

DEPARTMENT OF ENVIRONMENTAL QUALITY

OIL, GAS, AND MINERALS DIVISION

OIL AND GAS OPERATIONS

(By authority conferred on the supervisor of wells and the director of the department of environmental quality by section 61506 of the natural resources and environmental protection act, 1994 PA 451, MCL 324.61506, sections 9 and 251 of the executive organization act of 1965, 1965 PA 380, MCL 16.109 and 16.351, and Executive Reorganization Order No. 1991-22, MCL 299.13).

PART 1. GENERAL PROVISIONS

R 324.101 Application of rules.

Rule 101. These rules govern oil and gas operations in the state of Michigan and supersede all rules and regulations issued under the authority of Act No. 61 of the Public Acts of 1939, as amended, being §319.1 et seq. of the Michigan Compiled Laws, except for special well spacing and proration orders and determinations that have application to specifically designated areas throughout Michigan.

History: 1996 AACCS.

R 324.102 Definitions; A to M.

Rule 102. As used in these rules:

(a) “Act” means the natural resources and environmental protection act, 1994 PA 451, MCL 324.101 to 324.90106.

(b) “ANSI” means the American National Standards Institute.

(c) “API” means the American Petroleum Institute.

(d) Aquifer means a geological formation, group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring.

(e) “Authorized representative of the supervisor” means a department of environmental quality employee who is charged with the responsibility for implementation of the act or these rules.

(f) “Blowout prevention equipment” means a casinghead control device designed to control the flow of fluids from the well bore by closing around the drill pipe or production tubing or completely sealing the hole in the absence of drill pipe or production tubing.

(g) “Bottom hole” means the terminus of a wellbore.

(h) “Brine” means all nonpotable water resulting, obtained, or produced from the exploration, drilling, or production of oil or gas, or both.

(i) “Central production facility” means production equipment that has been consolidated at a central location that provides for the commingling of oil or gas production, or both, from 2 or more wells or production units of diverse ownership or from 2 or more prorated wells or production units.

(j) “Conformance bond” means a surety bond that has been executed by a surety company authorized to do business in this state, cash, certificates of deposit, letters of credit, or other securities that are filed by a person and accepted by the supervisor to ensure compliance with the act, these rules, permit conditions, instructions, orders of the supervisor, or an order of the department of environmental quality.

(k) “Directionally drilled well,” means a well purposely deviated from the vertical using controlled angles to reach an objective location.

(l) “Drilling completion” means the time when a well has reached its permitted depth or the supervisor has determined drilling has ceased.

(m) “Drilling operations” means all of the physical and mechanical aspects of constructing a well for the exploration or production of oil or gas, or both, for injection of fluids associated with the production of oil or gas, or both, or the storage of natural hydrocarbons or liquefied petroleum gas derived from oil or gas, and includes all of the following:

(i) Moving drilling equipment onto the drill site.

(ii) Penetration of the ground by the drill bit and drilling of the well bore.

(iii) Casing and sealing of the well bore.

(iv) Construction of well sites and access roads.

(n) “Drilling unit” means the area prescribed by an applicable well spacing rule or order for the granting of a permit for the drilling and operation of an oil or gas well, or both.

(o) “Facility piping” means piping that connects any of the following:

(i) Compressors.

(ii) Flares.

(iii) Loadouts.

(iv) Separators.

(v) Storage tanks.

(vi) Transfer pumps.

(vii) Treatment equipment.

(viii) Vents.

(p) “Fence” means a structure that is designed to deter access and consists of not less than 2 strands of barbed wire, 1 strand being approximately 18 inches above the ground and the other strand being approximately 42 inches above the ground, secured to supporting posts or means an equivalent structure that deters access.

(q) “Final completion” means the time when locating, drilling, deepening, converting, operating, producing, reworking, plugging, and proper site restoration have been performed on a well in a manner approved by the supervisor, including the filing of the mandatory records, and when the conformance bond has been released.

(r) “Flow line” means piping that connects a well or wells to a surface facility.

(s) “Fresh water” means water that contains less than 1000 milligrams per liter of total dissolved solids.

(t) “Gas storage” means the use of a depleted oil or gas pool, salt cavern, or other porous strata utilized for the purpose of injecting and withdrawing gas from the depleted oil or gas pool, salt cavern, or other porous strata.

(u) “Gathering line” means a pipeline that transports natural gas from a surface facility to a transmission pipeline.

(v) “Geologist” means a person who is certified as a geologist by a credible geological professional association or who, by reason of his or her knowledge of the natural sciences, mathematics, and the principles of geology acquired by professional education and practical experience, is qualified to engage in the practice of the science of geology.

(w) “Groundwater” means water below the land surface in the zone of saturation.

(x) “Injection well” means a well used to dispose of, into underground strata, waste fluids produced incidental to oil and gas operations or a well used to inject water, gas, air, brine, or other fluids for the purpose of increasing the ultimate recovery of hydrocarbons from a reservoir or for the storage of hydrocarbons.

(y) “Instruction” means a written statement of general applicability, that is issued by the supervisor, conforms with the act and rules promulgated under the act, and clarifies or explains the applicability of the act or rules to commonly recurring facts or circumstances.

(z) “Mineral water” means water that contains 1000 milligrams per liter or more of total dissolved solids.

(aa) “Multiple zone completion” means a well constructed and operated to separately produce oil or gas, or both, from more than 1 reservoir through 1 well bore.

History: 1996 AACS; 2001 AACS; 2002 AACS; 2015 AACS; 2019 AACS.

R 324.103 Definitions; N to Z.

Rule 103. As used in these rules:

(a) “Nuisance odor” means an emission of any gas, vapor, fume, or mist, or combination thereof, from a well or its associated surface facilities, in whatever quantities, that causes, either alone or in reaction with other air contaminants, injurious effects to human health or safety; unreasonable injurious effects to animal life, plant life of significant value, or property; or unreasonable interference with the comfortable enjoyment of life or property.

(b) “Oil and gas operations” means permitting activities required under R 324.201, drilling operations, well completion operations, operation of oil and gas wells, plugging operations, and site restoration.

(c) “Operation of oil and gas wells” means the process of producing oil or gas, or both, or the storage of natural hydrocarbons or liquefied petroleum gas, including all of the following:

(i) Production, pumping, and flowing.

(ii) Processing.

(iii) Gathering.

(iv) Compressing.

(v) Treating.

(vi) Transporting.

(vii) Conditioning.

(viii) Brine removal and disposal.

(ix) Separating.

(x) Storing.

(xi) Injecting.

- (xii) Testing.
- (xiii) Reporting.
- (xiv) Maintenance and use of surface facilities.
- (xv) Secondary recovery.

(d) "Organization report" means a listing of all corporate officers, directors, incorporators, partners, or shareholders who have the authority to make, or are responsible for making, operational decisions, including the siting, drilling, operating, producing, reworking, and plugging of wells.

(e) "Permit" means a permit to drill and operate an oil or gas well, or both, or an injection well, including associated surface facilities and flow lines.

(f) "Plugging operations" means the sealing of the fluids in the strata penetrated by an oil or gas well, or both, upon abandonment of the well or a portion of the well bore, so that the fluid from one stratum will not escape into another or to the surface.

(g) "Ppm" means parts per million by volume.

(h) "Producing interval" means any section of a wellbore that is open to, or intended to be open to, a formation or part of a formation that is intended to produce or is capable of producing oil or gas, or both, after well completion operations. The section of the wellbore may be open to the formation or part of the formation by any means, and may include but is not limited to, a section of a wellbore that is either uncased or has perforated casing.

(i) "Psi" means pounds per square inch.

(j) "Psig" means pounds per square inch gauge.

(k) "Secondary recovery" means the introduction or utilization of fluid or energy into or within a pool for the purpose of increasing the ultimate recovery of hydrocarbons from the pool.

(l) "Shut-in" means an action by a permittee to close down a producing well, a well capable of producing, or an injection well temporarily for any of the following reasons:

- (i) Repair.
- (ii) Cleaning out.
- (iii) Building up reservoir pressure.
- (iv) Planning for secondary recovery.
- (v) Other injection projects.
- (vi) While awaiting connection of a sales line.
- (vii) Lack of a market.

(m) "Site restoration" means all of the following:

- (i) The filling and leveling of all cellars, pits, and excavations.
- (ii) The removal or elimination of all debris.
- (iii) The elimination of all conditions that may create a fire or pollution hazard.
- (iv) The minimization of erosion.

(v) The restoration of the well site as nearly as practicable to the original land contour or to a condition approved by the supervisor.

(n) "Structure used for public or private occupancy," means a residential dwelling or place of business, place of worship, school, hospital, government building, or other building where people are usually present at least 4 hours per day.

(o) “Supervisor” means the director of the department of environmental quality or his or her assistants as approved by the director of the department of environmental quality.

(p) “Surface casing” means the casing string or strings used primarily for protecting fresh water or mineralized water resources from potential contamination during the drilling and operation of an oil or gas well, or both.

(q) “Surface facility” means a facility used in the injection of fluids or in the production, processing, or treatment of oil or gas, or both, including any of the following:

- (i) Pumping equipment.
- (ii) Fluid disposal equipment.
- (iii) Facility piping.
- (iv) Load outs.
- (v) Separators.
- (vi) Storage tanks.
- (vii) Treatment equipment.
- (viii) Compressors.

(r) “Surface water” means a body of water, and the associated sediments, which has a top surface that is exposed to the atmosphere and is not solely for wastewater conveyance, treatment, or control. Surface water may be any of the following:

- (i) A Great Lake or its connecting waters.
- (ii) An inland lake or pond.
- (iii) A river or stream, including intermittent streams.
- (iv) An impoundment.
- (v) An open drain.
- (vi) A wetland.

(s) “Underground source of drinking water” means fresh water or mineral water within an aquifer or portion of an aquifer that satisfies either of the following criteria:

- (i) The aquifer or portion thereof supplies a public water system.
- (ii) The aquifer or portion thereof contains a sufficient quantity of ground water to supply a public water system and meets either of the following criteria:

(A) The aquifer or portion thereof currently supplies drinking water for human consumption.

(B) The aquifer or portion thereof contains ground water that has fewer than 10,000 milligrams per liter total dissolved solids.

(t) “Well completion” means the time when a well has been tested and found to be incapable of producing hydrocarbons in commercial quantities and has been plugged or has been found capable of producing commercial quantities of hydrocarbons or when the well has been equipped to perform the service for which it was intended.

(u) “Well completion operations” means work performed in an oil or gas well, or both, after the well has been drilled to its permitted depth and the production string of casing has been set, including perforating, artificial stimulation, and production testing.

(v) “Well location” means the surface location of a well.

(w) “Zoned residential” means a geographic area that was zoned by a local unit of government before January 8, 1993, as an area designated principally for permanent or recreational residences.

History: 1996 AACS; 2002 AACS; 2015 AACS; 2018 AACS.

R 324.104 Terms defined in act.

Rule 104. Unless the context requires a different meaning, the trade words and other words defined in the act have the same meanings when used in these rules.

History: 1996 AACCS.

R 324.199 Rescission.

Rule 199. (1) R 299.251 to R 299.258 of the Michigan Administrative Code, appearing on pages 1415 to 1417 of the 1979 Michigan Administrative Code, are rescinded.

(2) R 299.1101 to R 299.1807, R 299.1809, R 299.1810, and R 299.1901 to R 299.2101 of the Michigan Administrative Code, appearing on pages 1466 to 1495 of the 1979 Michigan Administrative Code, and pages 206 to 217 of the 1987 Annual Supplement to the Code, are rescinded.

History: 1996 AACCS.

PART 2. PERMITS TO DRILL AND OPERATE

R 324.201 Application for permit to drill and operate requirements; issuance of permit.

Rule 201. (1) Until a person has complied with the requirements of subrule (2) of this rule, a person shall not begin the drilling or operation of a well for any of the following:

- (a) Oil or gas, or both.
- (b) Injection for secondary recovery.
- (c) Injection for the disposal of brine, oil or gas field waste, or other fluids incidental to the drilling, producing, or treating of wells for oil or gas, or both, or the storage of natural hydrocarbons or liquefied petroleum gas derived from oil or gas.
- (d) Injection or withdrawal for the storage of natural dry gas or oil well gas.
- (e) Injection or withdrawal for the storage of liquid hydrocarbons or liquefied petroleum gas.

(2) A permit applicant shall comply with all of the following permit application requirements:

(a) The exact well location shall be surveyed by a surveyor licensed in this state, a readily visible stake or marker shall be set at the well location, and a flagged route shall be established to the well location.

(b) The survey required by subdivision (a) of this subrule shall include a plat that shows all of the following:

- (i) The correct well location and bottom hole location description.
- (ii) A flagged route or explanation of how the well location may be reached.
- (iii) Footages from the nearest section, quarter section, and drilling unit lines.

(iv) Information relative to the approximate distances and directions from the stake or marker to special hazards or conditions, including all of the following:

(A) Surface waters and other environmentally sensitive areas within 1,320 feet of the proposed well. Environmentally sensitive areas are identified by the department pursuant to applicable state and federal laws and regulations.

(B) Floodplains associated with surface waters within 1,320 feet of the proposed well.

(C) Wetlands, as identified by the provisions of sections 30301 to 30323 of the act, within 1,320 feet of the proposed well.

(D) Natural rivers, as identified by the provisions of sections 30501 to 30515 of the act, within 1,320 feet of the proposed well.

(E) Critical dune areas, as designated by the provisions of sections 35301 to 35326 of the act, within 1,320 feet of the proposed well.

(F) Threatened or endangered species, as identified by the provisions of sections 36501 to 36507 of the act, within 1,320 feet of the proposed well.

(G) All buildings, recorded fresh water wells and reasonably identifiable fresh water wells utilized for human consumption, public roads, pipelines, and power lines that lie within 600 feet of the proposed well location.

(H) All public water supply wells identified as type I and IIa that lie within 2,000 feet of the proposed well location and type IIb and III that lie within 800 feet of the proposed well location, as defined in 1976 PA 399, MCL 325.1001 to 325.1023.

(I) Identification of the existing local zoning designation of the surface location of the well.

(c) If the applicant intends to utilize high volume hydraulic fracturing, the application shall include a list showing the specific identity and associated CAS number of each chemical constituent the applicant anticipates will be added to the primary carrier fluid, except that the specific identities and CAS numbers of trade secret chemicals may be withheld under the provisions of paragraph (i) of this rule.

(i) If the specific identity of a chemical constituent and its associated CAS number are a trade secret, the applicant may withhold the specific identity of the chemical constituent and its associated CAS number, but shall list the chemical family associated with the chemical constituent, or provide a similar description, and provide a statement that a claim of trade secret protection has been made by the entity entitled to make such a claim.

(ii) Listing of a chemical constituent under the requirements of this subdivision does not preclude a permittee from utilizing other chemical constituents in a high volume hydraulic fracturing operation; however, the chemical constituents actually used shall be submitted under the requirements of rule 1406 of these rules.

(d) One signed and sealed copy of the survey, on a form prescribed by the supervisor, shall be filed with an application for a permit to drill and operate or e-filed using a procedure approved by the supervisor.

(e) A person applying to drill and operate a well shall completely and accurately fill out, sign, and file a written application for a permit to drill on a form prescribed by the supervisor or e-filed using a procedure approved by the supervisor. The application shall be submitted to the supervisor at the offices of the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing,

Michigan 48909, and a copy of the first page of the permit application shall be mailed to the clerk of the county and the surface owner of record of the land on which the well location is to be located within 7 days of submitting the permit application by first-class United States mail addressed to the surface owner's last known address as evidenced by the current property tax roll records.

(f) When the proposed well location is in or adjacent to any areas described in subdivision (b)(iv)(A) or (B) of this subrule, a person shall file for and obtain all applicable permits from the department of environmental quality before developing the well site or access to the well site or before drilling of the well. The person shall also file for and obtain any additional permits that may be required before the installation of flow lines or production equipment or before operating the well.

(g) A person shall file an environmental impact assessment as instructed by the supervisor.

(h) A person shall file an organization report if a current organization report is not on file with the supervisor.

(i) A person shall file a conformance bond or statement of financial responsibility pursuant to R 324.210.

(j) A person shall pay the fee as specified by statute. A fee filed with an application shall not be applied to a subsequent application. The fee shall be returned if a permit is not issued.

(k) A person shall provide additional information as required in R 324.802 with an application for a permit to drill and operate an injection well or to convert a previously drilled well to an injection well.

(l) A person shall receive and post the permit in a conspicuous place at the well location. The permit shall remain posted at the well location until well completion.

(3) A person who desires to directionally drill a well shall apply for and obtain a permit to drill and operate as provided in this rule. The application to drill a directionally drilled well shall include, in addition to the information specified in subrule (2) of this rule, all of the following information:

(a) The depth at which deviation from vertical is planned.

(b) The angle and path of each deviation.

(c) The proposed horizontal distance and direction from the well location to the bottom hole.

(d) The well's measured and true vertical depths.

(4) The supervisor shall process a permit application for a well and issue or deny a permit to drill and operate pursuant to section 61525 of the act. Pursuant to R 324.205, the supervisor shall not issue a permit to a person or an authorized representative of a person if the person is not eligible for a permit.

History: 1996 AACCS; 2015 AACCS; 2018 AACCS.

R 324.202 Directional redrilling.

Rule 202. (1) A permittee of a well who desires to directionally redrill an existing well to a different bottom hole location shall file an application for a new permit. The application shall set forth, in detail, the new bottom hole location and identify the plug-back depth of the existing well and shall be filed under R 324.201(3). The directional

redrilling shall not be commenced until the application has been approved by the supervisor or authorized representative of the supervisor, except as provided in subrule (2) of this rule. A new permit and an additional fee shall be required.

(2) A permittee of a well who desires to directionally redrill an existing permitted drilling well to a different bottom hole location with the drilling rig then on location shall obtain approval from the supervisor or authorized representative of the supervisor. Approval to redrill shall be obtained by contacting the authorized representative of the supervisor in person or by telephone and providing pertinent details of the proposed directional redrilling. Approval may be granted immediately if all of the following provisions are complied with:

(a) The existing drilled hole is plugged back before starting the new directional hole under the provisions of these rules.

(b) The permittee provides an adequate description of the proposed directional redrill, including the depth, angle, and path of the deviation, and the bottom hole location.

(c) The well has adequate bonding or a statement of financial responsibility has been filed under R 324.210.

(3) If approval to directionally redrill is granted, a permittee of a well shall obtain a new permit and pay an additional fee. The application for a new permit and additional fee shall be filed within 10 days at the offices of the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909. In addition to other enforcement actions, failure to comply with this subrule shall be cause for immediate suspension of any or all components of the oil and gas operations on the well.

(4) A well log and plugging record shall be filed on the plugged-back hole under these rules.

History: 1996 AACCS; 2002 AACCS; 2015 AACCS.

R 324.203 Lost holes.

Rule 203. (1) A permittee of a well shall obtain approval to skid a rig or move to start a new hole when a hole has been lost. A new permit or additional fee is not required if the new well location is within 165 feet of the lost hole and the drilling unit is not changed.

(2) A permittee of a well may obtain approval for skidding a rig or moving to a new well location because of a lost hole from the authorized representative of the supervisor in person or by telephone. Approval may be granted immediately if all of the following provisions are complied with:

(a) The lost hole shall be plugged before starting the replacement hole under the provisions of these rules.

(b) The new well location shall be made at a safe distance from the lost hole.

(c) The permittee provides an adequate description of the new bottom hole location.

(d) The new well location shall not create surface waste.

(e) An amended application with corrected attachments and supplements shall be filed within 5 business days at the offices of the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909. In

addition to other enforcement actions, failure to comply with this subrule shall be cause for suspension of any or all components of the oil and gas operations on the well.

(f) A well log and well plugging record shall be filed on all lost holes under the provisions of these rules.

History: 1996 AACS; 2002 AACS; 2015 AACS.

R 324.204 Permits for oil and gas storage by conversion of operation.

Rule 204. If a well or underground operation developed for a non-oil and gas use is converted for the storage of oil or gas or any of the natural hydrocarbons produced from oil or gas, then the well or underground operation shall be classified as an oil or gas storage operation and shall be subject to the provisions of these rules.

History: 1996 AACS.

R 324.205 Eligibility for permit.

Rule 205. The supervisor shall not issue or transfer a permit, other than as provided by R 324.206(7) and (8), to a person who has been determined to be in violation of any of the following:

- (a) The act.
- (b) These rules.
- (c) Permit conditions.
- (d) Instructions.
- (e) Orders of the supervisor.
- (f) An order of the department of environmental quality.

History: 1996 AACS.

R 324.206 Modification of permits; deepening permits; change of ownership.

Rule 206. (1) A permit shall not be transferred to a location outside of the drilling unit.

(2) A permittee of a well who has not initiated drilling of a well shall not do either of the following:

(a) Change the well location within the drilling unit without the prior approval of the supervisor or authorized representative of the supervisor. To receive approval, a permittee shall return the permit to the Lansing office of the supervisor together with a revised application with corrected attachments and supplements. If the permittee requests a change in the well location greater than 165 feet from the permitted location, then a new permit and an additional fee are required. If the permittee requests a change in the well location to a location less than 165 feet from the permitted location, then the change will require a revised permit and no additional fee. A change of location for an injection well, regardless of distance, requires a new permit and an additional fee. Drilling shall not begin until the new permit or revised permit has been issued by the supervisor or authorized representative of the supervisor and posted at the drilling site.

(b) Change the method of drilling, casing and sealing programs, or other conditions of the permit without the prior approval of the supervisor or authorized representative of the supervisor. To receive approval, the permittee shall return the permit to the Lansing office of the supervisor together with a revised application with corrected attachments and supplements. If the permittee only requests a modification of the existing permit conditions, then an additional fee is not required. Drilling shall not begin until the revised permit has been approved by the supervisor or authorized representative of the supervisor and posted at the drilling site.

(3) A permittee of a well who begins the drilling of a well and encounters drilling problems or other drilling conditions that necessitate a change shall not do either of the following:

(a) Change the well location within the drilling unit, other than as provided by R 324.203, without the prior approval of the supervisor or authorized representative of the supervisor. To receive approval to change the well location, the permittee shall return the permit to the Lansing office of the supervisor together with a revised application with corrected attachments and supplements. Drilling shall not begin at the new location until the revised permit has been issued by the supervisor or authorized representative of the supervisor.

(b) Change the method of drilling, casing and sealing programs, or other conditions of the permit without the prior approval of the supervisor or authorized representative of the supervisor. To receive approval to modify an existing permit condition only, the permittee shall contact the supervisor or authorized representative of the supervisor by letter, telephone, or visit and explain the drilling circumstances and request the necessary changes to the permit. The supervisor or authorized representative of the supervisor may give verbal approval to modify the permit with conditions for additional reporting requirements by the permittee. If approval to modify an existing permit is granted, then the revised permit and corrected attachments and supplements shall be filed, within 10 days, at the offices of the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909. An additional permit fee is not required.

(4) A permittee of a well who desires to deepen a well below the permitted stratigraphic or producing horizon where well completion has occurred shall file an application for a deepening permit. The application shall set forth, in detail, the new proposed total depth and the plan for casing and sealing off the oil, gas, brine, or fresh water strata to be found, or expected to be found, in the deepening operation. The deepening operation shall not be commenced until the application has been approved by the supervisor or authorized representative of the supervisor. A deepening permit and an additional fee are required.

(5) A permittee of a well who desires to continue the drilling of a well below the permitted depth, but within the permitted stratigraphic or producing horizon where drilling completion or well completion has occurred, shall file an application for change of well status pursuant to R 324.511. The application shall set forth, in detail, the new proposed total depth and the plan for casing and sealing off the oil, gas, brine, or fresh water strata found, or expected to be found, when drilling is continued. The approval of the change of well status shall serve to revise the permit to reflect the new permitted depth. The continuation of drilling shall not be commenced until the application for

change of well status has been approved by the supervisor or authorized representative of the supervisor. To obtain approval to continue the drilling below the permitted depth, but within the permitted stratigraphic or producing horizon with the drilling rig then on location, the permittee shall contact the supervisor or authorized representative of the supervisor by letter, telephone, or visit and explain the circumstances for the request to continue the drilling. The supervisor or authorized representative may give verbal approval to continue the drilling below the permitted depth, but within the permitted stratigraphic or producing horizon. If approval to continue the drilling is granted, then the permittee shall file the application for change of well status pursuant to R 324.511, within 10 days of approval, at the offices of the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909. An additional permit fee is not required.

(6) If a permittee of a well conveys his or her rights as an owner of a well to another person, or ceases to be the authorized representative of the owner of a well, before final completion, then a request for the transfer of the permit to the acquiring person shall be submitted by the acquiring person to the supervisor at the offices of the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909, on forms as prescribed by the supervisor. The transfer of the permit may be approved upon receipt of a properly completed request, including the signatures of the permittee of record and the acquiring person, and upon the filing by the acquiring person of the conformance bond or a statement of financial responsibility as required by R 324.210. Pending the transfer of the existing permit, the acquiring person shall not operate the well. The acquiring person shall file an organization report pursuant to R 324.201(2)(h).

(7) A permit for a well shall not be transferred to a person who has been determined to be in violation of any of the following until the permittee has corrected the violation or the supervisor has accepted a compliance schedule and a written agreement has been reached to correct the violations:

- (a) The act.
- (b) These rules.
- (c) Permit conditions.
- (d) Instructions.
- (e) Orders of the supervisor.
- (f) An order of the department of environmental quality.

An additional conformance bond covering the period of the compliance schedule may be required. The conformance bond is in addition to the conformance bonds filed pursuant to R 324.212(a) or (b).

(8) If the permittee of a well is under notice because of unsatisfactory conditions at the well site involved in the transfer, then the permit for a well shall not be transferred to a person until the permittee has completed the necessary corrective actions or the acquiring person has entered into a written agreement to correct all of the unsatisfactory conditions.

History: 1996 AACS; 2015 AACS; 2018 AACS.

R 324.207 Suspension of oil and gas operations due to failure to transfer permit.

Rule 207. If a permittee of a well conveys his or her rights as an owner of a well to another person, or ceases to be the authorized representative of the owner of a well, and a request for transfer of the permit under R 324.206(6) has not been approved, then, in addition to other enforcement actions, failure to comply shall be cause for immediate suspension of any or all components of the oil and gas operations on the well, including the removal or sale of oil, gas, or brine.

History: 1996 AACCS; 2002 AACCS.

R 324.208 Termination of permit.

Rule 208. (1) Subject to subrule (2) of this rule, a permit issued pursuant to R 324.201(4), or transferred pursuant to R 324.206(6) or rules that were in effect before the effective date of these rules, shall terminate 2 years after the date of issuance, unless the drilling operation has reached a depth of not less than 100 feet below the ground surface elevation and the drilling operation is diligently proceeding or the well is otherwise being used for its permitted purpose.

(2) If a permit is subject to termination under this rule, the permittee may submit a written request to the supervisor to extend the permit at least 30 days before the scheduled termination date. Upon receipt of a request, the supervisor may extend the permit for a period of up to 2 additional years provided there have been no significant changes in the features or conditions described in R 324.201, or in requirements of these rules or the act, that would require modifications of the permit.

(3) Terminated permits may not be reactivated or transferred and the permit fee shall not be refunded.

History: 1996 AACCS; 2018 AACCS.

R 324.209 Temporary abandonment status.

Rule 209. (1) A permittee of a well that has not been used for its permitted purpose during 12 consecutive months shall plug the well, unless the well is granted temporary abandonment status. Temporary abandonment status shall be allowed only upon written application to, and approval of, the supervisor or authorized representative of the supervisor.

(2) The term of the initial temporary abandonment status shall not be more than 12 months, unless the well is shut-in awaiting the connection of a sales line. For a well that is shut-in awaiting connection of a sales line, the term of the initial temporary abandonment status shall be up to and including 60 months.

(3) Extensions for temporary abandonment status beyond the initial term provided in subrule (2) of this rule may be granted by the supervisor if, after application by the permittee, the supervisor determines that waste shall be prevented. When approving the extensions, the supervisor may require special actions and monitoring by the permittee to ensure the prevention of waste.

History: 1996 AACCS.

R 324.210 Conformance bond or statement of financial responsibility requirements.

Rule 210. (1) A person who files an application for a permit to drill and operate a well under R 324.201, or who acquires a well under R 324.206(6), shall file a conformance bond with the supervisor on a form prescribed by the supervisor or shall submit a statement of financial responsibility under subrule (2) of this rule.

(2) A statement of financial responsibility shall consist of all of the following:

(a) A written statement which is signed by the person, which lists data that show that the person meets the criteria specified in subrule (3) of this rule, and which states that the data are derived from an independently audited year-end financial statement.

(b) A copy of an independent certified public accountant's report on examination of the person's financial statements for the latest completed fiscal year.

(c) A special report from the person's independent certified public accountant stating that the accountant has compared the data listed in the statement provided under subdivision (a) of this subrule with the amounts in the corresponding year-end financial statement and that nothing came to the attention of the accountant which caused the accountant to believe that the financial records should be adjusted.

(3) When a person submits a statement of financial responsibility instead of a conformance bond, a person shall meet the criteria of either subdivision (a) or (b) of this subrule, as follows:

(a) A person required to file the statement of financial responsibility shall have all of the following:

(i) Two of the following 3 ratios:

(A) A ratio of total liabilities to net worth of less than 2.0.

(B) A ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities of more than 0.1.

