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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
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Michigan's Mineral Well Operations Regulations Part 625

Natural Resources and Environmental Protection Act
Act No. 451 of the Public Acts of 1994, as amended



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These rules take effect 7 days after filing with the Secretary of State (By authority conferred on the supervisor of mineral wells and the Director of the Department of Environmental Quality by Section 62506 of 1994 PA 451, MCL 324.62506, Section 9 of 1965 PA 380, MCL 16.109 and Executive Reorganization Order No. 1995-16, being MCL 324.99903) R 299.2201 - R 299.2298 Rescinded by R 299.2309.

R 299.2328, R 299.2332, R 299.2341, R 299.2391, R 299.2437, and R 299.2531 of the Michigan Administrative Code were amended and became effective on December 5, 2008.

PART 1. GENERAL PROVISIONS

R 299.2301 Application of rules.

Rule 2301. These rules govern mineral well operations in this state and supersede all rules and regulations issued under the authority of 1969 PA 315, MCL 324.62501 et seq. except for orders and determinations of the supervisor of mineral wells that have application to specifically designated areas throughout this state.

R 299.2302 Definitions; A to F.

Rule 2302. As used in these rules:

- (a) "Act" means 1994 PA 451, MCL 324.101 et seq.
- (b) "ANSI" means the American national standards institute.
- (c) "API" means the American petroleum institute.
- (d) "Area of review" means either of the following:
 - (i) For a well disposing of nonhazardous waste that area the radius of which is the greater of 1/4 mile or the lateral distance in which the pressures in the injection zone are sufficient to increase hydrostatic head in the injection zone above the base of the lowermost underground source of drinking water, but shall not be more than 2 miles.
 - (ii) For a well disposing of hazardous waste that area the radius of which is the greater of 2 miles or the lateral distance in which the pressures in the injection zone are sufficient to increase hydrostatic head in the injection zone above the base of the lowermost underground source of drinking water.
- (e) "Area of injectate migration" means that area the radius of which is the calculated lateral distance over which injectate will migrate over the proposed life of a disposal well.
- (f) "Authorized representative of the supervisor of mineral wells" means a department of environmental quality employee who is charged with the responsibility for implementation of the act or rules.
- (g) "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.
- (h) "Briefing area" means a specified geographic area, where all personnel may safely assemble in an emergency.
- (i) "Change of well status" means any of the following:
 - (i) To make changes or alterations in the permanent nonretrievable well equipment.
 - (ii) To make changes or alterations in the original relationship between the permanent nonretrievable well equipment and the adjacent geologic formations.
 - (iii) Fracture stimulation of a well.
 - (iv) Deepening of a well.
 - (v) Temporarily abandoning a well.Change of well status does not include well stimulation required during normal operation.
- (j) "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.
- (k) "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 of mineral wells to ensure compliance with the act, these rules, permit conditions, instructions, orders of the supervisor of mineral wells, or an order of the department.

- (l) "Directionally drilled well" means a well purposely deviated from the vertical using controlled angles to reach an objective subsurface location.
- (m) "Drilling completion" means the time when a well has reached its permitted depth or the supervisor of mineral wells has determined drilling has ceased.
- (n) "Emergency preparedness coordinator" means an individual appointed under 1976 PA 390, MCL 30.401 et seq. to coordinate emergency planning or services within the county or municipality.
- (o) "External mechanical integrity" means a well subject to this part has no significant fluid movement through vertical channels adjacent to the well bore.
- (p) "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.
- (q) "Fence" means a structure that is designed to deter access and which 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.
- (r) "Final completion" means either of the following:
- (i) 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 of mineral wells, including the filing of the mandatory records.
 - (ii) The time when a permit has been issued to convert an existing well subject to this part to a purpose allowed under another act or another part of the act.
- (s) "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.
- (t) "Flow line" means piping that connects a well or wells to a surface facility.
- (u) "Fresh water" means water which is free of contamination in concentrations that may cause disease or harmful physiological effects and which is safe for human consumption.
- (v) "Fresh water drilling fluid" means any fluid used for drilling a well which contains fewer than 10,000 milligrams per liter total dissolved solids. Fresh water drilling fluid does not include an oil-based drilling fluid.

R 299.2303 Definitions; G to R.

Rule 2303. As used in these rules:

- (a) "Gas storage" means the use of a depleted oil or gas pool, salt cavern, or other porous strata used for injecting and withdrawing gas from the depleted oil or gas pool, salt cavern, or other porous strata.
- (b) "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 either professional experience or practical experience, or both, is qualified to engage in the practice of the science of geology.
- (c) "Generator" means a person whose action or process produces a waste product.
- (d) "Groundwater" means water below the land surface in the zone of saturation.
- (e) "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.
- (f) "Instruction" means a written statement of general applicability which is issued by the supervisor of mineral wells, which conforms with the act and rules promulgated under the act, and which clarifies or explains the applicability of the act or rules to commonly recurring facts or circumstances.

- (g) "Internal mechanical integrity" means a well subject to this part has no significant leak in the casing, tubing, packer, or wellhead.
- (h) "Lost hole" means a well which cannot be completed or further drilled because of mechanical difficulties, accidents of construction, or geological conditions.
- (i) "NACE" means the national association of corrosion engineers.
- (j) "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, any of the following:
 - (i) Injurious effects to human health or safety.
 - (ii) Unreasonable injurious effects to animal life, plant life of significant value, or property.
 - (iii) Unreasonable interference with the comfortable enjoyment of life or property. A 1-hour time weighted hydrogen sulfide concentration in ambient air of 0.2 ppm constitutes a nuisance odor for the purposes of this part.
- (k) "Organization report" means a listing of all corporate officers, directors, incorporators, or partners who have the authority to make, or are responsible for making, operational decisions, including the siting, drilling, operating, producing, reworking, and plugging of wells.
- (l) "Permit" means a permit to drill and operate a well including associated surface facilities and flow lines.
- (m) "Ph" means the degree of acidity or alkalinity of the waste products, expressed as a value from 1 to 14.
- (n) "Ppm" means parts per million by volume.
- (o) "Processed brine" means naturally occurring or artificial brine from which 1 or more dissolved constituents have been removed by a commercial or industrial process.
- (p) "Psi" means pounds per square inch.
- (q) "Psig" means pounds per square inch gauge.
- (r) "Repair" means changes to the retrievable downhole components of a well, minor reconditioning operations, such as backflushing or swabbing, or, changes to the surface equipment of a well.
- (s) "Reservoir" means a natural or artificially developed underground container of liquids or gas.

R 299.2304 Definitions; S to Z.

Rule 2304. As used in these rules:

- (a) "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.
- (b) "Shut-in" means an action by an owner or permittee to close down an active well temporarily.
- (c) "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 of mineral wells.

(d) "Solution mining" means the process of injecting fluid into a well to dissolve rock salt or other readily soluble rock or mineral, and the production of the resulting artificial brine.

(e) "Stored product" means any substance except liquid hydrocarbons, liquified petroleum gas, or dry natural gas which is injected into an underground storage cavity with the intent to remove the substance from the underground storage cavity at some future time. Stored product does not include water or other solvents injected into a cavity or well during solution mining to form an artificial brine.

(f) "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 expected to be present at least 4 hours per day.

(g) "Substantially modify" means any of the following:

(i) To permanently reroute above-ground facility piping outside of an existing secondary containment area.

(ii) To add vessels at a surface facility or well having no secondary containment on the effective date of these rules.

(iii) To add a vessel at a surface facility having secondary containment when the addition of the vessel would increase the total volume of the vessels to more than the capacity of the diked area required in R 299.2446(c).

Substantially modify does not include routine maintenance or emergency repairs at a wellhead or surface facility.

(h) "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 a well.

(i) "Surface facility" means the area in the vicinity of a well subject to this part where produced brine, waste products or stored products are held temporarily before transportation, disposal, or storage, and the surface equipment necessary for handling, disposing, or storing the liquids. Surface facility does not include any of the following:

(i) Surface equipment subject to a permit under Part 111 of the act.

(ii) Surface equipment within the perimeter of a manufacturing plant if the surface equipment is subject to secondary containment and spill response and reporting requirements under another part of the act.

(iii) A pipeline connecting a well directly to a manufacturing plant.

(iv) A well annulus monitoring system.

(j) "Surface water" means a body of water, and the associated sediments, which has a top surface that is exposed to the atmosphere and which 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.

(k) "Underground source of drinking water" means an aquifer or any portion of an aquifer which does either of the following:

(i) supplies any public or private water system.

(ii) contains a sufficient quantity of groundwater to supply a public or private water system; and includes either of the following:

(A) Currently supplies drinking water for human consumption.

(B) Contains fewer than 10,000 milligrams per liter total dissolved solids.

(l) "Well completion" means the time when a well has been tested and found to be incapable of being put to the use for which it was intended and has been plugged or has been found capable of being put to the use for which it was intended or when the well has been equipped to perform the service for which it was intended.

(m) "Well completion operations" means work performed in a well, after the well has been drilled to its permitted depth and the innermost string of casing has been set, including perforating, artificial stimulation, and production testing.

(n) "Well location" means the surface location of a well.

(o) "Zoned residential" means a geographic area that was zoned by a local unit of government before the effective date of these rules, as an area designated principally for permanent or recreational residences.

R 299.2305 Terms defined in act.

Rule 2305. 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.

R 299.2309 Rescission.

Rule 2309. R 299.2201 to R 299.2298 of the Michigan administrative code, appearing on pages 88 to 95 of volume 3, of the 1999 Michigan administrative code, are rescinded.

PART 2. PERMITS TO DRILL AND OPERATE

R 299.2311 Application for permit to drill and operate general requirements; permits for existing unpermitted wells.

Rule 2311. (1) Except as provided in R 299.2337, a person seeking to drill a well for a use allowed by this part or to convert an existing well to a use allowed by this part shall submit an application to the supervisor of mineral wells before beginning the drilling and operation of a well or the conversion of an existing well.

(2) A person shall comply with all of the following requirements:

(a) A person applying to drill and operate a well shall accurately complete and fill out, sign, and file a written application for a permit to drill on a form prescribed by the supervisor of mineral wells.

(b) A person applying to convert an existing well subject to another act or another part of the act to a use allowed by this part shall accurately complete and fill out, sign, and file a written application for a permit to drill or convert and operate on a form prescribed by the supervisor of mineral wells.

(c) The application required by subdivision (a) or (b) of this subrule shall be submitted to the supervisor of mineral wells at the offices of the Michigan Department of Environmental Quality, Office of Geological Survey, P.O. Box 30256, Lansing, Michigan 48909, and a copy of the first page of the permit application and cover letter shall be mailed to the clerk of the township and the surface owner of record of the land on which the well is to be located at the same time as 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.

(d) The 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 of a new well, and a flagged route shall be established to the well location of a new well except as provided in R 299.2316(b). For existing wells, if a survey is available which accurately depicts the well site and surrounding area, then a new survey is not required.

(e) The survey required by subdivision (d) of this subrule shall include a plat that shows all of the following except as provided in R 299.2316(b):

(i) The 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 lines, nearest quarter section, and nearest property lines. In areas where surveyed sections do not exist, distances from the nearest private claim lines or latitude and longitude of the well location.

(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 sections 30301 to 30323 of the act, within 1,320 feet of the proposed well.

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

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

(F) Threatened or endangered species, as identified by 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 used for human consumption, public roads, railroads, pipelines, and power lines or other man-made features that lie within 600 feet of the proposed well location, but not including proprietary information relating to manufacturing processes.
- (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 et seq.
- (I) Identification of the existing local zoning designation of the surface location of the well.
- (f) One signed and sealed copy of the survey, on a form prescribed by the supervisor of mineral wells, shall be filed with an application required in subdivision (a) or (b) of this subrule.
- (g) If the proposed well is located in or will impact any areas described in subdivision(e)(iv)(A) or (B) of this subrule, a person shall file for and obtain all applicable permits from the department 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 required before the installation of flow lines or production equipment or before operating the well.
- (h) A person shall file an environmental impact assessment on a form prescribed by the supervisor of mineral wells.
- (i) A person shall file an organization report if a current organization report is not on file with the supervisor of mineral wells.
- (j) A person shall file a conformance bond as provided by R 299.2330.
- (k) 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.
- (3) Except as provided in R 299.2337, within 1 year after the effective date of these rules, an owner of an existing well for which no permit has been issued shall submit an application for a permit to drill and operate as required in subrule (1) of this rule.
- (4) A permit to drill and operate does not transfer, assign, or convey any interest in real estate.

R 299.2312 Application for permit to drill and operate a disposal well; additional requirements.

Rule 2312. A person seeking to drill a disposal well or to convert a previously drilled well to a disposal well shall submit, in addition to the information specified in R 299.2311, all of the following information with an application:

- (a) A map showing all of the following information:
 - (i) the location and total depth of the proposed well.
 - (ii) each abandoned, active, or permitted well and dry hole subject to this part or part 615 of the act within the area of review of the proposed well location.
 - (iii) the surface owner of the land on which the proposed well is to be located.
 - (iv) each operator of an active well subject to this part or part 615 of the act within the area of review of the proposed well.
- (b) If a well is proposed to be converted to a disposal well, a copy of a diagram of the current completion configuration together with geophysical logs.
- (c) Available plugging records of all abandoned wells and casing, sealing, and completion records of all other wells and artificial penetrations within the area of review of the proposed well location and a map identifying all such artificial penetrations. An applicant shall also submit a plan reflecting the steps or modifications believed necessary to prevent proposed injected waste products from migrating up, into, or through inadequately plugged, sealed, or completed wells.
- (d) A description of the vertical and areal extent of underground sources of drinking water in the area of review and a summary of the present and potential future use of the waters.
- (e) Geologic maps and stratigraphic cross-sections of the local and regional geology.
- (f) A calculation of the area of review in the injection interval over the anticipated life of the well, including the equations or method used to perform the calculation.
- (g) A discussion of the affect of injection on the present and potential mineral resources in the area of review.
- (h) information to characterize a waste product proposed for injection, including all of the following:
 - (i) An identification and analysis or estimated composition if an analysis is not available of a waste product proposed for injection, before and after treatment or filtration. However, if the fluid to be injected is fresh water, then an analysis is not required. An analysis for a waste product shall include all of the following parameters:
 - (A) Specific conductance.
 - (B) Concentrations of major cations and anions.

