



# **Occupational Safety and Health Standards**

**Adopted by Reference under 8 AAC 61.1180**

## **Petroleum Drilling and Production Standards**

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The standards prescribed in this subchapter were published on October 20, 1995. Alaska safety codes and standards apply to all places of employment. Information relative to the safety codes will be furnished by the above offices.

Revisions made May 2001 reflect technical revisions made by the regulations attorney under AS 44.61.125 (b) (6), made by ch. 58, SLA 1999 reflecting the name change of the Department and the corresponding title change of the commissioner of labor. Updates to contact names and addresses shown on this page are made periodically as needed.



*Good, Safe Jobs Are Alaska's Future*

## ALASKA DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

Section 18.60.010 of the Alaska Statutes designates the Alaska Department of Labor and Workforce Development as the agency responsible for developing and administering an occupational safety and health program for the State of Alaska. To carry out this responsibility AS 18.60.055 established the Division of Labor Standards and Safety.

The division is charged with the responsibility and has the authority to:

Enforce all laws and lawful orders requiring work and work places to be safe and healthful;

Investigate disabling or fatal occupational injuries and illnesses;

Inspect work places to determine if conditions are safe and healthful;

Develop occupational safety and health standards which, after adoption, have the effect of law; and

Establish special orders, or rules and regulations to cover a specific place of employment or process of work.

A variance from an occupational safety and health standard adopted by the department may be granted by the Commissioner of Labor and Workforce Development as provided by AS 18.60.077, AS 18.60.081 and regulations promulgated pursuant thereto.

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PETROLEUM DRILLING  
AND PRODUCTION STANDARDS  
Adopted by reference under 8 AAC 61.1180

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8 AAC 61.1180. PETROLEUM DRILLING AND PRODUCTION STANDARDS.

(a) Identification of Wells and Equipment.

(1) Every drilling or producing well shall be identified as required in 20 AAC 25 and regulated by the Alaska Oil and Gas Conservation Commission.

(A) Each stationary tank or vessel containing flammable, corrosive or poisonous substances shall be identified by a letter, number, name or combination of these. The identifications shall, when practical, be located so they are legible from the location at which the tank or vessel is operated or controlled. Identifications shall be maintained so they remain legible.

(B) Pipelines containing flammable, corrosive or poisonous liquids or gases shall be identified to indicate their contents or purpose when such identification is necessary for the safe operation of the valves of the line. The identification of the lines shall be by name, color, number, or symbol placed on the lines or on the valves in the lines and shall be legible from the place at which the valves are operated. This shall not prohibit identification by the use of more than one means. Identifications shall be maintained so they remain legible.

(b) Machinery and Equipment.

(1) No machinery or equipment shall be used which is unsafe, unsuitable or not constructed, protected, placed and operated to afford reasonable safety from accident to persons in and around producing or drilling facilities.

(2) Machinery and equipment shall be operated only by persons authorized by the employer.

(3) The cleaning and oiling of machinery while in motion is prohibited in all cases where exposure to harmful contact with moving parts is involved. Before any machinery or equipment is to be repaired it shall be shut down. The power shall be disconnected and the control device tagged and locked out or otherwise made inoperative and the key retained on the person making the repairs. Tags used for this purpose shall warn against starting such machinery. Before any person starts any machinery or equipment, he shall make certain that no person will be endangered by the equipment being put into motion.

(4) Drillers shall never engage the rotary clutch without watching the rotary table. The rotary clutch mechanism shall be equipped with a positive safety lock to prevent the clutch from being engaged accidentally.

(5) Machines designed for a fixed location shall be securely anchored to prevent walking or moving.

8 AAC 61.1180(b)(6)

(6) An emergency stop device shall be provided for each prime mover for drilling and well servicing machinery. The device shall be one that, once placed in the stop position, shall be manually reset to the starting or running position before the prime mover can be started.

(7) Bails, crown block hooks, elevator links, A-legs pins and housing shall be inspected for internal flaws by the magnaflux or equivalent process at least once each year. All derricks shall be visually inspected each year of use. A written report of these inspections shall be kept on file.

(c) Guards.

(1) All belts, ropes, or chains used for the transmission of power, all gears, sprockets, clutches, cranks, connecting rods, and all revolving parts of machinery exposed to contact shall be enclosed, screened or protected in a manner that will adequately prevent any worker from contacting them, and shall conform to the requirements set forth in 29 C.F.R. 1910.219 Mechanical Power-Transmission Apparatus, General Industry Standards.

(2) Drawworks guards.

(A) Adequate guards of metal strong enough to withstand the shock of breaking sprocket chains shall be installed on the drawworks to guard all drive sprockets and chains so that workers cannot come in contact with moving parts. Guards shall not be required for spinning chains, tong lines, or catheads upon which ropes are manually operated.

(B) The tops and outer sides of the hoisting drum brake flanges shall be guarded by a steel plate not less than one-eighth inch thick, and these guards shall be installed with a minimum working clearance from the brake and shall be securely bolted in place.

(3) Drilling machinery guards.

(A) A rotary table must have a substantially constructed metal plate guard adequately covering the outer edge of the table and extending downward to completely cover all the exposed rotating side of the table including the pinion gear. This subparagraph does not pertain to the top surface of the rotary table, kelly, or kelly bushing for which guards are not required when operated by the driller or other designated persons. However, kelly bushings with protrusions of the J bolt type must have such guards.

(B) The guard for the low gear drum-drive sprockets and chain next to the drilling position shall be flanged with a steel plate so that a breaking chain cannot hit the driller or foul the brake lever.

(C) On every chain-drive rotary, the pinion shaft, the coupling and the bevel gears shall be guarded with metal shields or guards.

(D) On every shaft-drive rotary, the drive pinion, the shaft, the couplings and the bevel gears shall be guarded with metal shields or guards.

(E) The pump of every rotary hose shall be securely fastened to a substantial support and the swivel end of such hose shall be securely fastened to the swivel housing with a safety chain or wire cable.

(F) Drilling rigs using kelly bushings other than the "smooth" type must have a substantially constructed kelly bushing/rotary table guard. Rigs using the "smooth" type kelly bushing have the option of using a substantially constructed guard for the rotary equipment or of following the guidelines set out in (i) through (viii) of this subparagraph:

(i) All employees must be trained in safe operating procedures when around the rotary table and kelly bushing.

(ii) The employer shall designate the equipment operator and shall ensure that the designated person is trained and competent in the operation of the rotary drilling equipment.

(iii) The designated equipment operator shall control the access and activity of all personnel on the drilling floor while equipment is rotating and must stop the equipment from rotating whenever there is danger to personnel from that equipment.

(iv) The equipment operator may never engage the rotary clutch without first ensuring that no employees are on or in proximity to the rotary table in such a manner that they could be endangered.

(v) At any time an employee's work activities require the handling of materials which can become entangled in the rotary table, the kelly bushing or the kelly while the equipment is in motion, the designated equipment operator, who is capable of stopping the rotating equipment, must be at his controls.

(vi) No materials which may become entangled in the rotary table, kelly bushing or kelly may be allowed within six inches of this equipment when it is to be operated.

(vii) Wash down hoses must be of such length or located in such manner that no part of the hoses can be brought to within six inches of the kelly bushing.

8 AAC 61.1180(c)(3)(F)(viii)

(viii) Spinning chain may not be wrapped around the joint of the pipe in the mousehold nor handled on the drilling floor so that any part of the chain is within two feet of the exposed rotating portions of the rotary table kelly bushing or kelly.

(4) Line guards.

(A) Workers shall not be required or permitted to contact a traveling hoisting line for the purpose of swinging or preventing the swinging of the traveling blocks unless they are provided with a suitable hand guard that will provide protection to the palm of the hand against contact with the line.

(B) The hand guard shall be secured to the derrick with a one-half inch diameter, three strand manila rope, or its equivalent.

(C) Workers shall not stand near the rotary table or on the rotary table floor when the sand line is going into the hole.

(5) Nip points and cutting edges. All nip points, pinch points and cutting edges of all power-driven exploration, drilling and production equipment shall be guarded to prevent accidental contact by workers.

(d) Scaffold, Stages and Walkways. Construction and erection of all scaffolds, stages, and walkways shall be in compliance with standards set forth in 29 C.F.R. 1910 Subpart D of the General Industry Standards.

(e) Line Spooler and Weight Indicator Provisions.

(1) Metal parts of a line spooler and line stabilizer shall be guarded against contact with the hoisting line by rubber or other suitable nonmetallic material.

(2) Every line spooler and line stabilizer with sheaves, rollers, or other rotating parts shall have a guard that will prevent it from falling should it become displaced from its bearing or fastenings.

(3) Every overhead sheave or pulley on which a line spooler counterweight rope runs shall be securely fastened to its support with steel or iron brackets, bolts, wire cable, or by welding.

(4) A weight indicator shall be provided and used on every drilling and re-drill well, and on all other wells when pulling on casing or stuck pipe.

(f) Derricks.

(1) Construction.



(A) Every derrick and its component parts shall be substantially constructed to conform to good engineering practice and shall be kept in safe condition.

(B) Every derrick in operation shall be supported by a substantially constructed foundation.

(C) No derrick or the foundation supporting it shall be subjected to loads greater than the structure or its foundation will reasonably withstand.

(D) All auxiliary parts of derricks shall be substantially constructed and maintained in a safe condition.

(E) Reasonable provisions shall be made to prevent derricks from collapsing as a result of wind velocity. This may be accomplished by using either one or both of the following methods:

(i) by using an adequate number of sufficiently strong guy lines arranged and anchored as specified by the rig manufacturer or in accordance with accepted engineering practice, or

(ii) by constructing the derrick and foundations to resist overturning in accordance with accepted engineering practice.

(2) Floors.

(A) Every floor, platform, walk and runway shall be kept reasonably free from drilling fluids, mud, oil, grease or other substances which create a slipping hazard or prevent or hamper the escape of workers in an emergency.

(B) Every rig floor shall completely cover the space within the perimeter of the derrick or to the outer boundary of the floor when it extends beyond the perimeter of the derrick, except for openings necessary for the installation of equipment used in connection with the operations. When the openings are not occupied by the equipment or when it is not necessary to keep them open, they shall be covered or otherwise guarded to prevent workers from accidentally stepping or falling therein.

(C) When the rig floor adjacent to the bottom section of the derrick ladder is more than two feet above the ground or another floor or platform, the derrick floor shall extend to at least two feet beyond the climbing face of the ladder and the extended portion of the floor shall be at least four feet in width.

(D) The outer edges of all floors, platforms, walks, and runways that are four feet or more above the ground or another floor level, except entrance and exit ways and loading and unloading areas, shall be guarded with standard guard railings in accordance with

8 AAC 61.1180(f)(2)(E)

29 C.F.R. 1910.23 Guarding Floor and Wall Openings and Holes, General Industry Standards.

(E) If the height of a floor, platform, walk or runway exceeds four feet above ground, another floor or working level, substantial toe boards not less than four inches in height that will prevent material from falling off the floor shall be provided. The bottom edge of the toe boards shall be spaced no more than one-half inch above the floor to permit drainage.

(F) Every runway shall be at least two feet in width. When guard railings are provided on a runway, no part of the railings or the toe boards shall reduce the clearance on the runway to less than 20 inches.

(G) Rig floors, derrick walks, and engine room floors shall not be used as storage platforms for idle equipment or material which is not for immediate use, unless it is properly racked or stored to avoid obstruction or congestion of work area or access way.

(3) Outside platforms.

(A) On every jack-knife derrick constructed for drilling or equipped for re-drilling, a platform at least two feet wide shall be provided on at least one side of the crown block. This platform shall be equipped on its outer edges with a two rail railing and a toeboard as specified in 29 C.F.R. 1910.23 Guarding Floor and Wall Openings and Holes, General Industry Standards.

(B) Every derrick used for drilling or re-drilling except a jack-knife derrick shall have a continuous outside derrick platform at least two feet wide completely around the derrick at an elevation no more than two feet above and no more than one girt (not to exceed eight feet) below the monkey board. This platform shall be equipped on its outer edges with a two rail railing and toeboards in accordance with 29 C.F.R. 1910.23 Guarding Floor and Wall Openings and Holes, General Industry Standards.

