

## PART 4. DEWATERING WELLS

### **R 325.1741 Applicability of part 4.**

Rule 241. (1) This part applies to construction, operation, and abandonment of dewatering wells and pump installations, except that the exemption in section 2 of the act is construed to mean a dewatering well where the inside casing diameter is not more than 2 inches and the total depth of the casing and well point is not more than 25 feet.

(2) A shallow sump installed for the purpose of removing water that has collected in an underground excavation or water that may seep into a sump, equipped with a low lift pump to remove the water which would enter or interfere with the excavation, is not considered a dewatering well and is exempt from these rules if the sump is:

- (a) Constructed within the limits of the excavation.
- (b) Not more than 8 feet below the specified excavation elevation.

### **R 325.1742 Location and general construction.**

Rule 242. (1) A dewatering well shall be located to accomplish the temporary dewatering process, and shall be constructed and maintained to prevent surface water and other known sources of pollution from entering the well.

(2) The location of all existing underground structures and utilities shall be determined before any construction to prevent damages or hazards.

### **R 325.1743 Casings.**

Rule 243. (1) The wall thickness of the casing of a dewatering well shall be selected to withstand the forces expected to be exerted on the well casing during installation and removal.

(2) The casing shall extend not less than 12 inches above the working grade. The top of a casing shall be capped or covered in a manner to prevent entry of extraneous objects imminent, precautions shall be taken to prevent the entry of flood water into the casing. However, the casing on a well point system may extend less than 12 inches above grade when a closed piping collection network is used under vacuum and the closed piping is maintained to prevent surface waters from entering the well points.

### **R325.1744. Well screens and drilling water.**

Rule 2w44. (1) A dewatering well contractor shall select the well screen. However, material and construction of the screen shall be sufficiently strong and durable so that the screen may be readily removed intact from the dewatering well.

(2) Water used for drilling purposes shall be obtained preferably from a municipal water system or a well. Water from any other source shall be clean and be chlorinated to a free chlorine residual at the point of discharge into the well. When drilling water is transported to the well site, clean sanitary containers shall be used. An exception may be made to the requirement of chlorinating water used for drilling a dewatering well for legitimate reasons relating to water source, used of the well, site location, aquifers being penetrated or other justifiable reasons, and shall be obtained in writing from the department for each project. Water from a shallow surface pond which is generally polluted, turbid, and contains algae or other microscopic plants and animals shall not be used for drilling purposes.

**R 325.1746 Filter material.**

Rule 246. Filtering material shall be clean and free of deleterious materials and placed so as to eliminate debris and surface water from entering the well during placement. After placement, the ground surrounding the well casing shall be mounted to divert surface waters away from the well casing.

**R 325.1748 Flowing artesian aquifers.**

Rule 248. A dewatering well in an aquifer under an artesian head requires special installation practices. A dewatering well contractor shall take necessary precautions if he encounters a flowing artesian aquifer that flows above working grade, to prevent unreasonable waste of the water and to prevent damage of nearby properties or watercourses or both. Methods of construction and abandonment shall be determined in pre-construction conference with all concerned parties, including the consulting engineer, and shall be approved in writing by the department.

**R 325.1751 Pump discharge and suction lines.**

Rule 251. (1) A discharge line of a dewatering well shall leave the well above working grade. A pump in a dewatering well shall be installed in a manner that will permit discharging water above the working grade. Approval in writing shall be obtained from the department for a belowground discharge connection to a dewatering well casing.

(2) A suction line or header pipe and well points of a dewatering system shall be maintained to prevent surface water from entering the aquifer.

**R 325.1752 Electrical connections.**

Rule 252. Electrical connections to the pumping equipment shall be made in accordance with applicable electrical codes and shall be made in a manner that protects the safety and welfare of workers and the public from possible electrical shock.

