

# APPLICATION

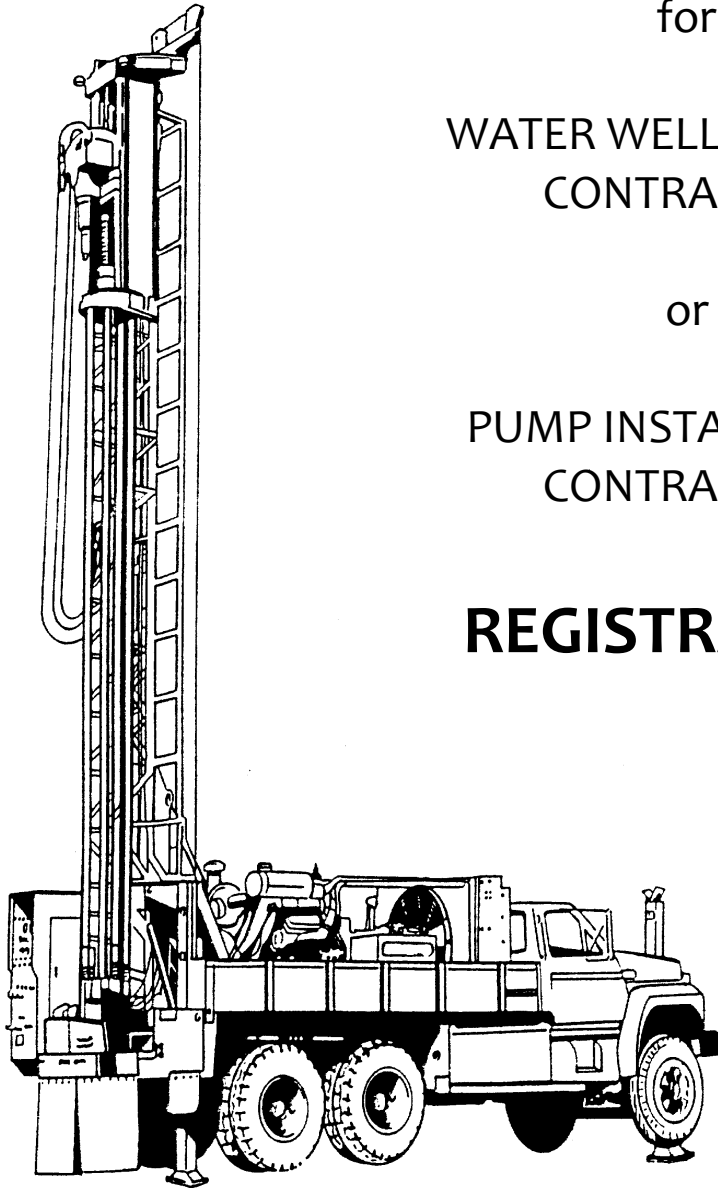
for

WATER WELL DRILLING  
CONTRACTOR

or

PUMP INSTALLATION  
CONTRACTOR

# REGISTRATION



## EGLE

Michigan Department of Environment, Great Lakes, and Energy  
Drinking Water and Environmental Health Division  
Environmental Health Section



## PROCEDURES FOR WELL DRILLER AND PUMP INSTALLER REGISTRATION

### LEGAL BASIS

Before engaging in the business of water well drilling, pump installing, or constructing dewatering wells, a person shall obtain a **Certificate of Registration** annually from the Michigan Department of Environment, Great Lakes, and Energy (EGLE). These requirements are set forth in Part 127, 1978 PA 368 (Michigan Public Health Code), Section 12704, being §333.12704 of the Michigan Compiled Laws. Failure to register is a misdemeanor pursuant to Section 12715, being §333.12715 of the Michigan Compiled Laws.