(C) Additional access platforms shall be provided with openings not exceeding 30 inches by 30 inches to permit the passage of workers climbing derrick ladders. Standard railings around the outer edges of the platforms and toeboards four inches high around the inside and outside edges of the platform shall be provided in accordance with 29 C.F.R. 1910.23 Guarding Floor and Wall Openings and Holes, General Industry Standards.

(D) Direct access shall be provided to each outside derrick platform by the main derrick ladder, by an auxiliary derrick ladder from any lower outside derrick platform to which the main derrick ladder does not provide direct access, or by extending the outside derrick platform to the main derrick ladder.

(E) The outer edges of all outside derrick platforms shall be equipped with railings and toeboards in accordance with 29 C.F.R. 1910.23 Guarding Floor and Wall Openings and Holes, General Industry Standards.

(F) The outer edges of all ladder offset platforms shall be equipped with railings but need not be equipped with toeboards in accordance with 29 C.F.R. 1910.23 Guarding Floor and Wall Openings and Holes, General Industry Standards.

(4) Monkey boards.

(A) A monkey board shall be provided in the derrick tower at each elevation where an employee is normally required to handle pipe, sucker rods, or other equipment racked in the derrick tower.

(B) The working edge of monkey boards shall be placed to permit sufficient clearance for reasonably safe passage of the traveling block and of the employees working on it so the elevator can be easily reached.

(C) Every monkey board shall completely cover the space from the working edge back to the legs and derrick girts.

(D) Every monkey board shall be secured to the derrick with bolts or equivalent fastenings to resist being shifted or accidentally dislodged under normal operating conditions.

(E) A vertical clearance of at least six and one-half feet shall be maintained above the decking of each monkey board.

(F) No monkey board shall be positioned so that the hoisting line running to the hoist drum runs through or is in contact with the platform unless provisions are made to prevent the line from dangerously abrading the platform and to guard employees working on the platform from contact with the line.

(G) No monkey board shall be installed in a derrick in a position that obstructs the driller's or hoist operator's view, from his operating station, of either the crown block or the traveling block at any point of its travel.

(H) Access to a monkey board which is more than three and one half feet above the outside derrick platform which serves it and to which the main derrick ladder does not provide direct access shall be provided access by means of an auxiliary derrick ladder from the outside derrick platform below to a point no less than three and one-half feet above the monkey board.

8 AAC 61.1180(f)(4)(I)

(I) A finger or finger brace shall not be used as a monkey board. A finger board may be used as a monkey board when it meets the requirements for such and provides safe working space between the traveling block or hoisting lines and the pipe racked in the derrick tower.

(5) Stabbing boards.

(A) A stabbing board shall be provided for and used by employees where a platform is necessary for regular operating duties and the work cannot be safely performed from a fixed platform or monkey board. When employees are engaged in working 10 feet or more above the floor, safety belts shall be provided and used in accordance with subsection (g) of this section.

(B) A stabbing board is not required for repairing or maintaining the derrick or equipment.

(C) A stabbing board shall be at least 12 inches wide and shall be strong enough to safely withstand the total weight of persons, equipment and material that may be required or permitted to be placed thereon.

(D) Ends of a stabbing board while in position shall be fastened in a manner that will prevent the board from accidentally shifting off its supports or falling to the floor.

(E) A safety line shall be attached to each end of the stabbing board and secured to the derrick structure to prevent pieces from falling to the floor below in the event of accidental breakage.

(F) After its use the stabbing board shall be removed from the derrick unless its further immediate use is indicated.

(G) Any support from a stabbing board shall be substantially constructed and secured in place.

(6) Counterweights. On rotary drilling rigs, every counterweight above the derrick floor, when not fully encased or running in permanent guides, shall be attached to the frame of the derrick with a separate wire rope safety line no less than five-eighths of an inch in diameter, to prevent the counterweight from coming within eight feet of the floor.

(7) Derrick tools and weather protection. No tools, machine parts or material of any kind shall be kept in a derrick above the derrick floor unless there is occasion for their immediate use, in which case reasonable precautions shall be taken to prevent their falling on persons below. Where pipehooks are used above the derrick floor, every pipehook shall be secured to the derrick in a manner that will prevent the hook from falling. Whenever it is reasonably practicable, the engine room, pump house, derrick floor and racking platform shall be adequately enclosed to a sufficient

height to provide suitable protection for workers during seasons of inclement weather.

(8) Ladders.

(A) Every derrick shall be equipped with a fixed ladder or ladders arranged to provide access from the ground, floor level, or from the vehicle bed on which it is mounted, to the crown safety platform and to any intervening fixed platform.

(B) The width of ladders shall comply with Subpart X, Stairways and Ladders of 29 C.F.R. 1926, Construction Standards.

(C) Rung or step spacing shall be uniform and parallel and shall comply with Subpart X, Stairways and Ladders of 29 C.F.R. 1926, Construction Standards.

(D) Where sections of ladders are spliced, they shall be supported at the splice so the ladder will be aligned and the splice will not be stressed beyond its safe working limit.

(E) Along the length and width of the back of the ladder a space of at least four inches shall be maintained clear of all obstructions that present a tripping hazard, prevent a safe footing, or prevent a secure handhold to the ladder rungs or steps.

(F) No ladder shall lean backward from a vertical position.

(G) No ladder shall lean sideways more than five and three-fourths degrees. Ladders from cantilever type masts shall not lean sideways more than three degrees.

(H) Ladders shall be constructed so the rungs or steps are approximately horizontal at the normal operating position of the derrick and shall be no more than two degrees from a horizontal position.

(I) The lowest rung or step of the ladder or ladder section shall be no more than 18 inches above the ground, floor or platform landing.

(J) Every ladder shall be substantially constructed and secured to the derrick with bolts, brackets, or equivalent safe fastenings.

(K) The top end of each terminating ladder or ladder section providing access to any fixed platform in or on a derrick shall extend at least three and one-half feet above the platform unless suitable handholds are provided as required by subparagraph L of this paragraph.

(L) Continuous ladder or ladder sections shall be provided with platforms at intervals of no more than 40 feet upon which the employee may rest. The platforms shall comply with the requirements of ANSI A 14.3-1956 Safety Code for Fixed Ladders.

8 AAC 61.1180(f)(8)(M)

Suitable handholds shall be provided at a convenient height above the rest platform. Toeboards and railings are not required.

(M) If ladders are offset, the offsets shall be located at ladder offset platforms only.

(N) Ladders constructed of wood shall conform to the requirements for wooden ladders prescribed in 29 C.F.R. 1910.25 Portable Wood Ladders and 29 C.F.R. 1910.27 Fixed Ladders, General Industry Standards.

(O) The use and construction of ladders not covered in this paragraph shall comply with 29 C.F.R. 1910.24 Fixed Industrial Stairs through 29 C.F.R. 1910.27 Fixed Ladders, General Industry Standards.

(9) All derricks: Ladderway openings for all platforms other than crown platforms. An opening to permit the passage of employees climbing the ladder shall be provided in every platform through which the ladder passes, in the following manner:

(A) The width of the opening shall be at least 22 inches but no more than 30 inches. The ladder shall be placed midway along the width of the opening.

(B) The openings shall be clear and unobstructed for at least 20 inches outward on the climbing side.

(10) Safety provisions for the erection of derricks.

(A) Every portable telescoping derrick shall be equipped with an automatically engaging safety device designed to prevent the upper section of the derrick from falling at an unsafe rate of speed if the lifting mechanism fails when the upper telescoping section is being raised or lowered.

(B) Where hydraulic lifts are employed to raise or lower a derrick between horizontal and vertical positions, or to raise or lower the top telescoping section of a derrick, the hydraulic fluid system shall be equipped with a device located within the cylinder, or as closely connected to the cylinder as is feasible, to prevent the derrick from falling at an unsafe rate of speed if the fluid piping system fails. This may be accomplished by the use of an excess flow device, a restricting orifice, or other equally effective means.

(C) Every telescoping derrick shall be equipped with a locking device for holding the top telescoping section of the derrick in its extended working position. This device may be operable from ground level or from various positions on the derrick, and shall be permanently secured with a safety chain or the equivalent means to prevent the locking device from falling.

(11) Guying derricks.

(A) Every telescoping and jackknife derrick in use at a well shall be effectively guyed, braced, or otherwise engineered to resist overturning in accordance with generally recognized safe practices in the industry.

(B) Reasonable provisions shall be made to prevent portable cantilever derricks from overturning or collapsing as a result of wind velocity. This may be accomplished by using either one or both of the following methods:

- (i) by using guy lines; or
- (ii) by constructing the derrick and foundation to reasonably resist overturning.

(C) If a cantilever derrick is subjected to unusual stress caused by asymmetrical racking of pipe, reasonable guying provisions shall be made to prevent the derrick from collapsing.

(12) Crown platforms and railings.

(A) Portable cantilever derricks: Crown safety platforms and railings.

(i) A platform at least two feet wide shall be provided approximately level with the top of the derrick and continuous along at least three sides of the crown block. This platform shall provide access to the sheaves and lubricant feeders if oiling is done at crown block level.

(ii) The outer edges of the platform shall be equipped with standard railings and toeboards.

(B) Portable telescoping and jackknife derricks: Crown safety platform and railings. A platform at least two feet wide shall be provided across the entire length of any one side and approximately level with the top of the derrick. The platform shall provide access to the crown block sheaves and their lubricant feeders if lubricating is done at the crown block level.

(C) Portable cantilever, jackknife, and telescoping derricks. Access and lubrication.

(i) If lubricant feeders are piped down to the pipe racking platform for servicing, and the crown platform is used for maintenance or emergency work only, the width of the crown platform may be reduced to 18 inches if the platform is designed so the ladderway opening is clear and unobstructed to a distance of at least 20 inches outward on the climbing side of the ladder.

8 AAC 61.1180(f)(12)(C)(ii)

(ii) Access from the ladder to the crown safety platform shall be provided as follows:

a. If access to the crown safety platform is by means of a ladderway opening in the platform, the opening shall be no less than 22 inches by 22 inches and no more than 24 inches by 24 inches. The platform shall be designed so the ladderway opening is clear and unobstructed to a distance of at least 20 inches outward on the climbing side. The ladder shall extend three and one-half feet above the platform level unless suitable handholds are provided.

b. Where access to the crown safety platform is by means of a ladder on the outer edge of the platform, the ladder rungs shall terminate at platform level. Ladder sides shall extend up to the level of the platform railing.

c. Entry to the platform shall be provided by an opening in the standard railings and toeboards, no less than 14 inches and no more than 16 inches wide.

(13) Pipe and sucker rod platforms.

(A) Platforms and access runways.

(i) Platforms shall be provided for employees to stand on to handle pipe, sucker rods, or other equipment racked in or on the derrick. These platforms shall be at least 18 inches wide, and shall completely cover the space between the working edges and the main structural member to which they are secured.

(ii) Access runways or platforms no less than 12 inches wide shall be provided between the derrick ladder and the pipe and sucker rod platforms. The maximum allowable distance between the ladder and the access runway or platform is 18 inches.

(B) Portable cantilever derricks: Platforms.

(i) A platform at least two feet wide shall be provided across the entire length of each outer side of the derrick adjacent to and level with the ends of the pipe-racking support. The outer edges of these platforms shall be equipped with standard railings and toeboards. If the design of a derrick makes outside platforms impractical, inside platforms at least two feet wide and adjacent to and level with the ends of the pipe-racking support may be used. However, on cantilever derricks equipped with an adjustable pipe-racking support, the outside platform shall not be more than 30 inches below or 24 inches above the pipe-racking support if railing



extensions are installed for safe access between the outside platform and the pipe-racking support.

(ii) Access shall be provided from the derrick ladder to these platforms.

(14) Pipe racking supports.

(A) Stationary and portable gin poles: Pipe-racking supports.

(i) On every gin pole derrick where the pipe, sucker rods, or other equipment being handled is racked on the derrick, a pipe-racking support primarily designed to prevent pipe from falling shall be provided near the top of the stands of pipe, sucker rods, or other equipment. This support shall be constructed so it will, with the derrick, completely surround the pipe or other racked equipment.

