before attempts are made to straighten a crossed cable on a reel.

Historical Note
Former Section R11-1-544 renumbered as Section R11-1-1312 effective August 18, 1980 (Supp. 80-4).

R11-1-1313. Drills in operation
While in operation, drills shall be attended at all times.

Historical Note
Former Section R11-1-545 renumbered as Section R11-1-1313 effective August 18, 1980 (Supp. 80-4).

R11-1-1314. Holding drill steel while collaring hole
Persons other than the operator shall not hold the drill steel while collaring holes or rest their hands on the chunk or centralizer while drilling.

Historical Note
Former Section R11-1-546 renumbered and amended as Section R11-1-1314 effective August 18, 1980 (Supp. 80-4).

R11-1-1315. Drill bit in operation
Persons shall not be on a mast while the drill-bit is in operation. Drill crews and others shall stay clear of augers or drill stems that are in motion. A person shall not pass under or step over a moving stem or auger.

Historical Note
Former Section R11-1-541 renumbered and amended as Section R11-1-1315 effective August 18, 1980 (Supp. 80-4).

ARTICLE 14. SAND AND GRAVEL OPERATIONS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304, 27-305 and 27-441.

R11-1-1401. Sand and gravel operations subject to statutes and rules
All sand and gravel operations shall be subject to all statutes and rules generally applicable to operations subject to the jurisdiction of the Mine Inspector, together with all statutes and rules applicable to open pit.

Historical Note
Former Rule 14:01.

R11-1-1402. Repealed

Historical Note
Former Rule 14:02 repealed effective August 18, 1980 (Supp. 80-4).

R11-1-1403. Repealed

Historical Note
Former Rule 14:03 repealed effective August 18, 1980 (Supp. 80-4).

R11-1-1404. Repealed

Historical Note
Former Rule 14:04 repealed effective August 18, 1980 (Supp. 80-4).

R11-1-1405. Repealed

Historical Note
Former Rule 14:05 repealed effective August 18, 1980 (Supp. 80-4).

R11-1-1406. Repealed

Historical Note
Former Rule 14:06 repealed effective August 18, 1980 (Supp. 80-4).

R11-1-1407. Repealed

Historical Note
Former Rule 14:07 repealed effective August 18, 1980 (Supp. 80-4).

R11-1-1408. Repealed

Historical Note
Former Rule 14:08 repealed effective August 18, 1980 (Supp. 80-4).

R11-1-1409. Repealed

Historical Note
Former Rule 14:09 repealed effective August 18, 1980 (Supp. 80-4).

ARTICLE 15. ACID PLANTS AND LEACHING

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304 and 27-305.

R11-1-1501. Instruction on use of personal protective equipment to employees
All employees who work with sulphuric acid or other strong chemicals shall be taught the correct use of personal protective equipment available and be required to wear this equipment when handling sulphuric acid or other strong chemicals.

Historical Note
Former Rule 15:01.

R11-1-1502. Storage and distribution of acid
Acid shall be stored in properly vented steel tanks, drums or other approved containers. All distribution lines shall be of recommended size and approved material. (See REFERENCES at end of Article.)

Historical Note
Former Rule 15:02.

R11-1-1503. Persons working on or with acid storage or distribution shall wear approved eye and body protectors
Approved eye protection, such as chemical safety goggles (dust tight), shall be worn by employees working on or with acid storage or distribution and shall be required for normal repair work. For a very hazardous job, additional approved type protection shall be provided such as full length face shield, boots, gloves and up to complete protective suits and hoods for maximum exposure.

Historical Note
Former Rule 15:03.

R11-1-1504. Open lights, flames, etc., forbidden near acid storage
Open lights, flames and spark-producing tools and equipment are forbidden in the vicinity of acid storage vessels and distribution lines where their use might cause an explosion.

Historical Note
Former Rule 15:04.

R11-1-1505. Welding, burning or cutting restrictions on acid storage tanks, etc.
All acid storage tanks, drying towers, absorption towers, and lines shall be vented, cleaned, purged and tested for explosive mixture before welding, burning or cutting on them is permitted.

Historical Note
Former Rule 15:05.

R11-1-1506. Acid spillage shall be removed immediately
Acid spillage shall be removed immediately by flushing the contaminated area with water or by neutralizing the chemical with soda ash, limestone, quicklime or some other absorbent material.

Historical Note
Former Rule 15:06.

R11-1-1507. Authorized personnel
Only authorized personnel will be permitted to operate any equipment in an acid plant.

Historical Note
Former Rule 15:07.

R11-1-1508. Personal protective clothing cleaned up after each use
Personal protective clothing (except disposable clothing which must be discarded), tools and equipment must be thoroughly cleaned up and cared for after each use.

Historical Note
Former Rule 15:08.

R11-1-1509. Before work started on acid storage tanks, inspection procedure approved
The hazardous nature of inspection, cleaning or repair of large acid storage tanks requires that specific procedures be formulated in advance and approved by the responsible supervisor before work is started.

Historical Note
Former Rule 15:09.

R11-1-1510. Potable water immediately available
Potable water shall be immediately available at the site where acid handling or work on the acid system is being carried on. This will require hauling water where showers and hoses are not conveniently located.

Historical Note
Former Rule 15:10.

R11-1-1511. Safety showers and eye wash fountains; emergency water

A. Readily accessible, well marked, rapid action safety showers and eye wash fountains must be available in the areas where acid is being handled. Showers shall have deluge type heads, easily accessible, plainly marked and controlled by quick opening valves of the type that stay open. They should be capable of supplying large quantities of water. Eye wash fountains shall be immediately available for eye irrigation. This equipment shall be inspected and tested at regular intervals, preferably daily during freezing weather, to make sure it is in good working condition at all times.

B. When safety showers and water hoses are not conveniently located, emergency water shall be immediately available at the site where acid handling or work on acid systems is being carried on.

Historical Note
Former Rule 15:11; Amended effective August 18, 1980 (Supp. 80-4).

R11-1-1512. First-aid procedures must be posted

First aid must be started immediately in all cases of contact with sulphuric acid. First-aid procedures must be posted at each unloading or loading site.

Historical Note
Former Rule 15:12.

R11-1-1513. Flush acid from eyes

Flush acid from eyes by irrigating for at least 15 minutes with a slow stream of water. This is mandatory. There is no alternative.

Historical Note
Former Rule 15:13.

R11-1-1514. Medical aid

Medical attention shall be obtained as soon as possible after first-aid measures have been carried out. Ambulances should contain first-aid kits for the treatment of acid burns.

Historical Note
Former Rule 15:14.

R11-1-1515. Maintenance of plant equipment used in any acid service

The maintenance of plant equipment used in any acid service shall be the responsibility of designated supervisors who shall make periodic inspections of acid facilities.

Historical Note
Former Rule 15:15.

R11-1-1516. Reporting suspected leaks or equipment failure

Each employee is responsible for reporting to his immediate supervisor all suspected leaks or equipment failure.

Historical Note
Former Rule 15:16.

R11-1-1517. Tank trucks, general

DOT Regulations (Section 177.834) require that tank motor vehicles be attended during loading and unloading. If it becomes necessary for the attendants to leave the operation, transfer of the acid must be stopped. There must be a signaling device which is easily activated in case of emergency.

Historical Note
Former Rule 15:17.

R11-1-1518. Fittings and other equipment (See REFERENCES at end of Article)

A. The packing and lubricant for pumps, glands, etc., must be of a material recommended for acid handling.

B. The pump glands, flanged fittings, and valve stems will be provided with splash shields or collared in cases where personnel would be exposed to acid leaks or sprays if acid should escape. The use of colored shields will assist personnel in detecting insipient leaks before they become serious.

C. Where access to the top of the tank truck is needed, the spot will be provided with stairs and platform. Non-combustible construction is preferred. Overhead loading lines will be counterweighted with a pulley and weight system or equivalent.

D. Storage tanks shall be clearly marked with the wording "Sulphuric Acid" or "Hydrochloric Acid", etc. (preferably painted yellow).

E. Approved volume gauges shall be provided for storage tanks.

F. Hose being used to convey acid in loading and unloading will be inspected regularly and replaced or repaired immediately if it becomes worn or a leak appears.

Historical Note
Former Rule 15:18.

R11-1-1519. Unloading

A. Tank trucks will be visually inspected for leaks before they are allowed to enter the plant.

B. Unloading should be performed only during daylight hours. When it is necessary to unload at night, proper and adequate lighting should be provided around the tank truck and the working areas involved in the operation.

C. It is mandatory that the truck pad be arranged so liquid spillage will drain away from the truck and exposed structures. The pad will be of sufficient length to allow the truck and trailer a minimum of 4-foot clearance at each end of 2-foot clearance on each side. Because of the hazard of backing equipment into roadways and the possible need to move a truck quickly from the unloading place, it will be so arranged that the truck can be driven away in a forward direction.

D. Only qualified and properly instructed employees will operate the truck and make the hook-up of the hose from the tank truck to the receiving tank.

E. Before connecting for unloading, the truck engine will be stopped and not started again during the entire unloading operation until it is necessary to operate the pump by power take-off or to use the truck engine to operate compressors as a source of air for air pressure unloading.

F. Truck parking brakes will be set and, where necessary, the wheels blocked.

G. A sign will be placed at all areas where acid is loaded and unloaded, calling attention to the hazard.

H. Whether unloading by pump or air, the piping will, if possible, be arranged so the acid will drain toward the storage tank when the pump is shut down or when the discharge valve is closed.

I. When unloading line must be run across a walkway, suitable warning signs will be provided to denote the hazard.

J. Before starting to vent or connect, a water hose will be connected and ready for emergency use and the emergency shower and eye bath will be tested.

K. Wherever practicable, unloading will be accomplished by pumping. Whether pumping or unloading by air pressure, observe the following procedure:
1. Operate the relief valve to vent the tank.
2. Remove blind flange from air inlet line.
3. Leave this line open during pumping.
4. After making certain there is no air pressure, remove blind flange from standpipe and connect unloading line to standpipe.

L. If transfer is by means of air pressure, connect air line and apply air slowly until there is a normal flow of acid into the storage tank. Between the reducing valve and tank truck there shall be a safety valve set at not to exceed 25 lbs. pressure. If unloading by gravity, the reducing valve will be set at 10 lbs. pressure and at 20 lbs. pressure if not unloading by gravity. When the tank truck is empty, shut off the air and operate the relief valve to vent off the pressure. After pressure has been vented, disconnect the air line. Do not disconnect the acid unloading line until the tank truck is at atmospheric pressure and the tank truck standpipe drained. After disconnecting the acid unloading line, replace blind flanges on standpipe and air line.

M. Safety chains shall be used at all acid hose connections where the hose would whip if it came loose.

Historical Note
Former Rule 15:19.

R11-1-1520. Applying air to a tank truck

The applying of air to a tank truck and then moving the truck to another location for unloading will not be permitted.

Historical Note
Former Rule 15:20.

R11-1-1521. Storage tanks lower than unloading site
Where practical, storage tanks shall be lower than the unloading site.

Historical Note
Former Rule 15:21.

REFERENCES ON H_2SO_4:

"Handling and Storage of Hazardous Materials -- Sulphuric Acid", Accident Prevention Manual for Industrial Operations (4th Edition), Chapter 18, Section 18-15.
"Dangerous Properties -- Storage & Handling of H_2SO_4", Erving Sax Handbook of Dangerous Materials (3rd Edition), Section 7, Page 208.
Dangerous Chemical Code (Fire Department, Los Angeles, California, Parker & Company).
Manufacturing Chemists Association (1625 I Street, N. W., Washington, D. C.), Manual Sheets, No. 1, "Unloading Hazardous Material from Tank Cars", Page 195; No. 2, "T.C.I. Tank Cars, D.O.T. Specification" No. 103-A, "Unloading Cars Filled With H_2SO_4"; No. 3, "SD-20 Sulphuric Acid Revised Sheet".
Manufacturing Chemists Association, "Guide for Safety in Laboratories"; Manual FD-20, Sheets T-7, T-7A, T-8.
National Safety Council, "Storage & Shipping (corrosive materials)", Vol. 1, Data Sheets No. 325.

ARTICLE 16. SMELTERS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304 and 27-305.

R11-1-1601. Walking or standing directly on reverb arch
No one shall walk or stand directly on the reverb arch or any part of the flue system, while in operation, except in an emergency situation. In such event, adequate safeguards and supervision will be provided to assure safety.

