Kansas Department of Health & Environment

WATER WELL HANDBOOK/APPLICATION

Bureau of Water – Geology Section
1000 SW Jackson St., Ste. #420
Topeka, Kansas 66612
(785) 296-5524

May 2011

The Kansas Department of Health and Environment
Sam Brownback, Governor - Robert Moser, MD, Secretary
Curtis State Office Building, 1000 SW Jackson, Topeka, Kansas 66612

Bureau of Water

Geology Section

Directions to KDHE and Visitor Parking

- Organizational Chart
- Underground Hydrocarbon and Natural Gas Salt Cavern Storage Program
- Underground Injection Control (UIC) Program
- Water Well Program
- Upcoming Seminars, Expos, Conferences and Workshops
  - Geology Section Fall 2011 Seminar - September 8, 2011 - **(NEW 6/23/2011)**
- Environmental Contacts Checklist for Pipeline Construction Projects
- Proposed Project Information - Water and Wastewater Regulatory Requirements - KDHE, Bureau of Water
- EPA Evaluation of KDHE Underground Injection Control Program for FY 2010 (NEW 1/7/11)
- KDHE-Geology Section Calendar Year 2009 Annual Report
- KDHE-Geology Section Calendar Year 2010 Annual Report (NEW 3/18/2011)
- KDHE Certified Laboratories Listing
- Kansas State Board of Technical Professions (KSBTP)
  - Registration as a Professional Geologist in Kansas (KSBTP)
- Record Request (.pdf)
- Regulatory Agenda
- "THIS AND THAT" from around the the state concerning water, energy and environmental issues.
- Document Library
  - Abandoned Brine Well, Salt Cavern/Sinkhole

- Subsidence
- Underground Hydrocarbon and Natural Gas Salt Cavern Storage
- Underground Injection Control
- Salt Contamination
- Water Wells
- Groundwater
- Geology

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Purpose of the Geology Section

The Geology Section within the Bureau of Water administers the Underground Injection Control (UIC), the Underground Hydrocarbon and Natural Gas Storage, and Water Well Licensing, Water Well Construction and Abandonment Programs. These programs protect public health and safety, and the environment.

The UIC Program regulates injection well activities. Injection well activities include the disposal of industrial wastes into deep geologic formations, the solution mining of salt formations, and the shallow injection of non-hazardous fluids below the land surface.

The Underground Hydrocarbon and Natural Gas Storage Program regulates the storage of hydrocarbons, including liquefied petroleum gas (LPG) and natural gas, in salt caverns formed by solutioning in the Hutchinson Salt. The program also regulates the brine ponds associated with the underground storage facilities.

The Water Well Program regulates water well contractor licensing, water well construction, and water well abandonment.

The Geology Section also provides hydrogeological and technical support for other programs in the Bureau of Water.

Water Well Contractors Study Guide and Handbook

Return to:
Kansas Dept. of Health & Environment
Bureau of Water – Geology Section
1000 SW Jackson Street, Ste. 420
Topeka, Kansas 66612-1367

Application No. _____
(Please leave blank)

(Type or print in ink)

APPLICATION FOR WATER WELL CONTRACTOR LICENSE

Date _____

(A) 1. I, _____ of _____
(Street Address)

_____
(City) (County) (State) (Zip)

do hereby make application for a license to do business as a water well contractor in the State of Kansas.

2. I intend to do business as a(an) _____
(Individual, Firm, Partnership, Corporation)

under the business name of _____

_____
(Street address or P.O. Box) (City) (State) (Zip)

Business Phone _____ Home Phone _____

3. Age of Applicant _____. Length of residence in Kansas _____ years.

(B) Experience

(1) Individual Drillers:

a. Commenced drilling water wells on or about _____.
(Date)

b. Years of Experience in the capacity of:

Driller _____ Foreman _____ Tool Pusher _____

c. Approximate number and types (domestic, irrigation, industrial, municipal) of water wells drilled during past five (5) years.

_____

_____

During past year _____

(2) Firm, Partnership, Corporation:
Give the name of each driller and a record of his experience on a separate sheet.

(C) If licensed in another state, name the state and license number and issuing agency, agency address and phone number. _____

_____

(D) References: Three (3) references on Kansas Department of Health and Environment form WWC-2, are required. One must be from another water well contractor and two from persons not related to you.

(E) Drilling Equipment: Attach a complete copy of Kansas Department of Health and Environment form WWC-3 for each drill rig operated by or for you.

AFFIDAVIT

I hereby certify that the statements made in this application and attachments, which are part of hereof, are true and correct to the best of my knowledge and belief.

_____
(Applicant's Signature)

To be complete, the following must accompany this application:

1. A $10.00 application fee, check, bank draft or money order, payable to the Kansas Department of Health and Environment.

2. Three references on form WWC-2 provided.

3. Description of each drill rig on form WWC-3 provided.

4. Upon completion and passing of examination, if required, a $100.00 contractor's license fee and a $25.00 drill rig fee (a $25.00 fee is required for each drill rig operated by or for you) is due, payable by check, bank draft or money order to the Kansas Department of Health and Environment.

CHARACTER AND EXPERIENCE REFERENCE QUESTIONNAIRE FOR:

TO: KS Dept. of Health & Environment
Bureau of Water - Geology
1000 SW Jackson Street
Suite 420
Topeka, KS 66612-1367
Phone: (785) 296-5524

_____
(Applicant's Name)

_____
(Address)

_____
(City/State/Zip Code)

Answer each question accurately so that we may ascertain the applicant's qualifications for the Water Well Contractor's license.

1. I have known the applicant for _____ years.

2. Are you related to the applicant? No _____ Yes _____

3. What is the nature of your acquaintance, relationship, or association? _____
_____
_____

4. From personal knowledge, I know that his business reputation is _____.

5. What is your opinion of the applicant's personal character, honesty, and reliability?
_____
_____
_____

6. Do you consider the applicant to be a qualified and experienced water well driller?

_____ Yes, _____ No. Please comment on the applicant's ability and qualifications

to construct water wells. _____
_____

I hereby certify that the above information is true to the best of my knowledge and belief.

_____ _____
(Signed) (Date)

_____ _____
(Occupation) (Address)

_____
(City, State, Zip)

WWC-2

e:/water wells/character reference

CHARACTER AND EXPERIENCE REFERENCE QUESTIONNAIRE FOR:

TO: KS Dept. of Health & Environment
Bureau of Water - Geology
1000 SW Jackson Street
Suite 420
Topeka, KS 66612-1367
Phone: (785) 296-5524

_____
(Applicant's Name)

_____
(Address)

_____
(City/State/Zip Code)

Answer each question accurately so that we may ascertain the applicant's qualifications for the Water Well Contractor's license.

1. I have known the applicant for _____ years.

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3. What is the nature of your acquaintance, relationship, or association? _____
_____
_____

4. From personal knowledge, I know that his business reputation is _____.

5. What is your opinion of the applicant's personal character, honesty, and reliability?
_____
_____
_____

6. Do you consider the applicant to be a qualified and experienced water well driller?

_____ Yes, _____ No. Please comment on the applicant's ability and qualifications

to construct water wells. _____
_____

I hereby certify that the above information is true to the best of my knowledge and belief.

_____ _____
(Signed) (Date)

_____ _____
(Occupation) (Address)

_____
(City, State, Zip)

WWC-2

e:/water wells/character reference

CHARACTER AND EXPERIENCE REFERENCE QUESTIONNAIRE FOR:

TO: KS Dept. of Health & Environment
Bureau of Water - Geology
1000 SW Jackson Street
Suite 420
Topeka, KS 66612-1367
Phone: (785) 296-5524

_____
(Applicant's Name)

_____
(Address)

_____
(City/State/Zip Code)

Answer each question accurately so that we may ascertain the applicant's qualifications for the Water Well Contractor's license.

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3. What is the nature of your acquaintance, relationship, or association? _____
_____
_____

4. From personal knowledge, I know that his business reputation is _____.

5. What is your opinion of the applicant's personal character, honesty, and reliability?
_____
_____
_____

6. Do you consider the applicant to be a qualified and experienced water well driller?

_____ Yes, _____ No. Please comment on the applicant's ability and qualifications

to construct water wells. _____
_____

I hereby certify that the above information is true to the best of my knowledge and belief.

_____ _____
(Signed) (Date)

_____ _____
(Occupation) (Address)

_____
(City, State, Zip)

WWC-2

e:/water wells/character reference

APPLICATION NO. _____

RETURN TO:

KDHE - Division of Environment
Bureau of Water, Geology
1000 SW Jackson, Ste. 420
Topeka, Kansas 66612-1367
(785) 296-5524

APPLICATION FOR KANSAS WATER WELL CONTRACTORS DRILLING RIG LICENSES

(Please type or print in ink)

Date: _____

Applicant's Name: _____

Business Name: _____

Business Address: _____

Present Drilling Rig(s) License Numbers(s) (Not the automobile license number)

_____

Give detailed description of <u>each</u> drilling rig operated by or for you or drilling tools used in constructing water wells (make, model, year, size, rotary, churn, etc.), and detailed description (make, model, year, size, etc.) of the vehicle on which the drilling rig is mounted or in which your drilling tools are carried if you hand dig or drive water wells.