(ii) A standard railing shall be provided on the pipe racking support along its entire length to no less than 14 inches but no more than 24 inches of the derrick leg adjacent to the ladder.

(B) Portable cantilever, jackknife, and telescoping derricks: Pipe-racking supports.

(i) A substantially constructed pipe-racking support primarily designed to prevent pipe from falling shall be provided near the top to the stands of pipe. This support shall be constructed so it will, with the derrick completely surround the pipe or other racked equipment.

(ii) If pipe or sucker rod platforms are attached to or supported by the pipe support, for cantilever and jackknife type derricks, standard railing shall be provided that extends along the entire length of the pipe support.

(15) Floating gin pole: Construction and maintenance.

(A) Every rig-building floating gin pole and its component parts, including the basket and sky lines (blocks and tackle) by which it is suspended and guyed, shall be substantially constructed in accordance with good engineering practice and shall be kept in safe condition.

(B) A rig-building floating gin pole, the basket by which it is suspended, and the sky lines by which it is guyed, shall not be subjected to loads greater than their design or condition will withstand.

(C) Open hooks shall not be used to attach tackle blocks or rigging to the floating gin pole, derrick tower, or other supporting structures.

8 AAC 61.1180(f)(15)(D)

(D) When a rig-building floating gin pole is in operating position with the bottom end resting on the ground, derrick floor, or derrick foundation, it shall be supported in a substantial manner, with the bottom end securely fastened in place, to prevent the gin pole from shifting.

(16) Gin poles.

(A) A gin pole shall be installed on a derrick when it is necessary to install, remove or lift a crown block or to hoist or lower any material through the opening in the derrick top that is too heavy to be handled manually.

(B) A gin pole shall consist of no less than two upright members supporting a horizontal header member and the header shall extend in a horizontal plane across the approximate center of the opening in the derrick top.

(C) The minimum clearance between the bottom of the horizontal header member of the gin pole and the tops of the beams on the derrick top which support the crown block shall be no less than twice the overall height of the crown block or other material being handled.

(D) A gin pole shall be designed and constructed to sustain the maximum compression load imposed thereon.

(E) When a derrick gin pole is used to install a crown block, access shall be provided to the top of the derrick gin pole by means of a fixed ladder.

(17) Exits.

(A) Where the difference in elevation is more than 18 inches between the ground working levels, platforms or floors, exit shall be provided by means of a stairway, ramp, walkway or a combination of these at the following locations:

(i) at a place along an edge of the drawworks engine house floor or platform that is as remote from the derrick floor as operating conditions will permit. This exit shall be readily accessible from all areas of the engine house unless an alternate accessible exit remote from the derrick floor is provided;

(ii) at the end of the farthest catwalk from the derrick floor;

(iii) at the junction of the derrick floor and vee door ramp; and

(iv) at the junction of the drilling fluid ditch walk and derrick floor.

(B) Derrick floors at wells having no connection walk, platform, or other floor, shall have at least one means of exit provided if the derrick floor is more than 18 inches but less than 10 feet above ground level, and two means of exit if 10 feet or more above ground level.

(C) The two means of "EXIT" shall be located so they will provide alternate means of escape in case of an emergency. One means of access shall be provided by a stairway, ramp, walkway, or a combination of these. A ladder may be used as the other means of escape.

(D) All "EXIT" doors of a drilling rig shall open outwards and shall not be held closed with a lock or an outside latch when workers are employed on the rig.

(g) Safety Belts.

(1) A safety belt, securely fastened to the derrick or substantial support, shall be provided and shall be worn by each worker engaged in working 10 feet or more above the floor. However, a safety belt is not required when:

(A) a rig builder is performing normal duties;

(B) an employee is ascending or descending or otherwise traveling to or from a working place;

(C) equivalent protection is provided by safety railings, safety cages or safety rings; or

(D) the use of a safety belt is clearly impractical.

(2) Safety belt lanyards shall be at least one-half inch nylon or the equivalent, and shall have a maximum length to provide for a fall of no more than 5 feet. The rope shall have a nominal breaking strength of 5,400 pounds.

(h) Escape Equipment.

(1) An auxiliary means of escape shall be provided from the monkey board of a standard type derrick and from the pipe-racking platform on others. This auxiliary means of escape shall be a specially rigged escape line by which an employee can reach the ground safely if a blowout or other emergency in or around the derrick should cut off his escape by way of the derrick ladder.

(2) Each escape line shall be equipped with a safety buggy or other approved device. It shall have a suitable brake and shall be maintained in good condition. It shall be kept at the principal working platform during the time an employee is there. The safety buggy or other

8 AAC 61.1180(i)

approved device shall be inspected at weekly intervals by the derrickman, and a record of unsafe conditions shall be maintained.

(i) Blocks.

(1) Crown blocks. Each sheave assembly of a crown block on portable masts shall be provided with complete metal bearing housing, a metal strap or an equivalent housing, securely fastened to the crown block beams so the sheaves, sheave bearings or housings cannot accidentally be dislodged under normal operating conditions.

(2) Traveling blocks.

(A) The sheaves of a traveling block shall be equipped with adequate guards that will prevent accidental contact with the sheaves or with the nip point where the hoisting lines run on and off the sheaves.

(B) Every traveling block sheave guard shall be securely fastened to the traveling block to prevent it from becoming accidentally displaced under the most severe operating conditions, such as jarring on a stuck string of pipe, a contact or impact with the fingers or finger boards or pipe standing in the derrick.

(C) Every traveling block hook or the hook or open link suspended from the traveling block, to which an elevator, elevator link, swivel bail or other equipment is either directly or indirectly attached, including the open hooks or links of attached equipment shall be equipped with a safety latch or device that will provide a completely and securely closed hook or link. The latch or device shall be adequate enough to prevent material from becoming accidentally disengaged when used under the most severe operating conditions, such as jarring on a stuck string of pipe, contact or impact with the fingers and finger boards or pipe standing in the derrick.

(D) Every traveling block, traveling block hook, elevator and elevator link, or similar traveling equipment, shall be reasonably free of projecting bolts, nuts, pins or other parts on which the clothing of workmen might be caught or that may foul the derrick members or other equipment or material in the derrick.

(j) Hoisting Lines and Operations.

(1) Hoisting ropes.

(A) In using hoisting ropes, the manufacturer's recommendation and/or API Standard 9A "API Specification for Wire Rope" and/or API Recommended Practice 9B "Application, Care and Use of Wire Rope for Oil-Field Service" shall be followed.

(B) Socketing shall be done in the manner specified by the manufacturer of the assembly.

(C) Rope shall be secured to the drum as follows:

(i) no less than five wraps of rope may remain on the drum when the hook is in its extreme low position, and

(ii) the rope end shall be anchored by a clamp securely attached to the drum, or by a socket arrangement approved by the manufacturer of the drilling rig or the rope.

(D) Eye splices.

(i) An eye splice made in any wire rope shall have not less than three full tucks. However, this requirement shall not preclude the use of another form of splice or connection which can be shown to be as effective and which is not otherwise prohibited.

(ii) Eyes in wire rope bridles, slings, chockers or running lines shall not be formed by wire rope clips or knots.

(iii) Where the use of wire rope clips is permitted to form eyes, subparagraph (1)(E) of this subsection shall apply.

(iv) The use of the "Flemish eye" also known as a "farmer's eye" shall not be permitted in any wire rope which must withstand a strain.

(E) Rope clips attached with U-bolts shall have the U-bolts on the dead or short end of the rope. Spacing and number of all types of clips shall be in accordance with the clip manufacturer's recommendation and/or Table H-20 in 29 C.F.R. 1926, Construction Standards. Clips shall be drop-forged steel in all sizes manufactured commercially. When a newly installed rope has been in operation for an hour, all nuts on the clip bolts shall be retightened.

(F) Swaged or compressed fittings shall be applied as recommended by the rope or drilling rig manufacturer.

(G) Wherever exposed to temperatures at which fiber cores would be damaged, rope with an independent wire-rope or wire-strand core or other temperature damage resistant core shall be used.

(H) Replacement rope shall be the same size, grade, and construction as the original rope furnished by the drilling rig manufacturer, unless otherwise recommended by

8 AAC 61.1180(j)(2)

a wire rope manufacturer due to actual working condition requirements.

(2) Rope inspection.

(A) Drill lines. A thorough inspection of all drill lines shall be made in accordance with the recommendations and procedures in API RP9B section 5, "Slipping and Cutoff Practice for Rotary Drilling Lines," which shall be followed where applicable.

(B) When any of the following conditions are present, any wire rope shall be immediately removed from service:

(i) reduction of rope diameter below nominal diameter due to loss of core support, internal or external corrosion, or wear or scraping of one-third the original diameter of outside individual wires;

(ii) ten randomly distributed broken wires in one rope lay, or five broken wires in one strand in one rope lay;

(iii) evidence of heat damage;

(iv) corroded or broken wires at end connections;

(v) corroded, cracked, bent, worn or improperly applied end connections; or

(vi) severe kinking, crushing, cutting, bird caging or unstranding.

(C) Other ropes. All rope which has been idle for a period of a month or more due to shutdown or storage of a rig on which it is installed shall be given a thorough inspection before it is placed back in service. This inspection shall be for all types of deterioration and must be performed by an appointed person whose approval must be required for further use of the rope. If any of the conditions listed in clauses (2)(B)(i) through (vi) of this subsection are observed, the rope shall be removed from service.

(3) Hoisting operations.

(A) The brakes on the drawworks of every drilling rig shall be tested by each driller when he comes on shift to determine whether they are in good order, and brakes shall also be examined at weekly intervals by the tool pusher or other person authorized by him. The operator shall never leave the brake without tying it down unless the drawworks is equipped with an automatic feed control.

(B) A hoisting line with a load imposed shall not be permitted to be in direct contact with any derrick member or any stationary equipment or material in the derrick at any point in its length between the points of contact with the hoist drum and deadline

anchor except the crown block and traveling block sheaves, a line spooler or line stabilizer.

(C) Hoisting control stations shall be kept clean and function labels kept legible.

(4) Riding lines.

(A) No employee shall ride the traveling block when any load is being moved.

(B) When hoisting or lowering an employee or materials, the operation shall have the full and undivided attention of the employee operating the hoisting equipment.

(C) Any person riding the traveling block shall wear an approved safety belt with appropriate lanyard and safety attachment anchored and adjusted to prevent a fall of more than five feet.

(D) The catline shall not be used as a personnel carrier except under emergency conditions.

(5) Inspection.

(A) Inspection classification.

(i) Initial inspection. Prior to initial use all new and altered rigs shall be inspected to insure compliance with the provisions of this subparagraph.

(ii) The inspection procedure for rigs in regular service is divided into two classifications based on the intervals at which inspections should be performed. The intervals depend on the nature of the critical components of the drilling rig and the degree of their exposure to wear, deterioration, or malfunction. The classifications are "frequent" inspections which are performed at daily to monthly intervals, and "periodic" inspections which are performed at one to 12 month intervals.

(B) Frequent inspection. The following items shall be inspected for defects at daily to monthly intervals or as specifically indicated, including observation during operation for any defects which might appear between regular inspections. The following deficiencies shall be carefully examined and a determination made whether they constitute a safety hazard:

(i) all functional operating mechanisms for maladjustment interfering with proper operation, daily;

(ii) deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems, daily;

8 AAC 61.1180(j)(5)(B)(iii)

(iii) hooks with deformation or cracks; visual inspection daily, monthly signed and logged inspection; hooks with cracks, with more than 15 percent in excess of normal throat opening, or more than a 10 degree twist from the plane of the unbent hook shall be discarded;

(iv) hoist or load attachment chains, including end connections, for excessive wear, twist, distorted links interfering with proper function, or stretch beyond manufacturer's recommendations; visual inspection daily, monthly signed and logged inspection;

(v) rope slings, including end connections, for excessive wear, broken wires, stretch, kinking, or twisting; visual inspection daily, monthly signed and logged inspection;

(vi) all functional operating mechanisms for excessive wear of components; and

(vii) rope reeving for noncompliance with manufacturer's recommendations.

