DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS

DIRECTOR'S OFFICE

GENERAL INDUSTRY SAFETY AND HEALTH STANDARD

(By authority conferred on the director of the department of licensing and regulatory affairs by sections 16 and 21 of the Michigan occupational safety and health act, 1974 PA 154, MCL 408.1016 and 408.1021, and Executive Reorganization Order Nos. 1996-2, 2003-1, 2008-4, and 2011-4, MCL 445.2001, 445.2011, 445.2025, and 445.2030)

PART 57. OIL AND GAS DRILLING AND SERVICING OPERATIONS

R 408.15701 Scope.

Rule 5701. This part pertains to the construction, operation, and maintenance of land-based equipment and related practices for the safety of employees as such equipment and practices pertain to the drilling and servicing of all of the following:

(a) Oil and gas.
(b) Brine.
(c) Minerals.
(d) Liquid disposal.
(e) Gas storage.
(f) Liquefied natural gas storage wells.
(g) Auxiliary operations.

History: 1979 AC; 1989 AACS.

R 408.15703 Definitions; A to C.

Rule 5703. (1) "Acidizing" means the act of pumping an acidic solution into a wellbore to remove any materials from the perforations, pipe, and walls of the producing formation and includes the act of pumping the substance into formations to improve permeability.

(2) "Air, gas, or mist drilling" means a method of rotary drilling using compressed air or gas as its primary circulating medium.

(3) "Anchor" means a device that is used to secure, fasten, or stabilize.

(4) "Bleed-off line" or "blooey line" means a pipe used to discharge materials or release pressure away from a well or pressurized equipment.

(5) "Blocks, crown, and traveling" means the fixed upper and movable lower blocks, respectively, of the block and tackle assembly on a rig that raises and lowers the drill string or tubing.

(6) "Blowout" means an uncontrolled flow of gas, oil, or other well fluids.

(7) "Blowout preventer" means a device attached to the wellhead that allows the well to be sealed to confine the well fluids in the wellbore.

(8) "Casing" means the pipe installed in the wellbore.

(9) "Cathead" means a rotating device mounted on the end of a shaft of the draw works.

(10) "Catwalk" means an elongated platform to the side of a rig where pipe is laid out and lifted into the derrick. A catwalk is connected to the rig floor by a pipe ramp.

(11) "Cellar" means an excavation around the wellhead to provide space for items of equipment at the top of the wellbore.

(12) "Cementing" means the act of pumping a slurry into a wellbore to perform functions such as supporting and sealing casing, isolating formations behind casing, protecting freshwater formations, and sealing perforations in casing.

(13) "Choke line" means an extension of pipe from the blowout preventer which is used to direct well fluid from the annulus to the choke manifold.

(14) "Christmas tree" means the valves and fittings assembled at the top of a completed well to control the flow of hydrocarbons and other fluids.

(15) "Crown block" means an assembly of sheaves or pulleys mounted on beams at the top of the derrick or mast over which a hoisting line is reeved.

History: 1979 AC; 1989 AACS.

R 408.15704 Definitions; D to F.

Rule 5704. (1) "Derrick," sometimes called a mast, means a large load-bearing structure that supports the crown block.

(2) "Derrick board" means the platform on which derrickmen work.

(3) "Draw works" means the hoisting mechanism on a drilling, well servicing, or workover rig. It is essentially a large winch that spools off or takes in the hoisting line.

(4) "Drill pipe" means a length of steel tube to which special threaded connections called tool joints are attached. Several lengths joined together are called a drill string.

(5) "Drill stem" means the entire drilling assembly from the swivel to the bit composed of the kelly, drill string, subs, drill collars, and other downhole tools such as stabilizers and reamers.

(6) "Drilling line," sometimes called a hoisting line, means the wire line used in the main rig hoisting system, one end of which is attached to the hoisting drum. This line does not include a tugger line.

(7) "Drilling rig" means the equipment and machinery assembled primarily for the purpose of drilling or boring a hole in the ground.

(8) "Drill stem test" means a method of gathering data on the potential productivity of a formation by permitting the flow of formation fluids through the drill pipe.

(9) "Elevator" means a mechanical device attached to the traveling block that latches around and supports the pipe during hoisting.

(10) "External guylines" means lines that run from some point in the derrick, mast, or pole to ground anchors or to a special substructure or derrick base which provides a substitute for ground anchors to provide stability.

(11) "Flow line" means the surface pipe which carries drilling fluid from surface tanks or other storage.

(12) "Freezing operation" means the creation of a plug by freezing a liquid slug in a pipe or fitting.

History: 1979 AC; 1989 AACS.

R 408.15705 Definitions; H to O.

Rule 5705. (1) "Hot oil operations" means the treatment of a producing well with heated oil to melt accumulated paraffin in the tubing and annulus.

(2) "Hydraulic fracturing" means the act of pumping fluids into a wellbore and into a specific formation to induce fractures.

(3) "Kelly" means a 3 or more sided shaped steel pipe connecting the swivel to the drill pipe. The kelly moves through the kelly bushing and the rotary table and transmits torque to the drill string.

(4) "Lubricator" sometimes called a bottle, means a special length of casing or tubing placed temporarily above a valve on the top of the casing or tubing head used to run tools or substances into a producing well without having to kill it.

(5) "Making a connection" means the act of screwing a joint of pipe or rods onto the string suspended in the wellbore.

(6) "Mud box" means a device used to wrap around pipe connections to deflect fluid released when a joint or stand of pipe containing liquid is unscrewed.

(7) "Nip point" means the point where the wire line becomes tangent to a sheave.

(8) "Oil saver" means a pressure-sealing gland arrangement which is used to prevent the leakage and waste of gas, oil, or water around a wire line when servicing a well. It may be operated by mechanical or hydraulic means.

(9) "Open hole" means the uncased part of the wellbore.

(10) "Outriggers" means structural extensions of the mast or pole base protruding at approximately 90 degrees from the longitudinal axis of the rig to provide overturn stability.

History: 1979 AC; 1989 AACS.

R 408.15706 Definitions; P to R.

Rule 5706. (1) "Perforating" means the act of making holes in pipe, cement, or formation at desired depths.

(2) "Pipe racking board guylines," sometimes called tubing board guylines, means lines that run from racking board to ground anchors or special substructure or base which provides a substitute for ground anchors.

(3) "Pipe ram" means a large valve which is usually installed above the ram preventers and which forms a seal in the annular space between the pipe and wellbore.

(4) "Pipe tapping," sometimes called hot tapping, means the act of drilling a hole in the side of pipe that is under pressure.

(5) "Pole mast" means a structure which consists of 1 or more tubular sections, either telescoping or nontelescoping, and which is a load-bearing member. The structure, when erected to working position, usually requires guylines. It may be attached to a carrier, skid base, or substructure. It is used in place of a derrick.

(6) "Power tongs" means pneumatically or hydraulically operated tools that serve to spin the pipe up tight or, in some instances, serve to apply the final makeup torque.

(7) "Pumping unit" means surface equipment assembled for the purpose of mechanically lifting fluids from a well.

(8) "Qualified employee" means a person who, by possession of a recognized degree, certificate, or professional standing, or who by knowledge, training, or experience, has successfully demonstrated the ability to perform work relating to the subject matter.

(9) "Rigging up" means the on-site erection and connection of the rig components in preparation for drilling or well servicing operations.

(10) "Rod," sometimes called a sucker rod, means a special steel rod, a number of which are screwed together to make up the mechanical link from the surface pumping unit to the pump in the well.

History: 1979 AC; 1989 AACS.

R 408.15707 Definitions; S.

Rule 5707. (1) "Safety valve" means a valve available for quick installation in the pipe string to prevent flow.

(2) "Shale shaker" means a vibrating sieve used to remove cuttings from the circulating fluid.

(3) "Snubbing" means pulling or running pipe under pressure through a resilient sealing element where special equipment is used to apply external force to push the pipe into the well or to control the pipe movement out of the well.

(4) "Special services" means those operations requiring specialized equipment and personnel to perform work processes to support well drilling and servicing operations.

(5) "Stabbing a valve" means aligning and screwing a valve onto the end of a pipe.