Registration is **required** for persons who install, repair, or service the following water well types:

- ✓ **POTABLE WATER SUPPLY WELLS (PRIVATE OR PUBLIC)**
- ✓ **IRRIGATION WELLS**
- ✓ **WATER SUPPLY OBSERVATION WELLS**
- ✓ **HEAT PUMP SUPPLY AND RETURN WELLS**
- ✓ **INDUSTRIAL WELLS**
- ✓ **DEWATERING WELLS**

Registration is **not required** for persons installing:

1. A well on their owned or leased property that will serve their own single-family house or is intended for farming purposes on their own farm and where the water produced will not be used by the public or in any other residence.
2. Water wells used solely for oil or gas well drilling or production operations.
3. Dewatering wells used temporarily during construction that are less than 25 feet in depth and less than two (2) inches in diameter.
4. Monitoring wells, mineral wells, brine wells, test wells, storage wells, or disposal wells regulated by Part 615, 1994 PA 451 (formerly 1969 PA 315, Mineral Well Act).

### REGISTRATION CATEGORIES

**Water Well Drilling Contractor** – Persons in this category are authorized to construct, alter, service, and repair water wells. A registered well drilling contractor may also perform the work of a pump installer without obtaining an additional **Certificate of Registration**.

**Pump Installation Contractor** – Persons in this category are authorized to install, remove, alter, and repair water pumping equipment. Persons who perform only shop work on pumps are not required to be registered. Licensed master plumbers may perform the work of a pump installer without having to obtain a pump installers registration. Pump installers may not drill, service, or repair any part of the well not directly related to the pump installation. In addition, pump installers CANNOT plug water wells. Pitless adapters, drop pipes, packer jets, and foot valves are considered part of the pump installation. Casings and screens are well components.

**Dewatering Well Contractor** – Persons in this category are authorized to engage in the construction, installation, and plugging of dewatering wells and the installation and operation of dewatering well pumps.

**Dewatering Well Pump Installer** – Persons in this category are authorized to engage in the installation and operation of dewatering well pumps.

**QUALIFICATIONS**

Persons applying for registration must possess the following minimum qualifications:

1. Obtain **not less than two years (24 months)** of full-time experience in the water well drilling field for registration as a water well driller, which includes pump installation or in the pump installation field for registration as a pump installer. The experience shall have been obtained **within the last five (5) years**.
2. Be not less than 18 years of age and have completed high school or submit proof of equivalent education. Up to four (4) years of work experience may be substituted for equal years of education.
3. Be of sound moral character. This refers to the ability of the applicant to conduct a business in a fair, honest, and open manner.

**APPLICATION FILING PROCEDURES**

An applicant must submit the following not later than 60 days before the examination date:

1. **Registration Application Form, Work History Form**, and at least two **Reference Statements**; one of which shall be from a Michigan Registered Water Well Contractor (these forms are included in this packet).
2. A well driller applicant shall submit water well records for at least **20 water wells and pumps installed**. A pump installer applicant shall submit at least 20 pump installation records. **Records submitted indicating multiple contractors or installers may result in partial credit**. Request to modify existing well or pump records to accommodate application requirements will not be accepted. The records shall demonstrate completion of work by the applicant over a period of **not less than two years (24 months) within the last five (5) years**. The dates of completion on the records are to correspond to the same years as the submitted W-2s.
3. Proof of work experience as a water well driller or pump installer must be provided. At least two (2) years of the last five (5) years of W-2 wage statement forms, paycheck stubs, employers' payroll records, Workers' compensation insurance records, or any combination of the above must be submitted. These forms must indicate employer's name and occupation of applicant. **These confidential records will not be retained by EGLE and will be returned to you after you become registered.**
4. All forms must be completed in a clear, legible manner. Any form that does not contain sufficient information, or is unreadable, will be returned to the applicant.
5. An application fee, which includes the first year of registration (or remainder until April 30) is required. Make checks payable to the **STATE OF MICHIGAN. Do not send cash.**

FEES: WATER WELL DRILLING CONTRACTOR.....\$40 (includes 1 drilling machine)  
 ADDITIONAL WELL DRILLING MACHINE.....\$10  
 PUMP INSTALLATION CONTRACTOR.....\$25

**ADDITIONAL REQUIREMENTS FOR OUT-OF-STATE APPLICANTS**

Out-of-state applicants must first be licensed/registered in another state to apply for Michigan registration. Those licensed/registered in another state are not authorized to perform water well drilling or pump installation in Michigan until registration is obtained.