Historical Note
Former Rule 16:01; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-1602. Avoid splashing or exploding of molten material
Avoid anything that will cause molten material to splash or explode; keep water away from molten material except where water is required by the process.

Historical Note
Former Rule 16:02.

R11-1-1603. Employees shall be adequately protected
Employees engaged in tapping, charging or skimming operations or any similar procedure shall be adequately protected from the hazards of the work by proper shielding if practical or, in its absence, by adequate individual protective covering. It is the duty of all such persons to use the shields and appliances provided.

Historical Note
Former Rule 16:03; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-1604. Employees shall stand clear of furnace operations
Employees shall stand clear of furnace operations such as skimming, tapping, charging, refining, and casting, unless actually engaged in the work or suitably protected.

Historical Note
Former Rule 16:04.

R11-1-1605. Employees shall not enter area unless authorized
Employees shall not enter any flue, dust chamber, furnace, tank or tunnel unless authorized and properly equipped.

Historical Note
Former Rule 16:05.

R11-1-1606. Transporting material with a crane, audible signal sounded
Separate and distinctive signals shall be sounded when rolling converters and when transporting hot metal.

Historical Note
Former Rule 16:06; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-1607. Dumping slag in a new place
Before dumping slag in a new place, care shall be taken to see that no employee, person or persons will be endangered by the hot slag and that no explosion hazard exists at the dumping place.

Historical Note
Former Rule 16:07.

R11-1-1608. Wet bars
Wet bars shall not be put in molten matte.

Historical Note
Former Rule 16:08.

R11-1-1609. Newly cleaned and mudded matte launders
Extreme caution should be used around newly cleaned and mudded matte launders when matte first starts to flow. Verbal notice shall be given person or persons when tapping newly cleaned launders.

Historical Note
Former Rule 16:09; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-1610. Employees working at the burner end of the reverb furnace
Employees working at the burner end of the reverb furnace should be on the alert for returning converter slag.

Historical Note
Former Rule 16:10.

R11-1-1611. Employees alert of crane movement
Employees should be on the alert and observe direction of crane movement at all times.

Historical Note
Former Rule 16:11.

R11-1-1612. Employees should stay out of the converter aisle
Employees should stay out of the converter aisle while loads are being hauled by the crane, unless their work requires that they be there. Supervisors shall take proper measures to assure the safety of persons required to stay working in converter aisle.

Historical Note
Former Rule 16:12; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-1613. When in converter aisles, avoid slag spouts
When in converter aisles, employees should not stand under or near slag spouts, or in any location where there is danger of dripping metal or falling objects.

Historical Note
Former Rule 16:13.

R11-1-1614. Employees shall not overfill ladles
Employees shall not overfill slag, matte or molten copper ladles. Supervision shall take precautions for the safety of employees in the area for all overfills caused by runways beyond the control of employees.

Historical Note
Former Rule 16:14; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-1615. Authorized persons in crane cab
Only authorized persons shall be allowed in the crane cab.

Historical Note
Former Rule 16:15.

R11-1-1616. Ladles carefully poured
Ladles should be carefully poured to minimize spills. Every ladle or slag pot shall be examined before molten material is placed therein.

Historical Note
Former Rule 16:16; Amended effective April 7, 1976 (Supp. 76-2).

R11-1-1617. Breaking material on skull breaker and trimming bullion bars
Appropriate goggles or face shields shall be provided and used when breaking material on the skull breaker and when trimming bullion bars.

Historical Note
Former Rule 16:17.

R11-1-1618. Coupling and uncoupling cars
Cars should be coupled and uncoupled carefully. Feet shall not be used to align couplings.

Historical Note
Former Rule 16:18.

R11-1-1619. Trains stopped before uncoupling
Trains should be stopped before they are uncoupled. The wheels of slag pot cars left behind should be blocked to prevent runaways.

Historical Note
Former Rule 16:19.

R11-1-1620. During electrical storms, slag trains kept inside
Trolley operated slag trains should be kept in the smelter building during electrical storms and trolley pole removed from trolley wire.

Historical Note
Former Rule 16:20.

R11-1-1621. Access to converter aisle limited
Access to the converter aisle must be limited to people authorized by the company.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1622. Equipment in converter aisle
Equipment shall not enter the converter aisle or slag tap area unless authorization has been secured from the supervisor in charge of the area.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1623. Reserved

R11-1-1624. Hoist cable on cranes
Hoist cable on all cranes shall conform to the American National Standards, ANSI-D-30.9-1971.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1625. Detection equipment, breathing apparatus and portable resuscitating apparatus made available
There shall be maintained in all plants, at designated places, N.I.O.S.H.-approved breathing apparatus, detection equipment and resuscitating equipment, all readily available to trained personnel for use where the atmosphere may contain dangerous concentrations of gases or vapors which may be hazardous to life.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1626. Reserved

R11-1-1627. Shielding and protective clothing shall be provided
Where required, proper shielding and protective clothing shall be used, particularly when working in extreme heat conditions, flue dust, or open fires.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1628. Signalmen shall be assigned when mechanical signals fail
Alternate signaling procedures shall be established to cover mechanical failures where needed.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1629. Cabs pressurized and ventilated
All cabs on hot metal crane shall be pressurized or have suitable ventilating air meeting the requirements of R11-1-404.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1630. Converter cranes equipped with safety glass
All converter cranes shall be equipped with safety glass or equivalent.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1631. Reserved

R11-1-1632. Entry into hot vessels, precautions
When extreme heat conditions exist, sufficient cooling time shall be allowed before persons are allowed to enter converters, roasters, and reactors. Protective clothing shall be used when applicable. A supervisor shall be present when workers are in the vessel and determine when the vessel has cooled sufficient to allow safe access.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1633. When gassy conditions exist
When heavy dust, smoke or greasy conditions exist in any area, only those workers who are properly equipped with personal protective devices will be allowed into the area.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1634. Spout doors

Spout doors must be maintained in an operable condition.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1635. Environmental hazards monitoring

A. Where there is a potential for exposure of workers to specific environmental hazards which may adversely effect safety or health, those hazards shall be periodically monitored by the mine operator. The operator shall promptly initiate appropriate action to correct unfavorable conditions.

B. A record that hazard monitoring was conducted shall be kept by the operator for a period of one year and shall be made available for review by the Inspector.

Historical Note
Adopted effective August 18, 1980 (Supp. 80-4).

ARTICLE 17. AERIAL TRAMWAYS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304 and 27-305.

R11-1-1701. Guard nets or other suitable protection

Guard nets or other suitable protection shall be provided where aerial tramways pass over roadways, walkways or buildings.

Historical Note
Former Rule 17:01.

R11-1-1702. Riding aerial tramways

Persons other than maintenance men shall not ride aerial tramways unless the following features are provided:

1. Two independent brake feet capable of holding the maximum load.
2. Power drives with emergency power available in case of primary power failure.
3. Men shall not ride loaded buckets or aerial tramways.
4. Direct communication between terminals.
5. Buckets equipped with positive locks to prevent accidental tripping or dumping.

Historical Note
Former Rule 17:02.

R11-1-1703. Starting aerial tramways

Where possible, aerial tramways shall not be started until the operator has ascertained that everyone is in the clear.

Historical Note
Former Rule 17:03.

ARTICLE 18. GASSY MINES

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304 and 27-305.

R11-1-1801. Gassy mines operated in accordance with mandatory standards

Gassy mines shall be operated in accordance with all mandatory standards in this part. Such mines shall also be operated in accordance with the mandatory standards in this Section. The standards in this Section apply only to underground operations.

Historical Note
Former Rule 18:01.

R11-1-1802. Classifying mines gassy

A mine shall be deemed gassy and thereafter operated as a gassy mine if:

1. The State Mine Inspector classifies the mine as gassy; or
2. Flammable gas emanating from the orebody or the strata surrounding the orebody has been ignited in the mine; or
3. A concentration of 0.25 percent or more, by air analysis, of flammable gas emanating only from the orebody or the strata surrounding the orebody has been detected not less than 12 inches from the back, face, or ribs in any open working; or
4. The mine is connected to a gassy mine.

Historical Note
Former Rule 18:02.

R11-1-1803. Flammable gases detected

Flammable gases detected while unwatering mines and similar operations shall not be used to class a mine gassy.

Historical Note
Former Rule 18:03.

R11-1-1804. Men shall not smoke or carry smoking materials underground

Men shall not smoke or carry smoking materials, matches or lighters underground. The operator shall institute a reasonable program to ensure that persons entering the mine do not carry smoking materials, matches, or lighters. A "reasonable program" means, at the least, a personal search on an irregular basis by mine officials.

Historical Note
Former Rule 18:04.

R11-1-1805. Use of open flames

Except when necessary for welding or cutting, open flames shall not be used in other than fresh air or in places where flammable gases are present or may enter the air current.

Historical Note
Former Rule 18:05.

R11-1-1806. Welding or cutting underground

Welding or cutting with arc or flame underground in other than fresh air or in places where flammable gases are present or may enter the air current shall be under the direct supervision of a qualified person who shall test for flammable gases before and frequently during such operations.

Historical Note
Former Rule 18:06.

R11-1-1807. Welding or cutting in atmospheres containing more than 1.0 percent of flammable gases

Welding or cutting shall not be performed in atmospheres containing more than 1.0 percent of flammable gases. The concentration of flammable gases is to be determined by a device (approved by the Inspector) other than a permissible flame safety lamp.

Historical Note
Former Rule 18:07.

R11-1-1808. Ventilation, main fans -- installation

Main fans shall be:

1. Installed on the surface.
2. Powered electrically from a circuit independent of the mine power circuit. Internal combustion engines shall be used only for standby power or where electrical power is not available.
3. Installed in fireproof housing provided with fireproof air ducts.
4. Offset not less than 15 feet from the nearest side of the mine opening and equipped with ample means of pressure relief unless:

a. The opening is not in direct line with forces which would come out of the mine should an explosion occur, and
b. Another opening not less than 15 feet nor more than 100 feet from the fan opening is equipped with a weak-wall stopping or explosion doors in direct line with the forces which would come out of the mine should an explosion occur.

5. Installed to permit prompt reversal of airflow.
6. Attended constantly, or provided with automatic devices to give alarm when the fans slow down to stop. Such devices shall be replaced so that they will be seen or heard by responsible persons.

Historical Note
Former Rule 18:08.

R11-1-1809. Ventilation, main fans -- operation
Main fans should be:
1. Operated continuously except when the mine is shut down for an extended period.
2. Provided with pressure-recording gauges.
3. Inspected daily each day during which the fan is operated and records kept of such operations and of fan maintenance.

Historical Note
Former Rule 18:09.

R11-1-1810. Main intake and return air currents
The main intake and return air currents in mines should be in separate shafts, slopes, or drifts.

Historical Note
Former Rule 18:10.

R11-1-1811. Single shafts used for intake and return
When single shafts are used for intake and return the curtain wall or partition shall be constructed of reinforced concrete or equivalent and provided with pressure relief devices.

Historical Note
Former Rule 18:11.

R11-1-1812. When main fan fails or stops
When a main fan fails or stops and ventilation is not restored in a reasonable time, and in no event more than 15 minutes, action shall be taken to cut off the power to the areas affected and to withdraw all men from such areas.

Historical Note
Former Rule 18:12.

R11-1-1813. When there has been a failure of ventilation
When there has been a failure of ventilation and ventilation has been restored in a reasonable time, all active workings and travelways where flammable gas may have accumulated should be examined by qualified persons and determined to be free of flammable gas before power is restored and work resumed.

Historical Note
Former Rule 18:13.

R11-1-1814. When ventilation is not restored in a reasonable time
When ventilation is not restored in a reasonable time, and in no event more than 15 minutes, all men shall be removed from the areas affected and after ventilation has been restored, the areas affected shall be examined by qualified persons for gas and other hazards and made safe before power is restored and before men other than the examiners and other authorized persons return to the areas affected. The word "safe" as used in this rule means that the flammable gas concentration is not more than 1 percent and other hazards are no more hazardous than those experienced in routine normal mining operations.

Historical Note
Former Rule 18:14.

R11-1-1815. When main fan or fans have been shut down
When the main fan or fans have been shut down with all men out of the mine, no person, other than those qualified to examine the mine, or other authorized persons, shall go underground until the fans have been started and the mine examined for gas and other hazards and declared safe.

Historical Note
Former Rule 18:15.

R11-1-1816. Booster fans -- operation
Booster fans shall be:
1. Operated by permissible drive units maintained in permissible condition.
2. Operated only in air containing not more than 1 percent flammable gas.

