CHAPTER 185

PITS AND QUARRIES

(Safety Regulation Number 12)

Authority

N.J.S.A. 34:6-98.4a.

Chapter Expiration Date

In accordance with N.J.S.A. 52:14B-5.1c, Chapter 185, Pits and Quarries, expires on December 28, 2006. See: 38 N.J.R. 3130(a).

Chapter Historical Note

Chapter 185, Pits and Quarries (Safety Regulation Number 12), was adopted and became effective prior to September 1, 1969.

CHAPTER TABLE OF CONTENTS

SUBCHAPTER 1. PURPOSE AND SCOPE

12:185-1.1 Purpose
12:185-1.2 Scope
12:185-1.3 Exceptions

SUBCHAPTER 2. DEFINITIONS

12:185-2.1 General definitions
12:185-2.2 Special definitions

SUBCHAPTER 3. GENERAL PROVISIONS

12:185-3.1 Health and safety requirements
12:185-3.2 Requirements imposed by Commissioner
12:185-3.3 Use of existing equipment

SUBCHAPTER 4. INTOXICATING LIQUORS

12:185-4.1 Intoxicated persons
12:185-4.2 Exclusion

SUBCHAPTER 5. ACCIDENT REPORTS

12:185-5.1 General provisions
12:185-5.2 Records

SUBCHAPTER 6. ACCIDENT INVESTIGATION

12:185-6.1 Investigation by Commissioner
12:185-6.2 Scene of accident, commencement of investigation
12:185-6.3 Investigation by employer, corrective action

SUBCHAPTER 7. EMPLOYMENT LIMITATIONS

12:185-7.1 Age
12:185-7.2 Females

SUBCHAPTER 8. ASSIGNMENT OF EMPLOYEES

12:185-8.1 Inexperienced employee
12:185-8.2 Non-English speaking employees
12:185-8.3 Hazardous condition
12:185-8.4 Instruction

SUBCHAPTER 9. NOTIFICATION OF OWNERSHIP

12:185-9.1 Change in name or ownership
12:185-9.2 Resumption of operations

SUBCHAPTER 10. ABANDONED OPERATIONS

12:185-10.1 Plan filing
12:185-10.2 Permanent record
12:185-10.3 Safeguards
12:185-10.4 Safeguard requirements
12:185-10.5 Responsibility for work and expense

SUBCHAPTER 11. MAPS AND PLANS

12:185-11.1 General provision
12:185-11.2 Contents
12:185-11.3 Fine

SUBCHAPTER 12. FIRE PROTECTION

12:185-12.1 General provisions
12:185-12.2 Electrical equipment

SUBCHAPTER 13. FLAMMABLE MATERIALS

12:185-13.1 Storage
12:185-13.2 Confinement
12:185-13.3 Emergency value
12:185-13.4 Oil proximity
12:185-13.5 Buildings
12:185-13.6 Lights
12:185-13.7 Waste

SUBCHAPTER 14. SAFETY RULES AND STANDARDS

12:185-14.1 General provision
12:185-14.2 Reporting of unsafe conditions
12:185-14.3 Safety belt
12:185-14.4 Equipment use
12:185-14.5 Use of safeguards

SUBCHAPTER 15. FIRST AID

12:185-15.1 General provision
12:185-15.2 Receptacles
12:185-15.3 Stretchers and blankets
12:185-15.4 First-aid station
12:185-15.5 Required notice
12:185-15.6 Training
12:185-15.7 Personnel
12:185-15.8 Foreman
12:185-15.9 First-aid corps
12:185-15.10 Instructor
12:185-15.11 Refresher course
12:185-15.12 Application of first aid

SUBCHAPTER 16. SANITATION

12:185-16.1 Sanitation
12:185-16.2 Change house
12:185-16.3 Drinking water
12:185-16.4 General provisions

SUBCHAPTER 17. PROTECTIVE EQUIPMENT

12:185-17.1 Clothing
12:185-17.2 Goggles
12:185-17.3 Safety belts and life lines

SUBCHAPTER 18. HAND TOOLS

12:185-18.1 Employer responsibility
12:185-18.2 Employee responsibility
12:185-18.3 Replacement
12:185-18.4 Storage
12:185-18.5 Electrical equipment

SUBCHAPTER 19. CRUSHERS

12:185-19.1 General protection
12:185-19.2 Safety belt and life line
12:185-19.3 Signals for trucks

12:185-19.4 Refuge
12:185-19.5 Restriction
12:185-19.6 Goggles
12:185-19.7 Signs and barriers
12:185-19.8 Repair on crushers

SUBCHAPTER 20. CONVEYORS

12:185-20.1 General provisions
12:185-20.2 Pulley guards
12:185-20.3 Transmission equipment guards
12:185-20.4 Passageway
12:185-20.5 Passageway guards
12:185-20.6 Conveyor guards
12:185-20.7 Crossovers
12:185-20.8 Areas occupied by employees
12:185-20.9 Shafting and shaft ends
12:185-20.10 Replacement of guards
12:185-20.11 Rollers
12:185-20.12 Tunnels and sheds
12:185-20.13 Tunnel—repaired or rebuilt
12:185-20.14 Spillage
12:185-20.15 Belt shifters
12:185-20.16 Prohibition
12:185-20.17 Repairs on conveyor belts

SUBCHAPTER 21. GUARDING OF EQUIPMENT AND MACHINERY

12:185-21.1 General provisions
12:185-21.2 Keys, set-screws and other projections
12:185-21.3 Fly wheels
12:185-21.4 Shafting
12:185-21.5 Grinding wheels
12:185-21.6 Pulleys and belts
12:185-21.7 Miscellaneous equipment and machinery
12:185-21.8 Design of guard rails

SUBCHAPTER 22. FLOOR OPENINGS

12:185-22.1 General provisions
12:185-22.2 Enclosure
12:185-22.3 Hatch openings
12:185-22.4 Attendant
12:185-22.5 Covers

SUBCHAPTER 23. ELECTRICAL EQUIPMENT

12:185-23.1 General provisions
12:185-23.2 Transformers
12:185-23.3 Switchboards
12:185-23.4 Switches
12:185-23.5 Motors and generators
12:185-23.6 Power circuits
12:185-23.7 Trailing power cables

SUBCHAPTER 24. LIGHTING

12:185-24.1 General provisions
12:185-24.2 Installation and maintenance
12:185-24.3 Enclosed switches and protective devices
12:185-24.4 Wiring
12:185-24.5 Extension lamps and lamp cords

SUBCHAPTER 25. MATERIAL STORAGE

12:185-25.1 Storage bins
12:185-25.2 Storage piles
12:185-25.3 General provisions

SUBCHAPTER 26. LIGHTNING PROTECTION

12:185-26.1 General provisions

SUBCHAPTER 27. HAULAGE

12:185-27.1 Trucks
12:185-27.2 Railroad haulage

SUBCHAPTER 28. LOADING, MECHANICAL AND HOISTING EQUIPMENT

12:185-28.1 Hoisting equipment and practices
12:185-28.2 Aerial tramways
12:185-28.3 Slopes or inclines
12:185-28.4 Cranes, draglines, shovels and stiffleg derricks
12:185-28.5 Overhead cranes

SUBCHAPTER 29. STRUCTURES, WALKWAYS AND WORKING SURFACES

12:185-29.1 Trestles
12:185-29.2 Runways, elevated walks, platforms
12:185-29.3 Stairways
12:185-29.4 Ladders

SUBCHAPTER 30. PHYSICAL CONDITION OF PITS AND QUARRIES

12:185-30.1 General provisions
12:185-30.2 Pits
12:185-30.3 Quarries

SUBCHAPTER 31. DUST CONTROL

12:185-31.1 General provisions
12:185-31.2 Dust control
12:185-31.3 Local exhaust systems
12:185-31.4 Wet method of dust control
12:185-31.5 General ventilation
12:185-31.6 Respiratory protective equipment

SUBCHAPTER 1. PURPOSE AND SCOPE

12:185-1.1 Purpose

This Chapter is promulgated to establish reasonable minimum requirements for the construction, operation and maintenance of pits and quarries in the interest of the life, health and safety of employees, as well as protection of property.

12:185-1.2 Scope

This Chapter is applicable to every quarry, sand pit, gravel pit, clay pit and shale pit in this State.

12:185–1.3 Exceptions

In cases of practical difficulty or unnecessary hardship, the Commissioner may grant exceptions from this Chapter provided that a request for such exception has been made in writing. Exceptions can only be granted when it is clearly evident that a satisfactory, safe and sanitary condition is attained, but cannot be granted in any case where conflict would be created with mandatory requirements of the law.

SUBCHAPTER 2. DEFINITIONS

12:185–2.1 General definitions

The following words and terms, when used in this Chapter, shall have the following meanings unless the context clearly indicates otherwise.

2.1.1 "Approval" means approved by the Commissioner.

2.1.2 "Commissioner" means the Commissioner of Labor and Industry or his authorized representatives.

12:185–2.2 Special definitions

The following words and terms, when used in this Chapter, shall have the following meanings, unless the context clearly indicates otherwise.

2.2.1 "Abandoned" means the relinquishment of rights, with the intention of not returning to perform work at any quarry or pit.

2.2.2 "Employee" means any person or persons who shall work on, in or about any mill excavation, quarry, sand pit, clay pit, gravel pit or shale pit of whatever kind or character as defined in this Section.

2.2.3 "Employer" means includes[1] any owner, agent, manager, superintendent, foreman, lessee or other person or persons, whether individual partnership, corporation or association, having charge of any mill, excavation, quarry, sand pit, clay pit, gravel pit or shale pit of whatever kind or character as defined in this Section.

2.2.4 "Explosives." As defined in N.J.S.A. 21:1A–128 through 21:1A–144, the Explosives Law.

2.2.5 "Face" or "bank" means the sides from the bottom or floor of a pit or quarry to the surface surrounding the pit. Where one or more benches or levels are used in a pit, each bench or level has a separate face.

2.2.6 "Mill" means any ore mill, crushing, grinding or screening plant.

2.2.7 "Mineral" means any metalliferous or nonmetalliferous substance that can be extracted from the earth for profit.

2.2.8 "Pit" or "quarry" includes any excavation, pit, bank or open cut working for the extraction of stone, rock, gravel, sand or any other mineral and shall embrace any and all parts of the property of such quarry or open pit mine that contribute directly or indirectly to the extraction of such mineral.

2.2.9 "Shall" means a mandatory requirement.

2.2.10 "Should" means an advisory or recommended practice.

[1] So in original.