1. Rig: _____ Year: _____
(Make / Model)

Mounted On: _____ Year: _____
(Make / Model)

2. Rig: _____ Year: _____
(Make / Model)

Mounted On: _____ Year: _____
(Make / Model)

3. Rig: _____ Year: _____
(Make / Model)

Mounted On: _____ Year: _____
(Make / Model)

4. Rig: _____ Year: _____
(Make / Model)

Mounted On: _____ Year: _____
(Make / Model)

Include payment of $25 for <u>each</u> rig operated by or for you.

Form WWC-3

5. Rig: _____ Year: _____
(Make / Model)

Mounted On: _____ Year: _____
(Make / Model)

6. Rig: _____ Year: _____
(Make / Model)

Mounted On: _____ Year: _____
(Make / Model)

7. Rig: _____ Year: _____
(Make / Model)

Mounted On: _____ Year: _____
(Make / Model)

8. Rig: _____ Year: _____
(Make / Model)

Mounted On: _____ Year: _____
(Make / Model)

9. Rig: _____ Year: _____
(Make / Model)

Mounted On: _____ Year: _____
(Make / Model)

10. Rig: _____ Year: _____
(Make / Model)

Mounted On: _____ Year: _____
(Make / Model)

11. Rig: _____ Year: _____
(Make / Model)

Mounted On: _____ Year: _____
(Make / Model)

12. Rig: _____ Year: _____
(Make / Model)

Mounted On: _____ Year: _____
(Make / Model)

STUDY GUIDE

Sample Questions and Explanation

The following items are representative of the questions that will be on the Water Well Contractor's License Examination.

1. Article 12. – Kansas Groundwater Exploration and Protection Act (K.S.A. 82a1201 – 82a1215) as amended. This article is a law which established licensure of water well contractors who construct, reconstruct or treat water wells in Kansas and established the propagation of rules and regulations on minimum construction, reconstruction, treatment and plugging of any water wells in Kansas. This Article contains definitions, procedures, and outlines the parameters and guidelines within which all water well contractors in Kansas and landowners are required to follow.

SAMPLE QUESTIONS on Article 12.

T or F Does the Kansas Department of Health and Environment have general supervision and authority over the construction, reconstruction, treatment and plugging of all water wells?

T or F Does an individual who performs labor or services for a licensed water well contractor need a water well contractors license?

T or F The term of a water well contractors license is from January 1 through the 31st day of December?

T or F Does an individual who constructs a water well on land which is owned by him or her have to construct their water well according to the minimum well construction standards established by the Kansas Groundwater Exploration and Protection Act and all other rules and regulations?

T or F Does all acts necessary to obtaining ground water by any method for any use including the location of and excavating for the well mean "construction of a water well"?

T or F If a complaint is filed against a water well contractor and before revocation or suspension of the water well contractor's license, is the contractor afforded the opportunity to bring the well up to standard or to correct the error which caused the complaint?

T or F Can the Department request a water sample from any well that you have constructed or reconstructed?

T or F Do all test holes drilled by you in search for a groundwater supply have to be plugged by you before the job is terminated?

2. Article 30. – Water Well Contractors License, Water Well Construction and Abandonment rules and regulations (K.A.R. 28-30-1 through 28-30-207) as amended. This article is the rules and regulations which were propagated by the statute (Article 12) and set forth the procedures on licenses, renewal of licenses, definitions as they relate to water wells, and minimum construction, reconstruction, treatment or plugging of all water wells in Kansas, except public water supply wells and wells located within sanitation zones around reservoirs.

SAMPLE QUESTIONS on Article 30.

What is an aquifer?
What is an unconfined aquifer?
What is a confined aquifer?
What is a pitless well adapter?
What is a pitless well unit?

Yes or No Does the casing of a well that utilizes a pitless well adapter have to terminate above ground level?
If yes, by how much? _____.

Yes or No Are you required to furnish a copy of the water well record on the construction, reconstruction or plugging of any well to the landowner?

Which water wells listed below are required to be disinfected. (Place a check mark or "X" the correct ones)

_____ Domestic	_____ Gas station well
_____ Irrigation	_____ Stock well at building site
_____ Public water supply	_____ Oil field water supply

How does one eliminate contamination from a water well?

What is a reconstructed water well?

What type of water well casing are approved?

T or F Stove pipe is considered to be a durable, clean, serviceable casing?

3.i) Water Well Record (Form WWC-5) – The copy provided is the record that you are required to completely fill out on how you constructed, reconstructed, or plugged any water well in Kansas and have it submitted to the Department and landowner within thirty (30) days after you have constructed, reconstructed or plugged any well.

SAMPLE QUESTIONS on Well Record.

Describe a limestone.
Describe a shale.
Describe a sand.
Describe a clay.
Describe a soil.

Give a legal description of a location for a water well.

What are grain sizes of sand and gravel? Are grain sizes important in the lithologic description? If yes, explain why.

6.a) Kansas Statutes Pertaining to Public Water Supply. You should know K.S.A. 65-161, K.S.A. 65-162a, and K.S.A. 65-163(a).

SAMPLE QUESTIONS on Public Water Supply Statutes.

What is the definition of a public water supply system?

Can you construct a public water supply well without the supplier of the water first obtaining a public water supply system permit?

6.b) Requirements for Public Water Well Location, Construction and Disinfection. There are the standards that have to be followed as the minimum requirements when you construct a public water supply well and also construct the well according to the plans, specifications and requirements as approved by the department which are required to be submitted to the department for approval by the supplier or owner of the public water supply system first before any construction is done on such system.

SAMPLE QUESTIONS on Requirements for Public Water Well Location, Construction and Disinfection.

T or F The well shall not be located in a ravine where surface water flows may be obstructed on concentrated?

What is the minimum depth that the watertight well casing may be placed below the ground surface on any public water well?

You obtain a permit to construct a public water supply well from whom?

If the steel casing to be installed in a public water well is six (6) inches in outside diameter, what size is the bore hole required to be?

Flood waters from any surface water source shall not approach closer than _____ feet to the well?

A completed public water supply well shall be disinfected by adding sufficient hypochlorite solution to the well water to produce a concentration of not less than _____ milligrams per liter (mg/l) of available chlorine when mixed with the water in the well.

What is the time period, in hours, that shall be allowed for the curing of cement grout or neat cement grout?

Why is a permit needed to construct a public water supply well?

6.e) Regulations Governing the Operation of Public Water Supply Systems (28-15-11 through 28-15-20). You will have to know regulation 28-15-16 and 28-15-17 which are on pages 16 and 17. Read the rest of these regulations for your general knowledge.

6.f) Instructions for Making Application to Obtain a Public Water Supply Permit for a Well. Know this document very well.

6.h) Public Water Supply Permit Application. This document is provided to you for your reference so you will know what a permit application looks like and what information we require so approval can be given for construction of a public water supply well. If you are uncertain whether the supplier of the proposed public water supply system has been approved from the Department, ask the supplier (or owner of the system) to show you the letter of approval sent to the supplier by the Department.

7.b) The Water Appropriation Act. This Act established procedures and requirements which users of our water supplies (surface and groundwater) have to obtain a water right (appropriated or vested right) to use the water for some beneficial purpose.

SAMPLE QUESTIONS on the Water Appropriation Act.

What is a water right?

To what agency do you make application for a water right?

Who is required to obtain a water right?

To whom does the groundwater in Kansas belong to?

The use of groundwater for drilling oil and gas wells, requires the filing of an application for temporary permit with DWR.

Watering an athletic field is considered to be irrigation use of water and a permit is required.

Relocation of water wells authorized under a Vested Right or Appropriation Right are restricted to the same local source of supply (aquifer) as the originally authorized well.

Thermal Exchange wells (heating/cooling) for a business or other commercial facility requires a permit by DWR.

It is unacceptable for a public supply or municipal well water level measurement tube to be placed adjacent to the well casing.

When are water wells required to have a water level measurement tube installed that meets the specifications of the Chief Engineer?

> Every well drilled in Kansas with an authorized maximum rate of 100 GPM or more except those authorized under a temporary permit, domestic use or a term permit of 5 or fewer years.