(C) Periodic inspection. Complete inspection of the hoisting mechanism shall be performed at one to 12 month intervals depending on activity, severity of service, and environment or as specifically indicated below. If any of the following deficiencies exist the member shall be either replaced or repaired:

(i) deformed, cracked, or corroded members;

(ii) loose bolts or rivets;

(iii) cracked or worn sheaves and drums;

(iv) worn, cracked or distorted parts such as pins, bearings, shafts, gears, rollers, locking or clamping devices;

(v) excessive wear on brake system parts, linings, pawls, and ratchets;

(vi) load indicators over their full range, for any significant inaccuracies;

(vii) gasoline, diesel, electric, or other power-plants for improper performance or noncompliance with applicable safety requirements;

(viii) excessive wear of chain drive sprockets and excessive chain stretch;



(ix) hooks; magnetic, particle or other suitable crack detecting inspection should be performed at least once each year; and

(x) electrical apparatus, for signs of pitting or any deterioration of controller containers, limit switches and pushbutton stations.

(6) Testing.

(A) Operational tests. Prior to initial use, all new and altered hoisting mechanisms shall be tested to insure compliance with this subsection including the following functions:

(i) hoisting and lowering; and

(ii) limit switches, locking and safety devices.

(B) Rated load test. Prior to initial use, all new extensively repaired and altered rigs shall be tested for conformity with API standards by or under the direction of an appointed or authorized person, confirming the load rating of the hoisting mechanism. The test reports shall be placed on file where readily available to appointed personnel.

(7) Maintenance.

(A) A preventive maintenance program based on the drilling rig manufacturer's recommendations shall be established.

(B) After adjustments and repairs have been made, the rig shall not be operated until all guards have been reinstalled, safety devices reactivated and maintenance equipment removed.

(8) Adjustments and repairs.

(A) Any unsafe conditions disclosed by the inspection requirements of paragraph (5) of this subsection shall be corrected before operation is resumed. Adjustments and repairs shall be made only by designated personnel.

(B) Adjustments shall be maintained to assure correct functioning of components. The following are examples:

(i) all functional operating mechanisms;

(ii) limit controls;

8 AAC 61.1180(j)(8)(B)(iii)

- (iii) control systems;
- (iv) brakes; and
- (v) power plants.

(C) Repairs or replacements shall be provided promptly as needed for safe operation. The following are examples:

- (i) hooks showing defects described in (5)(B) of this subsection shall be discarded. Repairs by welding or reshaping are prohibited;
- (ii) load attachment chains and rope slings showing defects described in (5)(B) of this subsection; and
- (iii) all critical parts which are cracked, broken, bent, or excessively worn.

(D) Rotary drilling equipment shall be operated in conformity with:

- (i) API Standard 8A "Specification for Drilling and Production Hoisting Equipment", API RP 8B "Recommended Practice for Hoisting Tool Inspection and Maintenance Procedures";
- (ii) API RP 9B "Recommended Practices on Application, Care and Use of Wire Rope for Oil Field Service"; and
- (iii) API Standard 7F "Specifications for Oil Field Chain and Sprockets".

(k) Catheads.

(1) The requirements of this section apply to all catheads on all well drilling and well servicing machinery.

(2) Rope and anti-fouling device.

(A) Every cathead on which a rope is manually operated shall be equipped with an anti-rope-fouling device that will separate the beginning of the second wrap of rope from the first wrap at the point where the first wrap begins contact with the cathead. The device shall be so designed and fitted in place that its inner edge is not more than three-eighths of an inch at any point from the friction surface of the cathead.

(B) Anti-rope-fouling devices and rope guides shall be maintained free of sharp edges that will cut or materially abrade the ropes in use on the cathead.

(3) Rope guide. Every cathead on which a rope is manually operated shall have a suitable rope guide that will hold the on-running break rope, spinning rope, snapping-up rope, and kelly pull-back rope in alignment with their normal running position against the inner flange of the cathead.

(4) Automatic catheads.

(A) Rotating and reciprocating parts of every automatic cathead not guarded by guards or other moving parts of the machinery shall be guarded by shield guards as required by 29 C.F.R. 1910.212 General Requirements for All Machines, General Industry Standards. Openings of the size necessary for the run of the rope to the cathead are permitted.

(B) Automatic catheads and their mechanisms shall be kept in safe condition.

(5) Friction surface. The friction surface and flanges of a cathead on which a rope is manually operated shall be smooth. The friction surface shall have a uniform diameter across its entire width between the inner and outer flanges not to exceed a plus or minus tolerance of 3/16th of an inch.

(6) Projections. A cathead on which a rope is manually operated shall not have any of the shaft on which it is mounted, or key, key seat, bolt, nut or other locking device, or any parts projecting beyond a point flush with the outside edge of the outer flange of the cathead. Each cathead having a key, bolt, nut or similar projection on the outer end or in the hollow outer end on which a worker's hands or clothing may be caught shall be covered with a smooth plate.

(7) Lines used on a cathead.

(A) No splice in a line or a frayed portion of a line that is being manually operated shall be permitted to run onto a cathead.

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

(C) No manually operated line shall be left wrapped unattended on a cathead.

(D) An experienced person shall be at the controls unless an emergency stop device from the prime mover is located at the cathead on which a rope is being manually operated.

(E) Wire rope lines used on automatic catheads shall have adequate strength to withstand the stresses imposed on them.

(F) End fastenings for a wire rope used on an automatic cathead shall be made in accordance with a wire rope manufacturer's recommendations.

8 AAC 61.1180(k)(7)(G)

(G) Zinc is preferred for end attachments but babbit may be used. A thimble need not be used.

(H) A "contractor's standby" (half hitch and clips) shall not be used as an end fastening on the rope.

(I) Catlines and high lines shall be of sufficient strength to safely lift or otherwise handle the loads. The maximum allowable working loads shall be based on manufacturer's tables.

(l) Pipe Handling and Related Equipment.

(1) Securing of pipe stands, storage, and loading.

(A) Every stand of pipe and drill collars racked in a derrick shall be secured with rope or otherwise adequately secured to prevent it from falling across the derrick in case the finger becomes broken or dislodged. An adequate horizontal supporting member shall be provided in the derrick with each end secured to and on the outside of adjacent derrick legs. The stands of pipe and drill collars shall be tied to the horizontal member unless the derrick girts are of adequate strength to be used for that purpose without being broken, permanently bent or otherwise damaged, or unless other adequate provisions are made for securing the pipe and drill collars.

(B) Every pipe and equipment storage rack and platform shall be designed, constructed and placed on substantial foundations and maintained to safely support the loads placed on it.

(C) Adequate provision shall be made to prevent pipe, drill collars, drill stems or similar round material from accidentally rolling off a storage rack, by nailing chock blocks to the bents or decking of the rack and to the planks or spacers used between the layers of pipe or other material on the rack, or by any other equally effective means.

(i) During the loading and unloading operations, workers shall not be required or permitted to be on the pipe or similar round material loaded on a transporting vehicle unless an adequate number of stakes of sufficient height and strength are in the pockets or wells provided in the vehicle's bed or bolsters, or the load is otherwise secured to prevent it from rolling from the vehicle.

(ii) Workers shall not be permitted or required to be on such loads while the transporting vehicle is in transit.

(D) Workers shall not be required or permitted to be on the ground adjacent to a vehicle on which pipe or similar round material is loaded where they would be in danger of material rolling off the vehicle onto them until one or more of the following safety

precautions are in effect:

(i) the pipe or similar round material on the vehicle is secured with binder chains or similar binders;

(ii) an adequate number of stakes of sufficient height and strength are in the pockets or wells provided in the vehicle's bed or bolster;

(iii) the skids for rolling or skidding the pipe or similar round material to or from the vehicle are securely in place.

(iv) the pipe or round material is adequately chocked with chock blocks.

(2) Pipe handling tools and equipment.

(A) If pipe hooks are used above the derrick floor, every pipe hook shall be secured to the derrick in a manner that will prevent the hook from falling.

(B) Every drill pipe casing, tubing and sucker rod hook shall be provided with a latch or other device designed to prevent elevator links and other equipment from becoming accidentally disengaged from the hook.

(C) The handles of drill pipe slips shall be long enough to extend at least two inches beyond the greatest radial dimension of the drill pipe elevator box, except that where handles would be so long they would project beyond the inner edge of the circular guard covering the top outer surface of the rotary table. In such cases they shall be as long as possible without projecting beyond the inner edge of the guard.

(D) The slip handles for casing slips and tubing slips shall be long enough to extend at least two inches beyond the greatest radial dimension of either the casing elevator or tubing spider, whichever is the smaller. However, the length of slip handles of any manually operated slip shall not exceed 18 inches.

(E) Each rotary tong shall be attached to the derrick or backup post by means of a wire rope no less than seven-eighths of an inch in diameter. This wire rope shall be secured to the tong and the derrick or backup posts by approved means.

(F) Any fitting used to attach safety cables to the derrick or back-up post shall have a breaking strength  $2 \frac{1}{2}$  times greater than the combined breaking strength of all the cables attached to it.

(G) A safety cable shall not be secured to any object that may cause damage to or be damaged by the cable.

8 AAC 61.1180(1)(2)(H)

(H) Tong back-up posts, kelly pull-posts, tong back-up lines and safety lines shall not be secured to derrick or mast girts nor to derrick or mast legs unless the legs are constructed and the lines attached so that the stresses imposed will not result in structural damage to the legs.

(I) A device shall be available for use by the derrickman to assist in maneuvering, stacking, and securing pipe in the derrick.

(3) Pull-back post. A kelly pull-back post with snatch block to sheave, roller or similar device attached, onto or through which to run the pull-back rope, shall be provided for pulling the kelly back to the rat hole. The pull-back post shall be secured either to the derrick foundation, side sills or floor sills and shall not be attached to or in contact with the derrick legs, girts or braces.

(4) Breaking and making joints.

(A) The breaking or snapping up of tool joints or pipe joints by applying the power of the prime mover to and rotating the rotary table through the table's power transmission drive is prohibited. The snapping up of a tool joint by using an automatic cathead or pipe joint breaker of the jaw-clutch type, which automatically disengages its clutch at the completion of a fixed stroke, is prohibited. The rotary table shall not be used for final making up or initial breaking out of drill pipes.

(B) Spinning chains shall not be handled near the rotary table while it is in motion. Workers shall not place the chain on the joint of pipe in the mouse hole while the table is rotating.

(m) Chain lines.

(1) Specifications.

(A) Chain used in connection with drilling or production operations shall be suitable for the type of service. Chain used in a spinning line, in a tong line or on a cathead must be of an approved type. Approved type chain with individual links marked at intervals of five feet or less by embossing or another approved method, may be used when purchased in bulk, provided the vendor or the manufacturer has furnished the user with a proof-test record which includes all links in the entire length of chain pulled to approximately one-half the breaking strength of the chain. All chain lines to tongs shall be three-eighths of an inch or heavier, with an approximate breaking strength of 20,000 pounds or more.

(B) Each cathead using chain shall be of the automatic type and shall be equipped with a manually operated cathead clutch, or with another device adequate to keep the rotation of the cathead under control when it is in use. The clutch or device shall be of the "non-grab" type and shall release automatically when not manually held in the engaged position.

(C) Every chain used in a spinning line shall have a fiber tail rope between eight inches and twelve inches in length fastened to the pipe end of the chain.

(D) All chains shall be discarded or repaired if:

(i) it has been stretched to the point where links bind, kink, or lock;

(ii) there is a link showing more than 10 percent distortion or when a link has been broken; or

(iii) there is a link with metal reduced by wear, at any point, to less than 90 percent of its original cross sectional area.

(2) Repairs. No repair is allowed in a spinning chain, in a tong chain or in a chain used on a cathead, except by use of a connecting link of a size and type suitable for the chain use.

(3) Connections. Connections between lengths of cathead chain, tong chain and spinning chain may be of the connecting link or swivel type and of a strength equal to the lighter chain. Connecting links and swivels shall be of a size and type suitable for the chain as used.