In addition to submitting the above information (well records, proof of work experience, etc.) in the **Application Filing Procedures**, an out-of-state applicant is eligible for registration in Michigan if all the following requirements are met:

1. Proof of current licensure or registration is submitted to EGLE.
2. Applicant is in good standing in the state in which the license is held.
3. A **Reference Statement** from a Michigan registered water well driller or pump installer is **not** required. At least one **Reference Statement** from a well driller or pump installer who is licensed in the applicant's state of residence must be submitted.
4. The **Work History** form shall be reviewed by the agency that is responsible for regulating water well construction in the applicant's state of residence.

### **STUDY MATERIALS**

The recommended study materials for contractors seeking registration are the **Michigan Water Well Construction and Pump Installation Code** book and the **Water Well Manual**. They are both available on the EGLE website [Michigan.gov/WaterWellConstruction](http://Michigan.gov/WaterWellConstruction). For your convenience, a copy of the code book is enclosed in this application packet. Additional copies can be obtained by contacting EGLE's Well Construction Program at 517-599-6257. A list of suggested reading material is located in the back of this document.

### **GROUND WATER AND WELLS FUNDAMENTALS COURSE**

Each winter, the Michigan Ground Water Association, Inc. (MGWA) sponsors a course that prepares contractors for the registration exam. Among the topics covered in the two-day course are water supply regulations, hydrogeology, well construction methods, pump and pressure tank fundamentals, and plugging abandoned wells. For information on this course please visit the MGWA website at [MichiganGroundWater.com](http://MichiganGroundWater.com).

### **EXAMINATIONS**

A hands-on submersible pump electrical troubleshooting exercise and written examination must be completed by all new applicants. The exercise and exam are given each April and October in Lansing. Visit the EGLE website at [Michigan.gov/WaterWellConstruction](http://Michigan.gov/WaterWellConstruction) for exam dates and application deadlines.

### **HANDS-ON EXERCISE**

The hands-on submersible pump electrical troubleshooting exercise tests whether an applicant can correctly diagnose electrical problems, such as a faulty main motor winding, broken motor lead, or damaged wire insulation. The applicant will have 20 minutes to complete the exercise. It is recommended that the applicant bring his/her own meter. If the applicant does not bring a meter, one will be provided.

A test device simulating a typical domestic wellhead and test meters will be furnished. The test device (wellhead simulator) is not energized and there is no electrical shock hazard. The hands-on exercise involves testing the resistance of motor windings and power source wiring insulation by simulating actual field conditions.

Applicants should (1) have experience field or bench testing pump electrical systems, (2) understand how to adjust electrical meters to their appropriate settings, and (3) be able to understand charts showing the specifications for particular motor models. Once the meter readings are obtained, the applicant is expected to interpret the readings by comparing them to the motor specifications and make decisions about the condition of the pump. Knowledge of basic electrical terms (i.e., volts, amps, watts, ohms, ground, conductor, and resistance) is advised.

Training on pump troubleshooting is usually available through the Ground Water & Wells Fundamentals Course, sponsored by the Michigan Ground Water Association (MGWA). For information on this course, please visit the MGWA website at [MichiganGroundWater.com](http://MichiganGroundWater.com).

In addition, pump troubleshooting training materials are also available from various pump or motor manufacturers, such as Franklin Electric, Goulds, etc.

### **WRITTEN EXAMINATION**

The written examination consists of 200 multiple-choice and true/false questions. A score of at least 70 percent is required to pass the written exam. The exam begins at 1:00 p.m., after completion of the Hands-on exercise in the morning. Four hours are allowed to complete the exam. Applicants are notified of the exam results within 30 days of the exam. Those who fail the written exam must wait at least 30 days before retaking it. A \$25 re-examination fee is required to repeat the written exam.

### **SUBMIT APPLICATION**

Complete applications must be received **at least 60 days** before the exam date. If the application is complete, you will be notified in writing of your scheduled oral interview time and location. You will also be notified if the application is incomplete. Be sure to make a copy for your records.