(C) A ratio of current assets to current liabilities of more than 1.5. Projected oil and gas reserves may be utilized in determining current assets only to the extent that the value of the reserves exceeds the projected costs of development and production.

(ii) Net working capital and tangible net worth each of which is not less than 3 times the amount of the conformance bond provided in R 324.212, if the person had elected to file a conformance bond.

(iii) Total assets in this state that are not less than 3 times the amount of the conformance bond provided in R 324.212, if the person had elected to file a conformance bond. Projected oil and gas reserves may be utilized in determining current assets only to the extent that the value of the reserves exceeds the projected costs of development and production.

(iv) A written statement from a certified public accountant which states that no matter came to the attention of the accountant which caused him or her to believe that the financial records should be adjusted.

(b) A person required to file a statement of financial responsibility shall have all of the following:

(i) A current rating for his or her most recent bond issuance of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A, or Baa as issued by Moody's.

(ii) A tangible net worth of not less than \$2,000,000.00.

(iii) Total assets in this state that are not less than 3 times the amount of the conformance bond provided in R 324.212, if the person had elected to file a conformance bond. Projected oil and gas reserves may be utilized in determining current assets only to the extent that the value of the reserves exceeds the projected costs of development and production.

(4) A person shall submit a statement of financial responsibility to the supervisor not less than 60 days before the date the financial assurance is scheduled to take effect.

(5) After the initial submission of a statement of financial responsibility, the person shall send an updated statement of financial responsibility to the supervisor within 90 days after the close of each succeeding fiscal year.

(6) If a person no longer meets the requirements of subrule (3) of this rule, he or she shall send notice to the supervisor of the intent to establish alternate financial assurance by filing a conformance bond as specified in subrule (1) of this rule. The notice shall be sent, by certified mail, within 90 days after the end of the fiscal year for which the year-end review of the financial records shows that the person no longer meets the requirements. The person shall provide the alternate financial assurance within 120 days after the end of the fiscal year.

(7) The supervisor may, based on a reasonable belief that the person no longer meets the requirements of subrule (3) of this rule, require a report at any time from the person in addition to the information required by subrule (3) of this rule. If the supervisor finds, on the basis of a review of the report or other information, that the person no longer meets the requirements of subrule (3) of this rule, then the supervisor or authorized representative of the supervisor shall notify and inform the person. Within 30 days of the notification, the person shall provide alternate financial assurance by filing a conformance bond as specified in subrule (1) of this rule or shall bring the well to final completion. Failure to comply with this subrule shall be cause for immediate suspension of any or all components of the oil and gas operations on the well.

(8) The supervisor may require additional conformance bonds to ensure compliance with orders of the supervisor, excluding proration, statutory pooling, or spacing orders. The conformance bond shall be in addition to the conformance bonds filed under R 324.212(a), (b), or (c) and shall be required only if the supervisor determines that the existing conformance bond is not adequate to cover the estimated cost of plugging the well and conducting site restoration or other obligations of the permittee under the order. A person is not required to file additional conformance bonds under this subrule if the person has filed a blanket conformance bond or bonds in an aggregate amount of \$250,000.00 or more, under R 324.212(d). Subject to the provisions of R 324.213, the additional conformance bond shall be released when the permittee has complied with all provisions of the orders of the supervisor.

(9) Conformance bonds that were in effect before the effective date of these rules shall remain in effect under the conditions upon which they were filed and accepted by the supervisor. However, in place of conformance bonds that were in effect before the effective date of these rules, a permittee may file conformance bonds or submit a statement of financial responsibility under these rules for wells permitted under the act before the effective date of these rules.

History: 1996 AACS; 2002 AACS; 2015 AACS.

R 324.211 Liability on conformance bond.

Rule 211. (1) The liability on the conformance bond is conditioned upon compliance with the act, these rules, permit conditions, instructions, or orders of the supervisor. Subject to the provisions in R 324.213, liability shall cover all oil and gas operations of the permittee as follows:

- (a) Through transfer of the permit for the subject well under R 324.206(6).
- (b) Through final completion approved by the supervisor of the subject well.
- (c) Otherwise as approved by the supervisor.

(2) The supervisor shall look to the conformance bond for immediate compliance with, and fulfillment of, the full conditions of the act, these rules, permit conditions, instructions, or orders of the supervisor. All expenses incurred by the supervisor in achieving compliance with, and fulfillment of, all conditions of the act, these rules, permit conditions, instructions, or orders of the supervisor shall be paid by the permittee or the surety or from cash or securities on deposit. The claim shall be paid within 30 days of notification to the permittee or surety that expenses have been incurred by the supervisor. If the claim is not paid within 30 days, the supervisor, acting for and on behalf of the state, may bring suit for the payment of the claim.

History: 1996 AACCS; 2002 AACCS.

R 324.212 Conformance bond amounts.

Rule 212. A person who drills or operates a well shall file a conformance bond with the supervisor for the following amounts, as applicable:

(a) Single well conformance bonds shall be filed in the following amounts, as applicable:

- (i) \$20,000.00 for wells up to and including 2,000 feet deep, true vertical depth.
- (ii) \$40,000.00 for wells deeper than 2,000 feet, but not deeper than 4,000 feet, true vertical depth.
- (iii) \$50,000.00 for wells deeper than 4,000 feet, but not deeper than 7,500 feet, true vertical depth.
- (iv) \$60,000.00 for wells deeper than 7,500 feet, true vertical depth.

(b) A person may file single well conformance bonds in an amount equal to 1/2 of the amount specified in subdivision (a) of this rule for wells where well completion operations have not commenced. A person shall not file single well conformance bonds under this subdivision for more than 5 wells. A person shall file single well conformance bonds in the full amount specified in subdivision (a) of this rule or file a blanket conformance bond as specified in subdivision (c) of this rule or submit a statement of financial responsibility pursuant to R 324.210 before the commencement of well completion operations on any well.

(c) Blanket conformance bonds may be filed as an alternative to single well conformance bonds. If a blanket conformance bond is utilized, then the permittee shall provide the supervisor with a list of wells covered by the blanket conformance bond. A maximum of 100 wells may be covered by a blanket conformance bond. If the permittee

has more than 100 wells in a category, then the additional wells may be covered by single well conformance bonds or additional blanket conformance bonds. Blanket conformance bonds shall be filed in the following amounts, as applicable:

(i) \$100,000.00 for wells up to and including 2,000 feet deep, true vertical depth.

(ii) \$200,000.00 for wells deeper than 2,000 feet, but not deeper than 4,000 feet, true vertical depth.

(iii) \$250,000.00 for wells deeper than 4,000 feet, true vertical depth.

(d) A person shall not be required to file a blanket conformance bond or bonds in an aggregate amount of more than \$250,000.00. When the aggregate amount of the conformance bonds is \$250,000.00, the permittee may file 1 blanket conformance bond of \$250,000.00 to cover all of his or her wells.

History: 1996 AACS; 2018 AACS.

R 324.213 Cancellation of conformance bonds issued by a surety.

Rule 213. (1) A surety company may cancel a conformance bond acquired under these rules upon 90 days' notice to the supervisor of the effective date of cancellation. However, the surety company shall retain liability for all violations of the act, these rules, permit conditions, instructions, or orders of the supervisor that occurred during the time the conformance bond was in effect.

(2) Forty days before the effective date of cancellation, as provided in subrule (1) of this rule, a permittee shall secure a conformance bond from another surety company authorized to do business in the state of Michigan, deposit cash or other securities, or bring the well to final completion. Failure to comply with this subrule shall be cause for the immediate suspension of any or all components of the oil and gas operations on the well.

(3) A surety company shall remain liable until the violations have been corrected and the corrections are accepted by the supervisor for all violations of the act, these rules, permit conditions, instructions, or orders of the supervisor that occurred at the well during the time the conformance bond was in effect before the effective date of cancellation.

History: 1996 AACS; 2002 AACS.

R 324.214 Limitation of additional liability of blanket conformance bonds.

Rule 214. A surety company may refuse to accept liability for additional wells under a blanket conformance bond by giving 10 days' notice by registered mail to the supervisor. Subject to the provisions of R 324.213, the blanket conformance bond shall continue in full force and effect as to all other wells covered by the blanket conformance bond for which permits were granted or transferred to the permittee before the effective date of the notice.

History: 1996 AACS.

R 324.215 Release of conformance bonds; release of well from blanket conformance bond.

Rule 215. (1) A conformance bond shall be released or a well shall be released from a blanket conformance bond, subject to the provisions of R 324.213, by the supervisor or authorized representative of the supervisor if a permittee disposes of the well and the permit for the well has been transferred to a new person pursuant to R 324.206(6) or if the well has been plugged and proper site restoration has been performed pursuant to R 324.1003, including the filing of the mandatory records.

(2) The release of the conformance bond or the release of a well from a blanket conformance bond does not release a permittee from liability for any violations of the act, these rules, permit conditions, instructions, or orders of the supervisor which occurred during the time the conformance bond was in effect and which have not been corrected and accepted by the supervisor.

(3) A conformance bond filed to comply with a permit that has become terminated shall be released if there is final completion.

History: 1996 AACCS.

R 324.216 Notice of release of conformance bond or release of well from blanket conformance bond.

Rule 216. (1) The supervisor or authorized representative of the supervisor shall advise the surety company and the permittee when the conformance bond has been released or a well has been released from a blanket conformance bond.

(2) The supervisor or authorized representative of the supervisor shall return cash to the permittee or securities to the institution that provided the bonding instrument when the conformance bond has been released.

History: 1996 AACCS.

PART 3. SPACING AND LOCATION OF WELLS

R 324.301 Drilling unit; well location; exceptions.

Rule 301. (1) The following provisions specify requirements for the location and spacing of wells to be drilled for oil or gas, or for wells for oil and gas where a change of well status or stimulation of the well will result in changes to the producing interval, except for injection wells and wells to be drilled in gas storage reservoirs, liquid petroleum gas storage reservoirs, unitized areas, and other specifically designated areas or geological formations where special spacing orders, rules, or determinations are in effect:

(a) The drilling unit for wells for oil or gas shall be a legal subdivision of 40 acres, more or less, defined as a governmental surveyed quarter-quarter section of land. The drilling unit shall conform to 1 of the quarter-quarters of a governmental surveyed section of land, with allowances being made for the differences in the size and shape of sections as indicated by official governmental survey plats.

(b) The producing interval of a well for oil or gas shall be not less than 330 feet from the drilling unit boundary.

(c) For purposes of interpreting requirements for the location and spacing of wells under these rules, the producing interval location of a well that is not intentionally drilled directionally or horizontally shall be presumed to be directly beneath the well location.

(d) A permit may be issued on a drilling unit that is not totally leased, pooled, or communitized subject to the following conditions:

(i) The application for permit shall be accompanied by a certified statement establishing that a good faith effort had been made to obtain the lease or leases or to obtain a communitization agreement to form a full drilling unit and that such effort failed.

(ii) No portion of the well bore shall transect any tract prior to such time as the tract is leased, pooled, or communitized.

(iii) The permittee of the well shall not construct or operate any portion of the well, drill pad, access road, pipeline, or other drilling operations or well completion operations subject to the permit on any tract that is not leased unless the permittee has obtained the necessary rights to construct or operate under a surface access agreement or other applicable instrument.

(iv) Before the well is placed on regular production, a pooled drilling unit shall be formed by voluntary agreement or statutory pooling pursuant to R 324.304.

(2) The well surface location and associated surface facilities for wells drilled and constructed after September 20, 1996 shall be located not less than 300 feet from existing recorded fresh water wells and reasonably identifiable fresh water wells utilized for human consumption and existing structures used for public or private occupancy.

(3) The well separators, storage tanks, and treatment equipment installed or constructed after September 20, 1996 shall be located not less than 2,000 feet from type I and IIa public water supply wells and not less than 800 feet from type IIb and III public water supply wells, as defined in the safe drinking water act, 1976 PA 399, MCL 325.1001 to 325.1023.

(4) Exceptions to the location and spacing of wells may be granted in the following instances:

(a) The supervisor or authorized representative of the supervisor issues a permit for an off-pattern or nonconforming drilling unit well after a hearing to determine the need or desirability of issuing the permit. The wells shall be subject to the restricted or adjusted allowables that the supervisor considers necessary to ensure that the owners shall be afforded the opportunity to produce their just and equitable share of the oil and gas from the reservoir and to prevent waste.

(b) The supervisor or authorized representative of the supervisor issues a permit for a well where the surface location is closer than 300 feet from all existing recorded fresh water wells and reasonably identifiable fresh water wells utilized for human consumption and existing structures used for public or private occupancy upon presentation, to the supervisor, of written consent signed by the owner or owners of all existing fresh water wells and reasonably identifiable fresh water wells utilized for human consumption and existing structures used for public or private occupancy.

(c) The supervisor determines the well surface location or location of associated surface facilities will prevent waste, protect environmental values, and not compromise public safety after a hearing pursuant to part 12 of these rules.

(d) The supervisor approves an application to pool or communitize tracts or mineral interests pursuant to R 324.303(2).

History: 1996 AACCS; 2015 AACCS.

R 324.302 Adoption of special spacing orders.

Rule 302. The development of an oil or gas field may warrant the adoption of drilling units and well spacing patterns other than as specified in R 324.301(1). An interested person may request, or the supervisor may schedule, a hearing pursuant to part 12 of these rules to consider the need or desirability of adopting a special spacing order to apply to a designated area, field, pool, or geological strata. The drilling unit established by the special spacing order may be smaller or larger than the basic 40-acre unit pursuant to R 324.301(1)(a).

History: 1996 AACCS; 2015 AACCS.

R 324.303 Voluntary pooling.

Rule 303. (1) The lessees or lessors, or both, of separate tracts or mineral interests that lie partially or wholly within an established drilling unit or larger area may pool or communitize the tracts or interests to form full drilling units or multiples of full drilling units and to develop the units pursuant to the provisions of these rules and the applicable orders of the supervisor.

(2) Persons who pool or communitize the tracts or interests may submit an application to the supervisor to abrogate spacing within the pooled or communitized area. The application shall include a certified copy of the pooling or communitization agreement and the plans for exploration or development. The supervisor may approve the application if all of the following conditions are satisfied:

(a) Waste is prevented.

(b) The drilling of unnecessary wells is prevented.

(c) A producing interval of a well is not located closer than 330 feet from the pooled or communitized area boundary.

(3) The lessees and lessors of separate tracts or mineral interests that lie partially or wholly within an area encompassing 2 or more full drilling units may voluntarily pool the tracts or interests to form a development unit for the purpose of receiving a permit for a well as an exception to R 324.301(1) or special spacing orders adopted pursuant to R 324.302, if the producing interval location of the well is found by the supervisor to ensure each producer is afforded the opportunity to use his or her just and equitable share of the reservoir energy and to prevent waste, including the drilling of unnecessary wells.

History: 1996 AACCS; 2015 AACCS.

R 324.304 Statutory pooling.

Rule 304. The supervisor may require the pooling of tracts or mineral interests within a drilling unit when the owners of the tracts or mineral interests have not agreed,

or do not agree, upon the pooling of the interests to form full drilling units pursuant to these rules and the applicable spacing orders. The statutory pooling shall be done on a basis which ensures that each owner of an interest within a drilling unit is afforded the opportunity to receive his or her just and equitable share of the production from the unit. Statutory pooling shall be adopted by the supervisor only after a hearing pursuant to part 12 of these rules.

History: 1996 AACCS; 2015 AACCS.

PART 4. DRILLING AND WELL CONSTRUCTION

R 324.401 Preventing waste.

Rule 401. A person who drills a well or wells as described in R 324.201(1) shall use every reasonable precaution to prevent waste.

History: 1996 AACCS.

R 324.402 Drilling notification.

Rule 402. Not less than 5 days before preparing the location and not less than 48 hours before moving drilling equipment on location, the permittee shall notify the supervisor or authorized representative of the supervisor and the surface owner when well construction is to begin. Notice may be given verbally or by first-class United States mail.

History: 1996 AACCS.

R 324.403 Construction of water wells used for drilling or surface facilities.

Rule 403. (1) A water well that is drilled and used for drinking water purposes during the drilling of the well or retained after drilling completion or final completion must be drilled pursuant to rules promulgated under part 127 of the public health code, 1978 PA 368, MCL 333.12701 to 333.12771.

(2) A water well that is not to be retained after drilling completion or final completion must be completed and abandoned as instructed by the supervisor and must meet all of the following minimum requirements:

(a) The well must be located not less than 50 feet from drilling mud pits, pipe racks, salt and mud mixing sites, and the wellhead.

(b) The water used in the drilling fluid must be chlorinated fresh water that is free of contamination in concentrations that may cause disease or harmful physiological effects.

(c) The well must be grouted pursuant to the well construction and grouting rules contained in the well construction code promulgated under part 127 of the public health code, 1978 PA 368, MCL 333.12701 to 333.12771.

(d) Geologic records must be filed with the supervisor on a form prescribed by the supervisor.

(e) The wellhead, including annulus, must be sealed and a check valve must be installed in the surface discharge line to prevent contaminants from entering the well.

(f) The well must be abandoned and plugged pursuant to the plugging and abandonment rules contained in the well construction code promulgated under part 127 of the public health code, 1978 PA 368, MCL 333.12701 to 333.12771.

History: 1996 AACCS; 2019 AACCS.

R 324.404 Use of surface water for drilling prohibited; exception.

Rule 404. Surface water shall not be used for drilling fluid, except for emergency situations to protect the public health and safety.

History: 1996 AACCS.

R 324.405 Drilling fluids generally.

Rule 405. The drilling fluid used for drilling wells described in R 324.201(1) must be capable of sealing off and protecting each oil, gas, brine, or fresh water stratum above the stratigraphic or producing horizon and controlling subsurface pressures. The water or brines used in the drilling fluid must be from a source approved by the supervisor or authorized representative of the supervisor, used pursuant to approved safe drilling practice, and tested as instructed by the supervisor, except that the water used in the drilling fluid for the drilling of the hole for the surface casing must be fresh water that is free of contamination in concentrations that may cause disease or harmful physiological effects.

History: 1996 AACCS; 2019 AACCS.

R 324.406 Blowout prevention equipment.

Rule 406. (1) All wells shall be equipped with the following equipment:

(a) A double ram blowout preventer, including pipe and blind rams, and an annular-type blowout preventer or other equivalent control system as approved by the supervisor or authorized representative of the supervisor.

(b) Accessible controls both on the rig floor and at a safe remote location.

(c) A kelly valve.

(d) A drill pipe safety valve.

(e) A flow line of the proper size and working pressure.

(f) Blowout prevention equipment that has a rated working pressure which equals or exceeds the maximum anticipated surface pressure of the well.

(2) The blowout preventers shall be installed above ground level. The entire control equipment shall be in good working condition at all times. All outlets, fittings, and connections on the casing, blowout preventers, choke manifold, and auxiliary wellhead equipment that may be subjected to wellhead pressure shall be of a material and construction that will withstand the anticipated pressure. The lines from outlets on

or below the blowout preventers shall be securely installed, anchored, and protected from damage.

(3) Blowout preventers, accumulators, and pumps shall be certified as operable under the product manufacturer's minimum operational specifications.

Certification shall include the proper operation of the closing unit valving, the pressure gauges, and the manufacturer's recommended accumulator fluids. Certification shall be obtained through an independent company that tests blowout preventers, stacks, and casings. Certification shall be required annually and shall be posted on the rig floor. In addition to the primary closing system, including an accumulator system, the blowout preventers shall have a secondary system. A combination of any 2 of the following secondary closing systems is acceptable:

- (a) Electric-operated pump.
- (b) Air-operated pump.
- (c) Hand-operated pump.
- (d) Nitrogen-operated pump.

Extensions that have hand wheels are not mandatory. Blowout preventer rams shall be of a proper size for the drill pipe being used or production casing being run in the well or shall be variable-type rams that are of the proper size range.

(4) Blowout prevention equipment shall be tested to a pressure commensurate with the expected formation pressure, but not less than 1,000 psig at surface for not less than 20 minutes, before drilling the plug on the surface casing, intermediate casing, and the production casing and before encountering all high-pressure formations and at other intervals as approved or requested by the supervisor. When requested, an authorized representative of the supervisor shall be notified before the commencement of a test. A record of each test, including test pressures, times, failures, and each mechanical test of the casings, blowout preventers, surface connections, surface fittings, and auxiliary wellhead equipment shall be entered in the logbook, signed by the driller, and kept available for inspection by the supervisor or authorized representative of the supervisor.

(5) A trip tank, or an accurate drilling fluid monitoring system, and a gas buster and flare system shall be in place when penetrating the A2 carbonate or any known or suspected overpressurized formations. Permission to change or modify the requirements specified in this subrule may be granted by submitting a written request to the supervisor or authorized representative of the supervisor. The requirements may be changed or modified only after submission of a written request and receipt of written approval from the supervisor or authorized representative of the supervisor.

(6) An exception to all or part of this rule may be granted by the supervisor or authorized representative of the supervisor when drilling in shallow low-pressure formations. The supervisor or authorized representative of the supervisor may grant an exception upon receipt of an application for a permit that is accompanied by a written request and supportive data.

History: 1996 AACCS.

R 324.407 Drilling mud pits.

Rule 407. (1) The supervisor shall prohibit the use of a drilling mud pit if it is determined that the mud pit causes waste.

(2) Drill cuttings, muds, and fluids shall be confined by a pit, tank, or container which is of proper size and construction and which is located as approved by the supervisor or authorized representative of the supervisor.

(3) Only tanks shall be utilized while drilling a well that is located in an area zoned residential before January 8, 1993. The supervisor may grant an exception if the applicant or permittee makes a request for an exception as part of the written application for a permit. The supervisor may grant an exception if an applicant or permittee satisfactorily demonstrates that a municipal water system is utilized or required to be utilized.

(4) Drilling mud pits shall be located and plotted as instructed by the supervisor. Before construction of the mud pit, a permittee shall demonstrate to the supervisor or authorized representative of the supervisor that there is not less than 4 feet of vertical isolation between the bottom of the pit and the uppermost groundwater level. The bottom of the liner shall not be installed within the observed groundwater level as determined while excavating the pit. If groundwater is encountered during or before construction of the pit, then the permittee shall select 1 of the following options and obtain the approval for the option from the supervisor or authorized representative of the supervisor:

(a) The pit shall be designed and constructed so the bottom of the pit is not less than 4 feet above the groundwater level.

(b) The pit shall be designed and constructed so the bottom of the pit is above the groundwater level, but less than 4 feet above the groundwater level, and during encapsulation the pit contents shall be solidified using a method approved by the supervisor.

(c) The pit shall be relocated at the well site as approved by the supervisor or authorized representative of the supervisor.

(d) Tanks shall be used, and drilling muds disposed of, at an approved off-site location.

(5) Drilling mud pits shall be constructed as instructed by the supervisor and shall be in compliance with both of the following minimum requirements:

(a) Pits shall be constructed with rounded corners and side slopes of not less than 20 degrees measured from the vertical.

(b) The bottom and sides of the pit shall be free of objects that could penetrate the liner.

(6) Drilling mud pits shall be lined as instructed by the supervisor and shall be in compliance with all of the following minimum requirements:

(a) Pits shall be lined with 20-mil virgin polyvinyl chloride liners as approved by the supervisor or with other liners that meet or exceed the 20-mil virgin polyvinyl chloride liner requirement.

(b) Ample liner material shall be installed in a manner to allow for sags and material loading to reduce stress on the liner and allow for a minimum 10-foot flat apron on all sides, including enough liner material to underlay the drilling mud tank, salt washer, and shale shaker.

(c) The bottom of the lined pit shall be weighted with earthen material or water before anchoring the ends of the liner on the surface or placing drilling muds in the pit.

(d) Ripping, tearing, puncturing, or other destruction of a liner that may cause loss of fluids is prohibited.

(e) Liner field seams are prohibited, except for liner field seams that result from failures in the liner due to abrasion or accidental perforation, which shall be immediately repaired in the field using the manufacturer's recommended procedures.

(7) Drilling mud pits shall be utilized as instructed by the supervisor and shall be in compliance with all of the following minimum requirements:

(a) Solid salt cuttings shall not be released to inground drilling mud pits. Solid salt cuttings obtained while drilling below the base of the Detroit River Anhydrite to the top of the Amherstburg formation and while drilling through the formations in the Salina Group shall be collected in a container at the shale shaker and either diverted to a device that will result in the dissolving of the solid salt cuttings and the proper disposal of the resultant brine pursuant to R 324.703 or removed from the drilling site to a licensed disposal facility.

(b) Twenty-four months after the effective date of these rules, only the following may be placed in a lined pit:

(i) Water-based drilling muds generated or utilized while drilling above the base of the Detroit River Anhydrite.

(ii) Drilling fluids generated or utilized while drilling above the base of the Detroit River Anhydrite.

(iii) Cuttings obtained while drilling above the base of the Detroit River Anhydrite.

(iv) Cuttings and the solid fraction of drilling muds generated or utilized while drilling below the base of the Detroit River Anhydrite, other than drill cuttings prohibited by subdivision (a) of this subrule, if the cuttings and the solid fraction of drilling muds do not contain free liquids as determined by the United States environmental protection agency, paint filter liquids test, method 9095, September 1986 edition, which is adopted by reference in these rules. Copies are available for inspection at the Lansing office of the office of oil, gas, and minerals of the department of environmental quality. Copies may be obtained without charge as of the time of adoption of these rules from the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909, or from the United States Environmental Protection Agency, Office of Research and Development, 26 West Martin Luther King Boulevard, Cincinnati, Ohio 45268. A permittee shall provide the necessary equipment at the site of the drilling rig to perform the paint filter liquids test.

(v) Water-based drilling muds and entrained cuttings, other than drill cuttings prohibited by subdivision (a) of this subrule, which are generated or utilized while drilling below the base of the Detroit River Anhydrite, which contain weighting materials or lost circulation materials, and which cannot reasonably be treated to eliminate free liquids as determined by the paint filter liquids test identified in paragraph (iv) of this subdivision, if approved by the supervisor or authorized representative of the supervisor.

(vi) Native soils.

(vii) Cementing materials.

(viii) Stiffening or solidification materials approved by the supervisor.

(c) During the initial 24 months after the effective date of these rules, only the following may be placed in a lined pit:

(i) Water-based drilling muds.

- (ii) Drilling fluids.
- (iii) Cuttings that are not prohibited by subdivision (a) of this subrule.
- (iv) Native soils.
- (v) Cementing materials.
- (vi) Stiffening or solidification materials approved by the supervisor.

(d) Machine oil, refuse, completion and test fluids, liquid hydrocarbons, or other materials may not be placed in a lined pit.

(e) A permittee of a well shall, before encapsulation, test the fluids and cuttings remaining in the pit to determine the concentrations of benzene, ethylbenzene, toluene, and xylene and provide certification to the supervisor or authorized representative of the supervisor of the test results, except that a permittee is not required to test the fluids and cuttings remaining in the pit for benzene, ethylbenzene, toluene, and xylene if the well was drilled with water from a source approved by the supervisor and if, during the drilling operation, liquid hydrocarbons were not encountered.

(8) If a drilling mud pit is not closed immediately after reaching drilling completion, then a permittee of a well shall fence the perimeter of the drilling mud pit as soon as practical after drilling completion, but not later than 30 days after drilling completion, to prevent public access.

(9) A permittee of a well shall close a drilling mud pit as instructed by the supervisor and be in compliance with all of the following minimum requirements:

(a) All free liquids above the solids in the pit shall be removed to the maximum extent practical and disposed of in an approved disposal well or used in a manner approved by the supervisor.

(b) All drilling mud pits shall be stiffened before encapsulation, except as provided in subrule (4)(b) of this rule. Earthen materials shall be mixed with the pit contents to stiffen the pit contents sufficiently to provide physical stability and support for the pit cover. An alternative pit stiffening process approved by the supervisor may be used at the option of a permittee or if required by the supervisor.

(c) The drilling mud pit shall be carefully encapsulated and buried as soon as practical after drilling completion, but not more than 6 months after drilling completion.

(d) Apron edges of the liner shall be folded over the pit proper.

(e) The drilling mud pit shall be totally covered with a separate piece of material that meets or exceeds the specifications of a 20-mil virgin polyvinyl chloride cover as approved by the supervisor. The cover shall extend beyond the outer edges of the pit to cover and entirely encapsulate the pit and shall be sloped to provide surface drainage away from the pit.

(f) The drilling mud pit shall be buried not less than 4 feet below the original ground grade level.

History: 1996 AACCS; 2015 AACCS.

R 324.408 Surface casing.

Rule 408. (1) Surface casing shall be set a minimum of 100 feet below the base of the glacial drift into competent bedrock and 100 feet below all fresh water strata.

(2) Surface casing shall be cemented pursuant to R 324.411 and shall be circulated to the surface. If the cement falls back or fails to circulate to the surface, then

the open annulus space shall be sealed with cement or other equivalent materials approved by the supervisor or authorized representative of the supervisor before resuming drilling.

History: 1996 AACCS.

R 324.409 Wells drilled with cable tools.

Rule 409. Wells drilled with cable tools shall have the innermost string of casing equipped with a high-pressure master gate valve, flow line assembly, control head with oil saver, bottle with hydraulic lubricator, or other combination of equipment approved by the supervisor or authorized representative of the supervisor. All of the equipment shall be anchored to the surface casing or another casing string before drilling into or through a stratum known to contain or likely to contain oil or gas. The wellhead

equipment and casing to be installed to keep a well under control shall be pressure-tested commensurate to formation pressures, shall be in good working order when installed, shall be maintained in good working order throughout its use on the well, and shall be capable of being equipped with a bottle or lubricator, or both, when this method of control is necessary. The annulus shall be sealed with a bradenhead or other approved equipment that has a connection and valve for monitoring.