Historical Note
Former Rule 18:16.

R11-1-1817. Booster fans -- inspection, equipment
Booster fans shall be:
1. Inspected by a qualified person at least once each shift during which the fan has been operated or provided with automatic devices to give alarm when the fan has slowed down or stopped.
2. Equipped with devices that automatically cut off the power in areas affected if the fans slow down or stop, when the fans are not provided with automatic alarm devices.
3. Provided with air locks, the doors of which open automatically if the fan stops operating.

Historical Note
Former Rule 18:17.

R11-1-1818. Auxiliary fans -- operation
Auxiliary fans shall be:
1. Operated by permissible drive units maintained in permissible condition.
2. Operated only in air conditioning not more than 1.0 percent flammable gas.

Historical Note
Former Rule 18:18.

R11-1-1819. Auxiliary fans -- inspection
Auxiliary fans should be:
1. Inspected by competent persons at least twice each shift.

Historical Note
Former Rule 18:19.

R11-1-1820. When auxiliary or booster fans slow down or stop
Men shall be withdrawn from areas affected by auxiliary or booster fans when such fans slow down or stop.

Historical Note
Former Rule 18:20.

R11-1-1821. Volume and velocity of the current of air
The volume and velocity of the current of air coursed through all active areas shall be sufficient to dilute and carry away flammable gases, smoke and fumes.

Historical Note
Former Rule 18:21.

R11-1-1822. Quantity of air
The quantity of air coursed through the last open crosscuts in pairs or sets of entries or through other ventilation openings nearest the face shall be at least 6,000 cubic feet a minute.

Historical Note
Former Rule 18:22.

R11-1-1823. Measuring quantity of air at least once a week
At least once each week, a qualified person shall measure the volume of air entering the main intakes and leaving the main returns, the volume of the intake and return of each split, and the volume through the last open crosscuts or other ventilation openings nearest the active faces. Records of such measurements shall be kept in a book on the surface.

Historical Note
Former Rule 18:23.

R11-1-1824. Permanently installed battery-charging and transformer stations
Permanently installed battery-charging and transformer stations should be ventilated by separate splits of air conducted directly to return air courses.

Historical Note
Former Rule 18:24.

R11-1-1825. Intake air
Electrically operated pumps, compressors, and portable substations should be in intake air.

Historical Note
Former Rule 18:25.

R11-1-1826. Changes in ventilation
Changes in ventilation that materially affect the main air current of any split thereof and may affect the safety of persons in the mine shall be made only when no work is being done in the mine other than that necessary to effect the ventilation change. Only those persons engaged in making such changes shall be permitted in the mine during the change. Power shall be removed from the areas affected by the change before work starts and not restored until the effect of the change has been ascertained and the affected areas determined to be safe by a qualified person.

Historical Note
Former Rule 18:26.

R11-1-1827. Flammable gas in excess of 1.0 percent
If flammable gas in excess of 1.0 percent by volume is detected in the air not less than 12 inches from the back, face, and rib of an underground working place, or in air returning from a working place or places, adjustments shall be made in the ventilation immediately so that the concentration of flammable gas in such air is reduced to 1.0 percent or less.

Historical Note
Former Rule 18:27.

R11-1-1828. Flammable gas in excess of 1.5 percent
If 1.5 percent or higher concentration of flammable gas is detected in air returning from an underground working place or places, the men shall be withdrawn and the power cut off to the portion of the mine endangered by such flammable gas until the concentration of such gas is reduced to 1.0 percent or less.

Historical Note
Former Rule 18:28.

R11-1-1829. Air containing 0.25 percent or more of flammable gas
Air that has passed by an opening of any unsealed abandoned area and contains 0.25 percent or more of flammable gas shall not be used to ventilate working areas. Examinations of such air shall be conducted during the preshift examination required by R11-1-1847.

Historical Note
Former Rule 18:29.

R11-1-1830. Air inaccessible for inspection shall not be used for ventilation
Air that has passed through an abandoned panel or area which is inaccessible for inspection shall not be used to ventilate any active face workings in such mine. No air which has been used to ventilate an area from which the pillars have been removed shall be used to ventilate any active face workings in such mine, except that such air may be used to ventilate enough advancing working places or rooms immediately adjacent to the line of retreat to maintain an orderly sequence of pillars recovery on a set of entries.

Historical Note
Former Rule 18:30.

R11-1-1831. Abandoned areas shall be sealed or ventilated
Abandoned areas shall be sealed or ventilated; areas that are not sealed shall be barricaded and posted against unauthorized entry.

Historical Note
Former Rule 18:31.

R11-1-1832. Seals shall be of substantial construction
Seals shall be of substantial construction. Exposed surfaces shall be made of fire-resistant material such as gunite-covered wood or material, asbestos sheeting, masonry, concrete or reinforced concrete, and steel or covered steel. If a commodity mined is combustible, seals should be made of incombustible material.

Historical Note
Former Rule 18:32.

R11-1-1833. Sampling of atmosphere and measurement of pressure
One or more seals of every sealed area shall be fitted with a pipe and a valve or cap to permit sampling of the atmosphere and measurement of the pressure behind such seals.

Historical Note
Former Rule 18:33.

R11-1-1834. Crosscuts
Crosscuts shall be made at intervals not in excess of 100 feet between entries and between rooms.

Historical Note
Former Rule 18:34.

R11-1-1835. Crosscuts closed
Crosscuts should be closed where necessary to provide adequate face ventilation.

Historical Note
Former Rule 18:35.

R11-1-1836. Line brattice or other suitable devices
Line brattice or other suitable devices shall be installed from the last open crosscut to a point near the face to assure positive air flow to the face of every active underground working place, unless the Inspector or his authorized representative permits an exception to this requirement.

Historical Note
Former Rule 18:36.

R11-1-1837. Brattice cloth
Brattice cloth should be of fire-resistant material.

Historical Note
Former Rule 18:37.

R11-1-1838. Damaged brattices
Damaged brattices shall be repaired promptly.

Historical Note
Former Rule 18:38.

R11-1-1839. Crosscuts provided
Crosscuts should be provided, where practicable, at or near the faces of entries and rooms before they are abandoned.

Historical Note
Former Rule 18:39.

R11-1-1840. Entries or rooms shall not be started off entries
Entries or rooms shall not be started off entries beyond the last open crosscuts, except that room necks and entries not to exceed 18 feet in depth may be turned off entries beyond the last open crosscuts if such room necks or entries are kept free of accumulations of flammable gas by use of line brattice or other adequate means.

Historical Note
Former Rule 18:40.

R11-1-1841. Stoppings in crosscuts between intake and return airways
Stoppings in crosscuts between intake and return airways, on entries other than room entries, should be built of solid, substantial material; exposed surfaces should be made of fire-resistant material such as gunite-covered wood or material, asbestos sheeting, masonry, concrete or reinforced concrete, and steel or covered steel. If the material mined is combustible, stoppings should be made of incombustible material.

Historical Note
Former Rule 18:41.

R11-1-1842. Stoppings airtight
Stoppings should be reasonably airtight.

Historical Note
Former Rule 18:42.

R11-1-1843. Main ventilation
The main ventilation shall be so arranged by means of air locks, overcasts, or undercasts that the passage of trips or persons does not cause interruptions of air currents. Where air locks are impracticable, single doors may be used if they are attended constantly while the areas of the mine affected by the doors are being worked, unless they are operated mechanically or are self-closing.

Historical Note
Former Rule 18:43.

R11-1-1844. Air locks shall be ventilated sufficiently
Air locks shall be ventilated sufficiently to prevent accumulations of flammable gas in concentrations greater than 1 percent inside the locks.

Historical Note
Former Rule 18:44.

R11-1-1845. Doors shall be kept closed
Doors shall be kept closed except when men or equipment are passing through the doorways.

Historical Note
Former Rule 18:45.

R11-1-1846. Overcasts and undercasts
Overcasts and undercasts should be:
1. Constructed tightly of incombustible material.
2. Of sufficient strength to withstand possible falls from the back.
3. Kept clear of obstructions.

Historical Note
Former Rule 18:46.

R11-1-1847. Preshift examinations
Preshift examinations shall be made of all working areas by qualified persons within three hours before any workmen, other than the examiners, enter the mine.

Historical Note
Former Rule 18:47.

R11-1-1848. Qualified examiners
Only qualified examiners and persons authorized to correct the dangerous conditions shall enter places or areas where danger signs are posted.

Historical Note
Former Rule 18:48.

R11-1-1849. Danger signs shall not be removed
Danger signs shall not be removed until the dangerous conditions have been corrected.

Historical Note
Former Rule 18:49.

R11-1-1850. Examinations for dangerous conditions
Examinations for dangerous conditions, including tests for flammable gas with a device approved by the Inspector should be made at least once each week, and at intervals of not more than seven days, by the mine foreman or other designated mine official, except during weeks in which the mine is idle for the entire week. The foreman or other designated mine official should:
1. Examine and make tests:
   a. In the return of each split where it enters the main return,
   b. On accessible pillar falls,
   c. At seals,
   d. In the main return,
   e. In at least one entry of each intake and return airway in its entirety,
   f. In idle workings,
   g. In abandoned workings, insofar as conditions permit.
2. Mark his initials and the date at the place examined.
3. Report dangerous conditions, promptly to the mine operator or other designated person.
4. Record the results of his examination with ink or indelible pencil in a book kept for that purpose at a designated place on the surface of the mine.

Historical Note
Former Rule 18:50.

R11-1-1851. Prompt action to correct dangerous conditions
The mine foreman or other designated mine official should read and countersign promptly the reports of daily and weekly examinations by qualified persons and should take prompt action to have dangerous conditions corrected.

Historical Note
Former Rule 18:51.

R11-1-1852. Diesel-powered equipment
Diesel-powered equipment shall not be taken into or operated in places where flammable gas exceeds 1.0 percent at any point not less than 12 inches from the back, face, and rib.

Historical Note
Former Rule 18:52.

R11-1-1853. Trolley wires and trolley feeder wires
Trolley wires and trolley feeder wires shall be on intake air and shall not extend beyond the last open crosscut or other ventilation opening. Such wires shall be kept at least 150 feet from pillar workings.

Historical Note
Former Rule 18:53.

R11-1-1854. Only permissible equipment maintained
Only permissible equipment maintained in permissible condition shall be used beyond the last open crosscut or in places where dangerous quantities of flammable gases are present or may enter the air current.

Historical Note
Former Rule 18:54.

R11-1-1855. Only permissible distribution boxes shall be used
Only permissible distribution boxes shall be used in working places and other places where dangerous quantities of flammable gas may be present or may enter the air current.

Historical Note
Former Rule 18:55.

R11-1-1856. Electrical equipment
No electric equipment shall be taken into or operated in places where flammable gas can be detected in the amount of 1.0 percent or more at any point not less than 12 inches from the back, face, and rib.

Historical Note
Former Rule 18:56.

R11-1-1857. Illumination
Only permissible electric lamps shall be used for portable illumination underground.

Historical Note
Former Rule 18:57.

R11-1-1858. Explosives not designated permissible by Bureau of Mines
Explosives not designated as permissible by the Bureau of Mines shall not be used in any underground gassy mine until the Bureau of Mines and State Inspector of Mines have given written approval for each such specific explosive to be used.

Historical Note
Former Rule 18:58.

R11-1-1859. Granting approval of unpermissible explosives
The Bureau of Mines and the State Inspector of Mines, in granting approval referred to in R11-1-1858 above, shall provide the operator with a written list of conditions for using the specific explosives covered by the approval and adapted to the mining operation.

Historical Note
Former Rule 18:59.

R11-1-1860. Blasts in gassy mines shall be initiated electrically
Blasts in gassy mines shall be initiated electrically, and multiple-shot blasts shall be initiated only with millisecond-delay detonators. Permissible blasting units of capacity suitable for the number of holes in a round to be blasted shall be used unless the round is fired from the surface when all men are out of the mine.

Historical Note
Former Rule 18:60.

R11-1-1861. Boreholes stemmed
Boreholes shall be stemmed as prescribed for the explosives used.

Historical Note
Former Rule 18:61.

R11-1-1862. Examinations for flammable gas
Examinations for flammable gas shall be made immediately before and after firing each shot or round.

Historical Note
Former Rule 18:62.

R11-1-1863. Shots or rounds shall not be fired
Shots or rounds shall not be fired in places where flammable gas can be detected with a permissible flame safety lamp, or where 1.0 percent or more of flammable gas can be detected by any other Bureau of Mines approved device or method, at a point not less than 12 inches from the back, face, and rib.