SUBCHAPTER 3. GENERAL PROVISIONS

12:185–3.1 Health and safety requirements

Every pit and quarry shall be so excavated, equipped, arranged, operated, maintained and conducted in all respects as to provide reasonable and adequate protection for the life, health and safety of all persons employed therein or legally frequenting the same and to provide for the protection of property. Every person shall comply with all applicable requirements contained in this Chapter.

12:185–3.2 Requirements imposed by Commissioner

The Commissioner, by written order, shall impose reasonable requirements not contained in this Chapter if in the opinion of the Commissioner a sufficient hazard exists.

12:185–3.3 Use of existing equipment

Nothing contained in this Chapter shall prevent the use of existing equipment during its lifetime, when maintained in good condition and performing with the proper safety factor, and used as required by existing safety standards prior to the effective date of this Chapter, but provided that all replacements shall conform to all the provisions herein contained.

SUBCHAPTER 4. INTOXICATING LIQUORS

12:185–4.1 Intoxicated persons

No person while under the influence of intoxicating liquors, beverages or drugs, shall enter or be permitted to enter or to loiter about any pit or quarry, buildings or other part of the working premises.

12:185–4.2 Exclusion

No intoxicating liquors, beverages or drugs shall be permitted in, at or around any pit or quarry, building or other parts of the working premises.

SUBCHAPTER 5. ACCIDENT REPORTS

12:185–5.1 General provisions

If an accident occurs at a pit or quarry involving serious personal injury to any person or persons which will prevent the injured person from resuming work on his regular shift, such accident will promptly be reported to the Commissioner by the employer. A copy of the employer's report sent to the Division of Workmen's Compensation shall be sufficient compliance with the requirement. Fatal accidents shall be reported to the Commissioner by the employer within 24 hours of the occurrence.

12:185–5.2 Records

Every employer shall maintain a record of all accidents resulting in disabling injuries which record shall include the type of injury, cause of injury, the agent of injury and time lost by the injured person.

SUBCHAPTER 6. ACCIDENT INVESTIGATION

12:185–6.1 Investigation by Commissioner

The Commissioner upon receipt of a notice of serious injury will investigate the same and make a report one copy of which shall be forwarded to the employer.

12:185–6.2 Scene of accident, commencement of investigation

No person shall, except for the purpose of saving life or relieving human suffering, interfere with, destroy, carry away or alter the position of any wreckage, articles or things at the scene of, or connected with a fatal accident until the Commissioner has commenced an investigation of the circumstances surrounding the fatality. This investigation shall commence within four hours after notification by the employer, provided however that the said time is within an operating shift.

12:185–6.3 Investigation by employer, corrective action

All accidents involving disabling personal injury shall be thoroughly investigated by the employer. The employer shall take such corrective action as he may determine to be necessary as the result of his investigation.

SUBCHAPTER 7. EMPLOYMENT LIMITATIONS

12:185–7.1 Age

No person under the age of 18 years shall be employed or permitted to be employed in or about any pit or quarry.

12:185–7.2 Females

No female shall be employed or permitted to be employed in or about any pit or quarry except in a technical, clerical or domestic capacity.

SUBCHAPTER 8. ASSIGNMENT OF EMPLOYEES

12:185–8.1 Inexperienced employee

The employer shall not assign any inexperienced employee to any work for which he is not qualified to do, unless he is put to work with an experienced and qualified person whose duty it shall be to instruct the employee in the safe and proper performance of his duties; nor shall he knowingly place any employee in any job which he is physically unable to do.

12:185–8.2 Non–English speaking employees

No employer shall assign any employee who does not understand the English language to any duty or place where this lack or partial lack of understanding or speaking English might be seriously harmful to his own safety or the safety or well-being of other employees.

12:185–8.3 Hazardous condition

No employee shall be permitted to work under or near a face or bank where he is endangered by materials rolling or sliding down the face or bank, nor anywhere there is danger from loose rock or overhang, until the dangerous or hazardous condition has been remedied.

12:185–8.4 Instruction

The employer shall furnish adequate instruction so that new employees, or employees assigned to new work, will not endanger themselves or others by the unsafe use of hazardous machinery, tools or equipment or any methods, operations or processes.

SUBCHAPTER 9. NOTIFICATION OF OWNERSHIP

12:185–9.1 Change in name or ownership

Whenever there has been a change of a name of the operating company, or a change of ownership of any pit or quarry, as defined in Section 2.2.8 (Special definitions) of this Chapter, the successor employer shall immediately notify the Commissioner in writing, giving the name of the former employer and the name of the new employer, with their addresses or the change in the name of the pit or quarry.

12:185–9.2 Resumption of operations

The employer shall notify the Commissioner in writing of the resumption of operations at a pit or quarry which has not been in production for one year.

SUBCHAPTER 10. ABANDONED OPERATIONS

12:185–10.1 Plan filing

Within one month after the abandonment of any quarry the employer shall file with the Commissioner an accurate plan showing the workings of the quarry up to the time of abandonment and the boundaries of the property in which these workings are situated.

12:185–10.2 Permanent record

The plan so filed shall be preserved as a permanent record, but no persons except officials of the Department shall be permitted, without the consent of the owner, to see the plans so filed until after a lapse of ten years of abandonment, except when in the opinion of the Commissioner it is necessary in the interests of safety to show the plan to the owner of the adjoining property or of surface rights.

12:185–10.3 Safeguards

The owner, agent or lessee of any abandoned pit or quarry which is dangerous by reason of its depth or other conditions, shall place or cause to be placed guardrails, fences or other approved means, sufficient to prevent any accidental fallings into any abandoned pit or quarry and shall keep them in good repair.

12:185–10.4 Safeguard requirements

Such fence shall be not less than six feet high and signs marked "Danger—Keep Out" shall be placed thereon or in the vicinity of any excavation.

12:185–10.5 Responsibility for work and expense

When the Commissioner finds that any such fencing or other safeguards are required in order to avoid danger to persons or property, he may cause the work to be done and all expenses incurred thereby shall be chargeable to and shall be paid by the owner, agent or lessee.

SUBCHAPTER 11. MAPS AND PLANS

12:185–11.1 General provision

The employer at every quarry shall make and maintain or cause to be made and maintained a clear and accurate map or maps showing all workings.

12:185–11.2 Contents

All such maps shall include a surface plan showing the boundaries of the property, the location of all plant buildings, railroads, roads, excavations, elevations.

12:185–11.3 Fine

At least once every year, the employer shall cause to be shown clearly and accurately on the map or maps of such quarry all the excavations made therein.

SUBCHAPTER 12. FIRE PROTECTION

12:185–12.1 General provisions

12.1.1 Every pit and quarry shall be provided with adequate fire protection. Water supply with adequate pressure, fire plugs, hoses and nozzles, chemical extinguishers or automatic chemical or water extinguishers, any and all of which shall be properly located to provide for the protection of property and the safety of all employees shall be considered as adequate fire protection.

12.1.2 Chemical fire fighting apparatus or hand extinguishers shall be of a type suitable for the purpose intended.

12.1.3 All fire protection and fire fighting apparatus and equipment shall be maintained in a good and serviceable condition at all times, and such apparatus or equipment must be serviced and restored to its proper efficiency and location immediately after it has been used.

12.1.4 Fire fighting apparatus or equipment of any kind shall not be molested or removed by any employee or other person or persons.

12.1.5 A fire alarm system manually or electrically operated to give warning of a fire to all employees must be installed and maintained in good working condition at all times.

12.1.6 All fire fighting equipment and apparatus shall be readily accessible and conveniently located, and the places housing such equipment shall be plainly marked.

12.1.7 Smoking shall not be permitted in oil houses, or wherever there is a fire hazard.

12.1.8 All operations involving the use of welding and cutting equipment shall be conducted in accordance with requirements of Chapter 160 (Welding and cutting) of this Title.

12.1.9 Storerooms and warehouses shall be kept free of rubbish and flammable packing.

12:185–12.2 Electrical equipment

12.2.1 All electrical equipment which might communicate fire to adjacent flammable material shall be of a type which will confine heat and flame within the equipment, and it shall be so installed and located that no flammable material will be exposed to fire from such equipment.

12.2.2 The area immediately surrounding a substation shall be kept free from grass, weeds and underbrush.

12.2.3 Efficient fire extinguishers or other equipment for fighting electrical fires shall be kept at or near all electrical stations or substations.

SUBCHAPTER 13. FLAMMABLE MATERIALS

12:185–13.1 Storage

Petroleum products and other dangerous flammable materials shall be stored at least 100 feet from other plant buildings and at least 300 feet from any explosives magazine. When petroleum products are stored in a tank or tanks buried in the ground, the tank or tanks shall be provided with proper vents and located at least 300 feet from any explosives magazine.

12:185–13.2 Confinement

Tanks containing flammable liquids shall be provided with curb retaining wall or drain to confine such liquids in event they should escape from the tank.

12:185–13.3 Emergency value

No tank shall be installed from which liquid fuel is to be conducted by gravity to the point of combustion, unless there is installed between such tank and point of combustion, a suitable, reliable cut-off valve that can be reached in any emergency.

12:185–13.4 Oil proximity

Under no circumstances shall oxygen or any flammable gas be stored in proximity to oil.

12:185–13.5 Buildings

Buildings used for the storage of flammable liquids shall be used for no other purpose, and shall be clearly marked by signs identifying their contents. Such buildings shall be of fire-resistant construction.

12:185–13.6 Lights

Explosion proof electric lights shall be installed in order to obviate the use of open lights in a building used for the storage of gasoline, distillates, oils or other flammable materials.

12:185–13.7 Waste

All discarded oily waste and rags shall be kept in closed metal receptacles.

SUBCHAPTER 14. SAFETY RULES AND STANDARDS

12:185–14.1 General provision

At any time when any sudden or extreme condition is such as to cause additional hazards, then additional precautions shall be taken to insure safe operation, and if the operation cannot be made safe, the work shall be temporarily discontinued and employees withdrawn from the area.

12:185–14.2 Reporting of unsafe conditions

All defects in or damage to machinery, apparatus or equipment, and all accidents occurring in the course of pit or quarrying operations which might result in personal injury, shall be promptly reported by the person observing them to some one in authority who shall have the conditions made reasonably safe immediately, or exclude all employees from exposure to the hazard.

12:185–14.3 Safety belt

No employee shall be permitted to enter any bin, bunker or other storage place containing materials which may cave or run unless he is provided with, and is wearing, an approved safety belt with life line attached. He shall be attended by another workman, who shall keep the life line reasonably taut and secured at all times. All work in or about confined spaces shall conform with the requirements of Chapter 170 (Work in confined spaces) of this Title.

12:185–14.4 Equipment use

No apparatus, piece of equipment, machinery or tool shall be used for any purpose for which it is not intended or suited.