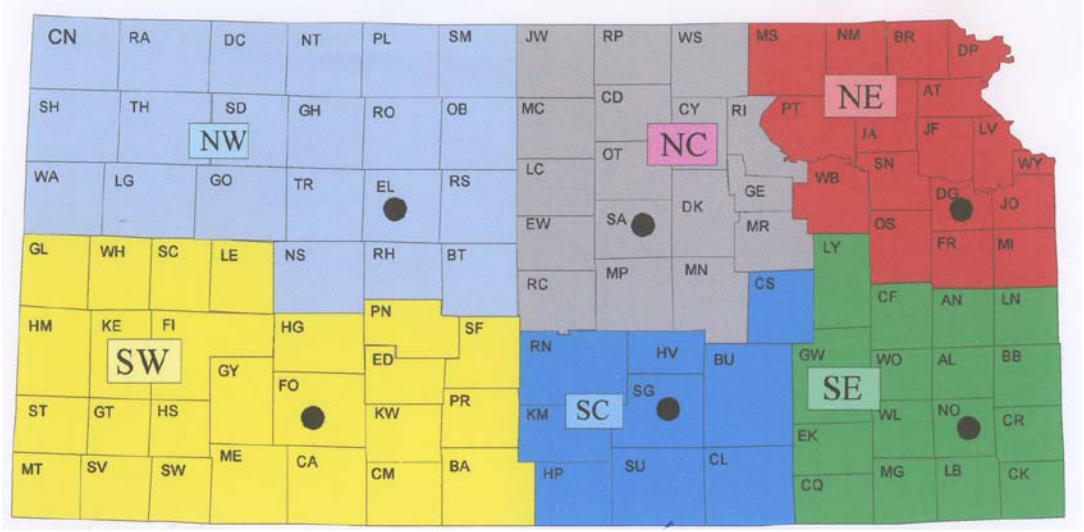
Information for Examination Packet

1. **Article 12**
2. **Article 30**
    a. Nemaha/Brown County Construction Requirements
    b. Burton/Hollow-Nikkel Area Special Requirements – May 1, 1987
    c. Policy Statements
3. **Diagrams**
    a. Standard Cased Test Hole
    b. Well Head Completion Diagram (submersible with pitless)
    c. Well Head Completion Diagram (submersible without pitless)
    d. Well Head Completion Diagram (irrigation above ground discharge)
    e. Standard Monitoring/Observation Well Design
    f. Fractional Legal Description/Location Diagram
    g. Dug Well Reconstruction Diagram
    h. Dug Well Open Hole
    i. Water Well Record (WWC-5)
    j. Heat Pump Diagrams (3)
    k. Official Code Sheet
4. **Plugging Diagrams and Information**
    a. Selected Sections
    b. Diagrams (1-11)
    c. KDHE Requirements for Plugging Abandoned Water Wells
    d. Sample Plugging Report
5. **Water Quality Information**
    a. Sample Bacterial Report
    b. Significance of Water Mineralization
    c. Disinfection Table and Graph
    d. Methods of Chlorinating Private Water Supplies
    e. Map of District Geologists
6. **Public Water Supply**
    a. Kansas Statutes Pertaining to Public Water Supply
    b. Requirements for Public Water Well Location, Construction and Disinfection
    c. Public Diagram with Pitless
    d. Public Diagram Above Ground
    e. Public Water Supply Regulations
    f. Instructions for Making Application to Obtain a Public Water Supply Permit for a Well
    g. Water Quality Tests Required Prior to Addition of New Public Water Supply Sources
    h. Public Water Supply Permit Application
7. **Water Appropriation**
    a. Map of Field Offices
    b. Water Appropriation Act
    c. Rules and Regulations
    d. Fee Schedule

Kansas
Department of Health and Environment

WATER PROGRAM DISTRICT OFFICE STAFF

MAY 19, 2011



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Norb Windholz	Environmental Scientist
Doug Armstrong	Environmental Scientist (CAFO)
Dan Braun	Environmental Scientist (CAFO)
Doug Schneweis	Watershed Field Coordinator

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Zack Phillips	Environmental Scientist
Heath Horyna	Environmental Scientist
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SOUTHEAST DISTRICT – 620.431.2390
1500 W. 7th St.
Chanute, KS 66720
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David Stutt	District Environmental Adm.
Richard Thomas	Prof. Environmental Engineer
Greg Taylor	Environmental Scientist
Kitty Rhynerson	Environmental Scientist
Alan Sharp	Environmental Scientist (CAFO)

db/revised 5/2011
R/District Offices/District Office Map and Personnel 2011

STATE OF KANSAS

Kansas
Department of Health and Environment

ARTICLE 12
GROUNDWATER EXPLORATION AND PROTECTION ACT

EFFECTIVE MAY 20, 2011

Bureau of Water - Geology Section
1000 S. W. Jackson St., Ste. 420
Topeka, Kansas 66612-1367
785/296-5524

ARTICLE 12

Groundwater Exploration and Protection Act

82a-1201. Title. This act shall be know as the “Kansas groundwater exploration and protection act”.

History: L. 1973, ch. 417, § 1; July 1.

82a-1202. Declaration of purpose. It is the purpose of this act to provide for the exploration and protection of groundwater through the licensing and regulation of water well contractors in Kansas to protect the health and general welfare of the citizens of the state; to protect groundwater resources from waste and potential pollution by requiring proper description of the location, drilling and well construction, and proper plugging of abandoned water wells and test holes; and to provide data on potential water supplies through well logs, well pumping tests and water quality tests which will permit the economic and efficient utilization and management of the water resources of this state.

In order to achieve these objectives, this act requires licensing of water well contractors; provides for the establishment of standards for well construction, reconstruction, treatment and plugging; requires each licensed water well contractor to keep and transmit to the state, upon request, a copy of the log of the well, pump test data if available, and water quality samples, and maintains within the state geological survey of Kansas a record system of well logs and water quality data which will be available to the public.

History: L. 1973, ch. 417, § 2; L. 1979, ch. 334, § 1; July 1.

82a-1203. Definitions. As used in this act, unless the context otherwise requires:

(a) “Construction of water wells” means all acts necessary to obtaining groundwater by any method for any use including, without limitation, the location of and excavation for the well.

(b) “Person” means any individual, association, firm, partnership, corporation or governmental entity.

(c) “Sand point” or “well point” means any driven well which is 25 feet or less in depth and is constructed by manually driving into the ground a drive point fitted to the lower end of tightly connected sections of pipe that are 2 inches or less in diameter.

(d) “Domestic uses” means the use of water by any person, family unit or household or household purposes, the watering of livestock, poultry, farm and domestic animals used in operating a farm or the irrigation of lands not exceeding a total of two acres in area for the growing of gardens, orchards or lawns.

(e) “Secretary” means the secretary of health and environment.

(e) "Secretary" means the secretary of health and environment.

(f) "Water well" means any excavation that is drilled, cored, bored, washed, driven, dug, jetted, or otherwise constructed, when the intended use of such excavation is for the location, diversion, artificial recharge, or acquisition of groundwater.

(g) "Water well contractor" or "contractor" means any person who constructs, reconstructs or treats a water well. The term shall not include:

(1) An individual while in the act of constructing a water well on land which is owned by such individual and is used by such individual for domestic purposes at such individual's place of abode, but only when the well is constructed in compliance with prescribed minimum well standards as provided in this act; or

(2) an individual who performs labor or services for a licensed water well contractor at such contractor's direction and under such contractor's supervision.

History: L. 1973, ch. 417, § 3; L. 1974, ch. 352 § 172; L. 1989, ch. 311, § 1; July 1.

82a-1205. Administration and enforcement of Kansas groundwater exploration and protection act; license fees; licenses; inspection; personnel; report.

(a) The secretary shall be responsible for the administration and enforcement of the provisions of this act and any rules and regulations adopted pursuant thereto.

(b) The secretary shall fix by rules and regulations reasonable license fees annually for each contractor and for each drill rig operated by or for such contractor. The secretary shall fix by rules and regulations an additional fee for each water well drilled except as provided in paragraphs (1) and (2) of subsection (c) of K.S.A. 82a-1203 and amendments thereto. Such fees shall be in an amount, which, together with any other funds available therefor, will produce an amount, which will properly administer the provisions of this act. Any nonresident may secure a water well contractor's license in Kansas upon approval of an application therefor by the secretary and the payment of a fee equal to the fee charged for a similar nonresident license by the state in which the applicant is a resident, but in no case shall the fee be less than that charged a Kansas resident.

(c) The secretary shall have the power and authority and may cause to be inspected water wells in all phases of construction, reconstruction, treatment or plugging, and shall have access to such wells at all reasonable times. The secretary shall have general supervision and authority over the construction, reconstruction and treatment of all water wells and the plugging of holes drilled and abandoned in search of a groundwater supply or hydrogeological information.

(d) The secretary may employ within funds available such engineering, geological, legal, clerical and other personnel as may be necessary for the proper performance of responsibilities under this act. Such employees shall be within the classified service under the Kansas civil service act.

(e) The secretary is authorized and directed to cause examination to be made of applicants for licensing; to renew such licenses; to adopt rules and regulations necessary to establish continuing education requirements for persons licensed under this act; to issue licenses to qualified water well contractors in this state; to revoke or suspend licenses after their issuance is hereafter determined, after notice to the person affected and an opportunity for hearing; and to reinstate licenses previously revoked when justification therefor is shown.

(f) The secretary shall prepare, in the form and manner prescribed by law, a report on the administration of this act.

History: L. 1973, ch. 417, § 5; L. 1974, ch. 352, § 173; L. 1979, ch. 334, § 2; L. 1983, ch. 286, § 8; L. 1991, ch. 293, § 1; July 1.

82a-1206. Licensure of water well contractors; application fee; disposition of moneys; water well contractors licensing fund abolished; standards for granting license.

(a) Each well contractor desiring to engage in the business of constructing, reconstructing or treating water wells in this state shall make initial application for a license to the secretary. Every contractor making such application shall set out such information as may be required upon forms to be adopted and furnished by the secretary. The secretary shall charge an application fee as established by regulation for the filing of such initial application by a contractor, and the secretary shall not act upon any application until such application fee has been paid.