Historical Note
Former Rule 18:63.

R11-1-1864. Shots or rounds should be fired by qualified persons
Shots and rounds should be fired by qualified persons.

Historical Note
Former Rule 18:64.

ARTICLE 19. MISCELLANEOUS PROVISION

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes, and A.R.S. §§ 27-304 and 27-305.

R11-1-1901. Failure of a water or silt retaining dam
If failure of a water or silt retaining dam will create a hazard, it shall be of substantial construction and inspected at regular intervals.

Historical Note
Former Rule 19:01.

R11-1-1902. Renumbered

Historical Note
Former Rule 19:02; Former Section R11-1-1902 renumbered as Section R11-1-130 effective August 18, 1980 (Supp. 80-4).

R11-1-1903. Prior notification of inspection
No employee of the State Mine Inspector's office shall advise or notify an operator of a mine, any employee of a mine, or a representative of the employee of a mine, that a health and safety inspection, or industrial hygiene study or survey, of a mine is imminent or about to be made, or the date on which such inspection, survey or study will be made.

Historical Note
Adopted effective April 7, 1976 (Supp. 76-2).

R11-1-1904. Repealed

Historical Note
Adopted effective Dec. 21, 1976 (Supp. 76-5). Repealed effective August 18, 1980 (Supp. 80-4).

ARTICLE 20. STORAGE AND MIXING OF REAGENTS IN CONCENTRATORS

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes and A.R.S. §§ 27-304 and 27-305.

R11-1-2000. Chemicals, general

CHEMICALS IN ANY FORM CAN BE SAFELY STORED, HANDLED OR USED IF THE PHYSICAL, CHEMICAL AND HAZARDOUS PROPERTIES ARE FULLY UNDERSTOOD AND THE NECESSARY PRECAUTIONS, INCLUDING THE USE OF PROPER SAFEGUARDS AND PERSONAL PROTECTIVE EQUIPMENT ARE OBSERVED.

Hazardous chemicals: The following list of chemicals shall be classified as hazardous and rules shall so stipulate. The following list shall not be limited to the belowmentioned chemicals:

Name	Threshold Limit Value
Ammonium Sulphide	1 Mg/M^3 of air
Butyl Alcohol	100 P.P.M.
Calcium Cyanide	
Carbon Disulphide	20 P.P.M.
Chlorine	1 P.P.M.
Cresylic Acid	5 P.P.M.
Hydrogen	
Hydrogen Sulphide	10 P.P.M.
Methyl Isobutyl Carbinol	25 P.P.M.
Peroxide (+45% Strength)	1 P.P.M.
Phosphorous Pentasulfide	1 Mg/M^3 of air
Sodium Cyanide	5 Mg/M^3 of air
Sodium Hydrosulfide	None, Liberates H_2S
Sodium Hydroxide	2 Mg/M^3 of air
Sodium Metabisulphite	
Sulphur Dioxide	5 P.P.M.
Sulphuric Acid	1 Mg/M^3 of air

R11-1-2001. Good housekeeping

Good housekeeping is a must in reagent storage, mixing and use.

Historical Note
Former Rule 20:01.

R11-1-2002. Personal protective equipment

Personal protective equipment shall be available for use in hazardous reagent mixing area.

Historical Note
Former Rule 20:02.

R11-1-2003. Safety showers and eye wash fountains

Safety showers and eye wash fountains shall be located in those areas where exposure to reagents could create a hazard to personnel.

Historical Note
Former Rule 20:03.

R11-1-2004. Adequate fire protection

Adequate fire protection shall be provided for storage and mixing areas.

Historical Note
Former Rule 20:04.

R11-1-2005. Self-contained breathing equipment in mills where hazardous reagents are present

Mills where hazardous reagents are present shall have self-contained breathing equipment available. Men on each shift shall be trained in the use of this equipment.

Historical Note
Former Rule 20:05.

R11-1-2006. Distinctive warning device

A distinctive warning device will be installed in all areas of mills where the production of toxic or noxious fumes or gases is possible. Such a device is to alert personnel of the need to evacuate the building.

Historical Note
Former Rule 20:06.

R11-1-2007. Error or omission in these rules and regulations

No error or omission in these rules and regulations shall be construed as permitting an unsafe, unhealthy or unsanitary condition to exist.

Historical Note
Former Rule 20:07.

R11-1-2008. Reserved
R11-1-2009. Reserved
R11-1-2010. Reserved
R11-1-2011. Reserved
R11-1-2012. Reserved
R11-1-2013. Reserved
R11-1-2014. Reserved

R11-1-2015. Tanks labeled

All tanks must be labeled as to contents.

Historical Note
Former Rule 20:15.

R11-1-2016. Tanks provided with means of measuring

All tanks shall be provided with a safe means of measuring content level.

Historical Note
Former Rule 20:16.

R11-1-2017. Tanks labeled as to contents

All reagent containers must be labeled as to contents and stored in designated areas.

Historical Note
Former Rule 20:17.

R11-1-2018. Liquid storage tanks, suitable means of disposal

All liquid storage tanks shall be supplied with suitable means of containment or disposal to provide safe disposal of contents in event of tank failure. Liquid storage tanks must also be equipped with overfill piping to contain overflow to a suitable and safe disposal area.

Historical Note
Former Rule 20:18.

R11-1-2019. Storage tanks vented

All storage tanks must be vented except those under pressure.

Historical Note
Former Rule 20:19.

R11-1-2020. Reagent containers stored

Reagent containers shall be stored so as to protect the contents from the effects of weather if such exposure would create a hazardous situation.

Historical Note
Former Rule 20:20.

R11-1-2021. Oxidizing agents stored

Oxidizing agents shall not be stored adjacent to reducing agents or flammable material where container failure could allow combining of materials.

Historical Note
Former Rule 20:21.

R11-1-2022. Warning signs at reagent storage areas
Suitable warning signs shall be posted at all reagent storage areas limiting entry and smoking, where a hazard exists.

Historical Note
Former Rule 20:22.

R11-1-2023. Reagent tanks emitting toxic vapor
Reagent tanks capable of emitting toxic vapor shall be either located outside the mill building or positively vented to the outside.

Historical Note
Former Rule 20:23.

R11-1-2024. Reagent stocks rotated
Reagent stocks should be rotated on a first-in, first-out basis.

Historical Note
Former Rule 20:24.

R11-1-2025. Stacking reagent containers
Stacking of reagent containers shall not present a hazard.

Historical Note
Former Rule 20:25.

R11-1-2026. Disposal obsolete reagents
Disposal of obsolete reagents should be accomplished according to safe procedure.

Historical Note
Former Rule 20:26.

R11-1-2027. Broken containers or spilled reagents
Broken containers or spilled reagents must be cleaned up immediately.

Historical Note
Former Rule 20:27.

R11-1-2028. Reagent storage facilities well drained
Reagent storage facilities shall be well drained. Storage facilities should be constructed of fire-resistant material if reagents stored therein are flammable or corrosive to wood.

Historical Note
Former Rule 20:28.

R11-1-2029. Heat applied to storage tanks
Heat shall not be applied to storage tanks except in compliance with recognized Trade Association Handling Code.

Historical Note
Former Rule 20:29.

R11-1-2030. Reserved

R11-1-2031. Hazardous reagents mixed
Hazardous reagents shall be mixed in areas that minimize personnel exposure.

Historical Note
Former Rule 20:31.

R11-1-2032. Personnel mixing reagents
All personnel mixing reagents must be trained in the mixing procedure.

Historical Note
Former Rule 20:32.

R11-1-2033. Phosphorous pentasulfide
Phosphorous pentasulfide shall be added slowly to the sodium hydroxide solution from a container large enough to hold just the amount needed for one bath. This conveyor shall be constructed of spark-resistant materials, driven by an explosion-proof motor, thermostatically controlled at a safe mixing solution temperature. The container shall be electrically bonded and grounded or constructed of non-sparking material.

Historical Note
Former Rule 20:33.

R11-1-2034. Men designated for hazardous reagent mixing certified
Men designated for hazardous reagent mixing must be certified by the mill superintendent and a copy of such names filed in the office of the mill superintendent and available to the Arizona Mine Inspector.

Historical Note
Former Rule 20:34.

R11-1-2035. Mixing tanks and holding tanks labeled
All mixing tanks and holding tanks shall be labeled as to contents.

Historical Note
Former Rule 20:35.

R11-1-2036. Mixing tanks used for different reagents
If a mixing tank is used for different reagents, and if a hazard exists, the tank and distribution lines should be flushed after mixing each reagent.

Historical Note
Former Rule 20:36.

R11-1-2037. Reagent mixes with exothermic reaction
Reagent mixes with exothermic reaction shall be subject to positive temperature control if such reaction can create a hazard.

Historical Note
Former Rule 20:37.

R11-1-2038. Adequate ventilation in mixing area
Hazardous reagent mixing areas must have adequate ventilation.

Historical Note
Former Rule 20:38.

R11-1-2039. Suitable warning signs at mixing area
Suitable warning signs shall be posted at all reagent mixing areas, limiting entry and smoking where a hazard exists.

Historical Note
Former Rule 20:39.

R11-1-2040. Hydrogen storage
Hydrogen shall be stored in an open area which shall be roofed to prevent direct sunlight from heating the containers. The area shall be posted with "No Smoking" or "Open Flame" signs.

ARTICLE 21. ASSAY AND METALLURGICAL LABORATORIES

The rules in this Article are adopted in accordance with the provisions of Article VII, Chapter 3, Title 27, Arizona Revised Statutes and A.R.S. §§ 27-304 and 27-305.

R11-1-2101. Mixing or heating of chemicals producing noxious fumes or gases
All mixing or heating of chemicals that may produce noxious fumes or gases must be performed under a hood or performed in adequately ventilated enclosures.

Historical Note
Former Rule 21:01.

R11-1-2102. Hoods ventilated
Hoods must be positively ventilated to the outside.

Historical Note
Former Rule 21:02.

R11-1-2103. Velocity of air moving through the hood
There shall be sufficient velocity of air moving through the hood to remove all fumes or gas produced in the hood.

Historical Note
Former Rule 21:03.

R11-1-2104. When hood fails to exhaust properly
When a hood fails to exhaust properly, it will be promptly reported to maintenance and repaired before being used again.

Historical Note
Former Rule 21:04.

R11-1-2105. No unplanned recirculation of exhaust air
A means shall be provided to assure that no unplanned recirculation of exhaust air occurs.

Historical Note
Former Rule 21:05.

R11-1-2106. Involving the use of perchloric acid
Hoods and ducts that are to be used in the digestion and/or evaporation, involving the use of perchloric acid must be made of chemically inert, non-combustible material and so constructed and designed that they can be thoroughly washed with water. The exhaust system shall discharge to a safe location and the fans be accessible for cleaning.

Historical Note
Former Rule 21:06.

ARTICLE 22. CYANIDE LEACH OPERATIONS

R11-1-2201. Reserved

R11-1-2202. Cyanide Safety Training

A. Supervisors working in an area where cyanide is used or stored shall successfully complete a cyanide safety course conducted by the State Mine Inspector prior to starting a cyanide leaching operations.

B. Employees working in an area where cyanide is used or stored shall be indoctrinated in safety rules and safe work procedures by the supervisor during the first work shift.

C. Employees working in an area where cyanide is used or stored shall complete a cyanide safety course conducted by the Arizona State Mine Inspector as soon as possible but no later than 30 days after the start of employment.

D. Supervisors and employees working in an area where cyanide is used or stored shall possess a cyanide training certificate indicating the course completed and the date of completion. A copy of current certification shall be made available to the State Mine Inspector upon request.

E. Supervisors and employees shall receive training required by this Section at least once every 12 months.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2203. Posting of Emergency Procedures
Cyanide first-aid emergency procedures shall be posted and visible at the operations main office and at each first-aid station and in all areas where cyanide is handled.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2204. Emergency Provisions, Cyanide Antidote Kits

A. Approved cyanide antidote kits for treatment of cyanide poisoning shall be made available at workplaces where cyanide is used, stored, or handled or where there is a potential for exposure to hydrogen cyanide gas or dry or solution cyanide contamination.

B. An approved cyanide antidote kit is one containing:
1. Two dozen current amyl nitrite pearls for inhalation;
2. Two ampules of sterile sodium nitrite solution for injection (10 milliliters of a 3% solution in each);
3. Two ampules of sterile sodium thisosulfate for injection (50 milliliters of a 25% solution in each);
4. Two sterile 10-milliliter syringes and one sterile 50-milliliter syringe with sterile intravenous needles;
5. One tourniquet to facilitate the administration of injectable medications;
6. One stomach tube to wash swallowed solutions from the stomach.