(6) "Stabbing board" means a temporary elevated platform erected in a derrick or mast.

(7) "Stripping" means pulling or running pipe under pressure through a resilient sealing element and may also include the removing of rods and tubing from the well at the same time.

(8) "Substructure" means a structure that surrounds the wellbore at the surface and provides the working area for certain employees. It may contain the rotary table.

(9) "Swabbing" means the planned lifting of well fluids to the surface using a piston-like device installed on a wire line. Swabbing may inadvertently occur due to piston action as pipe or assemblies are pulled from the well.

(10) "Swivel" means a device at the top of the drill stem that permits the circulation of fluids and the rotation of the drill string.

History: 1979 AC; 1989 AACS.

R 408.15708 Definitions; T to W.

Rule 5708. (1) "Tour" means the work period of a rig crew and is usually pronounced as if spelled "t-o-w-e-r."

(2) "Tubing" means a small diameter pipe that is run into a well to serve as a conduit for the passage of oil or gas to the surface.

(3) "Valve drilling operation" means the drilling of a hole through the blocking element of a valve that is stuck in the closed position with pressure on the well side of the valve.

(4) "Weight indicator" means an instrument that shows the weight suspended from the hooks.

(5) "Well servicing" means the remedial or maintenance work performed on an oil or gas well to improve or maintain the production from a formation already producing.

(6) "Well servicing rig" means a portable rig consisting of a hoist, engine, and a self-erecting mast.

(7) "Wellbore" means the hole made by drilling or boring.

(8) "Wire line wiper" means a device used to wipe off oil, mud, or liquid from a wire line as it is pulled out of the well.

History: 1979 AC; 1989 AACS.

R 408.15711 Employer and employee responsibilities.

Rule 5711. (1) The employer shall do all of the following:

(a) Provide training to an employee regarding the operating procedures, hazards, and safeguards of the assigned task, including the safe handling and use of hazardous substances and the personal protective equipment required.

(b) Assure that the employee uses the personal protective equipment as prescribed in this part.

(c) Not permit equipment to be operated that is not guarded according to state standards, has a defective guard, or is otherwise unsafe. A rotary table, cathead, kelly, and kelly bushing need not be guarded.

(d) Assure that vehicles not involved in the immediate rig operation are parked a minimum distance of 100 feet from the wellbore. Equivalent safety measures shall be taken where terrain, location, or other conditions do not permit this spacing.

(e) Assure that the well drilling contractor posts at all drilling sites, the telephone numbers, locations, and other relevant information pertaining to emergency personnel and facilities.

(f) Assure that the well servicing contractor posts, at all well servicing sites, the telephone numbers, locations, and other relevant information pertaining to emergency personnel and facilities.

(g) Not permit an employee to ride on a load being hoisted or a hoisting line.

(2) An employee shall do all of the following:

(a) Not use equipment until trained in its operating procedures, hazards, and safeguards and until authorized to do so.

(b) Report to the supervisor any equipment or safeguard that is defective.

(c) Use personal protective equipment prescribed by this part.

(d) Replace any guard or safeguard removed for inspection, maintenance, or setup before operating the equipment.

History: 1979 AC; 1989 AACS.

R 408.15712 Personal protective equipment and methods.

Rule 5712. (1) The requirements for the providing and use of personal protective equipment are found in general industry safety standard, Part 33. Personal Protective Equipment, being R 408.13301 et seq. of the Michigan Administrative Code.

(2) An employee shall not wear loose or poorly fitted clothing.

(3) An employee shall not work in clothing that is saturated with any flammable, hazardous, or irritating substance. This clothing shall be immediately removed and replaced with suitable clothing after the affected skin area has been thoroughly washed and treated, if necessary.

(4) While on the worksite, an employee shall not wear jewelry or other adornments which are prone to snagging or hanging and causing injury.

(5) An employee whose length of hair poses a hazard on the worksite shall keep his or her hair contained in a suitable manner while working. Hair and beard styles shall not interfere with the wearing of respiratory protective equipment.

(6) If chemicals harmful to the eyes are being used, appropriate personal protective equipment and eye wash stations shall be provided to the employee, at no expense to the employee, and shall be used.

History: 1979 AC; 1983 AACS; 1989 AACS; 2013 AACS.

R 408.15713 Safety belt, lifeline, and lanyard use.

Rule 5713. (1) An employee, when engaged in work 10 feet or more above the rig floor or other working surfaces, shall wear a safety belt or harness with an attached lanyard, except during rig up and rig down.

(2) A safety belt, safety harness and any lifeline and lanyard shall be used only for safeguarding the employee.

(3) A safety belt, safety harness, lifeline, or lanyard subjected to in-service shock loading, rather than static loading, shall be removed from service and shall not be used again for employee protection.

(4) When working in the mast or derrick, an employee shall be provided with safety belt or safety harness and a lanyard or lifeline which is adjusted to allow the minimum of drop in case of a fall.

History: 1979 AC; 1983 AACS; 1989 AACS; 2013 AACS.

R 408.15714 Fire prevention.

Rule 5714. (1) Smoking, open fires, or other potential sources of ignition shall be permitted only in designated areas located at a safe distance from the wellhead or flammable liquid storage areas. Operations or areas which constitute a fire hazard shall be conspicuously posted with a sign, "NO SMOKING OR OPEN FLAME."

(2) Hazardous substances shall be stored in approved containers and properly labeled.

(3) Equipment, cellars, rig floors, and ground areas adjacent to the well shall be kept free from oil or gas accumulations which might create or aggravate fire hazards.

(4) Oxygen, natural gas, or liquefied petroleum gas shall not be used to operate spray guns or pneumatic tools.

(5) Combustible materials, such as oily rags and waste, shall be stored in covered metal containers. The contents shall be disposed of daily.

(6) Gasoline-fueled engines shall be shut down before refueling operations, unless the engine is needed for the control of the operation.

History: 1979 AC.

R 408.15715 Fire protection.

Rule 5715. (1) Fire extinguishers shall be located, tagged, inspected, and maintained as prescribed in Part 8. Portable Fire Extinguishers, being R 408.10801 et seq. of the Michigan Administrative Code. At a minimum, the following numbers of extinguishers shall be provided at the locations specified:

(a) Four 20 lb., B-C rated extinguishers at the drilling rig.

(b) Two 20 lb., B-C rated extinguishers at the well servicing rig.

(c) One 20 lb., B-C rated extinguisher at each welding operation.

(2) More or larger extinguishers shall be provided where the type of operation produces more hazardous conditions.

(3) Fire fighting equipment shall not be tampered with and shall not be removed for other than fire protection and fire fighting purposes.

History: 1979 AC; 1989 AACS.

R 408.15716 Housekeeping.

Rule 5716. (1) Work areas shall be kept reasonably clean and free of debris in order to minimize slip and trip hazards. Hazardous leaks or spills shall be promptly cleaned up to minimize slipping and fire hazards.

(2) Material used for cleaning shall have a flash point of not less than 100 degrees Fahrenheit.

(3) Means shall be provided to convey any hazardous substances away from the rig floor while pulling wet strings of pipe.

History: 1979 AC.

R 408.15717 Wells containing hydrogen sulfide.

Rule 5717. (1) Drilling and servicing of wells shall be as prescribed in the American Petroleum institute document, RP49, reissued 1975, Recommended Practices for Safe Drilling of Wells Containing Hydrogen Sulfide. This document is incorporated herein by reference. The API document may be inspected at the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan, 48909-8143. This information may be purchased at a cost of $125.00 from IHS Global, 15 Inverness Way East, Englewood, Colorado, 80112, USA, telephone number: 1-800-854-7179 or via the internet at website: http://global.ihs.com.

(2) Where hydrogen sulfide or any other unusually hazardous gas is known or suspected to exist, the employer shall advise the employees of the possible exposure involved and shall provide training and personal protective equipment as required in Rule 5711 of this part.

(3) Where it is not necessary to maintain a cellar on wells producing hydrogen sulfide, the cellar shall be filled to eliminate the hazard of accumulation of hydrogen sulfide gas.

History: 1979 AC; 2013 AACS.