(b) All application fees and license fees collected hereunder shall be remitted to the state treasurer at least monthly. Upon receipt of any such remittance, the state treasurer shall deposit the entire amount thereof in the state treasury and the same shall be credited to the state general fund. On July 1, 1983, the director of accounts and reports shall transfer all moneys in the water well contractors licensing to the state general fund. All liabilities of the water well contractors licensing fund are hereby transferred to and imposed upon the state general fund. The water well contractors licensing fund is hereby abolished.

(c) A license to construct water wells shall be issued to any applicant if, under the standards set forth in K.S.A. 82a-1207 and amendments thereto, the secretary shall determine such applicant is qualified to conduct water well construction operations. In the granting of such licenses due regard shall be given to the interest of the state of Kansas in

the protection of its underground water resources. Application fees paid hereunder shall be retained by the secretary whether such initial license is issued or denied, but if denied, the license feel shall be refunded.

(d) Applicants for licenses hereunder who are engaged in business as water well contractors in this state, if incorporated, shall submit evidence of current good standing with the registration requirements for corporations of the secretary of state.

History: L. 1973, ch. 417, § 6; L. 1974, ch. 352, § 174, L. 1979, ch. 334, § 3; L. 1983, ch. 286, § 14; July 1.

82a-1207. Investigation of qualifications; examination. Under such reasonable rules and regulations as the secretary may adopt pertaining to the business of water well contracting and construction of water wells, the secretary shall investigate by examination or otherwise, the qualifications of all applicants for initial licenses as water well contractors to construct, reconstruct or treat wells for production of underground waters in this state. Where an examination is required, such examination may be oral or written or both. The qualifications required of each candidate for such an examination are as follows:

(a) Familiarity with Kansas water laws, sanitary standards for water well drilling and construction of water wells and rules and regulations relating to water well construction, reconstruction, treatment and plugging as adopted by the secretary;

(b) Knowledge of groundwater and subsurface geology in its relation to well construction.

The examinations conducted by the secretary shall be held at such times and places as he may determine. Failure of an applicant to pass such examination shall disqualify him from making further application for a period of one (1) month. The secretary shall act within a reasonable time upon all applications for licenses hereunder.

History: L. 1973, ch. 417, § 7; L. 1974, ch. 352, § 175; L. 1979, ch. 334, § 4; July 1.

82a-1209. Terms of license; renewal; fees; revocation, when. The term of all licenses issued under the provisions of this act shall be July 1 of each year through the following June 30.

Any contractor licensed under the provisions of this act may, on or before July 1, each year, renew such license by paying the annual fee as determined by the secretary and complying with continuing education requirements established by the secretary. If the licensee has not met the requirements for renewal of the license on or before July 1, the license shall be revoked by the secretary. Prior to such revocation, however, the secretary shall notify the applicant of the secretary's intention to revoke at least 10 days prior to the time set for action to be taken, by notice to the applicant at the address appearing on such license in the records and files of the secretary and compliance with the provision of the

Kansas administrative procedure act. A license, once revoked, may not be reinstated unless the revocation resulted because of an error of the secretary or other reason not the fault of the licensee. A person whose license has been revoked and who desires to continue to engage in the business of water well construction in this state, must make application as provided for in K.S.A. 82a-1207, and amendments thereto. Such applicant may be required to retake the examination.

History: L. 1973, ch. 417, § 9; L. 1974, ch. 352, § 177; L. 1979, ch. 334, § 5; L. 1984, ch. 313, § 147; L. 1991, ch. 293, § 2; July 1.

82a-1210. Revocation of license, when; complaints against licensee; notice and hearing. Any license issued under this act may be revoked by the secretary.

(1) when the licensee has practiced fraud or deceit in obtaining a license or otherwise engaging in activities regulated by this act;

(2) for negligence or incompetence; or

(3) for violating any requirement of this act.

Any person, in addition to the secretary, may make complaint against any licensee of the specific charges, in accordance with the notice provisions of the Kansas administrative procedure act. Prior to revocation or suspension of a license, the water well contractor shall be afforded the opportunity promptly to bring the well up to standard or to correct the error resulting in the complaint. Compliance must be acceptable to the secretary. The secretary shall not revoke any license pursuant to this section without giving the licensee an opportunity for hearing in accordance with the provisions of the Kansas administrative procedure act.

History: L. 1973, ch. 417, § 10; L. 1974, ch. 352, § 178; L. 1979. ch. 334, sec 6; L. 1984, ch. 313, § 148; July 1, 1985.

82a-1211. Appeal from decisions of secretary. Appeals from decisions of the secretary may be taken in accordance with the provisions of the act for judicial review and civil enforcement of agency actions.

History: L. 1973, ch. 417, § 11; L. 1974, ch. 352, § 179; L. 1984, ch. 313, § 149; July 1, 1985.

82a-1212. Log of drilling, boring or digging; contents; filed with state geological survey. Any water well contractor licensed under this act who constructs, reconstructs or plugs a water well shall keep a careful and accurate log of the construction, reconstruction or plugging of such well and shall furnish a record of said well log to the secretary within thirty (30) days after completion of such well in such form as the secretary might require. The log shall show:

(a) The name and address of the landowner and the legal description of the well;

(b) The character and depth of the formation passed through or encountered;

(c) The depth at which water is encountered;

(d) The static water level of the completed well;

(e) A copy of the record of pumping test, if any; and

(f) The construction or reconstruction details of the completed water well including lengths and sizes of casing, length and size of perforations or screens, and length and size of gravel packing; [and]

(g) The amount, type and placement of plug materials used in plugging a water well.

A water sample shall be furnished to the secretary, upon request, within thirty (30) days after completion of such well unless an extension of time is granted by the secretary, in which case, the sample shall be furnished to the secretary within such extended period of time. The well logs and a copy of the water quality analysis shall be transmitted by the secretary to the state geological survey and kept on file by the survey and be available to the public.

History: L. 1973, ch. 417, § 12; L. 1974, ch. 352, § 180; L. 1979, ch. 334, § 7. July 1.

82a-1213. Abandoned holes; plugging; failure to properly seal. All holes drilled in search of a water supply and abandoned, shall be properly plugged by the drilling contractor in accordance with rules and regulations established by the secretary in order to assure adequate and proper plugging of abandoned wells to prevent pollution of existing groundwater. Any contractor who fails to properly seal any exploratory wells drilled in search of a water supply and abandoned by him or her shall be subject to the penalties set out in this act. All unplugged abandoned water wells shall be plugged or caused to be plugged by the landowner in accordance with rules and regulations established by the secretary in order to assure adequate and proper plugging of abandoned water wells to prevent pollution to existing groundwater supplies, except that no unplugged abandoned water well existing on the effective date of this act which is not polluting or threatening to pollute a groundwater supply shall be required to be plugged.

History: L. 1973, ch. 417, § 13; L. 1974, ch. 352, § 181; L. 1979, ch. 334, § 8; July 1.

82a-1214. Penalty for violations of act; enforcement of act. Any person who shall willfully violate any lawful rule or regulation of the secretary relating to water well contracting, or who shall engage in the business of constructing, reconstructing or treating water wells without first having obtained a license as in this act required, or who shall knowingly violate any provisions of this act, shall be guilty of a class B misdemeanor and subject to the penalties therefore as provided by

law. In addition the secretary of health and environment is hereby authorized to apply to the district court for enforcement of this act or rules and regulations adopted under this act in accordance with the provisions of the act for judicial review and civil enforcement of agency actions.

History: L. 1973, ch. 417, § 14; L. 1974, ch. 352, § 182; L. 1979, ch. 335, § 1; L. 1984, ch. 313, § 150; July 1, 1985.

82a-1215. Severability. If any word, phrase, sentence or provision of this act is determined to be invalid, such invalidity shall not affect the other provisions of this act and they shall be given effect without the invalid provision, and to this end the provisions of this act are declared to be severable.

History: L. 1973, ch. 417, § 15; July 1.

82a-1216. Civil penalties and orders; appeals; disposition of penalties.

(a) Any person who violates any provision of the Kansas groundwater exploration and protection act, any rules or regulations adopted thereunder or any order issued by the secretary thereunder shall incur in addition to other penalties provided by law, a civil penalty not to exceed $5,000 for each violation. In the case of a continuing violation every day such violation continues shall be deemed a separate violation.

(b) The secretary of the department of health and environment or the director of the division of environment, if designated by the secretary, upon a finding that a person has violated any provision of Kansas groundwater exploration and protection act, or any order issued or rule or regulation adopted thereunder, may:

(1) Issue a written order requiring that necessary remedial or preventive action be taken within a reasonable time period;

(2) assess a civil penalty for each violation within the limits provided in this section which shall constitute an actual and substantial economic deterrent to the violation for which is assessed; or

(3) both issue such order and assess such penalty. The order shall specify the provisions of the act or rules or regulations alleged to be violated and the facts constituting each violation. Such order shall include the right to a hearing. Any such order shall become final unless, within 15 days after service of the order, the person named therein shall request in writing a hearing by the secretary. If a hearing is requested, the secretary shall notify the alleged violator or violators of the date, place and time of the hearing.

(c) No civil penalty shall be imposed under this section except after notification by issuance and service of the written order and hearing, if a

hearing is requested, in accordance with the provisions of the Kansas administrative procedure act.