History: 1996 AACCS.

R 324.410 Casing other than surface casing.

Rule 410. (1) A person who drills a well or causes a well to be drilled pursuant to R 324.201 or rules that were in effect before the effective date of these rules shall case the well in a manner approved by the supervisor to prevent waste.

(2) In addition to the surface casing, the supervisor may require or order a string of casing to be run to seal off any of the following:

- (a) A potentially productive oil or gas zone, or both.
- (b) A lost circulation zone.
- (c) A utilized natural brine or mineral zone.
- (d) A storage field.
- (e) A high-pressure zone.
- (f) A reservoir undergoing secondary recovery.

(3) All casing, except for casing set pursuant to R 324.413, shall be of sufficient weight, grade, and condition to have a designed minimum internal yield of 1.2 times the greatest expected well bore pressure to be encountered.

(4) For the purpose of proper sealing of wells and the prevention of waste, the minimum hole size for a given casing shall be as shown in table 410:

Table 410
Minimum Hole Size

Casing size	Minimum hole size
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outside diameter (O.D.)-inches	outside diameter - inches
Up to 7 O.D.	Casing O.D. +
More than 7 O.D.	1 1/2 Casing O.D. +
More than 10 3/4 O.D.	2 Casing O.D. +
	3

An exception to the minimum hole size as shown in table 410 may be granted by the supervisor or authorized representative of the supervisor, upon a written request by the permittee or applicant, if it is determined that the proposal provides proper sealing of the well. The supervisor or authorized representative of the supervisor may require a larger hole size for the surface hole than the size shown in table 410 in order to prevent waste.

History: 1996 AACS.

R 324.411 Cementing.

Rule 411. Well casing shall be cemented by the pump and plug method or by a method approved by the supervisor and allowed to set undisturbed at static balance with the casing in tension, with surface pressure released, and with no backflow until the tail-in slurry reaches 500 psi compressive strength, but for not less than 12 hours; however, if backflow occurs, then the surface pressure shall not be released. The cement mixture shall be of a composition and volume approved by the supervisor or authorized representative of the supervisor. The casing shall be pressure-tested before the cement plugs are drilled or the casing perforated. The pressure at the top of the cement shall be equal to the expected operating pressure of the well; however, the test pressure shall not exceed the API specification for hydrostatic test pressure for new casing, API specification 5CT, specification for casing and tubing, July 2011, ninth edition, which is adopted by reference in these rules. Copies are available for inspection at the Lansing office of the office of oil, gas, and minerals of the department of environmental quality. Copies may be obtained from the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$237.00 each, and from the American Petroleum Institute, 1220 L Street NW, Washington, DC 20005, at a cost as of the time of adoption of these rules of \$237.00 each.

History: 1996 AACS; 2015 AACS.

R 324.412 Stripping of casing.

Rule 412. (1) A permittee of a well shall not pull or strip a string of casing from a well, except under the following circumstances:

- (a) When provision is made for the removal of casing in the casing and sealing program specified in the application for permission to drill and operate.

(b) When casing is pulled and reset in the same stratum to obtain a satisfactory casing seat.

(c) When a well is being plugged back or is being plugged to the surface under the change of well status provided in R 324.511 or the plugging instructions set forth in R 324.902.

(2) A permittee of a well shall seal the annular space left open and the stratum exposed by the approved pulling and stripping of casing in a manner approved by the supervisor or authorized representative of the supervisor.

History: 1996 AACCS.

R 324.413 Drilling to strata beneath gas storage reservoirs.

Rule 413. Except when special orders have been adopted for specific reservoirs, areas, or practices, all of the following provisions about drilling to strata beneath gas storage reservoirs shall apply:

(a) The applicant shall send a copy of the entire drilling permit application and all revisions to the gas storage operator when the application and revisions are submitted to the supervisor. The gas storage operator shall have 10 business days to provide written comments to the supervisor.

(b) Drilling operations shall proceed through gas storage zones only when the gas storage reservoir pressure exerts a pressure gradient of not more than 0.50 psig per foot of true vertical depth to the top of the gas storage zone.

(c) Drilling rigs for wells drilled through gas storage reservoirs shall use rotary tools and shall have blowout prevention equipment pursuant to R 324.406. Complete operational checks of the well control appliances shall be made every 8 hours, with the well control system initially checked by pressure testing and checked again before drilling into the gas storage reservoir. The 8-hour checks shall be recorded in the daily driller's log.

(d) Surface casing and any other protective casing string required above the gas storage reservoir shall be new casing manufactured in compliance with the API specifications for casing and tubing as adopted by reference in R 324.411, the properties and design of which have been approved by the supervisor or authorized representative of the supervisor. Surface casing and any other protective casing string shall be designed to withstand the required test pressures as set forth in R 324.410(3). Surface casing shall be set pursuant to R 324.408. Surface casing shall be cemented to the surface and not disturbed for a period of 18 hours after completion of cementing. Cement shall attain a minimum compressive strength of 500 psi before disturbing the casing or resuming drilling. Surface casing, other protective casing strings, and blowout preventers shall be tested pursuant to R 324.406(4) before drilling out the cement, unless otherwise specified by the supervisor or authorized representative of the supervisor.

(e) Drilling fluid shall be circulated and conditioned at a point not less than 100 feet above the gas storage reservoir and shall be maintained with the following characteristics until the gas storage reservoir is cased off:

(i) Drilling fluid density shall be sufficient to provide a hydrostatic pressure of not less than 100 psig above the anticipated bottom hole pressure of the gas storage reservoir.

(ii) When drilling through the storage reservoir, the drilling fluid shall have a maximum fluid loss of 15 cubic centimeters or less as specified by the API standard procedure for testing drilling fluids, API RP 13B-1, entitled "Recommended Practice for Field Testing Water-Based Drilling Fluids," March, 2009, fourth edition, which is adopted by reference in these rules. Copies are available for inspection at the Lansing office of the office of oil, gas, and minerals of the department of environmental quality. Copies may be obtained from the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$165.00 each, and from the American Petroleum Institute, 1220 L Street NW, Washington, DC 20005, at a cost as of the time of adoption of these rules of \$165.00 each.

(f) Hole size shall be large enough to allow the running of a separate intermediate casing, which shall be set through each gas storage reservoir. The casing shall be new and conform to the API specification and performance properties for casing, tubing, and drill pipe, API BULL 5C3, entitled "Bulletin on Formulas and Calculations for Casing, Tubing, Drill Pipe, and Line Pipe Properties, October 1, 1994," sixth edition, which is adopted by reference in these rules. Copies are available for inspection at the Lansing office of the office of oil, gas, and minerals of the department of environmental quality. Copies may be obtained from the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$206.00 each, and from the American Petroleum Institute, 1220 L Street NW, Washington, DC 20005, at a cost as of the time of adoption of these rules of \$206.00 each. The gas storage operator shall be allowed to review the intermediate casing design and cementing program before implementation. Intermediate casing shall be set in competent stratum approximately 100 feet below the base of the gas storage reservoir or set as required by the supervisor or authorized representative of the supervisor. Intermediate casing shall be designed for the maximum gas storage reservoir operating pressure using a minimum collapse design factor of 1.125, a minimum burst design factor of 1.25, and a minimum tension design safety factor of 1.6. The minimum hole size for a given size casing shall be pursuant to R 324.410(4). The hole shall be properly conditioned before running casing by circulating the drilling fluid at a rate equal to the drilling circulating rate and by utilizing a circulating time equivalent of not less than twice the hole displacement. Casing shall be equipped with a sufficient number of centralizers and scratchers to ensure good cement distribution and shall include centralizers above and below the gas storage reservoir. All centralizers shall conform to the API for casing centralizers, API specification 10D, entitled "Specification for Bow-Spring Casing Centralizers," March 6, 2002, sixth edition, which is adopted by reference in these rules. Copies are available for inspection at the Lansing office of the office of oil, gas, and minerals of the department of environmental quality. Copies may be obtained from the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$89.00 each, and from the American Petroleum Institute, 1220 L Street NW, Washington, DC 20005, at a cost as of the time of adoption of these rules of \$89.00 each. Casing shall include float equipment that will prevent movement after the cementing operation is completed. If conditions allow, casing shall be rotated or reciprocated slowly during cementing. The mill varnish shall be removed from the casing

shoe to a point 100 feet above the storage reservoir. An acceptable spacer that is at least as dense as the drilling fluid shall precede the cement to aid in removing the drilling fluid. Cement mix water shall be tested before the cementing operation to ensure compatibility with the cement. The casing shall be cemented using a sufficient cement volume to circulate cement to the surface. Multistage cementing operations and external casing packers may be used only with the approval of the supervisor or authorized representative of the supervisor. Cemented casing shall not be disturbed for a period of 18 hours. Cement shall also attain a minimum compressive strength of 500 psi based on cement tables before disturbing the casing or resuming drilling. Absent backflow, the internal casing pressure shall be relieved after the cementing operation. Intermediate casing and the blowout preventers shall be tested to a pressure of not less than 1,500 psig at the surface or as otherwise specified by the supervisor or authorized representative of the supervisor, and the pressure shall be held for not less than 20 minutes before drilling out the cement.

(g) When additional intermediate casing is run inside the innermost storage zone casing, below the base of the Detroit river group, the intermediate casing string and cementing shall be pursuant to these rules and the orders and instructions issued by the supervisor.

(h) A centralized cement bond evaluation log or equivalent test approved by the supervisor shall be performed on the storage zone casing before running subsequent casing or plugging the hole, but not sooner than 48 hours after cementing the storage zone intermediate casing. A description of problems occurring while running or cementing casing shall be recorded in the daily driller's log. If unsatisfactory conditions are indicated, including unsatisfactory cement bonding, gas to the surface in the cellar area, or gas pressure on the surface or intermediate casing string annulus, and additional testing does not provide sufficient proof the unsatisfactory condition does not exist, then the permittee shall initiate remedial action before additional casing is installed.

(i) Wellhead equipment and assemblies shall conform to the API specification for wellhead equipment, and shall include slip and seal assemblies for all casings, unless an exception is approved by the supervisor or authorized representative of the supervisor. The API specification for wellhead equipment is specification 6A, entitled "Specification for Wellhead and Christmas Tree Equipment," October, 2010, twentieth edition, which is adopted by reference in these rules. Copies are available for inspection at the Lansing office of the office of oil, gas, and minerals of the department of environmental quality. Copies may be obtained from the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$260.00 each, and from the American Petroleum Institute, 1220 L Street NW, Washington, DC 20005, at a cost as of the time of adoption of these rules of \$260.00 each. The wellhead shall be assembled to allow the monitoring of the pressure of each annulus at the surface.

(j) The permittee shall notify the gas storage operator before moving personnel or equipment, or both, onto the well location to ensure all of the following:

(i) That the proposed well location does not endanger gas storage facilities or storage operations.

(ii) That the movement of drilling rigs, related trucks, and equipment does not endanger gas storage facilities or storage operations.

(iii) That the gas storage operator is allowed to witness drilling operations that impact the gas storage reservoir.

History: 1996 AACCS; 2015 AACCS.

R 324.414 Requests for exceptions to R 324.406 through R 324.413.

Rule 414. If a permittee of a well demonstrates alternative methods that are in compliance with the requirements of these rules, then the request for an exception to the provisions of R 324.406 through R 324.413 and the rationale for the alternate methods shall be included in the application for permission to drill or shall be submitted in writing to the supervisor.

History: 1996 AACCS.

R 324.415 Elevations; well depth measurements.

Rule 415. (1) Drilling reference elevations of the kelly bushing or rig floor and a described point on the production casing shall be measured, recorded, and filed pursuant to R 324.418.

(2) The depth of the top of key geologic strata shall be accurately determined and shall be entered in the drilling log book and become a part of the record and log of the well. Additional requirements for directional drilled wells are contained in R 324.421.

History: 1996 AACCS.

R 324.416 Well records; service company records; confidentiality.

Rule 416. (1) A person who drills, deepens, changes well status, or completes a well under R 324.201, R 324.420, R 324.511, or rules that were in effect before the effective date of these rules shall keep and preserve at the well, during drilling, deepening, changes in well status, or completion operations, accurate records recording all geologic strata penetrated, casing and cement used, and other information as may be required by the supervisor in connection with the drilling of the well.

(2) When requested by the supervisor or authorized representative of the supervisor, a permittee of a well shall file a copy of service company records, including records of all of the following:

- (a) Mudding, cementing, and squeeze operations.
- (b) Acidizing.
- (c) Perforating.
- (d) Fracturing.
- (e) Shooting.
- (f) Temperature surveys.
- (g) Bond logs.
- (h) Caliper surveys.
- (i) Wireline borehole and strata evaluation logs.

The supervisor may request the records directly from the service company.

(3) A permittee of a well shall make all records and information available to the supervisor or authorized representative of the supervisor at all times. A permittee shall protect the records from damage or destruction due to a preventable cause. All well data and samples provided to the supervisor or authorized representative of the supervisor as required by these rules shall be held confidential commencing with the receipt of a written request of the permittee and shall remain confidential for 90 days after drilling completion. Information on volumes, concentrations, and times of releases, spills, or leaks of gas, brine, crude oil, oil or gas field waste, or products and chemicals used in association with oil and gas exploration, production, disposal, or development is not subject to confidentiality.

History: 1996 AACCS; 2001 AACCS.

R 324.417 Samples of drill cuttings and cores.

Rule 417. (1) A person who drills a well pursuant to R 324.201 or rules that were in effect before the effective date of these rules shall take and preserve, for the duration of the drilling, properly identified samples of the drill cuttings taken from the base of the drift to the total depth.

(2) A permittee of a well shall take and preserve drift samples when specifically requested by the supervisor or authorized representative of the supervisor. The samples shall be available to the supervisor upon request.

(3) When requested before the commencement of drilling, a permittee of a well shall deliver 1 complete set of drill cutting samples, washed and dried, to the supervisor within 90 days after drilling completion. Samples not requested may be disposed of in a manner approved by the supervisor upon drilling completion.

(4) When a permittee of a well obtains whole cores or core samples during the drilling of a well, the permittee shall provide the supervisor with a minimum of 90 days' notification of his or her intention to dispose of or destroy the whole cores or core samples. When requested by the supervisor, pursuant to the notification, the permittee shall deliver the whole cores or core samples to the supervisor within 90 days of the request.

History: 1996 AACCS.

R 324.418 Filing of well records.

Rule 418. A permittee of a well who drills a well shall file all of the following records with the supervisor:

(a) Within 60 days after drilling completion, a complete written geologic description log or record of the well, certified by the permittee, on forms prescribed by the supervisor, including all of the following information:

(i) Elevations pursuant to R 324.415.

(ii) Depth to, and thickness of, water-bearing sands and gravels in the glacial drift as determined by a geologist, including fill-up and volumes of the water, if available.

(iii) The measured and true vertical depth to geologic strata penetrated, and accurate and complete lithologic descriptions, including color, hardness, and the character of the rock as determined by a geologist.

(iv) A record of all shows of oil or gas, or both, encountered.

(v) A record of all lost circulation zones encountered.

(vi) A record of all hole sizes, casings, and liners used, including the size, weight, grade, amount, and depth set for each casing string.

(vii) The amount of cement used and the calculated elevation of the top of the cement, unless the supervisor or authorized representative of the supervisor requests the elevation to be measured.

(viii) Data on all drill stem tests. The minimum education and experience requirements for a geologist to determine the information required in this subrule are graduation from a university or college that has an accredited 4-year curriculum in a geological science, receipt of a 4-year degree in a geological science, and 2 years of practical experience providing geological services, including consultation, investigation, evaluation, planning, or responsible supervision of geological activities requiring the application of geologic principles and techniques.

(b) Within 60 days after well completion operations, data on all perforating, acidizing, fracturing, shooting, and testing, except that information on chemical additives used in a high volume hydraulic fracturing operation shall be submitted as required under R 324.1406.

(c) Within 60 days of plugging the well, all of the following information:

(i) Accurate and complete descriptions of cores.

(ii) Data on all bridge plugs set, make and type of plug, depth set, whether left in place or removed, and details of plug-back operations below the bridge plug.

(iii) The amount of casing stripped from the well.

History: 1996 AACCS; 2015 AACCS.

R 324.419 Borehole and strata evaluation logging.

Rule 419. (1) A permittee of a well shall file a copy of all borehole and geologic strata evaluation logs or other logs with the supervisor within 30 days after conducting the logging run.

(2) Upon the request of the supervisor or authorized representative of the supervisor, a logging service company shall provide a listing of all borehole and geologic strata evaluation logs or other logs run.

History: 1996 AACCS.

R 324.420 Continuation of drilling; deepening operations.

Rule 420. (1) A permittee of a well who desires to continue the drilling of a well below the permitted depth, but within the permitted stratigraphic or producing horizon where drilling completion has occurred, shall file an application for change of well status pursuant to R 324.511.

(2) A permittee of a well who desires to deepen a well below the permitted stratigraphic or producing horizon where well completion has occurred shall file an application for a deepening permit pursuant to R 324.206(4).

(3) A permittee of a well shall save samples of the drill cuttings and cores during the continuation of drilling or deepening operations pursuant to R 324.417.

(4) A permittee of a well shall file records of the continuation of drilling or deepening operations with the supervisor pursuant to R 324.418, R 324.419, and R 324.511.

History: 1996 AACCS.

R 324.421 Survey of directionally drilled well.

Rule 421. A permittee of a well shall conduct a directional well survey on each directionally drilled well, with actual survey points taken at a maximum of 100-foot intervals from the point of deviation to total depth and including the end point of the borehole or at an interval as approved by the supervisor or authorized representative of the supervisor. However, for a well that is to be plugged and abandoned immediately upon drilling completion, the supervisor shall approve survey points at more than 100-foot intervals, but not more than 500-foot intervals. All information obtained during and after the survey shall be available to the supervisor or

authorized representative of the supervisor. A permittee shall file a certified copy of the survey with the supervisor within 30 days after drilling completion. A well shall not be produced until the survey has been filed with the supervisor.

History: 1996 AACCS.

R 324.422 Sealing of cellars and rat and mouse holes.

Rule 422. (1) A permittee of a well shall seal and set into the earth rat and mouse hole casings and cellars in a manner to prevent the migration of the drilling fluid and other foreign fluids into the groundwater.

(2) Immediately after drilling completion, a permittee of a well shall fill rat and mouse holes on all rotary-drilled wells solidly from bottom to top with cement or other suitable material approved by the supervisor.

History: 1996 AACCS.

PART 5. COMPLETION AND OPERATION

R 324.501 Responsibility for oil and gas operations.

Rule 501. A permittee of a well is responsible for the oil and gas operations of his or her well.

History: 1996 AACCS; 2002 AACCS.

R 324.502 Oil, brine, or associated oil or gas field waste; storage.

Rule 502. A permittee of a well shall not store or retain oil, brine, or associated oil or gas field waste in earthen reservoirs or open receptacles.

History: 1996 AACCS.

R 324.503 Well completion operations.

Rule 503. (1) A permittee of a well shall use proper well control measures to avoid an uncontrolled flowing of the well. All fluids from well completion operations, including flowback fluid, acid, load water, chemicals, and associated hydrocarbons, shall be produced or swabbed back to approved containers. A permittee of a well shall not use earthen pits or reservoirs to contain fluids produced from the well.

(2) A permittee shall notify the supervisor or authorized representative of the supervisor when a well completion operation starts.

History: 1996 AACCS; 2015 AACCS.

R 324.504 Well sites and surface facilities.

Rule 504. (1) A person shall use every reasonable precaution to stop and prevent waste. All wells, surface facilities, gathering lines, and flow lines shall be constructed and operated so that the materials contained in the facilities do not cause waste. An oil and gas operation shall not be commenced or continued at a location where it is likely that a substance may escape in a quantity sufficient to pollute the air, soil, surface waters, or groundwaters or to cause unnecessary endangerment of public health, safety,

or welfare until the permittee has complied with the methods and means to prevent pollution or eliminate the unnecessary endangerment of public health, safety, or welfare as specified by the supervisor.

(2) The surface facilities shall be located not less than 300 feet from all of the following:

(a) Existing recorded freshwater wells and reasonably identifiable freshwater wells utilized for human consumption.

(b) Existing structures used for public or private occupancy.

(c) Existing areas maintained for public recreation.

(d) The edge of the traveled portion of an existing interstate, United States, or state highway. Pump jacks are exempt from this requirement.

(3) Surface facilities may be located closer than 300 feet from existing recorded freshwater wells and reasonably identifiable freshwater wells utilized for human consumption and existing structures used for public or private occupancy under either of the following conditions:

(a) Upon presentation to the supervisor of a written consent signed by the owner or owners of all existing recorded freshwater wells and reasonably identifiable freshwater wells utilized for human consumption and existing structures used for public or private occupancy.

(b) After a hearing under part 12 of these rules, the supervisor determines that the surface facility location will prevent waste, protect environmental values, and not compromise public safety.

(4) A permittee of a well shall not begin the installation of a surface facility or flow line without approval of the supervisor or authorized representative of the supervisor. A permittee shall make a written request for approval to construct and operate or to substantially reconstruct and operate a surface facility or flow line and shall file the request with the supervisor. The request may be filed with the application for a permit to drill and operate a well. The request shall have a detailed description and plan of the proposed facility, which shall include all of the following information:

(a) An environmental impact assessment if the surface facility is located more than 300 feet from the well or wells it serves.

(b) The location of the proposed surface facility or flow line.

(c) Identification of the well or wells to be connected to the surface facility or flow line.

(d) Reasonable and necessary measures to protect environmental values associated with existing adjacent land uses, including berming, screening, and access road location.

(e) Information relative to the approximate distances and directions from the surface facility or flow line to special hazards or conditions identified in R 324.201(2)(b)(iv).

(5) Upon receipt of a written request for approval to construct and operate or to substantially reconstruct and operate a surface facility or flow line under subrule (4) of this rule, other than a request to construct and operate a surface facility or flow line made as part of an application for permit to drill and operate a well, the supervisor or authorized representative of the supervisor shall have up to 30 days to review the request to determine if the request is accurate and complete. If the request is determined to be inaccurate or incomplete, the supervisor or authorized representative of the supervisor shall provide, within the 30-day period, to the person making the request, a notice that the request is inaccurate or incomplete and what changes or additional information shall be submitted. Upon receipt of the requested information, the supervisor or authorized representative of the supervisor shall have up to an additional 15 days to review the information to determine if the request is accurate and complete. Upon completion of the review process, the supervisor or authorized representative of the supervisor shall approve or deny the request within 10 business days. A request shall be approved if the supervisor determines that construction and operation of the proposed surface facility or flow line will prevent waste, protect environmental values, and not compromise public safety. Upon approval by the supervisor or authorized representative of the supervisor, a request made under this rule shall become part of, and subject to, the provisions of the permit to drill and operate the well or wells served by the surface facility.

(6) A person or permittee of a well shall not install a gathering line, carrying gas with more than 300 ppm hydrogen sulfide or a flow line or facility piping carrying gas from a class I H₂S well and that is subject to a maximum working pressure of more than 125 psig that does not meet the construction requirements in R 324.1130.

(7) Surface facilities constructed after November 15, 1989, shall have secondary containment under R 324.1002.

(8) If discharges to the air, surface waters, or groundwater of the state are likely to occur at a surface facility, then a permittee shall apply for and obtain all necessary state and federal discharge permits before operating the surface facility.

History: 1996 AACS; 2001 AACS; 2002 AACS.

R 324.505 Pump jacks in residential areas.

Rule 505. In areas zoned residential before January 8, 1993, if pumps or pump jacks are installed after the effective date of these rules, then a permittee of a well shall comply with the following conditions:

(a) Electrically driven pumps shall be utilized or, if judged impractical by the supervisor, pumps may be driven by other power sources that have hospital-type mufflers or the equivalent.

(b) Pump jacks within 600 feet of structures used for public or private occupancy shall be fenced to prevent public access.

History: 1996 AACS.

R 324.506 Flare stacks and surface facilities in residential areas.

Rule 506. (1) In areas zoned residential before January 8, 1993, a permittee of an oil or gas well, or both, which contains 300 ppm or more of hydrogen sulfide and which reaches drilling completion after March 1, 1987, shall not locate surface facilities and associated flare stacks within a residentially zoned area, unless either of the following provisions is satisfied:

(a) The supervisor receives written notice from the local government that has zoning jurisdiction that the local government does not object to the location of the facility within the residentially zoned area.

(b) The applicant or permittee is granted a variance from the supervisor pursuant to a hearing before the supervisor. The petitioner shall notify the local governmental body of the hearing and has the burden of demonstrating to the supervisor that the planned surface facility and associated flare stacks would have minimum impacts upon existing or proposed structures used for public or private occupancy.

(2) The supervisor may grant an exception to permit flaring in a residentially zoned area for testing the production characteristics of a well for a period of not more than 15 days, unless a longer period is authorized by the supervisor. The permittee shall submit a written application to the supervisor for the exception detailing the time period of, and the equipment to be used for, the testing.

(3) If the oil or gas well, or both, reached drilling completion between March 1, 1987, and January 8, 1993, and the area was not zoned residential at the time the well reached drilling completion, the well is not subject to this rule.

History: 1996 AACS.

R 324.507 Tubing.

Rule 507. A permittee of a well shall tube a producible oil and gas well. A permittee of a well shall test and produce all oil through the tubing. Injection wells utilized for gas storage are exempt from this rule.

History: 1996 AACCS.

R 324.508 Multiple zone completions.

Rule 508. The supervisor or authorized representative of the supervisor may allow multiple zone completions upon written application to, and approval by, the supervisor.

History: 1996 AACCS.

R 324.509 Commingling of oil and gas.

Rule 509. The supervisor or authorized representative of the supervisor may allow commingling in the well bore of oil and gas from 2 or more pools upon written application to, and approval by, the supervisor.

History: 1996 AACCS.

R 324.510 Central production facility.

Rule 510. (1) A permittee of a well shall not begin the operation of a central production facility without the approval of the supervisor or authorized representative of the supervisor. A permittee of a well shall make a written request for approval to operate a central production facility and shall file the request with the supervisor. The supervisor or authorized representative of the supervisor shall approve or deny the request within 30 days of receipt. The request shall have a detailed description and plan of the proposed facility, which shall include all of the following information:

- (a) The location of the proposed central production facility.
- (b) Identification of the wells or production units to be connected to the central production facility.
- (c) Identification of the fluid streams that will be commingled.
- (d) A schematic of the flow schemes, including the location of all of the following:
 - (i) Individual gas, oil, condensate, and water meters.
 - (ii) Facility and sales gas, oil, condensate, and water meters.
 - (iii) Fuel use and artificial lift meters.
 - (iv) On-site surface equipment.
- (e) The method proposed for measurement or allocation of fluid volumes, if individual and facility meters are not used. The method proposed for measurement may include allocation of production to each well using a molal balance scheme.
- (f) Identification of the type and model of the gas, oil, condensate, and water meters that are proposed.

(g) Quality assurance procedures, including calibration and proofing, that will be implemented to maintain the accuracy of the meters.

(h) The procedure or method proposed for allocation of each commingled fluid stream.

(i) If production from production units or unitized areas is included in the central production facility, a copy of the pooling or communitization agreement filed pursuant to R 324.303(2) or the unitization agreement developed pursuant to sections 61701 to 61738 of the act.

(2) A permittee of a well shall obtain the approval of the supervisor or authorized representative of the supervisor before implementing a subsequent addition, alteration, or change to the central production facility that affects flow measurement or reporting methods.

(3) A permittee of a well shall submit monthly reports of meter readings, metered production, and allocated production on forms approved by the supervisor.

History: 1996 AACCS.

R 324.511 Change of well status.

Rule 511. (1) A permittee of a well who desires to change the status of a well by an oil and gas operation, including temporary abandonment or high volume hydraulic fracturing, except as allowed by R 324.704 and additional acid or other stimulation treatment, shall file an application for change of well status with the supervisor. The application shall set forth, in detail, the kind of oil and gas operation to be accomplished and the plan for protecting all oil, gas, brine, or fresh water strata the well has penetrated. In addition, an application to change the status of a well by utilizing high volume hydraulic fracturing shall include the information specified in rule 201(2)(c) of these rules. A permittee shall not begin the oil and gas operation until he or she has received approval from the supervisor or authorized representative of the supervisor and provided notification to the supervisor or authorized representative of the supervisor of the date the oil and gas operation will commence.

(2) A permittee of a well who changes the status of a well shall file, with the supervisor, within 60 days, a complete change of well status record on forms prescribed by the supervisor, except that a record shall not be filed when the change of well status operation is for temporary abandonment purposes.

History: 1996 AACCS; 2002 AACCS; 2015 AACCS.

PART 6. PRODUCTION AND PRORATION

R 324.601 Proration of oil and gas wells and fields.

Rule 601. (1) The supervisor may prorate production from wells or fields, or both, to conserve reservoir energy, to maximize oil and gas recovery, to ensure that the owners shall be afforded the opportunity to produce their just and equitable share of the oil and gas from the reservoir, and to prevent waste by setting allowable

production rates. The prorated allowables shall be established by order of the supervisor after a hearing pursuant to part 12 of these rules.

(2) The proration order shall specify the maximum amount of oil or gas, or both, that may be produced in a 24-hour day.