R 408.15718 Rig access; ladders, stairways, ramps, platforms, and elevators.

Rule 5718. (1) A rig must be equipped with stairs, ladders, or ramps. An employee shall not jump from one level to another.

(2) A fixed ladder, stair, ramp, or platform must be constructed and maintained in compliance with General Industry Safety and Health Standard Part 2. "Walking-Working Surfaces," being R 408.10201 to R 408.10241 of the Michigan Administrative Code. Where structural crosspiece of a rig does not allow the required horizontal clearance prescribed in General Industry Safety and Health Standard Part 2. "Walking-Working Surfaces," the clearance may be reduced to not less than 4 inches.

(3) A derrick and mast must be equipped with a fixed ladder providing access from the rig floor to the crown block platform and to each intermediate platform on the structure.

(4) A minimum of 2 escape routes must be available to provide alternate exits from the rig floor to ground level when the rig floor height is 6 feet or more.

(5) When a working platform is in the folded or storage position, the platform must be secured with not less than 2 fasteners of a type that will not vibrate loose or come loose accidentally. Clevis hooks, safety hooks, or other equivalent devices must be used for this purpose.

(6) When an employee cannot perform necessary duties on a well servicing rig from ground level, a working platform must be used around the wellhead. The platform must be of sufficient size and so constructed to allow 2 men to work from it.

(7) Each finger of a finger board must be bolted, welded, hinged and pinned, or attached by other equivalent means to its support beam.

(8) When climbing a rig ladder, tools or other materials must be properly secured to the employee so that the hands of the employee are free for climbing.

(9) An employee engaged in a well servicing or drilling operation may ride an elevator, sometimes called a traveling block, if both of the following provisions are satisfied:

(a) The employee riding the elevator is provided with and uses a safety belt or safety harness with a lanyard, as prescribed in R 408.15713(4), that is attached and adjusted to prevent a fall of not more than 6 feet.

(b) The elevator is not under load.

History: 1979 AC; 1983 AACS; 1989 AACS; 2019 AACS.

R 408.15719 Auxiliary escape.

Rule 5719. (1) A means of escape shall be rigged and secured to provide a safe and readily accessible escape route from the derrick board before operations commence which require a crew member to be on the derrick board, excluding stabbing boards or other temporary platforms.

(2) The emergency escape route shall be kept clear of obstructions. The escape equipment shall be arranged to carry the crew member away from the wellbore or drilling floor and to permit a safe landing.

(3) If an escape line is used as the means of escape, all of the following provisions apply:

(a) The ground anchor point of the escape line shall be located a minimum lateral distance from the derrick or mast equal to the height above the ground where the connecting point of the escape line is secured to the derrick or mast.

(b) Tension of the escape line shall be periodically checked and adjusted to assure a safe landing for the user of the escape line. A safe landing means that a user using a manually operated braking emergency escape unit will stop a minimum of 20 feet from the anchor point and a user using an automatic velocity-limiting device or controlled-descent device will stop a minimum of 5 feet from the anchor point.

(c) Each employee regularly assigned to work from the derrick board shall be provided with an escape line.

History: 1979 AC; 1989 AACS.

CONSTRUCTION

R 408.15721 Construction of derricks and masts.

Rule 5721. (1) A derrick or mast manufactured after November 21, 1979, shall have a permanent nameplate which is attached to the structure and which indicates all of the following information:

(a) Name of manufacturer.

(b) Model number and serial number.

(c) Rating, including maximum static hook load capacity with the number of lines.

(d) Whether guying is applicable and the recommended guying pattern. If guying requirements do not appear on the nameplates, the derrick or mast shall be guyed as prescribed by API SPEC 4E-1974, entitled "Specification for Drilling and Well Servicing Structures," which is herein adopted by reference and may be inspected at the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan, 48909-8143. The specifications may be purchased at a cost of $125.00 from IHS Global, 15 Inverness Way East, Englewood, Colorado, 80112, USA, telephone number: 1-800-854-7179 or via the internet at website: http://global.ihs.com.

(2) An employee qualified in procedures for raising and lowering the mast shall be in charge of raising and lowering operations and shall do both of the following:

(a) Visually inspect the raising or lowering mechanism.

(b) Assure that all tools and materials which are not secured are removed from the mast.

(3) Only an employee required to carry out the operation shall be allowed in or under the mast unless it is in the fully raised or lowered position.

(4) The mast shall be level and properly positioned before raising, lowering, scoping the structure, or tightening guylines.

(5) Before imposing any load on a derrick or mast, all required load guys shall be properly tightened.

(6) Mast crown sheaves shall be guarded to prevent the hoisting line from being displaced from the grooves during all operations.

(7) A derrick board or other platform shall be constructed, maintained, and adequately secured to the structure to withstand the weight of employees and other stresses placed upon the platform.

(8) An unguarded opening large enough to permit a person to fall through shall not exist between the beams or main supports of the crown block.

(9) If bumperblocks are used under the crown block beam, a safety cable or strap shall be fastened along their full length with both ends secured to the derrick.

(10) All counterweights above the rig floor, when not fully encased or running in permanent guides, shall have a safety chain or wire rope safety line anchored to the derrick or mast to secure them. The chain and wire rope shall be capable of sustaining the drop load and shall limit the drop counterweight to not less than 7 feet from the floor.

(11) Load-bearing hydraulic jacks shall have a safety lock device, double valves, or the equivalent..

(12) A derrick, mast, and auxiliary parts shall be maintained in a safe condition.

History: 1979 AC; 1989 AACS; 2013 AACS.

R 408.15722 Derrick and mast foundations and guying.

Rule 5722. (1) Foundations shall be capable of safely distributing the gross weight of the derrick or mast under the maximum anticipated hook load.

(2) Guyline ground anchors shall be any type that satisfies the requirements of subdivision (a) of this subrule. Soil conditions, terrain, and the use of surrounding land determines the most applicable type of anchor. All anchors shall satisfy both of the following requirements:

(a) An installed ground anchor, permanent or temporary, shall meet the pullout requirements for the conditions of service. The anticipated climatic conditions, including wind forces, for the geographic area shall be a prime consideration in determining the anchor pullout requirements and pattern spacing. Anchor breaking strength and pullout safety factors shall be in accordance with API SPEC 4E-1974, entitled "Specification for Drilling and Well Servicing Structures," which is adopted herein by reference in R 408.15721 (1) (d).

(b) Where soil is corrosive, metal components of permanent ground anchors shall be galvanized or otherwise protected against corrosion.

(3) For permanent-type ground anchors, the well operator shall make representative pull tests for the geographical area and size and type of anchor involved. Representative pull tests shall be conducted along the anchor working plane. Records of representative anchor pull tests for the area shall be maintained.

(4) Permanent anchors shall be inspected before each use by visually checking. If damage or deterioration is apparent upon inspection, anchors shall be pull tested.

(5) Temporary ground anchors shall be of such type and so installed to provide pullout strengths which exceed the maximum anticipated guyline pull for the equipment to be used and the conditions of service. Records of representative anchor pull tests for the area and size and type of anchor shall be maintained.

(6) A portable mast, either structure or pole type, that requires the use of external guylines to assure stability shall have the external guylines in place immediately following the raising and telescoping of the mast.

History: 1979 AC; 1989 AACS.

R 408.15723 Traveling blocks and crown blocks.

Rule 5723. (1) A traveling block and its component parts shall be designed, constructed, and maintained as prescribed in API SPEC 8A-1976, entitled "Specifications for Drilling and Production Hoisting Equipment," which is adopted herein by reference and may be inspected at the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan, 48909-8143. The specifications may be purchased at a cost of $125.00 from IHS Global, 15 Inverness Way East, Englewood, Colorado, 80112, USA, telephone number: 1-800-854-7179 or via the internet at website: http://global.ihs.com.

(2) A traveling block, crown block, or related equipment shall not be subjected to any load in excess of its designed rating.

(3) A hook for use with a traveling block to which equipment is either directly or indirectly attached shall be equipped with safety latch to prevent accidental release of the load.

(4) A traveling block exposed to contact shall be guarded at the running nip point of the sheave and shall not be operated unless the guard is in place.