(4) Instructions.

(A) Every employee shall be given adequate instruction in the use of chain before he is required or permitted to use it.

(B) Racks shall be arranged so no employee, when storing the chains, will be exposed to lifting hazards. Exceptionally heavy chains may be stored in neat piles on a raised surface or on the floor, if the floor is kept dry at all times. Under no circumstances shall chains be stored where they will be run over by trucks or exposed to the corrosive action of chemicals.

(5) Inspection. Chains shall be inspected periodically by an experienced person who has the authority to remove damaged assemblies from service.

(n) Handling Heavy Tools at Drilling Wells.

(1) At drilling wells, provisions shall be made for the safe handling of heavy tools between the transporting vehicle and the derrick or mast floor or storage platform.

(2) The term "heavy tools" means tools such as bits, reamers, fishing tools, elevators, spiders, and tools for testing formation or casing.

(o) Well-Servicing Machinery.

8 AAC 61.1180(o)(1)

(1) Scope. The requirements of this section apply to all well pulling hoists, well bailing units, well survey units and portable standard tool drilling machinery and their component parts, and the prime movers for such equipment.

(2) Guarding.

(A) The equipment to which this section applies shall be guarded according to guard standards in 29 C.F.R. 1910.212 General Requirements for All Machines, General Industry Standards unless otherwise provided for in subparagraphs (B) and (C) of this paragraph.

(B) All sprockets and chains, except spinning chains, shall be enclosed to prevent accidental contact with moving parts by employees. Lag screws, spikes, or nails are not acceptable as the primary means of securing the guards in place.

(C) All rotating shafting and collars, clutches, couplings, or similar rotating parts, except catheads, upon which ropes are manually operated, shall be guarded against accidental contact by an enclosure-type guard, trough, or shield guard.

(p) Machinery Common To all Drilling and Well Servicing.

(1) Construction and maintenance shall be in accordance with paragraphs (b)(1) through (b)(5) of this section.

(2) Emergency stop device.

(A) An emergency stop device shall be installed in accordance with paragraph (b)(6) of this section.

(B) Stop devices for the various types of prime movers shall be as follows:

(i) for an internal combustion gas engine, an ignition or grounding switch of a type which will not produce an arc or spark in open air;

(ii) for a diesel engine, a quick closing valve or equivalent device that will shut off the air into the engine's air intake manifold, or a means of releasing the engine compression, provided it is done in a manner that will not produce an open flame or spark; or other equally safe and effective means; and

(iii) for an electric motor, a suitable switch in the motor circuit, or a switch or stop button in the control circuit which shall be of an approved type for the location in which it is installed, in accordance with the provisions of the National Electrical Code, NFPA 70-1971; ANSI C1-1971 (Rev. of 1968).



(C) The controls for such stop devices shall be located at the operator's station, so he can stop the prime movers promptly in an emergency. This does not prohibit additional controls at other locations.

(3) Brakes and brake control mechanism.

(A) The brakes for hoist drums for well servicing machinery and for drilling machinery shall be capable of sustaining and safely controlling the lowering of the load being handled.

(B) The brake rims of hoist drums shall be constructed of steel or alloys of equivalent strength.

(C) All parts of the brake control mechanism for hoist drums shall be guarded against contact with a running or breaking drive chain or drive belt so that the probability of any contact rendering the brakes ineffective or inoperative will be minimized.

(4) Power tongs control mechanism.

(A) The control device on power tongs shall be designed or guarded to prevent accidental activation.

(B) The discharge end of hoses used on power tongs shall be securely fastened to the tongs by a suitable clamp and safety chain or wire rope.

(C) Hoses shall be disconnected before any repair, replacement, or other work of a similar nature is done on tongs, chains, dies, or their component parts.

(q) Oil Well Pumping Machinery.

(1) Oil well pumping machinery. The requirements in this subsection apply to all types of oil well pumping machinery including the prime movers used for pumping an oil well.

(2) Construction, installation, and maintenance.

(A) Oil well pumping machinery shall be substantially constructed to conform to good engineering practice and shall be kept in safe condition.

(B) The machinery shall be installed and secured in place so it will withstand the stresses imposed under normal operating conditions.

(3) Guarding.

8 AAC 61.1180(q)(3)(A)

(A) The power transmission equipment, prime movers, and machine parts shall be guarded in accordance with guard standards set forth in 29 C.F.R. 1910.212 General Requirements for All Machines, General Industry Standards, unless otherwise provided for in this paragraph.

(B) If the lowest point of travel of the beam horsehead is less than six feet six inches above the floor or working level, it shall be guarded by a substantially constructed and securely fastened single or standard railing placed at least 42 inches but not more than 45 inches above the floor or working level, and at least 15 inches but not more than 20 inches from the vertical plane describing the outermost point of travel of the horsehead. If the guardrailing continues and is attached to the samson post, it will be considered to be in compliance with this regulation. Other methods of guarding that will provide equivalent protection to employees may be used if they comply with 29 C.F.R. 1910.212 General Requirements for All Machines, General Industry Standards.

(r) Cellars.

(1) Construction and maintenance.

(A) Every cellar and every stairway, ramp, runway, and ladder providing entry to a cellar shall be substantially constructed to conform with good engineering practice and must be kept in safe condition.

(B) When employees are required to be in a cellar, the cellar and the exits from it shall be kept reasonably free from water, oil, drilling fluid and other like substances that may endanger the employees.

(C) When employees are at work in a cellar or shaft, no loose equipment or material shall be kept in the cellar or shaft or exits except what is in use or about to be used.

(D) The depth of a cellar is the vertical measurement between the lowest point of the floor in the bottom of the cellar and the lowest point of ground or finished surface at the top of the cellar wall.

(2) Entrance and exit.

(A) A means of entrance may also serve as a means of exit.

(B) The cellar at every producing drilling or re-drilling well shall be provided with exits and entrances as follows:

(i) The exit from the bottom of a cellar that is at least 10 feet but not more than 20 feet deep shall be by means of a stairway, ramp, or combination of both, and shall terminate in an unobstructed area at ground level. The exit shall be

at least three feet wide and shall have a vertical clearance of at least six and one-half feet. The slope of a ramp shall not exceed 20 degrees from the horizontal plane. A slope exceeding two inches per foot shall be provided with uniformly spaced and securely attached cleats no more than 16 inches apart, or with equally effective non-slip provisions.

(ii) If the cellar is not provided with an exit as specified in (i) of this subparagraph, the exit from the bottom of a cellar that is less than 10 feet but more than three and one-half feet in depth shall be by means of a fixed ladder. This fixed ladder shall be in conformity with (f)(8) of this section, secured in place; a portable ladder may be used in lieu of a fixed ladder.

(iii) Where possible, the ladder shall be located to provide a clearance as specified in ANSI, A 14.3-1956, Safety Code for Fixed Ladders.

(iv) Exit from the top of the ladder leading from the top of the cellar wall shall be provided by one of the following means:

- a. a passageway under the rig floor leading to an unobstructed area at ground level;
- b. a fixed ladder leading to the top of a rig floor; or
- c. a combination of a passageway and a fixed ladder leading to the top of the rig floor.

(v) The passageway under the derrick or mast floor shall be at least two feet wide. Where the height of the substructure and necessary placement of equipment does not permit a full six and one-half feet vertical height above ground level, the maximum height available shall be used, but in no case may it be less than four feet above the ground level. Beams of the substructure and pipe lines may be permitted horizontally across the passageway at ground level if an unobstructed vertical clearance of at least three feet above such beams or pipe lines is maintained.

(C) A producing oil or gas well cellar which employees are required to enter as often as once a week to check and service polished rod stuffing boxes, or pumping units, rotate tubing, read pressure gauges, sample or perform similar operating duties, shall be provided with an exit as specified in subparagraph (B) of this paragraph.

(s) Blowout prevention.

(1) Drilling wells.

(A) General.

8 AAC 61.1180(s)(1)(A)(i)

(i) Installation and use of blowout preventers shall be in accordance with regulations established by the Alaska Department of Natural Resources.

(ii) Blowout preventers shall be operable by remote control.

(iii) Blowout prevention equipment shall be substantially constructed and securely fastened in place.

(iv) A secure and guarded work platform, in accordance with subsection (d) of this section shall be provided for workers installing or working on blowout prevention equipment.

(v) Blowout prevention equipment shall be maintained to assure its proper functioning in accordance with the recommendations of the manufacturer.

(vi) A passageway at least 2 1/2 feet wide and with a vertical clearance of at least six feet shall be maintained to all blowout preventer controls.

(vii) Blowout preventer controls shall be identified by their proper function.

(viii) A suitable full opening stop cock, or other equivalent control, shall be installed on the top of the kelly where the swivel connects to the kelly. A suitable full opening stop cock or other equivalent control shall also be installed immediately below the kelly connection.

(ix) Stop cocks or controls shall be of adequate strength to withstand the pressures and stresses imposed on them under normal use and operations and in foreseeable circumstances.

(x) Two emergency valves shall be conveniently located on the drilling floor with rotary subs for all connections in use, one valve an "inside blowout preventer" of the spring-loaded valve type and the second of the manually operated ball valve type, or any other type which will perform the same function.

(B) Power blowout preventers.

(i) Every blowout preventer that is power actuated shall be provided with at least two means of control.

(ii) One control shall be located at least 25 feet from the well casing.

(iii) The remote control shall be located so it can be operated from ground or deck level.

(iv) Pressure testing shall be in accordance with the regulations of the Alaska Department of Natural Resources.

(t) Prime movers.

(1) Power control for prime movers. The throttle control or other control device for each prime mover for a rotary table or a drawworks, well pulling hoist, sand reel, standard tool drilling machinery and other types of hoists used in drilling and well servicing operations shall be designed, installed and maintained to provide the operator with safe control of the prime movers from his normal operating station.

(2) Internal combustion engines: exhausts, ignition systems and electrical accessories.

(A) Scope. The standards provided in this subsection apply to the following hazardous locations:

(i) the area within a radius of 50 feet of the casing of all drilling wells;

(ii) the area within a radius of 25 feet of the casing of all wells other than drilling wells;

(iii) inside any confined area where the conditions or operations are such that light oil or flammable gas may be released to the atmosphere in sufficient quantity to create a hazard to employees if it became ignited; and

(iv) at any location where conditions or operations are such that flammable gas may be released to the atmosphere in sufficient quantity to create a hazard to employees if it became ignited.

(B) When an internal combustion engine is being operated within the hazardous areas described in subparagraph (A) of this paragraph, the following precautions shall be taken to prevent the discharge of flame or sparks:

(i) in the area described in (2)(A)(i) of this subsection, the exhaust system shall be provided with a suitable water injection system or other equally effective device;

(ii) exhaust systems shall be substantially constructed and maintained in good operating condition;

(iii) provision shall be made to prevent combustible or flammable material from directly contacting exhaust systems on internal combustion engines;

8 AAC 61.1180(t)(2)(B)(iv)

(iv) cylinder cocks of internal combustion engines shall not be opened at any time when a flame or spark may be discharged from them into atmosphere where there may be an accumulation of flammable gas, unless tests indicate that the flammable gas or vapor content of the atmosphere is less than 20 percent of the lower explosive limit;

(v) all electrical accessories pertaining to an internal combustion engine, including magnetos, distributors, coils, batteries, generators, starting motors, spark plugs, ignition cables and other miscellaneous wiring and switches shall be of substantial construction and installed and maintained in a manner which will minimize arcing and sparking in the open atmosphere;

(vi) ignition systems, electrical accessories and equipment shall not be manipulated in a manner to create an arc or spark in open air where there is a likelihood that flammable gas has accumulated; and

(vii) when electrical storage batteries are used or stored at a location where there is a likelihood of gas being released to the atmosphere in sufficient quantities to create a hazard to employees should it become ignited, the batteries shall be provided with suitable covers unless protected by location, to prevent accidental contact with battery terminals.

(viii) The provisions of this subparagraph do not apply to engines used as motive-power for vehicles.

(3) Starters for internal combustion engines.