C. Contents of cyanide antidote kits shall be administered only by trained persons during a medical emergency and for the purpose of first-aid procedures only. A trained person is one who has completed a cyanide safety course conducted by the Arizona State Mine Inspector.

D. In no case shall there be less than two cyanide antidote kits on the property unless removed during a medical emergency.

E. Cyanide antidote kits contents shall be replaced and stored according to manufacturer's instructions and shall contain complete instructions for use.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2205. Conditions for Employee Working Alone
No employee shall be assigned or permitted to work alone in any area where hazardous conditions exist or may exist that would endanger the worker's safety unless the worker can communicate with others in the immediate vicinity or can be visually observed at all times.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2206. Attendance
No cyanide leaching operation shall be left unattended while cyanide is present in dry or solution form.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2207. Safety Showers and Eyewash Facilities, Emergency Water
Safety showers and eye wash fountains shall be available in the areas where cyanide, caustics, or acids ar used or stored. Eye wash equipment shall be inspected and tested at regular intervals daily.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2208. Reserved

R11-1-2209. Fire protection
Adequate fire protection and fire suppression apparatus shall be provided for all storage and mixing areas.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).

R11-1-2210. Reserved

R11-1-2211. Personal Protective Equipment

A. Persons handling cyanide salts or solutions during the operation, mixing, maintenance, and leaching procedures shall wear appropriate protective equipment consisting of, but not limited to, eye protection, water-resistant gloves, water- resistant body protection, water-resistant footwear, and a full-face chemical cartridge respirator, with a high efficiency filter, that is used for acid gas and that is approved by the Mine Safety and Health Administration (MSHA) and the National Institute of Occupational Safety and Health (NIOSH) according to the requirements of 30 CFR 11, Subparts A-G and L (10-1-92 edition and no later editions), incorporated herein by reference and on file with the Arizona State Mine Inspector's Office and the Office of the Secretary of State.

B. All personal protective equipment shall be washed, cleaned, or replaced after use and otherwise maintained in a safe, usable condition.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2212. Instruction on Use of Personal Protective Equipment

All persons handling cyanide salts, solutions, or open containers or other hazardous chemicals shall be instructed in the proper use of personal protective equipment prior to use.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2213. Spillage

Chemical spills shall be immediately returned to circuit or rendered harmless in a way consistent with standards of the industry.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2214. Reporting Spills or Leaks to State Mine Inspector

A. Any unplanned release of a cyanide solution that may pose a threat to the health or safety of any employee or the general public shall be reported to the State Mine Inspector as soon as possible.

B. Any release of HCN gas of 50 ppm or more shall be reported as soon as possible to the State Mine Inspector.

C. All spills or releases shall be documented on a form provided by the State Mine Inspector. A copy of this form is included as Appendix A at the end of this Article.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2215. Reporting Suspected Leaks or Equipment Failure

Employees shall immediately report to their supervisor any leaks or spills of cyanide and any equipment failure within the cyanide circuit. The supervisor shall take immediate remedial action.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2216. Circuit Identification and Posting

A. All lines and valves in cyanide circuits shall be identified.

B. Potable water containers, sources, or outlets shall be identified.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2217. "Lock, Tag, and Test" Prior to Work on Electrical Circuit

Prior to or during any maintenance or repair work on any portion of the system, the disconnect switch shall be locked out, tagged, and the system tested. No persons other than the person placing the locks shall remove them.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2218. HCN Detection Instrument

When cyanide solution is utilized inside an enclosed structure, an audible and visual HCN warning device shall be installed and set to activate at an HCN concentration of 10 ppm.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2219. Ventilation

Ventilation capable of keeping the HCN concentration at or below 10 ppm shall be provided in all enclosed structures where cyanide, either dry or in solution, is used or stored.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2220. Reserved

R11-1-2221. Mixing Tank

The mixing tank shall be constructed in such a manner as to minimize any dust or gas generation.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2222. Reserved

R11-1-2223. Reserved

R11-1-2224. Maintaining pH and Records

A. The "make-up"/mixing solution shall be maintained at a pH of 12.0 or higher. The leaching solution shall be maintained at a pH of 10.5 or higher.

B. A shift record shall be kept of pH levels and cyanide concentrations. These records shall be available upon request for inspection by the State Mine Inspector.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2225. Dry Cyanide Storage

A. Cyanide storage containers shall be stored in a secure and ventilated area.

B. The secured storage area shall be posted with signs clearly indicating the hazard potential and safety precautions.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2226. Separated Container Storage

Cyanide shall not be stored or transported where it may become exposed to or mixed with acidic agents, nitrates, peroxides, or chlorates, or any agent capable of creating a hazardous reaction.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2227. Fencing

Leach pads, ponds, and open tanks containing cyanide solutions and any portion of an operation containing hazardous amounts of cyanide or other chemicals shall be fenced to restrict unauthorized entry by persons or entry by animals.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2228. Warning Signs

A. Suitable warning signs shall be posted at all gates and other points of entry to any cyanide leach operation.
B. Signs shall be posted on fencing at a minimum of 100-foot intervals and at each corner and shall be clearly visible and maintained so they may be easily seen and identified from a distance of 50 feet.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2229. Drum Disposal

Empty, nonreturnable cyanide containers shall be flushed at least three times with a large volume of water and flushing shall continue until no cyanide remains in the drum. Drum labels shall be removed or obliterated and drums destroyed. The flush water shall be returned to the circuit.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2230. Reserved

R11-1-2231. Cyanide circuit protection

A. Cyanide leach pads, solution ponds and other areas which may contain cyanide solutions within the circuit shall have an impervious liner of a material that will prevent its penetration by the cyanide solution.
B. An overflow safety pond or similar solution retention area shall be constructed to receive and contain all potential overflow from the leach pad and pregnant solution pond.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).

R11-1-2232. Waste Lines

All lines from emergency shower, wash areas, or other cyanide waste sources shall be returned to the circuit.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2233. Inspections and maintenance

All leach pads and solution ponds shall be inspected and maintained so as to prevent any accidental cyanide solution release outside the protected circuit.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).

R11-1-2234. Reserved

R11-1-2235. Operator Responsibility - Shutdown

A. The operator shall give written notice to the State Mine Inspector prior to:
1. Abandoning the property, and/or
2. Suspending operations for more than 30 days, or
3. Closing the operation.

B. The operator shall be responsible for treating and testing all pads, ponds or other cyanide use areas. Test results of free cyanide shall be forwarded to the State Mine Inspector upon completion and shall be available for inspection upon request.

Historical Note
Adopted effective August 2, 1985 (Supp. 85-4).
Amended effective July 6, 1993 (Supp. 93-3).

R11-1-2236. Receipt, Off-loading, Storage of Liquid Cyanide Solution

A. Tank trucks will be visually inspected for leaks before they are allowed to enter the plant.
B. Off-loading shall be performed only when lighting is available.
C. The off-loading pad shall be constructed of an impervious base material and be arranged so liquid spillage will drain away from the truck and exposed structures and into the storage tank containment area. The pad shall be of sufficient length to allow the truck and trailer a minimum of 4-foot clearance at each end and a minimum of 2-foot clearance on each side. The vehicle must be positioned in a manner to allow forward movement away from off-loading pad.
D. Only qualified and properly trained employees shall operate the truck and make the off-loading or loading hook-up. A qualified and properly trained employee is one who has an Arizona commercial driver's license with a current endorsement authorizing operation of a motor vehicle transporting hazardous materials, hazardous substances, or hazardous waste as defined by A.R.S. § 28-2401, or the equivalent license and endorsement from another state.
E. Truck parking brakes shall be set and, where necessary, the wheels blocked during off-loading and loading.
F. Warning signs shall be placed at all areas where cyanide is loaded and off-loaded.
G. Piping shall be arranged so the cyanide will drain toward the storage tank when the discharge valve is closed.
H. All pump packing and thrust seals at shaft shall be provided with splash guards in cases where personnel would be exposed to cyanide leaks or sprays.
I. Safety chains shall be used at all cyanide hose connections.
J. All storage tanks shall be adequately bermed, diked, or otherwise protected, with an impervious base material, designed to hold the maximum capacity of the tank in the event of a spill or rupture.

Historical Note
Adopted effective July 6, 1993 (Supp. 93-3).

OFFICE OF STATE MINE INSPECTOR

1700 West Washington, Suite 403

Phoenix, Arizona 85007

(602) 542-5971

CYANIDE SPILL RELEASE FORM

STATE ID#_____MSHA ID#_____
COMPANY
_____
MAIL ADDR.
_____
CITY_____STATE_____ZIP_____
MINE/PLANT NAME
_____
LOCATION - RANGE_____TOWNSHIP_____SECTION_____
_____
DATE SPILL OCCURRED TIME SPILL OCCURRED
_____
TIME STATE MINE INSPECTOR'S OFFICE NOTIFIED OF SPILL LOCATION OF SPILL
_____
TYPE OF MINING OPERATION TYPE & BRAND OF CYANIDE
_____
WHERE OBTAINED AMOUNT SPILLED
HOW DID SPILL OCCUR? HOW MANY PEOPLE WERE PRESENT AT TIME OF SPILL AND WAS ANYONE INJURED? IF SO, HOW WERE THEY TREATED AND HOW WAS AREA MADE STABLE?
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PERSON SUBMITTING REPORT_____DATE_____
TITLE_____PHONE #_____

Historical Note
Adopted effective July 6, 1993 (Supp. 93-3).

TITLE 11. MINES

CHAPTER 2. STATE MINE INSPECTOR MINED LAND RECLAMATION

ARTICLE 1. DEFINITIONS

Article 1, consisting of Section R11-2-101, adopted effective January 6, 1997 (Supp. 97-1).

Section
R11-2-101. Definitions

ARTICLE 2. GENERAL REGULATORY PROVISIONS

Article 2, consisting of Sections R11-2-201 through R11-2-207, adopted effective January 6, 1997 (Supp. 97-1).

Section
R11-2-201. Document Submittals
R11-2-202. Preservation of Documents
R11-2-203. Extension of Time for Submittal of Plan
R11-2-204. Supersedure by Federal Plan
R11-2-205. Extension of Time for Initiation of Reclamation
R11-2-206. Variance
R11-2-207. Cessation of Mining Activity

ARTICLE 3. EXPLORATION OPERATION RECLAMATION PLAN

Article 3, consisting of Sections R11-2-301 and R11-2-302, adopted effective January 6, 1997 (Supp. 97-1).

Section
R11-2-301. Exploration Operation Reclamation Plan Content
R11-2-302. Annual Renewal

ARTICLE 4. EXPLORATION OPERATION RECLAMATION STANDARDS

Article 4, consisting of Sections R11-2-401 and R11-2-402, adopted effective January 6, 1997 (Supp. 97-1).

Section
R11-2-401. Restricted Access
R11-2-402. Trash Removal

ARTICLE 5. MINING UNIT RECLAMATION PLAN

Article 5, consisting of Sections R11-2-501 through R11-2-504, adopted effective January 6, 1997 (Supp. 97-1).

Section
R11-2-501. Mining Unit Reclamation Plan Content
R11-2-502. Life of Approved Reclamation Plan
R11-2-503. Multiple Post-mining Land Uses
R11-2-504. Annual Status Report

ARTICLE 6. MINING UNIT RECLAMATION STANDARDS

Article 6, consisting of Sections R11-2-601 through R11-2-603, adopted effective January 6, 1997 (Supp. 97-1).

Section
R11-2-601. Public Safety Standards
R11-2-602. Erosion Control and Topographic Contouring
R11-2-603. Roads

ARTICLE 7. REVEGETATION AND SOIL STANDARDS

Article 7, consisting of Sections R11-2-701 through R11-2-705, adopted effective January 6, 1997 (Supp. 97-1).

Section
R11-2-701. Revegetation Provisions
R11-2-702. Revegetation Standards
R11-2-703. Soil Conservation
R11-2-704. Redistribution of Soil
R11-2-705. Off-site Soil

ARTICLE 8. FINANCIAL ASSURANCE

Article 8, consisting of Sections R11-2-801 through R11-2-822, adopted effective January 6, 1997 (Supp. 97-1).