**R 325.1753 Gases and mineralized water.**

Rule 253. (1) If toxic or flammable gases are present, the health officer shall be notified immediately and special construction features shall be used. The gas shall be vented not less than 8 feet above working grade to minimize the explosive hazard and remove the gas from direct human contact. The well casing shall be sealed tight to assure that all gas is exhausted through the vent. R 325.1764 and R325.1766 prescribe plugging procedures for a dewatering well containing gas.

(2) Where the water resources commission, consulting engineer, municipality, or other governmental unit involved in the dewatering project determines that disposal of contaminated water or water with a high mineral content or dissolved or entrained gases creates a problem, the department may make additional requirements.

**R 325.1755 Pump operation.**

Rule 255. Water pumped from a dewatering well shall be conveyed to a natural watercourse in a manner that does not cause damage to abutting property, create a hazard, or cause silting in the receiving stream. This water is not considered potable and shall not be used for drinking or domestic purposes. The pumping water level in a dewatering well shall be maintained at the minimum possible depth below the ground surface that will dewater the excavation. Duration of operation shall also be regulated by the contractor or minimize time of pumping to the period actually needed to dewater the excavation effectively. The contractor, consulting engineer, and the owner of the construction project for which the dewatering wells are being drilled shall give due

consideration as to what effect lowering the groundwater table will exert on existing wells.

**R 325.1761 Abandonment and plugging.**

Rule 261. Plugging of an abandoned dewatering well shall be accomplished by 1 of the procedures set forth in R 325.1762 and R 325.1763.

**R 325.1762 Wells 40 feet or less below grade.**

Rule 262. A dewatering well used in conjunction with underground construction or building excavation when the dewatering well is not more than 40 feet below the working grade shall be plugged as provided in this rule except dewatering wells covered by R 325.1763. At the time the filter is added, the well shall be backfilled from a depth of not less than 7 feet below the working grade to the working grade with an inorganic parent soil material encountered within the upper 7 feet. A finer textured inorganic soil shall be used when substituted for the parent material. The plugging shall be completed after the casing and screen are removed from the dewatering well by addition and compacting additional inorganic parent material naturally occurring in the upper 7 feet or with finer textured soils in the excavation remaining at the site due to slumping of the filter material. These soils shall be added in a manner to prevent future slumping and assure that the drill hole shall remain filled to the working grade. Where 1 or more dewatering wells are deeper than 40 feet in depth, plugging procedure prescribed in R 325.1763 shall be used on all wells penetrating the deeper aquifer. Exception to this plugging procedure may be requested and a written decision reached through a conference with the department.

**R 325.1763 Deep wells; tunnels; relief and municipal wells.**

Rule 263. (1) A dewatering well deeper than 40 feet below the working grade, a dewatering well used in conjunction with tunnel construction or a well used as an artesian pressure relief well and all dewatering wells located within 500 feet of a municipal well site shall be plugged during construction as prescribed in this rule. The annular space between the bore hole and the casing shall be backfilled at the time the filter material is added with a mixture of 4 pounds of bentonite to each cubic foot of fine textured inorganic soil, upward from a minimum depth of 10 feet below the working grade. The bentonite and fine textured inorganic soil shall be thoroughly mixed at the time of backfilling.

(2) The following chart relates bore hole diameter to volume and quantity of bentonite needed per foot of bore hole.

<b>Boring Diameter</b>	<b>Gallons per 1 foot of depth</b>	<b>Cu. Ft. per 1 foot of depth</b>	<b>Pounds bentonite* per 1 foot of depth</b>
12 inches	5.9	0.8	3.2
18 inches	13.2	1.8	7.2
24 inches	23.5	3.1	12.4
30 inches	36.7	4.9	19.6
36 inches	52.9	7.1	28.4
42 inches	72.0	9.6	38.4

\*Based on 4 pounds bentonite per cubic foot of excavation.