- (C) Total chloride.
- (D) Hardness.
- (E) pH.
- (F) Total dissolved solids.
- (G) Total suspended solids.
- (H) Fecal coliform concentration, if fecal coliform bacteria are known to be present in the waste.
- (ii) If the waste product is not brine from oil and gas operations, then the analysis shall also include any components which may indicate hazardous waste as defined in the act and which the waste product generator has knowledge are present in the waste product.
- (iii) If the proposed well is not intended for disposal of hazardous waste, then a statement certifying a waste product is not either of the following:
 - (A) A hazardous waste as defined in the act.
 - (B) A hazardous waste as defined by the United States environmental protection agency under 40CFR 261 of the resource conservation recovery act.
- (i) Information to characterize the proposed injection zone based on existing information, including all of the following:
 - (i) The geological name of the stratum or strata making up the injection zone and the top and bottom depths of the injection zone.
 - (ii) An isopach map showing thickness and areal extent of the injection zone.
 - (iii) Lithology, grain mineralogy, and matrix cementing of the injection zone.
 - (iv) Effective porosity of the injection zone including the method of determination.
 - (v) Vertical and horizontal permeability of the injection zone and the method used to determine permeability. Horizontal and vertical variations in permeability expected within the area of review.
 - (vi) The occurrence and extent of natural fractures and solution features within the area of review.
 - (vii) Chemical and physical characteristics of the fluids contained in the injection zone porosity and fluid saturations.
 - (viii) The anticipated bottom hole temperature and pressure of the injection zone and whether these parameters have been affected by past fluid injection or withdrawal.
 - (ix) Formation fracture pressure, the method used to determine fracture pressure, and the expected direction of fracture propagation.
 - (x) The vertical distance separating the top of the injection zone from the base of the lowest underground source of drinking water.
 - (xi) Other information the applicant believes will characterize the injection zone.
- (j) Information to characterize the proposed confining zone based on existing information, including all of the following:
 - (i) The geological name of the stratum or strata making up the confining zone and the top and bottom depths of the confining zone.
 - (ii) An isopach map showing thickness and areal extent of the confining zone.
 - (iii) Lithology, grain mineralogy, and matrix cementing of the confining zone.
 - (iv) Effective porosity of the confining zone including the method of determination.
 - (v) Vertical and horizontal permeability of the confining zone and the method used to determine permeability. Horizontal and vertical variations in permeability expected within the area of review.
 - (vi) The occurrence and extent of natural fractures and solution features within the area of review.
 - (vii) Chemical and physical characteristics of the fluids contained in the confining zone porosity and fluid saturations.
 - (viii) Formation fracture pressure, the method used to determine fracture pressure, and the expected direction of fracture propagation.
 - (ix) The vertical distance separating the top of the confining zone from the base of the lowest underground source of drinking water.
 - (x) Other information the applicant believes will characterize the confining zone.
- (k) Calculations demonstrating injection of liquids into the proposed injection zone will not exceed the fracture pressure gradient and information showing injection into the proposed geological strata will not initiate fractures

through the confining zone. Calculations showing the anticipated dispersion, diffusion, and displacement of injected fluids and behavior of transient pressure gradients in the injection zone during the anticipated life of the well.

(l) Proposed operating data, including all of the following data:

(i) The daily injection rates and pressures.

(ii) A plan for conducting mechanical integrity tests as required by R 299.2391 and R 299.2393.

(iii) The methods to be used for transporting waste to the disposal well.

(iv) Proposed procedures to ensure safe storage of waste products at the surface before injection.

(m) a list of all operators subject to this Part and Part 615 and certification that the applicant for a well has notified all operators by first class mail of the applicant's intention to drill a disposal well which will do either of the following:

(i) Dispose of waste products into a zone that would likely constitute or is known to be within a producing oil or gas pool or natural brine pool.

(ii) Drill through an existing oil, gas, or natural brine pool or gas storage field.

If within 21 days after the mailing date a substantive objection is filed with the supervisor of mineral wells by an operator, then a hearing shall take place under part 13 of these rules before an application may be granted.

(n) A proposed plugging and abandonment plan.

(o) If the well is to be a multisource commercial hazardous waste disposal well.

(p) A schematic diagram of the well bore showing the proposed arrangement of the downhole well equipment and specifications of the downhole well equipment.

R 299.2313 Application for permit to drill and operate a storage well; additional requirements.

Rule 2313. An applicant to drill a storage well or to convert a previously drilled well to a storage well shall submit, in addition to the information specified in R 299.2311 and R 299.2312, all of the following information with an application:

(a) The name and chemical formula of the product to be stored, and a characterization of the physical, chemical, and hazardous or toxic properties of the product.

(b) The anticipated vertical and horizontal dimensions and volume of the completed underground storage cavity.

(c) The anticipated operating life of the underground storage cavity.

(d) The method to be used to create the underground storage cavity.

(e) The name of the geological stratum in which the underground storage cavity will be created.

(f) A schematic diagram of the well bore showing the proposed arrangement and specifications of the downhole well equipment.

(g) If the underground storage cavity is to be formed by solution mining bedded salt, then all of the following information shall be included:

(i) The plan for disposal of brine produced during solution mining of the underground storage cavity and for the operating life of the underground storage cavity.

(ii) The expected starting and ending dates of the solution mining.

(h) The range of anticipated operating pressures of the underground storage cavity.

(i) The anticipated range of operating injection pressure.

(j) The proposed method of displacing stored product.

(k) A plan for testing the mechanical integrity of the underground storage cavity as provided in R 299.2392 and R 299.2393.

R 299.2314 Application for permit to drill and operate a well for production of artificial brine; additional requirements.

Rule 2314. An applicant to drill and operate a brine well for production of artificial brine or to convert a previously drilled well to a well for production of artificial brine shall submit, in addition to the information specified in R 299.2311, all of the following proposed information with an application:

(a) If the well will be drilled into an existing cavern, the number of wells in the cavern, the present extent of the cavern, and the purpose of the proposed well.

(b) The name of the geological stratum or strata to be mined, the top and bottom depths of the mined zone, the gross and net mineable thickness, and the mineral or minerals to be recovered by solution mining.

- (c) An isopach map showing thickness and areal extent of the strata to be mined.
- (d) A sketch showing the extent of the planned mine area.
- (e) The geological strata to be left in place for roof support.
- (f) A diagram showing the well bore with the proposed casing program and its relationship to the stratum or strata to be mined.
- (g) A plan for conducting subsidence monitoring as required in R 299.2407 or a rationale for not conducting subsidence monitoring.

R 299.2315 Application for a permit to drill and operate a test well; additional requirements.

Rule 2315. An applicant to drill and operate or to convert a previously drilled well to a test well that penetrates below the deepest fresh water stratum or is more than 250 feet in depth, shall submit, in addition to the information specified in R 299.2311, all of the following information with an application:

- (a) The purpose of the well.
- (b) A proposed plugging procedure and plugging schedule.
- (c) The proposed testing and geophysical logging procedure.

R 299.2316 Application for blanket test well permit; additional requirements.

Rule 2316. An applicant to drill 1 or more test wells that do not penetrate below the deepest fresh water stratum and are 250 feet or less in depth shall submit, in addition to the information specified in R 299.2311, all of the following information with an application:

- (a) The purpose of the drilling project.
- (b) A listing of the well locations and well names and numbers, identifying distances from the nearest section lines or latitude and longitude coordinates, and identification of the method used to determine well locations.
- (c) A United States geological survey 7.5-minute topographic map showing approximate well locations.
- (d) The anticipated number of wells in the project.
- (e) The anticipated beginning and ending dates of the drilling project.
- (f) A proposed plugging procedure and plugging schedule.
- (g) The proposed borehole testing and geophysical logging procedure.

R 299.2317 Application for permit to directionally drill a well; additional requirements.

Rule 2317. An applicant to directionally drill a well shall submit, in addition to the information specified in R 299.2311, a directional drilling diagram showing all of the following:

- (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 proposed measured and true vertical depths.

R 299.2318 Issuance of permit to drill and operate a well; posting of permit.

Rule 2318. (1) The application for a well shall be processed under this rule and the supervisor of mineral wells shall issue or deny a permit to drill and operate under section 62509 of the act.

(2) Upon receipt of an application for a permit, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall have not more than 60 days to review the application to determine if the application is accurate and administratively complete.

(3) If the application is determined to be inaccurate or incomplete, then the supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall provide the applicant, within the 60-day period, with a notice that the application is inaccurate or incomplete and what changes or additional information shall be submitted. Upon receipt of the requested information, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall have not more than 30 additional days to review the information to determine if the application is accurate and administratively complete.

(4) Upon completion of the review process, if a public hearing is not held, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall issue or deny the permit application within 10 business days, as provided in section 62509 of the act.

(5) If a public hearing is conducted, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall issue or deny the permit within 10 business days following review of the evidence gathered at the hearing.

(6) A determination of administrative completeness does not mean that additional information may not be required from the applicant as a result of new circumstances that come to the attention of the supervisor of mineral wells.

(7) Under R 299.2324, the supervisor of mineral wells shall not issue a permit to a person or an authorized representative of a person if the person is not eligible for a permit.

(8) 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 drilling completion.

R 299.2319 Directional redrilling.

Rule 2319. (1) A permittee of a well, which has reached drilling completion, who desires to directionally redrill the well to a bottom hole location which is less than 165 feet from the existing bottom hole location, shall file an application to change well status as required in R 299.2384.

(2) If a permittee of an existing well desires to directionally redrill the well to a new bottom hole location that is more than 165 feet from the current location, then all of the following shall apply:

(a) The permittee shall file an application for a new permit. The application shall describe the new bottom hole location and identify the plug-back depth of the existing well. The application shall be filed under R 299.2311.

(b) If the well has reached drilling completion, but the drilling rig is still on location, a permittee may obtain approval to begin redrilling by contacting the supervisor of mineral wells or the authorized representative of the supervisor of mineral wells in person, or by telephone, and providing pertinent details of the proposed directional redrilling. Approval may be granted immediately if both of the following conditions are met:

(i) The existing drilled hole is plugged back before starting the new directional hole, as provided by these rules, if plugging back is required by the supervisor of mineral wells.

(ii) The well has adequate bonding as required in R 299.2332.

(c) If approval to directionally redrill a well is granted, the permittee shall file an application for a new permit to drill and operate and pay an additional fee within 5 business days at the offices of the Michigan Department of Environmental Quality, Office of Geological Survey, 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 operations of the well. A permittee of a well who desires to directionally redrill an existing well to a different bottom hole location that is more than 165 feet from the current bottom hole location shall file an application for a new permit. The application shall describe the new bottom hole location and identify the plug-back depth of the existing well and shall be filed under R 299.2311. The directional redrilling shall not begin until the application is approved by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells, except as provided in this subrule. A new permit and an additional fee shall be required.

(3) Records as required in R 299.2369 to R 299.2372 and the plugging record shall be filed on the plugged-back hole as provided by these rules.

R 299.2320 Public hearings on storage and disposal wells.

Rule 2320. If the supervisor of mineral wells determines the public safety or other interests of concern to the public are involved, or a person who has standing and is directly concerned with the proposed permit, files a written request or petition which alleges that the public safety or other interest is involved, then the supervisor of mineral wells may schedule and conduct a public hearing to receive evidence to determine if a permit should be denied. The hearing may be conducted under part 13 of these rules.

R 299.2321 Notice of application to drill; advance notice of intent to drill.

Rule 2321. An applicant to drill a storage or disposal well may be required to furnish adequate advance notice of the application to drill either by publication in a newspaper of general circulation in the area, or by first-class mail, or both, to property owners within the area of review of the proposed well or within such adjacent area as required by the supervisor of mineral wells.

R 299.2322 Lost holes.

Rule 2322. (1) A permittee of a well shall obtain approval to skid a rig or move to start a new hole if 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.

(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 of mineral wells in person or by telephone. Approval may be granted immediately if all of the following provisions are complied with:

(a) The lost hole is plugged before starting the replacement hole as provided by the provisions of these rules.

(b) The new well location is a safe distance from the lost hole.

(c) The new well location does not create surface waste.

(d) An amended application, which identifies the new well location, is filed within 5 business days at the offices of the Michigan Department of Environmental Quality, Office of Geological Survey, 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 operations on the well.

(e) Records as required in R 299.2369 to R 299.2372 and well plugging records are filed on all lost holes as provided by the provisions of these rules.

R 299.2323 Conversion of well to use allowed under part 615 of the act.

Rule 2323. (1) An applicant seeking to convert a well drilled under this part to a use allowed under part 615 of the act shall apply for and obtain a permit as provided in that part.

(2) Upon issuance of the permit under part 615 of the act, a permit issued under this part of the act shall terminate and be without force and effect.

R 299.2324 Eligibility for permit.

Rule 2324. The supervisor of mineral wells shall not issue or transfer a permit, other than as provided by R 299.2325(3) and (4), to a person who is in violation of any of the following:

(a) This part.

(b) These rules.

(c) Permit conditions.

(d) Instructions of the supervisor of mineral wells.

(e) Orders of the supervisor of mineral wells.

R 299.2325 Modification of permits; deepening permits; change of ownership.

Rule 2325. (1) A permittee of a well who has not initiated drilling of a well shall not change the well location by more than 165 feet, the method of drilling, casing, and sealing programs, or other conditions of the permit without the approval of the supervisor of mineral wells or authorized representative of the supervisor of mineral wells. To receive approval, the permittee shall return the permit to the Lansing office of the supervisor of mineral wells 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 of mineral wells or authorized representative of the supervisor of mineral wells and posted at the drilling site.

(2) 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 change the method of drilling, casing, and sealing programs, or other conditions of the permit without the approval of the supervisor of mineral wells or authorized representative of the supervisor of mineral wells. To receive approval to modify an existing permit condition only, the permittee shall contact the supervisor of mineral wells or authorized representative of the supervisor of mineral wells by letter, telephone, or visit and explain the drilling circumstances and request the necessary changes to the permit. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells 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 application and corrected attachments and supplements shall be filed, within 5 business days, at the offices of the Michigan Department of Environmental Quality, Office of Geological Survey, P.O. Box 30256, Lansing, Michigan 48909. An additional permit fee is not required.

(3) 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 of mineral wells at the offices of the Michigan Department of Environmental Quality, Office of Geological Survey, P.O. Box 30256, Lansing, Michigan 48909, on forms as prescribed by the supervisor of mineral wells. 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 as required by R 299.2330. Pending the transfer of the existing permit, the acquiring person shall not operate the well. The acquiring person shall be required to file an organization report under R 299.2311(2)(j).

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

- (a) This part.
- (b) These rules.
- (c) Permit conditions.
- (d) Instructions of the supervisor of mineral wells.
- (e) Orders of the supervisor of mineral wells.
- (f) An order of the department.

An additional conformance bond covering the period of the compliance schedule may be required. The conformance bond shall be in addition to the conformance bonds filed under R 299.2330.

(5) Before transfer of a permit, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall inspect the well and associated surface facilities. If unsatisfactory conditions exist at the well site involved in the transfer, then the permit for a well shall not be transferred to a person until the current permittee has completed the necessary corrective actions or the acquiring person has entered into a written agreement to correct all of the unsatisfactory conditions.

R 299.2326 Suspension of operations due to failure to transfer permit.

Rule 2326. 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 299.2325(3) 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 operations on the well.

R 299.2327 Termination of permit.

Rule 2327. (1) A permit other than a blanket permit for test wells issued under these rules, or transferred under R 299.2324(3) 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 begun and the drilling operation is diligently proceeding or the well is otherwise being used for its permitted purpose. The supervisor of mineral wells may grant an extension of time to begin drilling provided a request for an extension is received by the supervisor of mineral wells.

(2) A blanket permit for test wells shall terminate 2 years after the date of issuance or when the number of wells specified in the application for a permit to drill and operate has reached final completion, whichever comes sooner. The supervisor of mineral wells may grant an extension of time to begin drilling provided a request for an extension is received by the supervisor of mineral wells and provided no drilling has begun.

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

R 299.2328 Temporary abandonment status.

Rule 2328. (1) A permittee of a well that has not been used for its permitted purpose during 24 consecutive months or has been tested and found to be unuseable for the purpose for which it was permitted 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 of mineral wells or authorized representative of the supervisor of mineral wells.

(2) The term of the initial temporary abandonment status shall not be more than 24 months.

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

special actions and monitoring by the permittee to ensure the prevention of waste and may require conformance bonding in addition to that required by R. 299.2332.