(d) Any person aggrieved by an order of the secretary made under this section may appeal such order to the district court in the manner provided by the act for judicial review and civil enforcement of agency actions.

(e) Any penalty recovered pursuant to the provisions of this section shall be remitted to the state treasurer, deposited in the state treasury and credited to the state general fund.

(f) Nothing in this act shall be construed to abridge, limit or otherwise impair the right of any person to damages or other relief on account of injury to persons or property and to maintain any action or other appropriate proceeding therefor.

History: L. 1989, ch. 311, § 2; July 1.

82a-1217. Restraining orders and injunctions; proof required.

(a) Notwithstanding the existence or pursuit of any other remedy, the secretary may maintain, in the manner provided by the act for judicial review and civil enforcement of agency actions, an action in the name of the state of Kansas for injunction or other process against any person to restrain or prevent any violation of the provision of the Kansas groundwater exploration and protection act or of any rules and regulations adopted thereunder.

(b) In any civil action brought pursuant to this section in which a temporary restraining order, preliminary injunction or permanent injunction is sought, it shall be sufficient to show that a violation of the provisions of this act or the rules and regulation adopted thereunder has occurred or is imminent. It shall not be necessary to allege or prove at any stage of the proceeding that irreparable damage will occur should the temporary restraining order, preliminary injunction or permanent injunction not be issued or that the remedy at law is inadequate.

History: L. 1989, ch. 311, § 3; July 1.

82a-1218. Application of penalties to sand and well point wells, exception.

(a) The provisions of K.S.A. 82a-1216 and 82a-1217 shall not apply with respect to any sand point or well point which is used for domestic purposes, or the reconstruction, replacement or treatment thereof, and which has not been abandoned, until the secretary adopts minimum standards for the construction, reconstruction, treatment and plugging of sand points or well points, except that a temporary restraining order, preliminary injunction or permanent injunction may be obtained pursuant to K.S.A. 82a-1217 if a health hazard is shown to exist or to be imminent.

History: L. 1989, ch. 311, § 4; July 1.

82a-1219 Act supplemental to Kansas groundwater exploration and protection act. K.S.A. 82a-1216, 82a-1217 and 82a-1218 shall be part of and supplemental to the Kansas groundwater exploration and protection act.

History: L. 1989, ch. 311, § 5; July 1.

STATE OF KANSAS

ARTICLE 30
WATER WELL CONTRACTOR'S LICENSE; WATER WELL CONSTRUCTION

EFFECTIVE MAY 20, 2011

Bureau of Water - Geology Section
1000 S. W. Jackson St., Ste. 420
Topeka, Kansas 66612-1367
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Effective May 20, 2011

ARTICLE 30--WATER WELL CONTRACTOR'S LICENSE WATER WELL CONSTRUCTION AND ABANDONMENT

This article regulates the construction, reconstruction, treatment and plugging of water wells and sets forth procedures for the licensing of water well contractors as required by K.S.A. 82a-1201 to 82a-1215 and amendments thereto.

28-30-1. (Authorized by K.S.A. 1979 Supp. 82a-1202, 82a-1205; effective E-74-34, July 02, 1974; modified, L. 1975, ch. 481, May 01, 1975; revoked May 01, 1980)

28-30-2. Definitions.

(a) "License" means a document issued by the Kansas Department of Health and Environment to qualified persons making application therefore, authorizing such persons to engage in the business of water well contracting.

(b) "Department" means the Kansas Department of Health and Environment.

(c) "Abandoned Water Well" means a water well determined by the department to be a well;

(1) whose use has been permanently discontinued;

(2) in which pumping equipment has been permanently removed;

(3) which either is in such a state of disrepair that it cannot be used to supply water, or it has the potential for transmitting surface contaminants into the aquifer or both;

(4) which poses potential health and safety hazards; or

(5) which is in such a condition it cannot be placed in active or inactive status.

(d) "Water well contractor" or "contractor" means any individual, firm, partnership, association, or corporation who constructs, reconstructs, or treats a water well. The term shall not include:

(1) an individual constructing, reconstructing or treating a water well located on land owned by the individual, when the well is used by the individual for farming, ranching, or agricultural purposes or for domestic purposes at the individual's place of abode; or

(2) an individual who performs labor or services for a licensed water well contractor at the contractor's direction and under the contractor's supervision.

(e) "Aquifer" means an underground formation that contains and is capable of transmitting groundwater.

(f) "Confined aquifer" is an aquifer overlain and underlain by impermeable layers. Groundwater in a confined aquifer is under pressure greater than atmospheric pressure and will rise in a well above the point at which it is first encountered.

(g) "Unconfined aquifer" is an aquifer containing groundwater at atmospheric pressure. The upper surface of the groundwater in an unconfined aquifer is the water table.

(h) "Domestic uses" means the use of water by any person or family unit or household for household purposes, or for the watering of livestock, poultry, farm and domestic animals used in operating a farm, or for the irrigation of lands not exceeding a total of two acres in area for the growing of gardens, orchards and lawns.

(i) "Public water-supply well" means a well that:

(1) provides groundwater to the public for human consumption; and

(2) has at least 10 service connections or serves an average of at least 25 individuals daily at least 60 days out of the year.

(j) "Groundwater" means the part of the subsurface water which is in the zone of saturation.

(k) "Grout" means cement grout, neat cement grout, bentonite clay grout or other material approved by the department used to create a permanent impervious watertight bond between the casing and the undisturbed formation surrounding the casing or between two or more strings of casing.

(1) "Neat cement grout" means a mixture consisting of one 94 pound bag of portland cement to five to six gallons of clean water.

(2) "Cement grout" means a mixture consisting of one 94 pound bag of portland cement to an equal volume of sand having a diameter no larger than 0.080 inches (2 millimeters) to five to six gallons of clean water.

(3) "Bentonite clay grout" means a mixture consisting of water and commercial grouting or plugging sodium bentonite clay containing high solids such as that manufactured under the trade name of "volclay grout", or an equivalent as approved by the department.

(A) The mixture shall be as per the manufacturer's recommendations to achieve a weight of not less than 9.4 pounds per gallon of mix. Weighting agents may be added as per the manufacturer's recommendations.

(B) Sodium bentonite pellets, tablets or granular sodium bentonite may also be used provided they meet the specifications listed in paragraph (k)(3) of this regulation.

(C) Sodium bentonite products that contain low solids, are designed for drilling purposes, or that contain organic polymers shall not be used.

(l) "Pitless well adapter or unit" means an assembly of parts installed below the frost line which will permit pumped groundwater to pass through the wall of the casing or extension thereof and prevent entrance of contaminants.

(m) "Test hole" or "hole" means any excavation constructed for the purpose of determining the geologic, hydrologic and water quality characteristics of underground formations.

(n) "Static water level" means the highest point below or above ground level which the groundwater in the well reaches naturally.

(o) "Annular space" means the space between the well casing and the well bore or the space between two or more strings of well casing.

(p) "Sanitary well seal" is a manufactured seal installed at the top of the well casing which, when installed, creates an airtight and watertight seal to prevent contaminated or polluted water from gaining access to the groundwater supply.

(q) "Treatment" means the stimulation of production of groundwater from a water well, through the use of hydrochloric acid, muratic acid, sulfamic acid, calcium or sodium hypochlorite, polyphosphates or other chemicals and mechanical means, for the purpose of reducing or removing iron and manganese hydroxide and oxide deposits, calcium and magnesium carbonate deposits and slime deposits associated with iron or manganese bacterial growths which inhibit the movement of groundwater into the well.

(r) "Reconstructed water well" means an existing well that has been deepened or has had the casing replaced, repaired, added to or modified in any way for the purpose of obtaining groundwater.

(s) "Pump pit" means a watertight structure which:

(1) is constructed at least two feet away from the water well and below ground level to prevent freezing of pumped groundwater; and

(2) houses the pump or pressure tank, distribution lines, electrical controls, or other appurtenances.

(t) "Grout tremie pipe" or "grout pipe" means a steel or galvanized steel pipe or similar pipe having equivalent structural soundness that is used to pump grout to a point of selected emplacement during the grouting of a well casing or plugging of an abandoned well or test hole.

(u) "Uncased test hole" means any test hole in which casing has been removed or in which casing has not been installed.

(v) "Drilling rig registration license number" means a number assigned by the department which is affixed to each drilling rig operated by or for a licensed water well contractor.

(w) "Active well" means a water well which is an operating well used to withdraw water, or to monitor or observe groundwater conditions.

(x) "Inactive status" means a water well which is not presently operating but is maintained in such a way it can be put back in operation with a minimum of effort.

(y) "Heat pump hole" means a hole drilled to install piping for an earth coupled water source heat pump system, also known as a vertical closed loop system. (Authorized by K.S.A. 1992 Supp. 82a-1205 and implementing K.S.A. 82a-1202, K.S.A. 1992 Supp. 82a-1205, 82a-1213; effective E-74-34, July 02, 1974; modified L. 1975, ch. 481, May 01, 1975; amended May 01, 1980; amended May 01, 1987; amended Nov. 22, 1993.)

28-30-3. Licensing.