History: 1996 AACCS.

R 324.602 Tolerance from regularly calculated production.

Rule 602. (1) A permittee of a well shall be allowed to make up underproduction of oil and gas if the underproduction is not more than 3 days' allowable production from each well for a calendar month. The underproduction of oil and gas from each well shall be adjusted by the permittee during the next calendar month.

(2) If in a reservoir under multiple ownership an emergency condition arises which is beyond the control of the permittee of the well and which prevents the permittee from producing his or her regularly scheduled allowable production or prevents the purchaser from running his or her regularly scheduled amounts of oil or gas during a calendar month and the underproduction is more than 3 days' allowable production, then the permittee may apply in writing to the supervisor for permission to make up the underages. The supervisor or authorized representative of the supervisor may grant the request if reservoir waste does not occur.

(3) In a well that has produced over its daily oil allowable by more than 3 days or its daily gas allowable by more than 30 days, the permittee of the well shall cease producing the well or further limit the oil or gas production as approved by the supervisor or authorized representative of the supervisor until the overage is made up.

History: 1996 AACCS.

R 324.603 Transfer of allowables between wells prohibited.

Rule 603. A permittee of a well shall not produce oil or gas from a well above the allowables pursuant to R 324.602 to make up for the failure of another well or wells to produce a full allowable or allowables.

History: 1996 AACCS.

R 324.604 Well hookups to tanks or separators, or both, for prorated wells.

Rule 604. A permittee of a well shall ensure that well is hooked up or connected to separators or stock tanks, or both, so that the well's oil, gas, and brine production entrained in the oil or gas may be segregated from all other wells and so that individual measurements of daily oil, gas, and brine production of each well may be made. Exceptions to this rule may be granted if the supervisor or authorized representative of the supervisor approves an alternative measurement and allocation method pursuant to R 324.510.

History: 1996 AACCS.

R 324.605 Capacity tests for prorated wells.

Rule 605. (1) The supervisor or authorized representative of the supervisor may require capacity tests, including test requirements and reporting on wells subject to proration. The supervisor may amend or abrogate a previously adopted test requirement, or set up new test requirements, when necessary to adapt to changing field conditions.

(2) A wide open capacity test of a well shall not be made if the test will create waste or result in the coning of gas or water. All gauges and tests shall be made by methods and at times that will result in a determination of the true productive capacity of the wells under normal operating conditions. Reports submitted to the supervisor or authorized representative of the supervisor shall be certified by the permittee or an authorized representative of the permittee.

History: 1996 AACCS.

R 324.606 Production tests for newly completed or change of status wells subject to proration.

Rule 606. A permittee of a well shall conduct production tests, not to exceed the prorated allowable, on a newly completed well. On a previously tested well, when a change of well status or the stimulation of the well may have resulted in changes in producing capacity, the tests shall be commenced within 10 days after well completion, change of well status, or production stimulation treatments. A permittee shall report the results of all production tests to the supervisor or authorized representative of the supervisor within 30 days after completion of the tests and shall certify the results on forms prescribed by the supervisor.

History: 1996 AACCS.

R 324.607 Special capacity tests.

Rule 607. (1) The supervisor or authorized representative of the supervisor may, at any time, require the permittee of a well, either with or without previous notice, to perform a special producing capacity test or supply production data for a well or wells. The supervisor or authorized representative of the supervisor may witness, direct, or make measurements during the test, subject to proper safety supervision by the permittee.

(2) A producer who wishes to gather data to determine the maximum efficiency rate of a well may conduct tests as approved by the supervisor or authorized representative of the supervisor.

History: 1996 AACCS.

R 324.608 Responsibility for regulating production.

Rule 608. A permittee of a well shall be responsible for controlling production from wells so that an individual well does not produce more oil or gas than allowed.

History: 1996 AACCS.

R 324.609 Reservoir evaluation tests.

Rule 609. The supervisor or authorized representative of the supervisor may require that subsurface pressures, gas-oil ratios, and other tests on wells be conducted and submitted at least once per year so that reservoir data may be maintained.

History: 1996 AACCS.

R 324.610 Reports of oil and gas produced, purchased, or transported.

Rule 610. A person who is producing, purchasing, or transporting oil or gas in a field shall be required by the supervisor or authorized representative of the supervisor to report, within 45 days after the end of the month of production, the amount of oil or gas, or both, produced, purchased, or transported during the calendar month of production, unless an extension of time or an exemption from monthly reporting is granted by the supervisor. The reports shall be certified by the person who is producing, purchasing, or transporting oil or gas in a field on forms prescribed by, or acceptable to, the supervisor or authorized representative of the supervisor.

History: 1996 AACCS.

R 324.611 Petition for change in field allowables.

Rule 611. A permittee of a well who believes proration allowables have ceased to prevent waste may petition the supervisor for a change in field allowables. The petition shall include all of the information specified in part 12 of these rules. The supervisor shall schedule a meeting to consider the petition. The permittee shall furnish a copy of the notice of the meeting to all owners of record, operators, lessees, and lessors of the oil and gas mineral interests underlying the lands directly affected by the proposed action. If the proposed action is contested by an interested party, then a hearing is required pursuant to part 12 of these rules. After a review and evaluation of the data presented, either administratively or by hearing, the supervisor shall issue an order of determination.

History: 1996 AACCS.

R 324.612 Secondary oil recovery projects; hearings; records.

Rule 612. (1) A person desiring to inject water, gas, or other fluid into a producing formation or use other technology for the purpose of increasing the ultimate recovery of

hydrocarbons from a reservoir shall file a petition for hearing pursuant to part 12 of these rules.

(2) The operator of a secondary recovery project shall keep accurate records of all oil, gas, and brine produced, volumes of fluids injected, and injection pressures. The operator shall file reports of the data and other data as may be required with the supervisor at regular intervals, as specified.

History: 1996 AACCS.

R 324.613 Production from directionally drilled wells.

Rule 613. (1) An allowable production rate shall not be assigned or production permitted from a directionally drilled well until a certified well survey has been furnished by the permittee of a well to the supervisor. A directionally drilled well with a producing interval that is contrary to the established boundary setback of the drilling unit or pooled or communitized area shall be limited or restricted in the same manner as provided for regularly drilled wells located contrary to the boundary setback of the drilling unit or pooled or communitized area.

(2) The production from directionally drilled wells that can be produced contrary to the established boundary setback of the drilling unit or pooled or communitized area shall be limited or restricted in the same manner pursuant to R 324.301(4)(a) for regularly drilled wells located contrary to the applicable boundary setback of the drilling unit or pooled or communitized area. A permittee of a well shall not conduct production testing from a directionally drilled well until a certified well survey has been furnished to, and approved by, the supervisor or authorized representative of the supervisor pursuant to R 324.421. Injection wells utilized for gas storage are exempt from this subrule.

History: 1996 AACCS; 2015 AACCS.

PART 7. DISPOSAL OF OIL OR GAS FIELD WASTE, OR BOTH

R 324.701 Prevention of pollution, contamination, or damage.

Rule 701. The storage, transportation, or disposal of brine, crude oil, or oil or gas field waste that results in, or that the supervisor determines may result in, pollution is prohibited. A permittee of a well shall ensure that wastes are stored, transported, and disposed of in a manner approved by the supervisor and consistent with all applicable state and federal laws and regulations.

History: 1996 AACCS.

R 324.702 Pit disposal prohibited; exception.

Rule 702. Except as provided in R 324.407(2), a permittee of a well shall not dispose of oil or gas field waste, or both, in earthen pits.

History: 1996 AACCS.

R 324.703 Disposal of oil or gas field fluid wastes, or both.

Rule 703. A permittee of a well shall inject oil or gas field fluid wastes, or both, into an approved underground formation through an approved Class II well in a manner that prevents waste. The injection interval shall be isolated from underground sources of drinking water by a confining interval.

History: 1996 AACCS; 2018 AACCS.

R 324.704 Use of annular space for disposal prohibited; temporary exception.

Rule 704. A permittee of any well, including Class II wells, shall not dispose of fluid wastes in the annular space between strings of casing. The supervisor may grant a temporary exception to the prohibition if the supervisor determines that annular disposal will not damage underground sources of drinking water, oil, gas, or other minerals.

History: 1996 AACCS; 2018 AACCS.

R 324.705 Disposition of brine.

Rule 705. (1) A permittee of a well is responsible for the proper disposal of all brines produced in association with oil or gas production, or both, or brines accumulated in drilling mud pits or tanks and shall ensure that waste, as defined in section 61501(q) of the act, will not occur. A permittee may convey or transfer brines for other purposes if the brines are in compliance with the conditions provided in subrule (3) of this rule. A permittee shall be required to maintain records on the disposition of all brines pursuant to subrule (4) of this rule, and a permittee shall not have continuing liability relative to the transport or application of the brines after the brines are properly conveyed or transferred.

(2) Upon the effective date of these rules, a permittee of a well shall not use brines produced in association with drilling for oil and gas, or both, and accumulated in drilling mud pits for ice or dust control purposes.

(3) Twelve months after the effective date of these rules, a permittee shall dispose of all brines as provided in R 324.703 or shall use the brines in a manner approved by the supervisor; however, some brines may be conveyed or transferred and used for ice and dust control and road stabilization if all of the following conditions are satisfied:

(a) Brines shall not be used for ice and dust control and road stabilization if the brines are obtained from wells containing more than 20 ppm hydrogen sulfide in the gas stream, unless it can be shown that there is less than a 500-ppm-hydrogen sulfide concentration present in the brine.

(b) The brines shall contain a 20,000-milligrams-per-liter or more concentration of calcium.

(c) The brines shall contain less than a 1,000-micrograms-per-liter concentration of each of the following aromatic hydrocarbons:

(i) Benzene.

(ii) Ethylbenzene.

(iii) Toluene.

(iv) Xylene.

(d) Only brines that have been approved by the supervisor or authorized representative of the supervisor may be exempt from the disposal requirements of R 324.703. For a permittee to obtain approval to exempt brine from the disposal requirements of R 324.703, all of the following conditions shall be satisfied:

(i) The brine shall be tested annually within 90 days of January 1 of each year by the person seeking authorization to utilize the brine for other purposes. The brine shall be tested using any of the following procedures:

(A) Method 200.7 ICP-AES, entitled "Method for Trace Element Analysis of Water and Wastes, Methods for Chemical Analysis of Water and Wastes," March 1983 edition.

(B) Method 6010A, entitled "Inductively Coupled Plasma, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," 1984 edition 3.

(C) Method 602, entitled "Purgeable Aromatics, Guidelines Establishing Test Procedures for the Analysis of Pollutants," 40 C.F.R. part 136, appendix A, revised July 1990.

(D) Method 8020A, "Aromatic Volatile Organics by Gas Chromatography, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," 1984 edition 3.

(E) Method 8240A, entitled "Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry: Packed Column Technique, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," 1984 edition 3.

(F) Method 8260A, entitled "Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry: Capillary Column Technique," 1984 edition 3.

(G) Method 325.3, entitled "Chloride (Colorimetric, Automated Ferricyanide), Guidelines Establishing Test Procedures for the Analysis of Pollutants," 40 C.F.R. part 136, appendix A, revised July 1990.

(H) Method 4500-CLE, entitled "Chloride, Methods for the Determination of Organic Compounds in Drinking Water" and supplement I, December 1988 and July 1990 editions.

The testing methods are adopted by reference in these rules and copies are available for inspection at the Lansing office of the office of oil, gas, and minerals of the department of environmental quality. Copies may be obtained without charge from the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909, or from the United States Environmental Protection Agency, Office of Research and Development, 26 West Martin Luther King Boulevard, Cincinnati, Ohio 45268.

(ii) The sample of brine used for analysis shall be obtained from the point of loading of the storage tank where the brine is first separated from the production stream.

(iii) A chemical analysis of each brine source showing the concentrations of all of the following shall be submitted to the supervisor or authorized representative of the supervisor within 30 days of the completion of the analysis:

(A) Chloride.

(B) Hydrogen sulfide.

(C) Calcium.

(D) Benzene.

(E) Ethylbenzene.

(F) Toluene.

(G) Xylene.

(iv) The chemical analysis shall include all of the following information:

(A) The well name.

(B) Permit number.

(C) Permittee.

(D) Location of the individual well.

(E) If the brine is obtained from a tank battery or central production facility, the name, number, permittee, and location of the tank battery or central production facility.

(4) A permittee of a well shall maintain records for 2 years on the disposition of all brines produced in association with oil or gas production, or both. The records shall indicate dates, volumes, recipient, transporter, destination, and proof of delivery. If the person authorized to utilize the brine for other purposes receives the brine at an unattended loading site, then the person shall provide the permittee with a signed record describing the date, volume, time, destination, and proof of delivery. A permittee of a well shall make the records available for inspection by the supervisor or authorized representative of the supervisor at all times. A permittee of a well shall protect the records from damage or destruction due to preventable cause.

(5) A permittee of a well shall ensure that brine that is in compliance with the conditions listed in subrule (3) of this rule is also in compliance with all applicable state and federal laws and regulations.

History: 1996 AACCS; 2015 AACCS.

Editor's Note: An obvious error in R 324.705 was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in *Annual Administrative Code Supplement*, 2015. The memorandum requesting the correction was published in *Michigan Register*, 2018 MR 10.

PART 8. INJECTION WELLS

R 324.801 Definitions.

Rule 801. As used in these rules:

(a) "Administrator" means the administrator of the USEPA.

(b) "Area of review" means that area within a fixed radius of 1320 feet around an injection well.

(c) "Class II Well" means a well that does either of the following:

(i) Injects fluids under any of the following conditions:

(A) That are brought to the surface in connection with oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.

(B) For enhanced recovery of oil or natural gas.

(C) For storage of hydrocarbons that are liquid at standard temperature and pressure.

- (ii) Utilizes diesel fuel as a component of hydraulic fracturing fluid.
- (d) “Class II well operator” means the person having secured a permit for any of the following:
 - (i) A new Class II well.
 - (ii) An existing Class II well.
 - (iii) A conversion of an existing well to a Class II well.
 - (iv) A rule authorized well in operation before the effective date of primacy.
- (e) “Commercial disposal well” means a Class II well that is permitted to accept wastes other than those generated by the owner or operator of the well.
- (f) “Confining interval” means a geological formation, group of formations, or part of a formation that is capable of limiting fluid movement above an injection interval.
- (g) “Contaminant” means any physical, chemical, biological, or radiological substance or matter in water.
- (h) “Date of primacy” means the effective date of the administrator's approval of the Michigan underground injection control program for Class II wells pursuant to section 1425 of the safe drinking water act of 1974, 42 USC 300h-4.
- (i) “Diesel fuel(s)” means fluids that are associated with 5 specific Chemical Abstracts Services Registry Numbers (68334-30-5, 68476-34-6, 68476-30-2, 68476-31-3, and 8008-20-6).
- (j) “Endangerment to an underground source of drinking water” means that an injection operation may result in the presence of any contaminant in an underground source of drinking water, that supplies or may reasonably be expected to supply any public water system, and the presence of that contaminant may result in violation of any national primary drinking water regulation or may otherwise adversely affect the health of persons.
- (k) “Enhanced Oil Recovery” or “Enhanced Recovery” means secondary recovery.
- (l) “Existing Class II well” means a Class II well that has been approved, constructed, or converted before the date of primacy.
- (m) “Injection casing” means the long string of casing set into, through, or just above the injection interval, in which the packer and tubing may be set.
- (n) “Injection interval” means the geological formation or group of formations or part of a formation receiving fluids through an injection well. There must be a confining interval above the injection interval.
- (o) “Karst” means a type of topography that is formed over limestone, dolomite, or gypsum by solution of the rock and is characterized by closed depressions or sinkholes, caves, and underground drainage.
- (p) “Mechanical integrity” means a well condition that exists if there is no significant leakage in the well’s casing, tubing, or packer and if there is no significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore.
- (q) “New Class II well” means a Class II well that is constructed or converted under part 615 after date of primacy.
- (r) “Oil or Gas Field Fluid Wastes” means liquid wastes resulting, obtained, or produced from the exploration, drilling, or production of oil or gas, or both.
- (s) “Part 615” means part 615 of the act, MCL 324.61501 to 324.61527.

(t) “Rule authorized well” means a Class II well that was classified or treated, or both, by the USEPA as an authorized by rule well on or after January 1, 1984.

(u) “USEPA” means the United States Environmental Protection Agency.

(v) “Waste” as defined in section 61501(q)(i) to (iii) of the act, MCL 324.61501, includes endangerment to an underground source of drinking water.

History: 1996 AACCS; 2015 AACCS; 2018 AACCS; 2019 AACCS.

R 324.802 Application for permit to drill, convert, and operate injection well.

Rule 802. In addition to requirements in R 324.201, the following additional information shall be submitted with an application for a permit to drill and operate an injection well or to convert a previously drilled well to an injection well:

(a) Notification information including the following:

(i) The name and address of the permittee of each oil, gas, and injection well and permitted location or locations within 1,320 feet of the proposed injection well location.

(ii) The name and address of the last surface owner or owners of record within 1,320 feet of a proposed Class II well location as reasonably determined by the records of the register of deeds office or equalization records.

(b) Required plat pursuant to R 324.201, that also shows the following:

(i) The location and total depth of the proposed injection well.

(ii) Each oil, gas, injection, and abandoned well and permitted location or locations within 1,320 feet of the proposed injection well location, including dry holes and wells that have been plugged and abandoned.

(iii) The surface owner or owners of record of the land on which the proposed injection well is to be located.

(iv) Each permittee of a well or permitted well location within 1,320 feet of the proposed injection well.

(v) Fresh water, irrigation, and public water supply wells within 1,320 feet of the proposed injection well.

(c) If a well is proposed to be converted to an injection well, all requirements of R 324.201(1) and R 324.201(2) apply, and the applicant must submit a copy of the completion report, together with the written geologic description log or record filed pursuant to R 324.418(a) and borehole and stratum evaluation logs filed pursuant to R 324.419(1). Pursuant to R 324.204 any well to be converted for liquid hydrocarbon storage is a proposed Class II well and subject to this subdivision.

(d) Plugging records of all abandoned wells and casing, sealing, and completion records of all other wells within 1,320 feet of the proposed injection well location. An applicant shall also submit a plan reflecting the steps or modifications believed necessary to prevent proposed injected fluids from migrating into an underground source of drinking water through inadequately plugged, sealed, or completed wells.

(e) A schematic diagram of the proposed injection well that shows all of the following information:

(i) The total depth or plug-back depth of the proposed injection well.

(ii) The geological formation name or names, true vertical depth, thickness, and lithology of the injection interval, and the confining interval.

(iii) The geological formation name or names and the top and bottom depths of all underground sources of drinking water to be penetrated.

(iv) The depths of the top and bottom of the casing or casings and cement to be used in the proposed injection well.

(v) The size of the casing and tubing and the estimated depth of the packer if applicable.

(f) Information showing that injection of fluids into the proposed injection interval will not exceed the injection interval fracture pressure gradient and information showing that injection into the injection interval will not initiate new fractures or propagate existing fractures in the overlying confining interval.

(g) For Class II wells, proposed operating data, including all of the following:

(i) The maximum anticipated daily injection rate expressed as barrels per day or thousand cubic feet per day.

(ii) The types of fluids to be injected. Hydraulic fracturing utilizing diesel fuels in the hydraulic fracturing fluid is subject to Class II regulations. Notwithstanding the provisions of R 324.1406(2), the use of diesel fuels in a proposed hydraulic fracturing fluid is not protected from disclosure.

(iii) Maximum anticipated injection pressure, expressed as psig at the well head, and calculations used to derive that value.

(iv) A qualitative and quantitative analysis of a representative sample of fluids to be injected. A chemical analysis shall be prepared for each type of fluid to be injected showing specific conductance as an indication of the dissolved solids, specific gravity, and a determination of the concentration of calcium, sodium, magnesium, chloride, sulfate, sulfide, carbonate, total iron, barium, and bicarbonate. However, if the fluid to be injected is fresh water, then an analysis is not required.

(v) The geological name of the injection interval and the vertical distance separating the top of the injection interval from the base of the deepest underground source of drinking water.

(h) For a proposed injection well to dispose of oil or gas field waste, or both, into an interval that would likely constitute a producing oil or gas pool, a list of all offset operators and certification that the person making application for an injection well has notified all offset operators of the person's intention by certified mail. If within 21 days after the mailing date a substantive objection is filed with the supervisor by an offset operator, then the application shall not be granted without a hearing pursuant to part 12 of these rules. The supervisor may schedule a hearing to determine the need or desirability of granting permission for the proposed injection well.

(i) Identification and description of all faults, structural features, karst, mines, and lost circulation zones within the area of review that can influence fluid migration, well competency, or induced seismicity. The applicant shall include a plan for mitigating risks of identifiable features.

(j) A proposed plugging and abandonment plan and schematic.

(k) Information demonstrating that construction of the well will prevent the movement of fluid that causes endangerment to an underground source of drinking water.

History: 1996 AACCS; 2018 AACCS.

R 324.803 Class II well notification, public comment, and public hearing.

Rule 803. (1) Within 10 days after receipt of a Class II well permit application the supervisor shall mail notice to each surface owner of record and well permittee of each oil, gas, and injection well within 1,320 feet of the proposed injection well, to the township supervisor or municipal manager where the well is located, and shall post the notice on the department website concurrently with the weekly permit list publishing which is posted on the department website and available by email list server. All of the following information must be included on the notice:

- (a) Date of notice.
- (b) Applicant's name and address.
- (c) Proposed well location, listing the county, township, range, section, and distance from nearest road intersections.
- (d) Geological formation name and depth of injection interval.
- (e) Maximum anticipated injection pressure, expressed as psig at the well head.
- (f) Maximum anticipated daily injection rate expressed as barrels per day or thousand cubic feet per day.
- (g) Information on how to submit comments on the application to the supervisor.
- (h) The following statement "Any comments or objections on an application, or a request to obtain additional information about the application, must be received by the supervisor within 30 days after the date of notice set forth herein."

(i) If substantial compliance is achieved toward notification requirements, inadvertent mistakes in noticing will not be a bar to processing of the permit.

(2) The supervisor shall receive public comments for 30 days following the date of the notice and complete review of the application as follows:

(a) If no objections are received within the 30-day comment period, the supervisor or authorized representative of the supervisor shall consider that no objections exist and shall issue a permit within 10 days if it is determined that the application complies with the law.

(b) If a comment or an objection to the application is received, the Supervisor or authorized representative of the Supervisor shall, within 10 days after the end of the comment period, determine the validity of the comment or objection. If, in the opinion of the supervisor or authorized representative of the supervisor, it is determined the comment or objection is not relevant to the issues of waste, public health or safety, or is without substance, a permit shall be issued within 20 days after the end of the comment period if it is determined that the application complies with the law.

(c) If, within the 10 day period set forth in (2)(b), above, the supervisor or authorized representative of the supervisor considers the comment or objection to be relevant to the issues of waste, public health or safety, or is of substance, and the commenter has requested a public hearing, then the supervisor shall provide notice of the public hearing within 20 days after the end of the comment period and hold the public hearing within 30 days after giving notice of the public hearing. The public hearing will be held in the township or county of the proposed well, is for gathering public comment on a proposed permit, and is not an evidentiary hearing pursuant to R 324.1201 to R324.1205. The supervisor will provide a minimum of 20 days notice of the public hearing. Notice will be made by posting the hearing on the department calendar, the department website, and in one local newspaper.

(d) If the supervisor or authorized representative of the supervisor determines, after the hearing and upon consideration of comments and the application, that all of the following conditions have been met, the application for a Class II well shall be approved and a permit shall be issued within 30 days:

- (i) The application complies with the requirements of these rules.
- (ii) The method of injection proposed in the application complies with the law.
- (iii) The proposed method of injection will not threaten public health or safety and will not create waste or endanger an underground source of drinking water.

(e) Concurrently with the issuance or denial of a Class II permit application, the supervisor or authorized representative of the supervisor shall post responses to the public comments on the department website.

(3) The provisions of this rule are effective only upon the date of primacy.

History: 1996 AACCS; 2018 AACCS.

R 324.804 Construction and operation of injection wells.

Rule 804. (1) Injection of fluid into an injection well shall be through a combination of casing, tubing, cement, and packer placement that isolates the injection interval and prevents the movement of fluids into or between underground sources of drinking water, including through vertical channels adjacent to the well bore, which has mechanical integrity. Injection wells utilized for gas storage are not required to install tubing and/or a packer. In addition to cementing requirements in this rule, well casing shall be cemented pursuant to R 324.408, R 324.411, and R 324.413. The supervisor or authorized representative of the supervisor shall review cement details and any logs required for the applicant to demonstrate external mechanical integrity prior to authorization to inject. One of the following methods that demonstrates external mechanical integrity and prevention of fluid migration into or between underground sources of drinking water shall be used:

- (a) The results of a temperature log, or noise log, or cement bond log.
- (b) Cementing records demonstrating the presence of adequate cement to prevent a migration.
- (c) Other methods suggested by the permittee and approved by the supervisor or authorized representative of the supervisor.

(2) A permittee of a well shall ensure that the injection of fluid into a well is through adequate tubing and packer. During injection operations, the permittee shall fill the tubing to casing annulus with a noncorrosive liquid. For Class II wells, the packer shall be set within 100 feet of the base of the injection casing or within 100 feet of the top perforation of the injection interval, unless otherwise approved by the supervisor. Injection wells utilized for gas storage are exempt from this subrule.

(3) A permittee of a well shall ensure that surface access to all casing annuli is provided.

(4) A permittee of a well shall ensure that an injection well is constructed and operated so that the injection of fluids is confined to injection interval or intervals approved by the supervisor or authorized representative of the supervisor.

(5) In addition to R 324.408 surface casing requirements, surface casing must be set a minimum of 100 feet below the base of the glacial drift into competent bedrock or 100

feet below all underground sources of drinking water, whichever is deeper, for new Class II wells. To convert a previously drilled well into a Class II well, where existing surface casing is not 100 feet below underground source of drinking water, a demonstration of the combination of casing and cement must be made to show protection of all underground sources of drinking water.

(6) The injection casing must have a minimum of 250 feet of cement immediately above the injection interval. If less than 250 feet of cement exists, remedial cementing must occur at a point as near to the existing cement top as possible, as determined by the supervisor or authorized representative of the supervisor. Injection wells utilized for gas storage are exempt from this subrule.

(7) Class II wells must have injection casing in addition to the surface casing and any additional casing that may be required under R 324.410.

(8) In addition to other provisions of these rules, the top of the injection interval shall be a minimum of 500 feet below the deepest underground source of drinking water for a new Class II well in an area of karst, unless a lesser separation is approved by the supervisor based on a demonstration of protection of underground sources of drinking water by the permittee. Within an area of karst, in addition to other requirements, all casings except the injection casing shall be circulated to surface with cement. If not possible to circulate cement to surface because of karst features or lost circulation zones, the casing annulus shall have cement from at least 100 feet to the surface.

(9) Subrules R 324.804(1), (5), and (6) do not apply to Existing Class II wells or Rule Authorized wells since they are permitted, constructed or converted prior to the date of primacy.

History: 1996 AACCS; 2018 AACCS.

R 324.805 Temporary authority to inject.

Rule 805. The supervisor may grant a permittee of a well temporary authorization, for a period of not more than 30 days, to inject fluid for the limited purpose of running injectivity tests. Temporary authorization to inject will only be granted if there will be no endangerment of underground sources of drinking water. Injection wells utilized for gas storage are exempt from this rule.

History: 1996 AACCS; 2018 AACCS.

R 324.806. Testing and authorization to inject before operation of Class II injection wells.

Rule 806. (1) Before injecting fluid into a new Class II well, a permittee of a well shall provide for a test of the annulus between the innermost casing and the tubing above the packer. The test shall be conducted by a qualified person and the test shall be at a pressure of not less than 300 psig. The difference in pressure between the testing pressure and the tubing pressure shall be not less than 100 psig at the time of the test. A satisfactory test shall have a pressure change of not more than 5% over a period of 30 minutes.

(2) A permittee of a well shall notify the supervisor or authorized representative of the supervisor at least 5 days in advance of the date and time of the test.

(3) Within 14 days of completion of the test, the permittee shall submit, on a form prescribed by the supervisor, a report of each mechanical integrity test to the supervisor or authorized representative of the supervisor. The report shall contain test supporting data, including, but not limited to, gauge calibration data, pressure recordings and charts, tubing size, packer type, and packer depth. Approval of the test results will be based on witnessing by supervisor or authorized representative of the supervisor, or review and evaluation of test data submitted pursuant to this subrule.

(4) Before the commencement of injection, a permittee shall receive an authorization to inject from the supervisor or authorized representative of the supervisor. Prior to issuance of the authorization to inject, the supervisor or authorized representative shall have witnessed the test or received the test data, reviewed the test data, and determined that the permittee has demonstrated that the well has mechanical integrity. Authorization to inject will be granted only after any applicable well records required by R 324.418 have been received and evaluated by the supervisor or authorized representative of the supervisor. Verbal authorization from the supervisor or authorized representative is acceptable to commence injection. Written authorization to inject from the supervisor or authorized representative will be issued within 7 days of verbal authorization.

(5) Injection wells utilized for gas storage are exempt from this rule.

History: 1996 AACS; 2018 AACS.

R 324.807 Maximum injection pressure.