R 299.2329 Blanket test well permits; number of wells; extent; plugging test wells.

Rule 2329. (1) A blanket test well permit may be issued to drill not more than 200 test wells.

(2) A blanket test well permit is valid only for the county for which the permit is issued.

(3) A test well drilled under a blanket test well permit shall be plugged within 30 days of drilling completion and completion of all proposed well bore testing, except a test well may remain unplugged if the owner has applied for and received temporary abandoned status as required in R 299.2328.

R 299.2330 Conformance bond or statement of financial responsibility requirements.

Rule 2330. (1) A person who files an application for a permit to drill and operate a well under R 299.2311, or who acquires a well under R 299.2325(3), shall file a conformance bond with the supervisor of mineral wells on a form prescribed by the supervisor of mineral wells or shall submit a statement of financial responsibility as required in subrule

(2) of this rule.

(2) A statement of financial responsibility shall consist 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) If a person submits a statement of financial responsibility instead of a conformance bond, then the 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. Proved mineral reserves may be used 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 299.2332, 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 299.2332, if the person elected to file a conformance bond. Projected mineral reserves may be used 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 299.2332, if the person had elected to file a conformance bond. Projected mineral reserves may be used 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 of mineral wells 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 of mineral wells 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 mineral wells 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 of mineral wells 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 of mineral wells 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 of mineral wells or authorized representative of the supervisor of mineral wells 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 operations on the well.
- (8) The supervisor of mineral wells may require additional conformance bonds to ensure compliance with orders of the supervisor of mineral wells. The conformance bond shall be in addition to the conformance bonds filed under R 299.2332(a), (b), or (c) and shall be required only if the supervisor of mineral wells 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 \$400,000.00 or more, under R 299.2332(d). Subject to the provisions of R 299.2333, the additional conformance bond shall be released when the permittee has complied with all provisions of orders of the supervisor of mineral wells.
- (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 of mineral wells.

R 299.2331 Liability on conformance bond.

Rule 2331. (1) The liability on the conformance bond is conditioned upon compliance with the act, these rules, permit conditions, instructions, or orders of the supervisor of mineral wells. Subject to the provisions of R 299.2333, liability shall cover all operations of the permittee as follows:

- (a) Until transfer of the permit for the subject well under R 299.2325(4).
- (b) Until final completion approved by the supervisor of mineral wells of the subject well.
- (c) Until such time as another bond is in place.
- (2) The supervisor of mineral wells 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 of mineral wells. All expenses incurred by the supervisor of mineral wells in achievement of compliance with, and fulfillment of, all conditions of the act, these rules, permit conditions, instructions, or orders of the supervisor of mineral wells 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 of mineral wells. If the claim is not paid within 30 days, then the supervisor of mineral wells, acting for and on behalf of the state, may bring suit for the payment of the claim.

R 299.2332 Conformance bond amounts.

Rule 2332. A person who drills or operates a well shall file a conformance bond with the supervisor of mineral wells for the following amounts, as applicable:

- (a) Single well conformance bonds shall be filed in the following amounts, as applicable:
- (i) \$33,000.00 for a disposal, storage, or brine well.
- (ii) For an individual test well:
- (A) \$5,500.00 for a depth of 0 to 1,000 feet.
- (B) \$11,000.00 for a depth greater than 1,000 feet to 2,000 feet.
- (C) \$22,000.00 for a depth greater than 2,000 feet to 4,000 feet.
- (D) \$33,000.00 for a depth greater than 4,000 feet.

(iii) For a blanket test well permit, the following:

- (A) \$5,500.00 for 1 to 24 wells.
- (B) \$11,000.00 for 25 to 49 wells.
- (C) \$16,500.00 for 50 to 75 wells.
- (D) \$22,000.00 for 76 to 200 wells.

(b) Blanket conformance bonds may be filed as an alternative to single well conformance bonds. If a blanket conformance bond is used, then the permittee shall provide the supervisor of mineral wells with a list of wells covered by the blanket conformance bond. A maximum of 50 brine, storage, disposal, or individual test wells or any combination of these may be covered by a blanket conformance bond. If the permittee has more than 50 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 amount of \$440,000.00.

(c) Blanket test well permits shall not be eligible for blanket conformance bonds.

(d) The permittee is not required to file a blanket conformance bond or bonds in an aggregate amount of more than \$440,000.00. If the aggregate amount of the conformance bonds is \$440,000.00, then the permittee may file 1 blanket conformance bond of \$440,000.00 to cover all of his or her wells.

R 299.2333 Liability under conformance bonds issued by a surety.

Rule 2333. A surety company shall retain liability for all violations of the act, these rules, permit conditions, and instructions, or orders of the supervisor of mineral wells that occurred at the well during the time the conformance bond was in effect until the violations have been corrected and the corrections are accepted by the supervisor of mineral wells.

R 299.2334 Limitation of additional liability of blanket conformance bonds.

Rule 2334. A surety company may refuse to accept liability for additional wells under a blanket conformance bond by giving 10 days notice by certified mail to the supervisor of mineral wells. 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.

R 299.2335 Release of conformance bonds; release of well from blanket conformance bond.

Rule 2335. (1) A conformance bond shall be released or a well shall be released from a blanket conformance bond by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells if the permit for the well has been transferred to a new person as provided by R 299.2325(4) or if the well has been brought to final completion.

(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 of mineral wells which occurred during the time the conformance bond was in effect and which have not been corrected and accepted by the supervisor of mineral wells.

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

R 299.2336 Notice of release of conformance bond or release of well from blanket conformance bond.

Rule 2336. (1) The supervisor of mineral wells or authorized representative of the supervisor of mineral wells 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 of mineral wells or authorized representative of the supervisor of mineral wells shall return cash to the permittee or securities to the institution that provided the bonding instrument when the conformance bond has been released.

R 299.2337 Test wells not subject to this part.

Rule 2337. A test well drilled in an area of the state where rocks of precambrian age directly underlie unconsolidated surface deposits is not subject to R 299.2311, R 299.2315, R 299.2316, R 299.2317, R 299.2318, R 299.2319(1), R 299.2319(3), R 299.2322(1), R 299.2322(2)(e), R 299.2329(1), R 299.2329(2), and R 299.2329(3).

PART 3. LOCATION OF MINERAL WELLS

R 299.2341 Well location; exception.

Rule 2341. (1) Except as provided in subrule 2, the prescribed well location shall comply with all of the following requirements, as applicable:

(a) The well location and associated surface facilities for wells drilled, or constructed, after the effective date of these rules, which is not a replacement or improvement for an existing well or surface facility, 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.

(b) Except as provided by 1976 PA 399, MCL 325.1001 et seq., the well separators, storage tanks, and treatment equipment installed or constructed after the effective date of these rules 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 1976 PA 399, MCL 325.1001 et seq.

(2) The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may issue 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 under either of the following conditions:

(a) Upon presentation to the supervisor of mineral wells 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.

(b) The supervisor of mineral wells determines the well location or location of associated surface facilities will prevent waste, protect environmental values, and not compromise public safety after a hearing conducted under part 13 of these rules.

(3) A well shall not be located or drilled to an objective formation which will result in operations incompatible with existing or permitted uses under this part or part 615. An applicant shall demonstrate its operations are not incompatible with those uses.

PART 4. WELL DRILLING AND CONSTRUCTION

R 299.2351 Preventing waste.

Rule 2351. A person who drills a well or wells as described in R 299.2311(1) shall use every reasonable precaution to prevent waste.

R 299.2352 Drilling notification.

Rule 2352. 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 of mineral wells or authorized representative of the supervisor of mineral wells and the surface owner when well construction is to begin. Notice may be given verbally or by first-class United States mail.

R 299.2353 Construction of water wells used for drilling or surface facilities.

Rule 2353. (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 shall be drilled as provided by rules promulgated under part 127 of 1978 PA 368, MCL 333.12701 et seq.

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

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

(b) Be drilled with chlorinated fresh water.

(c) Be grouted as provided by the well construction and grouting rules contained in the well construction code promulgated under part 127 of 1978 PA 368, MCL 333.12701 et seq.

(d) Geologic records shall be filed with the supervisor of mineral wells on a form prescribed by the supervisor of mineral wells.

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

(f) The well shall be abandoned and plugged as provided by the plugging and abandonment rules contained in the well construction code promulgated under part 127 of 1978 PA 368, MCL 333.12701 et seq.

R 299.2354 Use of surface water for drilling.

Rule 2354. (1) Surface water shall not be used for drilling fluid, except as provided in subrule (2) of this rule.

(2) A request to use surface water for drilling a well may be made as part of the application for a permit to drill. The supervisor of mineral wells may approve the use of surface water for drilling a well.

R 299.2355 Drilling fluids generally.

Rule 2355. The drilling fluid used for drilling wells described in R 299.2311(1) shall be capable of sealing off and protecting each oil, gas, brine, or fresh water stratum encountered during drilling, and controlling subsurface pressures. The water or brines used in the drilling fluid shall be from a source approved by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells, used under approved safe drilling practices, and tested as instructed by the supervisor of mineral wells, except that only fresh water shall be used in the drilling of the hole for the surface casing. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may approve the use of fluids other than water for drilling fluids.

R 299.2356 Blowout prevention equipment.

Rule 2356. (1) All wells shall be equipped with the following equipment during drilling:

(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 of mineral wells or authorized representative of the supervisor of mineral wells.

(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 of mineral wells. If requested, an authorized representative of

the supervisor of mineral wells 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 of mineral wells or authorized representative of the supervisor of mineral wells.

(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 overpressured formations. Permission to change or modify the requirements specified in this subrule may be granted by submitting a written request to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells. The requirements may be changed or modified only after submission of a written request and receipt of written approval from the supervisor of mineral wells or authorized representative of the supervisor of mineral wells.

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

R 299.2357 Drilling mud pits.

Rule 2357. (1) The supervisor of mineral wells 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 of mineral wells or authorized representative of the supervisor of mineral wells.

(3) Only tanks shall be utilized while drilling a well that is located in an area zoned residential before the effective date of these rules. The supervisor of mineral wells 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 of mineral wells 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 of mineral wells. Before construction of the mud pit, a permittee shall demonstrate to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells 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 of mineral wells or authorized representative of the supervisor of mineral wells:

(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. During encapsulation the pit contents shall be solidified using a method approved by the supervisor of mineral wells, except as provided in subrule (9) of this rule.

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

(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 of mineral wells and shall comply 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 of mineral wells and shall comply with all of the following minimum requirements:

(a) Pits shall be lined with 20-mil virgin polyvinyl chloride liners as approved by the supervisor of mineral wells 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 of mineral wells and shall comply with all of the following minimum requirements:
- (a) Solid salt cuttings shall not be released to in-ground drilling mud pits. Solid salt cuttings obtained while drilling 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 under R 299.2425 or removed from the drilling site to a licensed disposal facility.
- (b) Only the following may be placed in a lined pit:
- (i) Water-based drilling muds generated or utilized while drilling with a fresh water drilling fluid.
- (ii) Drilling fluids generated or utilized while drilling with a fresh water drilling fluid.
- (iii) Cuttings obtained while drilling with a fresh water drilling fluid.
- (iv) Cuttings and the solid fraction of drilling muds generated or used while drilling with other than a fresh water drilling fluid, 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 Geological Survey 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 Geological Survey, 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 with other than a fresh water drilling fluid, 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 of mineral wells or authorized representative of the supervisor of mineral wells.
- (vi) Native soils.
- (vii) Cementing materials.
- (viii) Stiffening or solidification materials approved by the supervisor of mineral wells.
- (c) Machine oil, refuse, completion and test fluids, liquid hydrocarbons, or other materials may not be placed in a pit.
- (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 of mineral wells 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 of mineral wells.
- (b) A permittee of a well shall, before encapsulation, test the fluids and cuttings remaining in the pit to determine the concentrations of chloride and total petroleum hydrocarbons and provide certification to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells of the test results, except that a permittee is not required to test the fluids and cuttings remaining in the pit for chloride and total petroleum hydrocarbons if the well was drilled with water from a source approved by the supervisor of mineral wells and if, during the drilling operation, liquid hydrocarbons were not encountered. If the testing reveals chloride concentrations in excess of 500 PPM or total petroleum hydrocarbon concentrations in excess of 10,000 PPM, then the pit contents shall be excavated and disposed of in a licensed disposal facility. The excavation shall be filled with clean fill material, graded to original ground grade level and seeded.
- (c) A drilling mud pit which is encapsulated shall comply with all the following requirements:
- (i) The pit shall be encapsulated and buried as soon as practical after drilling completion, but not more than 6 months after drilling completion.

(ii) The contents 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 of mineral wells may be used at the option of a permittee or if required by the supervisor of mineral wells.

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

(iv) 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 of mineral wells. 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.

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

(11) A test well that does not penetrate below the deepest fresh water aquifer shall comply with both of the following requirements:

(a) Subrule 7(c) of this rule.

(b) Within 6 months following drilling completion, the drilling mud pit for a test well that does not penetrate below the deepest fresh water aquifer shall be filled with clean fill material or native materials and graded to original ground grade level.

(12) A test well that does not penetrate below the deepest fresh water aquifer is exempt from all other provisions of this rule except subrule (11).

R 299.2358 Mud gas separator; burning of gas generated by mud gas separator; incinerator or flare installation; hydrogen sulfide concentration determination.

Rule 2358. (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 unless the supervisor of mineral wells has approved an alternative method for handling the gas.

(c) If gas is routed to the incinerator or flare from the mud gas separator, then 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 of mineral wells or authorized representative of the supervisor of mineral wells. 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) If gas is routed to the incinerator or flare, then 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 of mineral wells or authorized representative of the supervisor of mineral wells. The results of the determination shall be entered into the driller's log.

R 299.2359 Surface casing.

Rule 2359. (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 as provided by R 299.2362 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 of mineral wells or authorized representative of the supervisor of mineral wells before resuming drilling.

(3) Hole size for surface casing shall be as specified in R 299.2361(4).

(4) A test well that does not penetrate below the deepest fresh water stratum is exempt from this rule.

R 299.2360 Wells drilled with cable tools.

Rule 2360. 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 of mineral wells or authorized representative of the supervisor of mineral wells. 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. A test well that does not penetrate below the deepest fresh water aquifer is exempt from this rule.

R 299.2361 Casing other than surface casing.

Rule 2361. (1) A person who drills a well or causes a well to be drilled under R 299.2311 or rules that were in effect before the effective date of these rules shall case the well in a manner approved by the supervisor of mineral wells to prevent waste.

(2) In addition to the surface casing, the supervisor of mineral wells 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.
- (g) A disposal or injection zone and the confining layer above the disposal or injection zone.

(3) All casing, except for casing set under R 299.2364, 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 2361:

Table 2361 Minimum Hole Size

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

An exception to the minimum hole size as shown in Table 2361 may be granted by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells, upon a written request by the permittee or applicant, if it is determined that the proposal provides proper sealing of the well. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may require a larger hole size for the surface hole than the size shown in Table 2361 in order to prevent waste.

R 299.2362 Cementing.

Rule 2362. Well casing shall be cemented by the pump and plug method or by a method approved by the supervisor of mineral wells 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 of mineral wells or authorized representative of the supervisor of mineral wells. 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, April 1995, Fifth Edition, which is adopted by reference in these rules. Copies are available for inspection at the Lansing Office of the Office of Geological Survey of the Department of Environmental Quality. Copies may be obtained from the Michigan Department of Environmental Quality, Office of Geological Survey, P.O. Box 30256, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$42.00 each, and from the American Petroleum Institute, 1220 L Street NW, Washington, DC 20050, at a cost as of the time of adoption of these rules of \$42.00 each.