Section
R11-2-801. Definitions
R11-2-802. Amount of Financial Assurance
R11-2-803. Blanket Financial Assurance
R11-2-804. Surety Bonds
R11-2-805. Certificates of Deposit
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R11-2-807. Letter of Credit
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R11-2-810. Cash Deposits
R11-2-811. Corporate Financial Tests
R11-2-812. Annuities
R11-2-813. Final Action on Financial Assurance Mechanisms
R11-2-814. Incremental Financial Assurance
R11-2-815. Financial Assurance Funding
R11-2-816. Limited Individual Financial Assurance for Single Unit
R11-2-817. Application for Release of Financial Assurance
R11-2-818. Forfeiture Criteria/Forfeiture of Financial Assurance
R11-2-819. Notification of Forfeiture Action
R11-2-820. Avoidance of Forfeiture
R11-2-821. Notice of Exercise of Forfeiture
R11-2-822. Full Release of Financial Assurance

ARTICLE 1. DEFINITIONS

R11-2-101. Definitions

In this Chapter and the Act, unless the context otherwise requires:

"Act" means the Arizona Mined Land Reclamation Act, enacted in 1994, A.R.S. § 27-901 et seq., as amended.

"Approved reclamation plan" means the owner's or operator's plan for reclaiming surface disturbances after approval by the State Mine Inspector.

"Backfill" means earth, overburden, mine development rock, or imported material used to replace material removed during mining.

"Commodities in commerce" means commodities that are mined for use or conversion into a salable or usable product.

"Completion" or "Completing" means the permanent discontinuance of mining activity of an exploration operation or mining unit without the intent to resume operation.

"Growth media" means substances or materials that promote or support vegetation.

"Inspection" means a visual review of an exploration operation or mining unit to assure compliance with the Act, this Chapter, or any condition of an approved reclamation plan.

"Institutional controls" means mechanisms that guide, manage, or exercise restraint or direction, including deed restrictions to protect public safety, fencing districts, and physical control of access.

"Mining activity" means any activity directly involved in mineral exploration, development, or production at or on an exploration operation or a mining unit.

"Operator" means any person who is legally responsible for directing mining activity at an exploration operation or a mining unit.

"Owner" means any person who owns land with surface disturbances subject to the Act and this Chapter.

"Person" means an individual, corporation, governmental subdivision or agency, business trust, estate, trust, partnership, association, or any other legal entity.

"Showing of good cause" means a demonstration by the owner or operator of a reason beyond the owner's or operator's control which prevents or limits the ability to act within required time limits or a demonstration by the owner or operator that the owner or operator is making good faith efforts toward the coordination and submittal of a reclamation plan.

"Subsidence" means the measurable lowering of a portion of the earth's surface or substrata.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

ARTICLE 2. GENERAL REGULATORY PROVISIONS

R11-2-201. Document Submittals

A. An owner or operator shall submit to the State Mine Inspector by certified mail (return receipt requested), express mail (with a receipt), or by hand delivery the following:
1. Reclamation plans and amendments (1 original and 4 copies);
2. Certificates of disclosure;
3. Financial assurance mechanisms;
4. Notices of transfer;
5. Applications, petitions or requests for or objections to substantial changes, variances, notices of proposed changes, amendments, releases of financial assurance mechanisms; or
6. Any other matter that may require action by the State Mine Inspector.

B. All submittals shall be dated and signed by the owner or operator or by a person who has legal authority to sign on behalf of the owner or operator. All submittals shall include the names and addresses of the owner and operator and any individuals who will be regulatory contacts.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-202. Preservation of Documents

An owner or operator shall retain a copy of the current approved reclamation plan, reclamation plans for areas for which reclamation has been completed, and the most recent annual status report until all reclamation measures have been completed. These documents shall be available for examination by the inspector.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-203. Extension of Time for Submittal of Plan

The owner or operator may request 1 or more extensions of time for submittal of a reclamation plan for an existing exploration operation or an existing mining unit. If the State Mine Inspector grants an extension of time to submit a reclamation plan for an existing exploration operation or an existing mining unit, the extension shall not exceed 90 days. For each subsequent extension, the owner or operator shall submit a revised request which indicates any changes in the relevant factors for consideration shown in the previous request for extension.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-204. Supersedure by Federal Plan

A. The owner or operator of an exploration operation or a mining unit which is located in part or in whole on land administered by a federal agency may submit to the State Mine Inspector a request for supersedure pursuant to A.R.S. § 27-932. Such a request shall include a copy of the federal reclamation plan and the financial assurance mechanism.

B. Within 30 days after receiving a request for supersedure, the State Mine Inspector shall determine in writing whether the federal reclamation plan and financial assurance mechanism are consistent with and shall supersede the requirements of the Act and this Chapter. If the State Mine Inspector denies the request to supersede, the State Mine Inspector shall provide an explanation of the reasons for denial in the written determination.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-205. Extension of Time for Initiation of Reclamation

A. The owner or operator of an exploration operation or mining unit shall submit a written request for an extension of time to begin reclamation under A.R.S. § 27-926(B) at least 45 days before the time to begin reclamation under A.R.S. § 27-926.

B. The State Mine Inspector shall evaluate and either approve or deny the request within 30 days. If the State Mine Inspector fails to act on the request within 30 days after receipt, the request shall be considered approved. If the State Mine Inspector denies the request for an extension, the State Mine Inspector shall state the reasons for denial in writing.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-206. Variance

A. In addition to information required by the Act or elsewhere in this Chapter, a request for variance submitted pursuant to A.R.S. § 27-931(A) shall include:
1. Identification by owner or operator and mine name, if any, of the exploration operation or mining unit for which the variance is sought;
2. A descriptive location of the property on which the exploration operation or mining unit is located;
3. Identification of the Section of this Chapter or requirement or condition of the approved reclamation plan from which the variance is sought;
4. The justification for the variance; and
5. Alternative methods or measures to be used.

B. Within 30 days after receiving a variance request pursuant to A.R.S. § 27-931(A), the State Mine Inspector shall grant a conditional order authorizing the variance or deny the request in writing. The State Mine Inspector shall state the reasons for the determination.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2- 207. Cessation of Mining Activity

A. The cessation of mining will be considered to have occurred if any of the following occur:
1. The person conducting the mining activity has gone out of business and there is no succeeding legal entity;
2. No mining activity has taken place within 1 year from the date the most recent annual status report was filed with

the State Mine Inspector and no staffed office remains on the site;

3. The extension of the time to begin reclamation requested by the owner or operator and approved by the State Mine Inspector under R11-2-205 has expired and no other extension has been granted, or
4. The State Mine Inspector has made a written determination that the mine has been temporarily or permanently abandoned.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

ARTICLE 3. EXPLORATION OPERATION RECLAMATION PLAN

R11-2-301. Exploration Operation Reclamation Plan Content

A. In addition to the content requirements found in A.R.S. § 27-951(A), the reclamation plan shall also include a sketch of the layout of the exploration project, showing the locations, nature, and acreage of each disturbance. The owner or operator shall not be required to include specific survey coordinates, identifying exact topographic features, or exact geographic locations.

B. For existing exploration operations, the owner or operator shall include the estimated costs to perform the reclamation measures to determine financial assurance requirements under Article 5 of the Act and Article 8 of this Chapter.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-302. Annual Renewal

A. Every owner or operator with an approved reclamation plan shall annually, within 60 days after the anniversary date of the approved reclamation plan, submit to the State Mine Inspector a request for annual renewal pursuant to A.R.S. § 27-955. The request shall:

1. Provide the status of the exploration operation reclamation;
2. Include the total number of acres of surface disturbances, the number of acres reclaimed during the reporting year, and the number of acres of surface disturbances which have not yet been reclaimed; and
3. Include any modifications to the approved reclamation plan.

B. The State Mine Inspector shall renew the approved reclamation plan, including modifications, if the renewal includes modifications that are consistent with the criteria of the Act and this Chapter and if additional financial assurance required by the Act has been submitted to the State Mine Inspector. If the renewal includes modifications to the approved plan that constitute a substantial change, the State Mine Inspector shall renew the approved reclamation plan under the procedures of A.R.S. §§ 27-927 and 27-929 or deny the proposed substantial change.

C. If the State Mine Inspector fails to provide the owner or operator with a written renewal determination within 60 days after receipt of the request for annual renewal, the approved reclamation, including modifications that do not constitute substantial changes, shall be deemed renewed.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

ARTICLE 4. EXPLORATION OPERATION RECLAMATION STANDARDS

R11-2-401. Restricted Access

Under A.R.S. § 27-953(5), access to those portions or places of open pits or trenches in places frequented by the public shall be restricted by measures including fencing and the posting of visible warning signs.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-402. Trash Removal

The owner or operator shall remove trash and other materials and structures incidental to exploration that pose a threat to public safety, create a public nuisance, or are inconsistent with an approved reclamation plan.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

ARTICLE 5. MINING UNIT RECLAMATION PLAN

R11-2-501. Mining Unit Reclamation Plan Content

A. In addition to the proposed reclamation measures that are necessary to achieve the post-mining land use found under A.R.S. §§ 27-971(B)(9)(a) through (d), the reclamation plan shall include procedures to aid in the development of vegetation consistent with the proposed post-mining land use objective for surface disturbances where the post-mining land use objective is grazing, wildlife habitat, or forestry. The type, density, and diversity of vegetation proposed shall depend on what is technically and economically practicable given site-specific characteristics such as climate and the availability and quality of soil.

B. Maps of the existing or proposed surface disturbances submitted pursuant to A.R.S. § 27-971(B)(8) for mining units shall indicate the following:

1. Existing and proposed post-mining and post-reclamation physical topography;
2. Natural features, including surface water;
3. Surface disturbances, pits, excavations, and building sites;
4. Development rock piles, tailings dams and impoundments, heaps for leaching, spoil, soil or growth media storage piles, overburden stockpiles, and other piles of unconsolidated material;
5. Solution ponds, settling ponds, and non-tailings impoundments;
6. Roads, buildings, structures, and stationary equipment;
7. Final post-mining land use objectives for each portion of the surface disturbance; and
8. Boundaries of the mining unit.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-502. Life of Approved Reclamation Plan

An approved reclamation plan, along with any approved substantial changes, shall remain in effect until reclamation is complete and all financial assurance is released.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-503. Multiple Post-Mining Land Uses

An owner or operator may list multiple post-mining land uses for a mining unit if the reclamation plan shows the post-mining land use for each area and each use satisfies the requirements of the Act and this Chapter.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-504. Annual Status Report

A. An owner or operator with an approved reclamation plan shall submit an annual status report for the preceding year to the State Mine Inspector within 60 days after the anniversary date of reclamation plan approval. The status report shall:
1. Provide the status of the mining unit;
2. Include a map, an aerial photograph, or both, identifying the location of the surface disturbance and reclaimed area and the year in which the surface disturbance and reclamation was completed. If there have been no changes in the previous year, then neither new maps nor new aerial photographs are necessary, and the owner or operator shall state there have been no changes in the annual status report; and
3. Include the total number of acres of surface disturbances, the number of acres reclaimed during the reporting year, and the number of acres of surface disturbances which have not yet been reclaimed.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

ARTICLE 6. MINING UNIT RECLAMATION STANDARDS

R11-2-601. Public Safety Standards

A. Reclamation activities at mining units shall be designed to reduce hazards to public safety to the extent technically and economically practicable by measures, including:
1. Removal of scrap metal, wood, trash, and other debris that pose a threat to public safety, or create a public nuisance, or are inconsistent with an approved reclamation plan; and
2. Regrading slopes as prescribed under R11-2-602.

B. The owner or operator shall maintain structures, equipment, and excavations at the reclamation site in a safe manner and shall restrict access to provide for public safety. Where hazards to public safety cannot be adequately reduced through reclamation measures; where buildings, structures, and excavations remain as part of the approved post-mining land use; or where a mining unit has been exempted from reclamation under A.R.S. § 27-975(A), any hazard to public safety shall be reduced by:
1. Constructing berms, fences, barriers, or any combination of these measures to restrict public access when technically and economically practicable; and
2. Posting visible warning signs in locations where public access is available.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-602. Erosion Control and Topographic Contouring

A. Mining units shall be reclaimed to a stable condition for erosion and seismic activity.

B. Grading and other topographic contouring methods shall be conducted, as necessary, to establish final land forms which are:
1. Suitable for the post-mining land use objective in the approved reclamation plan.
2. Stable under static and dynamic conditions as certified by a qualified engineer considering the following:
   a. Site-specific seismic conditions;
   b. Safety consistent with good engineering practices; and
   c. The hazard to public safety, if failure occurs.