History: 1979 AC; 1989 AACS; 2013 AACS.

R 408.15725 Electrical installations.

Rule 5725. (1) Except as required in this rule, electrical installations and equipment shall be as prescribed in the national electrical code, NFPA 70-1981, which is adopted herein by reference and may be inspected at the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan, 48909-8143. This code may be purchased at the cost of $27.00 from the National Fire Protection Association, Batterymarch Park, P.O. Box 9101, Quincy, Massachusetts 02269-9101, or via the internet at web-site: www.nfpa.org.

(2) Electrical equipment such as lighting, power tools, and other electrical motors used in hazardous locations shall be designed for such locations and where practicable, listed by a nationally recognized testing laboratory. All wiring components and electrical equipment shall be maintained in accordance with the original design. Because of exposure to vibration and frequent rig moves, maximum use shall be made of flexible electrical cord intended for hard usage and with inherent resistance to dampness and petroleum products.

(3) On a land location, an engine-driven light plant or generator shall not be located closer to the wellbore than the nearest engine operating the rig.

(4) A light plant generator shall have a overload safety device to provide protection from arcing in a hazardous area or from a burnout of the generator.

(5) Rig lighting equipment, except that used in a cellar, shall be classified as class 1, division 2.

(6) Cellar lighting equipment shall be classified class 1, division 1.

(7) The following area classifications shall determine the type of maintenance requirements for electrical equipment on the rig under normal operating conditions. When special service operations are being performed, the requirements for electrical installations under the conditions of service listed in subdivisions (a) to (h) of this subrule shall be followed:

(a) When the derrick or mast is not enclosed or is equipped with a windbreak (open top and V-door) and the substructure is open to ventilation, the areas shall be classified as shown in figure 1 and shall provide not less than 12 complete air changes per hour.

(b) If the rig floor and substructure are enclosed and as such, provide not less than 12 complete air changes per hour, the areas shall be classified as shown in figure 2.

(c) Where appropriate, the area surrounding a drilling fluid tank located outdoors shall be provided with ventilation of not less than 12 complete air changes per hour and shall be classified as shown in figure 3.

(d) If the drilling fluid tank is enclosed or located so as to provide not less than 12 complete air changes per hour, the areas shall be classified as shown in figure 4.

(e) The areas surrounding a shale shaker with ventilation of not less than 12 complete air changes per hour shall be classified as shown in figure 5.

(f) When the shale shaker is enclosed, the area within the enclosure shall be classified as class 1, division 1.

(g) If an open fluid ditch or trench is used to connect between drilling fluid tanks, or between the drilling fluid tank and shale shaker, or open drilling fluid pits, and if ventilation of not less than 12 complete air changes per hour is provided the areas shall be classified as shown in figure 3 for tanks.

(h) The area surrounding the drilling fluid pump shall not be considered hazardous unless it is so classified due to the proximity of another hazardous component or facility.

(8) Motors and other electrical equipment shall be classified as prescribed in figures 1 to 5 of this rule.

(9) Direct current (DC) rotary, draw works, cathead, and pump motors in a classified area shall have an enclosed cooling system or shall be purged with air from a safe source. Air units supplying purged air shall be located at the input end of the system to provide positive pressure on the ducting and motors.

(10) All electrical extension cords shall be properly insulated with both male and female plugs, and the cord shall be in good condition.

(11) Lamps and reflectors shall be kept clean to provide illumination.

(12) Figures 1 to 5 read as follows:

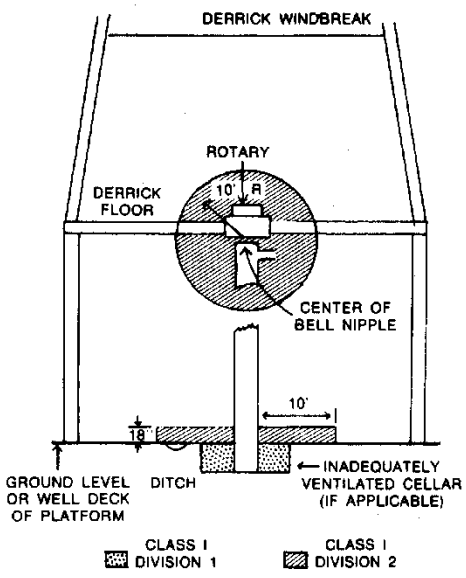

FIGURE 1
DERRICK AND SUBSTRUCTURE
WITH ADEQUATE VENTILATION
(OPEN TOP AND V-DOOR AREA)

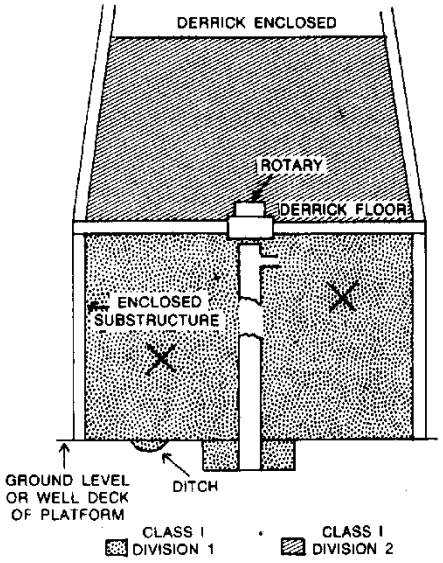

FIGURE 2
ENCLOSED DERRICK (OPEN TOP)
INADEQUATELY VENTILATED
SUBSTRUCTURE

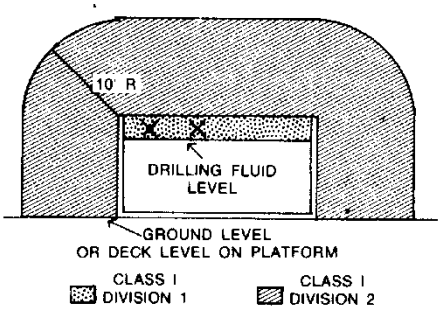

FIGURE 3
DRILLING FLUID TANK OR OPEN SUMP WITH ADEQUATE VENTILATION

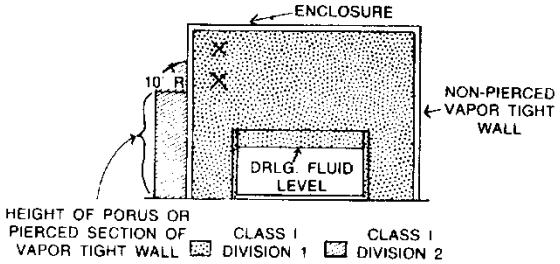

FIGURE 4
DRILLING FLUID TANK OR OPEN SUMP IN AN ENCLOSURE

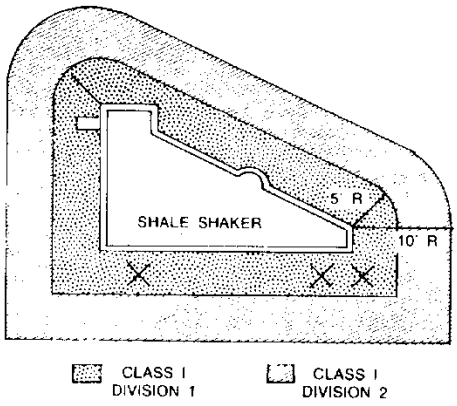

FIGURE 5
VIBRATING SHALE SHAKER WITH ADEQUATELY VENTILATED AREA

History: 1979 AC; 1989 AACS; 2013 AACS.

Editor's Note: An obvious error in R 408.15725 was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in *Annual Administrative Code Supplement*, 2013 MR 10. The memorandum requesting the correction was published in *Michigan Register*, 2014 MR 4.

R 408.15726 Blowout prevention equipment.

Rule 5726. (1) Before drilling out under surface casing, blowout preventing equipment shall be installed and maintained throughout the drilling operation.

(2) The blowout prevention equipment shall be as prescribed in the API RP53-1976 document entitled "Recommended Practices for Blowout Prevention Equipment Systems," which is adopted herein by reference and may be inspected at the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan, 48909-8143. This information may be purchased at the cost of $125.00 from IHS Global, 15 Inverness Way East, Englewood, Colorado, 80112, USA, telephone number: 1-800-854-7179 or via the internet at website: http://global.ihs.com.