12:185–14.5 Use of safeguards

Employees and other persons working in or about a pit, quarry or mineral treatment plant shall make full use of all safeguards provided for their protection.

SUBCHAPTER 15. FIRST AID

12:185–15.1 General provision

Adequate first-aid supplies shall be provided and placed at strategic locations about the pit, quarry or plant which will be convenient for treatment of injured employees in event of emergency.

NOTE: It is recommended that the employer seek the advice of a physician regarding the type and quantity of first-aid materials to be placed about the pit, quarry or plant.

12:185–15.2 Receptacles

The first-aid supplies shall be kept and maintained in suitable sanitary receptacles designed to be reasonably dust tight and moisture proof, in a first-aid room or other location where readily accessible in event of an emergency.

12:185–15.3 Stretchers and blankets

In all pits or quarries employing less than 25 men per shift there shall be at least one stretcher and two blankets. If more than 25 men are employed per shift an additional stretcher and blankets for each 25 men or fraction shall be provided.

12:185–15.4 First-aid station

Any pit or quarry which employs more than 50 men per shift shall have a principal first-aid station with a trained man available at all times.

12:185–15.5 Required notice

The name, address and telephone number of nearby doctors, hospitals and ambulance service to be called if an employee is injured, shall be posted conspicuously at the location of the principal first-aid facilities.

12:185–15.6 Training

It shall be the duty of the employer to see that as many employees as possible shall receive such first-aid training.

12:185–15.7 Personnel

In every pit or quarry where there are less than five men employed per shift at least one person shall be instructed in and capable of administering first aid.

12:185–15.8 Foreman

Where there are more than five persons but less than 25 persons employed per shift, all foremen and at least three additional employees shall be instructed in and capable of administering first aid.

12:185–15.9 First-aid corps

Where there are more than 25 persons employed per shift, a first-aid corps shall be organized and shall consist of all foremen and other persons designated by the superintendent. This corps shall consist of at least five employees.

12:185–15.10 Instructor

First-aid training shall be given by the United States Bureau of Mines, an instructor holding a valid first-aid instructor's certificate issued by the United States Bureau of Mines, anyone holding a valid Red Cross Trainer's certificate or a licensed physician.

12:185–15.11 Refresher course

The first-aid corps shall meet at least once every year for instruction. Employees who are not members of a first-aid corps as required under Section 15.9 (First-aid corps) of this Chapter, but who have received training in accordance with the provisions of Sections 15.6 (Training), 15.7 (Personnel), or 15.8 (Foreman) of this Chapter shall be required to take a refresher course in first aid given by a qualified instructor, at least once every three years.

12:185–15.12 Application of first aid

In the case of serious injury, the injured employee shall not be moved further than necessary before being given first-aid treatment, and shall not, at any time, be removed from the scene of the accident without being placed on a stretcher. A stretcher may be improvised if a standard stretcher is not available.

SUBCHAPTER 16. SANITATION

12:185–16.1 Sanitation

16.1.1 The operator shall provide sufficient and suitable sanitary conveniences in accordance with the following standards:

a. One water closet shall be provided for every 20 persons per shift and one urinal shall be provided for every 50 persons per shift or portion thereof.

b. Where female persons are employed, separate toilets with entirely separate entrances from those furnished the men shall be provided.

16.1.2 Sanitary conveniences, urinals and lavatories shall be kept clean and sanitary.

16.1.3 Refuse from lunch buckets shall not be thrown around but shall be put in suitable covered containers which the employer shall provide for litter and trash.

16.1.4 Employees shall be required to use the toilets provided for their convenience.

12:185–16.2 Change house

16.2.1 The operator of every pit or quarry employing 15 or more men per shift shall provide a wash and change house at each and every place which necessitates employees changing from work clothes to other wearing apparel, or where the lack of such facilities constitute a hazard to health.

16.2.2 These wash and change houses shall be available to the men at all times when they are going on or coming off shift, and shall be equipped with washing and shower facilities. For every ten employees per shift there shall be at least one washing unit and for every ten employees per shift there shall be at least one shower bath.

16.2.3 Pits or quarries which employ less than ten men per shift and which have no suitable water available on the property for washing and bathing purposes shall be exempt from the shower bath provision of subsection 16.2.2 of this Section, but shall provide their employees with washing facilities that are reasonably clean and sanitary.

16.2.4 The operator shall see that any or all wash or change houses or change rooms are maintained in a clean and sanitary manner, permitting no trash to accumulate. It shall be the duty of the employees to cooperate in this matter, and see that their individual spaces are kept clean and neat and that old, dirty, clothes or other unsanitary materials are properly disposed of.

12:185–16.3 Drinking water

16.3.1 Employers shall furnish adequate supplies of pure drinking water for use of all employees at the pit or quarry and at the plant.

16.3.2 Drinking water shall be protected against contamination at all times. Sources of water unfit for drinking shall be so posted.

16.3.3 The use of the common drinking cup is prohibited.

16.3.4 Sanitary drinking fountains shall be of a type approved by health authorities and in accordance with the American Standard Specifications for Drinking Fountains 24.2–1992.

12:185–16.4 General provisions

16.4.1 All sanitation facilities shall be constructed and maintained in accordance with the New Jersey Department of Labor and Industry Rules and Regulations governing Sanitation in Places of Employment, effective December 27, 1948, or the latest revision thereof.

16.4.2 Plan examination and approval of sanitation facilities shall be in accordance with the rules and regulations governing plan examination and approval, promulgated by the Commissioner.

SUBCHAPTER 17. PROTECTIVE EQUIPMENT

12:185–17.1 Clothing

17.1.1 Any clothing which, because of its condition, may create a hazard shall not be worn by any employee.

17.1.2 Protective gloves shall be worn when material is being handled which may injure the hand but the employee shall not wear gloves around moving machinery when their use will create a hazard.

17.1.3 Safety shoes shall be worn by every employee whose work exposes him to foot injuries from falling objects or material.

17.1.4 Safety hats shall be worn by every employee whose work exposes him to head injuries from falling objects or material.

17.1.5 Additional protective apparel or equipment required for the personal protection of any person exposed to a special hazard by reason of a special occupation or work shall be worn or used by the employee subjected to such hazard.

12:185–17.2 Goggles

17.2.1 Every employee shall wear suitable safety goggles or eye protectors when his duties or the orders of his employer require that he work on operations hazardous to his eyes.

17.2.2 Where screens are provided by the operator for the protection of employees from flying particles or material, the use of safety goggles may be omitted while working behind the protection of such screens.

12:185–17.3 Safety belts and life lines

17.3.1 The employer shall, where necessary, provide life lines and safety belts for the employees, and it shall be the duty of the employees to continually wear such safety belts and life lines when exposed to the hazard of falling from their place of work.

17.3.2 Some of the places where such equipment shall be worn are:

a. When working in rock-storage bins.

b. When drilling on narrow benches.

c. When scaling quarry faces.

17.3.3 No employee shall use a safety belt or life line without careful inspection immediately before use.

17.3.4 When in use a life line shall either be secured to prevent its being accidentally loosened or dislodged, or it shall be attended by another employee, who shall be stationed at a point near where the line is fastened, so that it can be adjusted or kept tight, if needed, with minimum slack in said line at all times.

17.3.5 Seriously worn or damaged belts or life lines shall be promptly removed from use and destroyed.

SUBCHAPTER 18. HAND TOOLS

12:185–18.1 Employer responsibility

The employer shall be responsible for the safe condition of tools furnished employees, and shall not permit the use of tools which are defective, nor permit the misuse of any tools.

12:185–18.2 Employee responsibility

The employee shall be responsible for the safe condition of tools he furnishes and shall not use any such tools which are not in safe condition for use.

12:185–18.3 Replacement

The employee shall promptly report to his immediate supervisor any tool being used by him which is defective, and said tool shall be promptly replaced or made safe.

12:185–18.4 Storage

Tools, except when they are in actual use, shall at all times be kept in racks, boxes, kits or where they will not create a hazard by falling or a person tripping over them.

12:185–18.5 Electrical equipment

Electric drills or other electrically operated rotating tools to be held in the hands shall have the electric switch constructed so as to break the circuit when the hand releases the switch or shall be equipped with properly adjusted friction or safety clutches, and must be kept electrically grounded.

SUBCHAPTER 19. CRUSHERS

12:185–19.1 General protection

Every employee working at a crusher shall be protected from falling into the crusher by one of the following means:

a. Adequately guarding the crusher opening where practical to do so;

b. Use of a working platform located in such position that material hung-up in the crusher can be safely dislodged by the employee on the platform. The platform shall have a standard railing;

c. Other equally safe means.

12:185–19.2 Safety belt and life line

Any employee who may be required to work over or above the feed opening of a crusher shall use a safety belt and life line. The life line shall be tied sufficiently short to prevent the employee from falling into the crusher.

12:185–19.3 Signals for trucks

Trucks shall not dump into any crusher without a signal from the attending operators.

12:185–19.4 Refuge

A safe place shall be provided for crusher operators while trucks are dumping in the crusher.

12:185–19.5 Restriction

No employees working at the crusher feed opening shall, unless adequately protected from flying material, stand on the side of the opening directly opposite a truck while its contents are being dumped therein.

12:185–19.6 Goggles

Crusher operators shall be required to wear goggles while the crusher is operating and when sledging oversize rock.

12:185–19.7 Signs and barriers

Danger signs and effective barriers shall be placed at the hoppers of all crushers while undergoing repairs to prevent material being dumped into such hoppers.

12:185–19.8 Repair on crushers

When repair work is being done on crushers, the control switches shall be locked and tagged in open position by the person or persons doing the work. Such locks shall not be removed until work is completed.

SUBCHAPTER 20. CONVEYORS

12:185–20.1 General provisions

All conveyors shall be constructed, operated and maintained in accordance with requirements of Chapter 140 (Conveyors, Cableways and Related Equipment) of this Title.

12:185–20.2 Pulley guards

All belt conveyor head pulleys, tail pulleys, single tension pulleys and dip take-up pulleys shall be effectively guarded so that no one can inadvertently contact the moving parts or get caught in the pinch points.

12:185–20.3 Transmission equipment guards

All head and tail pulley sprockets or other transmission equipment on portable incline conveyors shall, at all times, be completely guarded.

12:185–20.4 Passageway

Whenever it is necessary for employees to travel in the course of an operating conveyor, a safe passageway shall be provided.

12:185–20.5 Passageway guards

Such passageways shall be railed, nonskid walkways. Stairs, platforms and landings shall also be well guarded.