(a) Eligibility. To be eligible for a water well contractor's license and applicant shall:

(1) pass an examination conducted by the department; or

(2) meet the conditions contained in subsection (c).

(b) Application and fees.

(1) Each application shall be accompanied by an application fee of $10.00.

(2) Before issuance of a water well contractor's license, each contractor shall pay a license fee of $100.00 plus $25.00 for each drill rig operated by or for the contractor. These fees shall accompany the application and shall be by bank draft, check or money order, payable to the Kansas Department of Health and Environment - Water Well Licensure.

(c) Reciprocity.

(1) Upon receipt of an application and payment of the required fees from a nonresident, the secretary may issue a license, providing the nonresident holds a valid license from another state and meets the minimum requirements for licensing as prescribed in K.S.A. 82a-1207, and any amendments thereto.

(2) If the nonresident application is incorporated, evidence shall be submitted to the Department of Health and Environment showing that the applicant meets the registration requirements of the Kansas Secretary of State.

(3) Nonresident fees for a license shall be equal to the fee charged a Kansas contractor by the applicant's state of residence but shall not be less than $100.00. The application fee and drill rig license fee shall be the same as the Kansas resident fees.

(d) License renewal.

(1) Each licensee shall make application for renewal of license and rig registrations before July 01 of each year by filing the proper renewal forms provided by the department and fulfilling the following requirements:

(A) payment of the annual license fee and a rig registration fee for each drill rig to be operated in the state;

(B) filing of all well records for each water well constructed, reconstructed or plugged by the licensee in accordance with K.S.A. 28-30-4 during the previous licensure period;

(C) filing a report, on a form provided by the department, of all approved continuing education units earned by the licensee during the previous licensure period;

(D) satisfying the continuing education requirements set forth in subsection (g); and

(E) providing any remaining outstanding information or records requested that existed prior to the issuance of revocation of a license.

(2) Failure to comply with paragraphs (A), (B), (C), (D) and (E) above shall be grounds to revoke the existing license and terminate the license renewal process.

(e) Water well construction fee. A fee of $5.00 shall be paid to the Kansas Department of Health and Environment, either by bank draft, check or money order, for each water well constructed by a licensed water well contractor. The construction fee shall be paid when the contractor requests the water well record form WWC-5 from the department or shall accompany the water well records submitted on form WWC-5 as required under K.A.R. 28-30-4. No fee shall be required for reconstruction or plugged water wells.

(f) License number. Each drill rig operated by or for a licensed water well contractor shall have prominently displayed thereon the drill rig license number, as assigned by the department, in letters at least two inches in height. Decals, paint, or other permanent marking materials shall be used.

(g) Continuing education requirements. Licensed water well contractors shall earn at least eight units of approved continuing education per year beginning with the first full year of licensure or the renewal period. One unit of continuing education shall equal 50 minutes of approved instruction except for trade shows and exhibitions which shall be counted as one unit per approved trade show and exhibition attended. (Authorized by K.S.A. 1992 Supp. 82a-1205; implementing K.S.A. 82a-1202, K.S.A. 1992 Supp. 82a-1205, 82a-1206, 82a-1207, 82a-1209; effective, E-74-34, July 02, 1974; effective May 01, 1975; amended May 01, 1980; amended May 01, 1983; amended May 01, 1987; amended Nov. 22, 1993.)

28-30-4. General operating requirements.

(a) *Water well record*. Within 30 days after construction or reconstruction of a water well, the water well contractor shall submit a report of such work, to the Kansas Department of Health and Environment and the landowner, on the water well record form, form WWC-5, provided by the department. The contractor shall report to the department and to the landowner on the water well record or attachments made thereto any polluted or other noncompliant conditions which the contractor was able to correct and any conditions which the contractor was unable to correct. The contractor shall report to the department and the landowner the plugging of any abandoned water well. The report shall include the location, landowner's name, method, type of material, its placement and amount used to plug the abandoned water well.

A landowner who constructs, reconstructs, or plugs a water well, which will be or was, used by the landowner for farming, ranching or agricultural purposes or is located at the landowner's place of abode, shall submit a water well record, on Form WWC-5, of such work to the department within 30 days after the construction, reconstruction or plugging of the water well. No fee shall be required from the landowner for the record.

(b) *Artificial recharge and return*. The construction of artificial recharge wells and freshwater return wells shall comply with all applicable rules and regulations of the department.

(c) *Well tests*. When a pumping test is run on a well, results of the test shall be reported on the water well record, form WWC-5, or a copy of the contractor's record of the pumping test shall be attached to the water well record.

(d) *Water samples*. Within 30 days after receipt of the water well record, form WWC-5, the department may request the contractor, or landowner who constructs or reconstructs his or her own water well, to submit a sample of water from the well for chemical analysis. Insofar as is possible, the department will define in advance areas from which well water samples are required. (Authorized by K.S.A. 82a-1205, and implementing K.S.A. 82a-1202, 82a-1205, 82a-1212, 82a-1213; effective, E-74-34, July 02, 1974; modified, L. 1975, ch. 481, May 01, 1975; amended May 01, 1980; amended May 01, 1987.)

28-30-5. Construction regulations for public water supply and reservoir sanitation zone wells. All activities involving public water supply wells and wells located in reservoir sanitation zones shall conform to existing statues, and rules and regulations, of the Kansas Department of Health and Environment, including K.A.R. 28-10-100, 28-10-101, 28-15-16. (Authorized by K.S.A. 82a-1205; implementing K.S.A. 82a-1202, 82a-1205; effective, E-74-34, July 02, 1974; effective May 01, 1975; amended May 01, 1980; amended May 01, 1983; amended May 01, 1987.)

28-30-6 Construction regulations for all wells not included under section 28-30-5.

(a) each water well shall be so located as to minimize the potential for contamination of the delivered or obtained groundwater and to protect the groundwater aquifers from pollution and contamination.

(b) Grouting:

(1) Construction or reconstructed wells shall be sealed by grouting the annular space between the casing and the well bore from ground level to a minimum of 20 feet or to a minimum of five feet into the first clay or shale layer, if one is present, whichever is greater. If a pitless well adapter or unit is being installed, the grouting shall start below the junction of the pitless well adapter or unit where it attaches to the well casing and shall continue a minimum of 20 feet below this point, or to a minimum of five feet into the first clay or shale layer, whichever is greater.

(2) To facilitate grouting, the grouted interval of the well bore shall be drilled to a minimum diameter at least three inches greater than the maximum outside diameter of the well casing. If a pitless well adapter or unit is being installed on the well's casing, the well bore shall be a minimum diameter of at least three inches greater than the outside maximum diameter of the well casing through the grouted interval below the point where the pitless well adapter or unit attaches to the well casing.

(c) If groundwater is encountered at a depth less than the minimum grouting requirement, the grouting requirement may be modified to meet local conditions if approved by the department.

(d) Waters from two or more separate aquifers shall be separated from each other in the bore hole by sealing the bore hole between the aquifers with grout.

(e) The well casing shall terminate not less than one foot above the finishing ground surface. No casing shall be cut off below the ground surface except to install a pitless well adapter unit, which shall extend at least 12 inches above the ground surface. No opening shall be made through the well casing except for installation of a pitless well adapter designed and fabricated to prevent soil, subsurface and surface water from entering the well.

(f) Well vents shall be used and shall terminate not less than one foot above the ground surface and shall be screened with brass, bronze, copper screen or other screen materials approved by the department which are 16-mesh or greater and turned down in a full 180 degree return bend so as to prevent the entrance of contaminated materials.

(g) Prior to completion of a constructed or reconstructed well, the well shall be cleaned of mud, drill cuttings and other foreign matter so as to make it suitable for pump installations.

(h) Casing. All wells shall have durable watertight casing from at least one foot above the finished ground surface to the top of the producing zone of the aquifer. The watertight casing shall extend not less than 20 feet below the ground level. Exceptions to either of the above requirements may be granted by the department if warranted by local conditions. The casing shall be cleaned and serviceable and of a type to guarantee reasonable life so as to insure adequate protection to the aquifer or aquifers supplying the groundwaters. Used, reclaimed, rejected,

or contaminated pipe shall not be used for casing any well. All water well casing shall be approved by the department.

(i) All wells, when unattended during construction, reconstruction, treatment or repair, or during use as cased test holes, observation or monitoring wells, shall have the top of the well casing securely capped in a watertight manner to prevent contaminating or polluting materials from gaining access to the groundwater aquifer.

(j) During construction, reconstruction, treatment or repair and prior to its first use, all wells producing water for human consumption or food processing, shall be disinfected according to K.A.R. 28-30-10.

(k) The top of the well casing shall be sealed by installing a sanitary well seal.

(l) All groundwater producing zones that are known or suspected to contain natural or manmade pollutants shall be adequately cased and grouted off during construction of the well to prevent the movement of the polluted groundwater to either overlying or underlying fresh groundwater zones.

(m) Toxic materials shall not be used in the construction, reconstruction, treatment or plugging of a water well unless those materials are thoroughly flushed from the well prior to use.

(n) Any pump pit shall be constructed at least two feet away from the water well. The pipe from the pump or pressure tank in the pump pit to the water well shall be sealed in a watertight manner where it passes through the wall of the pump
pit.