Rule 807. During Class II well injection operations, a permittee shall ensure that the surface injection pressure does not exceed a pressure determined by the following equation:

$P_m = (fpg - 0.433 \text{ sg})d$ where

P_m = surface injection pressure

fpg = fracture pressure gradient of the injection interval (if unknown, assume 0.800)

sg = specific gravity of the injection liquid (if unknown, assume 1.2)

d = depth of the top of the injection interval in feet (true vertical depth).

The value for fpg may be determined by an instantaneous shut-in pressure or data derived from step rate testing. Other information to derive fpg values may be used with approval of the supervisor or authorized representative of the supervisor.

History: 1996 AACS; 2018 AACS.

R 324.808 Class II well operational testing requirements.

Rule 808. (1) A permittee of a Class II well shall provide for a pressure test that meets the requirement of subrule (2) of this rule, by a qualified person, to determine the mechanical integrity of the tubing, casing, and packer.

(2) The annulus between the innermost casing and the tubing above the packer shall be tested at least once each 5 years at a pressure of not less than 300 psig. A satisfactory test shall have a pressure change of not more than 5% over a period of 30 minutes. The

difference in pressure between the testing pressure and the tubing pressure shall not be less than 100 psig at the time of the test. At least 5 days before the test, the permittee shall notify the supervisor or authorized representative of the supervisor of the date and time of the test. This subrule applies to all Class II wells, including those with approved temporary abandonment status.

(3) Within 14 days after the test, the permittee shall, on a form prescribed by the supervisor, submit a report of each mechanical integrity test to the supervisor or authorized representative of the supervisor. The report shall contain supporting data including, but not limited to, gauge calibration data, pressure recordings and charts, tubing size, packer type, and packer depth. Prior to an issuance of an authorization to inject, the supervisor or authorized representative shall have witnessed the test or received the test data, reviewed the test data, and determined that the permittee has demonstrated the well has mechanical integrity.

(4) For a Class II well that has not been utilized for its intended purpose for a period of greater than 2 years, the permittee shall, prior to resuming injection, demonstrate mechanical integrity for the well and receive authorization to resume injection from the supervisor or authorized representative of the supervisor.

History: 1996 AACS; 2018 AACS.

R 324.809 Testing requirements for wells utilized for gas storage.

Rule 809. Before injecting fluid into a newly drilled well or previously existing well newly converted to an injection well to be utilized for gas storage, a permittee of an injection well shall provide for a test of the mechanical integrity of the casing, by a qualified person, utilizing either a pressure test at a bottom hole pressure of not less than the maximum expected operating pressure of the gas storage field or an equivalent test approved by the supervisor. Within 14 days of the test, the permittee shall, on a form prescribed by the supervisor, submit a report of each mechanical integrity test to the supervisor or authorized representative of the supervisor. Prior to issuance of an authorization to inject, the supervisor or authorized representative shall have witnessed the test or received the test data, reviewed the test data, and determined that the permittee has demonstrated that the well has mechanical integrity.

History: 2018 AACS.

R 324.810. Monitoring and filing records and reports.

Rule 810. (1) A permittee of a Class II well not utilized for secondary recovery shall, on a weekly basis, monitor and record the annulus pressure, injection pressure, injection rate, and weekly cumulative volume of the fluid injected.

(2) A permittee of a Class II well utilized for secondary recovery injection well shall, on a monthly basis, monitor and record the annulus pressure, injection pressure, injection rate, and monthly cumulative volume of the fluid injected. A permittee of a secondary recovery injection well may conduct the monitoring and recording, required by this rule, on a field or project basis by manifold monitoring, rather than on an individual well basis, if more than 1 secondary recovery injection well operates with a single

manifold, and if the permittee demonstrates that manifold monitoring is comparable to individual well monitoring.

(3) A permittee of an injection well not utilized for secondary recovery shall report the data monthly to the supervisor, unless the supervisor requires a lesser frequency, on forms prescribed by the supervisor.

(4) A permittee of a secondary recovery injection well shall report the monthly data annually to the supervisor, on forms prescribed by the supervisor by March 1 of each year for the previous year.

(5) In addition to other requirements within this rule, a permittee of a Class II commercial disposal well shall submit a complete list of sources of disposed fluids on a quarterly basis on a form prescribed by the supervisor within 45 days of the end of each quarter. The provisions of this subrule are effective only upon the date of primacy.

(6) In addition to other requirements within this rule, a permittee of a Class II commercial disposal well shall submit information on any new source to the supervisor, and shall obtain approval of the source from the supervisor or authorized representative of the supervisor, prior to injection of fluids from that source. The provisions of this subrule are effective only upon the date of primacy.

(7) A permittee of a Class II well shall file on a quarterly basis the fluid loss or gain in the tubing-casing annulus on a form prescribed by the supervisor within 45 days of the end of each quarter. Rule authorized wells are exempt from this requirement. The provisions of this subrule are effective only upon the date of primacy.

(8) The permittee of a Class II well shall submit an annual chemical analysis of the injectate using same analytes as R 324.802(g)(iv) by March 1 of the following year, or more frequently if there has been a change in sources or characteristics of the injectate.

(9) The permittee shall retain all records pertaining to a Class II injection well for a period of 5 years.

(10) The permittee of any Class II well shall indicate on any submitted report observed noteworthy anomalies or problems identified related to that data. The permittee shall report exceedance of the Maximum Injection Pressure on injection monitoring reports. The provisions of this subrule are effective only upon the date of primacy.

History: 2018 AACCS.

R 324.811 Loss of mechanical integrity.

Rule 811. (1) A permittee of an injection well shall notify the supervisor or authorized representative of the supervisor of any pressure test failure, significant pressure changes, or other evidence of a leak in an injection well, within 24 hours of the pressure test failure, significant pressure changes, or other evidence of a leak. For other evidence of a leak received via logging, the notification shall occur within five working days after the operator first determines that the condition exists from reading the log data, but not later than 10 working days after the day the operator receives the log data. If there is evidence that indicates an injection well is not, or may not be, directing the injected fluid into the permitted injection interval, a permittee of an injection well shall immediately cease injection.

(2) A permittee shall submit written notice of the pressure test failure, significant pressure changes, or other evidence of a leak to the supervisor or authorized

representative of the supervisor within 5 days of the occurrence, or within 10 days of receiving well logging data, on a form prescribed by the supervisor. If injection has ceased pursuant to subrule (1) of this rule, then a permittee shall not resume injection until the permittee has tested or repaired the well, or both. If the repair requires a change of well status pursuant to R 324.511, or a permit modification, then a plan shall be submitted to, and approved by, the supervisor or authorized representative of the supervisor. The repair or modification plan must demonstrate protection of any underground sources of drinking water.

(3) Before resuming injection, a permittee must demonstrate the well has mechanical integrity and receive an authorization to inject. Verbal authorization from the supervisor or authorized representative of the supervisor is acceptable to commence injection. Written authorization to inject from the supervisor or authorized representative will be issued within 7 days of verbal authorization. Prior to issuance of an authorization to inject, the supervisor or authorized representative shall have witnessed the test or received the test data, reviewed the test data, and determined the permittee has demonstrated that the well has mechanical integrity.

History: 2018 AACCS.

R 324.812 Cessation of injection wells; request for temporary abandonment status.

Rule 812. If an injection well ceases operating for the purpose for which it was intended for 1 year, then a permittee shall plug the well or request temporary abandonment status for the well in writing. The request for temporary abandonment status shall be pursuant to R 324.511. The temporary abandonment status may be granted by the supervisor if, after application and justification by the permittee, the supervisor determines that waste will be prevented. When approving the temporary abandonment status or subsequent extensions, the supervisor may require special actions and monitoring by the permittee to ensure the prevention of waste and endangerment of underground sources of drinking water. If temporary abandonment status is not granted, then the permittee of the injection well shall plug the well. The permittee may petition the supervisor for a hearing to show cause why the well should not be plugged. This rule supersedes R 324.209 for injection wells.

History: 2018 AACCS.

R 324.813 Suspension of Class II well operations due to threat to public health and safety or underground sources of drinking water.

Rule 813. (1) The supervisor or authorized representative of the supervisor may immediately require corrective action at a Class II well, including suspending any or all components of the injection or disposal operations, if the supervisor determines either of the following:

(a) The injection operations are in violation of the provisions of the act, these rules, permit conditions, instructions, or orders of the supervisor.

(b) The injection operations threaten the public health and safety or underground sources of drinking water.

(2) A suspension of injection or disposal operations shall be in effect for not more than 5 days or until the operation is in compliance and protection of the public health and safety and underground sources of drinking water is ensured.

(3) Unless the permittee brings the operations into compliance as required pursuant to subrule (1), the supervisor may issue an emergency order to continue the suspension of injection or disposal operations beyond 5 days, and may schedule a hearing under part 12 of these rules. The total duration of the suspension of injection or disposal operations under this provision shall not be more than 21 days, as provided in section 61516 of Part 615, MCL 324.61516.

(4) Unless the permittee brings the operations into compliance as required pursuant to subrule (1) or (2) of this rule, the supervisor shall issue a new order following a minimum of 10 day notice and public hearing as provided in section 61516 of Part 615, MCL 324.61516(1) and R 324.1211, enter into an administrative consent agreement, or enter other binding instrument to extend the suspension of injection or disposal operations under this provision beyond 21 days. The order, administrative consent agreement, or other binding instrument shall require corrective actions within specific time limits to achieve compliance and protection of the public health and safety and underground sources of drinking water, and shall remain in force until the operation is brought into compliance.

(5) Authorization to resume injection shall not be given by the supervisor or authorized representative of the supervisor until compliance and protection of the public health and safety and underground sources of drinking water is achieved. The authorization to inject will only be given when mechanical integrity is also demonstrated, if applicable.

(6) This rule supersedes R 324.1014 for Class II wells.

History: 2018 AACCS.

R 324.814 Class II primacy transitional requirements for supervisor and owner-operators.

Rule 814. (1) Transitional requirements for the supervisor include all of the following:

(a) Upon the date of primacy, the supervisor shall do the following:

(i) Accept all Class II well permits, including rule authorized wells, issued under the authority of the USEPA administered underground injection control program. These wells are currently permitted under Part 615, and are deemed to meet the requirements of Part 615. Existing permit terms under Part 615 remain in effect.

(ii) Accept records from the USEPA of all Class II wells, including rule authorized wells.

(iii) Accept maximum injection pressures established by permits issued by USEPA including maximum injection pressures issued for rule authorized wells,

(iv) Accept mechanical integrity test data and test schedules for all existing Class II wells and rule authorized wells.

(b) Within 30 days following the date of primacy, an owner or operator shall do the following:

(i) Transfer pending applications submitted for Class II wells under the USEPA underground injection control program to the Michigan Department of Environmental Quality, Oil, Gas, and Minerals Division, P.O. Box 30256, Lansing, Michigan 48909, for final review and permitting decisions.

(ii) File or transfer a conformance bond pursuant to R 324.212.

History: 2018 AACS.

R 324.815 Class II permit modifications.

Rule 815. (1) Modifications to a Class II permit issued pursuant to R 324.206 may be considered major modifications and subject to requirements of R 324.802 and R 324.803. Minor modifications are not subject to requirements of R 324.802 and R 324.803.

(2) Minor modifications include activities such as the following:

(a) Correcting typographical errors.

(b) Requiring more frequent monitoring or reporting by the permittee.

(c) Changing an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement.

(d) Change in ownership or operational control of a facility where the supervisor determines that no other change in the permit is necessary.

(e) Changing quantities or types of fluids injected which are within the capacity of the facility as permitted and, in the judgment of the supervisor, would not interfere with the operation of the facility or its ability to meet conditions described in the permit and would not change its classification.

(f) Changes in construction requirements approved by the supervisor or authorized representative of the supervisor, including remedial cementing or adding perforations to the approved injection interval.

(g) Amendment of a plugging and abandonment plan when approved by the supervisor or authorized representative of the supervisor.

(3) The provisions of this rule are effective only upon the date of primacy.

History: 2018 AACS.

R 324.816 Class II Cross Reference

Rule 816. For Class II wells, the following rules are applicable: R 324.101 to 324.199, R 324.201 to 324.208, R 324.210 to 324.216, R 324.401 to 324.422, R 324.501 to 324.504, R 324.507, R 324.508, R 324.510, R 324.511, R 324.701 to 324.705, R 324.801 to 324.808, R 324.810 to 324.816, R 324.901 to 324.904, R 324.1001 to 324.1013, R 324.1015, R 324.1101 to 324.1130, R 324.1201 to 324.1212, R 324.1301, and R 324.1401 to 324.1406.

History: 2018 AACS.

PART 9. PLUGGING

R 324.901 Notification of intention to abandon and plug well.

Rule 901. A person shall not begin the plugging of a well until the permittee of a well has notified the supervisor or authorized representative of the supervisor of his or her intention to abandon the well and has received instructions for the plugging operation. The notification shall provide all of the information requested by the supervisor or authorized representative of the supervisor required to issue plugging instructions. The notification may also include any of the following information:

- (a) The present condition of the well.
- (b) Casing and sealing information.
- (c) The sizes and lengths of all casing strings.
- (d) The depths of the top of all principal formations.
- (e) The depths where oil, gas, and water were encountered.
- (f) The method to be used to tag plugs.
- (g) The proposed method for handling unusual or hazardous conditions.
- (h) The date of the last production or operation.

History: 1996 AACCS.

R 324.902 Plugging instructions; methods and materials.

Rule 902. (1) The supervisor or authorized representative of the supervisor shall issue plugging instructions after receipt of notification pursuant to R 324.901. The plugging instructions shall specify all of the following information:

- (a) The type and amount of plugging material to be used.
- (b) The depths at which bridges are to be set.
- (c) The depths and lengths of cement plugs.
- (d) The amount of casing to be pulled.
- (e) Other requirements the supervisor determines are necessary for the proper plugging of the well.

(2) A permittee of a well shall ensure that all oil, gas, brine, and fresh water is confined to the strata in which the oil, gas, brine, and fresh water occur by using cement plugs or other plugs approved by the supervisor. A permittee of a well shall ensure that the well is plugged under static hole conditions at all times, unless otherwise approved by the supervisor or authorized representative of the supervisor.

(3) A permittee of a well shall ensure that each cement plug, except for the bottom hole plug required by subrule (5) of this rule, the plug to be set at the base of the surface casing required by subrule (6) of this rule, and the surface plug required by subrule (7) of this rule, is a minimum of 200 feet in length or contains 50 sacks of cement, whichever is the greater volume of cement, unless otherwise approved by the supervisor or authorized representative of the supervisor.

(4) A permittee of a well shall ensure that each cement plug, except for the bottom hole plug required by subrule (5) of this rule and the plug to be set at the base of the

surface casing required by subrule (6) of this rule, is allowed to set undisturbed for a minimum of 1 hour and that the fluid level in the casing is continuously observed. If the observed fluid level in the casing drops during the hour, then the cement plug shall be tagged to ensure that the plug is still in place before setting the next plug uphole. If the plug is found not to be in place, then the plug shall be reset.

(5) A permittee of a well shall ensure that the bottom hole cement plug is either:

(a) A minimum of 200 feet in length, is allowed to set undisturbed for a minimum of 4 hours, has reached a compressive strength of 100 psi or more, and is tagged to ensure that it is still in place before setting the next plug uphole; however, if the bottom hole cement plug in a dry hole drilled by rotary methods is a minimum of 400 feet in length and the fluid level in the hole is observed to remain static, then the bottom hole plug is not required to be tagged.

(b) A mechanical bridge plug or other approved bridge has been set and a minimum of 50 feet of cement has been placed on the bridge before setting the next plug uphole.

(6) A permittee of a well shall set the plug at the base of the surface casing using either of the following methods as approved by the supervisor or authorized representative of the supervisor:

(a) In static hole conditions, a cement plug shall be set at a minimum of 100 feet below the surface casing and shall extend a minimum of 100 feet into the surface casing. The cement plug shall be allowed to set undisturbed a minimum of 4 hours, shall have reached a compressive strength of 100 psi or more, and shall be tagged to ensure that it is still in place before setting the next plug uphole. If the plug is found not to be in place, then the plug shall be reset.

(b) A mechanical open hole bridge plug or other approved bridge shall be set a minimum of 100 feet below the surface casing. A cement plug shall then be placed on the mechanical open hole bridge plug or other approved bridge. The cement plug shall extend a minimum of 100 feet into the surface casing,

unless otherwise approved by the supervisor or authorized representative of the supervisor.

(7) A permittee of a well shall set a cement surface plug a minimum of 30 feet below the surface and within 5 feet of the surface, unless otherwise approved by the supervisor or authorized representative of the supervisor.

(8) If surface casing is not present, a permittee of a well shall set a mechanical open hole bridge plug or other approved bridge a minimum of 100 feet below the base of the glacial drift or 100 feet below the deepest fresh water stratum, whichever is the greater depth, and shall circulate cement to within 5 feet of the surface.

(9) A permittee of a well shall ensure that the surface pipe or conductor pipe abandoned with the hole is cut off at a point not less than 4 feet below grade, a 1/2-inch steel welded plate or another type of seal approved by the supervisor or authorized representative of the supervisor is placed across the top of the pipe or pipes, and the permit number of the well is permanently affixed to the plate or approved seal at the top of the well.

(10) A permittee shall file, within 60 days after plugging, the final plugging forms and certified copies of the service company records, which shall include all of the following information:

- (a) The type of cement and number of sacks used, including the additives and percentages of the additives for each cement bridge plug.
- (b) The type and volume of plugging material used if other than cement.
- (c) The number of bridge plugs set in the hole and the depth and length of each plug.
- (d) Other materials left in the hole.
- (e) Service companies' records of cementing operations if requested by the supervisor or authorized representative of the supervisor.
- (f) All available graphics, if requested by the supervisor or authorized representative of the supervisor, showing the all of following information:
 - (i) Pumping.
 - (ii) Placement of cement.
 - (iii) Weights.
 - (iv) Times.
 - (v) Pump rates.
 - (vi) Other pertinent data dealing with the plugging operations.
 - (g) The amounts and type of mix water used for each sack of cement.
 - (h) The volume and types of spacers and flushes used.
 - (i) The operator's daily plugging records.
- (11) At a permittee's option, the well bore may be plugged from bottom to top with a material approved by the supervisor if the hydrostatic pressure of the material used is not allowed to exceed the fracturing pressure of the strata.

History: 1996 AACCS.

R 324.903 Commencement of plugging operations.

Rule 903. (1) A permittee of a well shall commence plugging operations within 90 days after drilling completion or well completion as a dry hole, when the well has not economically produced or has not been utilized for its permitted use for more than 12 consecutive months, when a change of well status has not been granted, or when the permitted use has been suspended for more than 12 consecutive months. The supervisor may require, or a permittee may submit, proof that is necessary to determine if the well is being economically produced.

(2) After receiving a written request showing just cause why the well should not be plugged, the supervisor or authorized representative of the supervisor may grant temporary abandonment status pursuant to R 324.209 or require completion of the plugging operations.

(3) A permittee may petition the supervisor for a hearing to show cause why the well should not be plugged.

History: 1996 AACCS.

R 324.904 Pulling of surface pipe and conductor pipe.

Rule 904. A permittee of a well shall ensure that surface pipe or conductor pipe is not pulled at a location, unless it is required by the supervisor.

History: 1996 AACCS.

PART 10. WELL SITES AND SURFACE FACILITIES; PREVENTION OF FIRES, POLLUTION, AND DANGER TO, OR DESTRUCTION OF, PROPERTY OR LIFE

R 324.1001 Well sites and surface facilities; flammable and combustible material.

Rule 1001. A permittee of a well shall ensure that the area around the well and surface facilities is kept clear of flammable and combustible material stored within a radius of 75 feet, or as approved by the supervisor, using the well or dike wall as the point of measurement. The supervisor, if conditions warrant, may also require construction of a fire line around the outer edge of the cleared area. A permittee of a well shall ensure that the disposal of material resulting from the clearing operations is consistent with all applicable state and federal laws and regulations.

History: 1996 AACCS.

R 324.1002 Secondary containment requirements and construction standards.

Rule 1002. (1) All wellheads and pump jacks installed after the effective date of these rules and surface facilities constructed for hydrocarbon, gas, brine injection, or brine handling or surface facilities converted to brine injection or handling after November 15, 1989, shall provide for secondary containment pursuant to the requirements of this rule. A permittee of a well shall maintain all existing dikes or fire walls approved before November 15, 1989, in a manner to form a reservoir that has a capacity of 1 1/2 times the capacity of the enclosed tank or tank battery and shall keep the reservoir free of oil, emulsions, tank bottoms, brine, water, vegetation, debris, or any flammable or combustible material. The supervisor or authorized representative may require surface facilities for hydrocarbon, gas, brine injection, or brine handling constructed before November 15, 1989, to be upgraded to meet the requirements of this rule if the facility is substantially reconstructed.

(2) A permittee of a well shall submit secondary containment plans to the supervisor or authorized representative of the supervisor for approval before construction of the facility. The secondary containment plans shall consist of a plot plan of the proposed facility and cross sections showing construction details of the sidewalls and floor or floors of all secondary containment areas, including the proposed overall dimensions of the facility. The supervisor or authorized representative of the supervisor shall approve or disapprove the secondary containment plans within 30 days of receipt of the plans.

(3) A permittee of a well shall comply with all of the following minimum construction standards to meet the secondary containment requirements of this rule:

(a) A permittee shall be required to prepare a hydrogeological investigation of the facility area to establish local background groundwater quality. The hydrogeological investigation shall include all of the following:

(i) Water quality sampling pursuant to the parameters established in R 324.802(g)(iv).

(ii) A determination of the direction of groundwater flow and depth to the groundwater in the uppermost aquifer.

(iii) A chemical analysis showing the concentrations of benzene, ethylbenzene, toluene, and xylene.

(iv) A geologic description of earth materials, both horizontally and vertically, in the immediate vicinity of the proposed facility.

(b) Each facility shall be required to have 1 of the following monitoring systems to detect leakage from hydrocarbon or brine storage secondary containment areas:

(i) A minimum of 1 groundwater monitoring well downgradient which is in close proximity to all hydrocarbon or brine storage secondary containment areas.

(ii) Tertiary containment underlying the secondary containment, which shall be constructed and sealed in a manner to capture any hydrocarbons or brine that may leak or seep through the secondary containment. A layer of permeable material and a monitoring tube shall be placed between the secondary and tertiary containment to allow monitoring to determine the presence of any leakage or seepage through the secondary containment.

(c) A vessel that contains hydrocarbons or brine, or both, shall be elevated and placed on impervious pads or constructed so that any leakage can be easily detected. A vessel that is to be used on-site for 30 days or less shall, at a minimum, be placed on leak-resistant material.

(d) A hydrocarbon and brine storage vessel, including oil heating and treating equipment, shall be located in a secondary containment area and the containment volume shall be in compliance with the following minimum requirements, as applicable:

(i) Containment areas that have only brine storage vessels shall be constructed to contain 150% of the largest storage vessel.

(ii) Containment areas with only hydrocarbon storage vessels shall be constructed pursuant to R 29.2301 et seq.

(iii) Containment areas where both hydrocarbon and brine storage vessels are located shall be in compliance with the volume requirements for the largest storage vessels.

(iv) Precipitation shall be taken into consideration in the design of the secondary containment area.

(e) The sidewalls and floor of the secondary containment and spill containment areas shall be constructed and sealed in a manner to prevent the seepage of hydrocarbons or brine, or both, into the surrounding soils, surface waters, or groundwater.

(f) A hydrocarbon and brine storage vessel shall not be erected, enclosed, or maintained closer than 200 feet from any drilling or producing well.

(g) Oil heating or treating equipment shall not be erected, enclosed, or maintained closer than 75 feet from any drilling or producing well or oil storage tank or tank battery.

(h) Dikes shall be maintained and the enclosure kept free of all of the following:

(i) Oil.

(ii) Emulsions.

(iii) Tank bottoms.

(iv) Brine.

(v) Water.

- (vi) Vegetation.
- (vii) Debris.
- (viii) Any flammable or combustible material.

(i) The hydrocarbon and brine truck loading and unloading areas located outside of hydrocarbon or brine storage secondary containment areas shall have a spill containment capacity equal to double the volume of the hoses used to connect the truck to the tanks, but not less than a capacity of 5 barrels. The spill containment shall be constructed and sealed in a manner that prevents the seepage of hydrocarbons or brine, or both, into the surrounding soils, surface waters, or groundwater.

(j) Brine disposal well truck unloading areas and commercial brine truck loading and unloading areas located outside of hydrocarbon or brine storage secondary containment areas shall be constructed and sealed in a manner that prevents the seepage of hydrocarbons or brine, or both, into the surrounding soils, surface waters, or groundwater. In addition, a ramp shall be constructed to contain the unloading vehicle, its hoses, and connections within the ramp area. The ramp area shall contain a sump and be connected to a secondary containment area so that any spillage drains into the sump and into the secondary containment area. The spill containment ramp and sump shall have a combined capacity of not less than 20 barrels.

(k) Sumps shall be constructed of materials impervious to hydrocarbons and brines and resistant to damage and deterioration during use. Sumps shall be connected to the ramp area and the secondary containment area in a manner that prevents leakage.

(l) Surface facilities for hydrocarbon and brine handling shall be constructed to meet all of the following minimum requirements:

(i) All transfer and injection pumps shall have leak containment.

(ii) All brine and hydrocarbon flow lines to a facility are considered part of that facility and are subject to the following requirements:

(A) All flow lines shall be pressure tested pursuant to the provisions of paragraph (iii)(A),(B),(C),(E), and (G) of this subdivision.

(B) A permittee may elect to not perform the pressure testing of the flow lines, except flow lines that transport brine only, if the permittee performs visual inspections of the entire flow line corridor every 3 months, except when impractical due to snow cover, and reports the results of the inspections to the supervisor or authorized representative of the supervisor annually by January 31 of each year for the previous calendar year.

(iii) All buried facility piping for the transport of liquids shall be pressure-tested pursuant to the following provisions, as applicable:

(A) Piping made of noncorrodible or corrosion-protected material shall be pressure-tested every 3 years.

(B) All piping other than piping specified in subparagraph (A) of this paragraph shall be pressure-tested every 12 months.

(C) If buried piping is excavated for repair or relocation, then the disturbed portion shall be pressure-tested immediately pursuant to subparagraphs (D) and (E) of this paragraph.

(D) The pressure test shall be 100% of the normal oil and gas separator operating pressure. The pressure shall be stabilized at 90% of test pressure, at a minimum, and shall hold for a period of 15 minutes.

(E) A permittee shall provide certification to the supervisor or authorized representative of the supervisor, within 30 days of a pressure test, that a pressure test was conducted and the facility piping passed the pressure test. If a facility's piping does not pass the pressure test, the supervisor or authorized representative of the supervisor shall be notified by the permittee within 48 hours after the test. If the pressure test indicated that the facility's piping leaked, then the piping shall be repaired and retested before putting the piping back in service. After the repair of the piping, the permittee shall report the repair to the supervisor or authorized representative of the supervisor and provide certification that the piping has been retested and is not leaking.

(F) Single-phase gas lines are not subject to the pressure test requirements if the lines are protected by a liquid phase trap.

(G) The supervisor may approve or require other pressure testing or leak detection methods in place of the pressure testing required in this paragraph.

(iv) At production or injection well facilities, all piping shall be routed above the ground and kept within the secondary containment area where practical. Piping that cannot be routed above the ground shall have its location marked with posts or with other location-identifying markers approved by the supervisor or authorized representative of the supervisor so that the buried piping can be easily located.

(v) Brine injection wells shall have a working check valve on the flow line at or near the wellhead to avoid backflow.

(vi) All hydrocarbon and brine loading and unloading facility transfer lines that are not in use shall be secured to prevent spillage. A shutoff valve shall be installed at the truck connect point and at the storage vessels. At connect points, impermeable drip containment vessels shall be used and shall be an adequate size to contain all spillage and precipitation to avoid overflow.

(m) Wellheads, flare pits, vents, and flare stacks shall have secondary containment and spill containment areas constructed in a manner to prevent the seepage of hydrocarbons or brine, or both, into the surrounding soils, surface waters, or groundwater. Secondary containment at the wellhead shall be constructed in a manner to capture any leakage of liquid that may occur. In addition, if the wellhead is provided with a pump jack or is converted to a pump jack equipped with a gasoline or diesel-powered engine, then the engine shall also have secondary containment that is sufficient to prevent the seepage of any machine oils or fuels into the surrounding soils, surface waters, or groundwater. Injection wells utilized for gas storage are exempt from this subrule.

(4) Upon completion of the construction of the facility, but before its use, a permittee of a well shall certify, to the supervisor or authorized representative of the supervisor, that the secondary containment area was constructed according to the approved plan. A permittee shall ensure that an approved spill or loss response and remedial action plan is also on file with the supervisor or authorized representative of the supervisor before a facility is used.

(5) Before any significant modification of the secondary containment area occurs, a permittee of a well shall notify the supervisor or authorized representative of the supervisor and receive approval before making the modification. The supervisor or authorized representative of the supervisor shall approve or deny the request within 10 days of receipt of the request.

(6) A permittee of a well shall perform inspections at the facility at a frequency that is sufficient to ensure that the throughput of fluids in the system does not exceed the primary and secondary containment capacity between inspections. The permittee shall perform at least 1 inspection per week.