(3) The plugging shall be completed after the casing and screen are removed from the dewatering well by backfilling the hole with a mixture of 4 pounds of bentonite to each cubic foot of fine textured inorganic soil for a distance of not less than 5 feet of the bore hole. The bentonite and fine textured inorganic soil shall be thoroughly mixed at the time of backfilling. A minimum of 142 pounds of bentonite shall be used in backfilling a 36-inch diameter hole and a minimum of 62 pounds of bentonite in a 24-inch diameter hole. The plugging shall be completed by adding and compacting additional inorganic parent material or fine textured soils. These soils shall be added in a manner to prevent future slumping and assure that the dill hole shall remain filled to the working grade. Approval in writing shall be obtained from the department prior to instituting any modification in the plugging requirements of this rule.

#### **R 325.1764 Plugging in special situations.**

Rule 264. The method of abandonment of a dewatering well installed in the situations described in R 325.1765 and R 325.1766 or other special situations shall be determined after considering the requirements of all parties concerned and shall be approved in writing by the department. The procedures shall be used as a general guide and may be modified by the department after a conference of concerned parties.

#### **R 325.1765 Artesian flows and bedrock.**

Rule 265. (1) A dewatering well terminated in aquifers under sufficient head to provide a flow above the working grade shall be sealed with neat cement grout or other method approved by the department to contain completely the flow caused by the artesian head.

(2) A dewatering well penetrating bedrock shall have the part of the well drilled into the bedrock formation sealed with neat cement grout. The plugging shall be completed by a layer of neat cement grout extending at least 15 feet above the top of the bedrock. Neat cement grout shall be added from the bottom of the hole upward in 1 continuous operation, as the casing is removed.

#### **R 325.1766 Water of poor chemical quality or producing methane.**

Rule 266. (1) A dewatering well that produces water which is sufficiently contaminated or high in mineral content to constitute a significant hazard to lakes, streams, or to groundwater aquifers by direct infiltration or inter-aquifer migration, shall be filled and sealed, with the method of abandonment being determined by a conference.

(2) A dewatering well that is producing methane gas at the time the well is to be filled and sealed shall be plugged with neat cement grout with the precise procedure determined by a conference.

#### **R 325.1768 Dewatering well drilling records.**

Rule 268. A dewatering well contractor shall furnish the health officer 2 copies and the contractor responsible for abandoning the dewatering well 1 copy, and shall retain 1 copy for his files, of a well record containing such available information as is required on the dewatering well record form. Data obtained during the dewatering well drilling activities shall be reported on a form furnished by the department or such other form approved by the department. For 1 project location, information on all holes with similar geologic formation may be submitted on a single well record form. However, an individual record shall be provided for a dewatering well drilled into bedrock, or other dewatering well that produces methane gas or produces water which is contaminated or high in mineral content or artesian flow above working grade. The dewatering well

drilling contractor may substitute soil boring records for the construction project in lieu of submitting dewatering well drilling records if all dewatering wells are less than 40 feet in depth.

**R 325.1771 Registration qualifications.**

Rule 271. After April 1, 1974, a person who represents a dewatering well contractor or dewatering well pump installer, except for those qualified under R 325.1772, shall meet the following minimum requirements for registration under the act:

(a) At least 2 years of experience in his respective field in underground contracting with supervisory or actual field experience in this state relating to the drilling of at least 20 dewatering wells for a drilling contractor and 20 pump installations for a pump installer.

(b) Completion of the tenth grade in high school or submission of proof of equivalent ability demonstrated by successful completion of approved short courses or written examination. The board may accept of to 4 years of work experience for equal years of education, in addition to the subdivision (a) experience requirement.

(c) Reference statements from 2 persons, 1 of whom shall be registered as a dewatering well drilling or pump installer contractor under the act and familiar with the applicant's work experience, honesty, integrity, and ability to perform the work of a dewatering well drilling or pump installer contractor, shall be submitted before advisory board approval to take the examination.

**R 325.1772 Grandfather clause.**

Rule 272. An individual who is a member or employee of a registered dewatering well drilling or pump installing firm, with a minimum of 2 years' experience in his respective field of work before April 30, 1974, and who files by April 30, 1975, a record of experience and background with the department on a form prepared for this purpose, may be registered upon application. This individual shall be registered without meeting the educational qualifications and without taking the written examination if he has been employed continuously in the dewatering well trade.