(o) Water wells shall not be constructed in pits, basements, garages, or crawl spaces. Existing water wells which are reconstructed, abandoned and plugged in basements shall conform to these rules and regulations except that the finished grade of the basement floor shall be considered ground level.

(p) All drilling waters used during the construction or reconstruction of any water well shall be initially disinfected by mixing with the water enough sodium hypochlorite to produce at least 100 milligrams per liter, mg/l, of available chlorine.

(q) Natural organic or nutrient producing material shall not be used during the construction, reconstruction or treatment of a well unless it is thoroughly flushed from the well and the groundwater aquifer or aquifers before the well is completed. Natural organic or nutrient producing material shall not be added to a grout mix used to grout the well's annular space.

(r) Pump mounting.

(1) All pumps installed directly over the well casing shall be so installed that an airtight and watertight seal is made between the top of the well casing and the gear or pump head, pump foundation or pump stand.

(2) When the pump is not mounted directly over the well casing and the pump column pipe or pump suction pipe emerges from the top of the well casing, a sanitary well seal shall be installed between the pump column pipe and pump suction pipe and the well casing. An airtight and watertight seal shall be provided for the cable conduit when submersible pumps are used.

(s) Construction of sand point or well point water wells. Sand point or well point water wells shall be constructed by drilling or boring a pilot hole to a minimum depth of three feet below ground surface. The pilot hole shall be a minimum of three inches greater in diameter than the drive pipe or point wells shall only be completed by using the casing method or the drive pipe method as described in paragraphs (1) and (2) below or other methods as described in paragraph (3) below. Sand point wells constructed prior to the effective date of this regulation shall not be required to meet these requirements. All sand point wells that are replaced, constructed, reconstructed or plugged after the effective date of this regulation shall meet these regulations.

(1) Casing method. Approved, durable, watertight well casing shall be set from a minimum of three feet below the ground surface to at least one foot above the ground surface. The casing shall be sealed between the casing and the pilot hole with approved grouting material from the bottom of the casing to ground surface. The drive pipe shall be considered the pump drop pipe. For underground discharge completions, a "T" joint shall be used. The drive pipe shall be capped with a solid cap at the "T" joint when the casing method is used. An approved sanitary well seal and a well vent shall be installed on the top of the well casing in accordance with K.A.R. 28-30-6 (f) and (k).

(2) Drive pipe method. Sand point wells may be installed without a casing for above ground discharge completions only. In such completions, the drive pipe shall terminate at least one foot above finished ground level. The annular space between the drive pipe and the pilot hole shall be sealed with approved grouting material from the bottom of the pilot hole to ground surface. The top of the drive pipe shall be sealed airtight and watertight with a solid cap of the same material as the drive pipe. A well vent shall not be required for the drive pipe method.

(3) Other methods. Other methods may be specifically approved by the department on a case-by-case basis by using the appeal procedure included in K.A.R. 28-30-9.

(4) Abandonment of sand point wells. Upon abandonment of a sand point well, the contractor or landowner shall either pull the drive pipe or leave it in place. If the drive pipe is left in place, the sand point well shall be plugged from the bottom of the well to three feet below the ground surface with approved grouting material. The drive pipe well shall be cut off three feet below the ground surface and the remaining three foot deep hole shall be backfilled with surface soil.

If the drive pipe is completely pulled, the remaining hole shall be plugged with approved grouting material from the bottom of the remaining hole to three feet below the ground surface. The hole shall be backfilled with surface soil from 3 feet to ground surface. (Authorized by K.S.A. 1991 Supp. 82a-1205; implementing K.S.A. 82a-1202, K.S.A. 1991 Supp. 82a-1205; effective, E-74-34, July 02, 1974; modified, L. 1975, ch. 481, May 01, 1975; amended May 01, 1980; amended May 01, 1983; amended May 01, 1987; amended June 21, 1993.)

28-30-7. Plugging of abandoned wells, cased and uncased test holes.

(a) All water wells abandoned by the landowner on or after July 01, 1979, and all water wells that were abandoned prior to July 01, 1979 which pose a threat to groundwater supplies, shall be plugged or caused to be plugged by the landowner. In all cases, the landowner shall perform the following as minimum requirements for plugging abandoned wells.

(1) The casing shall be cut off three feet below ground surface and removed.

(2) All wells shall be plugged from bottom to top using volumes of material equaling at least the inside volume of the well.

(3) Plugging top of well:

(A) For cased wells a grout plug shall be placed from six to three feet below ground surface.

(B) For dug wells, the lining material shall be removed to at least five feet below ground surface, and then sealed at five feet with a minimum of six inches of concrete or other materials approved by the department. Compacted surface silts and clays shall be placed over the concrete seal to ground surface.

(4) Any groundwater displaced upward inside the well casing during the plugging operation shall be removed before additional plugging materials are added.

(5) From three feet below ground level to ground level, the plugged well shall be covered over with compacted surface silts or clays.

(6) Compacted clays or grout shall be used to plug all wells from the static water level to six feet below surface.

(7) All sand and gravel used in plugging abandoned domestic or public water supply wells shall be chlorinated prior to placement into a well.

(b) Abandoned wells formerly producing groundwater from an unconfined aquifer shall be plugged in accordance with the foregoing and in addition shall have washed sand, and gravel or other material approved by the department placed from the bottom of the well to the static water level.

(c) Abandoned wells, formerly producing groundwater from confined and unconfined aquifers or in confined aquifers only, shall be plugged according to K.A.R. 28-30-7(a) and by using one of the following additional procedures:

(1) The entire well column shall be filled with grout, or other material approved by the department, by use of a grout tremie pipe.

(2) A 10 foot grout plug shall be placed opposite the impervious formation or confining layer above each confined aquifer or aquifers by use of a grout tremie pipe; and

(A) The space between plugs shall be filled with clays, silts, sand and gravel or grout and shall be placed inside the well so as to prevent bridging.

(B) A grout plug at least 20 feet in length shall be placed with a grout pipe so at least 10 feet of the plug extends below the base of the well casing and at least 10 feet of the plug extends upward inside the bottom of the well casing.

(C) A grout plug at least ten feet in length shall be placed from at least 13 feet below ground level to the top of the cut off casing.

(3) Wells that have an open bore hole below the well casing, and where the casing was not grouted into the well bore when the well was constructed, shall be plugged by (1) or (2) above, except that the top 20 feet of well casing shall be removed or perforated with the casing ripper or similar device prior to plugging. If the well is plugged according to part (2) of this subsection, the screened or perforated intervals below the well casing shall be grouted the entire length by use of a grout tremie pipe.

(d) Plugging of abandoned holes. If the hole penetrates an aquifer containing water with more than 1,000 milligrams per liter, mg/l, total dissolved solids or is in an area determined by the department to be contaminated, the entire hole shall be plugged with an approved grouting material from the bottom of the hole, up to within three feet of the ground surface using a grout tremie pipe or similar method. From three feet below ground surface to ground surface the plugged hole shall be covered over with compacted surface silts or clays; otherwise, the hole shall be plugged in accordance with the following paragraphs.

(1) Plugging of abandoned cased test holes. The casing shall be removed if possible and the abandoned test hole shall be plugged with an approved grouting material from the bottom of the hole, up to within three feet of the ground surface, using a grout tremie pipe or similar method. From three feet below ground surface to ground surface the plugged hole shall be covered over with compacted surface silts or clays.

If the casing cannot be removed, in addition to plugging the hole with an approved grouting material the annular space shall also be grouted as described in K.A.R. 28-30-6 or as approved by the department.

(2) Abandoned uncased test holes, exploratory holes or any bore holes except seismic or oil field related exploratory and services holes regulated by the Kansas Corporation Commission under K.A.R. 82-3-115 through 82-3-117. A test hole or bore hole drilled, bored, cored or augered shall be considered an abandoned hole immediately after the completion of all testing, sampling or other operations for which the hole was originally intended. The agency or contractor in charge of the exploratory or other operations for which the hole was originally intended is responsible for plugging the abandoned hole using the following applicable method, within three calendar days after the termination of testing other operations.

(A) The entire hole shall be plugged with an approved grouting material from bottom of the hole, up to within three feet of the ground surface, using a grout tremie pipe or similar method.

(B) From three feet below ground surface to ground surface the plugged hole shall be covered over with compacted surface silts or clays.

(C) For bore holes of 25 feet or less, drill cuttings from the original hole may be used to plug the hole in lieu of grouting material, provided that an aquifer is not penetrated or the bore hole is not drilled in an area determined by the department to be a contaminated area.

(3) Plugging of heat pump holes drilled for closed loop heat pump systems. The entire hole shall be plugged with an approved grouting material from bottom of the hole, to the bottom of the horizontal trench, using a grout tremie pipe or similar method approved by the department.

(e) Abandoned oil field water supply wells. A water well drilled at an oil or gas drilling site to supply water for drilling activities shall be considered an abandoned well immediately after the termination of the oil or gas drilling operations. The company in charge of the drilling of the oil or gas well shall be responsible for plugging the abandoned water well, in accordance with K.A.R. 28-30-7(a), (b), and (c), within 30 calendar days after the termination of oil and gas drilling operations.