### **Mail completed applications to:**

**ACCOUNTING SERVICES DIVISION  
CASHIER'S OFFICE FOR EGLE – WD  
PO BOX 30657  
LANSING, MICHIGAN 48909-8157**

(Make check payable to: **State of Michigan**)

If you have a disability and require some accommodation in taking the registration examination, be sure to ask for a "Request for Accommodation" form from EGLE when you submit your application. If accommodation is not requested in advance, we cannot guarantee the availability of accommodation on site.

**ANNUAL RENEWAL**

Certificates of Registration expire on April 30 of each year. EGLE mails renewal applications in February. Completed applications must be submitted by March 1. After July 1, a late registration penalty of 50 percent of the basic registration fee is added. A Certificate of Registration that has expired because of failure of the applicant to renew may be reinstated within two (2) years of the expiration if back fees and late registration penalty fees are paid. Reinstatement after a two-year expiration period requires a candidate to meet the requirements of a new applicant. **Michigan does not have a provision for an inactive registration or retired status.** To be sure you receive your renewal application, promptly notify EGLE of any mailing address changes.

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MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY  
 DRINKING WATER AND ENVIRONMENTAL HEALTH DIVISION  
 ENVIRONMENTAL HEALTH SECTION

**REGISTRATION APPLICATION FORM**

- WATER WELL DRILLING CONTRACTOR – \$40  
(Includes Pump Installation Activities)
- PUMP INSTALLATION CONTRACTOR – \$25
- DEWATERING WELL DRILLING CONTRACTOR – \$40  
(Includes Dewatering Pump Installation Activities)
- DEWATERING WELL PUMP INSTALLATION CONTRACTOR – \$25

**IMPORTANT NOTE:**

A complete application includes the following:

1. Registration Application Form
2. Work History Form
3. Two Reference Statements
4. Verification of 2 years (24 months) experience
5. Minimum of 20 Water Well and Pump Records

**(Please type or print in ink. Complete all sections and sign on the bottom of the last page.)**

**APPLICANT INFORMATION**

Last Name		First Name		Middle Initial
Address		City	State	Zip
Phone Number	Location (shop, office, etc.)	Email Address	Date of Birth	
County		Position with Company <input type="checkbox"/> Owner <input type="checkbox"/> Partner <input type="checkbox"/> Officer <input type="checkbox"/> Full-time Employee		

**BUSINESS INFORMATION (Required)**

Business Type <input type="checkbox"/> Sole Owner <input type="checkbox"/> Partnership <input type="checkbox"/> Corporation <input type="checkbox"/> Government <input type="checkbox"/> Other				
Proposed Business Name			Email Address	
Business Address	City	State	Zip	County
Business Phone Number	Cell Phone Number	Fax Number		
Branch Office Address & Phone				

**APPLICATIONS ARE DUE 60 DAYS BEFORE THE EXAM DATE**

Please send application and check (payable to the State of Michigan) to:  <b>ACCOUNTING SERVICES DIVISION          CASHIER'S OFFICE FOR EGLE - WD          PO BOX 30657          LANSING, MICHIGAN 48909-8157</b>	<b>For Cashier's Use Only: 37000-40567-9406</b>
	(Empty space for cashier use)

**EXPERIENCE**

**QUALIFICATIONS**

Work experience must equal to at least 2 years (24 months) of full-time work (4,000 hours) within the last 5 years.

REFERENCE: R 325.1701 Rule 201(a)(b)(c)(d).

Do you have at least 2 years (24 months) of full-time experience in the water well drilling industry?  Yes  No

If yes, number of years in well drilling industry \_\_\_\_\_

**PROOF OF WORK EXPERIENCE**

Proof of experience shall be documented by submitting all the following:

REFERENCE: R 325.1701a Rule 201a.

- A minimum of 20 Water Well and Pump Records signed by the registered contractor with your name as the drilling machine operator and pump installer.
- Work History Form with local health department review and signature.
- Two notarized reference statements. One must be from a Michigan Registered Water Well Drilling Contractor (reference statements from relatives cannot be accepted).
- Verification (federal W-2 forms, paycheck stubs, employers' payroll records, health insurance records, or any combination that verifies 2 years [24 months] of experience within the last five years).