(7) The supervisor shall require the installation of an automatic facility shutdown system if the facility has a throughput of liquids in a 24-hour period that exceeds the containment volume of the secondary containment area. The automatic shutdown system shall be designed to prevent liquids from overflowing the secondary containment area. A facility shall be exempt from the requirement of an automatic shutdown system if the facility has staff present 24 hours per day and is equipped with alarm systems on the tank or tanks of the tank battery.

(8) The monitoring system required by R 324.1002(3)(b) shall be kept in a functional condition so that water samples can be collected and water level measurements can be taken every 6 months. The water samples shall be tested for specific conductance as an indicator of dissolved solids, concentrations of chloride, and a chemical analysis pursuant to subrule (3)(a)(iii) of this rule, except the chemical analysis provided by subrule (3)(a)(iii) of this rule shall not be required at monitoring systems at surface facilities where liquid hydrocarbons are not handled. If sampling indicates a possible problem, then additional sampling for the water quality parameters established in R 324.802(g)(iv) may be required. The results of the sample analysis shall be provided to the supervisor or authorized representative of the supervisor as soon as the results are available. If the samples taken by the permittee show substantial increases above background water quality, then the permittee shall, at a minimum, increase monitoring. If the samples confirm that hydrocarbons are present at levels above background, then the permittee shall immediately take remedial action in the form of containment and removal.

(9) A permittee of a well shall provide a right of entry to the facility for monitoring at all times to the supervisor or authorized representative of the supervisor.

History: 1996 AACS; 2018 AACS.

Editor's Note: An obvious error in R 324.1002 was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in *Michigan Register*, 2018 MR 11. The memorandum requesting the correction was published in *Michigan Register*, 2018 MR 18.

R 324.1003 Restoration of well site; filling and leveling of cellars, pits, and excavations; removal of debris.

Rule 1003. A permittee of a well shall fill and level the cellar and all pits and excavations, remove or eliminate debris, minimize erosion, and restore the well site as nearly as practicable to the original land contour or to a condition approved by the supervisor or authorized representative of the supervisor as soon as practical after the completion of plugging to the surface, but not more than 6 months after the completion of plugging to the surface.

History: 1996 AACS.

R 324.1004 Safety measures.

Rule 1004. If hazards to life or property, or both, exist, then a permittee of a well shall post safety signs in conspicuous places around the well or surface facility. The supervisor or authorized representative of the supervisor may require the installation of fences, gates, or other safety measures.

History: 1996 AACCS.

R 324.1005 Use of pits to collect waste oil and tank bottoms prohibited; conveying, storing, or disposing of waste oil and tank bottoms.

Rule 1005. A permittee of a well shall not use earthen pits to collect waste oil and tank bottoms. A permittee shall not convey, store, or dispose of waste oil and tank bottoms in a manner that causes waste.

History: 1996 AACCS.

R 324.1006 Cleanup and disposal of losses.

Rule 1006. A permittee of a well shall clean up and dispose of, in a manner consistent with these rules and all applicable state and federal laws and regulations, losses of oil, gas, or brine from wells, flow lines, and associated surface facilities.

History: 1996 AACCS.

R 324.1007 Notice of serious accident; reporting.

Rule 1007. (1) A person shall immediately notify the supervisor or authorized representative of the supervisor of a serious accident that has created, or may create, a fire or other hazard that may cause waste. The notification shall be made within 8 hours of the accident, by telephone, and shall give the particulars of the accident. A detailed written report shall be submitted to the supervisor or authorized representative of the supervisor within 15 days of the accident.

(2) If a person cannot contact the supervisor or authorized representative of the supervisor after an accident, then the person shall immediately telephone the pollution emergency alerting system.

History: 1996 AACCS.

R 324.1008 Reporting of losses, spills, and releases.

Rule 1008. (1) A permittee of a well shall, under this rule and instructions issued by the supervisor and in compliance with all applicable state and federal laws and regulations, promptly report and record all reportable losses, spills, and releases of any of the following:

- (a) Brine.
- (b) Crude oil.

(c) Oil or gas field waste.

(d) Natural gas.

(e) Products and chemicals used in association with oil and gas exploration, production, disposal, or development.

(2) A permittee of a well shall promptly report, within 8 hours of a loss, release, or spill discovery, by telephone or in person, to the supervisor or authorized representative of the supervisor during normal business hours or to the department of environmental quality, pollution emergency alerting system between 5 p.m. and 8 a.m. and on weekends and holidays, all losses or releases of gas that result in, or may result in, a nuisance odor or unnecessary endangerment of public health or safety, and all losses or spills of 42 gallons or more of brine, crude oil, or oil and gas field waste. A permittee shall provide all of the following minimum information, to the extent known, when reporting the loss, spill, or release:

(a) The name of person reporting the loss, spill, or release.

(b) The name of permittee who has sustained the loss, spill, or release.

(c) The date and time of the loss, spill, or release.

(d) The date and time that the loss, spill, or release was discovered.

(e) The date and time cleanup commenced.

(f) The location of the loss, spill, or release, including all of the following information:

(i) Well name.

(ii) Quarter-quarter-quarter section.

(iii) Section number.

(iv) Township.

(v) County.

(g) The material lost, spilled, or released.

(h) The volume of the loss, spill, or release.

(i) The volume of the loss, spill, or release recovered.

(j) The cleanup or recovery measures taken.

(k) The cause of the loss, spill, or release.

(l) Whether the loss, spill, or release contacted surface waters, groundwater, or other environmentally sensitive resources.

(m) The approximate air temperature, wind direction, wind velocity, and precipitation conditions at the time of the spill or release.

(3) A permittee of a well shall submit written notification of the losses, spills, and releases to the supervisor or authorized representative of the supervisor by completing all parts of the form provided by the supervisor within 10 days from the time the loss, spill, or release was discovered.

(4) A permittee of a well shall report all losses or spills of less than 42 gallons of brine, crude oil, or oil and gas field waste by completing only parts 1 and 3 of the form provided by the supervisor if both of the following provisions apply:

(a) The loss or spill does not contact surface waters, groundwater, or other environmentally sensitive resources.

(b) The loss or spill is completely contained and cleaned up within 48 hours from the time the loss or spill was discovered.

(5) If a loss or spill of less than 42 gallons of brine, crude oil, or oil and gas field waste does contact surface waters, groundwater, or other environmentally sensitive resources, or is not completely contained and cleaned up within 48 hours from the time the loss or spill was discovered, then a permittee of a well shall report the loss or spill as provided by subrule (2) of this rule and submit the written notification as provided by subrule (3) of this rule.

(6) If the loss or spill is less than 42 gallons of brine, crude oil, or oil and gas field waste, then the loss is not a reportable loss or spill if the loss or spill occurs while a permittee or an authorized representative of the permittee is on-site and the loss or spill is completely contained and cleaned up within 1 hour of the occurrence.

(7) A permittee of a well shall promptly report, within 8 hours of discovery of the loss or spill, by telephone or in person, a loss or spill of other chemicals used in association with oil and gas exploration, production, disposal, or development, shall provide the information required in subrule (2)(a) through (1) of this rule, and shall complete the form required in subrule (3) of this rule. A permittee shall report the losses or spills under other applicable state and federal laws and regulations.

History: 1996 AACCS; 2001 AACCS.

R 324.1009 Smoking and open flame restrictions.

Rule 1009. A permittee of a well shall ensure that smoking and open flames shall not occur where oil or gas, or both, constitutes a hazard of fire or explosion.

History: 1996 AACCS.

R 324.1010 Gas burning, processing, or disposal.

Rule 1010. A permittee of a well shall ensure that all gas produced in the operation or testing of wells that is not utilized is burned, processed, or disposed of in a manner consistent with these rules and all applicable state and federal laws and regulations. The gas shall not be burned closer than 100 feet from a well or storage tank or 300 feet from structures used for public or private occupancy or from any other flammable and combustible material.

History: 1996 AACCS.

R 324.1011 Purging, removal, and abandonment of lines and vessels.

Rule 1011. A permittee of a well shall purge all flow lines and vessels, including tanks, if the flow lines or vessels are not used for 1 year and shall provide notification of the purging operation to the supervisor or authorized representative of the supervisor. The supervisor may require the line to be removed or abandoned.

History: 1996 AACCS.

R 324.1012 Identification of wells and surface facilities.

Rule 1012.(1)A permittee of a well shall ensure that a well is identified by a sign which is posted in a conspicuous place and which is not more than 20 feet from the well. A sign shall be durably constructed, be kept in good condition, and the lettering shall be not less than 1 1/2 inches high and legible under normal conditions at a distance of 25 feet. A sign shall show all of the following information:

- (a) The permit number.
- (b) The name of the permittee.
- (c) The name of the lease and well number.
- (d) The well location by quarter-quarter section, township, and range.
- (e) A telephone number by which an authorized representative of the permittee may be contacted at any time to respond to an emergency at the well.

(2) A surface facility shall be identified by a sign which is posted in a conspicuous place and which is not more than 25 feet from the outside limits of the surface facility or at a location prescribed by the supervisor or authorized representative of the supervisor. A sign shall show all of the following information:

- (a) The name of the permittee or owner.
- (b) A telephone number by which an authorized representative of the permittee may be contacted at any time to respond to an emergency at the facility.
- (c) The location by quarter-quarter section, township, and range. If more than 1 facility is located at a common site, 1 identification sign is sufficient. A sign shall be kept in good condition and the lettering shall be not less than 1 1/2 inches high and legible under normal conditions at a distance of 25 feet.

History: 1996 AACS; 2001 AACS.

R 324.1013 Nuisance odors.

Rule 1013. A person shall not cause a nuisance odor in the exploration for, or in the development, production, handling, or use of, oil, gas, or brine or in the handling of any product associated with the exploration, development, production, or use of oil, gas, or brine.

History: 1996 AACS.

R 324.1014 Suspension of OIL AND GAS operations due to threat to public health and safety.

Rule 1014. (1) The supervisor or authorized representative of the supervisor shall have the authority to immediately require corrective action, including suspending any or all components of the oil and gas operations, if the oil and gas operations have been determined by the supervisor to be in violation of the provisions of the act, these rules, permit conditions, instructions, or orders of the supervisor and threatens the public health and safety.

(2) A suspension of oil and gas operations shall be in effect for not more than 5 days or until the operation is in compliance and protection of the public health and safety is ensured. To extend the suspension beyond 5 days, the supervisor shall issue an

emergency order to continue the suspension of oil and gas operations and may schedule a hearing under part 12 of these rules. The total duration of the suspension of oil and gas operations shall not be more than 21 days, as provided in section 61516 of the act.

History: 1996 AACCS; 2002 AACCS.

R 324.1015 Nuisance noise; “decibel,” “decibels on the a-weighted network,” “noise-sensitive area,” and “nuisance noise” defined.

Rule 1015. (1) A person shall not cause a nuisance noise in the production, handling, or use of oil, gas, or brine or in the handling of any product associated with the production or use of oil, gas, or brine.

(2) If the supervisor or authorized representative of the supervisor receives 1 or more complaints of noise heard by the complainant at noise-sensitive areas that is attributed to a surface facility, then the supervisor may require the permittee to collect decibel readings to determine the sound levels at the noise-sensitive areas and at a distance of 1,320 feet from the facility. If the sound level of the facility is more than 45 decibels on the a-weighted network at a distance of 1,320 feet from the facility, then the supervisor or authorized representative of the supervisor may find that a nuisance noise exists after considering all applicable information, including the distance between the surface facility and the noise-sensitive areas, the sound levels at the noise-sensitive areas, and sound attributable to sources other than the surface facility. The supervisor or authorized representative of the supervisor may require appropriate noise control measures to reduce the decibel levels. If noise control measures are required, then the permittee shall submit, to the supervisor or authorized representative of the supervisor, for approval, an abatement plan and schedule for implementation within 30 days of a determination by the supervisor or authorized representative of the supervisor that noise control measures are necessary.

(3) As used in this rule:

(a) “Decibel” means a unit of sound level on a logarithmic scale measured relative to the threshold of audible sound by the human ear in compliance with the ANSI standard 1.1, entitled “Acoustical Terminology,” 1994 edition, which is adopted by reference in these rules. Copies of the standard are available for inspection at the Lansing office of the office of oil, gas, and minerals of the department of environmental quality. Copies may be obtained from the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$100.00 each, and from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036, at a cost as of the time of adoption of these rules of \$100.00 each.

(b) “Decibels on the a-weighted network” means decibels measured on the a-weighted network of a sound level meter, as specified in the ANSI standard 1.4, entitled “Specifications for Sound Level Meters,” 1983 edition, which is adopted by reference in these rules. Copies of the standard are available for inspection at the Lansing office of the office of oil, gas, and minerals of the department of environmental quality. Copies may be obtained from the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$70.00 each, and from the American National Standards

Institute, 11 West 42nd Street, New York, NY 10036, at a cost as of the time of adoption of these rules of \$70.00 each.

(c) "Noise-sensitive area" means a residential dwelling, place of worship, school, or a hospital and also means an existing site that is maintained for public recreation for which quiet is a primary consideration in the use of the site.

(d) "Nuisance noise" means any noise from a well or its associated surface facilities that causes injurious effects to human health or safety or the unreasonable interference with the comfortable enjoyment of life or property.

History: 1996 AACCS; 2015 AACCS.

R 324.1016 Construction standards for noise abatement at compressors associated with surface facilities.

Rule 1016. (1) This rule shall apply to compressors that have motors rated for more than 150 horsepower.

(2) A permittee of a well who installs a compressor after the effective date of these rules, or a permittee of a well who substantially reconstructs an enclosure for a compressor after the effective date of these rules, shall comply with all of the following provisions:

(a) The compressor, drive motor, and cooler shall be completely enclosed.

(b) The walls, doors, and roof of the enclosure shall be completely lined with sound-absorbent material.

(c) The compressor drive motor shall be equipped with a hospital-type muffler or the equivalent.

(d) Air intake and exhaust passages shall be constructed so as to include at least 1 right-angle turn between the point of air entrance or exit to or from the passage and the main volume of the compressor enclosure. Air intake and exhaust passages shall be completely lined with sound-absorbent material, unless the passages vent through the roof.

(e) The compressor shall be capable of operating with the enclosure doors closed at ambient air temperatures of 85 degrees Fahrenheit or lower. "Doors" as used in this rule shall not include necessary openings for air intake and exhaust passages.

(3) The supervisor or authorized representative of the supervisor may grant an exception to the requirements of subrule (2) of this rule if a permittee designs and constructs a compressor according to a plan submitted to, and approved by, the supervisor or authorized representative of the supervisor. The plan shall provide for sound abatement equal to or exceeding the sound abatement standard specified in subrule (2)(a) of this rule.

(4) A compressor which is installed as a replacement for, and on the same site as, a compressor that was installed before the effective date of these rules and which is an equivalent size as the previous compressor is not subject to subrule (2) of this rule.

History: 1996 AACCS.

PART 11. HYDROGEN SULFIDE MANAGEMENT

R 324.1101 Definitions; B to M.

Rule 1101. As used in this part:

(a) "Briefing area" means a specified geographic area nearby where all personnel can safely assemble in an emergency.

(b) "Colorimetric or length of stain tubes" means glass tubes that contain a chemical which changes color upon exposure to a specified substance and which allow the concentration of the specified substance to be read directly.

(c) "Emergency preparedness coordinator" means an individual appointed pursuant to Act No. 390 of the Public Acts of 1976, being §30.401 et seq. of the Michigan Compiled Laws, to coordinate emergency planning or services within the county or municipality.

(d) "Existing H2S well" means an H2S well that is drilled and completed before September 2, 1987.

(e) "Existing process equipment" means equipment for the production of oil or gas, or both, which was in existence, and through which oil or gas, or both, was being produced, before September 2, 1987. Existing process equipment does not include gas sweetening plants or stripping plants.

(f) "Flare" means a device for the burning of gasses in which the flame is exposed to the atmosphere and burning takes place at a height of not less than 20 feet above the ground.

(g) "H2S well" means a well that contains a hydrogen sulfide content in the gas of not less than 300 ppm.

(h) "Incinerator" means a device specifically designed for the destruction, by burning, of combustible gasses, in which the products of combustion are emitted to the outer air by passing through a stack or chimney that opens to the outer air at a height of not less than 20 feet above the ground.

(i) "Mcf" means 1,000 cubic feet of gas at standard conditions of 14.65 psi absolute and at 60 degrees Fahrenheit.

History: 1996 AACCS.

R 324.1102 Definitions; N to W.

Rule 1102. As used in this part:

(a) "NACE" means the national association of corrosion engineers.

(b) "New H2S well" means an H2S well that is drilled or completed after September 2, 1987.

(c) "Radius of exposure" means the distance, in feet, that results when appropriate values are substituted for the variables in the following equation:

$$\text{RoE} = (A \times B \times C)^{0.6258} \text{ where}$$

A = 1.589 for a 100-ppm radius of exposure.

B = the mole fraction concentration of hydrogen sulfide in the released gas.

C = the maximum volume of gas determined to be available for release in cubic feet per 24 hours. The radius of exposure is the distance from a point of release at

which a specified concentration of hydrogen sulfide would occur if gas of a known concentration of hydrogen sulfide were released at a known rate.

(d) "Safety equipment" means, at a minimum, all of the following items:

(i) First aid kits.

(ii) Stretchers.

(iii) Blankets.

(iv) Portable dry chemical fire extinguishers.

(v) Ropes.

(vi) Flare guns and flares.

(vii) Battery-operated lanterns.

(viii) Portable electronic hydrogen sulfide detectors.

(ix) Warning signs that have the word "Danger" or "Caution" followed by the words "Poison Gas."

(x) Two copies of the owner's contingency plan.

(xi) Not less than 2 portable, self-contained, pressure-demand breathing apparatus that have a 30-minute air supply.

(xii) A supply of compressed breathable air or oxygen that is sufficient to recharge each self-contained breathing apparatus at least once.

(e) "Well class" means the category into which an H₂S well falls or, in the case of an H₂S well to be drilled, the category into which it is expected that the well will fall, as follows:

(i) "Class I H₂S well" means a well that has a 100-ppm radius of exposure of more than 300 feet and a hydrogen sulfide content in the gas of not less than 300 ppm.

(ii) "Class II H₂S well" means a well that has a 100-ppm radius of exposure of not less than 100 feet and not more than 300 feet and a hydrogen sulfide content in the gas of not less than 300 ppm.

(iii) "Class III H₂S well" means a well that has a 100-ppm radius of exposure of less than 100 feet and not less than 30 feet and a hydrogen sulfide content in the gas of not less than 300 ppm.

(iv) "Class IV H₂S well" means a well that has a 100-ppm radius of exposure of less than 30 feet and a hydrogen sulfide content in the gas of not less than 300 ppm.

History: 1996 AACCS.

R 324.1103 Metallic component standards.

Rule 1103. A permittee of a well shall ensure that metallic components of the well, flow line, and associated surface facilities installed during the course of drilling, completing, testing, producing, repair, workover, or servicing operations after September 2, 1987, where applicable, are in compliance with or exceed the standards for use in a hydrogen sulfide environment set forth in the NACE standard MR0175-2000, 2000 edition, entitled "Sulfide Stress Cracking Resistant Metallic Material for Oil Field Equipment," which is adopted by reference in these rules. Copies may be inspected at the Lansing office or field offices of the office of oil, gas, and minerals of the department of environmental quality. Copies may be obtained from the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing,

Michigan 48909, at a cost as of the time of adoption of these rules of \$50.00 each, and from the National Association of Corrosion Engineers, P.O. Box 218340, Houston, Texas 77218, at a cost as of the time of adoption of these rules of \$50.00 each.

History: 1996 AACCS; 2001 AACCS; 2015 AACCS.

R 324.1104 Permittee compliance with this part and state and federal laws and regulations.

Rule 1104. A permittee of a well shall comply with all of the provisions of this part. Compliance with this part does not exempt a permittee from complying with all applicable state and federal laws and regulations governing air pollution and emissions.

History: 1996 AACCS.

R 324.1105 Classification of H2S wells; applicability of rules to well classes.

Rule 1105.(1) An H2S well is considered a class I H2S well and is subject to the requirements of R 324.1103, R 324.1104, R 324.1106 to R 324.1115(1) to

(5) and (7), and R 324.1116 to R 324.1130, unless a permittee can supply data showing that the well is a class II H2S, class III H2S, or class IV H2S well.

(2) An H2S well that is considered to be a class II H2S well is subject to the requirements of R 324.1103, R 324.1104, R 324.1106 to R 324.1115(1) to (5) and (7), R 324.1116 to R 324.1129, and R 324.1130(1),(3) and (4).

(3) An H2S well that is considered to be a class III H2S well is subject to the requirements of R 324.1103, R 324.1104, R 324.1106 to R 324.1109, R 324.1111, R 324.1112, R 324.1114, R 324.1115(1) to (5) and (7), R 324.1116 to R 324.1129, and R 324.1130(1) and (4).

(4) An H2S well that is considered to be a class IV H2S well is subject to the requirements of R 324.1103, R 324.1104, R 324.1106 to R 324.1109, R 324.1111, R 324.1112(2), R 324.1114, R 324.1115(6) and (7), R 324.1118 to R 324.1124, R 324.1126 to R 324.1129, and R 324.1130(1) and (4).

(5) If a well is being drilled through, but not completed in, a reservoir known to contain hydrogen sulfide-bearing gas, then the well shall be in compliance with the requirements of the H2S well class to which it would be assigned if it were completed in the reservoir. Compliance shall continue until all hydrogen sulfide-bearing zones have been cased off.

(6) The supervisor may require a permittee to provide the information necessary to determine whether these rules apply to a well.

History: 1996 AACCS; 2001 AACCS.

R 324.1106 Location of H2S wells and associated surface facilities.

Rule 1106. (1) New H2S wells shall be located not less than 300 feet from existing water wells, existing structures used for public or private occupancy, existing areas

maintained for public recreation, or the edge of the traveled portion of an existing interstate, United States, or state highway.

(2) Surface facilities associated with new H₂S wells shall be located not less than 600 feet from existing water wells, existing structures used for public or private occupancy, existing areas maintained for public recreation, or the edge of the traveled portion of an existing interstate, United States, or state highway. The supervisor or authorized representative of the supervisor may grant an exception to the setback distance to not less than 450 feet for a class II H₂S well and not less than 300 feet for a class III H₂S well and a class IV H₂S well either upon presentation, to the supervisor or authorized representative of the supervisor, of a consent form, provided by the supervisor, signed by the owner or owners of all existing water wells, existing structures used for public or private occupancy, or existing areas maintained for public recreation located less than 600 feet from the proposed process equipment site or upon receipt of a petition from the permittee for a hearing pursuant to part 12 of these rules.

(3) If existing process equipment is located less than 600 feet from existing water wells, existing structures used for public or private occupancy, existing areas maintained for public recreation, or a state, United States, or interstate highway, then the supervisor or authorized representative of the supervisor may require relocation of the facility if it

is substantially reconstructed after September 2, 1987.

(4) The supervisor shall not require relocation of an existing facility because of its proximity to an existing water well, to a structure used for public or private occupancy, to an area maintained for public recreation, or to a state, United States, or interstate highway constructed or established after the installation of the facility or after September 2, 1987.

History: 1996 AACCS.

R 324.1107 Training.

Rule 1107.(1) A permittee of a well is responsible for ensuring that all agents, employees, or other representatives of the permittee who are involved in drilling, completing, testing, producing, repair, workover, or servicing operations on an H₂S well have received training from persons qualified in hydrogen sulfide safety. The training shall include all of the following matters:

- (a) The physical properties and physiological effects of hydrogen sulfide.
- (b) The effects of hydrogen sulfide on metals and elastomers.
- (c) Emergency escape procedures.
- (d) The location and proper use of safety equipment.
- (e) The locations of primary and secondary briefing areas.
- (f) The location and operation of the hydrogen sulfide detection and warning system.
- (g) The corrective actions, shut-in procedures, H₂S well ignition procedures, and procedures for notifying off-site public authorities listed in the contingency plan to be followed in an emergency.
- (h) The contents of the permittee's contingency plan.

(2) Not less than 2 persons per crew shall be trained in emergency first aid procedures, including red cross-approved techniques of cardiopulmonary resuscitation.

(3) When a drilling contractor or other independent contractor is involved in drilling, completing, testing, producing, repair, workover, or servicing operations on an H2S well, a permittee of a well may rely on written certification obtained from the contractor that the agents and employees of the contractor involved in the operations have received the training required by this rule. A permittee shall retain the written certification. Failure to ensure that employees receive adequate training and are current in the training is sufficient cause for the suspension of any or all components of the oil and gas operations on the well. A suspension shall continue as provided in R 324.1014(2).

History: 1996 AACCS; 2002 AACCS.

R 324.1108 Securing of nonproducing H2S wells.

Rule 1108. A permittee of a nonproducing H2S well shall ensure that the well is secured to prevent a person other than authorized personnel from opening the well.

History: 1996 AACCS.

R 324.1109 Warning signs; specifications.

Rule 1109. A permittee of a well shall ensure that warning signs have letters that are not less than 1 1/2 inches in height and that are legible under normal conditions at a distance of 25 feet.

History: 1996 AACCS.

R 324.1110 Contingency plans for drilling and production.

Rule 1110.(1) A contingency plan for drilling shall be prepared by the applicant to provide an organized plan of action for alerting and protecting personnel at an H2S well site and the public. The contingency plan for drilling shall consist of 2 parts.

(2) Part 1 of the plan shall contain the general procedures that shall be followed in the event of an emergency involving the possible release of hydrogen sulfide into the atmosphere and shall include both of the following sections:

(a) A section that lists, by title, personnel to be contacted and their duties and responsibilities. The list shall also include a delegation of duties and responsibilities and shall specify who is responsible for ordering ignition of the H2S well if necessary. The list shall be kept current by the applicant or permittee.

(b) A section that contains all of the following information:

(i) The emergency circumstances that cause the plan to be put into operation.

(ii) The initial procedures to be followed if the plan is activated.

(iii) The actions to be taken to ensure that all personnel known to be on the location are accounted for and that nonessential personnel shall be safely removed.

(iv) The actions to be taken to restrict access of nonessential personnel to the location.

(v) The procedure for notifying the general public, public authorities, as listed in the contingency plan, and safety agencies in the event of an emergency.

(vi) If evacuation of the public is necessary, the procedure for conducting the evacuation.

(vii) The procedures for igniting the H₂S well.

(3) Part 2 of the plan shall be site-specific and shall contain all of the following information:

(a) An accurate map that shows the locations of all existing structures used for public or private occupancy, areas maintained for public recreation, roads, and railroads within a 1,300-foot radius of the drilling well in the case of a class I H₂S well or within a 500-foot radius of the drilling well in the case of a class II H₂S well.

(b) A list of names, telephone numbers, and addresses of all of the following:

(i) Seasonal and permanent residents.

(ii) Private businesses.

(iii) Schools.

(iv) Places of worship.

(v) Hospitals.

(vi) Governmental offices.

(vii) Parties responsible for the areas maintained for public camping or gathering identified on the map.

(c) A list of emergency telephone numbers, including the numbers of all of the following:

(i) Representatives of the permittee.

(ii) Representatives of the drilling contractor.

(iii) The emergency preparedness coordinator.

(iv) Local ambulance services.

(v) Local hospitals.

(vi) Local fire departments.

(vii) The department of environmental quality.

(viii) The pollution emergency alerting system.

(4) An applicant shall submit part 1 of the contingency plan for drilling an H₂S well at the request of the supervisor or authorized representative of the supervisor. The applicant shall submit part 2 of the contingency plan for drilling an H₂S well with the application for a drilling permit. The applicant shall submit a copy of part 2 of the contingency plan to the local emergency preparedness coordinator at the time the application is submitted to the supervisor. The supervisor or authorized representative of the supervisor may require that contingency plans for producing H₂S wells be updated periodically.

(5) An applicant may request, from the supervisor or authorized representative of the supervisor, an exception to the requirement to prepare the map and accompanying list of residences required in subrule (3) of this rule.

(6) A permittee shall prepare a contingency plan for production for any well, surface facility, or flow line subject to this rule. A contingency plan shall contain all of the following information:

(a) Permittee name, well name, location, and permit number of the well or facility.

(b) An accurate map or site plan showing the location of all equipment carrying or containing fluids with hydrogen sulfide.

(c) Names and contact information for local representatives of the permittee who have knowledge of the equipment and authority to take corrective actions at the well or facility in an emergency situation.

(d) Available information on hydrogen sulfide concentrations at the site.

(7) Every 3 years or as required by the supervisor, a permittee shall review contingency plans and certify to the supervisor or authorized representative of the supervisor and the local emergency preparedness coordinator that the contingency plans are accurate. The permittee shall update the contingency plan under any of the following conditions and submit a copy of the updated contingency plan to the supervisor or authorized representative of the supervisor and the local emergency preparedness coordinator:

(a) A change of the notification process or local representatives of the permittee.

(b) A substantial change in the site conditions or equipment noted on the plan.

(c) A change of the permittee.

(8) A permittee shall provide a contingency plan for production to the supervisor or authorized representative of the supervisor and the local emergency preparedness coordinator for all wells, surface facilities, and flow lines subject to this rule 6 months after the effective date of these amendatory rules for all existing production facilities and before the commencement of production for all production facilities completed after the effective date of these amendatory rules.

History: 1996 AACCS; 2001 AACCS.

R 324.1111 Compliance with rules; time.

Rule 1111. A permittee of a well shall comply with R 324.1112 to R 324.1116 not later than the time at which drilling reaches a depth of 500 feet above the projected top of the geological stratum suspected by a permittee or the supervisor or authorized representative of the supervisor to contain hydrogen sulfide. Compliance shall continue until all formations or strata suspected to contain hydrogen sulfide are cased off, plugged, or drilled and proven not to be a potential problem.