R 299.2363 Stripping of casing.

Rule 2363. (1) A permittee of a well shall not pull or strip a string of casing from a well, except under the following circumstances:

(a) Provision is made for the removal of casing in the casing and sealing program specified in the application for a permit to drill and operate.

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

(c) A well is being plugged back or is being plugged to the surface under the change of well status provided in R 299.2384 or the plugging instructions in R 299.2433.

(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 of mineral wells or authorized representative of the supervisor of mineral wells.

R 299.2364 Casing liners.

Rule 2364. A permittee shall cement a casing liner and shall ensure the cement is circulated above the top of the liner or to a point approved by the supervisor of mineral wells.

R 299.2365 Requests for exceptions to R 299.2356 to R 299.2364.

Rule 2365. The supervisor of mineral wells may grant exceptions to R 299.2356 to R 299.2364, if the rules are not necessary to prevent waste or provide for the protection or safety of the public or workers. A request for an exception shall be submitted in writing to the supervisor of mineral wells.

R 299.2366 Elevations; well depth measurements.

Rule 2366. (1) Drilling reference elevations of the ground surface, kelly bushing, or rig floor shall be measured, recorded, and filed as required in R 299.2369.

(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.

R 299.2367 Well records; service company records; confidentiality.

Rule 2367. (1) A person who drills, deepens, changes well status, or completes a well as required by these rules, shall keep and preserve at the well, during drilling, deepening, changes in well status, or completion operations, all of the following:

(a) Accurate records recording all geologic strata penetrated.

(b) Casing and cement used.

(c) Other information as may be required by the supervisor of mineral wells in connection with the drilling of the well.

(2) If requested by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells, a permittee of a well shall file a copy of service company records, including records of all of the following services that have been performed:

(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 of mineral wells 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 of mineral wells or authorized representative of the supervisor of mineral wells at all times. A permittee shall protect the records from damage or destruction due to a preventable cause. Records shall be kept confidential as follows:

- (a) A log of a brine or test well shall be kept confidential for 10 years after well completion, except as otherwise released by the owner.
- (b) A log of a brine or test well drilled for exploratory purposes shall be kept confidential until released by the owner or operator or until the owner is no longer an active producer, mineral lease holder, or owner of mineral lands in the state.
- (c) If a brine or test well is converted to a new use allowed under this part, or under another part of the act, or under another act, a log of the well shall no longer be held confidential and shall be open for public inspection. All the information pertaining to the application for and issuance of a permit for the well shall no longer be held confidential and shall be open for public inspection.

R 299.2368 Samples of drill cuttings and cores.

Rule 2368. (1) A person who drills or deepens a well under 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 of mineral wells or authorized representative of the supervisor of mineral wells. The samples shall be available to the supervisor of mineral wells upon request.

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

(4) If a permittee of a well obtains whole cores or core samples during the drilling of a well, then the permittee shall provide the supervisor of mineral wells with a minimum of 90 days' notification of his or her intention to dispose of or destroy the whole cores or core samples. If requested by the supervisor of mineral wells, as prescribed by the notification, the permittee shall make available to the supervisor of mineral wells the whole cores or core samples.

R 299.2369 Filing of well records.

Rule 2369. (1) A permittee of a well who drills or deepens a well shall file all of the following records with the supervisor of mineral wells, except as provided in subrule (2) of this rule:

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

(i) Elevations as required by R 299.2366.

(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 from the cuttings or cores.

(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 of mineral wells or authorized representative of the supervisor of mineral wells requests the elevation to be measured.

(viii) Data on all drill stem tests.

(ix) The measurement of hydrogen sulfide content of gas encountered during a kick.

(x) All intervals cored.

(b) Within 60 days after well completion operations, data on all perforating, acidizing, fracturing, shooting, and testing.

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

(i) 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.

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

(2) If a test well is drilled in an area of the state where rocks of precambrian age directly underlie unconsolidated surface deposits, or in those areas that have been designated by the provisions of section 62508(c) of the act, an owner shall file the information required in subrule (1) of this rule within 2 years after drilling completion.

R 299.2370 Borehole and strata evaluation logging.

Rule 2370. (1) A permittee of a well shall file a copy of all borehole and geologic strata evaluation logs or other logs with the supervisor of mineral wells within 60 days after conducting the logging run, except as provided in subrule (2) of this rule.

(2) If a test well is drilled in an area of the state where rocks of precambrian age directly underlie unconsolidated surface deposits or in those areas that have been designated by the provisions of section 62508(c) of the act, then an owner shall file the information required in subrule (1) of this rule within 2 years after drilling completion.

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

R 299.2371 Survey of directionally drilled well.

Rule 2371. (1) A permittee of a well shall conduct a directional well survey on each directionally drilled well, with actual survey points taken at suitable intervals from the point of deviation to total depth to enable the course and the end point of the borehole to be determined, or at intervals as approved by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells. All information obtained during and after the survey shall be available to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells. A permittee shall file a certified copy of the survey with the supervisor of mineral wells within 30 days after drilling completion, except as provided in subrule (2) of this rule. A well shall not be utilized for the purpose for which it was permitted until the survey has been filed with the supervisor of mineral wells.

(2) If a test well is drilled in an area of the state where rocks of precambrian age directly underlie unconsolidated surface deposits or in those areas that have been designated by the provisions of section 62508(c) of the act, an owner shall file the information required in subrule (1) of this rule within 2 years after drilling completion.

R 299.2372 Sealing of cellars and rat and mouse holes.

Rule 2372. (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. A test well that does not penetrate below the deepest fresh water aquifer is exempt from this subrule.

(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 of mineral wells.

PART 5. COMPLETION

R 299.2381 Responsibility for well operations.

Rule 2381. A permittee of a well is responsible for the operations of the well.

R 299.2382 Well completion operations.

Rule 2382. (1) A permittee of a well shall use proper well control measures to avoid an uncontrolled flowing of the well. All fluids shall be produced or swabbed back to approved containers. A permittee of a well shall not use unlined earthen pits or reservoirs to contain fluids produced from the well during completion except as approved by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells.

(2) A permittee shall notify the supervisor of mineral wells or authorized representative of the supervisor of mineral wells at least 48 hours before the start of a well completion operation.

R 299.2383 Multiple zone completions.

Rule 2383. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may authorize multiple zone completions upon written application demonstrating the need for and technical feasibility of multiple zone completion.

R 299.2384 Change of well status.

Rule 2384. (1) A permittee of a well seeking to change the status of a well shall accurately make an application for change of well status with the supervisor of mineral wells. The application shall describe the kind of operation to be accomplished and the plan for protecting all utilized storage zones, disposal zones, and brine and hydrocarbon production zones, and shall include all information required in R 299.2312, R 299.2313, and R 299.2314, as applicable. A permittee shall not begin the operation until he or she has received approval from the supervisor of mineral wells or authorized representative of the supervisor of mineral wells and provided notification to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells of the date the operation will commence.

(2) A permittee of a well who desires to deepen a well below the permitted depth after drilling completion has occurred shall file an application to change well status as required in subrule (1) of this rule. To obtain approval to deepen, the permittee shall contact the supervisor of mineral wells or authorized representative of the supervisor of mineral wells by letter, telephone, or visit, and explain the circumstances for the request to deepen. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may give verbal approval to deepen. If approval to deepen is granted, then the permittee shall file the application for change of well status under subrule (1) of this rule, within 5 business days of approval, at the offices of the Michigan Department of Environmental Quality, Office of Geological Survey, P.O. Box 30256, Lansing, Michigan 48909. An additional permit fee is not required.

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

R 299.2385 Mineral wells encountering hydrocarbons.

Rule 2385. If a well produces hydrocarbons following completion, the supervisor of mineral wells may require 1 of the following:

- (a) A demonstration that the hydrocarbons have no commercial value.
- (b) Plugging and abandonment of the well.
- (c) Application for a permit to operate the well under part 615 of the act.

PART 6. MECHANICAL INTEGRITY TESTING

R 299.2391 Testing before operation of wells.

Rule 2391. (1) Before injecting fluid into a well newly drilled for disposal, storage, natural or artificial brine production, or into a previously existing well newly converted for storage, disposal, or artificial brine production, a permittee shall provide for a demonstration of internal mechanical integrity of the wellhead, casing, tubing, and annular seal assembly if present, utilizing either a pressure test at a surface pressure of not less than 100 psig above the maximum expected operating surface pressure of the well or an equivalent test approved by the supervisor of mineral wells. The test shall be conducted by a qualified person. A satisfactory pressure test shall meet the following requirements:

- (a) For a storage or disposal well, the test shall show a change of pressure of not more than 3% over a period of 60 minutes.
- (b) For an artificial or natural brine production well, the test shall show a loss of pressure of not more than 5% over a period of 30 minutes.

(2) Before injecting fluid into a well newly drilled for disposal, storage, or artificial brine production or a previously existing well newly converted for storage, disposal, or artificial brine production, a permittee of a well shall provide for a test of the external mechanical integrity of the innermost casing string and the cement sheath and its external seal by a method approved by the supervisor of mineral wells. The test shall be conducted by a qualified person. If a pressure test is used to demonstrate mechanical integrity, the test shall show a change of pressure of not more than 5% over a period of 30 minutes.

R 299.2392 Testing before operation of a storage cavity.

Rule 2392. Before placing stored product into a newly developed storage cavity or an existing cavity converted to storage, a permittee shall provide for a demonstration of the mechanical integrity of the cavity by a method approved by the supervisor of mineral wells.

R 299.2393 Periodic mechanical integrity testing.

Rule 2393. (1) A permittee shall provide for periodic tests by a qualified person to demonstrate internal and external mechanical integrity according to the following schedule unless a well has been granted temporary abandoned status under R 299.2437(3):

MAXIMUM TESTING INTERVAL

Well Type	Internal Mechanical Integrity	External Mechanical Integrity
Hazardous Waste Disposal	12 months	12 months
Nonhazardous Waste Disposal	12 months	60 months
Processed Brine	60 months	60 months
Artificial Brine	60 months	60 months
Natural Brine	When tubing is pulled.	Not Applicable
Nonhydrocarbon Storage	12 months	12 months
Test (Observation)	As required by supervisor of mineral wells, R 299.2346	Not Applicable

(2) Internal mechanical integrity shall be demonstrated by a permittee as follows:

(a) For a disposal well, by a pressure test of the annulus between the injection tubing and innermost casing string.

(b) For an artificial brine or storage well, by a water-brine, oil-brine, or inert-gas-brine interface test.

(c) For a natural brine production or test well used as an observation well, by a pressure test of the innermost casing string unless mechanical integrity has been demonstrated within the last year.

(3) External mechanical integrity of a disposal well, artificial brine production well, or storage well shall be demonstrated by a permittee using a downhole log approved by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells, intended to test for movement of fluid along the outside of the innermost casing string.

(4) A satisfactory pressure test shall meet the requirements in R 299.2391(1).

(5) A permittee shall provide a recording device to make record of the pressures measured during a mechanical integrity test.

R 299.2394 Notice of mechanical integrity testing.

Rule 2394. At least 30 days before a regularly scheduled test required by R 299.2391, R 299.2392, or R 299.2393, a permittee shall notify the supervisor of mineral wells or authorized representative of the supervisor of mineral wells of the date and approximate time of the test. The notification shall include a copy of the proposed test procedure including procedures for wireline logging. Mechanical integrity testing shall not be conducted until a permittee has received approval of the test procedure from the supervisor of mineral wells or an authorized representative of the supervisor of mineral wells. Mechanical integrity testing may be witnessed by the supervisor of mineral wells or an authorized representative of the supervisor of mineral wells.

R 299.2395 Calibration of pressure gauges.

Rule 2395. A permittee shall calibrate all pressure gauges used in mechanical integrity demonstrations according to the manufacturer's recommendations. A copy of the calibration certificate shall be submitted to the supervisor of mineral wells at the time of demonstration and every time the gauge is calibrated. A pressure gauge shall have a resolution so as to allow detection of at least 1/2 of the maximum allowable pressure change.

R 299.2396 Mechanical integrity testing required by supervisor of mineral wells.

Rule 2396. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may require a demonstration of mechanical integrity following a change of well status or if there is reason to believe a well does not have mechanical integrity.

R 299.2397 Reports of mechanical integrity.

Rule 2397. A permittee shall file a signed copy of the report of a mechanical integrity test with the supervisor of mineral wells within 60 days after testing. A copy of the pressure record shall accompany the report. The report shall include evaluation of the test results by a person qualified to provide such an evaluation. Reports of mechanical integrity demonstrations utilizing downhole logs shall be accompanied by an interpretation of the log by a person qualified to make such interpretations.

R 299.2398 Alternative testing method.

Rule 2398. The supervisor of mineral wells may approve a test other than those required in R 299.2391, R 299.2392, or R 299.2393 to demonstrate internal or external mechanical integrity or to test for movement of fluid along the borehole, provided the request is made in writing and includes information or data to demonstrate that the proposed method is able to demonstrate mechanical integrity at least as well as the methods required in R 299.2391, R 299.2392, or R 299.2393.

R 299.2399 Failure to demonstrate mechanical integrity.

Rule 2399. (1) A well shall maintain mechanical integrity. If the permittee or the supervisor of mineral wells or authorized representative of the supervisor of mineral wells finds that the well fails to demonstrate mechanical integrity during a test or fails to maintain mechanical integrity during operation, or that a loss of mechanical integrity is suspected during operation, the permittee shall halt injection immediately unless the supervisor of mineral wells allows continued operation, provided operation can continue without causing waste. Report of the loss of mechanical integrity shall be made verbally to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells within 24 hours from the time the permittee becomes aware of the loss, and shall include an anticipated date for a mechanical integrity demonstration.

(2) If injection has ceased as provided by subrule (1) of this rule, then a permittee shall not resume injection until the well demonstrates mechanical integrity. A plan to restore mechanical integrity shall be submitted to, and approved by, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may witness the mechanical integrity demonstration. If the plan requires a change of well status, then a permittee shall file an application to change well status as required by R 299.2385.

PART 7. OPERATION OF BRINE PRODUCTION and SOLUTION MINING WELLS

R 299.2401 Production tests for newly completed or change of status wells producing natural brine.

Rule 2401. A permittee of a well shall conduct production tests on a newly completed well intended to produce natural brine or on a previously tested well when a change of well status may have resulted in changes in producing capacity. A permittee shall report the results of all production tests to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells within 30 days after completion of the tests. The permittee shall certify the results on forms prescribed by the supervisor of mineral wells.

R 299.2402 Special capacity tests of wells producing natural brine.

Rule 2402. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may, upon written notice, require the permittee of a well used for natural brine production to perform a special producing capacity test or supply brine production data for a well or wells. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may witness, or make measurements during the test, subject to proper safety supervision by the permittee.

R 299.2403 Reports of natural brine produced.

Rule 2403. A person who is producing natural brine shall be required by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells to report annually, within 60 days after the end of the calendar year of production, the amount of natural brine produced during the calendar year of production, unless an extension of time is granted by the supervisor of mineral wells. The reports shall be signed by the person who is producing brine on forms prescribed by, or acceptable to, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells.

R 299.2404 Solution mining; reporting.