Have you ever had a judgment against you resulting from a civil action related to well drilling or pump installing?  Yes  No

List other state(s) in which you are licensed as a water well driller or pump installer:

State \_\_\_\_\_ County \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

Has your license ever been suspended or revoked?  Yes  No

**EDUCATION**

High School (Name and Location)

Highest Grade Completed (circle one)	1	2	3	4	5	6	7	8	9	10	11	12	Year Graduated
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College (Name and Location)

No. of College Years Completed	Degree and Major	Year Graduated
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**DRILLING MACHINE** (list additional drilling machines on a separate sheet)

Do you intend to register any well drilling machines?  Yes  No If yes, how many?

If yes, please provide the below information:

Type (Rotary, Cable Tool, etc.)	Make of Drilling Machine	Model	Serial Number
Mount <input type="checkbox"/> Truck <input type="checkbox"/> Trailer	Make		Year
License Plate Number	Year	State	

**NOTE: Registration of one drilling machine is included in initial \$40 fee. Additional machines are \$10 each.**

I certify that all information in this application and the Work History form are true and accurate. I understand that any false statements will result in the denial of the application or renewal of the registration certificate, and/or may include criminal prosecution. I will supervise all water well drilling and pump installation activities and certify that all well/pump installations will adhere to the Groundwater Quality Control Rules and well code, R325.1601 *et seq.*, and other applicable state and local regulations. I will notify the Michigan Department of Environment, Great Lakes, and Energy (EGLE) if I am no longer the registered well drilling contractor/pump installer for the firm, or if I am no longer employed in a supervisory role, or if my firm name or address changes.

**Signature of Applicant** \_\_\_\_\_ **Date** \_\_\_\_\_





MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY  
 DRINKING WATER AND ENVIRONMENTAL HEALTH DIVISION  
 ENVIRONMENTAL HEALTH SECTION

**WORK HISTORY FORM**

for Water Well Drilling/Pump Installation Contractor Registration

Name of Applicant

Name of Present Employer

YEAR	* WEEKS WORKED PER YEAR	* HOURS PER WEEK	NAME OF FIRM	BRIEFLY DESCRIBE YOUR DUTIES	COUNTIES WORKED
<b>TOTAL</b>			* Applicant must have a minimum of 100 weeks (or 4,000 hours) of verifiable work experience within the last five (5) years.		

List the following information for wells YOU drilled (you operated the water well drilling rig).  
For Pump Installer applicants, complete columns: Number of Pumps, Types of Wells, Types of Pumps

DRILLING METHOD	NUMBER OF WELLS (Pumps)	WELL DIAMETER(S)	WELL DEPTH (FT) (RANGE)	TYPES OF WELLS (PRIVATE, IRRIGATION, PUBLIC, ETC.)	TYPES OF PUMPS (SUBMERSIBLE, JET, CENTRIFUGAL, HAND PUMPS, TURBINE, ETC.)

**FOR LOCAL HEALTH DEPARTMENT OR OUT-OF-STATE LICENSING DEPARTMENT USE ONLY**

Please review the applicant's work history and answer the following questions:

- YES       NO      Are you familiar with the firm where the applicant was/is employed?
- YES       NO      Has the applicant performed all water well and pump work according to the Michigan Water Well Construction and Pump Installation Code (or applicable regulations for out-of-state applicants)?
- YES       NO      Is the applicant familiar with all applicable local regulations?
- YES       NO      Has the applicant's well drilling license ever been revoked, suspended, or denied?
- YES       NO      Do you recommend the applicant for registration?