(3) Where a ram-type preventer is used, it shall contain pipe rams to enable closure on the pipe being used.

(4) The choke line and kill line shall be anchored, tied, or otherwise secured to prevent whipping under pressure surges.

(5) While in service, blowout prevention equipment shall be inspected daily and a preventer mechanical test shall be performed daily to ensure that the preventers will function properly.

(6) A pipe fitting, valve, or union placed on or connected with blowout prevention equipment, well casing, casinghead, drill pipe, or tubing shall have a working pressure rating suitable for the maximum anticipated well surface pressure.

(7) Pressure testing of each component of the blowout preventer equipment shall be conducted before drilling out any string of casing, except conductor pipe. Drilling shall not proceed until blowout prevention equipment is found, upon testing, to be serviceable.

(8) If a blind ram is closed for any purpose, the valve on the choke line or relief line below the blind ram shall be opened before opening the ram to bleed off any pressure.

(9) At least 1 person who is capable of operating blowout prevention equipment shall be on the well site during well drilling operations.

History: 1979 AC; 1989 AACS; 2013 AACS.

EQUIPMENT

R 408.15731 Machinery, tools, and equipment generally.

Rule 5731. (1) Well operations shall not be commenced until the rig is rigged up in a safe manner.

(2) A lockout system shall be established for drilling rig equipment, except on draw works, slush pumps, and rotaries where a tag out system may be used. An employee shall be trained in the use of a lockout system to prevent unexpected energizing of any equipment from any energy source which might inflict injury to personnel. A lock or tag shall not be removed without the approval of the person who installed it or his or her authorized replacement.

(3) A maintenance employee shall report to the rig supervisor before beginning repairs and when repairs are completed.

(4) Rig power shutdown devices shall be checked at least once each week to determine that they are in proper working condition.

(5) Tools, parts, and other materials shall not be kept in the derrick or mast above the rig floor unless there is occasion for their immediate use and precautions are taken to prevent them from falling.

(6) Every rig shall be equipped with a safety valve with connections suitable for use with each size and type of tool joint or pipe coupling being used on the job. A means shall be provided to allow for the circulation of the well.

(7) Any overhead wire shall be considered an energized line until a representative of the owner or utility has checked and indicated otherwise. Before any equipment is erected or moved near a power line, the owner or utility representative shall be notified. Except where electrical power lines and equipment have been de-energized and visibly grounded at the point of work, or where an insulating barrier, not a part of the equipment, has been erected, or where the employee is insulated or isolated from the equipment, clearances shall be maintained pursuant to the following table:

TABLE

Voltage	Clearance with boom lowered and no load	Clearance in transit
To 49 KV	10 feet	4 feet
Over 50 KV	10 feet	+ .4 inch per KV
50 to 345 KV	10 feet	
346 to 750 KV	16 feet	

(8) The hoisting unit of a gin pole truck shall be in compliance with all of the following provisions:

(a) Worn parts that could adversely affect the safety of the operation shall be replaced.

(b) Not be used to lift or pull more than the wire rope or the hoisting unit's rated capacity, whichever is less.

(c) Have the wire rope and connecting pins inspected at least once a month.

(9) A gin pole mounted on a truck shall be securely fastened when the poles are in a vertical or semivertical position.

History: 1979 AC; 1989 AACS.

R 408.15732 Guylines and hoisting lines.

Rule 5732. (1) A guyline shall be maintained in good condition and shall be of a strength, including auxiliary devices such as chains, boomers, and clamps, capable of withstanding loads for the anticipated service conditions. A guyline shall have a safety factor of 3.

(2) Each guyline shall be visually inspected before each rig up. A guyline shall be removed from service and replaced if in any length of 10 diameters the total number of visible broken wires exceeds 10% of the total number of wires in the line or if the guyline shows other signs of excessive wear, corrosion, or defect.

(3) Wire rope used for hoisting purposes shall be of a strength to safely lift and otherwise handle anticipated loads under conditions of service. The maximum allowable hoisting line

working load shall be based on a minimum safety factor of 3 for normal operations. A minimum safety factor of 2 is allowed when setting casing, pulling on stuck pipe, or while engaging in similar infrequent operations.

(4) A damaged portion of a hoisting line shall be removed from service when any of the following conditions exist:

(a) Three broken wires are found in 1 lay of 6 by 6 wire rope.

(b) Six broken wires are found in 1 lay of 6 by 19 wire rope.

(c) Eight broken wires are found in 1 lay of 8 by 19 wire rope.

(d) Nine broken wires are found in 1 lay of 6 by 37 wire rope.

(e) Wire ropes not covered in this subrule are found to have 4% or more of the total number of wires composing such rope broken in 1 lay.

(f) Marked corrosion appears.

(g) Corroded or broken wires are noted at end connections.

(h) End connections are corroded, cracked, bent, worn, or improperly applied.

(i) Evidence is noted of kinking, crushing, cutting, or unstranding.

(5) When the hoisting line is placed on the hoisting drum, the end shall be securely fastened and there shall be not less than 7 line wraps remaining on the drum at the lowest operating position of the traveling block.

(6) A deadline anchor for a hoisting line shall be so constructed, installed, and maintained that its strength equals or exceeds the working strength of the hoisting line.

(7) When a ton-mile calculation indicates, or an inspection reveals, that the hoisting line safety factor has been materially reduced, the line shall be slipped, cut, or replaced.

(8) A hoisting line under load shall not be allowed to come in contact with any part of the derrick or mast, stationary equipment, or material in the structure, except at the crown block sheaves, traveling block sheaves, a turnback roller, and a line stabilizer, when needed.

(9) The hoisting line shall not be removed from the hoisting drum until the traveling block is rested on the rig floor or held suspended by a separate wire rope or chain.

History: 1979 AC; 1989 AACS.

R 408.15733 Draw works.

Rule 5733. (1) A visual inspection of the draw works and its working parts shall be made at least once each day.

(2) The equipment operator shall not leave the draw works brake without tying the brake down or securing it with a catch lock, unless the draw works is equipped with an automatic feed control.

(3) An emergency shutdown switch for a draw works engine or motor shall be located at the draw works drum control console.

(4) A draw works used for well drilling shall be equipped with a device which actuates an emergency stop of the drum and engages the brake when the maximum wraps on the drum have been reached or shall be equipped with a crown safety device which achieves equal or better protection. Either device shall be tested at rigup and at least once each week thereafter when in use or when the hoisting line system is changed.

(5) Tension shall be applied by a catline tugger or other means when running the initial wraps on the draw works.

History: 1979 AC.

R 408.15734 Catheads.

Rule 5734. (1) A cathead on which a rope is manually operated shall have a rope guide to hold the onrunning rope in alignment with its normal running position against the inner flange. Clearance of the rope guide shall be a maximum of 3/8 inch from the cathead.

(2) The fasteners for the guides and housing shall be secured against loosening by safety wires or other equivalent means.

(3) Precautions shall be taken to prevent entanglement of other lines with a line in use on a cathead.

(4) When a cathead is unattended, a rope or line shall not remain wrapped on or in contact with the cathead.

(5) A qualified employee shall attend the draw works control when a manually operated cathead is in use.

(6) A cathead shall be checked for grooves and rebuilt and turned when necessary to prevent fouling. Cathead groove depth shall not exceed 1/4 inch.

(7) A headache post or guard shall be provided for protection of the employee at the draw works controls when the line is in close proximity to the operator during operation of a catline, jerkline, or spinning line.

(8) An automatic cathead and its mechanism shall be maintained in safe working condition.

(9) A splice shall not be allowed to contact the cathead friction surface, with the exception of endless rope properly spliced.

(10) A catline shall not be used to raise or lower personnel.

History: 1979 AC; 1989 AACS.

R 408.15735 Drill collars.

Rule 5735. Safety clamps used on a drill collar, flush-joint pipe, or similar equipment to prevent the collar, pipe, or equipment from falling in the well when not held by the elevators shall be removed from such equipment before hoisting continues.