Rule 2404. (1) A permittee shall control cavity shape during solution mining of bedded salt.

(2) A permittee who is solution mining shall report annually, within 60 days after the end of the calendar year, the amount of soluble mineral or rock removed and the volumes of fluids injected into and removed from each cavity. The report shall be certified by the permittee on forms prescribed by, or acceptable to, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells.

R 299.2405 Rock profile determination.

Rule 2405. A permittee shall determine the cavity roof position not less than biennially. Generally accepted wireline logging methods shall be utilized. The results of the determination shall be filed with the supervisor of mineral wells not more than 60 days after completion and shall include all wireline logs run.

R 299.2406 Cavity size.

Rule 2406. A permittee shall submit a plan to monitor cavity size and shape for approval by the supervisor of mineral wells. The plan shall include frequency of monitoring and shall include a description of the method used to determine the size and shape of the cavity. The plan for an existing cavity shall be submitted within 6 months of the effective date of these rules.

R 299.2407 Subsidence monitoring above a cavity created by solution mining.

Rule 2407. A permittee shall submit a plan for subsidence monitoring above a cavity for approval by the supervisor of mineral wells. The plan shall include frequency of monitoring and shall include a description of the method used to monitor subsidence. The plan for an existing cavity shall be submitted within 6 months of the effective date of these rules.

R 299.2408 Abandonment of cavity created by solution mining.

Rule 2408. Before abandoning a cavity used for storage, a permittee shall remove stored product to the extent practicable and replace it with brine or fresh water subject to the approval of the supervisor of mineral wells.

PART 8. OPERATION OF DISPOSAL OR STORAGE WELLS

R 299.2411 Temporary authority to inject.

Rule 2411. The supervisor of mineral wells may grant a permittee of a disposal well temporary authorization to inject fresh water or brine for a period of not more than 30 days for the limited purpose of running injectivity tests.

R 299.2412 Testing before operation of disposal or storage wells.

Rule 2412. (1) Tests of the disposal zones and confining formations, downhole logs, and direct measurements shall be conducted to determine to the satisfaction of the supervisor of mineral wells that the well and disposal formations are suitable for disposal or storage and the confining zone is adequate to confine disposed or stored fluids. The tests shall include all of the following:

- (a) Physical, chemical, and lithologic properties, and fluids.
- (b) Porosity and permeability.
- (c) Compatibility of waste or stored fluids with naturally occurring formation fluids and formation materials, along with a characterization of the potential for multiple waste products to react in the well bore or in the injection zone.
- (d) Disposal zone, temperature, and pressure.

(e) Disposal zone fracture pressure.

(2) Tests, logs, and direct measurements shall be conducted following procedures acceptable to the supervisor of mineral wells. Results shall be filed with the supervisor of mineral wells within 60 days of the completion of the test, logging, or measurement.

R 299.2413 Testing before operation of a storage cavity.

Rule 2413. The size, shape, and volume of the cavity shall be determined by sonar survey or other method acceptable to the supervisor of mineral wells. The results of the determination, together with records of any downhole measurements, shall be filed with the supervisor of mineral wells within 60 days after the completion of the determination. The filing shall include an interpretation of the results by a person qualified to make such interpretations. The permittee shall certify the results.

R 299.2414 Confirmation for use of storage and disposal wells and cavities.

Rule 2414. (1) If it is determined by examination of evidence required by R 299.2412 that a well may be used for storage or disposal in a manner that will not cause waste, then the supervisor of mineral wells shall confirm the well for that use and thereafter regulate the use and operation of the well as provided by these rules. The supervisor of mineral wells shall not confirm a well for disposal or storage that does not demonstrate mechanical integrity as provided by R 299.2391.

(2) If it is determined by examination of evidence provided by R 299.2413 that a cavity may be used for storage in a manner that will not cause waste, then the supervisor of mineral wells shall confirm the cavity for that use and thereafter regulate the use and operation of the cavity as provided by these rules. A cavity confirmed for storage shall be subject to the requirements of R 299.2406 to R 299.2408. The supervisor of mineral wells shall not confirm a cavity for storage that does not demonstrate mechanical integrity as provided by R 299.2392.

(3) A well or cavity that is not confirmed for use shall be abandoned and plugged or converted to another use.

R 299.2415 Operation of disposal wells; monitoring and reporting requirements.

Rule 2415. (1) Injection of a waste product shall not begin until all of the following are complete:

(a) The well is confirmed for use as provided by R 299.2414.

(b) The warning system required in subrule (8) of this rule is installed and tested or the monitoring plan required in subrule (8) of this rule is approved by the supervisor of mineral wells.

(c) A working check valve is installed on the flow line as close as practicable to the wellhead to prevent backflow.

(2) The permittee shall inject only through tubing with a packer set within the innermost casing string or strings at a point within or below the confining zone. During injection operations, the annulus between the injection tubing and innermost casing shall be filled with a noncorrosive liquid. Any changes in the arrangement of downhole equipment shall be submitted by the permittee on forms prescribed by the supervisor of mineral wells for approval by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells before installation.

(3) During disposal operations a permittee shall ensure that the injection pressure at the wellhead 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.

sg = highest specific gravity of liquid planned for injection.

d = depth to top of disposal zone in feet (true vertical depth).

The permittee shall maintain a positive pressure at the wellhead on the annulus between the injection tubing and the innermost casing. Injection pressure shall not initiate fractures or cause existing fractures to propagate into the confining zone or cause movement of injected or formation fluids through the confining zone.

(4) If migration of injected fluids through the confining zone is discovered, the permittee shall immediately cease injection and submit to the supervisor of mineral wells a remediation plan. A report of the discovery shall be made orally to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells within 24 hours of the

time of discovery. A written report detailing the circumstances of the discovery shall be filed with the supervisor of mineral wells within 10 business days of the discovery. The supervisor of mineral wells may require a permittee to demonstrate an underground source of drinking water is not impacted by the migration of injected fluid.

(5) The permittee shall at all times ensure that injected fluids do not enter an underground source of drinking water. If the injected fluids have the potential to react with the rock of the injection formation, then the permittee shall ensure that pressure imbalances do not occur.

(6) The supervisor of mineral wells may require a permittee to monitor the pressure buildup in the injection zone. The pressure monitoring shall include a suitable pressure transient test. From this observation the permittee shall submit a report to the supervisor of mineral wells including all of the following information:

- (a) All measured data.
- (b) A calculation of pressure buildup and static bottom hole pressure in the injection zone.
- (c) Injection zone transmissivity.
- (d) Well bore skin factor.
- (e) Radius of investigation of the test.

At least 30 days before a test, a permittee shall notify the supervisor of mineral wells or authorized representative of the supervisor of mineral wells of the date and approximate time of the test.

(7) If required by the supervisor of mineral wells, the permittee shall maintain monitoring devices and use them to monitor injection pressure, pressure in the annulus between the injection tubing and the innermost casing, and injection rate. The permittee shall monitor the annulus pressure system reservoir volume daily.

(8) The permittee shall do 1 of the following:

(a) Install an automatic warning system to notify the permittee if either of the following conditions exist:

- (i) Pressure changes in the annulus or tubing signifying or identifying possible deficiencies in mechanical integrity.
- (ii) Injection pressure exceeding the pressure limits specified in subrule (3) of this rule.

(b) Submit for the supervisor of mineral wells approval, a monitoring plan to detect conditions described in paragraphs (a)(i) and (a)(ii) of this subrule.

(9) The permittee shall test an automatic warning system installed under subrule (8) of this rule at least every twelfth month. The test must involve subjecting the system to simulated failure conditions. At least 30 days before a test, a permittee shall notify the supervisor of mineral wells or authorized representative of the supervisor of mineral wells of the date and approximate time of the test.

(10) The permittee shall install and maintain a suitable coupling and valve on the wellhead to be used for independent injection pressure measurements.

(11) All injection and withdrawal activities shall be monitored by an individual who is trained and experienced in such activities. A permittee shall submit a plan for monitoring injection and withdrawal activities. The wellhead and facility shall be secured in a manner to prevent unauthorized access to the well if the well is not in use for an extended period of time.

(12) The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may approve a waste product, in addition to those specified in the application for a permit to drill and operate, to be injected into a well. Requests to inject an additional waste product shall be in writing and accompanied by the characterization required in R 299.2312(h).

(13) A permittee shall submit a waste analysis plan for approval by the supervisor of mineral wells or the authorized representative of the supervisor of mineral wells.

(14) A permittee shall submit monthly reports of the following information no later than the end of the month following the reporting period:

- (a) Maximum and average injection pressure for each day of the month and monthly averages of the maximum and minimum injection pressures.
- (b) maximum and minimum pressure in the annulus between the injection tubing and innermost casing for each day of the month and monthly averages of the maximum and minimum pressure in the annulus between the injection tubing and innermost casing.
- (c) Maximum and average injection rates for each day of the month and monthly averages of the maximum and minimum injection rates.
- (d) The total volume of waste products injected for each day of the month and to date, in the current calendar year. If surface runoff is injected, the total annual and monthly volumes for both waste fluids and surface runoff shall be

reported individually. If waste products injected into a multisource commercial hazardous waste disposal well include waste that is not hazardous, the volumes of both hazardous and nonhazardous waste shall be reported separately.

(e) The amounts and types of liquid added to or removed from the annulus pressure system for each day of the month and the cumulative amount of liquid added to or removed from the annulus pressure system for the current month and each of the past 12 months.

(f) Any event that exceeds operating pressures as specified in subrule (3) of this rule and any event that triggers an alarm or shutdown device provided by subrule (8) of this rule.

(g) A description of any well bore stimulation that does not require an application to change well status under R 299.2384, including all of the following:

(i) The date of the stimulation.

(ii) The amount of acid used.

(iii) The concentration and type of acid used.

(iv) The maximum pressure generated during the stimulation.

(h) The supervisor of mineral wells may grant an exception to the reporting requirements of subdivisions (a) to (g) of this subrule if a permittee makes a request in writing.

(15) All records pertaining to a disposal well shall be retained by the permittee for a period of at least 3 years following the plugging and abandonment of the disposal or storage well and shall be open to inspection at any time by the supervisor of mineral wells or an authorized representative of the supervisor of mineral wells.

R 299.2416 Operation of storage wells and associated surface facilities.

Rule 2416. (1) Before injecting fluid into a storage well, a permittee shall submit a surface facility plan and receive approval of the supervisor of mineral wells or authorized representative of the supervisor of mineral wells. The plan shall describe all the following and shall include schematic diagrams where applicable:

(a) Well emergency shutdown systems.

(b) Cavity overfill prevention devices or methods.

(c) Surface facility and wellhead leak detection systems, including detection of any vapor cloud that may leave the storage facility property.

(d) Brine pit vapor detection and control systems.

(e) Fire detection and suppression systems.

(f) Employee training and testing programs.

(g) Integration of all leak detectors, fire detectors, and pressure sensors into a warning system that activates audible and visual alarms in the local control room and at any remote control center, including fail-safe aspects of all sensors.

(h) Installation of wind direction indicators.

(i) Construction and location of barriers designed to prevent vehicle impact.

(j) Monitoring of the pressures on the injection and withdrawal piping.

(k) Operating specifications of piping from the wellhead to the emergency shutdown valve.

(l) Procedures and schedules for testing and ensuring functionality of each system or method listed in subdivisions (a) to (e) of this subrule and the measures to be taken if the system or any component of the system fails to operate as required.

(2) A permittee shall submit to the supervisor of mineral wells a written emergency response plan.

(a) The plan shall address all of the following:

(i) Spills and releases.

(ii) Fires.

(iii) Explosions.

(iv) Loss of electricity.

(v) Loss of telecommunications services.

(b) Where applicable the plan shall describe the following:

(i) The facility's emergency response communication system.

(ii) Procedures for coordination of emergency communication and response activities with local authorities.

(iii) Use of warning systems.

- (iv) Procedures for employee evacuation and employee training.
- (c) The plan shall provide for annual drills to test response to a simulated emergency.
- (d) A permittee shall ensure the plan is updated as changes in safety features at the facility are made or as the supervisor of mineral wells requires. Copies of the plan shall be available at the storage facility and the company headquarters.
- (3) If an emergency occurs that may endanger nearby residents or property a permittee shall do all of the following:
 - (a) as soon as practicable after the discovery of an emergency, notify the local emergency preparedness coordinator, the county sheriff's office or local police department, the supervisor of mineral wells and other appropriate public officials identified in the emergency response plan.
 - (b) At the time of notice, report an assessment of the potential threat to the public.
 - (c) report to the supervisor of mineral wells as soon as practicable any problem that increases the potential for an uncontrolled release. A permittee shall confirm the report in writing within 10 days.
 - (4) A permittee shall provide written notice of the date of a drill conducted under an emergency response plan to the supervisor of mineral wells, the local emergency preparedness coordinator, the county sheriff or local police department and the local fire department. Local emergency response personnel shall be invited to participate in all such drills. A permittee shall file a written evaluation of the drill and plans for improvement with the supervisor of mineral wells and local emergency preparedness coordinator within 30 days after the date of the drill.
 - (5) A permittee shall determine the configuration of the roof of a storage cavity by downhole log or other method approved by the supervisor of mineral wells at intervals not to exceed 5 years. The results of the determination shall be filed with the supervisor of mineral wells within 60 days after completion. The filing shall include an interpretation of the results by a person qualified to make such interpretations. A permittee shall certify the results.
 - (6) A permittee shall ensure the quantity of stored product in a cavity does not exceed the approved maximum storage volume for the cavity.
 - (7) Any device or sensor which is not operating shall be repaired or replaced within 10 days of the date it is discovered to be defective.
 - (8) A permittee shall meter the volumes of stored product injected and withdrawn from a storage well.
 - (9) A permittee shall submit monthly reports of the following information not later than the end of the month following the reporting period:
 - (a) Maximum and average injection and withdrawal pressures for each day of the month or a copy of any continuously recorded chart of the injection and withdrawal pressures.
 - (b) monthly averages of the maximum and minimum injection and withdrawal pressures.
 - (c) Maximum and average injection and withdrawal rates for each day of the month.
 - (d) monthly averages of the maximum and minimum injection and withdrawal rates.
 - (e) The net volumes of stored product and brine injected into and withdrawn for each day of the month, and to date, in the current calendar year.
 - (f) Any event that triggers a system listed in subdivisions (a) to (e) of subrule (1) of this rule.
 - (10) A permittee shall insure injection pressure does not exceed the maximum permitted injection pressure.
 - (11) All records pertaining to a storage well shall be retained by the permittee for a period of at least 3 years following the plugging and abandonment of the storage well and shall be open to inspection at any time by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells.

PART 9. DISPOSITION OF BRINE

R 299.2421 Prevention of pollution, contamination, or damage.

Rule 2421. The permittee shall not store, transport, or dispose of natural, artificial, or processed brine in a manner that will or is likely to result in pollution. A permittee of a well shall ensure that natural, artificial, or processed brine is stored, transported, and disposed of in a manner approved by the supervisor of mineral wells and consistent with all applicable state and federal laws and regulations.

R 299.2422 Pit disposal or storage prohibited.

Rule 2422. A permittee of a well shall not dispose of or store natural, artificial, or processed brine in unlined earthen pits.

R 299.2423 Disposal of brine.

Rule 2423. (1) A permittee of a well shall dispose of natural, artificial, or processed brine into an approved underground formation in a manner that prevents waste or in a manner approved by the supervisor of mineral wells.