12:185–20.6 Conveyor guards

If a conveyor runs in a trough within three feet above the floor level, or just below the floor level, it shall either be completely covered with a substantial lid, or protected by a railing, and provided with necessary guard crossovers.

12:185–20.7 Crossovers

Stiles or crossover bridges shall be provided when it is necessary to cross over exposed chain, belt, bucket, screw or roller conveyors. Such crossovers shall be properly equipped with standard railings and toeboards and shall have a fixed ladder, ramp or stairway as a safe means of access.

12:185–20.8 Areas occupied by employees

Conveyors passing over areas that are occupied or used by employees shall be so guarded as to prevent the material handled from falling on employees.

12:185–20.9 Shafting and shaft ends

Shafting and projecting shaft ends within seven feet of floor or platform level should be guarded completely.

12:185–20.10 Replacement of guards

When guards are removed for oiling or repairs they shall be replaced before the conveyor belt is started.

12:185–20.11 Rollers

Conveyor rollers shall not be greased while the conveyor is in operation, unless such grease points are piped to a safe location.

12:185–20.12 Tunnels and sheds

Conveyor tunnels or conveyor sheds constructed after the effective date of this Chapter shall have an unobstructed passageway at least three feet wide and 6½ feet high at one side of the conveyor.

12:185–20.13 Tunnel—repaired or rebuilt

When a conveyor tunnel constructed before the effective date of this Chapter is extensively repaired or rebuilt, an unobstructed passageway shall be provided, as required in Section 20.12 (Tunnels and sheds) of this Chapter.

12:185–20.14 Spillage

Passageways adjacent to conveyors shall be kept free of spillage from the conveyor and means shall be taken to minimize the spillage.

12:185–20.15 Belt shifters

Belt shifters for loose pulleys shall be easily accessible, away from accidental contact and within easy reach of the operator. They shall be equipped with a locking device to prevent accidental shifting and to keep belt from creeping.

12:185–20.16 Prohibition

No employee shall be permitted to ride on any conveyor.

12:185–20.17 Repairs on conveyor belts

When repairs are made to conveyor belts, the control switches shall be locked and tagged in open position by the person or persons doing the work. Such locks shall not be removed until work is completed.

SUBCHAPTER 21. GUARDING OF EQUIPMENT AND MACHINERY

12:185–21.1 General provisions

21.1.1 All hazardous machinery shall be guarded in accordance with the safety regulations of this Department relating to machine safeguarding and shall be adequately protected to prevent all access to the danger zones during operation.

21.1.2 Equipment or machinery shall not be operated unless it is in good working order and all safeguards are in place.

21.1.3 No equipment or machinery shall be operated by unauthorized personnel.

21.1.4 Equipment and machinery shall be manned only by competent operators.

21.1.5 Equipment and machinery shall not be lubricated while in motion. This does not apply to equipment or machinery equipped with extension lubrication fitting or other means of lubrication which can be serviced safely.

21.1.6 Adequate passageway clearance shall be provided at machine installations, and passageways shall be kept free of stumbling and slipping hazards.

21.1.7 All equipment and machinery shall be adequately illuminated.

21.1.8 All machine guards shall be of substantial metal construction except in construction work.

12:185–21.2 Keys, set-screws and other projections

21.2.1 Every key, bolt, set-screw and every part of any wheel or other revolving machinery which projects unevenly from the surface shall be removed, made flush or guarded by a metal cover, unless situated in such a manner or location as to prevent any person from coming into accidental contact therewith.

21.2.2 This shall not apply to keys or set-screws within gear or sprocket casings or other enclosures, nor to keys, set-screws or oil cups in hubs or pulleys less than 20 inches in diameter where they are within the plane of the rim of the pulley.

21.2.3 Projecting shaft ends within seven feet of the floor or working level, shall present a smooth edge and smooth end.

21.2.4 Unused key ways seven feet or less above the floor or working level shall be filled up, covered or guarded.

12:185–21.3 Fly wheels

21.3.1 Fly wheels so located that any part is seven feet or less above the floor or platform shall be guarded in one of the following ways:

a. With an enclosure of sheet, perforated or expanded metal or woven wire.

b. With guard rails placed not less than 15 inches from the rim.

21.3.2 When a fly wheel extends into a pit or is within 12 inches of a floor, and a standard railing guard is used, a standard toeboard shall also be provided.

21.3.3 When the upper rim of a fly wheel protrudes through a working floor, it shall be entirely enclosed or surrounded by a guard rail and toeboard.

12:185–21.4 Shafting

21.4.1 All exposed parts of horizontal shafting seven feet or less from a floor or working platform, excepting runways used exclusively for oiling, or running adjustments, shall be guarded by a stationary casing enclosing the shaft completely, or by a trough enclosing sides and top or sides and bottom of shafting, as location requires.

12:185–21.5 Grinding wheels

21.5.1 All grinding wheels shall be constructed, operated and maintained in accordance with the requirements of Chapter 144 (Abrasive Wheels) of this Title.

21.5.2 Stationary grinding machines shall be sufficiently heavy and rigid so as to prevent dangerous vibration or shall be securely mounted on substantial floor benches, foundations or other adequate and safe structures.

21.5.3 Portable grinders shall not be used as bench grinders unless they are securely clamped into place, have ample clearance between the wheels and the bench and are equipped with standard wheel and arbor guards.

21.5.4 All grinding wheels shall be provided with a hooded guard of sufficient strength to withstand the shock of a bursting wheel.

21.5.5 The guard shall be adjusted close to the wheel and extend forward over the top of the wheel to a point at least 30 degrees beyond a vertical line drawn through the center of the wheel.

21.5.6 Bench grinders, disc grinders and floor stands shall be equipped with readily adjustable work rests of rigid construction. They shall be securely adjusted to the wheel with a maximum clearance of ⅛ inch, and when dangerously worn shall be repaired or replaced. Work rests may be removed when the nature or size of the material will not permit their use.

21.5.7 Arbor ends must be guarded.

21.5.8 Grinding wheels shall be provided with safety flanges.

21.5.9 Where a power driven grinding wheel is used, the employer shall provide suitable goggles and it shall be the duty of the workmen to wear such goggles at all times the wheel is used. The wheel shall also be provided with a transparent shield of approved design and shall be used at all times when the work permits.

12:185–21.6 Pulleys and belts

21.6.1 All mechanical power transmission apparatus shall be constructed, operated and maintained in accordance with requirements of Chapter 145 (Safeguarding of Mechanical Power Transmission Apparatus) of this Title.

21.6.2 All pulleys, parts of pulleys, horizontal belts and chains, which are seven feet or less from the floor or the floor of a platform shall be guarded for their entire length, if located over passageways of work places and if the center distance between pulleys is ten feet or more.

21.6.3 All vertical or inclined belt chain or rope drives shall be adequately guarded to a height of at least seven feet from the floor.

21.6.4 When the distance to the nearest fixed pulley, clutch or hanger does not exceed the width of the belt used, a guide shall be provided to prevent the belt from leaving the pulley on the side where insufficient clearance exists.

21.6.5 Belts or overhanging flat pulleys on line shafts shall be provided with a stop to prevent the belt from running off the pulley.

21.6.6 All overhead chain and link belt drives shall be provided with fully enclosed guards.

12:185–21.7 Miscellaneous equipment and machinery

21.7.1 Clutches or clutch pulleys having projecting moving parts located seven feet or less above the floor or working platform shall be enclosed by an approved stationary guard.

21.7.2 Clutch handles shall be removed and located as far as possible from any danger of accidental contact, but still within reach of the operator.

21.7.3 All exposed gears within seven feet of the floor level must be entirely enclosed.

21.7.4 All machinery not included in the foregoing sections shall have all moving parts within seven feet of the floor level guarded against accidental contact.

21.7.5 All repairs or service pits when not in actual use, shall be either covered or protected by movable post or stanchions and chain rails or other railing guards which will afford at least equivalent protection.

12:185–21.8 Design of guard rails

21.8.1 Guard rails shall be 42 inches in height and smooth surfaced, with mid-rail between top rails and floor, and of substantial construction.

21.8.2 Posts shall not be more than eight feet apart, are to be permanent and substantial, smooth, and free from protruding nails, bolts and splinters. If made of pipe, it shall be 1¼ inches inside diameter, or larger.

21.8.3 Toeboards shall be four inches or more in height and constructed of wood, metal or of metal grill not exceeding one-inch mesh.

SUBCHAPTER 22. FLOOR OPENINGS

12:185–22.1 General provisions

A floor opening shall be considered any opening in a floor or platform that is 12 inches or more in its least dimension.

12:185–22.2 Enclosure

All floor openings shall be enclosed, guarded with standard railings and toeboards, or protected by safety covers with flush hinges.

12:185–22.3 Hatch openings

Hatch openings shall be protected by standard railings and toeboards, hatch covers or solid, slat or grill gates 42 inches high.

12:185–22.4 Attendant

Where operations require the removal of guard railing there shall be an attendant on duty nearby, and the attendant shall be responsible to see that no object is accidentally dropped through the opening.

12:185–22.5 Covers

All floor openings less than 12 inches inside dimensions shall be kept covered. Such covers shall be of such design that they cannot be easily dislodged.

SUBCHAPTER 23. ELECTRICAL EQUIPMENT

12:185–23.1 General provisions

23.1.1 All electrical equipment shall be rated in accordance with current standards of the American Institute of Electrical Engineers and shall be operated within such rated capacity. Such rating shall be legibly posted on the equipment. The plate bearing such information shall indicate whether the rating is for continuous or intermittent service and shall be in accordance with the name plate requirements of the American Institute of Electrical Engineers.

23.1.2 All electrical equipment, machinery and apparatus shall be installed with sufficient space and in a manner to be readily and safely accessible to provide for the safe and efficient operation, maintenance and manipulation of such equipment, machinery and apparatus.

23.1.3 No person, unless authorized by the employer, shall be permitted to operate, install or maintain any electrical circuits, machinery or equipment. Every person so authorized shall be thoroughly familiar with the proper methods of operation and maintenance of such circuits, equipment and machinery.

23.1.4 All electrical circuits, machinery and equipment shall be in charge of a man fitted for the job by ability, training and experience.

23.1.5 Employees regularly working on electrical equipment shall be thoroughly instructed in methods of first aid and fire extinguishment.

23.1.6 Any defective equipment shall be replaced at once upon discovery or report of same.

23.1.7 Instructions in administering resuscitation after electric shock and disengaging a person from live conductors shall be conspicuously posted at strategic locations.

23.1.8 All stationary machinery, controls, switches, transformers and rheostats shall be so located or so protected as to prevent damage thereto.