History: 1979 AC.

R 408.15736 Weight indicators.

Rule 5736. (1) A weight indicator shall be installed and used on all operating drilling and well servicing rigs. It shall be so constructed, installed, and maintained so as to register an indication of plus 5% at maximum hook loading of the suspended load.

(2) The weight indicator shall be checked monthly for calibration by comparing its reading with the calculated drill string or tubing string weight, with adjustment made as necessary.

(3) The weight indicator shall be mounted so the gauge is easily visible to the operator standing at the brake position.

(4) Where an employee would be exposed to a hazard from a weight indicator, or a component of a weight indicator, installed on the deadline, the indicator or component shall be secured with a separate safety line or chain.

History: 1979 AC; 1989 AACS.

R 408.15737 Drilling fluid tanks.

Rule 5737. (1) A pit or tank used to circulate flammable materials shall be located not less than 100 feet from the well. Equivalent safety measures shall be taken where terrain and location conditions do not permit maintaining such distance.

(2) A fixed drilling fluid gun used for jetting shall be pinned or hobbled when in use and unattended.

(3) When it is necessary for an employee to enter a drilling fluid tank, the requirements of R 408.15725, if applicable, and the rules contained in general industry safety standard, Part 90. Confined Space Entry, being R 408.19001 et seq. of the Michigan Administrative Code, shall be followed.

(4) An electric motor-driven blower used for ventilation shall be of an appropriate electrical classification for the area in which the blower is located.

History: 1979 AC; 1994 AACS.

R 408.15738 Pipe racks.

Rule 5738. (1) Pipe shall be handled at the ends during manual pipe loading and unloading operations and during transfer between pipe racks.

(2) An employee shall not go between the pipe rack and a pipe truck or trailer during loading, unloading, or transfer operations.

(3) Provision shall be made to prevent pipe from accidentally rolling off a pipe rack or truck.

(4) During transfer operations between the truck and the pipe rack, temporary supports for skidding or rolling the pipe shall be so constructed, placed, and anchored to support the load to be placed on them.

(5) Pipe and drill collars racked in the derrick or mast shall be secured to prevent them from falling across the derrick or mast.

History: 1979 AC.

R 408.15739 Pressure equipment.

Rule 5739. (1) A relief valve discharge shall be located and anchored so as to prevent a hazardous condition due to sudden discharge or piping movement.

(2) In normal operation, pumps, piping, hoses, valves, and other fittings shall not be operated at pressures greater than their rated working pressure and shall be maintained in good operating condition. Test pressures shall not exceed the design test pressure. Pumps, piping, hoses, and safety relief valves shall be of the design that meets the requirements of the operating conditions to be encountered.

(3) Repairs to electrically driven pressure equipment shall not be performed unless the energy source has been interrupted at the switch box and the control has been locked.

History: 1979 AC; 1989 AACS; 2013 AACS.

R 408.15740 Rotary tables and tongs.

Rule 5740. (1) The operator shall not engage the rotary clutch until the rotary table is clear of all employees and materials.

(2) Rotary table power shall not be used to accomplish initial breakout of tool joint, but may be used for spinning out once initial breakout is effected.

(3) A tong shall be:

(a) Securely attached and anchored with wire rope or stiff arm.

(b) Properly maintained and repaired when excessive wear occurs. All tongs and tong heads, including dies shall be inspected for size and condition, repaired, and greased before every trip.

(4) A fitting used to attach a back-up line to the derrick or back-up post shall have a minimum breaking strength equal to the breaking strength of the cable attached to the fitting.

(5) A power tong:

(a) Shall be backed up with a device able to withstand the maximum torque of the power tool.

(b) With front openings shall have the front doors in proper working order.

(6) When working on a power tong head, the power input pressure line shall be disconnected as prescribed in rule 32 of Part 1. General Rules, being R 408.10032 of the Michigan Administrative Code.

(7) A tong pressure line shall be equipped with a safety relief valve, and pressure shall never be set higher than the rated capacity of the tong.

History: 1979 AC.

SPECIAL SERVICES

R 408.15741 Special services generally.

Rule 5741. (1) The supervisor of the special service shall hold a pre-job meeting with each crew to review responsibilities for the operation to be performed.

(2) Welding shall not be performed in the immediate wellhead area during wire line operations.

(3) When possible, the service unit shall be located on the upwind side of the wellhead and spotted where the crew has optimum visibility and can work unobstructed.

(4) A frozen flow line shall not knowingly be flexed or hit.

History: 1979 AC; 1989 AACS.

R 408.15742 Special services equipment; tanks, pump units, and communications.

Rule 5742. (1) A service unit engine shall be equipped with an emergency shutdown device, the control of which shall be located at the operator's console.

(2) A tank for flammable material shall be set so that if tanks leak, fluid will drain away from the well and equipment, or provisions shall be made to contain any leaked fluid.

(3) Electric power to the pumping unit shall be de-energized and locked out such a distance from the wellhead as to eliminate potential electrical hazards during well servicing operations. In confined locations, overhead electric power to the pumping unit control panel shall be de-energized.

(4) When operations are to be conducted around a pumping unit, the brake shall be set; if the pumping unit is stopped with counterweights in other than the down position, additional means shall be effected to prevent any movement of the counterweights or beam.

(5) After well servicing operations are completed, precautions shall be taken before energizing the power source to determine that all personnel and equipment are clear of weight and beam movement.

(6) Brake systems on all pumping units shall be maintained in safe working order.

(7) All equipment shall be located so that equipment operators can see the employee in charge during operations so that alternate specific arrangements can be made to assure adequate communication.

(8) Signals between supervisors and employees shall be agreed upon and fully understood before initiation of operations. Where more than 1 employer is involved in a drilling or service operation, coordination of activities and communication shall be accomplished so that the employees are protected at all times.

(9) Communications equipment shall be in good working order before commencing operations.

(10) Employees shall be out of the derrick and cellar and stand clear when a subsurface pump is being unseated or when the initial pull on tubing is made.

History: 1979 AC.

R 408.15743 Treating and cementing discharge lines.

Rule 5743. (1) Before initiating well servicing operations, the well shall be checked for pressure and proper steps shall be taken to remove the pressure or to ensure safe operation under pressure.

(2) A treating or cementing discharge line shall not be placed under any mobile equipment nor shall any mobile equipment be spotted over any such line.

(3) A discharge pressure line shall include sufficient flexible joints to avoid line rigidity and minimize vibration at the wellhead.

(4) When using an open-ended flow discharge line to flow or bleed off a well, the line shall be secured to prevent whipping. The flow discharge line shall be anchored before opening the wellhead control valve.

(5) All pressure shall be bled from a discharge line before breaking out or rigging down the line.

(6) After a hazardous substance has been pumped, all discharge lines shall be properly flushed before breaking out.

History: 1979 AC; 1989 AACS.

R 408.15744 Lubricator operations.

Rule 5744. (1) The provisions of this subrule apply when downhole tools are being run on a wire line in a well and a lubricator is used to allow removal of the tools under pressure.

(2) A lubricator, including the swages and unions, shall be visually inspected for defects before use. Any defects that may affect safe operations shall be corrected before installation.

(3) All valves and gauges shall be checked to be certain that there is no pressure on the lubricator before working on or removing it.

(4) When a lubricator is installed on a wellhead, an outlet below the lubricator shall be provided for well control operations.

(5) When downhole tools are being run on a wire line in wells where surface pressure is suspected, a lubricator or other equivalent control device shall be used to allow the removal of the tools under pressure.

(6) Only employees essential to the conduct of ongoing operations shall be permitted near the pressurized lubricator, flow lines, and wellhead.

(7) Wellhead adapters, wire line valves, and lubricating equipment shall be operated within their working pressure ratings.

(8) Hammering or otherwise striking on a pressurized lubricator or connection shall not be permitted.

(9) A threaded connection or union on a pressurized lubricator shall not be loosened or tightened.

(10) When handling the lubricator with a rig catline, air hoist, or other type of hoisting equipment, the line shall be snug against a union.

The catline or hoist line shall not be tied in the middle of a section of lubricator.