(2) A permittee of a well is responsible for the proper disposal of all natural, artificial, or processed brine or brine accumulated in drilling mud pits or tanks and shall ensure that waste, as defined in sections 62501(m) and (p) of the act, will not occur.

R 299.2424 Use of annular space for disposal prohibited.

Rule 2424. A permittee of a well shall not dispose of natural, artificial, or processed brine in the annular space between strings of casing. The supervisor of mineral wells may grant an exception if the supervisor of mineral wells determines that annular disposal will not result in underground waste.

PART 10. PLUGGING

R 299.2431 Plugging; general requirements.

Rule 2431. A permittee of a well shall ensure that all oil, gas, brine, waste products, and fresh water are confined to the strata in which the oil, gas, brine, waste products and fresh water occur or are injected into by using cement plugs or other plugs approved by the supervisor of mineral wells. 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 of mineral wells or authorized representative of the supervisor of mineral wells.

R 299.2432 Notification of intention to abandon and plug a well.

Rule 2432. (1) Except as provided in subrule (2) of this rule, a person shall not begin the plugging of a well until the permittee of a well has notified the supervisor of mineral wells or authorized representative of the supervisor of mineral wells 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 of mineral wells or authorized representative of the supervisor of mineral wells required to issue plugging instructions. The notification shall include all 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) All downhole equipment to be abandoned with the hole.
- (g) All known lost circulation zones.
- (h) The date of the last production or operation.
- (i) The reason for plugging the well.
- (j) Documentation of the amount of uncemented casing in the well using downhole wireline tools or other methods approved by the supervisor of mineral wells.
- (k) Any other information required by the supervisor of mineral wells.

(2) A permittee of a well shall notify the supervisor of mineral wells or authorized representative of the supervisor of mineral wells by telephone or telefax during normal business hours at least 24 hours before beginning the plugging of the well.

R 299.2433 Plugging instructions.

Rule 2433. (1) Except as provided in subrule (2) of this rule, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall issue plugging instructions after receipt of notification as provided by R 299.2432. The plugging instructions shall specify all of the following information:

- (a) The type and amount of plugging material to be used.
- (b) The intended depths at which bridges are to be set.
- (c) The intended depths and lengths of cement plugs.

- (d) The intended amount of casing to be pulled.
 - (e) Other requirements the supervisor of mineral wells determines are necessary for the proper plugging of the well.
- (2) The plugging procedure filed as required in R 299.2315(b) or R 299.2316(f) and approved by the supervisor of mineral wells shall serve as the plugging instructions for a test well.

R 299.2434 Removal of uncemented casing required during plugging.

Rule 2434. Except as provided by R 299.2438, a permittee shall ensure that all uncemented casing is removed from a well during plugging, unless otherwise approved by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells.

R 299.2435 Methods and materials.

Rule 2435. (1) A permittee of a well shall ensure that a well is plugged from bottom to top by a material approved by the supervisor of mineral wells.

- (2) A permittee of a well shall ensure that the plugging procedures and materials do not cause formation fracturing.
- (3) A permittee of a well shall ensure that all casings abandoned with the hole are 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 of mineral wells or authorized representative of the supervisor of mineral wells 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. The permittee may install a permanent above-ground marker, showing the permit number, above the well.

R 299.2436 Plugging records; contents and filing.

Rule 2436. (1) Except as provided in subrule (2) of this rule a permittee shall file, within 60 days after plugging, the final plugging forms, 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) All downhole equipment abandoned with the hole and the depths to the tops of the abandoned equipment.
- (e) Signed copies of service companies' records of cementing operations showing all of the following information:
 - (i) Pumping times.
 - (ii) Placement of cement.
 - (iii) Weights of cement slurries.
 - (iv) Pumping rates.
 - (v) Other pertinent data related to the plugging operations.
- (f) The amounts and type of mix water used to mix cement.
- (g) The volume and types of spacers and flushes used.
- (h) The permittee's daily plugging records, if available.

(2) If a test well is drilled in an area of the state where rocks of precambrian age directly underlie unconsolidated surface deposits or in those areas that have been designated by the provisions of section 62508(c) of the act, an owner shall file the information required in subrule (1) of this rule within 2 years after drilling completion.

R 299.2437 Commencement of plugging operations.

Rule 2437. (1) A permittee of a well other than a test well shall begin plugging operations as follows:

- (a) Within 90 days after drilling completion if the well has been tested and found to be unuseable for the purpose for which it was permitted.
- (b) When the well has not been utilized for its permitted use for more than 24 consecutive months and temporary abandonment status has not been approved. The supervisor of mineral wells may require a permittee to supply proof that a well is being utilized for the purpose for which it was permitted.

(2) A test well shall be plugged within 30 days of drilling completion and completion of all proposed well bore testing unless a different plugging schedule is approved by the supervisor of mineral wells at the time of issuance of a permit to drill and operate.

(3) After receiving a written request showing just cause why the well should not be plugged, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells may grant temporary abandonment status as provided by R 299.2328 or require the well to be plugged.

R 299.2438 Pulling of surface pipe and conductor pipe.

Rule 2438. A permittee of a well shall not remove surface or conductor pipe during plugging unless it is required by the supervisor of mineral wells. A test well drilled under a blanket permit is exempt from this rule.

R 299.2439 Restoration of well site; filling and leveling of cellars, pits, and excavations; removal of debris.

Rule 2439. 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 of mineral wells or authorized representative of the supervisor of mineral wells as soon as practical, but not more than 9 months after plugging completion.

PART 11. WELL SITES; SURFACE FACILITIES; FLOW LINES

R 299.2441 Surface facilities; location; exception to location requirements.

Rule 2441. (1) All surface facilities and flow lines installed after the effective date of these rules shall be constructed so that the materials contained in the facilities do not cause waste. Operation of surface facilities and flow lines shall not begin until the permittee has complied with the methods and means to prevent pollution as specified in these rules.

(2) Surface facilities installed after the effective date of these rules that are not a replacement or improvement of an existing surface facility shall be located not less than 300 feet from either of the following:

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

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

(3) Surface facilities may be located closer 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 under either of the following conditions:

(a) Upon presentation to the supervisor of mineral wells of a written consent signed by the owner or owners of 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.

(b) After a hearing under part 13 of these rules, the supervisor of mineral wells determines that the proposed surface facility location will prevent waste, protect environmental values, and not compromise public safety.

(4) The supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall be notified within 24 hours of emergency repairs to existing surface facilities that substantially modify the facility or piping. Information regarding such emergency repairs shall be submitted in writing within 45 days of the repair.

R 299.2442 Surface facilities; request for approval; other permits required.

Rule 2442. (1) A permittee shall submit to the supervisor of mineral wells a written request for approval to construct or substantially modify and operate a surface facility or flow line. The request may be filed with the application for a permit to drill and operate a well.

(2) A request for a surface facility shall include all of the following information, or in the case of a substantial modification, updates of the following information:

(a) An environmental impact assessment.

(b) A scale map showing the location of the proposed surface facility.

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

(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 items identified in R 299.2311(2)(e)(iv).

(f) Identification of the fluid streams to be handled at the surface facility.

- (g) A schematic of the flow schemes, including the location and storage capacities of all on-site surface equipment.
 - (h) A copy of the spill response plan.
 - (i) Secondary containment plans showing construction details of dikes and floors of all secondary containment areas.
 - (j) Details of tank overfill prevention systems.
- (3) A request to construct or substantially modify a flow line shall include all the following information:
- (a) Material specifications for the proposed flow line material, including composition, burst strength, corrosion resistance and other engineering data to characterize the suitability of the pipe for transporting the liquid proposed.
 - (b) Details of flow line construction procedure, including burial depth, method of forming joints, quality control procedures for joints, procedures for pre-use leak testing and other information to characterize the installation from the standpoint of minimizing leaks.
 - (c) Details of flow line operation, including placement of emergency shutoff valves, maximum anticipated operating pressure, and plans for leak detection by means of any of the following:
 - (i) Regular inspections or corridor patrols.
 - (ii) Installation of monitoring systems for leak detection.
 - (iii) Flow line pressure testing.
 - (iv) Any other method and placement of emergency shutoff valves and maximum anticipated operating pressure.
- (d) A scale map showing the proposed route of the flow line.
- (e) A copy of the spill response plan. A spill response plan prepared under another part of the act is acceptable.
- (4) Upon receipt of a written request for approval to construct and operate or to substantially modify and operate a surface facility or flow line, other than a request made as part of an application for permit to drill and operate a well, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall have up to 30 days to review the request to determine if the request is accurate and administratively complete.
- (5) If the request is determined to be inaccurate or incomplete, then the supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall, within the 30-day period, provide the person making the request with 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 of mineral wells or authorized representative of the supervisor of mineral wells shall have up to an additional 15 days to review the information to determine if the request is accurate and administratively complete.
- (6) If a request to construct and operate a surface facility or flow line is submitted with an application to drill and operate a storage or disposal well, and if the supervisor of mineral wells holds a hearing, as allowed in R 299.2312(m) or R 299.2320, the review process will continue until the hearing has been conducted and all evidence presented at the hearing has been reviewed.
- (7) Upon completion of the review process, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall approve or deny the request within 10 business days. A request shall be approved if the supervisor of mineral wells 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 of mineral wells or authorized representative of the supervisor of mineral wells, a request made under this rule shall become part of the permit to drill and operate the well or wells served by the surface facility.
- (8) A determination of administrative completeness does not mean that additional information may not be required from the applicant as a result of new circumstances that come to the attention of the supervisor of mineral wells.
- (9) The supervisor of mineral wells shall not approve construction of a surface facility or flow line by a person or an authorized representative of a person if the person is not eligible for a permit.
- (10) 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.

R 299.2443 Hydrogeological investigation.

Rule 2443. (1) Unless tertiary containment is installed at a surface facility constructed after the effective date of these rules, as provided in R 299.2445(1)(b), a permittee shall file results of a hydrogeological investigation of the surface facility area with the supervisor of mineral wells. The hydrogeological investigation shall include all of the following:

- (a) Water quality sampling and analysis for the following parameters:
 - (i) Specific conductance as an indication of the dissolved solids.

(ii) The concentrations of the following parameters for chemical balance and indicators for comparison of water quality:

- (A) cations.
- (B) anions.
- (C) total chloride.
- (D) hardness.
- (E) Ph.
- (F) total dissolved solids.
- (G) temperature.

(iii) Additional groundwater quality parameters required on a case-by-case basis if the parameters can be justified on the basis of any 1 of the following criteria:

- (A) The parameters may cause degradation in usable aquifers and are present or likely to be present in the liquids handled at the surface facility.
 - (B) The parameters can demonstrate that a discharge to a usable aquifer is occurring.
 - (C) The parameters can be used to define the existing or local background groundwater quality.
 - (b) A determination of the horizontal and vertical flow system to properly determine the location and depth to be monitored.
 - (c) A determination of the groundwater flow direction plus the depth to the groundwater. The tops of the well casings used for this purpose shall be referenced to a common or United States geological survey datum.
 - (d) A geologic description of earth materials, both horizontally and vertically, in the immediate vicinity of the proposed surface facility.
- (2) A hydrogeological investigation shall be prepared by or under the direction of a geologist qualified in hydrogeology or groundwater geology or a registered professional engineer who may use existing information to generate the investigation.
- (3) The supervisor of mineral wells may approve methods other than those specified in subrule (1) of this rule to gather the information required to comply with this rule.

R 299.2444 Secondary containment required.

Rule 2444. A permittee shall provide for secondary containment at a wellhead, pump jack, and surface facility installed after the effective date of these rules, for either disposal, brine production or storage, or converted to disposal, brine production or storage after the effective date of these rules. Measures to ensure secondary containment shall be as provided in R 299.2445 to R 299.2450.

R 299.2445 Groundwater monitoring system.

Rule 2445. (1) The supervisor of mineral wells may require a surface facility installed or substantially modified after the effective date of these rules to have 1 of the following monitoring systems to detect leakage from secondary containment areas:

- (a) A minimum of 1 groundwater monitoring well downgradient, which is in close proximity to all secondary containment areas and completed at depths as specified in the hydrogeological investigation, so as to intercept any discharge from the secondary containment area to groundwater contained in a usable aquifer.
 - (b) Tertiary containment underlying the secondary containment which shall be constructed and sealed in a manner to capture any waste product, stored product 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.
- (2) A monitoring well installed under subrule (1)(a) of this rule shall be subject to the following provisions:
- (a) The drilling method shall be specified.
 - (b) Monitoring wells completed in fine-textured earth materials shall have special construction, such as gravel packing around the screen, or other construction methods approved by the supervisor of mineral wells.
 - (c) Monitoring wells shall have suitable equipment and methods for sampling groundwater, as specified in the hydrogeological investigation.

(d) Casings shall be installed so as to prevent vertical leakage of fluids between the casing and the drill hole and shall be capped and provided with a cap locking device. Use of a vented cap is desirable, but care shall be taken to prevent introduction of contaminants through such vents.

(e) The well casing shall be protected against accidental damage and shall be adequately marked so as to be clearly visible during winter and summer conditions.

(f) When a monitoring well is to be permanently abandoned, approved plugging procedures shall be followed as provided in part 127 of 1978 PA 368, MCL 333.12701 et seq.

(3) The monitoring system required by subrule (1) of this rule shall be kept in a functional condition. Water samples shall be collected and water level measurements taken once every twelfth month. The water samples shall be tested for the parameters specified in R 299.2443(1)(a). Results of analyses and water level measurements shall be submitted to the supervisor of mineral wells within 60 days of taking the sample or making the water level measurement.

R 299.2446 Secondary containment; general requirements.

Rule 2446. Secondary containment measures at a wellhead or surface facility shall meet all of the following requirements:

(a) The sidewalls and floor of a secondary containment area shall be constructed and sealed in a manner to prevent the seepage of waste product, stored product, or brine into the surrounding soils, surface waters, or groundwater.

(b) Dikes or firewalls shall be maintained and the enclosure kept free of waste products, stored products, tank bottoms, brine, water, vegetation, debris, and any flammable or combustible material.

(c) The containment volume shall be the larger of 10% of the total capacity of all vessels or 110% of the capacity of the largest vessel located in a secondary containment area. For the purposes of this subdivision, the largest vessel is either the largest single vessel or those vessels connected in such a way to allow unrestricted gravity flow from vessel to vessel.

(d) A permittee shall install an automatic surface 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 surface facility shall be exempt from the requirement of an automatic shutdown system if the facility has staff present while operating and is equipped with alarm systems on the storage tank or tanks.

(e) All transfer and injection pumps shall have leak containment constructed to prevent the seepage of any liquids moved by the pump or any lubricating oils into the surrounding soils, surface waters, or groundwater.

(f) Wellheads and flare stacks shall have secondary containment and spill containment areas constructed in a manner to prevent the seepage of waste product, stored product, or brine into the surrounding soils, surface waters, or groundwater. Secondary containment at the wellhead shall be constructed in a manner to capture leakage of liquid that may occur. In addition, if the wellhead is equipped with a pump jack utilizing 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.

(g) A permittee shall keep secondary containment areas free of standing liquid. All spills in a secondary containment area shall be pumped up within 48 hours of discovering the spill.

(h) A permittee shall submit for the supervisor of mineral wells' approval, a plan for inspections and monitoring of active wells and surface facilities.

R 299.2447 Secondary containment; vessels.