History: 1996 AACCS.

R 324.1112 Briefing areas.

Rule 1112. (1) A permittee of a well shall establish primary and secondary briefing areas at the drilling site. A permittee shall ensure that safety equipment is located at the primary briefing area.

(2) The supervisor or authorized representative of the supervisor may require safety equipment, in addition to that listed in R 324.1102(d), if necessary for the safety of the public or the workers.

History: 1996 AACCS.

R 324.1113 Emergency preparedness coordinator; contact by permittee.

Rule 1113. A permittee of a well shall contact the appropriate emergency preparedness coordinator not less than 24 hours before the commencement of drilling the H₂S well.

History: 1996 AACCS; 2001 AACCS.

R 324.1114 Wind direction indicators.

Rule 1114. A permittee of a well shall install wind direction indicators at the drilling site. the wind direction indicators shall be visible from all normal work stations within the drilling site.

History: 1996 AACCS.

R 324.1115 Equipment; electric or mechanical fan; hydrogen sulfide detection and warning system; emergency escape self-contained breathing apparatus; rig floor ventilation.

Rule 1115. (1) A permittee of a well shall install a hydrogen sulfide detection and warning system that activates audible and visual alarms if hydrogen sulfide is detected. Visual alarms shall be activated if a hydrogen sulfide concentration of 10 ppm is detected. Audible alarms shall be activated if a hydrogen sulfide concentration of 20 ppm is detected.

(2) A permittee of a well shall locate hydrogen sulfide sensors as follows:

(a) For rotary rigs, at all of the following locations:

(i) The shale shaker or at the point of first release of gas from the returning stream of drilling fluid.

(ii) On the rig floor.

(iii) In the substructure.

(iv) At the mud hopper.

(b) For cable tool rigs, at the point of first release of gas from the well bore and on the rig floor.

(3) After the sensors are mounted, a permittee of a well shall calibrate the system according to the manufacturer's instructions. The permittee shall test the detection and warning system before drilling into the geological stratum suspected to contain hydrogen sulfide. The permittee shall record the calibrations and tests in the driller's log. The supervisor or authorized representative of the supervisor may witness the testing and calibration.

(4) A permittee of a well shall ensure that an emergency escape self-contained breathing apparatus is readily available to every member of the drilling crew at that member's work station and to other personnel required to be on the rig floor during the drilling operation.

(5) A permittee of a well shall ensure that the rig floor and substructure is adequately ventilated to prevent the accumulation of gas. Forced-air ventilation shall be

used when natural ventilation is inadequate. An electric or mechanical fan shall be available on the drill site for ventilation.

(6) A permittee of a well shall ensure that the rig floor and substructure of a class IV H₂S well is adequately ventilated to prevent the accumulation of gas and shall utilize either a hydrogen sulfide detector that has an audible alarm or an electric or mechanical fan that operates constantly during the operation if natural ventilation is inadequate to keep the wellhead area free from gas.

(7) A permittee of a well shall ensure that well safety equipment is the same equipment that is required under R 324.1102(d) for class I H₂S and class II H₂S wells and R 324.1102(d)(viii), (ix), and (xi) for class III H₂S wells. Safety equipment shall be located at the primary briefing areas for class I H₂S and class II H₂S wells and at the well site for class III H₂S and class IV H₂S wells, if safety equipment is required for class IV H₂S wells, unless otherwise stated in this rule. The supervisor or authorized representative of the supervisor may require the use of safety equipment, in addition to the equipment listed in R 324.1102(d), if necessary for the safety of the public or the workers.

History: 1996 AACCS.

R 324.1116 Mud gas separator; burning of gas generated by mud gas separator; incinerator or flare installation; hydrogen sulfide concentration determination.

Rule 1116. (1) All of the following provisions apply to rotary drilling operations:

(a) If a gas kick occurs, all returning drilling fluid shall be circulated through a mud gas separator.

(b) All gas separated from the drilling fluid by the mud gas separator shall be routed to a properly engineered incinerator or flare that has an elevated discharge to the atmosphere and shall be burned.

(c) When gas is being routed to the incinerator or flare from the mud gas separator, the hydrogen sulfide content of the gas shall be determined by a permittee or the permittee's representative. The determination shall be made using colorimetric or length of stain tubes or other equipment designed to measure hydrogen sulfide concentrations and shall utilize a procedure approved by the supervisor or authorized representative of the supervisor. The results of the determination shall be entered into the driller's log.

(2) Both of the following provisions apply to cable tool drilling:

(a) All gas separated from other fluids shall be routed to a properly engineered flare or incinerator that has an elevated discharge to the atmosphere and shall be burned.

(b) When gas is being routed to the incinerator or flare, the hydrogen sulfide content of the gas shall be determined by a permittee or the permittee's representative. The determination shall be made using colorimetric or length of stain tubes or other equipment designed to measure hydrogen sulfide concentrations and shall utilize a procedure approved by the supervisor or authorized representative of the supervisor. The results of the determination shall be entered into the driller's log.

History: 1996 AACCS.

R 324.1117 Initial testing.

Rule 1117. (1) When initial testing of an H₂S well is performed, in addition to applicable air pollution control commission general rules, a permittee of a well shall comply with all of the following requirements not later than the start of testing if permanent surface facilities have not been installed:

(a) One or more wind direction indicators shall be installed and shall be visible from all normal work stations within the test site of class I H₂S and class II H₂S wells.

(b) An incinerator or flare shall be installed for the purpose of burning all gas and stock tank vapor produced during the test. The incinerator or flare shall be equipped with a continuous pilot light or a pilot light outage detector that has an automatic reignition system. The incinerator or flare shall be located not less than 75 feet from the wellhead and test tanks and shall be positioned so that the prevailing winds carry the combustion products away from the site.

(c) A flashback prevention system shall be installed between the incinerator or flare and the test tanks.

(d) All of the following equipment shall be located at the test site:

(i) Not less than 2 self-contained, pressure-demand breathing apparatus that have a 30-minute air supply for class I H₂S and class II H₂S wells.

(ii) A first aid kit for class I H₂S and class II H₂S wells.

(iii) A portable electronic hydrogen sulfide detector for class I H₂S and class II H₂S wells.

(iv) An emergency escape self-contained breathing apparatus for each member of the test crew for class I H₂S and class II H₂S wells.

(v) The supervisor or authorized representative of the supervisor may require the use of safety equipment in addition to the equipment listed in R 324.1102(e) if necessary for the safety of the public or the workers.

(e) Warning signs that have the word "Danger" or "Caution" followed by the words "Poison Gas" shall be posted at the entrances to all access roads.

(f) The supervisor or authorized representative of the supervisor shall be notified of the expected start-up date of the initial test.

(2) During the test period, a permittee of a well shall determine the hydrogen sulfide content of the gas produced. Hydrogen sulfide content shall be determined on-site using colorimetric or length of stain tubes or other equipment designed to measure hydrogen sulfide concentrations utilizing a procedure approved by the supervisor or authorized representative of the supervisor.

(3) All gas measurements made during the initial flow test shall be made using a meter that allows all gas metered to be burned.

(4) Operations or procedures that require the use of a self-contained breathing apparatus shall be performed only if not less than 2 people who are authorized by the permittee of the well are on-site.

(5) The supervisor or authorized representative of the supervisor may grant exceptions to this rule when compliance with the provisions of this rule is not necessary to provide for the protection or safety of the public or workers or when the

H2S well or associated surface facilities are not likely to constitute sources of nuisance odors.

History: 1996 AACCS.

R 324.1118 Gas analyses.

Rule 1118. (1) The supervisor or authorized representative of the supervisor may require periodic gas analyses to determine hydrogen sulfide concentration.

(2) A permittee of a well shall make a second gas analysis 1 year after the date of the initial analysis required in R 324.1117(2). Further gas analyses shall be required only at the request of the supervisor or authorized representative of the supervisor.

(3) A permittee of a well shall notify the supervisor or authorized representative of the supervisor before the sampling and analysis required in subrules (1) and (2) of this rule.

(4) A permittee of a well shall report, in writing, the results of a gas analysis required by the supervisor or authorized representative of the supervisor to the supervisor within 1 month of the date of the analysis. The report shall state the methods of sampling and analysis used.

History: 1996 AACCS.

R 324.1119 Wellheads; painting requirements; warning signs.

Rule 1119. (1) A permittee of a well shall ensure that the valve or valves necessary to shut off all fluid flow nearest the wellhead are painted yellow.

(2) A permittee of a well shall ensure that the power supply kill switch of an H2S well that is produced by artificial lift is painted yellow. A permittee of a well shall ensure that the power supply kill switch is conspicuously marked and readily accessible.

(3) A permittee of a well shall ensure that a warning sign that has the word "Danger" or "Caution" followed by the words "Poison Gas" is prominently displayed at the wellhead.

History: 1996 AACCS.

R 324.1120 Flow lines; markers; protection.

Rule 1120. (1) A permittee of a well shall ensure that the routes of flow lines that are located before the point of sale and that are used for transporting fluids containing hydrogen sulfide are marked. Markers shall be mounted not less than 4 feet above ground level, shall consist of signs denoting the presence of a buried line carrying hydrogen sulfide, and shall contain the name of the flow line owner and the flow line owner's emergency telephone number. Markers shall be properly maintained and shall be spaced

so that the route of the flow line can be easily traced. Routes shall be kept sufficiently cleared to allow adjacent markers to be visible with the naked eye.

(2) A permittee of a well shall ensure that flow lines constructed above ground level are protected from accidental damage by vehicular traffic or other similar causes.

History: 1996 AACCS.

R 324.1121 Heated vessels; installation of certain equipment required; exhaust gas stack height.

Rule 1121. A permittee of a well shall ensure that heated vessels fueled with natural gas that contains hydrogen sulfide are equipped with a system to prevent the emission of the fuel gas to the atmosphere in the event of a pilot failure or flameout and shall be in compliance with the emissions and operations requirements provided in R 336.1403. The exhaust gas stack height shall be not less than 20 feet.

History: 1996 AACCS.

R 324.1122 Vessels used for storing hydrogen sulfide-bearing liquid hydrocarbons or hydrogen sulfide-bearing brine; equipment requirements.

Rule 1122.(1) A permittee of a well shall ensure that a vessel which is located at an H₂S well site or in a central production facility serving an H₂S well and which is used for the storage of hydrogen sulfide-bearing liquid hydrocarbons or hydrogen sulfide-bearing brine is equipped with a sealing, pressure-vacuum-type hatch, except that a pressure-vacuum-type hatch is not required on a storage vessel if the venting of vapor to the atmosphere is permitted under subrule (4) of this rule. A hatch shall be kept closed when a tank is not being gauged.

(2) If a storage vessel described in subrule (1) of this rule releases a total 24-hour volume of 5 mcf or more of vapors, then a permittee of a well shall ensure that the vessel is equipped with a vent line for conveying released gasses and vapors to an incinerator, flare, or vapor recovery system. A flashback prevention system shall be installed on the line between a vessel and the incinerator or flare. If a vapor recovery system is used to control tank vapor emissions, then a flare or incinerator

shall be available for standby or emergency use. Installing a vapor recovery system does not exempt a flare or incinerator from being in compliance with the requirements of R 324.1123.

(3) If a storage vessel described in subrule (1) of this rule releases a total daily volume of 5 mcf or more of vapors, then a permittee of a well shall install a fence around the vessel equipped with a gate. A fence shall be located not less than 20 feet from the base of a storage vessel. A permittee shall ensure that warning signs with the word "Danger" or "Caution" followed by the words "Poison Gas" are installed on all sides of the fence. If the supervisor or authorized representative of the supervisor finds that a threat to the public safety exists due to emissions of sulfur-bearing gas or vapor, then fencing other than that specified in R 324.102(p) may be required.

(4) If a storage vessel described in subrule (1) of this rule releases a total daily volume of 5 mcf or less of vapor, then it may be vented to the atmosphere if the vent is located not less than 10 feet above the tank top and if the opening of the vent is within the diked area or not less than 20 feet above the ground if the opening of the vent is

outside the diked area. The supervisor may prohibit venting of vapor to the atmosphere if a verified chronic nuisance odor results from the sulfur-bearing compounds being vented.

(5) If the hydrogen sulfide concentration at the tank thief hatch is more than 500 ppm by volume, then a permittee of a well shall ensure that a tank has a latched gate at the foot of the catwalk stairs. A permittee of a well shall ensure that a sign reading "Self-contained Breathing Apparatus is Recommended Beyond This Point if Hatches are to be Opened" is posted on the gate.

(6) The supervisor may require the use of a tank gauging system that does not require the opening of the tank hatches if a verified chronic nuisance odor results from tank gauging.

(7) A person or a permittee of a well shall not install a tank which is used for the storage of hydrogen sulfide-bearing liquid hydrocarbons or brine from an H₂S well if the separator or treater immediately upstream of the tank has an operating pressure of more than 250 psig unless an independent

registered engineer certifies that the facility is designed and constructed such that any release of liquids or gas to the tank shall not cause a release of hydrogen sulfide to the atmosphere.

History: 1996 AACCS; 2001 AACCS; 2002 AACCS.

R 324.1123 Incinerators and flares; equipment and design requirements; additional requirements.

Rule 1123.(1) A permittee of a well shall ensure that an incinerator or flare installed under R 324.1117, R 324.1122, or R 324.1124 is designed and equipped to prevent the release of unburned gas to the atmosphere. If the daily volume of gas handled by the incinerator or flare contains 28 pounds or more of hydrogen sulfide, then a permittee shall ensure that the incinerator or flare is equipped with a mechanism that operates upon failure of the pilot light to shut off the flow of fluid from the wellhead.

(2) A permittee of a well shall ensure that an incinerator or flare required by R 324.1122 is fenced. A fence shall be located not less than 20 feet from the base of the incinerator or flare. A permittee of a well shall ensure that warning signs that have the word "Danger" or "Caution" followed by the words "Poison Gas" are posted on all sides of the fence. If the supervisor or authorized representative of the supervisor finds that a threat to the public safety still exists due to emissions of the incinerator or flare, then fencing other than that specified in R 324.102(p) may be required.

(3) If the supervisor or authorized representative of the supervisor finds that a threat to the public health or safety exists due to the emission of sulfur-bearing gasses or vapors, then a flare stack or incinerator stack that is more than 20 feet high, as specified in R 324.1101(f) and (h), may be required.

History: 1996 AACCS; 2002 AACCS.

R 324.1124 Emergency relief valves.

Rule 1124. A permittee of a well shall ensure that an emergency relief valve on process equipment is equipped with a line for conveying the released gasses or vapors to an incinerator or flare. The supervisor or authorized representative of the supervisor may grant an exception if the total daily volume of gas produced is less than 5 mcf.

History: 1996 AACCS.

R 324.1125 Shut-in systems.

Rule 1125.(1)A permittee of a well shall ensure that an H₂S well which produces unattended and which has a stabilized producing tubing pressure of not less than 100 psig is equipped with a high-pressure and low-pressure shut-in system.

(2) A permittee of a well shall ensure that a class I H₂S well drilled after the effective date of these amendatory rules for which the 100 ppm radius of exposure includes an existing structure used for public or private occupancy, existing area maintained for public recreation, or the edge of the traveled portion of an existing interstate, united states, or state highway, shall be equipped with the following:

(a) Hydrogen sulfide sensors located on four sides of the wellhead at a distance of not more than 20 feet. The sensors shall be set to activate safety shutdown equipment as specified in subdivisions (b) and (c) of this subrule when a hydrogen sulfide concentration of 30 ppm is detected. A permittee of a well shall calibrate the sensor system according to the manufacturer's instructions.

(b) For flowing class I H₂S wells:

(i) Dual manual master valves.

(ii)A fail-closed wing safety valve automatically actuated by a low pressure pilot sensor downstream of the valve and by the hydrogen sulfide sensors at the wellhead.

(iii)Remote telemetry that alerts the well operator when the hydrogen sulfide sensors detect a hydrogen sulfide concentration of 30 ppm.

(iv)An emergency access valve into the tubing spool.

(c) For pumped class I H₂S wells:

(i) An emergency access valve into the tubing spool.

(ii)A fail-closed blowout preventer automatically actuated in the event the polish rod breaks.

(iii)A fail-closed polish rod ram blowout preventer automatically actuated by the hydrogen sulfide sensors at the wellhead.

(iv)Equipment that automatically shuts off the pump drive unit in the event of a stuffing box failure.

(v) A safety shut down of the pump drive unit, which cannot be isolated from the tubing pressure without unlocking a valve, automatically actuated by the high pressure low pressure sensor and the hydrogen sulfide sensors at the wellhead.

History: 1996 AACCS; 2001 AACCS.

R 324.1126 Vehicle loading racks; vapor return lines required; vapor vent lines permitted.

Rule 1126. (1) Truck vapor return lines are required on the loading racks of the surface facilities and shall be utilized when oil or condensate is loaded into the truck, except as provided in this rule.

(2) Truck vapor vent lines are permitted if the point of emission is not less than 75 feet from the loading rack and not less than 600 feet from an existing water well and an existing structure used for public or private occupancy. The allowance for truck vapor vent lines may be rescinded in specific cases if the supervisor or authorized representative of the supervisor determines that nuisance odors are caused by the use of the vent lines.

History: 1996 AACCS.

R 324.1127 Compliance with rules before production of new H2S well.

Rule 1127. (1) A permittee of a well shall comply with this rule and R 324.1119 to R 324.1126 before production of a new H2S well.

(2) The supervisor may grant exceptions to R 324.1119 to R 324.1123, R 324.1125, R 324.1126, and this rule when the rules are not necessary to provide for the protection or safety of the public or workers or when the H2S well or associated surface facilities are not likely to constitute sources of nuisance odors.

History: 1996 AACCS.

R 324.1128 Servicing; requirements.

Rule 1128. Before commencing an operation that requires removing the seal between the tubing and production casing, a permittee of a well shall meet all of the following requirements:

(a) Blowout prevention equipment sized to accommodate the tubing and rework drill pipe shall be installed and tested for class I H2S, class II H2S, and class III H2S wells.

(b) Primary and secondary briefing areas shall be established for class I H2S and class II H2S wells.

(c) The same safety equipment that is required under R 324.1102(d) is required for class I H2S and class II H2S wells and under R 324.1102(d)(viii), (ix), and (xi) is required for class III H2S wells. Safety equipment shall be located at the primary briefing areas for class I H2S and class II H2S wells and at the well site for class III H2S and class IV H2S wells if required for class IV H2S wells. The supervisor or authorized representative of the supervisor may require the use of safety equipment, in addition to the equipment listed in R 324.1102(d), if the equipment is necessary for the safety of the public or the workers.

(d) An electric or mechanical fan shall be located at the well site for class I H2S, class II H2S, and class III H2S wells. The fan shall be operated constantly during the operation to keep the wellhead area free from gas if natural ventilation is inadequate.

(e) A hydrogen sulfide detection and warning system shall be installed and have the detector located downwind from the well or in the direction in which the fan is blowing. The detection and warning system shall activate visual alarms if a hydrogen

sulfide concentration of 10 ppm is detected. Audible alarms shall be activated if a hydrogen sulfide concentration of 20 ppm is detected; however, the use of a hydrogen sulfide detection and warning system is optional for a class IV H₂S well.

(f) Signs that have the word "Danger" or "Caution" followed by the words "Poison Gas" shall be installed at the entrances of all access roads.

(g) The supervisor or authorized representative of the supervisor shall be notified before the start of servicing operations for class I H₂S, class II H₂S, and class III H₂S wells.

(h) A revised and updated contingency plan shall be at the well site and shall be reviewed with all workers for class I H₂S and class II H₂S wells.

History: 1996 AACCS.

R 324.1129 Burning, processing, or disposing of hydrogen sulfide gas.

Rule 1129. (1) A permittee shall not release gas produced from an H₂S well to the environment, except as follows:

(a) By burning as fuel in a heated vessel in compliance with R 324.1121.

(b) By burning in a flare or incinerator that complies with R 324.1010.

(c) By injection into an approved underground formation under R 324.612 or R 324.703.

(d) By venting from tanks under R 324.1122(4) or R 324.1124.

(e) By disposal by other means as may be approved by the supervisor under a specific request by the permittee, if the permittee demonstrates to the supervisor that the manner of disposal prevents waste and does not cause unnecessary endangerment of public health, safety, and welfare.

(2) If a well or its associated surface facilities produce hydrogen sulfide and the supervisor or authorized representative of the supervisor receives 1 or more complaints of odor regarding the facility, then the supervisor may require the permittee of a well to perform numerical modeling to determine the concentration of hydrogen sulfide in the ambient air. Numerical modeling shall utilize the distance from the potential point of an uncontrolled release of gas at the well or its associated surface facilities to the closest existing structure used for public or private occupancy, existing area maintained for public recreation, or the edge of the traveled portion of an existing interstate, United States, or state highway. A permittee shall have the opportunity to provide, in addition to the numerical modeling, actual measurements of the concentration of hydrogen sulfide in the ambient air taken at the closest existing structure used for public or private occupancy, existing area maintained for public recreation, or the edge of the traveled portion of an existing interstate, United States, or state highway. The supervisor or authorized representative of the supervisor may determine a nuisance odor exists based on all applicable information. The supervisor or authorized representative of the supervisor may require appropriate emission control measures consistent with the provisions of this rule and R 324.1101 to R 324.1128. If emission control measures are required, then the permittee shall submit, within 30 days of being determined to be necessary by the supervisor, for the approval of the supervisor or authorized representative of the supervisor, a timetable for the installation of any equipment required.

History: 1996 AACCS; 2001 AACCS.

R 324.1130 Requirements for certain gathering lines, flow lines, and facility piping.

Rule 1130. (1) A gathering line, installed after the effective date of these amendatory rules carrying gas with more than 300 ppm hydrogen sulfide shall be subject to the provisions for design, construction, testing, maintenance, and operation as specified in administrative rules promulgated under Act No. 165 of the Public Acts of 1969, as amended, being §483.151 et seq. of the Michigan Compiled Laws.

(2) A flow line or facility piping, carrying gas from a class I H₂S well and which is subject to a maximum working pressure in excess of 125 psig shall be subject to the provisions for design, construction, testing, maintenance, and operation as specified in administrative rules promulgated under Act No. 165 of the Public Acts of 1969, as amended, being §483.151 et seq. of the Michigan Compiled Laws.

(3) A person or a permittee shall not install a flow line or gathering line, carrying gas from a class I H₂S or class II H₂S well, or modify an existing flow line or gathering line to serve additional class I H₂S or class II H₂S wells, unless all of the following provisions are met:

(a) The person or permittee shall calculate the 100 ppm radius of exposure, using either the equation set forth in R 324.1102(c) or another dispersion model accepted by the supervisor. The calculation shall be based upon the reasonably expected concentration of hydrogen sulfide to be transported in the flow line or gathering line, the maximum actual operating pressure, and the volume of gas that could be released from the flow line or gathering line, accounting for any automatic shut-in systems and blocking valves that will be utilized.

(b) If an existing structure used for public or private occupancy, an existing area maintained for public recreation or the edge of the traveled portion of an existing interstate, united states, or state highway falls within the 100 ppm radius of exposure, the person or permittee shall prepare a construction and operation plan that incorporates reasonable measures to reduce the potential for public exposure to hydrogen sulfide from a release that might occur. The construction and operation plan shall consider appropriate construction standards, routing alternatives, monitoring equipment, automatic controls for source shut-in, or other available engineering methods. The person or permittee shall submit the construction and operation plan to, and receive the approval of the supervisor or authorized representative of the supervisor. The supervisor or authorized representative of the supervisor shall have 30 days to approve the plan or to require modifications or additional information.

(c) Repair and maintenance of an existing flow line or gathering line are exempt from the provisions of this subrule.

(4) Gathering lines, flow lines, or facility piping are not subject to this rule if they are subject to the issuance of a certificate of public convenience and necessity by the Michigan public service commission under the provisions of Act 9 of the Public Acts of 1929, as amended, being §483.101 et seq. of the Michigan Compiled Laws or are subject to regulation by the Michigan public service commission under the provisions

of Act No. 165 of the Public Acts of 1969, as amended, being §483.151 et seq. of the Michigan Compiled Laws.

History: 2001 AACCS.

PART 12. HEARINGS

R 324.1201 Hearing; purpose; scheduling; request or petition generally.

Rule 1201. Hearings may be held to receive evidence pertaining to the need or desirability of an action or an order by the supervisor. A hearing may be scheduled at the initiative of the supervisor or by the supervisor upon the receipt of a petition, which is properly filed as specified in R 324.1202, from an owner, producer, lessee, lessor, or other person interested in the matter proposed for hearing.

History: 1996 AACCS.

R 324.1202 Petition for hearing; contents.

Rule 1202. (1) A proper written petition for a hearing, except for the material filed pursuant to subdivisions (e) and (f) of this subrule, shall be filed on 8 1/2 by 11-inch paper and shall contain at least all of the following information:

(a) The name and address of petitioner.

(b) A specific statement of the matters asserted or relief sought indicating the rule, order, or section of the act applicable to the petition.

(c) Property descriptions, locations, sections, townships, and counties relating to the matter to be heard.

(d) The names and last known addresses of the last record owners, lessees, lessors, or other parties of record in the register of deeds office who own interests in the lands that are the subject of the petition.

(e) A map of the area to be affected and of the contiguous property. Lease ownership and well locations within 1,320 feet of the area to be affected shall be identified.

(f) Other maps, plats, and exhibits that may be useful in considering the matter to be heard.

(g) The name and address of the newspaper circulated in the county or counties where the affected lands are located.

(h) A copy of a permit application and attachments pertinent to the matters asserted in the petition.

(i) The name, address, and telephone number of the representative or representatives of the petitioner to whom inquiries can be made.

(2) All of the following additional information shall be filed with the petition when a spacing or proration order is to be considered:

(a) The size, shape, and orientation of the proposed drilling unit.

(b) The well spacing pattern to be proposed.

(c) The surface geographic area to be included in the spacing order, and the geologic formation or formations to be spaced or prorated.

(d) Well production, testing history, and other applicable reservoir and geological data.

(e) Proposed daily well allowables, if applicable.

(3) A petition to establish secondary recovery operations pursuant to R 324.612 shall also include all of the following information:

(a) Applicable seismic lines, profiles, and interpretation showing seismic outlines or boundaries of reservoir structure and the geologic structure and area to be impacted by the operations.

(b) Appropriate geologic information, such as structural cross sections and productive areas, thickness isopach, and other essential maps.

(c) Applicable reservoir engineering data, such as the following:

(i) Pressure versus time.

(ii) Pressure versus oil production.

(iii) Reservoir rock and fluid properties.

(iv) Primary production.

(v) An estimated forecast of oil recoveries.

(vi) Estimated economics of secondary recovery project.

(d) A plan that shows the locations of existing production wells, proposed production wells, and proposed injection wells and a facilities plan that includes schematics that show the locations of existing and proposed flow lines and wells and associated surface facilities.

(e) If groundwater is to be injected, a hydrogeologic investigation report of the source aquifer.

(4) The supervisor may return a petition that is not in conformance with these rules and may include a list of the deficiencies of the petition.

(5) All of the following additional information shall be filed with the petition when statutory pooling is to be considered:

(a) The ownership of oil and gas interests within the drilling unit and a specific description of the nature and extent of the interests sought to be pooled.

(b) Sworn statements that indicate, in detail, what action the petitioner has taken to obtain a voluntary unit.

(c) Whether or not the petitioner desires to drill or operate the unit, or both, and, if not, the name of the party nominated as operator and the recommendation of the petitioner as to the arrangements that are just and equitable to all owners within the drilling unit.

(d) The estimated costs of drilling, completing, and equipping the well, on a form provided by the supervisor, and additional compensation proposed for the risk associated with the drilling and equipping of the well.

History: 1996 AACS; 2015 AACS.

R 324.1203 Hearings subject to the administrative procedures act of 1969.

Rule 1203. A hearing scheduled by the supervisor shall be conducted pursuant to Act No. 306 of the Public Acts of 1969, as amended, being §24.201 et seq. of the Michigan Compiled Laws, unless a different procedure is authorized by the act or these rules. All hearings shall be conducted in a fair and impartial manner.

History: 1996 AACCS.

R 324.1204 Notice of hearing; service; answer.

Rule 1204. (1) The supervisor shall prepare and furnish the notice of hearing to the petitioner, together with instructions for publication and service of the notice. Upon receipt the petitioner shall serve copies of the notice of hearing on the last known addresses of the last record owners, lessees, lessors, or other parties of record in the register of deeds office or assessor's records, if appropriate, who own interests in the lands that are the subject matter of the proposed action, unless otherwise provided in these rules.

(2) If directed by the supervisor, the petitioner shall also serve copies of the notice of hearing at the last known addresses of the last record owners, lessees, lessors, or other parties of record in the register of deeds office who own interests in all or part of the quarter-quarter sections of land directly and diagonally adjacent to the lands or areas that are the subject matter of the proposed action.

(3) The notice of hearing shall be published by the petitioner in an oil and gas industry publication circulated in this state and in a newspaper of general circulation in the county or counties involved with the matter to be heard. Publication shall occur not less than 21 days before the date of the hearing. Affidavits of proof of publication shall be filed with the supervisor before the date of the hearing.