(A) Internal combustion engines of over 30 horsepower shall be provided with means other than manual for starting them. The horsepower rating of internal combustion engines is the horsepower rating established by the manufacturer. This does not prohibit manual starting in an emergency.

(B) A check valve shall be provided in the air starting line adjacent to the engine or in the engine cylinder if compressed air is injected directly into the engine cylinder as a means of starting.

(C) The compressed air supply for starting an engine shall be prevented from functioning while maintenance work is being performed on an idle engine or on equipment connected to and driven by the engine, when employees would be endangered if the starting air could cause the engine to move or turn over. This shall be accomplished by one of the following means:

(i) disconnecting the air starting line union and disaligning the pipe;

(ii) blinding the air starting line; or

(iii) means other than those in (i) and (ii) of this subparagraph that will provide equally effective positive protection.

(D) Engine gas starter discharges shall be vented in a location which will not present a hazard to operating personnel.

(u) Gas Compressors and Engines.

(1) Gas compressors and gas plant protection.

(A) When a gas compressor plant discharges gas into a line to which other sources of gas supply are connected, there shall be a valve installed in the plant's discharge line, or lines, to prevent the return flow of gas, unless the gas is discharged into a public utility distributing system. The valve shall, where practicable, be located outside of the plant, but within a reasonable distance to the plant.

(B) Gas compressor discharge lines shall have a pressure relieving device. There shall be no intervening valves or fittings between the compressor and its pressure relieving device or between the pressure relieving device and its point of discharge. The pressure relieving safety device shall be set to open at a pressure not to exceed 110 percent of the maximum allowable working pressure of the cylinder.

(C) Where a gas compressor pressure relieving safety device discharges into the atmosphere, the discharge outlet shall be located outside of the compressor building; and if it discharges adjacent to the building, the discharge outlet shall be located above the compressor building eaves.

(D) Where hazardous quantities of liquid may be present in the incoming gas to compressors, an inlet scrubber shall be provided and a device installed on it that will either give an audible warning or shut down the compressors if the liquid in the scrubber exceeds a predetermined level.

(E) Gas lines connected to compressor intakes shall be provided with emergency shut-off valves in a safe location outside the compressor room and within a reasonable distance of the compressor.

(F) Before maintenance work requiring the opening of lines or equipment containing gas is performed on a compressor or its suction or discharge piping, the valves in the intake and discharge lines shall be closed and tagged to protect employees from the danger of escaping gas. If this procedure is inadequate, the lines shall be blinded or other equally effective means taken, to prevent the escape of gas.

8 AAC 61.1180(u)(2)

(2) Stationary internal combustion engines driving air or gas compressors.

(A) Air and gas compressor engines of over 30 horsepower shall be provided with means other than manual for starting. Manual starting is permitted in emergencies only.

(B) In a gas compressor building or in buildings where there may be an accumulation of flammable gases, internal combustion engine ignition systems or wires shall not be manipulated in a manner that may produce an open spark, unless tests indicate that the flammable gas or vapor content of the atmosphere is less than 20 percent of the lower explosive limit.

(C) Cylinder cocks of internal combustion engines shall not be opened at any time when a flame or spark may be discharged from the cylinder cock into a gas compressor room or in buildings where there may be an accumulation of flammable gases, unless tests indicate that the flammable gas or vapor content of the atmosphere is less than 20 percent of the lower explosive limit.

(D) In addition to the throttle valve, other means shall be provided by the use of one or more valves, blinding, or other provisions giving equivalent safety, to prevent fuel gas entering cylinders and actuating moving parts while maintenance work is being performed upon an internal combustion engine, or upon the equipment connected to and driven by the engine, when such maintenance work would otherwise expose the employees to possible injury.

(E) The main fuel gas line to gas compressor engines and other internal combustion engines located in gas compressor buildings shall be equipped with a suitable master shut-off valve located outside the building and within a reasonable distance of the engine.

(F) A check valve shall be provided in the engine or in the air starting line adjacent to each internal combustion engine cylinder using compressed air injected directly into the engine cylinder as a means of starting.

(G) The compressed air supply for starting an engine shall be prevented from functioning while the maintenance work is being performed on an idle internal combustion engine, or on the equipment connected to and driven by the engine, when such maintenance work may endanger employees should the starting air cause the engine to move or turn over. This shall be accomplished by one of the following means:

- (i) disconnecting the air starting line union and disaligning the pipe;
- (ii) blinding the air starting line; or



(iii) other means giving equally effective positive protection as (i) or (ii) of this subparagraph.

(H) In addition to the governor controlling the fuel supply, an overspeed trip or overspeed regulator operating to cut off the engine ignition shall be installed on stationary internal combustion engines which are equipped with external flywheels and which drive gas compressors. Internal combustion engines which have the flywheel installed within the engine body as an integral part of the engine are not covered by this standard. The overspeed trip or overspeed regulator shall be installed and adjusted to prevent the engine from overspeeding and must be maintained in an operative condition.

(I) Provisions shall be made to prevent the contact of flammable liquids with exhaust pipes of internal combustion engines.

(v) Pumps and Pump Pressure Relieving Safety Devices.

(1) Pumps shall not be operated at unsafe speeds or in excess of their safe working pressure.

(2) Every power driven piston or plunger type pump shall have the maximum safe working pressure of the pump shown in raised or stamped letters and figures on a metal plate affixed to the pump where readily visible. The letters and figures shall be maintained and shall be legible.

(3) Where there is a likelihood of developing a pressure in the pump in excess of its safe working pressure, the pump shall be equipped with an adequate pressure relieving safety device such as a direct spring loaded safety valve, a shear pin-set safety valve, a rupture disk, or other equivalent device.

(4) Pressure relieving devices shall be installed and maintained as follows:

(A) there shall be no intervening stop valves between the pump and its pressure relieving device or between the pressure relieving device and the point of discharge;

(B) the pressure relieving device shall be installed to insure its proper operation;

(C) the point of discharge from pressure relieving devices shall be at a place where the safety of employees is not endangered by the discharge fluids; and

(D) pressure relieving devices shall be set to relieve at a pressure not in excess of 10 percent above the maximum allowable safe working pressure of the pump.

(5) Every shear pin-set safety valve shall have a metal plate affixed to it with holes drilled therein as a gauge for each size shear pin to be used with the valve and a table with stamped

8 AAC 61.1180(v)(6)

or raised letters and figures, showing the pressure at which each size shear pin will shear.

(6) Every shear pin-set safety valve shall have the valve stem and the shear pin enclosed in a manner that will prevent accidental contact with the valve stem and prevent the shear pin from flying when sheared.

(7) Each disk used in a rupture disk type pressure relieving safety device shall have stamped on it the approximate pressure at which it will rupture.

(8) Adequate drainage shall be provided to prevent the accumulation of oils or drilling fluids around pump bases.

(9) Stuffing boxes of pumps handling light oil shall be maintained in order to prevent excessive leakage.

(10) Pumps handling light oils, corrosives, or any fluid at a temperature over 200 degrees F. shall be equipped with suitable shields or covers to protect employees from the hazard of liquid spray if the service experience of the pump indicates that the stuffing box or type packing used is inadequate to prevent a liquid spray hazardous to employees.

(11) No pump shall be set in motion when the fluid end cylinder head is not secured in place unless precautions are taken to prevent injury to employees.

(12) The use of hydraulic, pneumatic or gas pressure inside a pump to remove pump liners is prohibited. This does not prohibit the use of hydraulic or pneumatic tools made for this purpose.

(13) Every pump shall be equipped with a bleeder pipe and valve through which the pressure in any part of the pump can be bled off to atmospheric or as near atmospheric pressure as is practicable unless other piping and valves connected to the pump can be effectively used for this purpose.

(14) Before beginning the removal of any cap, plug, plate or cover from a pump or otherwise opening a pump, the pressure within the pump shall be bled off to atmospheric or as near atmospheric pressure as is practicable.

(w) Pressure Vessels.

(1) No vessel or equipment shall be operated at a pressure above the maximum allowable working pressure.

(A) The safe working pressure shall be established in accordance with the American Society of Mechanical Engineers Code for Unfired Pressure Vessels, Section VIII, including all appendices.

(B) Good engineering practice may be construed to require the employer to provide details of design and construction which will be as safe as otherwise provided by the rules in the above recognized code and subject to the approval of either an authorized certified boiler inspector or a qualified safety engineer of the department.

(2) A permanent and progressive record for each vessel shall be maintained at the plant or field where the vessel is located, or at the supervising office. The record shall be available for inspection by the department and must include the following:

(A) the serial or identification number of the vessel;

(B) the established maximum allowable working pressure of the vessel for the maximum working temperature; and

(C) the manufacturer's data reports, when obtainable, and all data pertaining to tests, inspections and calculations used in establishing the safe working pressure.

(3) All pressure vessels and equipment subject to internal pressure shall be equipped with a pressure relieving safety device. Each pressure relieving safety device installed shall be maintained to insure the proper functioning of the device at the intended pressure. Such maintenance shall include testing, inspection and repair of the pressure relieving device at frequencies required by the service experience.

(A) A safety relief valve shall not be set at an operating pressure in excess of the allowable working pressure of the vessel as established by the applicable codes adopted by these standards or the maximum allowable working pressure as established for the vessel at its last inspection. However, any pressure vessel which contains a flammable, poisonous, irritating or noxious substance which would, if released into the atmosphere, create a hazard may have its safety relief valve or vapor pressure relieving device set at 120 percent of the allowable working pressure of the vessel, but in no case shall vessel or vessels be operated in excess of its allowable working pressure.

(B) Pressure relieving safety devices and discharge lines shall not be tampered with. The pressure settings shall not be changed by employees other than those definitely assigned such duties by the employer. The assigned employees shall have available or shall obtain the necessary facts in order to insure that any increased setting will be within the requirements of this section.

(C) A permanent and progressive record of pressure relieving safety devices in service, showing the serial or identification number, the location, the pressure setting, the free orifice area in square inches, the date of installation in service and the date of testing shall be maintained at the plant or field where the pressure relieving safety device is located, or at the supervising office.

8 AAC 61.1180(x)

(x) Piping, Valves, and Fittings. All pipe, valves and pipe fittings shall be of the proper type of material to safely withstand the pressure, temperature, expansion and contraction, vibration and other stresses that may be imposed thereon under the operating conditions in which such material is used, in accordance with generally recognized good engineering practice. Piping, fittings and valves shall be fastened or anchored to restrain them from undue horizontal, vertical or swinging motion.

(y) Opening and Blinding Pipe Lines and Equipment.

(1) Opening pipe lines and equipment.

(A) Before opening lines or other equipment, the pressure shall be reduced to atmospheric or as near atmospheric pressure as is practicable. Employees shall be told of the hazards from the contents of lines or equipment, and must be instructed on precautions necessary.

(B) When practicable, light oil lines and equipment shall be emptied of their contents, and washed out or steamed before being opened.

(C) All sources of ignition shall be eliminated or be sufficiently remote to present no hazard before opening light oil lines or equipment.

(D) Unless the contents of light oil lines and equipment are emptied just before opening, steps shall be taken to handle drainage to minimize the fire hazard.

(E) The employer or his authorized representative shall be present before and during the opening of lines and equipment that contain, or are suspected of containing, light oil or flammable gas, and they shall remain as long as is necessary to see that the provisions of this subsection are followed.

(2) Blinding pipe lines and equipment. Employees required to work within a vessel or within a tank shall be protected in accordance with the requirements of 29 C.F.R. 1910.146 Permit-Required Confined Space, General Industry Standards.

(A) A group of interconnected stationary tanks or vessels having no closed valves between them may be blinded or disconnected as a unit as long as protection equivalent to blinding each separately is obtained and each tank or vessel is opened to the atmosphere through at least one manhole.

(B) Vessels when blinded as a unit and which have compartments or trays must have the top and bottom manhole covers removed. If reasonably possible, it shall be determined that the vessel is not blocked or closed between these manholes.

(C) Where the absence of blinds would endanger employees, oil and gas pipe lines must be blinded on all pressure approaches before welding or flame cutting operations

are performed.