(11) When breaking a quick-thread union that is secured with a single bolt, the bolt shall be left in place with at least 1 full nut of threads engaged until after the union has been knocked loose. After the union has been knocked loose, the connection shall be moved to make certain the ring seal is broken and pressure has been released.

(12) A lubricator, 26 feet or more in length, shall be properly guyed or held vertical when in use.

History: 1979 AC; 1989 AACS.

R 408.15745 Wire rope.

Rule 5745. (1) Wire rope used on a gin pole truck shall be replaced if the monthly inspection shows any of the following conditions:

(a) In any length of 8 diameters, the total number of visible broken wires exceeds 10% of the total number of wires.

(b) The wire rope has been kinked, crushed, or birdcaged or has sustained other damage which distorts the rope structure.

(c) The outside of the wire rope shows heat or corrosive damage.

(2) There shall be not less than 2 complete wraps on the hoist drum when any load being hoisted is at its lowest point.

History: 1979 AC; 1989 AACS.

WIRELINE SERVICE

R 408.15751 Wireline service generally.

Rule 5751. (1) Wireline wipers shall be secured to prevent displacement.

(2) Oil savers shall be adjusted only by remote control while the wireline is in motion.

(3) Except for an employee of the wireline service company, an employee shall not be permitted closer than 6 feet to a moving wireline when working between the wireline unit and the well.

(4) The wireline valve, sometimes called a wireline blowout preventer, shall be visually inspected during opening and closing each time it is installed on a well. It shall be pressure tested monthly in full closed position to the rated working pressure of the valve.

History: 1979 AC.

R 408.15752 Placement and handling of wireline service units.

Rule 5752. (1) If a fracturing or hot oil unit is on the location, the wireline unit shall be located as far away from either unit as is practicable. The unit shall be located so that a means of emergency egress is available facing away from the fracturing or hot oil unit.

(2) A mobile wireline service unit working on land locations shall be properly chocked or spaded. If not spaded, a minimum of 2 chocks shall be used, 1 behind each rear wheel toward the wellhead.

(3) A portable or skid-mounted wireline service unit shall be properly secured to prevent any uncontrolled movement of the unit when a load is taken on the line.

(4) A wireline service unit shall be located in a manner that will not interfere with the entrance or exit of an employee from that unit or other service unit.

History: 1979 AC.

R 408.15753 Gin poles and rope falls.

Rule 5753. (1) A gin pole shall be properly attached to the wellhead or Christmas tree with a chain and ratchet load binder in a manner that prevents movement when the load is being handled. A chain and ratchet binder used to attach the gin pole to the wellhead or Christmas tree shall be of a proper size and strength to support the anticipated load to be handled.

(2) When the gin pole and rope falls are being used to lift the lubricator or any other heavy object, the load shall be pulled from as near a vertical position as practicable.

(3) A splice shall not be permitted in the entire length of rope of a rope fall, except where the dead end is tied off.

(4) The rope shall be inspected at the beginning of each job to assure that it has not been partially cut, frayed, or exposed to chemicals that may weaken it. A rope that has been

weakened by being cut or frayed or that has been in contact with damaging chemicals shall be immediately replaced.

(5) The blocks of a rope fall shall be inspected at the beginning of each job for shaft wear, the condition of bearings, or damaged or severely worn sheaves that may cause rope damage. A block that shows excess wear or damage shall be immediately replaced.

(6) A wire sling or equivalent that has been inspected for defects before installation shall be used for the purpose of securing the lower wire line sheave. The sheave shall be attached to a primary rig beam, blowout preventer, or permanent stable fixture.

(7) A pin used in the makeup of a sheave wheel shall be secured with a cotter pin or safety-type pin.

History: 1979 AC; 1989 AACS.

R 408.15754 Wellheads, wellhead connections, and adapters.

Rule 5754. (1) Except under emergency conditions and with due regard for potential hazard, wire line operations equipment shall not be rigged up on any wellhead if the surface pressure exceeds or is expected to exceed the maximum rated working pressure of the wellhead and wellhead equipment.

(2) In wire line operations where the weight and pull of the tools is to be supported by the lubricator, the connector shall be of such size and strength to support the anticipated loads.

History: 1979 AC; 1989 AACS.

R 408.15755 Rescinded.

History: 1979 AC; 1989 AACS.

R 408.15756 Wire line operations.

Rule 5756. (1) When handling a wire line that recoils when extended, the loose end shall not be left unsecured.

(2) If slack line occurs while tools are in the hole, the wire line shall be clamped off at the wellhead before working with the loose line. The clamp shall be tied off with a chain or soft-laid cable with sufficient strength to withstand any load to which it may be subjected.

(3) Hands, rags, and other objects shall be kept clear of sheave wheels while the line is in motion.

(4) A mast or gin pole truck used in wire line operations shall not be moved from one location to another nor driven on public roads with the mast or pole in a vertical or semivertical position.

(5) A gin pole mounted on a truck shall be securely fastened when the poles are in a vertical or semivertical position.

History: 1979 AC; 1989 AACS.

R 408.15757 Perforating.

Rule 5757. (1) Devices containing an explosive, such as a perforating gun or sand line cutter, shall be handled only by qualified employees.

(2) Electrical grounding between the wellhead, service unit, and rig structure shall be made before operating a tool using an explosive. A periodic check shall be made to ensure that all units are grounded.

(3) All unnecessary employees shall be kept away from a perforating gun while the gun is being armed, placed in the well, removed from the well, and disarmed.

(4) A radar or radio transmitting unit shall not be operated within 200 feet of any perforating operation. Warning signs shall be posted or other appropriate measures shall be taken by the employer performing the perforating operation so that all radio transmitting units will be shut off within 200 feet of the perforating operations.

(5) The perforating operation shall be suspended or the loaded gun safely isolated if an electrical storm or severe wind is imminent in the job area.

(6) Only a galvanometer or safety meter approved by the institute of makers of explosives shall be used for checking the continuity of blasting cap circuits.

(7) Shortcuts, such as a circuit jumper or a wired around switch, shall not be used on perforating equipment.

(8) A circuit alteration shall not be made while a perforating gun is attached to the cable head, unless the gun is 100 feet or more down the wellbore.

(9) When checking cable continuity using service unit electric current (AC or DC), the cable head or end of the cable shall be located in the vicinity of the unit where the employee applying the current can see the cable head.

(10) Before arming a bullet or shaped charge gun, conductor wire and armor shall be temporarily shorted to eliminate any capacitance charge that may exist in the cable.

(11) Primacord shall be separated from a blasting cap before assembly on location. The cap and booster shall be crimped only with an approved crimper. Primacord shall be cut with primacord cutters or a sharp blade and shall never be cut with diagonal cutters.

(12) A blasting cap and unattached booster shall be transported in an approved cap box. Only the cap and booster for immediate use shall be removed from the cap box. The shunt on the cap leg wires shall remain in place until the cap is wired into the circuit.

(13) Upon completion of the perforating operation, the work area shall be inspected and all explosive materials and scraps shall be removed from the site by a qualified employee.

History: 1979 AC; 1989 AACS.

OTHER SPECIAL SERVICE OPERATIONS

R 408.15761 Stripping and snubbing.

Rule 5761. (1) Stripping a well shall be performed under close surveillance by a responsible supervisor.

(2) An emergency escape system shall be provided and available for employees working atop hydraulic snubbing equipment.

(3) Before commencing snubbing operations, the snubbing tower shall be properly guyed if not otherwise supported.

(4) Flow lines or bleed-off lines shall be located, if possible, away from areas frequented by employees, such as doghouses, tool boxes, pumps, and power packs. If pressurized, a line shall be secured to prevent whipping if the line ruptures.

(5) Two-way communications shall be provided between the snubbing operator and the pump operator. This may be accomplished by hand signals, voice communication, or other equally effective means.

(6) Well surface pressure shall be monitored at all times during stripping and snubbing operations.

(7) Pipe snubbed into the wellbore shall have at least 1 landing nipple near the lower end of the pipe string to receive a back pressure valve or blanking plug.

(8) Snubbing operations shall not be performed while welding is being done in the immediate vicinity of the wellhead.