Rule 2447. (1) A vessel at a surface facility 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 installed in a manner to contain spills or leaks.

(2) A waste product, stored product, or brine storage vessel shall be located in a secondary containment area.

R 299.2448 Secondary containment; loading and unloading areas.

Rule 2448. (1) A truck loading and unloading area located outside of a secondary containment area shall be constructed and sealed in a manner that prevents the seepage of waste product, stored product, or brine into the surrounding soils, surface waters, or groundwater. In addition, a ramp shall be constructed to contain any leakage from transfer operations at the vehicle being loaded or unloaded. 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 1,000 gallons.

(2) Sumps shall be constructed of materials impervious to the waste product, stored product, and brine 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.

(3) All 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. All shutoff valves shall be left in a normally closed position.

R 299.2449 Secondary containment; piping.

Rule 2449. All piping at a surface facility 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 of mineral wells or authorized representative of the supervisor of mineral wells so that the buried piping can be easily located.

R 299.2450 Secondary containment; certification.

Rule 2450. Upon completion of the construction of a surface facility, but before its use, a permittee of a well shall certify to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells that the secondary containment area is constructed according to the approved plan. Following advance notice, the supervisor of mineral wells may require an inspection of a surface facility before it is put into service. If an inspection is required it shall be conducted within 5 business days of the receipt of certification.

R 299.2451 Access to surface facilities.

Rule 2451. A permittee of a well shall provide a right of entry to a surface facility for monitoring to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells.

R 299.2452 Safety measures.

Rule 2452. 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 of mineral wells or authorized representative of the supervisor of mineral wells may require the installation of fences, gates, or other safety measures.

R 299.2453 Use of unlined pits prohibited .

Rule 2453. A permittee of a well shall not use unlined earthen pits to collect waste products, stored products, brine, or tank bottoms.

R 299.2454 Cleanup and disposal of losses.

Rule 2454. (1) A permittee of a well shall begin cleanup of losses of waste products, stored products or brine from wells, flow lines, and associated surface facilities as soon as possible but no later than within 24 hours of discovering the loss.

(2) Disposal of losses from wells, flow lines, and associated surface facilities shall be in a manner consistent with these rules and all applicable state and federal laws and regulations.

R 299.2455 Notice of serious accident; reporting.

Rule 2455. (1) A person shall notify the supervisor of mineral wells or authorized representative of the supervisor of mineral wells of a serious accident that has caused or may cause waste. The notification shall be made by telephone as soon as possible but no more than 8 hours after discovery of the accident, and shall give the particulars of the accident. A detailed written report shall be submitted to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells within 15 days of the accident.

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

R 299.2456 Reporting of losses and spills.

Rule 2456. (1) A permittee shall report a loss outside of a secondary containment area of more than 100 gallons of brine or nonhazardous substance from a surface facility or pipeline to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells by telephone or in person within 24 hours of its discovery. The supervisor of mineral wells may require a permittee to submit a written report of the loss and remedial actions taken.

(2) A report of a loss or spill outside of a secondary containment area of less than 100 gallons of brine or nonhazardous substances is not required if the loss or spill is cleaned up within 24 hours of the discovery.

R 299.2457 Smoking and open flame restrictions.

Rule 2457. A permittee of a well shall ensure that smoking and open flames shall not occur where waste products or stored products constitute a hazard of fire or explosion.

R 299.2458 Identification of wells and surface facilities.

Rule 2458. 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 ½ 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-quarter section, township, and range or street address.
- (e) An emergency telephone number.

R 299.2459 Line markers for brine pipelines.

Rule 2459. (1) If a pipeline conveys liquids to or from a well located outside the perimeter of a manufacturing plant, it is subject to the provisions of this rule.

(2) Except as provided in subrule (3) of this rule, a marker shall be placed and maintained as close as practical over each buried brine pipeline, as follows:

- (a) At each crossing of a public road and railroad.
- (b) When necessary to identify the location of the brine pipeline to reduce the possibility of damage or interference.
- (c) At the point of crossing of or under waterways and other bodies of water.

(3) Markers shall be placed and maintained along each section of a brine pipeline that is located above ground in an area which is accessible to the public.

(4) The following information shall be written legibly on a background of sharply contrasting color on each brine pipeline marker:

- (a) The word "warning," or "caution," followed by the words "waste product brine" or "brine pipeline," all of which, except for markers in heavily developed urban areas, shall be not less than 1 ½ inches high and legible under normal conditions at a distance of 25 feet.
- (b) The name of the permittee and the telephone number, including the area code, where the permittee can be reached at all times.

R 299.2460 Pipelines; records.

Rule 2460. A permittee shall keep records covering each leak discovered, repair made, pipeline break, pipeline patrol, and inspection for as long as the segment of pipeline involved remains in service.

R 299.2461 Purging, removal, and abandonment of lines and vessels.

Rule 2461. A permittee of a well shall remove 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 removal to the supervisor of mineral wells or authorized representative of the supervisor of mineral wells. The supervisor of mineral wells may allow a line to be purged and abandoned in place upon written application from a permittee. The supervisor of mineral wells may grant an exception to this rule upon written application.

R 299.2462 Existing facilities; maintenance.

Rule 2462. (1) A permittee of a well shall maintain all existing dikes or fire walls installed before the effective date of these rules, and shall keep the reservoir free of oil, emulsions, waste products, stored products, tank bottoms, brine, water, vegetation, debris, or any flammable or combustible material.

(2) The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may require surface facilities constructed before the effective date of these rules to be upgraded to meet secondary containment requirements of this part if the facility is substantially modified or if losses have resulted in pollution.

(3) Before any modification of a secondary containment area, other than routine maintenance, a permittee of a well shall notify the supervisor of mineral wells or authorized representative of the supervisor of mineral wells in writing. The notification shall include a modified secondary containment plan reflecting the proposed changes. A permittee shall receive approval from the supervisor of mineral wells or authorized representative of the supervisor of mineral wells before making the modification. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall approve or deny the request within 10 days of receipt of the request. The supervisor of mineral wells may require an inspection of the modified secondary containment area before it is returned to service.

R 299.2463 Nuisance odors.

Rule 2463. A person may not cause a nuisance odor in the exploration for, development, production, handling, or use of brine, or in the operation of disposal or storage wells. If the supervisor of mineral wells or authorized representative of the supervisor of mineral wells receives 1 or more complaints of odor resulting from a well or surface facility operations, then the supervisor of mineral wells may require a permittee to suspend operations. If the nuisance odor is caused by hydrogen sulfide, the provisions of R 299.2461 shall apply. The supervisor of mineral wells may require a permittee to submit an odor abatement program to the supervisor of mineral wells with a timetable for implementing the program.

Within 60 days of receipt, the supervisor of mineral wells shall determine if the odor abatement program is feasible and may approve the program.

PART 12. HYDROGEN SULFIDE MANAGEMENT

R 299.2471 Determination by the supervisor of mineral wells.

Rule .2471 (1) An applicant for a permit to drill and operate shall note on the application for a permit to drill and operate whether a proposed well is likely to encounter hydrogen sulfide during drilling and completion operations.

(2) A permittee shall note on an application for change of well status under R 299.2384 if a proposed change of well status is likely to result in hydrogen sulfide production.

(3) The supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall make a final determination whether a proposed well is likely to encounter hydrogen sulfide during drilling, completion, or rework operations.

R 299.2472 Applicability of rules.

Rule 2472. (1) If the supervisor of mineral wells or authorized representative of the supervisor of mineral wells determines a proposed well is likely to encounter hydrogen sulfide during drilling, change of well status, or repair operations and that the uncontrolled release of the hydrogen sulfide will pose a threat to public safety, the well shall be subject to the provisions of R 299.2473 to R 299.2483 and R 299.2489.

(2) If the supervisor of mineral wells or authorized representative of the supervisor of mineral wells determines a proposed well is likely to encounter hydrogen sulfide during completion operations, and that the uncontrolled release of the hydrogen sulfide will pose a threat to public safety, the well will be subject to the provisions of R 299.2484 to R 299.2488.

(3) If a well is completed for production from a hydrogen sulfide-bearing stratum and the uncontrolled release of the hydrogen sulfide causes a nuisance odor, then the supervisor of mineral wells may require the permittee to implement the provisions of R 299.2478 and R 299.2485 to R 299.2490.

(4) If a well does not encounter hydrogen sulfide during drilling, rework, or completion operations, or if hydrogen-sulfide-producing strata are isolated behind casing, then it shall no longer be subject to the provisions of this part.

R 299.2473 Metallic component standards.

Rule 2473. A permittee of a well shall ensure that metallic components installed during the course of drilling, completing, testing, producing, repair, rework, or servicing operations after the effective date of these rules, 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 Geological Survey of the Department of Environmental Quality. Copies may be obtained from the Michigan Department of Environmental Quality, Office of Geological Survey, 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.

R 299.2474 Location of wells.

Rule 2474. In addition to the setback distances specified in R 299.2341, a well shall be located not less than 300 feet from existing areas maintained for public recreation, or the edge of the traveled portion of an existing interstate, United States, or state highway.

R 299.2475 Training.

Rule 2475. (1) A permittee of a well shall ensure that all agents, employees, or other representatives of the permittee who are involved in drilling, completing, testing, producing, repair, rework, or servicing operations 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, 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 or equivalent techniques of cardiopulmonary resuscitation.
- (3) When a drilling contractor or other independent contractor is involved in drilling, completing, testing, producing, repairing, reworking, or servicing operations on a 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 operations on the well. A suspension of operations shall continue as provided in R 299.2522.

R 299.2476 Securing of nonproducing wells.

Rule 2476. A permittee of a nonproducing well subject to R 299.2472 shall ensure that the well is secured to prevent a person other than authorized personnel from opening the well.

R 299.2477 Warning signs; specifications.

Rule 2477. A permittee of a well shall ensure that warning signs have letters that are not less than 1-½ inches in height and that are legible under normal conditions at a distance of 25 feet.

R 299.2478 Contingency plans for drilling.

Rule 2478. (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 the well site and the public in the event of an emergency involving release of hydrogen sulfide gas. 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 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 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 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.
 - (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.
 - (viii) The pollution emergency alerting system.
- (4) An applicant shall submit part 1 of the contingency plan for drilling a well at the request of the supervisor of mineral wells or authorized representative of the supervisor of mineral wells. The applicant shall submit part 2 of the contingency plan for drilling with the application for a drilling permit.
- (5) If drilling a well in a highly populated area, an applicant may request, from the supervisor of mineral wells or authorized representative of the supervisor of mineral wells, an exception to the requirement to prepare the map and accompanying list of residences required in subrule (3) of this rule. Before granting an exception, the supervisor of mineral wells or authorized representative of the supervisor of mineral wells shall confer with the local emergency preparedness coordinator on the appropriateness of granting the exception and the alternative methods available for notification of the local residences if there is a need to evacuate the public. If an exception is granted, the local emergency preparedness coordinator shall be contacted by the supervisor of mineral wells or authorized representative of the supervisor of mineral wells when the applicant is notified that the exception has been approved. The contact with the local emergency preparedness coordinator shall include notification that the map and accompanying list of residences required in subrule (3) of this rule have not been prepared and that the development of a procedure for evacuation of the public, if necessary, is the responsibility of the local emergency preparedness coordinator.

R 299.2479 Compliance with rules; time.

Rule 2479. A permittee of a well subject to R 299.2472 shall comply with R 299.2480 to R 299.2483 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 of mineral wells or authorized representative of the supervisor of mineral wells to contain hydrogen sulfide. Compliance shall continue until all formations or strata suspected to contain hydrogen sulfide are cased off, plugged, or drilled and demonstrated not to be productive of hydrogen sulfide.

R 299.2480 Briefing areas.

Rule 2480. (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 upwind briefing area.

(2) The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may require safety equipment, in addition to that listed in R 299.2304(k), if necessary for the safety of the public or the workers.

R 299.2481 Emergency preparedness coordinator; contact by permittee.

Rule 2481. A permittee of a well shall notify the appropriate emergency preparedness coordinator not less than 24 hours before the commencement of drilling. The permittee shall retain proof of notification and shall make the proof available to the supervisor of mineral wells upon request. The notification shall contain all of the following information:

- (a) The location of the drilling site.
- (b) The fact that the well is expected to encounter hydrogen sulfide.
- (c) The fact that a contingency plan is available on-site.

R 299.2482 Wind direction indicators.

Rule 2482. 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.

R 299.2483 Equipment; electric or mechanical fan; hydrogen sulfide detection and warning

system; emergency escape self-contained breathing apparatus; rig floor ventilation.

Rule 2483. (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, the system shall be calibrated according to the manufacturer's instructions. The detection and warning system shall be tested 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 of mineral wells or authorized representative of the supervisor of mineral wells 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 of a well are adequately ventilated to prevent the accumulation of gas and shall utilize an electric or mechanical fan that operates constantly during the operation if natural ventilation is inadequate to keep the wellhead area free from gas.

(6) A permittee of a well shall ensure that well safety equipment is the same equipment that is required under R 299.2304(a). Safety equipment shall be located at the upwind briefing areas unless otherwise stated in this rule. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may require the use of safety equipment, in addition to the equipment listed in R 299.2304(a), if necessary for the safety of the public.

R 299.2484 Initial testing.

Rule 2484. (1) When initial testing of a well subject to R 299.2472(2) is performed, 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.

(b) The supervisor of mineral wells may require installation of an incinerator or flare 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. A flashback prevention system shall be installed between the incinerator or flare and the test tanks.

(c) 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.

(ii) A first aid kit.

(iii) A portable electronic hydrogen sulfide detector.

(iv) An emergency escape self-contained breathing apparatus for each member of the test crew.

(v) The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may require the use of safety equipment, in addition to the equipment listed in R 299.2304(a), if necessary for the safety of the public.

(d) If required by the supervisor of mineral wells, 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.

(e) The supervisor of mineral wells or authorized representative of the supervisor of mineral wells 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 any gas and stock tank vapor 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 of mineral wells or authorized representative of the supervisor of mineral wells.

(3) Operations or procedures that require the use of a self-contained breathing apparatus shall be performed only if backup personnel who are authorized by the permittee of the well are on-site.

(4) The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may grant exceptions to this rule when compliance with this rule is not necessary to provide for the protection or safety of the public or when a well or associated surface facilities are not likely to pose a threat to public safety.

R 299.2485 Fluid analyses.

Rule 2485. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may require gas and brine analyses to determine hydrogen sulfide concentration. A permittee of a well shall report, in writing, the results of a gas and brine analysis to the supervisor of mineral wells within 45 days of the date of the analysis. The report shall state the methods of sampling and analysis used.

R 299.2486 Vessels used for storing brine; equipment requirements.

Rule 2486. A vessel which is located at a well that is used for the storage of brine is subject to all of the following requirements:

(a) A permittee shall install 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 subdivision (c) of this rule. A hatch shall be kept closed when a tank is not being gauged.

(b) Except as provided in subdivision (c) of this rule, a permittee shall install a vent line for conveying released gasses and vapors to an incinerator, flare, vapor recovery system, or other system designed to prevent release of hydrogen sulfide to the atmosphere. A flashback prevention system shall be installed on the line between a vessel and an incinerator or flare. If a vapor recovery or other system is used, then a flare or incinerator shall be available for emergency use.

(c) A vessel 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, and venting does not result in a nuisance odor.