C. Site-specific grading, revegetation, or other proposed erosion-control measures shall be conducted, as necessary, to address erosion so that permanent piles of mine development rock, overburden, and tailings shall not restrict surface drainages in a manner that contributes to excessive erosion or which compromises the stability of the reclaimed facility.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-603. Roads

A. Reclamation of a road that is not included in the approved reclamation plan as part of the approved post-mining land use shall begin once the road is no longer needed for operations, reclamation, or monitoring.

B. The following reclamation measures shall be conducted, as necessary, to achieve the post-mining land use included in the approved reclamation plan:
1. Vehicular traffic shall be controlled on the reclamation area to achieve the reclamation objectives;
2. Surface drainage patterns shall be restored to pre-mining conditions or new patterns shall be established;
3. All bridges and culverts shall be removed or stabilized in place;
4. Bridges and culverts left in place shall be protected from erosion with rock, concrete, or riprap; and
5. Roadbeds shall be ripped, plowed, and scarified and revegetated, as necessary, to achieve the post-mining land use.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

ARTICLE 7. REVEGETATION AND SOIL STANDARDS

R11-2-701. Revegetation Provisions

A. If revegetation is part of the proposed reclamation plan, the plan shall describe the:
1. Season of revegetation,
2. Species and amounts per acre of seeds or flora, and
3. Planting methods.

B. If the proposed reclamation plan includes mulching, irrigation, pest control, disease control, or growth management measures, the proposed reclamation plan shall specifically describe the techniques, methods, controls, or measures to be used.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-702. Revegetation Standards

A. Where surface disturbances result in compaction of the soil, ripping, disking, or other means shall be used in areas to be revegetated to reduce compaction and to establish a suitable root zone in preparation for planting.

B. Revegetation shall be conducted to establish plant species that will support the approved post-mining land use. The establishment of vegetation species, density, or diversity which is different than pre-existing conditions or on adjacent lands shall constitute successful reclamation if any of the following apply:
1. The post-mining land use is different than the pre-mining land use or the use of adjacent lands;
2. The site-specific nature of the surface disturbance, including soil conditions and topography, is such that the establishment of pre-existing or adjacent conditions is not technically or economically practicable; or
3. The establishment of different species is preferable for control of erosion.

C. Planting shall be conducted during the most favorable period of the year for plant establishment.

D. Soil stabilizing practices or irrigation measures, or both, may be used to establish vegetation.

E. This Section only applies if vegetation or revegetation measures are included in the approved reclamation plan.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-703. Soil Conservation

If soil conservation is required by A.R.S. § 27-974, any stockpiles of conserved soil shall be marked with legible signs that identify the stockpile as "SOIL." A soil stockpile shall be stabilized, if necessary, to prevent excessive losses from erosion.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-704. Redistribution of Soil

Before redistribution of soil, the regraded land shall be treated, if necessary, to reduce the potential for slippage of the redistributed material or to enhance root penetration, or both. Soil and other materials shall be redistributed in a manner that prevents excess compaction and achieves a thickness consistent with the approved post-mining land use.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-705. Off-site Soil

Soil may be brought in from an off-site location, and may include any growth media that will support vegetation, will provide a stable growing surface, and will not create a hazard to public safety.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

ARTICLE 8. FINANCIAL ASSURANCE

R11-2-801. Definitions

A. Unless expressly defined in the Act or this Chapter, the terms used in this Article have the same meanings as understood pursuant to generally accepted accounting principles and practices.

B. In addition to the definitions provided in A.R.S. § 27-901, the following definitions apply to this Article:

"ICPA" means Independent Certified Public Accountant.

"Parent corporation" means a corporation which directly owns at least 50% of the voting stock of the corporation which is the owner or operator. Any latter corporation is considered a "subsidiary" of the parent corporation.

"Substantial business relationship" means the extent of a business relationship which is necessary, under applicable state law, to make a guarantee contract (issued on the basis of that relationship) valid and enforceable. A "substantial business relationship" shall arise from a pattern of recent or ongoing business transactions, so that a currently existing business relationship between guarantor and the owner or operator is shown to the satisfaction of the State Mine Inspector.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-802. Amount of Financial Assurance

A. In estimating the cost of executing the reclamation plan, all activities in the reclamation plan shall be addressed, including, if applicable:
1. Earth moving, regrading, and stabilization of surface disturbances included in the reclamation plan;
2. Revegetation, preparation of seedbed, and planting;
3. Demolition of buildings and other structures;
4. For new exploration operations, removal of trash and other materials and structures incidental to exploration;
5. Any ongoing or long-term activities which are required to maintain the effectiveness of reclamation or are necessary in place of reclamation, including periodic clean-out of sediment basins or maintenance of berms and fences which are used to prevent access to areas which pose a threat to public safety;
6. Equipment mobilization and demobilization;
7. Contractor profit; and
8. Administrative overhead.

B. In addition to submitting the estimated costs to perform each of the proposed reclamation measures required under A.R.S. § 27-971(B)(11) or R11-2-301(B), the owner or operator of a mining unit or existing exploration operation shall submit to the State Mine Inspector:
1. Documentation for the calculation of the estimated costs, and
2. The source of the estimated costs.

C. The State Mine Inspector shall review the owner's or operator's estimate of the cost for reclamation and determine if the estimate is adequate to complete all required reclamation.

D. If the State Mine Inspector determines the estimated cost of executing the reclamation plan is not adequate to complete all required reclamation, the reclamation plan shall be considered incomplete under A.R.S. §§ 27-952 or 27-972.

E. If an owner or operator submits a written request for a reduction of financial assurance, along with a demonstration of sufficient financial ability pursuant to A.R.S. § 27-992(B), the State Mine Inspector shall grant or deny the request in writing within 30 days after receiving the request.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-803. Blanket Financial Assurance

A. A single financial assurance mechanism covering 2 or more mining units or facilities may be provided by an owner or operator instead of separate financial assurances for each unit or facility. If an owner or operator provides a single financial assurance mechanism, it shall demonstrate the financial ability to fulfill the aggregate reclamation costs of the mining units or facilities covered by the single financial assurance mechanism.

B. If an additional unit or facility is to be covered under a single financial assurance mechanism previously provided to the State Mine Inspector, the owner or operator shall provide an updated financial assurance mechanism which demonstrates the financial ability to fulfill the aggregate reclamation costs of the mining units or facilities covered by the single financial assurance mechanism.

C. A single financial assurance mechanism covering 2 or more exploration operations may be provided by the owner or operator pursuant to A.R.S. § 27-993.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-804. Surety Bonds

An owner or operator may provide the State Mine Inspector with a surety bond as financial assurance for reclamation. The surety bond shall be an indemnity agreement in a sum certain payable to the state of Arizona, executed by the owner or operator as principal and shall be supported by the performance guarantee of a corporation licensed to do business as a surety in the state of Arizona.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-805. Certificates of Deposit

A. An owner or operator may provide the State Mine Inspector with a certificate of deposit which shows funds are available for reclamation of surface disturbances. The certificate of deposit shall name the state of Arizona as beneficiary. The financial institution issuing the certificate of deposit shall be a Federal Deposit Insurance Corporation-insured entity whose operations are regulated by a federal or state agency.

B. The owner or operator may redeem the certificate of deposit if alternative financial assurance that meets the requirements of the Act and this Chapter is substituted.

Historical Note

Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-806. Trust Funds

A. An owner or operator may satisfy the requirements of this Article by establishing a trust fund that meets the requirements of the Act and this Chapter. The trust fund shall name the state of Arizona as the primary beneficiary. The trustee shall be an entity which has the authority to act as trustee and whose trust operations are regulated and examined by a federal or state agency.

B. An owner or operator may satisfy the requirements of the trust fund by establishing a trust fund with a pay-in period that meets the requirements of the Act and this Chapter and by submitting an original signed duplicate of the trust agreement to the State Mine Inspector.

C. A copy of the trust agreement shall be placed in the facility's operating record.

D. The trust fund shall be initially funded in an amount at least equal to the costs estimated in the approved reclamation plan for reclamation of existing surface disturbances covered by the Act and any surface disturbances to occur in the 1st year of the trust fund.

E. Payments into the trust fund, other than the initial funding, shall be made annually, at a minimum, with subsequent payments made not later than 30 days after each annual anniversary of the date of the 1st payment by the owner or operator. Annual payments shall be in an amount adequate to pay all costs of reclamation for land to be disturbed in that annual period.

F. If the property owner or operator establishes a trust fund after having used 1 or more alternate mechanisms specified in this Article, the initial payment into the trust fund shall be at least the amount that the fund would contain if the trust fund were established initially and annual payments made according to the specifications of this Section.

Historical Note

Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-807. Letters of Credit

A. An owner or operator may satisfy the requirements of this Article by obtaining an irrevocable stand-by letter of credit. The letter of credit shall be effective to receive financial assurance approval. The issuing institution shall be an entity which has the authority to issue letters of credit, is federally insured, and whose letter-of-credit operations are regulated and examined by a federal or state agency.

B. The letter of credit shall be irrevocable and issued for a period set to exceed 1 year by at least 90 days and in an amount at least equal to the costs estimated in the approved reclamation plan for reclamation. The letter of credit shall provide that the expiration date will automatically renew as approved by the State Mine Inspector for a period of at least 1 year, unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the State Mine Inspector 120 days in advance of cancellation. If the letter of credit is canceled by the issuing institution, the owner or operator shall obtain alternate financial assurance that meets the requirements of the Act and this Chapter within 120 days after the notice of cancellation.

C. The letter of credit shall indicate the conditions on which the state of Arizona may draw on the letter of credit.

D. The property owner or operator may, with notification to the State Mine Inspector, cancel the letter of credit if alternate financial assurance that meets the requirements of the Act and this Chapter is substituted or if the owner or operator is released from the requirements of this Article under A.R.S. § 27-996, R11-2-817, or R11-2-822.

Historical Note

Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-808. Insurance

A. An owner or operator may show financial assurance for reclamation by obtaining insurance that meets the requirements of this Section. At a minimum, the insurer shall be a non-captive insurance company licensed to transact the business of insurance by the Department of Insurance, or eligible to provide insurance as an excess or surplus lines insurer in the state of Arizona.

B. The reclamation insurance policy shall guarantee funds will be available to reclaim all disturbed lands and be available when the operation fails to comply with the approved reclamation plan. The policy shall also guarantee that, once reclamation begins, the insurer will be responsible for payment up to an amount equal to the face amount of the policy, under the direction of the State Mine Inspector to the party specified by the State Mine Inspector.

C. A policyholder may, with notification to the State Mine Inspector, receive partial payment for reclaimed areas. The insurance policy shall provide that requests for payment will be granted by the insurer only if the remaining value of the policy is adequate to cover the remaining costs of reclamation. The policyholder shall notify the State Mine Inspector that payment has been received.

D. The insurance policy shall provide that the insurer may not cancel, terminate, or fail to renew the policy except for the failure to pay the premium. The automatic renewal of the policy shall, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. The insurance policy shall provide that if there is a failure to pay the premium, the insurer may elect to cancel, terminate, or fail to renew the policy by sending notice by certified mail to the policyholder and to the State Mine Inspector 120 days in advance of the action. Cancellation, termination, or failure to renew may not occur and the policy will remain in full force and effect if, before the date of expiration, the premium due is paid.

E. The insured may cancel the insurance policy, with notification to the State Mine Inspector, if alternate financial assurance that meets the requirements of the Act and this Chapter is substituted.

Historical Note

Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-809. Certificates of Self-insurance

A. An owner or operator may use self insurance in combination with a guarantee only if, to meet the requirement of the financial test under this Article, the financial statements of the owner or operator are not consolidated with the financial statements of the guarantor.

B. An owner or operator, and/or guarantor, may satisfy the requirements of this Article upon successful completion of the financial test specified in this Section. Successful completion is determined by meeting the criteria of subsection (C) or (D) based on year-end financial statements for the latest completed fiscal year.

C. The criteria of this subsection for successful completion of the financial test are:
1. The owner or operator, and/or guarantor, shall have a tangible net worth of at least 10 times the costs estimated in the approved reclamation plan for reclamation.
2. The owner or operator, and/or guarantor, shall have a tangible net worth of at least $10 million.
3. The owner or operator, and/or guarantor, shall submit to the State Mine Inspector a letter signed by the chief financial officer showing compliance with this Section.
4. The owner or operator, and/or guarantor, shall either:
   a. File financial statements annually with the U.S. Securities and Exchange Commission; or
   b. Report annually the firm's tangible net worth to Dun and Bradstreet, and Dun and Bradstreet shall have assigned the firm a financial-strength rating of 4A or 5A.
5. The firm's year-end financial statements, if independently audited, cannot include an adverse auditor's opinion, a disclaimer of opinion, or a "going concern" qualification.