(9) All employees involved in stripping or snubbing operations shall be informed of the maximum working pressure limit of the equipment.

History: 1979 AC; 1989 AACS.

R 408.15762 Drill stem testing generally.

Rule 5762. (1) The supervisor in charge shall hold a crew meeting before going in the hole for a drill stem test.

(2) Measures shall be taken to exclude unauthorized employees from the area before and during drill stem testing operations.

(3) Drilling fluid density and viscosity shall be checked and maintained within specification limitations to minimize blowout possibilities.

(4) A fill-up line shall be installed exclusively to keep the casing full of drilling fluid and shall be used only for this purpose. The kill line shall be installed exclusively to provide complete well control. The kill line shall be separate from the fill-up line.

(5) A test line connection to the control head shall be securely fastened to the elevator bail.

(6) Every test plug used above the rig floor shall be attached to the elevator link by safety cable or chain.

(7) A reversing valve shall be incorporated in the test tool assembly to be able to reverse out in case of an emergency.

(8) The swivel and kelly hose shall not be used as part of the test line.

(9) A safety valve of proper size and thread configuration to fit the test string shall be readily available for emergency use on the rig floor.

(10) A test line shall be laid to a reverse pit or test tank and securely anchored.

(11) If hydrogen sulfide is suspected or known to be present in the area, the provisions of R 408.15717 shall be followed.

(12) The fluid level in the casing shall be monitored at all times while going in and coming out of the hole during a drill stem test to ensure that the hole is kept full and that swabbing does not occur.

(13) The mud box shall be hooked up and ready for use before the drill stem test tool if pulled out of the hole.

(14) The rig floor shall not be left unattended during the drill stem test.

History: 1979 AC; 1989 AACS.

R 408.15763 Rescinded.

History: 1979 AC; 1989 AACS.

R 408.15764 Acidizing, fracturing, cementing, and hot oil operations.

Rule 5764. (1) During acidizing, fracturing, cementing, and hot oil operations, all lines connected from the pumping equipment to the Christmas tree or wellhead shall have a check valve installed as near the well as possible. In addition, when a multipump manifold is used, a check valve shall be placed in each discharge line as near the other manifold as possible.

(2) When used, pressure-recording equipment shall be located as far as practical from the wellhead and discharge line.

(3) When pumping a flammable fluid, both of the following provisions shall be complied with:

(a) Blending equipment shall be grounded and equipment unloading sand into the hopper shall be bonded to the blending equipment.

(b) The lines containing the flammable fluid shall not be laid under any vehicle.

(4) A pretreatment pressure test on a pump discharge line shall be made at a pressure not less than the maximum expected treating pressure specified by the operator.

(5) Any employee not directly involved in the operation shall remain outside a designated minimum distance during all pressure testing and pumping operations.

(6) A qualified employee shall do both of the following:

(a) Check to see that all valves in discharge lines are open before pumping.

(b) See that all flammable fluid spilled on location is cleaned up or covered before initiating pumping operations.

(7) A pump operator shall remain at the designated position while the pump is in operation, unless the operator is relieved by an authorized employee as directed by the qualified employee on that job.

(8) A bleed-off line attached to the well or pump discharge subject to pressure shall be staked down or secured to prevent movement.

(9) While pumping a flammable fluid, all fires, electrical equipment, and internal combustion equipment not used to complete the job shall be shut down.

(10) A flammable fluid shall not be bled back into open measuring tanks on equipment designed for pumping.

(11) Spilled oil or acid shall be covered or properly disposed of as soon as practicable.

(12) The cement head and loops shall be secured to an elevator bail or traveling block.

History: 1979 AC; 1989 AACS.

R 408.15765 Rescinded.

History: 1979 AC; 1989 AACS.

R 408.15766 Rescinded.

History: 1979 AC; 1989 AACS.

R 408.15767 Rescinded.

History: 1979 AC; 1989 AACS.

R 408.15768 Procedures for air, gas, and mist drilling operations.

Rule 5768. (1) Subrules (2) to (16) of this rule apply only to air, gas, or mist drilling operations.

(2) The stripper rubber in the circulating head shall be inspected by a qualified employee at least once each tour. If any leaks are found, immediate action shall be taken to change out the stripper rubber.

(3) Pipe connections carrying gas or air to or from the wellbore shall be made up leak-free. Lines and connections shall be frequently inspected by a qualified employee and maintained free of leaks.

(4) A blooey or bleed-off line shall be not less than 150 feet in length or equivalent safety measures shall be taken. The blooey or bleed-off line shall be located downwind of the rig for the prevailing wind direction. Equivalent safety measures shall be taken for other wind conditions. A blooey or bleed-off line shall be laid as straight and free of sags as practical from the wellbore and shall be securely anchored.

(5) In gas drilling operations, a shutoff valve shall be installed on the main feeder line not less than 150 feet from the wellhead. In air drilling operations, the shutoff valve shall be installed in the main feeder line near the compressors.

(6) An air compressor shall not be located closer to the wellbore than the nearest engine operating the rig.

(7) The compressor shall be equipped with safety features, such as a pressure relief valve, pressure gauge, engine governor, and fuel shutoff valve.

(8) When making a connection, the standpipe valve shall be closed and the bleed-off line shall be opened before breaking out the tool joint.

(9) A pilot light shall be kept burning at the end of the flow line at all times, except when making trips. The pilot light shall be turned off while making trips.

(10) An effective pilot light or other continuous lighting device shall be kept burning at the end of the flow line at all times during the drilling operations, except when making trips.

(11) Equipment and materials for killing the well with drilling fluid shall be at the drilling site and such equipment shall be operable before a drilling operation commences.

(12) One B-C fire extinguisher of not less than 150 pounds dry chemical capacity, or equivalent, shall be stationed on the job in addition to those required in R 408.15715.

(13) The rig substructure shall be ventilated either by dependable natural convection or by use of mechanical fans which provide not less than 12 complete air changes per hour.

(14) A rig engine shall have an adequate heat and spark-arresting system for the exhaust.

(15) A gas or gasoline-fueled engine used in gas drilling operations shall be equipped with a shielded low-tension ignition system.

(16) A burning stove, open fire, or other possible source of ignition, such as an electric-powered tool or 2-way radio, shall be permitted only in a designated area. Only a heater which is designed and approved as safe shall be permitted on or near the rig floor.

(17) An emergency shutdown device shall be provided for each rig engine, excluding the power plant, and shall be located at the driller's console.

History: 1979 AC; 1989 AACS.

R 408.15769 Rescinded.

History: 1979 AC; 1989 AACS.

R 408.15770 Procedures for freezing, valve drilling, and pipe hot tapping operations.

Rule 5770. (1) A freezing, valve drilling, or pipe tapping operation shall be under the direct supervision of a qualified person.

(2) The rated working pressure of all equipment used on valve drilling and pipe tapping operations shall be at least 1 1/2 times the maximum wellhead pressure of the well on which work is being performed.

(3) After necessary equipment has been rigged up to perform valve drilling or pipe tapping operations, it shall be pressure tested for a minimum of 3 minutes to at least 1 1/2 times the expected pressure but shall not exceed the rated maximum working pressure of either the equipment being tapped or the tapping equipment. The possibility of pipe collapse may dictate a reduction in test pressure.

(4) Pressure inside the lubricator shall equal the pressure inside the equipment being penetrated during the valve drilling and pipe tapping operations.

History: 1979 AC.

R 408.15771 Freezing operations.

Rule 5771. (1) A frozen plug shall be allowed to set a minimum of 1 hour per inch of pipe diameter being frozen.

(2) When possible, a frozen plug shall be pressure-tested from above for a minimum of 5 minutes to a pressure which is more than the known wellhead pressure.

(3) Following the pressure test, all pressure shall be bled off the pipe above the frozen plug and observed for a minimum of 15 minutes before breaking out the pipe and installing a new valve.

(4) After installing the new valve, void space between the frozen plug and valve shall be filled with fluid.

(5) A frozen plug shall be allowed to thaw at a normal rate. Steam or hot water shall not be used to thaw a frozen plug.

History: 1979 AC; 1989 AACS.