- (d) A permittee of a well shall install a fence around the vessel. The fence shall have a gate and 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 of mineral wells or authorized representative of the supervisor of mineral wells 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 299.2302(q) may be required.
- (e) The supervisor of mineral wells 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.

R 299.2487 Incinerators and flares; equipment and design requirements; additional requirements.

Rule 2487. (1) A permittee of a well shall ensure that an incinerator or flare installed pursuant to R 299.2484(1)(b) or R 299.2486(b) 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 subject to this part shall install a fence around an incinerator or flare as required by R 299.2486(d). 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 of mineral wells or authorized representative of the supervisor of mineral wells finds that a threat to the public safety still exists due to emissions of the incinerator or flare, then fencing other than that specified R 299.2302(q) may be required.

(3) If the supervisor of mineral wells or authorized representative of the supervisor of mineral wells 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 299.2302(s) and R 299.2303(e), may be required.

R 299.2488 Vehicle loading racks; vapor return lines required; vapor vent lines permitted.

Rule 2488. (1) Truck vapor return lines are required on the loading racks of the surface facilities and shall be utilized when hydrogen sulfide-bearing brine 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 300 feet from an existing recorded fresh water well or reasonably identifiable fresh water well used for human consumption or 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 of mineral wells or authorized representative of the supervisor of mineral wells determines that nuisance odors are caused by the use of the vent lines.

R 299.2489 Servicing; requirements.

Rule 2489. Before beginning 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 shall be sized to accommodate the tubing and rework drill pipe shall be installed and tested.
- (b) Primary and secondary briefing areas shall be established.
- (c) The same safety equipment that is required under R 299.2304(a) is required. Safety equipment shall be located at the upwind briefing areas. The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may require the use of safety equipment, in addition to the equipment listed in R 299.2304(a), if the equipment is necessary for public safety.
- (d) An electric or mechanical fan shall be located at the well site. 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.
- (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 of mineral wells or authorized representative of the supervisor of mineral wells shall be notified before the start of servicing operations.
- (h) A revised and updated contingency plan shall be at the well site and shall be reviewed with all workers.

R 299.2490 Nuisance odor prohibited.

Rule 2490. A person shall not cause a nuisance odor in the exploration for, development, production, handling, or use of brine, or in the operation of disposal or storage wells.

R 299.2491 Demonstration of hydrogen sulfide concentration.

Rule 2491. If a well or its associated surface facilities produce hydrogen sulfide and the supervisor of mineral wells or authorized representative of the supervisor of mineral wells receives 1 or more complaints of odor regarding the facility, then the supervisor may require the permittee of a well to demonstrate that the concentration of hydrogen sulfide at the location of a complaint is less than 0.2 ppm for a 1 hour time-weighted average, using a method acceptable to the supervisor.

PART 13. HEARINGS

R 299.2501 Hearing; purpose; scheduling; request or petition generally.

Rule 2501. Hearings may be held to receive evidence pertaining to the need or desirability of an action or an order by the supervisor of mineral wells. A hearing may be scheduled at the initiative of the supervisor of mineral wells or by the supervisor of mineral wells upon the receipt of a petition, which is properly filed as specified in R 299.2502, from an owner, permittee, lessee, lessor, or other person who establishes to the satisfaction of the supervisor of mineral wells that he or she has an interest in the matter proposed for hearing.

R 299.2502 Petition for hearing; contents.

Rule 2502. (1) A proper written petition for a hearing shall be filed on 8 1/2 by 11-inch paper, except for the material filed under subdivisions (e) and (f) of this subrule, with an original and 4 identical copies, and shall contain the following information as is pertinent to the matter proposed for hearing:

- (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) The legal description of the lands that are the subject of the petition, including property description, locations, sections, townships, and counties relating to the matter to be heard, and a statement of the petitioner's interest.
 - (d) A map of the lands that are the subject of the petition, showing the location or locations of facilities thereon, which are subject to this part, and lands within 1,320 feet of the outside boundary of the lands that are the subject of the petition. The map shall generally indicate the use and occupancy of all such lands.
 - (e) Other drawings and data that may be useful in considering the matter to be heard.
 - (f) The name and address of the newspaper circulated in the county or counties where the lands that are the subject of the petition are located.
 - (g) A copy of the first page of a permit application.
 - (h) The name, address, and telephone number of the representative or representatives of the petitioner to whom inquiries may be made.
 - (i) Such additional information as the supervisor of mineral wells may require to assess the subject matter and scope of the petition, and to determine the content of the service list to be compiled pursuant to R 299.2504(1).
- (2) The supervisor of mineral wells may return a petition that does not comply with these rules and may include a list of the deficiencies of the petition.

R 299.2503 Hearings subject to administrative procedures act of 1969.

Rule 2503. A hearing scheduled by the supervisor of mineral wells shall be conducted under 1969 PA 306, MCL 24.201 et seq., unless a different procedure is authorized by the act or these rules. All hearings shall be conducted in a fair and impartial manner.

R 299.2504 Notice of hearing; service; answer.

Rule 2504. (1) The supervisor of mineral wells shall prepare and furnish the notice of hearing to the petitioner, together with instructions for publication and service of the notice.

(2) The petitioner shall compile a service list following instructions from the supervisor of mineral wells, based on information contained in the petition and based on additional information to be developed by the petitioner. The service list shall be compiled so as to assure reasonable notice to all persons entitled to receive notice of hearing.

(3) The notice of hearing shall be published by the petitioner in a newspaper of general circulation in the county or counties involved with the matter to be heard. Publication shall occur once each week for 2 consecutive weeks before the date of the hearing. The last date of publication shall be at least 30 days before the date set for the hearing. Affidavits of proof of publication shall be filed with the supervisor of mineral wells before the order is issued.

(4) The petitioner shall mail copies of the notice of hearing not less than 30 days before the hearing, to the persons listed on the service list, by first-class mail or personal service. An affidavit of proof of mailing shall be filed with the supervisor of mineral wells stating that the notice was deposited in the United States mail not less than 30 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 service list. Each person served, and his or her address of record, shall be specifically identified in the affidavit. The supervisor of mineral wells may require service by certified mail, return receipt requested.

(5) If a hearing is initiated by the supervisor of mineral wells, or if the scope of a hearing requested by a petitioner is enlarged at the initiative of the supervisor of mineral wells, then the supervisor of mineral wells shall publish the notice of hearing.

(6) An interested person shall not participate as a party in a hearing conducted under a petition unless the person files an answer in a timely manner with the supervisor of mineral wells and serves the answer to the petition upon the petitioner. An answer delivered in a timely manner shall be in the possession of the supervisor of mineral wells and the petitioner not less than 5 days before the date set for the hearing. The answer shall be in writing and shall set forth with specificity 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 contact information set forth in the notice of hearing. The petitioner shall mail or deliver a copy of the petition and attachments to the interested person within 3 business days after receipt of a request. Failure of the petitioner to mail or 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 may present evidence or cross-examine witnesses. 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, a 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:

An interested person may obtain a copy of the written petition by requesting 1 from the petitioner at _____. Take note that if an interested person wishes to participate as a party in the hearing by presenting evidence or cross-examining witnesses, an interested person shall prepare and deliver to the petitioner and supervisor of mineral wells, not less than 5 days before the hearing date, an answer to the petition in the manner set forth in R 299.2504(6). Proof of delivering the answer shall be filed with the supervisor of mineral wells on or before the date of the hearing. The answer shall state with specificity the interested person's position with regard to the petition. Failure to prepare and deliver an answer in a timely manner shall preclude an interested person from presenting evidence or cross-examining witnesses at the hearing. If an answer to the petition is not filed, the supervisor of mineral wells 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 of mineral wells may authorize service of the notice of hearing in another manner reasonably calculated to give the interested persons 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 under subrules (2) to (4) of this rule cannot reasonably be made and shall suggest an alternative method of service.

R 299.2505 Types of hearings.

Rule 2505. (1) Upon receipt of a petition, the supervisor of mineral wells, after finding the petition to be complete, reasonable, and appropriate, shall determine whether the petition shall be heard. The supervisor of mineral wells shall give each hearing 1 of the following designations:

- (a) A supervisor of mineral wells evidentiary hearing to consider the adoption of an order having statewide application or ramifications.
- (b) A supervisor of mineral wells evidentiary hearing to consider matters of local concern in the administration of these rules or the orders of the supervisor of mineral wells or to consider other matters as may be referred to the supervisor of mineral wells.
- (c) A supervisor of mineral wells uncontested evidentiary hearing to consider matters of local concern in the administration of these rules or the orders of the supervisor of mineral wells or to consider a petition to which an answer was not filed as provided in R 299.2504(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 of mineral wells may direct that a petition be processed under subrule (1)(c) of this rule. In these cases, proceedings under 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 of mineral wells may require supplemental verified statements.
- (3) Prehearing conferences may be held at the discretion of the supervisor of mineral wells upon good cause shown, when the facts or legal issues are complex. A party may request a prehearing conference in his or her petition, answer, 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 of mineral wells may, at any time during a proceeding, designate a hearings officer to conduct an evidentiary hearing as provided for under subrule (1)(a) of this rule.
- (6) The parties to a matter within the jurisdiction of the supervisor of mineral wells may agree to dispose of all or a part of a matter at issue by stipulation and consent order. The supervisor of mineral wells may enter the stipulation as a consent order, place the stipulation on public notice as is appropriate, or reject the stipulation.

R 299.2506 Final decision or order.

Rule 2506. (1) The supervisor of mineral wells or authorized representative of the supervisor of mineral wells, shall issue a final decision or order as a result of a hearing held under R 299.2505 or as a result of the procedure under R 299.2505(1)(c) after giving due consideration to all of the following:

- (a) The record.
- (b) The supervisor of mineral wells' 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 of mineral wells, oral arguments, and written briefs.
- (d) The advice or recommendations of the representative of the supervisor of mineral wells when such advice or recommendation is part of the hearing record.
- (e) The stipulations or agreements that the contesting parties have placed on the record at a hearing or submitted in writing to the supervisor of mineral wells or the hearings officer.
- (f) The act and rules.
- (2) The final written decision or order of the supervisor of mineral wells shall be furnished to the petitioner. The petitioner shall serve copies, by first-class mail, within 3 business days, to all persons who filed an answer as provided in R 299.2504(6) and to all persons who filed an appearance at the hearing, or who requested a copy of the final written decision.
- (3) When a hearing is scheduled at the initiative of the supervisor of mineral wells, the supervisor of mineral wells shall serve copies of the final written decision or order, by first-class mail, within 3 business days, to all persons who filed an answer as provided in R 299.2504(6), who filed an appearance at the hearing, or who otherwise requested a copy of the final written decision.

R 299.2507 Subpoenas; discovery.

Rule 2507. (1) At any time in a proceeding, the supervisor of mineral wells 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 of mineral wells 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 of mineral wells, 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 of mineral wells may issue an order to take a deposition, interrogatory, or other discovery either upon a motion by the supervisor of mineral wells 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.

R 299.2508 Continuance of hearing.

Rule 2508. A hearing, as provided in these rules, may be continued at the discretion of the supervisor of mineral wells 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.

R 299.2509 Failure to give notice of hearing.

Rule 2509. 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.

R 299.2510 Administrative complaint; notice of hearing.

Rule 2510. The staff of the supervisor of mineral wells may file an administrative complaint with the supervisor of mineral wells. An administrative complaint shall set forth the nature of the alleged violations and shall specifically cite the provisions of the act, these rules, permit conditions, instructions, or orders of the supervisor of mineral wells allegedly violated. The supervisor of mineral wells shall select a date for the hearing and prepare a notice of hearing. 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 owner, and the surety. The notice of hearing and administrative complaint shall be served by first-class United States mail on other interested persons as the supervisor of mineral wells shall consider necessary or appropriate. Affidavit of proof of mailing to other interested persons shall be presented at the time of the hearing. The notice shall be served not less than 30 days before the hearing date. The hearing shall be a hearing before the supervisor of mineral wells under R 299.2505.

R 299.2511 Emergency orders and hearings.

Rule 2511. (1) When an emergency order is issued by the supervisor of mineral wells, 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 of mineral wells 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 of mineral wells shall consider necessary and appropriate.

R 299.2512 Appeals to the director of the department.

Rule 2512. (1) An owner or permittee may file an appeal to the director of the department as provided by section 62504 of the act. The appeal shall be in writing and filed with the director of the department. The appeal shall set forth the basis for the filing of an appeal.

(2) An appeal from an order of the supervisor of mineral wells that is issued after a hearing shall be an appeal on the record. The appealing party shall order and file a transcript of the evidentiary hearing before the supervisor of mineral wells. The supervisor of mineral wells shall prepare and file the record of the proceeding of the appeal.

(3) Upon receipt of an appeal from an order of the supervisor of mineral wells, the director of the department shall set a schedule for the filing of briefs on appeal. Oral argument, if requested by the appealing party, and granted by the

director, shall be held after the filing of briefs. A prehearing conference may be scheduled to establish a schedule for the appeal.

(4) The permittee or owner appealing an order, action, or inaction of the supervisor of mineral wells shall file a petition of appeal to the director of the department. The petition and notice requirements are the same requirements for petitions for a hearing before the supervisor of mineral wells under R 299.2501 to R 299.2504.

(5) An appeal to the director of the department shall be filed within 30 days of the order, action, inaction, or procedure.

PART 14. ENFORCEMENT

R 299.2521 Authority of supervisor of mineral wells.

Rule 2521. The supervisor of mineral wells, under section 62508 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 operation when a violation exists. The suspension time shall continue until a correction is made and a violation no longer exists as provided by section 62507 of the act. The supervisor of mineral wells may also prohibit a person from taking brine from the well during the required suspension time.

(c) Order a well plugged for a continuing violation of the act or these rules.

R 299.2522 Suspension of operations.

Rule 2522. (1) The supervisor of mineral wells or authorized representative of the supervisor of mineral wells may require immediate corrective action, including suspending any or all components of the drilling or other well operations, if the drilling or other well operation has been determined by the supervisor of mineral wells to be in violation of the provisions of the act, these rules, permit conditions, instructions, or orders of the supervisor of mineral wells and causes or threatens to cause waste.

(2) A suspension of operations shall be in effect for not more than 5 days or until the operation is in compliance and waste or the threat of waste is eliminated. To extend the suspension beyond 5 days, the supervisor of mineral wells shall issue an emergency order to continue the suspension of operations and may schedule a hearing under part 13 of these rules. The total duration of the suspension of operations by emergency order shall not be more than 21 days, as provided in section 62507 of the act.

PART 15. MINERAL WELL REGULATORY FEE

R 299.2531 Filing of records; determination of fee; payment of fee; non-payment of fee

Rule 2531. (1) The supervisor of mineral wells shall require an owner to file a list, on a form prescribed by the supervisor of mineral wells, of all mineral wells owned by that owner which were useable for their permitted purpose or which were not properly plugged as of January first of the current calendar year.

(2) The list required in subrule (1) of this rule shall be filed by January 28 of the current calendar year.

(3) The supervisor of mineral wells shall determine the amount of the mineral well regulatory fee owed by an owner and shall notify the owner by March 1 of the current calendar year. The fee charged for a well shall be as prescribed in the act.

(4) The mineral well regulatory fee shall be due and payable before May 1 of the current calendar year.

(5) For the purposes of this rule a well is considered properly plugged when it has reached final completion.

(6) The supervisor of mineral wells shall consider a well abandoned if the fee has not been paid for 2 consecutive calendar years.