23.1.9 All metallic frames, casings and coverings of motors, generators, switchboards and other electrical equipment that can become "alive" through failure of insulation or by contact with energized parts, shall be grounded.

23.1.10. All metallic coverings and armor of cables and of conduit shall be grounded and electrically continuous, so as to afford a conductor path for the ground circuit.

23.1.11 Before any repair work is started on any power circuit or electrical equipment, the power must be disconnected, and the switches shall be locked open while repairs are made on machinery or other equipment. Work on electric circuits and apparatus with the current on shall only be done if conditions made it absolutely necessary in which case adequate precautions shall be taken. Precautions for working on live circuits should include insulated foot supports, such as rubber boots, dry wooden ladders or insulated platforms, and approved rubber gloves, approved shields and blankets for covering live parts and grounds.

23.1.12 After repairs are made, control switches shall not be turned to "On" position until it has been determined there will be no fire hazard nor the hazard of electric shock.

23.1.13 Wires, pieces of wire, or other conducting material shall not be used as a substitute for properly designed fuses.

23.1.14 Dry wooden platforms, insulating mats, or other electrically nonconductive material shall be kept in place at each switchboard, and power control switch where shock hazards exist.

23.1.15 Fuses or equivalent protective devices of the correct type and capacity shall be installed on all electrical equipment to be protected against excessive overload.

23.1.16 All electrical appliances, machines and conductors shall be large enough for the work required of them.

23.1.17 Provisions should be made so that individual circuits can be checked periodically for ground failures.

23.1.18 Surface power poles supported by guy wires shall have insulators on the guy wires at the pole end. Such guy wires shall not, under any circumstances, be used as a part of the grounding circuit.

12:185–23.2 Transformers

23.2.1 Unless transformers are placed on poles or platforms at least 15 feet above ground level, they shall be enclosed in a transformer house or surrounded by a suitable wire fence at least six feet high which shall be effectively grounded.

23.2.2 Transformers shall be so located and arranged as to minimize possible life and fire hazards. Oil transformers located indoors shall be installed in a vault of fireproof construction, ventilated and well lighted.

23.2.3 When oil transformers are installed outdoors, they shall be located in an area free from combustible material, and shall be provided with a positive means to confine transformer oil in case of fire or explosion.

23.2.4 Circuits leaving the transformers shall be protected by a switch and an automatic overload circuit breaker. Fuses may be substituted for the circuit breakers in lighting circuits.

23.2.5 Casings of all transformers that are within 15 feet of the ground shall be effectively grounded.

23.2.6 All transformer stations shall be kept locked against unauthorized entry.

23.2.7 "Danger—High Voltage" signs shall be posted conspicuously on all transformer enclosures.

23.2.8 Material shall not be stored in the transformer area or vault.

23.2.9 All transformer stations shall be equipped with a dry, insulated stick or equally safe method of operating disconnecting switches.

12:185–23.3 Switchboards

23.3.1 Switchboards shall:

a. Have ample working area in back of them and all areas around the switchboard shall be kept free of rubbish and stored material.

b. Have an entrance at each end to permit inspection, adjustment or repairs to be made back of the switchboard.

c. Be adequately lighted.

d. Have control readily accessible for emergency shutdown.

e. Have disconnecting switch on incoming circuit at or near entrance to rear.

f. Have entrance to rear guarded against unauthorized entrance.

g. Be effectively grounded electrically if constructed of metal.

23.3.2 Vertical clearance in the back of the switchboard shall be at least seven feet above the floor.

23.3.3 Floor mats or platforms of insulating material shall be provided in front and back of every switchboard.

23.3.4 Sufficient ventilation shall be provided at switchboards or switch panels to prevent overheating of electrical equipment.

12:185–23.4 Switches

23.4.1 All branch circuits shall be provided with approved type switches at both the branch and terminal ends.

23.4.2 All switches shall be protected against moisture, dirt or physical damage and the frames of each shall be effectively grounded.

23.4.3 Switches and circuit breakers shall be installed so that they are readily accessible and can be operated without danger of contact with moving or live parts.

23.4.4 Enclosed safety switches shall be used on all power circuits and shall be maintained in good working condition at all times.

23.4.5 Switches and starting boxes used to control electric circuits shall be of safe design.

23.4.6 Circuit breakers should be provided to protect all power circuits; if they are automatic, they should be set so circuits cannot be overloaded.

23.4.7 All electric control switches shall be plainly marked with the name of the machine which each controls.

12:185–23.5 Motors and generators

23.5.1 All electrical connections to motors shall be guarded in order to prevent accidental contact therewith.

23.5.2 Alternating current motors and starting devices shall be protected by a fuse or automatic circuit breaker in each ungrounded wire. When circuit breakers are used, two overload trip coils shall be used for ungrounded neutral systems, and three overload trip coils for grounded neutral systems. In either case the automatic circuit breaker shall operate so that the opening of one phase will open the other phases. Switches shall be provided for isolating the fuses or circuit breakers from the live source.

23.5.3 Overload release devices on starting rheostats and compensators shall not be considered as taking the place of circuit breakers if such devices are inoperative during the starting of the motor.

12:185–23.6 Power circuits

23.6.1 Buried conductors, except ground wires, shall be insulated and installed in metal or other protective covering. Such covering shall be reinforced in places when it is subject to damage.

23.6.2 Where conductors are joined, suitable junction boxes shall be used, or the joints secured by soldering or mechanical means so that the joint is at least equal in conductivity to the conductor. The insulation, armoring or lead covering shall be replaced in as good a condition as it was originally.

23.6.3 All circuits leading from generating stations and substations shall be provided with automatic circuit interrupting devices so arranged that the circuit will be automatically opened at its source if the current exceeds the safe carrying capacity of the conductors.

23.6.4 Each power conductor carrying in excess of 300 volts shall be provided with a switch capable of opening the circuit under full load.

23.6.5 All power wires other than ground wires or armored metal sheathed wires shall be supported on or by well installed insulators, shall not touch combustible materials, nor the back or sides of working places, and when they cross other power circuits must be completely and properly insulated.

23.6.6 Overhead high potential power lines shall be placed at least 15 feet above the ground and supported and guarded adequately to prevent contact with other circuits; providing, however, that power lines to dredges may be within three feet of the water, or when attached to a walkway shall be so located as to prevent accidental contact.

23.6.7 Portable pumps and other portable electrical equipment shall be installed so as to constitute the minimum possible fire or contact hazard.

12:185–23.7 Trailing power cables

23.7.1 All trailing power cables for power shovels, draglines, cranes, electric churn drills or other equipment shall be well insulated, of waterproof or armored construction; and fastened in such a manner that it will not be pulled by the terminal connections when the equipment is moved.

23.7.2 Trailing power cables shall be used only in continuous lengths except when connections are made with a connector or splice box of suitable design.

23.7.3 Branch circuits shall not be installed on trailing power cables.

23.7.4 Power cables shall be securely supported by poles, horses or other means when they pass over railroad tracks or vehicular roads, unless such cables are protected from mechanical injury and the vehicles protected from coming in contact with them.

23.7.5 Power cables shall not lie in water, but shall be supported where necessary.

23.7.6 Energized power cables shall not be handled with bare hands. Insulated cable tongs, insulated cable hooks or other approved means shall be used in handling energized power cables.

SUBCHAPTER 24. LIGHTING

12:185–24.1 General provisions

Interiors of all buildings shall be adequately lighted and exterior illumination provided where required throughout active areas by suitable outdoor lighting equipment.

12:185–24.2 Installation and maintenance

All lighting service and branch circuits shall be properly installed and maintained to prevent the hazard of shock and fire.

12:185–24.3 Enclosed switches and protective devices

Suitable enclosed switches and protective devices shall be used on all circuits.

12:185–24.4 Wiring

Wiring in all buildings shall conform to the American Standard National Electric Code, C1–1953.

12:185–24.5 Extension lamps and lamp cords

All lamp cords, where used for temporary lighting connections, shall have extra heavy insulation, and all portable extension lamps shall be equipped with lamp guards at all times.

SUBCHAPTER 25. MATERIAL STORAGE

12:185–25.1 Storage bins

25.1.1 All bins shall be constructed and maintained so there is no danger of collapsing when fully loaded.

25.1.2 Chutes for discharging bins shall be so constructed and arranged as to be conveniently and safely operated.

25.1.3 The top of all open bins shall be covered or guarded with railings and toeboards so that it will be impossible for any employee to stumble into them.

25.1.4 Permanent ladders, or walkways shall be provided to the top of all rock storage bins.

25.1.5 No person shall enter any storage bin or walk on storage piles over tunnel loading operations when a hazard exists unless wearing a safety belt with a snub tender at the end of the life line.

25.1.6 Loading devices shall be locked so they cannot be operated while men are working inside rock storage bins.

12:185–25.2 Storage piles

25.2.1 Employees shall not work under or in front of overhanging frozen top material during loading operations when there is any danger of sudden slides injuring the employee, and material in such piles shall be maintained as near as practical to the angle of repose.

25.2.2 Storage piles shall be frequently inspected by some competent employee to prevent their becoming unsafe by continued adding to or withdrawing from.

12:185–25.3 General provisions

25.3.1 Flammable material shall be stored in accordance with Subchapter 13 (Flammable Materials) of this Chapter.

25.3.2 All materials and supplies shall be so handled and stored, as to minimize falling, tripping and collision hazards.

25.3.3 Any material that will create a serious hazard by flowing or spilling shall be stored to prevent leakage or breakage.

25.3.4 When any racks are used for supporting steel plate, pipe, drill rods, drill machines or similar material, they shall be of sufficient strength to be capable of supporting the imposed loads.

25.3.5 All chemicals which may cause injury to any employee or other person if exposed to contact, shall be stored in safe containers. The container should be properly labeled so as to give warning of the hazard in accordance with Chapter 130 (Precautionary Labeling Of Hazardous Chemicals) of this Title.

SUBCHAPTER 26. LIGHTNING PROTECTION

12:185–26.1 General provisions

All power cables entering any pit, quarry, mill or excavation, that are or may be exposed to lightning or transient high voltage effects, shall be equipped with sufficient and adequate lightning arrestors, grounded in accordance with the National Electric Code.

SUBCHAPTER 27. HAULAGE

12:185–27.1 Trucks

27.1.1 No defective equipment shall be operated until the necessary repairs or adjustments have been made and the equipment is in safe operating condition.

27.1.2 Only authorized persons shall be allowed to ride with truck drivers.

27.1.3 No person shall be permitted to ride on the running board of a truck.

27.1.4 Mounting or dismounting from moving trucks shall be prohibited.

27.1.5 Trucks shall not be loaded by power shovel until the truck driver is out of the cab and in a safe place, unless the truck has been specifically designed for such loading, having a substantial steel canopy extending over the cab.