Comments

Reviewer's Name

Agency Name

Signature

Date



**REFERENCE STATEMENT**

for Water Well Drilling/Pump Installation Contractor Registration

Name of Applicant \_\_\_\_\_

Recommendation for:       Well Drilling Contractor       Pump Installation Contractor

1. How long have you known the applicant? \_\_\_\_\_

2. What is your association with the applicant?

Employee       Acquaintance       Business Associate

Other \_\_\_\_\_

3. How long was applicant employed by you? \_\_\_\_\_

4. What tasks did the applicant perform for you? \_\_\_\_\_

\_\_\_\_\_

5. Have you ever personally observed the applicant's work?       Yes       No

6. Is this individual able to operate a water well drilling/pump installation business in an acceptable manner?

Yes       No

7. How long has the applicant been working in the water well drilling field?

Less than 2 years     2-5 years     5-10 years     10+ years

8. Additional Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

9. Enter your choice from Column B that best applies to the applicant.

COLUMN A

- \_\_\_\_\_ Honesty
- \_\_\_\_\_ Dependability
- \_\_\_\_\_ Judgment
- \_\_\_\_\_ Workmanship
- \_\_\_\_\_ Ability to deal with public
- \_\_\_\_\_ Knowledge of water well drilling
- \_\_\_\_\_ Knowledge of pump installing

COLUMN B

- 5 = Excellent
- 4 = Above Average
- 3 = Average
- 2 = Below Average
- 1 = Poor

(NOTE: Reference statements from relatives cannot be accepted.)

Page 2 – Reference Sheet for \_\_\_\_\_

I certify that the facts stated above are true to the best of my personal knowledge and belief and that I have not accepted payment from the applicant for completion of this form.

Print Name \_\_\_\_\_

Signature \_\_\_\_\_

Firm Name \_\_\_\_\_

Well Driller # \_\_\_\_\_ Pump Installer # \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Telephone # \_\_\_\_\_ Date \_\_\_\_\_

**NOTE: This form must be notarized and returned no later than 60 days prior to written exam date.**

Subscribed and sworn before me this \_\_\_\_\_  
day of \_\_\_\_\_, 20\_\_\_\_\_, a Notary Public  
in and for \_\_\_\_\_ County,  
\_\_\_\_\_  
(State)

\_\_\_\_\_  
Signature, Notary Public  
My Commission expires \_\_\_\_\_, 20 \_\_\_\_\_

**IF MAILING REFERENCE STATEMENT SEPARATE FROM APPLICATION, PLEASE SEND TO:**

Michigan Department of Environment, Great Lakes, and Energy  
Drinking Water and Environmental Health Division  
Environmental Health Section – Source Water Unit  
Well Construction Program  
P.O. Box 30817  
Lansing, Michigan 48909-8311



**REFERENCE STATEMENT**

for Water Well Drilling/Pump Installation Contractor Registration

Name of Applicant \_\_\_\_\_

Recommendation for:       Well Drilling Contractor       Pump Installation Contractor

1. How long have you known the applicant? \_\_\_\_\_

2. What is your association with the applicant?

Employee       Acquaintance       Business Associate

Other \_\_\_\_\_

3. How long was applicant employed by you? \_\_\_\_\_

4. What tasks did the applicant perform for you? \_\_\_\_\_

\_\_\_\_\_

5. Have you ever personally observed the applicant's work?       Yes       No

6. Is this individual able to operate a water well drilling/pump installation business in an acceptable manner?

Yes       No

7. How long has the applicant been working in the water well drilling field?

Less than 2 years     2-5 years     5-10 years     10+ years

8. Additional Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

9. Enter your choice from Column B that best applies to the applicant.

COLUMN A

- \_\_\_\_\_ Honesty
- \_\_\_\_\_ Dependability
- \_\_\_\_\_ Judgment
- \_\_\_\_\_ Workmanship
- \_\_\_\_\_ Ability to deal with public
- \_\_\_\_\_ Knowledge of water well drilling
- \_\_\_\_\_ Knowledge of pump installing

COLUMN B

- 5 = Excellent
- 4 = Above Average
- 3 = Average
- 2 = Below Average
- 1 = Poor

(NOTE: Reference statements from relatives cannot be accepted.)

Page 2 – Reference Sheet for \_\_\_\_\_

I certify that the facts stated above are true to the best of my personal knowledge and belief and that I have not accepted payment from the applicant for completion of this form.