(D) Blinds must be of sufficient strength and installed to provide adequate safety for the particular conditions of anticipated pressure, temperature and service.

(E) Blinds installed in a line must clearly indicate whether the line is open or closed.

(F) When inserting blinds requiring gaskets, the gaskets must be installed on pressure sides and sufficient flange bolts shall be tightened to make the blind effective.

(z) Stationary Tanks.

(1) Stationary tanks.

(A) Tanks shall be constructed, installed and maintained so that they safely retain their contents.

(B) Tank roofs shall be capable of safely supporting employees required to be on them for inspection or maintenance.

(C) Where it is necessary for employees to gauge, sample, or perform other operating duties at a tank roof level or on tank roofs, safe access to the roof shall be provided. Locations on tank roofs where operating duties are performed shall be provided with safe platforms and safe means of access. A walkway will be accepted as a safe platform if the operating duties are performed entirely from the walkway. If these duties are performed from a ladder providing access to the tank top, the ladder shall be equipped with a cage, ring, or equivalent protection to support the employee while performing such duties.

(D) Where the means of access, the walkways or the platforms or a group of two or more tanks are connected, there shall be provided sufficient unobstructed stairways, ramps, fixed ladders, slide poles, walkways or crosswalks to permit an employee to escape from the roof, walkway or platform of any tank in the group in the event the walkway or platform of any other tank in the group becomes impassable due to fire or other emergency. This standard does not apply, however, to tanks containing water only or tanks containing petroleum products or fuel oil having an open cup flash point above 300 degrees F. as determined by ASTM Designation D92, or in the case of fuel oils by the ASTM Designation D93, and where such tanks are isolated from tanks, pipelines and other equipment containing liquids at a temperature above 150 degrees F., gases, light oils or corrosives.

(E) Within this paragraph, tanks shall be classified as follows:

8 AAC 61.1180(z)(1)(E)(i)

- (i) Class A - Tanks with fixed steel roofs, except steel waterseal roofs.
- (ii) Class B - Tanks with nonmetal roofs.
- (iii) Class C - Tanks with steel waterseal roofs.

(F) Walkways and platforms on tank roofs required by subparagraphs (C) and (D) of this paragraph, and the railing and toeboards, shall be provided as follows:

- (i) The roofs of Class A tanks shall have walkways as follows:
  - a. tank roofs having a thickness less than one-eighth inch shall not be used as a walkway regardless of the slope of the roof;
  - b. tank roofs having a slope of two inches or less per foot may be used as a walkway. Such walkways shall be clearly defined by color contrast and if the slope of the tank roof is one inch or more per foot, the walkway shall have a nonskid surface; and
  - c. tank roofs having a slope greater than two inches per foot shall be provided with independent walkways of steel or wood.
- (ii) Class B and C tank roofs shall have independent walkways of metal or wood.
- (iii) Independent walkways on Class A or B tank roofs shall not have a slope greater than three inches per foot.
- (iv) Walkways on Class A or B tank roofs shall not have a transverse slope greater than two inches per foot.
- (v) Walkways on tank roofs shall be no less than 24 inches in width but it is permissible to install midrails and toeboards within this width so long as a minimum clear width of 20 inches is maintained. Walkways shall be designed to carry the load to the supporting structure of the tank roof and shall be securely attached to the tank. Walkways constructed of steel shall have a nominal thickness of no less than one-eighth inch. Walkways must be of sufficient strength to safely support the loads imposed on them.
- (vi) Platforms of Class A, B, and C tanks shall be at least as safe as the type of walkway required for the tank class.
- (vii) All tank roofs five feet or more above ground or floor level shall have railings and toeboards at least six feet from the roof edge toward the center on

any walkway or platform. However, railings and toeboards extending along the roof edge at least six feet contiguously from the walkways and platforms may be substituted.

(viii) Toeboards are not required on the side of a platform that faces the peak of the roof, unless their absence creates a hazard to employees.

(G) When operating duties require an employee to travel on or over tank roofs, walkways shall be installed. Walkways shall be installed in accordance with (F)(v) of this paragraph.

(H) The roofs of tanks in service shall be inspected externally at intervals not to exceed one year. When a roof is found to be unsafe, substantial barriers shall be erected to block off the entire roof or that portion which is unsafe. Legible signs shall be posted at all approaches to the tank if the entire roof is blocked off, or on the barrier facing all approaches to the defective area if only the unsafe portion is barricaded. These signs shall read "Danger - Unsafe Roof - Keep Off," or equivalent wording, in letters at least two inches high.

(I) Tank roofs, platforms, walkways and stairways shall be kept clear of loose material or equipment except for sampling and gauging equipment kept on tank roofs in special racks or containers. Oil spills shall be cleaned up to prevent fire and slipping hazards.

(J) When in the open position, the covers of gauges and sampling and manhole openings in tank roofs shall be securely attached to the roof or roof opening fixture. Attachment may be by a hinge, chain, bolt, or other means that will prevent the covers from falling from the tank. This requirement does not apply to covers so confined that they cannot fall or be blown from the tank when removed from their openings.

(K) Where employees are required to work in tanks containing hazardous materials, such work shall be accomplished in accordance with 29 C.F.R. 1910.146 Permit Required Confined Space, General Industry Standards.

(2) Stationary tank maintenance.

(A) Maintenance work shall not be performed on the roof of a tank or reservoir or shell of a tank at any location where the employee is exposed to a hazardous concentration of flammable or noxious gases or vapors.

(B) If maintenance work is contemplated and there is reason to suspect the existence of any of the hazards mentioned in subparagraph (A) of this paragraph, tests shall be made of the atmosphere at the location of the proposed work to determine the presence or absence of these hazards. If necessary, additional tests shall be made during the progress

of the work to determine whether a safe atmospheric condition exists.

(C) This paragraph does not prohibit an employee protected by approved respiratory equipment from entering a hazardous atmosphere when necessary, if the nature of his work does not tend to aggravate the hazard.

(D) If tank roof plates or sheathing are known to be weak or defective and it is necessary for employees to go on a roof to determine the extent of the weak and defective parts or to remove them, the following precautions, or substantially equally safe procedure, shall be used:

(i) Employees shall work in pairs, the members of each pair at least two rafters apart, and shall be provided with, and wear, approved safety belts of the harness type which suspend a person in an upright position. They shall work from thrustout planking at least two inches by 12 inches by 12 feet. Such planking shall be laid on the roof at approximately right angles to the rafters. The safety line shall be properly secured to a substantial support.

(ii) If rafters, girders or posts are known to be weak or defective in an area which cannot be spanned by thrustout planking and thus safely support employees, temporary shoring shall be installed inside the tank before employees are permitted to work on the weak or defective roof area. If this is impracticable an adequate overhead life line shall be installed and employees shall attach their safety belts to this life line.

(3) Diversion and retaining walls.

(A) Provision shall be made so that if the liquid contents of a stationary tank containing flammable, corrosive, hot or poisonous liquids were released due to tank failure, fire, boilover, or connection failure, the contents will be controlled as far as is practicable, if the lack of such provisions endangers employees. This shall be accomplished by one or more of the following means:

- (i) location of tanks to eliminate the hazard;
- (ii) adequate drainage system and safe disposal;
- (iii) diversion walls; or
- (iv) retaining walls.

(B) At least one means of safe access shall be provided over retaining walls to the ground level within the walled area. When the walls are more than three feet high, access shall be by a stairway, walkway, or ramp, which may also serve as a means of exit.



(i) In addition to the foregoing means of access, where walls exceed three feet in height, there shall be provided at least one emergency exit located as nearly opposite the means of access as practicable. The emergency exit shall be a stairway, walkway, fixed ladder or ramp.

(ii) Walkways and ramps may be constructed of metal or wood. For earthen retaining walls with sloping embankments, they may be suitably surfaced natural walkways or ramps on the embankment. In this case the slope of the walkway or ramp shall be no more than 20 degrees from the horizontal.

(iii) The slope of structural walkways or ramps shall be no more than 20 degrees from the horizontal. If the slope is greater than two inches per foot, they shall have securely attached and uniformly spaced cleats not over 16 inches apart or other equally effective protection against slipping.

(C) Stairways, walkways, and ramps over retaining or diversion walls more than 30 inches high shall be provided with a stair railing or railings on the exposed sides, unless the stairways or ramps are laid upon sloping earth embankments. In that case, a railing or stair railing may be installed on one side only, if there are three or less steps.

(D) Roadway or walkway openings in diversion and retaining walls are prohibited, except temporarily during repairs.

(E) There shall be no unnecessary openings or holes in diversion or retaining walls. Pipe line openings must have a diameter no greater than necessary to permit the movement of the pipe. Drain openings not in use shall be closed.

(4) Pits and sumps. Open pits or sumps located as to constitute a hazard to employees shall be suitably shielded, railed, fenced, enclosed or otherwise guarded to prevent employees from falling into them.

(5) Safety requirements pertaining to stationary tanks and reservoirs not covered in this section shall be in accordance with safety standards contained in 29 C.F.R. 1910.106 Flammable and Combustible Liquids, General Industry Standards.

(aa) Agitation and Heating of Liquids in Tanks. Tanks in which liquids at temperatures above 150 degrees F., corrosive liquids, or light oils are agitated or heated by steam (applied directly or indirectly), or agitated by means of air or gas pressure, shall have their control equipment located, if possible, where employees operating it will not be exposed to the hazards of splashes or boilovers. If this is not possible, equivalent protection shall be provided by means of shelter which is provided with safe access and exit.

(bb) Drainage, Housekeeping and Leakage Control.

8 AAC 61.1180(bb)(1)

(1) Drainage.

(A) Drainage sumps, pits or ponds for collecting oil or oil and water mixtures shall be in a safe location away from probable sources of ignition and where they will expose employees to a minimum of danger in the event of fire.

(B) Adequate drainage shall be provided to prevent a hazardous accumulation of oils around pump bases.

(2) Housekeeping. The area around oil storage facilities shall be maintained reasonably free from oil, grease and other combustible waste material.

(3) Leakage control. Leaks from pipe lines, piping or other equipment shall be promptly stopped if employees are endangered by the liberated liquids, vapors or gases. Reasonable efforts shall be made to prevent the occurrence of such leaks.

(cc) Liquid Loading and Unloading Facilities and Operations.

(1) Loading and unloading operations.

(A) During the loading or unloading of light oils into or from truck or trailer tanks, no repairs, adjustments, or other operations shall be performed upon the truck, truck motor, trailer, truck tank, or trailer tank.

(B) During the loading or unloading of a tank truck or trailer, the tank truck motor shall be stopped and the cab shall be unoccupied, unless the cargo is moved by means of the truck motor or an auxiliary engine with controls located in the cab, in which case the cab may be occupied by the truck operator.

(C) When a tank truck motor or an auxiliary internal combustion engine, mounted either on or close to the truck or trailer, is being used to furnish power to transfer a light oil, the vapors that may be liberated by such transfer shall be prevented from reaching the motor or engine. If necessary, the vapors shall be piped to a safe location.

(D) During the loading or unloading of a tank truck or trailer, a qualified person shall be at the loading or unloading controls.

(E) In loading or unloading tank cars, tank trucks and trailers, provision shall be made for the safe disposal of the oils released by overflow and from hose spouts or lines.

(2) Loading platforms.

(A) Safe access shall be provided to the top of tank cars if employees are required to go on or to the top of tank cars:

(i) during loading operations; and

(ii) during unloading operations, if connections are made to or through the dome of tank cars.

(B) Safe access shall be provided to the side catwalks or top of tank trucks and trailers if employees are required to go to those locations during loading operations.

(C) The access required by subparagraphs (A) and (B) of this paragraph shall be from a fixed platform at least three feet wide.

(D) It is permissible to install protected openings or equipment in the platform if an unobstructed passageway at least 16 inches wide and six feet six inches high is maintained along the length of the platform.

(E) There shall be at least one stairway or ramp from the platform to the ground. If the loading platform is more than 25 feet long, there shall be at least one stairway or ramp no farther than 10 feet from each end of the platform.