27.1.6 Trucks shall not pull away from the shovel or loader until the load has been balanced. Rock should not be permitted to protect or overhang from the sides of the truck.

27.1.7 Trucks shall not dump into crusher chutes, hoppers or bins without a signal from the attending operators.

27.1.8 A substantial bumping block to stop a backing truck, or other approved methods shall be provided at all places where a rear dump truck is to discharge its load, unless the load is being dumped on level ground for spreading.

27.1.9 No workman shall be permitted under the raised body of a truck until such body is secured in its raised position.

27.1.10 No smoking or open lights shall be permitted during refueling operations, and the truck engine shall be stopped.

27.1.11 Truck roads leading from the pit to the crusher, when the crusher is on the surface, shall be arranged to provide one-way traffic. If this is not practicable, the road shall be wide enough to accommodate free passage of the truck at all points, or definite turnouts and waiting points shall be designated.

12:185–27.2 Railroad haulage

27.2.1 All rail haulage on private property, and not operated or maintained by a common carrier, shall conform to the requirements of this Section.

27.2.2 Tracks shall be well-laid and properly ballasted. All switches shall be equipped and laid in conformity with A.S.A. Standards (M–7–1–1933) and (M–7–2–1935).

27.2.3 Rails shall be suitable for the weight of equipment, properly aligned and secured to the ties by tie plates and track spikes.

27.2.4 Bumping blocks or the equivalent shall be provided on all dead-end tracks.

27.2.5 Grade crossings shall be eliminated as far as practicable and shall be planked or filled between the rails.

27.2.6 All guardrails, lead rails and frogs shall be provided with protective blocks of wood or metal to prevent employees from getting their feet caught in these places.

27.2.7 Railroad cars shall be left standing within limits designated by clearance signs or posts.

27.2.8 Cars left on a grade or not coupled to a locomotive shall be securely blocked and hand brakes set.

27.2.9 Railroad car hand brakes shall be tested before an attempt is made to move the car. If defective brakes are discovered, the car shall be marked appropriately for repair and only moved with a locomotive or attached to another car having good brakes.

27.2.10 Starting a car on a grade by "pinching" shall be prohibited, except when a man is stationed at the brake wheel.

27.2.11 Railroad car brakes should not be manipulated by the hands alone. A heavy brake stick, preferably a hooked bar, should be used.

27.2.12 The minimum clearance for standard gauge tracks shall be:

a. From the gauge line of the nearest rail to loading or unloading docks, walls of depressed tracks, and wheelbarrow platforms, three feet four inches.

b. From the gauge line of the nearest rail to all stockyards, five feet on tangent track and five feet six inches on curved track.

c. From the gauge line on nearest rail to all other structures not noted above, six feet.

d. The minimum distance between the nearest gauge lines of adjacent tracks shall be eight feet six inches.

27.2.13 The minimum overhead clearance shall be as follows:

a. From the top of rail to any structure other than overhead loading pockets: 22 feet.

b. From the top of rail to any overhead power transmission line when men are permitted to ride on top of standard freight cars: 28 feet.

27.2.14 Where it is impracticable to have an overhead clearance of 22 feet or more above the top of the rail, suitable "head tappers" shall be erected at proper distance on each side of the structure.

27.2.15 Tracks having less clearance from buildings, poles or other structures for a man on the side of a car than is specified in subsection 27.2.13 a. and b. of this Section shall have suitable warning signs erected to indicate the danger of inadequate clearance.

27.2.16 When the minimum clearance required in subsections 27.2.13 and 27.2.14 of this Section are not existing at the effective date of this Chapter, it shall not be mandatory to remove or relocate existing structures to provide the necessary clearances. However, any extensive repairs or rebuilding of that portion of the structure affecting the above mentioned clearances shall be so made as to meet the clearance requirements.

SUBCHAPTER 28. LOADING, MECHANICAL AND HOISTING EQUIPMENT

12:185–28.1 Hoisting equipment and practices

28.1.1 The hoisting equipment and hoisting practices for slopes or inclines and aerial tramways shall be in compliance with this Section.

28.1.2 All hoists shall be of standard design and where men are transported the hoist shall be equipped with two independent and separate braking systems, each of which shall be capable of stopping and holding the weight of a fully loaded conveyance.

28.1.3 Hoists shall be so situated that the engineer or operator has a full view of the trip at all times. When this is impracticable, the hoisting apparatus shall be provided with an indicating device showing the position of the car or skip at all times.

28.1.4 All hoists shall be provided with positive overwind and overspeed controls.

28.1.5 A trial run of hoisting equipment shall be made at the beginning of each shift.

28.1.6 Hoisting equipment shall be inspected daily, and a written record shall be made of each inspection.

28.1.7 The hoist engineer shall immediately report any defect in the hoist or signalling system and record it in the daily log.

28.1.8 When defects are found that may make further operation of the hoist unsafe, the hoist shall not be operated until the defect has been remedied.

28.1.9 Any change in or adjustment to any part of the hoisting equipment shall be reported to the hoisting engineer and recorded in the log.

28.1.10 Two positive signalling systems, one of which shall be audible, shall be adopted, and the signal code posted conspicuously in the hoist room in full view of the hoisting engineer and at each end of the slope or aerial tramway.

28.1.11 The signalling system shall be inspected and tested at least once each shift.

28.1.12 The hoistman shall not be permitted to engage in conversation while hoisting or lowering men.

28.1.13 Only authorized visitors and employees shall be permitted in the hoist room.

28.1.14 A qualified hoistman shall be in immediate charge of the hoist at all times. He shall be familiar with the details and workings of hoists and experienced in their operation.

28.1.15 After the effective date of this regulation, no person shall be employed as a hoist engineer until an examination by a licensed physician shows him to be free of physical defects which in the opinion of the physician, would disqualify him for reasons of safety.

28.1.16 After the effective date of this regulation, all hoist men shall be given a thorough physical examination at least once a year by a licensed physician to assure their continued physical fitness to serve in that position.

28.1.17 Every aerial tramway or slope, the operation of which requires the presence of employees at both ends of the tramway or slope, shall be provided with direct connected telephone or other equally ready means of quick communication.

28.1.18 Hoisting cables shall be of adequate size to handle the intended load and the safety factor shall conform to the standards established in the American Standard Wire Rope for Mines, (M–11–1927).

28.1.19 Sheaves and drums used in connection with hoisting ropes shall be of correct size and design and conformity to the standards established in the American Standard Wire Rope for Mines, (M–11–1927).

28.1.20 No hoisting cable shall be allowed to drag or rub on any part of a slope, but shall be supported by rollers or guide pulleys located so as to prevent dragging or rubbing.

28.1.21 Hoist drums shall be provided with flanges that extend at least three diameters of the hoisting rope radially beyond the last layer of rope when all the rope is coiled on the drum.

28.1.22 At least three full laps shall remain on the drum when the cable is extended to its maximum distance. The rope shall make at least one full lap on the drum shaft or around a spoke of the drum (in case of a free drum) and the

end shall be fastened with at least four cable clips, or equivalent.

28.1.23 The cable shall be fastened to its load by means of a spelter-filled socket, a thimble and clamp, cable clamps or safety hooks.

28.1.24 All cable used in hoisting men and material shall be lubricated at frequent intervals and shall be maintained in a properly lubricated condition.

28.1.25 Hoisting cables shall be inspected daily, and a thorough and complete inspection shall be made weekly by a competent person. A written report of the condition of the cable found during the inspection shall be maintained.

28.1.26 At least once each six months a section equivalent to ½ the circumference of the drum shall be cut from the end of the rope fastened to the drum.

28.1.27 Hoisting ropes shall be discarded when they show any of the following conditions:

a. If there are six broken wires in one strand of a rope lay.

b. If the wires on the crown are worn to 65 per cent of their original diameter.

c. If marked corrosion appears.

d. If kinking occurs in a section that cannot be cut off.

e. If more than three wires have been reduced by wear more than 30 per cent in cross section or are broken in one strand of a rope lay.

f. If the minimum safety factor falls below specifications.

28.1.28 When any hoisting cable is placed in service the following information shall be entered in a book termed the "Rope Record Book" by the master mechanic or other employee designated by the employer:

a. Name of party from whom purchased;

b. Date of purchase;

c. Diameter of rope;

d. Length of rope;

e. Manufacturers' breaking strength of rope;

f. Manufacturers' specifications;

g. Date placed in service at present location;

h. Weight of conveyance;

i. Maximum weight of material to be transported;

j. Dates on which rope was refastened;

k. Date when rope was reversed;

l. Date when rope was removed from service.

28.1.29 No tools, explosives or other material shall be carried in conveyances transporting men.

28.1.30 It is forbidden to get on or off any conveyance while it is in motion.

12:185–28.2 Aerial tramways

28.2.1 All crossings shall be protected with steel mesh nets, or other adequate protection where aerial tramways pass over public highways, railroads, or other places where persons might be injured from falling rock from tramway buckets, or from falling buckets.

28.2.2 Employees shall receive instructions for the proper spacing of tramway buckets or pans, so as not to overload any span of the tramway, unless the buckets or pans are spaced automatically.

28.2.3 Precautions shall be taken not to overload buckets or pans.

28.2.4 Aerial tramways shall not be started until the operator is sure that everyone is in a safe position.

28.2.5 Deep pit quarries shall be provided with at least two man-boxes for hoisting and lowering men out of and into the pit or quarry.

28.2.6 These boxes shall be not less than 14 inches high by four feet wide by six feet, six inches long, and shall be equipped with four corner chains. All corner chains shall be permanently secured to the man-box and shall be connected with a king ring which in turn shall be attached to the cable hook when men are being hoisted or lowered in a pit or quarry. Man-boxes shall be built of best grade material, and shall be of sufficient strength to carry six persons.

28.2.7 All chains and cables used in and about all pits or quarries shall be of sufficient size to sustain the maximum load hoisted out of a pit or quarry with a factor safety of five.

28.2.8 All block, and man-box chains used in deep pit quarries shall be inspected daily by a person trained in judging the safe condition of these chains.

12:185–28.3 Slopes or inclines

28.3.1 The track and roadbed of inclined tramways shall be well laid, properly ballasted and maintained in good condition.

28.3.2 Employees shall not be permitted to walk on the track or right-of-way of inclined tramways, if cars are, or may be, set in motion.

28.3.3 Cars shall not be hoisted or lowered while maintenance crews are working on the track.

28.3.4 Men shall be transported in special cars equipped with safety devices to prevent cars from running away in case of hoist failure, or cable coupling or drawbar breaking.