**R 325.1773 Submission of applications.**

Rule 273. An application for an initial or renewal registration shall be made to the department on forms prescribed by it. An application shall be accompanied by the fee prescribed by the act in the form of a bank draft, check or money order payable to the state of Michigan. A renewal application shall be submitted by March 1 of each year to permit time for issuance of the renewal certificate by May 1 as required by the act. The initial fee shall be refunded to an applicant not qualified to take the examination.

**R 325.1774 Advisory board review.**

Rule 274. The advisory board created by the act shall evaluate an applicant for registration carefully with the assistance of a representative from the dewatering well drilling industry and forward its advice to the department. The board may conduct oral interviews and require affidavits or other supporting evidence to determine qualification of an applicant.

### **R 325.1775 Examinations.**

Rule 275. A person representing a dewatering well contractor or pump installer may take the examination only after fulfilling all requirements in the rules and having approval of the advisory board. He shall satisfactorily complete an examination covering various aspects of dewatering well operations before being registered under section 5 of the act. This examination may be any combination of written, oral, or practical work administered by the advisory board. A candidate failing to pass the examination may apply for reexamination at the expiration of 6 months.

### **R 325.1776 Denial of applications.**

Rule 276. An application for initial or renewal registration may be denied for any of the following reasons:

- (a) Failure to accompany the application with the prescribed fee.
- (b) Failure of the applicant to meet the experience and education qualifications of registration.
- (c) Other good and sufficient cause after due notice and proper hearing

### **R 325.1777 Certificates; initial; renewal; limited.**

Rule 277. (1) The initial certificate issued to a registered dewatering well drilling contractor or pump installer shall be nontransferable and contain the names of the contractor and representative, date of issuance, expiration date, certificate number, and signature of the director.

(2) A renewal certificate shall consist of a registration card in duplicate containing the names of the contractor and representative, expiration date, certificate number, and signature of the director. One section of the card shall be kept with the original registration certificate and a copy shall be carried on the person representing the registered contractor.

(3) The initial and renewal certificates shall authorize a registered dewatering well contractor to participate in all dewatering well activities, but he is limited to dewatering well installations and related operations, including pump installation for dewatering installations and abandonment of dewatering wells. A registered dewatering well pump installer is limited to pump installations, operation, and abandonment of dewatering wells.

### **R 325.1778 Reciprocity.**

Rule 278. The secretary of the advisory board shall obtain requirements for registration in the state from which an applicant requests reciprocity as either a registered dewatering well drilling contractor or pump installer and confirm that the applicant was in fact registered.

### **R 325.1779 Reinstatement of lapsed, suspended, and revoked certificates.**

Rule 279. (1) A registration certificate which has expired for failure of the registrant to apply and pay renewal fees may be reinstated by the department:

(a) Within 3 years, upon receipt of a renewal application, with the advice of the advisory board, and payment of renewal registration fees for each year during which registration has lapsed in accordance with the fee and penalty schedule in the act.

(b) After 3 years, after examination in accordance with the rules for new applicants.

(2) A holder of a certificate of registration which has been suspended or revoked in accordance with the act, after a waiting period equal to the period of suspension, but not to exceed 9 months after the registration certificate was suspended or revoked, may petition the director for a hearing for reinstatement of his registration certificate.

**R 325.1781 Dewatering well drilling machine registration.**

Rule 281. (1) A drilling machine registration card shall be issued for identification purposes for each drilling machine registered by a dewatering well drilling contractor. The card shall be carried on the drilling machine at all times where it may be inspected at any reasonable hour upon request of an authorized representative of the department or health officer. The registration card expires on April 30 each year.

(2) The registration card and duplicate seals furnished for a dewatering well drilling machine are not transferable. The card and seals shall be returned to the director when a drilling machine is sold, traded, or otherwise disposed of. A registration card and 2 new seals for a drilling machine so transferred will be provided without cost upon receipt of the old card, the 2 old seals, and an application requesting authorization to operate a different drilling machine.