Print Name \_\_\_\_\_

Signature \_\_\_\_\_

Firm Name \_\_\_\_\_

Well Driller # \_\_\_\_\_ Pump Installer # \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Telephone # \_\_\_\_\_ Date \_\_\_\_\_

**NOTE: This form must be notarized and returned no later than 60 days prior to written exam date.**

Subscribed and sworn before me this \_\_\_\_\_  
day of \_\_\_\_\_, 20\_\_\_\_\_, a Notary Public  
in and for \_\_\_\_\_ County,  
\_\_\_\_\_  
(State)

\_\_\_\_\_  
Signature, Notary Public  
My Commission expires \_\_\_\_\_, 20 \_\_\_\_\_

**IF MAILING REFERENCE STATEMENT SEPARATE FROM APPLICATION, PLEASE SEND TO:**

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Drinking Water and Environmental Health Division  
Environmental Health Section – Source Water Unit  
Well Construction Program  
P.O. Box 30817  
Lansing, Michigan 48909-8311



## SUGGESTED WATER WELL AND PUMP PUBLICATIONS

The following books and manuals are recommended for new sanitarians or individuals preparing to take the Michigan water well drilling contractor or pump installer registration examination.

- 1. Michigan Water Well Construction and Pump Installation Code** (State Well Code), 12/99 EQC 2071, 72 pages, Michigan Department of Environment, Great Lakes, and Energy (EGLE), Drinking Water and Environmental Health Division (DWEHD). This document contains water well system construction standards and minimum qualification requirements for contractor registration in the state of Michigan. Available online at [Michigan.gov/WaterWellConstruction](https://www.michigan.gov/WaterWellConstruction), or from EGLE, DWEHD, Environmental Health Section, Source Water Unit, Well Construction Program.
- 2. Water Well Manual.** This document contains materials from the annual Ground Water and Wells Fundamental's Course sponsored by the Michigan Ground Water Association, Inc., and reviews the state well code, geology, hydrogeology, water system design, water well drilling methods, water well record completion, pumping equipment, water system disinfection, water sampling, and water well abandonment. It also includes a practice exam. Available online only at [Michigan.gov/WaterWellConstruction](https://www.michigan.gov/WaterWellConstruction). Under the "Documents" section, click on "Manuals."
- 3. Ground Water and Wells, 3rd Edition**, edited by Robert J. Sterrett, PhD, RG, Johnson Division, 2027, 812 pages. This classic reference comprehensively covers ground water development. It includes occurrence and movement of ground water, water well hydraulics, drilling methods, drilling fluids, installation, and removal of water well screens, screen development, ground water chemistry, conducting pump tests, and much more.
- 4. Manual of Water Well Construction Practices, 2nd Edition**, edited by Stuart Smith, National Ground Water Association (NGWA), 1998, 246 pages. This is a comprehensive guide for water well drilling contractors and water well inspectors.
- 5. Water Systems Handbook, 12th Edition**, by the Water Systems Council, 2006, [WaterSystemsCouncil.org](https://www.watersystemscouncil.org). This document is a series of seven booklets. Each booklet covers one or more topics from private water system design, operation, and maintenance, which thoroughly covers pump types, pump operation along with troubleshooting, water treatment, and ground water heat pumps.
- 6. Large Submersible Water Pump Manual, 4th Edition**, by Water Systems Council, 2001, 76 pages. This document covers large capacity submersible pumps (6 inches and larger), valves, and tank sizing.
- 7. NGWA Voluntary Certification Exam Study Guide.** Includes study materials for certifications offered by the NGWA and valuable test taking tips.
- 8. Well & Borehole Sealing: Importance, Materials, Methods, and Recommendations for Decommissioning**, by Stuart Smith, Wisconsin Water Well Association, National Ground Water Association, 1994, 69 pages. A highly informative book on the importance of borehole sealing and well decommissioning with thorough coverage of grout properties, preparation, and emplacement practices.
- 9. Submersible Motors: Application-Installation-Maintenance**, Franklin Electric, August 2008 Edition, 61 pages. Resource for information on 60 Hz, single and three-phase submersible pump motors, including water system troubleshooting procedures.