(F) Access from the loading platform to the loading positions on tank cars, tank trucks or trailers shall be by one of the following methods:

(i) by a gangplank hinged or otherwise suitably fastened to the platform. When not in use, gangplanks shall be latched or otherwise securely held in a raised position.

a. Gangplanks shall provide at least six feet six inches vertical clearance and shall be at least 24 inches wide, and shall be provided with standard railings or other safeguards that will adequately protect employees from falling.

b. Toeboards are not required on gangplanks.

(ii) by stepping directly from the fixed loading platform to the side catwalk or top of the tank truck or trailer if the vertical distance stepped is no more than 15 inches, and if the combined vertical and horizontal distance stepped is no more than 20 inches.

a. Loading from side catwalks less than six inches wide is prohibited.

b. Loading from a can rack or bucket rack at the side of a truck or trailer is prohibited, unless safe footing equivalent to a catwalk is provided.

8 AAC 61.1180(cc)(2)(F)(ii)(c)

c. Where the vertical clearance above the side catwalk is less than five feet, an unobstructed passageway shall be provided beside each fill pipe, from the fixed loading platform to the side catwalk. Such passageway shall be at least 16 inches wide and six feet six inches high.

d. Where the vertical clearance above the side catwalk is five feet or more, at least one unobstructed passageway shall be provided from the fixed loading platform to the side catwalk used for loading trucks or trailers. The passageway shall be at least 16 inches wide and six feet six inches high.

(iii) by other means affording equivalent protection.

(G) When it is necessary for employees to go on top of tank trucks or trailers during loading operations, a vertical clearance of at least six feet six inches shall be provided between the top of the tank truck or trailer and fixed members of fixed parts of the loading rack. This requirement, however, does not apply to movable loading spouts or arms.

(H) The following need not comply with subparagraphs (C), (D), (E) and (F) of this paragraph:

(i) locations where trucks and trailers are loaded through bottom connections; and

(ii) locations where trucks or trailers are loaded during emergencies only.

(dd) Fire Protection and Prevention.

(1) Smoking shall be prohibited in areas subject to contamination by flammable liquids or gases, and may be permitted only in areas designated by the employer as safe for smoking.

(2) In areas where smoking is prohibited:

(A) striking matches anywhere shall be prohibited;

(B) cigar and cigarette lighters shall not be allowed unless the flint and steel operating mechanisms are enclosed to prevent accidental lighting or sparking; and

(C) "No Smoking or Open Flame" sign shall be conspicuously posted.

(3) Good housekeeping practices shall be strictly adhered to at all times.

(4) The area around all storage facilities shall be maintained reasonably free from oil,

grease, and other combustible waste material.

(5) No persons, including workers, except those having necessary duties to perform, or those authorized by the employer, shall be permitted within the vicinity of a job or operation where the atmosphere is known to be contaminated with hazardous concentrations of flammable vapors or gases.

(6) On all internal combustion engines on a derrick or mast floor or in a drilling engine room, at times when flammable vapors may be present in a hazardous concentration:

(A) the exhaust pipes shall be insulated or sufficiently cooled to prevent ignition of flammable vapors, and the ends thereof shall be directed away from the well head; and

(B) the manifolds shall be shielded to prevent contacts with liquids or gases.

(7) All waste material, rubbish and debris shall only be removed and burned or disposed of at locations designated by the employer as safe.

(8) All fires shall be safeguarded in such a manner that no unnecessary hazard to employees will be created.

(9) Welders' torch lighters of the spark type are prohibited in areas where the atmosphere is contaminated by flammable vapors or gases or where sources of ignition are forbidden, unless sheathed or otherwise protected against accidental operation.

(10) No heating or lighting apparatus involving use of a flame or exposed electrical element shall be allowed in a crew doghouse located on the derrick or mast floor.

(11) With the exception of fuel tanks actually connected to the operating equipment, gasoline and liquid fuel shall be stored at a safe distance from a well, and drainage from such locations shall be away from the wells.

(12) All vessels and equipment from which ignitable vapors may issue shall be safely vented.

(13) Flammable waste vapors or gases shall be burned or controlled to prevent hazardous concentrations from reaching sources of ignition or otherwise endangering employees. When a flare is used to burn flammable waste gases or vapors, the following precautions shall be taken:

(A) reliable and safe means of remote ignition shall be provided when hydrocarbon gases are released to the air through flares;

(B) flares shall be located in such a manner that gases or vapors not burned will be dispersed without creating a hazard to employees;

8 AAC 61.1180(dd)(13)(C)

(C) means shall be provided to prevent the prolonged escape of hazardous quantities of unburned gases or vapors from flare installations. Automatic warning devices will be acceptable, provided they are tested at such regular intervals that their operation will be assured;

(D) where a flare has been extinguished, and the means of igniting the flare has failed, employees shall not enter or be required to enter the involved area for the purpose of relighting, until tests have established that the area is free from flammable gases and vapors; and

(E) all combustible material shall be cleared for a safe distance from the flare pit or end of the flare line.

(14) Static electricity.

(A) Where not effectively grounded or bonded by contact or connection, provisions shall be made to prevent the accumulation of static electrical charge which may create a source of ignition in the presence of flammable vapors or gases.

(B) Each stationary and portable steel derrick and mast in use where flammable vapors or gases are or may escape to the atmosphere in sufficient quantity that the ignition would endanger the safety of employees, shall be effectively grounded to a ground pipe line, well casing or other equivalent source of grounding.

(C) Conductors used for bonding and grounding stationary equipment or conductors where installed in a fixed position shall be copper wire not smaller than No. 8 A.W.G. (American Wire Gauge).

(D) The attachment of bonding and grounding clamps or clips shall be made with a secure and positive metal to metal contact.

(15) Cleaning solvents. Light oils or any flammable liquids having a flash point below 100 degrees F. shall not be used for cleaning purposes where these regulations apply.

(16) Firefighting equipment.

(A) Firefighting equipment shall be inspected and tested frequently and maintained in a serviceable condition.

(B) A record shall be kept showing the date when fire extinguishers were last inspected, tested or refilled.

(C) Fire protection and firefighting equipment, after any use, shall be made serviceable and restored to its proper location.

(D) Suitable fire extinguishing equipment shall be provided and readily available at all sites where petroleum is produced and handled.

(17) Drill-stem tests. When a rig is lighted by artificial means, no drill pipe shall be disconnected during a drill-stem test until precautions are taken to protect against the possibilities of natural gas or petroleum being present in the drill pipe.

(18) Ventilation. Adequate ventilation shall be provided during preparation for wells which are to be brought into production by swabbing, bailing or displacement with natural gas or petroleum.

(19) Transfer of light oils by air displacement. Air under pressure shall not be used to transfer light oils from one tank or container to another tank or container.

(20) Location of boilers and fired equipment. Where the area under control of the employer will permit, fired equipment shall be located at least 100 feet from a well being drilled. If the area will not permit the minimum distance of 100 feet, fired equipment shall be located at the greatest practicable distance from the well. If boilers are located less than 50 feet from the well, the combustion chamber of each boiler shall be equipped with a snuffer or positive pressure device to minimize the hazard of flammable vapors or gases, which may be released from the well to the atmosphere, reaching the combustion chamber and being ignited.

(21) Fire protection. All requirements pertaining to fire protection, firefighting equipment and fire fighting not covered in this section shall be in accordance with the Alaska State Fire Code, and Subpart L--Fire Protection, General Industry Standards.

(ee) Geophysical Operations.

(1) Housing. Housing and camps in geophysical operations are subject to Subpart J--General Environmental Controls, General Industry Standards.

(2) Vehicle safety.

(A) Drivers shall comply with all state laws pertaining to driver registration and licensing.

(B) Personnel will be either properly seated or they will stand on a properly constructed riding platform while the vehicle is in motion.

(C) No one shall get off or on a vehicle while it is moving.

(D) Only designated personnel shall ride on a riding platform.

8 AAC 61.1180(ee)(2)(E)

(E) "No Smoking" signs shall be located on all four sides of fuel tanks or trucks carrying small refueling tanks. Smoking on these trucks is prohibited.

(F) Daily inspections of vehicles shall be made and repairs made, if needed, before starting work.

(G) The driver shall ascertain that all is clear before backing up.

(H) Personnel shall not work under a vehicle while the keys are in the ignition.

(I) Buggies shall not operate in excess of the speed posted on the dashboard.

(J) Sufficient space shall be left between vehicles moving in convoy for traffic to move with ease around them.

(K) Vehicles shall comply with Subpart O--Motor Vehicles, Mechanized Equipment, and Marine Operations of 29 C.F.R. 1926, Construction Standards.

(3) Lights, signs and signals.

(A) When operations are conducted on or near highways or primary roads, lights, flags, barricades and signals shall be used as provided in Subpart G--Signs, Signals, and Barricades of 29 C.F.R. 1926, Construction Standards and applicable state and local traffic regulations.

(B) When operations are conducted in areas where visibility is frequently reduced by fog or smoke, adequate warning lights shall be provided and used when necessary.

(C) When operations are conducted in areas of climbing and curving roads, or where visibility is reduced by vegetation, signs shall be placed where they can be readily seen when rounding a curve or topping a hill. If traffic is heavy, a flagman shall be used. Flagmen shall wear a vest and hard hat painted with red or orange fluorescent paint.

(4) Winches and cables.

(A) Winch cables shall be run out and inspected frequently. Cable shall be kept clean and in good repair. When re-spooling, care shall be used to avoid kinking. Cable clamps and thimbles, properly installed, shall be used in preference to knotting the cable.

(B) Personnel shall not stand near, step over or go under a cable while it is under tension.



(C) Cables shall not be stretched across a road unless flagmen have been stationed on both sides.

(5) Surveyors.

(A) Surveyors, when first to enter a location, shall warn following personnel of pitfalls and hazards encountered.

(B) Surveyors shall follow rules of highway safety when surveying on or across roads or highways.

(6) Clearing and path preparation shall conform to 29 C.F.R. 1926.604 Site Clearing, Construction Standards.

(A) Brush cutting tools shall be kept in good condition and shall not be left with the cutting edge exposed when not in use.

(B) A minimum distance of 10 feet shall be maintained between cutters.

(7) Electrical safety.

(A) The operation of any equipment in proximity to high voltage lines shall be in compliance with 29 C.F.R. 1926.550(a)(15)(i)-(vii).

(B) Rigid precautions shall be taken that any mast tower, gin pole or drill erected will not be able to lean against or fall across any high tension wires.

(C) Precautions should be taken to keep from coming in contact with high tension wires as provided in American Petroleum Institute Bulletin 2024, "Safe Practices in Geophysical Exploration Operations," Chapter 4.

(8) Drilling.

(A) Drilling equipment shall only be operated by experienced personnel. Any training or practice will be done under direct supervision of an experienced operator.

(B) No repairs, maintenance or servicing shall be done while the machinery is running. If adjustments are necessary while the machine is running, all precautionary measures shall be taken in the event of a malfunction.

(9) Laying out and picking up cable.

(A) Cable handlers feeding the cable in or out of the truck shall have the emergency horn in close reach. The cable should never be guided or held while it is being

8 AAC 61.1180(ee)(9)(B)

fed from or into the "squirter".

(B) When cable handlers are required to stand on the platform of a moving vehicle, they shall always face in the direction of travel and shall hold on to the vehicle with at least one hand.

(10) Shallow water and swamp operations.

(A) Life preservers shall be worn when operating from small boats or buggies over the water.

(B) Equipment and vehicles shall not be operated at night unless sufficient light enables safe operations.

(C) If heavy clothing or equipment which is not easily detachable must be carried or worn, adequate additional flotation devices shall be used.

(D) Boats or vehicles shall not be overloaded.

(E) Wading between boats or vehicles is prohibited.

(F) Buggies and small boats shall be equipped with hand rails.

(11) Helicopter operations shall be in accordance with helicopter regulations as set forth in 29 C.F.R. 1910.183 Helicopters, General Industry Standards and 29 C.F.R. 1926.551 Helicopters, Construction Standards.

(12) The use of explosives and blasting operations shall conform to the standards in 29 C.F.R. 1910.109 Explosives, General Industry Standards.

(Eff. 12/6/95, Register 136)