(4) The notices of hearing shall be mailed not less than 21 days before the date of the hearing. Affidavits of proof of mailing by first-class mail or personal service shall be filed with the supervisor before the date of the hearing. An affidavit of proof of mailing shall state that the notice was deposited in the United States mail not less than 21 days before the hearing date, first-class postage prepaid, addressed to each person so served at his or her record address as set forth in the petition pursuant to R 324.1202. Each person so served and his or her address of record shall be specifically identified in the affidavit. The supervisor may require service by certified mail, return receipt requested.

(5) If a hearing is initiated by the supervisor, or if the scope of a hearing requested by a petitioner is enlarged at the initiative of the supervisor, then the supervisor shall publish the notice of hearing and may give additional notification of the hearing by United States mail or personal service.

(6) An interested person shall not be permitted to participate as a party in a hearing conducted pursuant to a petition unless the person files an answer in a timely manner with the supervisor and serves the answer to the petition upon the petitioner. The answer shall be in writing and shall set forth the interested person's positions with regard to the representations made or relief sought in the petition. An interested person is responsible for requesting a copy of the petition from the petitioner at the address set forth in the notice of hearing. The petitioner shall mail or otherwise deliver a copy of the petition and attachments to the interested person within 3 days after receipt of a written request. Failure of the petitioner to mail or otherwise deliver a copy of the petition to an interested person in a timely manner relieves the interested person of the obligation to file an answer and the interested person shall not be precluded from presenting evidence or cross-examining witnesses. An interested person may mail or otherwise deliver his or her answer to the supervisor and the petitioner. To be considered timely an answer must be

received by the supervisor and the petitioner not fewer than 5 days before the date set for the hearing. Failure to file and serve an answer in a timely manner precludes an interested person from presenting evidence at the hearing or cross-examining witnesses. However, an interested person who does not file an answer in a timely manner may make a nonevidentiary statement at the hearing.

(7) The notice of hearing shall contain the following statement:

You can obtain a copy of the written petition by requesting one in writing from the petitioner at _____ . Take note that if you wish to participate as a party in the hearing by presenting evidence or cross-examining witnesses, you shall deliver to the petitioner and supervisor, not less than 5 days before the hearing date, an answer to the petition in the manner set forth in R 324.1204(6). Proof of mailing or delivering the answer shall be filed with the supervisor on or before the date of hearing. The answer shall state with specificity the interested person's position with regard to the petition. Failure to prepare and serve an answer in a timely manner shall preclude you from presenting evidence or cross-examining witnesses at the hearing. If an answer to the petition is not filed, the supervisor may elect to consider the petition and enter an order without oral hearing.

(8) Upon a showing that service of notice cannot reasonably be made as provided by this rule, the supervisor may authorize service of the notice of hearing to be made in another manner reasonably calculated to give the interested parties actual notice of the proceeding and an opportunity to be heard. A request for this authorization shall be made by verified motion. The motion shall set forth sufficient facts to establish that service pursuant to subrules (1) to (7) of this rule cannot reasonably be made and shall suggest an alternative method of service.

History: 1996 AACCS; 2015 AACCS.

Editor's Note: An obvious error in R 324.1204(7) was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in *Michigan Register*, 2015 MR 5. The memorandum requesting the correction was published in *Michigan Register*, 2015 MR 6.

R 324.1205 Types of hearings.

Rule 1205. (1) Upon receipt of a petition, the supervisor, after finding the petition to be complete, reasonable, and appropriate, shall determine whether the petition shall be heard. The supervisor shall give each hearing 1 of the following designations:

(a) A supervisor's evidentiary hearing to consider the adoption of an order having field-wide or statewide application or ramifications.

(b) A supervisor's evidentiary hearing to consider matters of local concern in the administration of these rules or the orders of the supervisor or to consider other matters as may be referred to the supervisor.

(c) A supervisor's uncontested evidentiary hearing to consider matters of local concern in the administration of these rules or the orders of the supervisor or to consider a petition to which an answer was not filed as provided in R 324.1204(6).

(2) If a timely answer is not filed to a petition or if oral hearing is waived by all interested persons present at a hearing, then the supervisor may direct that a petition be

processed under subrule (1)(c) of this rule. In these cases, proceedings pursuant to subrule (1)(c) of this rule may be used if it appears that all issues of material fact may be resolved by means of written materials and that the proceeding can be efficiently handled without oral hearing. Where there is no oral hearing, all substantive evidence shall be presented by verified statement. The supervisor may require supplemental verified statements.

(3) Prehearing conferences may be held at the discretion of the supervisor. A party may request a prehearing conference in his or her petition or in a responsive pleading. A hearing may be converted to a prehearing conference to ensure an orderly and expeditious hearing.

(4) The parties to a proceeding may, by stipulation in writing or entered on the record, agree upon facts, law, or procedure involved in the matter. Stipulations of fact shall be considered as evidence in the proceeding.

(5) The supervisor may, at any time during a proceeding, designate a hearings officer to conduct an evidentiary hearing as provided for under either subrule (1)(a) or subrule (1)(b) of this rule.

(6) The parties to a matter within the jurisdiction of the supervisor may agree to dispose of all or a part of a matter at issue by stipulation and consent order. The supervisor may enter the stipulation as a consent order, place the stipulation on public notice as is appropriate, or reject the stipulation.

History: 1996 AACCS.

R 324.1206 Final decision or order.

Rule 1206. (1) The supervisor shall issue a final decision or order as a result of a hearing held under R 324.1205 or as a result of the procedure pursuant to R 324.1205(1)(c) after giving due consideration to all of the following:

(a) The record.

(b) The supervisor's experience, technical competence, and specialized knowledge.

(c) The proposal for decision, if one is issued, and exceptions to the proposal for decision, replies to exceptions, and, if permitted by the supervisor, oral arguments and briefs.

(d) The advice or recommendations of the representative of the supervisor when required or appropriate.

(e) The stipulations or agreements that the contesting parties have placed on the record at a hearing or submitted in writing to the supervisor or the hearings officer.

(f) The act and rules.

(2) The final written decision or order of the supervisor shall be furnished to the petitioner. The petitioner shall serve copies, by first-class mail, to all persons who were mailed a notice of the hearing, who filed an appearance at the hearing, or who otherwise requested a copy of the final written decision.

(3) When a hearing is scheduled at the initiative of the supervisor, the supervisor shall serve copies of the final written decision or order, by first-class mail, to all persons who filed an answer, who filed an appearance at the hearing, or who otherwise requested a copy.

(4) After the hearing on a petition for an order to pool and after thorough consideration of the evidence and testimony submitted, the supervisor shall either rule that pooling is not necessary to prevent waste or shall enter an order pooling the separately owned tracts and interests within the drilling unit. The pooling order shall authorize 1 of the owners within the affected unit to drill and operate the well within the affected unit and provide that the well shall be commenced within 90 days if drilling of the well has not already commenced, unless otherwise specified in the pooling order. The pooling order is null and void as to all parties and interests with respect to any well that has not commenced within 90 days after the date of the order. The order shall set forth the terms and conditions under which each of the owners may share in the working interest ownership of the well drilled or to be drilled on the pooled unit and for the sharing of any production from the well. The order shall provide for conditions under which each mineral or working interest owner who has not voluntarily agreed to pool all of the owner's mineral or working interest in the pooled unit may share in the working interest share of production or be compensated for the owner's working interest within the pooled unit according to either of the following provisions:

(a) Pay to the party authorized to drill, or who has drilled, the well that owner's proportionate share of the actual cost of drilling, completing, equipping, and operating the well in the pooled unit that the owner elects to participate in, or give bond for the payment of the share of the costs that have been, or are subsequently, actually incurred, whether the well is drilled as a producer or a dry hole.

(b) As to each well that the owner does not elect to participate in as provided in subdivision (a) of this subrule, if the well has been, or is subsequently, completed as a producer, authorize the operator of the well to take out of the nonparticipatory interest's share of production from the well the party's share of the cost of drilling, completing, equipping, and operating the well, plus an additional percentage of the costs that the supervisor considers appropriate compensation for the risks associated with drilling a dry hole and the mechanical and engineering risks associated with the completion and equipping of each well.

(5) Each nonparticipating owner who has not elected to participate in the drilling of any well by agreeing to pay the owner's working interest share of the costs shall make an election, within 10 days of receipt by the owner of the supervisor's certified mail copy of the order, as to which alternative in subrule (4)(a) or (b) of this rule the owner will select. If the nonparticipating party does not notify the supervisor in writing within 10 days of the owner's election as to any well proposed for the pooled unit, then the owner shall be considered to have elected the alternative in subrule (4)(b) of this rule. For the type of statutory pooling order specified in this rule, the owner of an unleased mineral interest shall be treated as a working interest owner to the extent of 100% of the interest owned in the pooled unit. Each nonparticipating owner shall be considered to be subject to a 1/8 royalty interest, which shall be free of any withholding for payment of any costs of drilling, completing, equipping, or operating the well to be drilled. All operations, including, the commencement, drilling, completing, equipping, or operation of a well, upon a portion of a drilling unit for which pooling has been ordered shall be considered for all purposes to be the conducting of operations upon each separately owned tract in the drilling unit. The portion of the production allocated to a separately owned tract or separately owned interest included in a drilling unit shall, when produced, be considered

for all purposes to have been actually produced from the separately owned tract or tracts by a well drilled in the drilling unit.

History: 1996 AACCS; 2015 AACCS.

R 324.1207 Subpoenas; discovery.

Rule 1207. (1) At any time in a proceeding, the supervisor may order a party or witness to attend and testify orally at the hearing. Subpoenas for attendance at a hearing shall be issued by the supervisor upon application by a party. A subpoena may also command the person to whom it is directed to produce the books, papers, documents, or tangible things designated in the subpoena, which shall be specified in detail.

(2) A subpoena shall state the purpose or the title of the proceeding and shall command each person to whom it is directed to attend and comply with the subpoena at a time and place specified in the subpoena. The supervisor, upon a motion made at or before the time specified in the subpoena for compliance with the subpoena, may do either or both of the following:

(a) Quash or modify a subpoena or subpoena duces tecum if it is unreasonable or oppressive or if it requires the production of evidence that is not relevant or material to a matter in issue.

(b) Condition the subpoena, in the case of a subpoena duces tecum, upon the advancement, by the person in whose behalf the subpoena is issued, of the reasonable cost of producing the books, papers, documents, or tangible things, unless otherwise provided by law.

(3) The supervisor may issue an order to take a deposition, interrogatory, or other discovery either upon a motion by the supervisor or for good cause shown by a party to a proceeding. If a deposition, interrogatory, or other discovery is permitted, it shall be taken according to the rules for conducting discovery in circuit court civil cases under the Michigan rules of court.

History: 1996 AACCS.

R 324.1208 Continuance of hearing.

Rule 1208. A hearing, as provided in these rules, may be continued at the discretion of the supervisor or the presiding officer until all required testimony is submitted and all pertinent data and information are received. Further notice of the continuance of the hearing is not required, other than the announcement at the hearing of the date, time, and place of the continued hearing or service of written notice on those persons who filed an appearance at the first hearing.

History: 1996 AACCS.

R 324.1209 Failure to give notice of hearing.

Rule 1209. Failure to give notice of the time of a hearing to a person entitled to the notice shall not constitute a bar to conducting of the hearing if the petitioner can demonstrate substantial compliance with the notice requirements.

History: 1996 AACCS.

R 324.1210 Administrative complaint; notice of hearing.

Rule 1210. (1) The staff of the supervisor may file an administrative complaint with the supervisor. An administrative complaint shall set forth the nature of the violations complained of and shall specifically cite the provisions of the act, these rules, permit conditions, instructions, or orders of the supervisor allegedly violated. The supervisor shall select a date for the hearing and prepare a notice of hearing. Upon request, the person alleged to be in violation shall provide, to the supervisor, a list of the last known names and addresses of all persons of record with the register of deeds who own oil and gas interests within the unit. The notice of hearing and administrative complaint shall be served by certified mail, return receipt requested, on the person alleged to be in violation, the operator, the surety, and other interested persons as the supervisor shall consider necessary or appropriate. The notice shall be served not less than 21 days before the hearing date. The hearing shall be a hearing before the supervisor.

(2) A hearing held pursuant to an administrative complaint shall be a hearing before the supervisor pursuant to R 324.1205.

History: 1996 AACCS.

R 324.1211 Emergency orders and hearings.

Rule 1211. (1) When an emergency order is issued by the supervisor, the person subject to the order shall be served with the order, either personally or by certified, return receipt mail.

(2) An emergency hearing may be scheduled by the supervisor to consider matters of urgency or as a result of the issuance of an emergency order. Notice of hearing shall be served by certified mail, return receipt requested, not less than 10 days before the hearing date, on other interested persons as the supervisor shall consider necessary and appropriate.

History: 1996 AACCS.

R 324.1212 Appeals to the director of the department of environmental quality.

Rule 1212. (1) An owner or producer may file an appeal to the director of the department of environmental quality pursuant to section 61503 of the act. The appeal shall be in writing and filed with the director of the department of environmental quality. The appeal shall set forth the basis for the filing of an appeal.

(2) An appeal from an order of the supervisor that is issued after a hearing shall be an appeal on the record. The appealing party shall order and file a transcript of the proceeding before the supervisor. The supervisor shall prepare and file the record of the proceeding.

(3) Upon receipt of an appeal from an order of the supervisor, the director of the department of environmental quality shall set a schedule for the filing of briefs on appeal. Oral argument, if requested, shall be scheduled after the filing of briefs. A prehearing conference may be scheduled for the purpose of establishing a schedule for the appeal.

(4) The producer or owner appealing an order, action, or inaction of the supervisor shall file a petition of appeal to the director of the department of environmental quality. The petition and notice requirements are the same requirements for petitions for a hearing before the supervisor pursuant to R 324.1201 through R 324.1204.

(5) An appeal to the director of the department of environmental quality shall be filed within 28 days of the order, action, inaction, or procedure as provided in section 61503(2) of the act.

History: 1996 AACCS.

PART 13. ENFORCEMENT

R 324.1301 Authority of supervisor.

Rule 1301. The supervisor, under section 61506 of the act, may do any of the following:

(a) Enforce all rules, issue orders, determinations, and instructions necessary to enforce the rules and regulations, and do whatever may be necessary with respect to the subject matter stated in these rules to carry out the purposes of these rules and the act, whether or not the orders, determinations, or instructions are indicated, specified, or enumerated in the act or rules.

(b) Order the suspension of any or all components of the oil and gas operations when a violation exists. The suspension time shall continue until a correction is made and a violation no longer exists under section 61516 of the act. The supervisor may also prohibit the purchaser from taking oil, gas, or brine from the lease during the required suspension time.

(c) Order a well plugged for a continuing violation of the act or these rules.

History: 1996 AACCS; 2002 AACCS.

PART 14. HIGH VOLUME HYDRAULIC FRACTURING

R 324.1401 Definitions.

Rule 1401. As used in these rules:

(a) “Adverse resource impact,” “assessment tool,” “cold-transitional river system,” “cool river system,” “site-specific review,” “warm river system,” “withdrawal,” “zone A withdrawal,” “zone B withdrawal,” “zone C withdrawal,” and “zone D withdrawal,” have the same meanings as in section 32701 of the act.

(b) “Available water source” means a reasonably identifiable fresh water well used for human consumption for which the water well owner has given written consent for sampling and testing and to having the sample data made a part of the department’s public records.

(c) “Chemical Abstracts Service (CAS) Number” means the unique identification number assigned to a chemical by the division of the American Chemical Society that is the globally recognized authority for information on chemical substances.

(d) “Chemical additive” means a product composed of 1 or more chemical constituents that is intentionally added to a primary carrier fluid to enhance the characteristics of hydraulic fracturing fluid.

(e) “Chemical constituent” means a discrete chemical with its own specific name or identity, such as a CAS number, that is contained in a chemical additive.

(f) “Chemical family” means a group of elements or compounds that have similar physical and chemical characteristics and have a common general name.

(g) “Flowback fluid” means hydraulic fracturing fluid and brine recovered from a well after completion of a hydraulic fracturing operation and before the conclusion of test production under R 324.606.

(h) “High volume hydraulic fracturing” means a hydraulic fracturing well completion operation that is intended to use a total volume of more than 100,000 gallons of primary carrier fluid. If the primary carrier fluid consists of a base fluid with 2 or more components, the volume shall be calculated by adding the volumes of the components. If 1 or more of the components is a gas at prevailing temperatures and pressures, the volume of that component or components shall be calculated in the liquid phase.

(i) “Hydraulic fracturing” means a well completion operation that involves pumping fluid and proppants into the target formation under pressure to create or propagate artificial fractures, or enhance natural fractures, for the purpose of improving the deliverability and production of hydrocarbons. Hydraulic fracturing does not include other stimulation completion techniques such as treatments that do not use proppants.

(j) “Hydraulic fracturing fluid” means fluid at a well site that is prepared for injection into a well to achieve a hydraulic fracturing operation, including primary carrier fluid and additives.

(k) “Large volume water withdrawal” means a water withdrawal intended to produce a cumulative total of over 100,000 gallons of water per day when averaged over a consecutive 30-day period.

(l) “Primary carrier fluid” means the base fluid, such as water, into which chemical additives are mixed to form the hydraulic fracturing fluid.

(m) “Proppant” means sand or any natural or man-made material that is used in a hydraulic fracturing completion to prop open the artificially created or enhanced fractures once the treatment is completed.

(n) “Trade secret” has the same meaning as defined in the uniform trade secrets act, 1998 PA 448, MCL 445.1901 to 445.1910.

History: 2015 AACCS.

R 324.1402 Permitting of high volume hydraulic fracturing for oil and gas wells.

Rule 1402. (1) In addition to the requirements in R 324.201, a person applying for a permit to drill and operate shall provide a statement as to whether high volume hydraulic fracturing is expected to be utilized in completion of the proposed well.

(2) A permittee of a well shall not begin a large volume water withdrawal for a high volume hydraulic fracturing operation without approval of the supervisor or authorized representative of the supervisor. A permit applicant or permittee shall make a written request for approval to conduct a large volume water withdrawal and shall file the request with the supervisor at least 30 days before the permit applicant or permittee intends to begin the withdrawal. The permittee may file the request with the application for a permit to drill and operate a well or may provide the request separately to the supervisor or authorized representative of the supervisor. The request shall include all of the following information:

(a) A water withdrawal evaluation utilizing the assessment tool accessed at <http://www.miwwat.org/> or by a means approved by the supervisor under the conditions described in subrule (6) of this rule.

(b) Information on the proposed withdrawal including all of the following:

(i) Proposed total volume of water needed for hydraulic fracturing well completion operations.

(ii) Proposed number of water withdrawal wells.

(iii) Aquifer type (drift or bedrock).

(iv) Proposed depth of water withdrawal wells, in feet below ground surface.

(v) Proposed pumping rate and pumping schedule of each water withdrawal well.

(vi) Available well logs of all recorded fresh water wells and reasonably identifiable fresh water wells within 1,320 feet of water withdrawal location.

(c) A supplemental plat of the well site showing all of the following:

(i) Proposed location of water withdrawal wells (latitude/longitude).

(ii) Location of all recorded fresh water wells and reasonably identifiable fresh water wells within 1,320 feet of water withdrawal location or locations.

(iii) Proposed fresh water pit impoundment, containment, location, and dimensions.

(d) A contingency plan, if deemed necessary, to prevent or mitigate potential loss of water availability in the fresh water wells identified under subdivision (b)(vi) of this subrule.

(3) An application for change of well status for which a large volume water withdrawal is expected to be utilized for high volume hydraulic fracturing shall include the information required under subrule (1) of this rule.

(4) If the assessment tool designates the proposed withdrawal as a zone A withdrawal, or a zone B withdrawal in a cool river system or a warm river system, the supervisor shall approve the withdrawal.

(5) If the assessment tool designates the proposed withdrawal as a zone B withdrawal in a cold-transitional river system, or a zone C or zone D withdrawal, the permit applicant or permittee may submit to the supervisor a request for a site-specific review. All of the following apply:

(i) If the site-specific review determines that the proposed withdrawal is a zone A or a zone B withdrawal, the supervisor shall approve the withdrawal.

(ii) If the site-specific review determines that the proposed withdrawal is a zone C withdrawal, the supervisor shall not approve the withdrawal unless the permittee does either of the following:

(A) Self certifies that he or she is implementing applicable environmentally sound and economically feasible water conservation measures under MCL 324.32708a.

(B) Obtains a water withdrawal permit under MCL 324.32723.

(iii) If the site-specific review determines that the proposed withdrawal is a zone D withdrawal or likely to cause an adverse resource impact, the supervisor shall not approve the withdrawal unless the permittee has obtained a water withdrawal permit under MCL 324.32723.

(6) If the assessment tool is discontinued or replaced as a requirement for designated water withdrawal evaluations under the act, a permittee shall perform a water withdrawal evaluation utilizing an alternative method and criteria approved by the supervisor to satisfy the requirements of subrules (2)(a), (4), and (5) of this rule.

History: 2015 AACCS.

R 324.1403 Water supply monitoring and storage.

Rule 1403. (1) If 1 or more fresh water wells are present within 1,320 feet of a proposed large volume water withdrawal, the permittee shall install a monitor well between the water withdrawal well or wells and the nearest fresh water well before beginning the water withdrawal. If more than 1 aquifer is delineated at the site, the monitor well shall be completed in the same aquifer as the water withdrawal well. The permittee shall measure and record the water level in the monitor well daily during water withdrawal and weekly thereafter until the water level stabilizes. The permittee shall report all water level data weekly to the supervisor or authorized representative of the supervisor.

(2) Fresh water storage pits and impoundments shall be constructed as approved by the supervisor and shall be in compliance with all of the following minimum requirements:

(a) Berms shall be designed and constructed to prevent washouts or failures.

(b) Pits shall be constructed with rounded corners and side slopes of not less than 20 degrees measured from the vertical.

(c) Pits shall adhere to applicable soil erosion and sedimentation control measures and may require fencing.

(3) Fresh water storage pits, impoundments, or tanks shall not remain on-site more than 6 months after final completion of the well or wells for which the storage was designed unless approved by the supervisor or authorized representative of the supervisor.

History: 2015 AACCS.

R 324.1404 Ground water baseline sampling for high volume hydraulic fracturing.

Rule 1404. (1) A permit applicant or permittee of an oil and gas well for which high volume hydraulic fracturing is proposed shall collect baseline samples from all available water sources, up to a maximum of 10, within a 1/4- mile radius of the well location. All of the following apply:

(a) If more than 10 available water sources are present within a 1/4- mile radius of the proposed well location, the permit applicant or permittee shall select 10 sampling locations based on the following criteria:

(i) Available water sources closest to the proposed well location are preferred.

(ii) To the extent groundwater flow direction is known or reasonably can be inferred, sample locations from both down gradient and up-gradient are preferred over cross-gradient locations. Where groundwater flow direction is uncertain, sample locations should be chosen in a radial pattern from a well.

(iii) Where multiple defined aquifers are present, sampling the deepest and shallowest identified aquifers is preferred.

(b) Initial sampling shall be conducted not fewer than 7 days nor more than 6 months before initiation of drilling operations for a new well or in the case of a re-completion of a well, high volume hydraulic fracturing using new or existing perforations. However, initial sampling shall satisfy sampling requirements for subsequent oil and gas wells on the same or contiguous drilling sites for a period of up to 3 years.

(c) Sampling and analysis shall be conducted at the expense of the permit applicant or permittee and shall conform to all of the following procedures:

(i) Water samples shall be collected by a qualified professional utilizing proper sampling protocol and analyzed by a laboratory certified by the department.

(ii) Samples shall be analyzed for the following minimum parameters using laboratory methods approved by the United States Environmental Protection Agency:

(A) Benzene.

(B) Toluene.

(C) Ethylbenzene.

(D) Xylene.

(E) Total dissolved solids.

(F) Chloride.

(G) Methane.

(iii) The location of the sampled water sources shall be surveyed with a global positioning system device or equivalent with 3 meter or higher accuracy. The latitude and longitude coordinates shall be provided to the supervisor.

(iv) If free gas or a dissolved methane concentration greater than 1.0 milligram per liter is detected in a water sample, gas compositional analysis and stable isotope analysis of the methane (carbon and hydrogen – ¹²C, ¹³C, ¹H and ²H) shall be performed to identify gas origin.

(v) The permit applicant or permittee shall notify the supervisor immediately if benzene, toluene, ethylbenzene, or xylenes are detected in a water sample.

(2) The permittee shall provide copies of all final laboratory analytical results to the supervisor and the water well owner or landowner within 45 days of collecting the samples.

History: 2015 AACCS.

R 324.1405 High volume hydraulic fracturing well completion operations; notification, monitoring, reporting, and fluid containment requirements.

Rule 1405. (1) A permittee shall notify the supervisor or authorized representative of the supervisor a minimum of 48 hours prior to the commencement of a high volume hydraulic fracturing completion. If the well is an H2S well as defined in R 324.1101, a permittee shall also notify the local emergency preparedness coordinator a minimum of 48 hours before the commencement of a high volume hydraulic fracturing completion.

(2) During high volume hydraulic fracturing operations, the permittee shall monitor and record the injection pressure at the surface and the annulus pressure between the injection string and the next string of casing unless the annulus is cemented to surface. If intermediate casing has been set on the well to be stimulated, the pressure in the annulus between the intermediate casing and the production casing shall also be monitored and recorded. The permittee shall do both of the following:

(a) Submit a continuous record of the annulus pressure during the well stimulation within 60 days of completing hydraulic fracturing operations.

(b) If during the hydraulic fracturing operation the injection pressures or annulus pressures, or both, indicate a lack of well integrity, immediately cease hydraulic fracturing operations and notify the supervisor or authorized representative of the supervisor. The permittee of the well shall submit to the supervisor or authorized representative of the supervisor the plan of action the permittee intends to take before continuing hydraulic fracturing operations on the well. The permittee of the well shall not continue hydraulic fracturing in the well until the supervisor or authorized representative of the supervisor approves implementation of the plan of action. The supervisor or authorized representative of the supervisor may require suitable mechanical integrity tests of the casing or the casing tubing annulus or cement bond logs, or both. The permittee shall submit a report containing all details pertaining to the incident, including corrective actions taken, within 60 days of completing hydraulic fracturing operations.

(3) Flowback fluid shall be contained in tanks or in receptacles approved by the supervisor or authorized representative of the supervisor. Flowback fluid shall not be used for ice or dust control or road stabilization purposes. A permittee shall ensure that handling and disposal of flowback fluid does not cause waste as defined in section 61501(q) of the act.

(4) A permittee shall submit a copy of the following service company records within 60 days after completing high volume hydraulic fracturing operations:

(a) The actual total well stimulation treatment volume pumped.

(b) Detail as to each fluid stage pumped, including actual volume by fluid stage, proppant rate or concentration, actual chemical additive name, type, concentration or rate, and amounts.

(c) The actual breakdown pressure as measured at the surface or producing interval.

(d) The actual surface pressure and rate at the end of each fluid stage and the actual flush volume, rate and final pump pressure.

(e) The instantaneous shut-in pressure and the actual 15- minute and 30-minute shut-in pressures when these pressure measurements are available.

(5) A permittee shall report the following for a high volume hydraulic fracturing operation within 60 days of completing hydraulic fracturing operations:

(a) The total volume of water utilized.

(b) The volume and source of the water withdrawn and the dates during which the water was withdrawn.

History: 2015 AACCS.

R 324.1406 Disclosure of hydraulic fracturing fluid chemical additives.

Rule 1406. (1) A permittee shall submit information on chemical additives used in a high volume hydraulic fracturing operation using the internet-based FracFocus Chemical Disclosure Registry that is maintained by the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission and is accessed at <http://fracfocus.org>. If the FracFocus Chemical Disclosure Registry is no longer maintained or available, the permittee shall submit the information on a form prescribed by the supervisor or by any other means approved by the supervisor. A permittee shall submit the information within 30 days after completion of a high volume hydraulic fracturing operation. A contractor or supplier performing a high volume hydraulic fracturing operation for a permittee or providing supplies for a high volume hydraulic fracturing operation shall timely provide to the permittee the information required for the permittee to comply with this rule. The information shall include the following:

(a) A list of all chemical additives used during the treatment specified by general type, such as acids, biocides, breakers, corrosion inhibitors, cross-linkers, demulsifiers, friction reducers, gels, iron controls, oxygen scavengers, pH adjusting agents, scale inhibitors, and surfactants.

(b) The specific trade name and supplier of each chemical additive.

(c) A list showing the specific identity of each chemical constituent intentionally added to the primary carrier fluid and its associated CAS number, except that the specific identities and CAS numbers of trade secret chemicals may be withheld under subrule (2) of this rule.

(d) The maximum concentration of each chemical constituent listed expressed as a percent by mass of the total volume of hydraulic fracturing fluids utilized.

(2) If the specific identity of a chemical constituent and its associated CAS number or concentration are a trade secret, the permittee may withhold the specific identity of the chemical constituent and its associated CAS number and concentration, but shall list the chemical family associated with the chemical constituent, or provide a similar description, and provide a statement that a claim of trade secret protection has been made by the entity entitled to make such a claim. If an independent contractor or supplier providing a chemical constituent to a permittee withholds any information required under this rule under a claim of trade secret, the contractor or supplier shall provide the information required for the permittee to timely comply with this subrule.

(3) Nothing in this rule shall authorize any person to withhold information that is required by state or federal law to be provided to a health care professional for the purpose of diagnosis or treatment of a medical condition.

History: 2015 AACCS.