D. The criteria of this subsection for successful completion of the financial test are:
1. The owner or operator, and/or guarantor, shall meet the financial test requirements of R11-2-811.
2. The fiscal year-end financial statements of the owner or operator, and/or guarantor, shall be examined by an Independent Certified Public Accountant (ICPA) and included with the ICPA's report of the examination.
3. The firm's year-end financial statements cannot include an adverse opinion, a disclaimer of opinion, or a "going concern" qualification.
4. The owner or operator, and/or guarantor, shall submit to the State Mine Inspector a letter signed by the chief financial officer demonstrating compliance with this Section.
5. If the financial statements of the owner or operator, and/or guarantor, are not submitted annually to the U.S. Securities and Exchange Commission, the owner or operator, and/or guarantor, shall obtain a special report by an ICPA saying:
   a. The ICPA has compared the data (which the letter from the chief financial officer specifies) as having been derived from the latest year-end financial statements of the owner or operator, and/or guarantor, with the amounts in the financial statements; and
   b. No matters caused the ICPA to believe the specified data should be adjusted.

E. If an owner or operator using the test to provide financial assurance finds the requirements of the financial test are no longer met, based on the year-end financial statements, the owner or operator shall obtain alternate financial assurance that meets the requirements of the Act and this Chapter within 120 days after the end of the year for which financial statements have been prepared.

F. The State Mine Inspector may require reports of financial condition, at any time, from the owner or operator, and/or guarantor. If the State Mine Inspector makes a written finding, on the basis of the reports or other information, that the owner or operator, and/or guarantor, no longer meets the financial test requirements of subsection (C) or (D), the owner or operator shall obtain alternate financial assurance that meets the requirements of the Act and this Chapter within 120 days after notification of this written finding.

G. After the initial submission of the items specified in subsection (C) or (D), the owner or operator shall send updated information to the State Mine Inspector within 90 days after the close of each succeeding fiscal year. This information shall consist of all items specified in subsection (C) or (D).

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-810. Cash Deposits

A. An owner or operator may use a receipt of deposit with the State Treasurer for the estimated costs of reclamation. The receipt of deposit shall show funds are available for reclamation costs. The owner or operator shall complete a treasurer's financial warranty deposit under the State Mine Inspector's instructions. The deposit shall be in the name of the state of Arizona.

B. The owner or operator may cancel the deposit with the State Treasurer, with notification to the State Mine Inspector, if alternate financial assurance that meets the requirements of the Act and this Chapter is substituted.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-811. Corporate Financial Tests

An owner or operator may satisfy the requirements of this Section upon successful completion of a financial test specified in subsection (A) or (B). Successful completion is determined by meeting the criteria of subsection (C):

A. The owner or operator shall have:
1. 2 of the following 3 ratios: a ratio of total liabilities to net worth of less than 2.0; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; or a ratio of current assets to current liabilities greater than 1.5;
2. Net working capital and tangible net worth each at least 6 times the costs estimated in the approved reclamation plan for reclamation;
3. Tangible net worth of at least $10 million; and
4. Assets located in the United States amounting to at least 90% of total assets or at least 6 times the costs estimated in the approved reclamation plan for reclamation.

B. The owner or operator shall have all of the following:
1. A current rating for the most recent bond issuance of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A, or Baa as issued by Moody's;
2. Tangible net worth at least 6 times the sum of the costs estimated in the approved reclamation plan for reclamation;
3. Tangible net worth of at least $10 million; and
4. Assets located in the United States amounting to at least 90% of total assets or at least 6 times the costs estimated in the approved reclamation plan for reclamation.

C. To show successful completion of the corporate financial test, the owner or operator shall submit the following to the State Mine Inspector:
1. A letter signed by the owner's or operator's chief financial officer demonstrating compliance with this Section;
2. A copy of the ICPA's report on examination of the owner's or operator's financial statements for the latest completed fiscal year; and
3. A special report from the owner's or operator's ICPA to the owner or operator saying:

a. The ICPA has compared the data (which the letter from the chief financial officer specified) as having been derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in the financial statements; and
b. No matters caused the ICPA to believe the specified data should be adjusted.

D. After the initial submission of items specified in subsection (C), the owner or operator shall send updated information to the State Mine Inspector within 90 days after the close of each succeeding fiscal year. This information shall consist of all items specified in subsection (C).

E. If the owner or operator no longer meets the requirements of subsection (A) or (B), the owner or operator shall send notice of intent to establish alternative financial assurance to the State Mine Inspector. The notice shall be sent by certified mail within 90 days after the end of the fiscal year for which the year-end financial data show that the owner or operator no longer meets the requirements. The owner or operator shall provide the alternative financial assurance that meets the requirements of the Act and this Chapter within 120 days after the end of the fiscal year.

F. The State Mine Inspector may, based on reasonable belief that the owner or operator may no longer meet the requirements of subsection (A) or (B), require reports of financial condition by written request, at any time, from the owner or operator, in addition to those specified in subsection (C). If the State Mine Inspector makes a written finding, on the basis of the reports or other information, that the owner or operator no longer meets the requirements of subsection (A) or (B), the owner or operator shall provide alternate financial assurance that meets the requirements of the Act and this Chapter within 120 days after notification of this written finding.

G. The State Mine Inspector may disallow use of this test on the basis of qualifications in the opinion expressed by the ICPA in the report on examination of the owner's or operator's financial statements. An adverse opinion or a disclaimer of opinion will be cause for disallowance. The State Mine Inspector will evaluate other qualifications on an individual basis. The owner or operator shall provide alternate financial assurance that meets the requirements of the Act and this Chapter within 120 days after notification of this disallowance.

H. The owner or operator is no longer required to submit the items specified in subsection (C) when:
1. An owner or operator substitutes alternate financial assurance that meets the requirements of the Act and this Chapter; or
2. The State Mine Inspector releases the owner or operator's financial assurance under the Act and this Chapter.

I. An owner or operator may meet the requirements of this Section by obtaining a written guarantee. The guarantor shall be the direct or higher-tier parent corporation of the owner or operator, a group of legal entities which are controlled through stock ownership by a common parent corporation, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a substantial business relationship with the owner or operator. The guarantor shall meet the requirements for owners or operators in subsections (A) through (I) and shall comply with the terms of the guarantee. The certified copy of the guarantee shall accompany the items sent to the State Mine Inspector as specified in subsection (C). One of these items shall be the letter from the guarantor's chief financial officer. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter shall describe the value received in consideration of the guarantee. If the guarantor is a firm with a substantial business relationship with the owner or operator, this letter shall describe this substantial business relationship and the value received in consideration of the guarantee. The terms of the guarantee shall provide that:
1. If the owner or operator fails to perform the reclamation covered by the guarantee under the approved reclamation plan, the guarantor will do so or establish a trust fund as specified in the Act and this Chapter in the name of the owner or operator.
2. The corporate guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail to the owner or operator and to the State Mine Inspector. Cancellation may not occur during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the State Mine Inspector, as evidenced by the return receipts.
3. If the owner or operator fails to provide alternate financial assurance that meets the requirements of the Act and this Chapter within 120 days after the owner or operator and the State Mine Inspector receive notice of cancellation of the corporate guarantee from the guarantor, the guarantor shall provide the alternate financial assurance in the name of the owner or operator.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-812. Annuities

A. An owner or operator may provide the State Mine Inspector an annuity as financial assurance for reclamation. The annuity shall name the state of Arizona as the beneficiary. The financial institution, if any, shall be licensed to do business in the state of Arizona. Any incremental or annual payment shall be in an amount adequate to pay all costs of reclamation for land disturbed in that incremental or annual period.

B. The owner or operator may cancel the annuity only if alternate financial assurance that meets the requirements of the Act and this Chapter is provided.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-813. Final Action on Financial Assurance Mechanisms

The State Mine Inspector shall take final action on the financial assurance mechanism within 30 days after its receipt.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-814. Incremental Financial Assurance

If financial assurance is provided on an incremental basis as permitted under A.R.S. § 27-995, the amount shall be equal to or greater than the estimated cost of reclamation for surface disturbances created during that increment.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-815. Financial Assurance Funding

Except where limited by statute or this Article, financial assurance provided by the owner or operator may be funded by the owner, the operator, by any 3rd party, or by any combination of persons or entities.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-816. Limited Individual Financial Assurance for Single Unit

Whenever 2 or more persons or entities are named as owners or operators in a single exploration operation or mining unit, the own-

ers or operators may limit the scope of their individual financial assurances so long as their financial assurances, in total, assure performance of all conditions and requirements of the Act, this Chapter, and the approved reclamation plan.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-817. Application for Release of Financial Assurance

A. The financial assurance shall not be released until all conditions and requirements of the Act and this Chapter have been satisfied.

B. Within 60 days after receiving a request for release of a financial assurance, the State Mine Inspector, or a designated agent, shall inspect the exploration operation or mining unit to determine whether the owner or operator has fulfilled the requirements of the approved reclamation plan and either:
1. Approve the release of the financial assurance or portion thereof; or
2. Notify the owner and operator in writing that the financial assurance or portion thereof will not be released, the reasons why, and the measures necessary to satisfy the requirements of the approved reclamation plan.

C. If a request to release is denied, the owner or operator may appeal the decision as provided by 12 A.A.C. 7, Article 6.

D. The 60 days within which the State Mine Inspector, or a designated agent, shall respond to a request to release a financial assurance may be extended by mutual agreement if conditions prevent an inspection of the reclaimed land.

E. The State Mine Inspector shall release the transferor's financial assurance mechanism upon receipt of alternate financial assurance that meets the requirements of the Act and this Chapter from the transferee.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-818. Forfeiture Criteria/Forfeiture of Financial Assurance

A. A financial assurance mechanism filed with the State Mine Inspector or state agency is subject to forfeiture if any of the following exist:
1. An exploration operation or mining unit has been completed, abandoned, or temporarily closed for a period greater than allowed by the Act or this Chapter without initiating reclamation;
2. An exploration operation or mining unit has been completed, abandoned, or temporarily closed for a period greater than allowed by the Act or this Chapter and the owner or operator stops or suspends any ongoing reclamation as determined by the State Mine Inspector;
3. The operator stops conducting business in the state of Arizona and does not transfer the approved reclamation plan and financial assurance to a new operator under A.R.S. § 27-928.
4. The operator stops conducting business due to insolvency, bankruptcy, receivership, or misconduct, under A.R.S. § 27-905;
5. The operator fails to comply with the conditions of the financial assurance mechanism; or
6. The owner or operator fails to reclaim the surface disturbances under the approved reclamation plan, the Act, or this Chapter.

B. Where the financial assurance has been filed with an agency of the federal government, the State Mine Inspector shall notify that agency and request forfeiture action to be taken.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-819. Notification of Forfeiture Action

At least 30 days before exercising forfeiture, the State Mine Inspector shall notify both the owner and operator and all principals and sureties by certified mail (return receipt requested), express mail (with a receipt), and hand delivery the financial assurance is subject to forfeiture and advise the owner and operator of the right to a hearing under A.R.S. Title 41, Chapter 6.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-820. Avoidance of Forfeiture

The State Mine Inspector shall advise both the owner and operator and all principals and sureties subject to R11-2-818 of the conditions under which forfeiture may be avoided. The conditions may include:
1. An agreement by the owner and operator or another party to perform reclamation operations under a compliance schedule, determined by the State Mine Inspector, which meets the conditions of the Act, this Chapter, and the approved reclamation plan.
2. A surety bond to complete the reclamation or a portion of the reclamation applicable to the financial assurance increment if the surety can show an ability to complete the reclamation under the Act, this Chapter, and the approved reclamation plan.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-821. Notice of Exercise of Forfeiture

The State Mine Inspector shall provide written notice by certified mail (return receipt requested) of any exercise of forfeiture of financial assurance to both the owner and operator and all principals and sureties.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).

R11-2-822. Full Release of Financial Assurance

The full release of financial assurance pursuant to A.R.S. § 27-996(B), or as otherwise provided by the Act and this Chapter, shall be evidence the owner or operator has reclaimed as required by the Act, this Chapter, and the approved reclamation plan.

Historical Note
Adopted effective January 6, 1997 (Supp. 97-1).