28.3.5 The man cars shall have level seats and be provided with handholds.

12:185-28.4 Cranes, draglines, shovels and stiffleg derricks

28.4.1 The employer shall designate a competent employee to make daily inspections of all vital parts of the equipment such as cables, sheaves, brakes and other parts essential to its safe operation and no defective equipment shall be operated until the necessary repairs or adjustments have been made and the equipment is in safe operating condition.

28.4.2 No one except authorized attendants shall be permitted on an operating shovel, dragline or crane.

28.4.3 No employee shall be permitted to work under moving loads or buckets.

28.4.4 No person shall be permitted to board equipment while it is in motion.

28.4.5 Shovels, draglines or cranes, where the operator has limited vision or where hazardous conditions exist, shall not be moved until the groundman, craner, oiler or some other competent person is on the ground where he can direct the movement.

28.4.6 Wherever possible revolving shovels, draglines and cranes, when moving, shall be swung so that the operator has a clear view ahead of the direction of swing.

28.4.7 After the machine has been moved the operator shall make a test swing to assure that the cab will clear both the bank and track or truck side. If the cab will not clear a track or truck road, suitable warning signs shall be placed immediately, and other necessary precautions taken.

28.4.8 The shovel, crane or loader shall not be left unattended until the load or bucket is lowered to the ground.

28.4.9 Boom suspension cables shall be inspected at regular intervals, but not less than once each week. Such cables shall conform to the machine manufacturing specifications and shall be replaced as recommended by the manufacturer of the machine.

12:185-28.5 Overhead cranes

28.5.1 Cranes equipped with a cab shall be provided with a fixed ladder or stairs with handrails to afford safe passageway from ground or floor to crane cab and from crane cab to bridge footwalk.

28.5.2 A walkway with standard railing, toeboard and safe access to the ground shall be mounted outside rail supports and run the full length of the operating area. Where such a walkway is not available a rope or chain ladder shall be stored and permanently anchored in the crane cab so that in an emergency the operator can reach the ground at any point in the operating area.

28.5.3 An effective warning signal securely fastened, shall be placed within easy reach of each crane operator.

28.5.4 Every crane cab shall be equipped on all sides with a railing or with an enclosure equivalent to a standard railing and toeboard.

28.5.5 A crane bumper extending ⅛ of the truck-well diameter above the rail shall be fastened securely at each end of each rail of the crane runway.

28.5.6 Every crane trolley shall be provided with a solid floor or pan extending under the entire trolley.

28.5.7 A limit switch shall be provided ahead of the bumper so that the crane cannot hit the end of the runway with the power on.

28.5.8 A switch in the main power circuit which can be locked open shall be placed above each crane cab within easy reach of the bridge or walk.

28.5.9 In connection with each switching block there shall be provided an overtravel cutoff switch that will automatically stop the uptravel of the block before it strikes the bridge.

28.5.10 Only authorized persons shall be permitted to ride on cranes.

28.5.11 Trolley lines shall be located on the opposite side of the runway from the cab and shall be protected from contact with swinging hoisting cables.

28.5.12 Mechanical inspection of crane machinery and equipment shall be made daily, and detailed inspection by a competent person shall be made weekly. A written record of weekly inspections shall be maintained.

SUBCHAPTER 29. STRUCTURES, WALKWAYS AND WORKING SURFACES

12:185-29.1 Trestles

29.1.1 Any trestle on which persons are required to walk shall have a walkway on one side, be equipped with a standard railing and shall provide for a minimum clearance of at least three feet between the railing and the widest rolling stock used.

29.1.2 Where dumping is done on trestles, both sides of the track shall be accessible either by means of walkways or working platforms, portable or stationary.

29.1.3 Regular walkways or passages under trestles shall be suitably protected by metal gratings, screens, wooden platforms or other suitable methods.

29.1.4 Hoppers beneath tracks for the unloading of material shall be protected by a grizzly, grating or other suitable covering to prevent persons from falling into the hopper.

29.1.5 Safety belts and lines shall be used by men working around hoppers if the opening is not protected.

12:185–29.2 Runways, elevated walks, platforms

29.2.1 Runways, walkways and platforms shall meet the requirements of American Standard Safety Code for Floor and Wall Openings, Railings and Toeboards, A–12–1932.

29.2.2 Railings shall be provided on all runways, elevated walkways and platforms, except on the loading and unloading sides as follows:

a. Railings shall be 42 inches high, with an intermediate rail halfway between the top rail and the floor, and shall be permanent, substantial, smooth and free from protruding nails, bolts or splinters.

b. Posts shall not be more than eight feet apart.

c. If the height exceeds six feet above the floor level, a toeboard at least three inches high, and preferably six inches high shall be provided.

d. Railings shall be:

(1) *Wooden Railings* post two by four inches or larger. Upper Rail—two by four inches, or one by four inch strip on top of the post and a one by four inch strip on the side of the post.

(2) *Pipe Railing*—not smaller than 1¼-inch iron pipe.

(3) *Metal shapes or bars*—equivalent to 1½ by 1½ by 3/16 inch angles.

e. Intermediate rails may be omitted when the panels are fitted with substantial expanded metal or wire mesh.

29.2.3 Permanent platforms in frequent use shall be equipped with a permanent stairway or stationary ladder.

12:185–29.3 Stairways

29.3.1 Stairways shall conform to the State Building Code.

29.3.2 All stairways shall be equipped with handrails not more than 34 inches nor less than 30 inches high, measuring from the top of the rail to the surface of the tread in line with the face of the risers at the forward edge of the tread.

29.3.3 Flights of stairs having four or more risers shall be provided with handrails as follows:

(1) On all open sides.

(2) On one side of enclosed stairways less than 44 inches in width.

(3) On both sides of enclosed stairways 44 inches or more but less than 88 inches in width.

(4) On both sides and in the center of stairways 88 inches or more in width.

29.3.4 The treads of stairways shall present a minimum slipping hazard, shall be of uniform width and height, and shall be kept in good repair.

29.3.5 Stairways which are enclosed shall have at least 6½ feet overhead clearance.

29.3.6 Surface stairways shall not be set on an angle of more than 45 degrees from the horizontal.

12:185–29.4 Ladders

29.4.1 Ladders other than those used for ingress and egress from deep pit quarries shall meet the requirements of the American Safety Code for Portable Wood Ladders, A14.1–1959.

29.4.2 Wood for side rails shall not be less than two inches by four inches nominal, in cross-section, and for steps shall not be less than one inch by four inches nominal in cross-section. The wood shall be thoroughly seasoned, smooth and free from decay, faults, splinters or sharp edges, and visibly free of shakes, wanes and similar defects.

29.4.3 All ladders shall be substantially constructed and maintained in safe condition at all times.

29.4.4 Wooden ladders or ladder parts shall not be painted. Paint may conceal defects in the wood and may promote dry rot. Linseed oil, clear varnish or clear lacquer form a satisfactory protective coating.

29.4.5 Step ladders over 20 feet, sectional ladders over 31 feet and extension ladders over 60 feet shall not be used.

29.4.6 Where there is danger of a portable ladder slipping in use, provision shall be made to secure the ladder in position by use of hooks, scabs, spikes, cleats or by other antislip devices, or by stationing an employee at the base of the ladder to hold it in position during use.

29.4.7 The spacing between the rungs of a ladder shall not exceed 12 inches and shall not vary more than one inch in any ladder.

29.4.8 Ladders with parallel sides shall have a minimum inside width of 12 inches between the sides.

29.4.9 The rungs of a ladder shall, in no case, be less than 6½ inches from the wall or other obstruction, on the surface to which the ladder may be fastened.

29.4.10 Ladders shall be considered unsafe for use while covered with ice, mud or snow.

29.4.11 Ladders shall be inspected regularly for defects and shall not be used until all defects are repaired.

29.4.12 Ladders used as manways from deep pits or quarries shall be constructed according to the following specifications:

Stringers or sides two by six inch oak, or its equivalent in strength, notched or mortised full depth into sides of stringers, and fastened by one or two-inch strip or batten. Such ladders shall be permanently and substantially fastened.

29.4.13 Landing platforms shall be of such size as to permit free and easy movement from one ladder to another, and open sides shall be equipped with substantial guardrails.

29.4.14 Ladders shall extend through the platform for at least 30 inches.

29.4.15 Fixed ladders having a slope of more than 60 degrees serving locations over 30 feet high, shall have a cage or basket guard or other equivalent protection unless the ladder sections are offset and equipped with rest platforms at intervals not to exceed 20 feet.

29.4.16 Cages, where used, shall extend downward from the top of the ladder to a point not less than seven feet above the ground unless the ladder ends at a platform not more than 30 feet above the ground or floor level. In such cases the cage shall be extended to the level of the platform or top of the railing, if one be present. One side of the cage shall be left open to provide access to an egress from the ladder.

29.4.17 Cages shall be substantially built and securely fastened in place. The inside shall be clear of all projections. The maximum size openings, both vertical and horizontal, shall be such as to preclude the possibility of anyone falling out of the cage.

29.4.18 When it is necessary to reach otherwise inaccessible locations, openings may be in cages, provided they do not nullify the intended purpose of the cage.

29.4.19 Cages shall be at least 24 inches wide and the back of the cage shall not be less than 24 inches or more than 30 inches from the face of the ladder.

SUBCHAPTER 30. PHYSICAL CONDITION OF PITS AND QUARRIES

12:185-30.1 General provisions

30.1.1 The operator of every pit or quarry shall appoint a competent man who shall be personally in charge of the pit or quarry excavation.

30.1.2 In every pit or quarry where tunneling or underground mining operations are carried on, such operations shall comply with departmental regulations governing tunnel and underground mining operations.

30.1.3 Warning signs shall be posted in all pits or quarries at hazardous places, where they will be most effective in drawing attention to the need for caution in the vicinity of hazardous conditions.

30.1.4 When pits or quarries are worked at night, there shall be sufficient illumination in all working places, so that the movement of men and equipment can readily be observed. Stripping, loading and drilling equipment shall be well illuminated and tractors shall be equipped with sufficient headlights.

30.1.5 The overburden in all quarries shall be stripped as close to bedrock as it is practicable to do, or to the top of the material being excavated for a distance of at least 15 feet back from the face, and shall then be sloped, where applicable, to its angle of repose for the entire length of the section of the quarry face which is being worked.

30.1.6 Where the danger exists from overburden rolling or sliding into the pit or quarry, barriers, baffle boards, screens, cribbing or other effective means shall be used to reduce the hazard.

30.1.7 No employee shall be permitted to work near any pit or quarry face until such face has been examined by the pit or quarry foreman. If the face is found unsafe all hazards shall be removed before permitting any other work.

30.1.8 The employer or some competent employee designated by him, shall inspect the pit or quarry face for dangerously loose material as follows:

(1) After blasting;

(2) Not less than once each day during thawing weather;

(3) After heavy rains or freezes;

(4) At least once every day in the working sections of the pit or quarry, including sections used as travel ways by persons and where trucks pass nearby.

30.1.9 Unworked faces that are not inspected regularly shall be barricaded with danger signs posted in prominent places where hazardous conditions exist.

30.1.10 It shall be the duty of the employer to see that all overhanging banks are eliminated as soon as practicable, except in placers or pits operated by the dredging method where the employees are a safe distance from any overhang.

30.1.11 The persons designated to scale or remove the hazard from falling or sliding material shall be provided with safety belts and lifelines to prevent them from falling in doing such work.

30.1.12 Safety belts and lifelines shall be kept in safe condition and inspected before use. The lifelines shall be snubbed by a second employee or securely lashed to a fixed object in such a manner that the employee cannot fall, and such lifelines may be used as belts.

30.1.13 When the floor of any pit or quarry is below the natural ground level or a highway, the banks of the pit shall not be removed within 25 feet of the property line or the sideline of the highway, and the bank shall be left in such condition that sloughing of the bank will not cause the top of the bank to be less than 25 feet from the property line of the highway.

30.1.14 When the floor of any pit or quarry is more than five feet below the average grade of a highway at any point within 50 feet of the highway, an effective and approved barrier shall be erected by the employer along the property line nearest the highway for an approved distance to provide protection against the drop or fall of persons, or vehicles.

30.1.15 When it is in the best interests of the safety of the public, the employer shall upon request by the Commissioner erect an effective and approved barrier with warning signs along the property line for an approved distance to provide protection against the drop or fall of persons.

Case Notes

Ordinance regulating quarry operations was not preempted by State Mine Safety Act and rules promulgated pursuant thereto. Dock Watch Hollow Quarry Pit, Inc. v. Tp. of Warren, 142 N.J.Super. 103, 361 A.2d 12 (App.Div.1976), affirmed per curiam 74 N.J. 312, 377 A.2d 1201 (1977).

12:185-30.2 Pits

30.2.1 In workings of clay, sand, gravel or other types of unconsolidated material the removal of material by undermining is prohibited; provided, however, that in dredging and hydraulic operations undermining will be permitted if the employee is a safe distance from the bank.

30.2.2 Excavations in clay, sand and gravel or other types of unconsolidated material shall be sloped to an angle at which employees will not be endangered by falling or sliding materials.

30.2.3 When determining the maximum permitted slope and height of the face, consideration shall be given to:

(1) Nature of the material being excavated;

(2) Extent to which the material is cemented or consolidated;

(3) Height of the face;

(4) Type and size of the equipment used at the face and amount of protection this equipment affords the operator;

(5) Safety of employees who are not protected by such equipment.

12:185-30.3 Quarries

30.3.1 All new quarries which commence operations after the effective date of these regulations shall work the face by a multiple bench method with the height of the face not exceeding 50 feet; provided, however, that in circumstances where the surface topography influences the height of the uppermost bench, the height shall not exceed 65 feet.

30.3.2 All quarries in operation prior to the effective date of this Chapter shall commence conversion to multiple benching within six months after the effective date of this Chapter. The quarry operation shall be continued in the multiple benching method, and conversion of the principal production area to the multiple benching method shall be completed within two years. The Commissioner shall, however, extend the time for compliance for the commencement or completion of the conversion if, in his discretion, he finds the same to be warranted.

30.3.3 The height of benches for quarries covered by subsection 30.3.2 of this Section shall be governed by the following:

(1) Benching shall not be required where the height of the quarry face does not exceed 65 feet.

(2) Where multiple benching is required, the height of the benches shall not exceed 50 feet; provided, however, that in circumstances where the surface topography influences the height of the uppermost bench, the height shall not exceed 65 feet.

SUBCHAPTER 31. DUST CONTROL

12:185-31.1 General provisions

31.1.1 This Subchapter for the control of dust shall apply to all operations done in connection with the pit and quarry industry.

31.1.2 All pit and quarry operations shall be so conducted that there shall be no exposure to atmospheric dust concentrations in excess of those concentrations limited by the provisions of subsection 31.1.3 of this Section.

31.1.3 The maximum allowable atmospheric dust concentration, expressed as the total number of particles of dust per cubic foot of air, shall not exceed the values given in the following table:

Maximum allowable dust concentration

mineral dusts

Substance	MPPCF *
Aluminum oxide	50
Asbestos	5
Dust (nuisance, no free silica)	50
Mica (below five per cent free silica)	20
Portland cement	50
Talc	20
Silica	
High (above 50 per cent free $S:O_2$)	5
Medium (five to 50 per cent free $S:O_2$)	20
Low (below five per cent free $S:O_2$)	50
Silicon carbide	50
Soapstone (below five per cent free silica)	20

* Millions of particles per cubic feet of air

12:185-31.2 Dust control

31.2.1 Sampling and determination

31.2.1.1 The free silicon dioxide content of stone shall be determined from composite samples representative of the material as a whole. When different kinds of stone are handled or processed separately, each shall be sampled and classified separately.

31.2.1.2 Not less than three dust samples, of at least ten minutes duration, spaced at intervals to yield a fair average measurement of exposure over the entire cycle of operations, shall be collected in the normal breathing zone on the premises by an approved type impinger.

31.2.1.3 The atmospheric dust concentration shall be deemed to be the average concentration, as determined from the samples by the use of the light-field, low power technic count or its equivalent.

31.2.1.4 Where, because of the nature of the operations, it is not practicable to secure samples of ten minutes duration, the use of any other method providing equivalent representative samples shall be permitted.

31.2.2 Methods

31.2.2.1 Wherever it is required to control the concentration of atmospheric dust, such method of dust control shall be by one of, or combinations of, the following methods:

a. Local exhaust systems, as provided in Section 31.3 (Local exhaust systems) of this Chapter;

b. Wet method of control, as provided in Section 31.4 (Wet method of dust control) of this Chapter;

c. General ventilation, as provided in Section 31.5 (General ventilation) of this Chapter;

d. Respiratory protective equipment, as provided in Section 31.6 (Respiratory protective equipment) of this Chapter;

e. Any other method, or methods, approved by the Commissioner.

31.2.3 Approval and tests

31.2.3.1 Within a reasonable length of time prior to the completion of the installation, the employer shall notify the Commissioner in writing and shall, in the presence of a representative, subject the installation to the test prescribed herein.

31.2.3.2 All tests for the approval of dust control methods shall be made when all machines and other processes to which the control methods being tested apply, are in normal operation and have been so operated for a period of not less than one hour prior to the start of the tests, except in those cases where the time required to complete the cycle of operations under test does not permit this initial pretest period of one hour.

31.2.3.3 Atmospheric dust counts shall be made at various points representative of the exposure of the workers except that when several workers are engaged in the same operations which are provided with the same kind of control measures, tests may be made at a single exposure, which is representative of the group.

31.2.3.4 All tests for atmospheric dust concentrations shall be made in accordance with subsection 31.2.1 of this Section.

12:185-31.3 Local exhaust systems

31.3.1 General provisions

31.3.1.1 Every exhaust system shall be designed and constructed in accordance with this Section and shall be installed in a substantial and workmanlike manner.

31.3.1.2 All parts of the system shall be as free as possible from air leakage either into or out of the system, except at points where air is taken into or discharged from the system by design.

31.3.1.3 The capacity of every exhaust system shall be determined upon the basis of all hoods connected to the system being open, except that where the system is interlocked that only a part, or parts of the system can be operated at a given time, the capacity of such interlocked system may be calculated upon the basis of the hoods, which are operative at a given time, being open.

31.3.2 Exhaust fans, jets, ducts, hoods, separators and all necessary appurtenances including refuse receptacles shall be so designed, constructed, maintained and operated as to insure the required protection by maintaining a volume and velocity of exhaust air sufficient to gather the dusts from said equipment or process and to convey them to suitable points of safe disposal.

31.3.3 The exhaust system shall be in operation continually during all operations which it is designed to serve. If the employee remains in the contaminated zone, the system shall continue to operate for some time after the cessation of said operations, the length of time to depend upon the individual circumstances and effectiveness of the general ventilation system.

31.3.4 The discharge from every exhaust system shall be to the outer air, and the actual point of discharge shall be so located as to prevent, as far as possible, the recirculation of dust-laden air to any working area by way of open windows or other ventilation inlets, or any residential or business area.

31.3.5 Air discharge pipes and other exterior equipment shall be protected from the elements unless such discharge pipes or equipment are of such design and construction that no loss in efficiency results from exposure.

31.3.6 Air cleaning equipment to clean the air effectively before it is discharged from the exhaust system shall be provided to prevent the contamination of any working area caused by dust released by the exhaust discharge.

31.3.7 The capacity and operating characteristics of all air cleaning equipment shall be such as to insure its continued operation without impairing the efficiency of the exhaust system.

12:185–31.4 Wet method of dust control

31.4.1 The wet method of dust control shall include an adequate and continuous supply of water delivered to the process and terminating in suitable water sprays or jets at the point of dust generation.

31.4.2 Water used for dust control purposes shall not be cross connected with the drinking water supply and suitable provisions shall be made for the removal of water and sludge which drain from the operation.

31.4.3 The wet method of dust control shall include and provide effective wetting at the point of dust generation with as little exposure of the operator to the water as possible. The application of water shall be so controlled as not to create a slipping hazard.

12:185–31.5 General ventilation

31.5.1 When general ventilation is employed as the principal method of dust control, it shall be designed to function properly in accordance with the provisions of subsection 31.1.3 (General provisions) of this Chapter.

12:185–31.6 Respiratory protective equipment

31.6.1 Respiratory protective equipment shall not be employed as the principal means of protecting workers against dust except in connection with isolated or infrequent operations.

31.6.2 Respiratory protective equipment may be used in conjunction with other methods of dust control only when the latter cannot be made to develop the required degree of control and cannot be replaced by other effective methods.

31.6.3 All personal respiratory protective devices and equipment shall be of the type approved by the U.S. Bureau of Mines.

31.6.4 The employer shall provide each workman requiring the use of personal respiratory protective equipment with not less than one such device, suitably identified; and the employer shall further provide and employ facilities for the inspection, cleansing, sterilizing and repair of all such respiratory protective equipment as may be required by the standards prescribed by the Bureau in its approval of such respiratory protective devices and equipment. Personal respiratory protective equipment, when not in use, shall be stored in a clean, dustproof container.