Responsibility for the water well may be conveyed back to the landowner in lieu of abandoning and plugging the well but the well must conform to the requirements for active or inactive status. The transfer must be made through a legal document, approved by the department, advising the landowner of the landowner's responsibilities and obligations to properly maintain the well, including the proper plugging of the well when it is abandoned and no longer needed for water production activities. If a transfer is to be made, the oil or gas drilling company shall provide the department with a copy of the transfer document within 30 calendar days after the termination of oil or gas drilling operations. Within 30 calendar days of the effective date of the transfer of the well the landowner shall notify the department of the intended use and whether the well is in active status or inactive status in accordance with K.A.R. 28-30-7(f).

(f) Inactive status. Landowners may obtain the department's written approval to maintain wells in an inactive status rather than being plugged if the landowner can present evidence to the department as to the condition of the well and as to the landowner's intentions to use the well in the future. As evidence of intentions, the owner shall be responsible for properly maintaining the well in such a way that:

(1) The well and the annular space between the hole and the casing shall have no defects that will permit the entrance of surface water or vertical movement of subsurface water into the well;

(2) the well is clearly marked and is not a safety hazard;

(3) the top of the well is securely capped in a watertight manner and is adequately maintained in such a manner as to prevent easy entry by other than the landowner;

(4) the area surrounding the well shall be protected from any potential sources of contamination within a 50 foot radius;

(5) if the pump, motor or both, have been removed for repair, replacement, etc., the well shall be maintained to prevent injury to people and to prevent the entrance of any contaminant or other foreign material;

(6) the well shall not be used for disposal or injection of trash, garbage, sewage, wastewater or storm runoff; and

(7) the well shall be easily accessible to routine maintenance and periodic inspection.

The landowner shall notify the department of any change in the status of the well. All inactive wells found not to be in accordance with the criteria listed in lines one through seven above shall be considered to be abandoned and shall be plugged by the landowner in accordance with K.A.R. 28-30-7(a) through (c). (Authorized by K.S.A. 82a-1205; implementing K.S.A. 82a-1202, 82a-1205, 82a-1212, 82a-1213; effective, E-74-34, July 02, 1974; modified, L. 1975, ch. 481, May 01, 1975; amended May 01, 1980; amended May 01, 1983; amended May 01, 1987.)

28-30-8. Pollution sources. Well locations shall be approved by municipal and county governments with respect to distances from pollution sources and compliance with local regulations. The following minimum standard shall be observed.

(a) The horizontal distances between the well and the potential source of pollution or contamination such as sewer lines, pressure sewer lines, septic tanks, lateral fields, pit privy, seepage pits, fuel or fertilizer storage, pesticide storage, feed lots or barn yards shall be 50 feet or more as determined by the department.

(b) Proper drainage in the vicinity of the well shall be provided so as to prevent the accumulation and ponding of surface water within 50 feet of the well. The well shall not be located in a ravine or any other drainage area where surface water may flow into the well.

(c) When sewer lines are constructed of cast iron, plastic or other equally tight materials, the separation distance shall be 10 feet or more as determined by the department.

(d) All wells shall be 25 feet or more from the nearest property line, allowing public right-of-ways to be counted; however, a well used only for irrigation or cooling purposes may be located closer than 25 feet to an adjoining property where:

(1) such adjoining property is serviced by a sanitary sewer and does not contain a septic tank system, disposal well or other source of contamination or pollution; and

(2) the property to be provided with the proposed well is served by both a sanitary sewer and a public water supply. (Authorized by and implementing K.S.A. 82a-1202, 82a-1205; effective, E-74-34, July 02, 1974; modified, L. 1975, ch. 481, May 01, 1975; amended May 01, 1980; amended May 01, 1987.)

28-30-9. Appeals.

(a) Requests for exception to any of the foregoing rules and regulations shall be submitted to the department in writing and shall contain all information relevant to the request.

(1) Those requests shall specifically set forth why such exception should be considered.

(2) The department may grant exceptions when geologic or hydrologic conditions warrant an exception and when such an exception is in keeping with the purposes of the Kansas groundwater exploration and protection act.

(b) Appeals from the decision of the department shall be made to the secretary, who after due consideration may affirm, reverse or modify the decision of the department. (Authorized by K.S.A. 82a-1205; implementing K.S.A. 82a-1202, 82a-1205; effective, E-74-34, July 02, 1974; effective May 01, 1975; amended May 01, 1980; amended May 01, 1983; amended May 01, 1987.)

28-30-10 Water well disinfection for wells constructed or reconstructed for human consumption or food processing.

(a) Gravel for gravel-packed wells shall be disinfected by immersing the gravel in a chlorine solution containing not less than 200 milligrams per liter, mg/l, of available chlorine before it is placed in the wells annular space.

(b) Constructed or reconstructed wells shall be disinfected by adding sufficient hypochlorite solution to them to produce a concentration of not less than 100 mg/l of available chlorine when mixed with the water in the well.

(c) The pump, casing, screen and pump column shall be washed down with a 200 mg/l available chlorine solution.

(d) All persons constructing, reconstructing, or treating, a water well and removing the pump or pump column, replacing a pump, or otherwise performing an activity which has potential for contaminating or polluting the groundwater supply shall be responsible for adequate disinfection of the well, well system and appurtenances thereto. (Authorized by and implementing K.S.A. 82a-1202, 82a-1205; effective, E-74-34, July 02, 1974; modified, L. 1975, ch. 481, May 01, 1975; amended May 01, 1080; amended May 01, 1987.)

28-30-200. Definitions. In addition to the definitions in K.A.R. 28-30-2, the following definitions shall apply to the Equus Beds groundwater management district no. 2:

(a) "Bedrock" means shale, limestone, sandstone, siltstone, anhydrite, gypsum, salt, or other consolidated rock that can occur at the surface or underlie unconsolidated material.

(b) "Board" means the board of directors constituting the governing body of the Equus Beds groundwater management district no. 2.

(c) "Borehole" means any hole that is drilled, cored, bored, washed, driven, dug, or otherwise excavated, in which the casing and screen have been removed or in which the casing has not been installed.

(d) "Contaminate" means to engage in any act or omission causing the addition or introduction of substances to freshwater in concentrations that alter the physical, chemical, biological, or radiological properties of the freshwater, making the water unfit for beneficial use.

(e) "District" means the Equus Beds groundwater management district no. 2, which is organized for groundwater management purposes pursuant to K.S.A. 82a-1020 et seq., and amendments thereto.

(f) "Fluid" means any material or substance that flows or moves in a semisolid, liquid, sludge, gas, or any other form or state.

(g) "Free-fall" means a method used to place grout in a water well or borehole that meets all of the following conditions:

(1) The total grouting depth below ground level does not exceed 75 feet.

(2) The grouting interval is free of fluids.

(3) The diameter of the water well casing or borehole is sufficient to allow the unobstructed flow of grout throughout the entire grouting interval.

(4) Grout is poured or discharged into the water well or borehole at a controlled rate.

(h) "Fresh groundwater" means water containing not more than 1,000 milligrams of total dissolved solids per liter and 500 milligrams of chloride per liter.

(i) "Grout" has the meaning specified in K.A.R. 28-30-2.

(j) "Grout seal" means grout that is installed, placed, pumped, or injected to create a permanent, impervious watertight bond in a well casing, annular space, geologic unit, or any other apertures or apparatuses associated with a water well or borehole.

(k) "Inactive well" means a water well that meets the following conditions:

(1) Is not operational;

(2) is properly constructed as specified in K.A.R. 28-30-5 or K.A.R. 28-30-6;

(3) is equipped with a watertight seal; and

(4) is maintained in good repair until the water well is returned to service as an active water well.

(l) "Licensed geologist" means a geologist licensed to practice geology in Kansas by the Kansas board of technical professions.

(m) "Licensed professional engineer" means a professional engineer licensed to practice engineering in Kansas by the Kansas board of technical professions.

(n) "Monitoring well" means a water well used to monitor, obtain, or collect hydrologic, geologic, geophysical, chemical, or other technical data pertaining to groundwater, surface water, or other hydrologic conditions.

(o) "Test borehole" means a borehole used to obtain or collect hydrologic, geologic, geophysical, chemical, or other technical data pertaining to groundwater, surface water, or other hydrologic conditions by means of placing sampling, logging, testing, casing, screen, or associated tools or equipment in the borehole for fewer than 30 days. (Authorized by and implementing K.S.A. 2004 Supp. 82a-1028 and K.S.A. 82a-1213; effective P-September 30, 2005)

28-30-201. Plugging operations; notification; report.

(a) All plugging operations shall be supervised by one of the following:

(1) A water well contractor licensed by the department;

(2) a licensed professional engineer or licensed geologist; or

(3) the water well or borehole owner, or the landowner of the property on which the water well or borehole is located.

(b) Each water well or borehole owner, or the landowner of the property on which the water well or borehole is located, shall notify the district within 48 hours before any plugging operations occur.

(c) Within 30 days after the plugging operation is completed, one of the following requirements shall be met:

(1) The water well contractor, licensed professional engineer, or licensed geologist that supervised the water well or borehole plugging operations shall submit a completed report of the work on the department's plugging record form WWC-5P or WWC-5 to the department, the district, and the landowner.

(2) The water well or borehole owner, or the landowner of the property on which the water well or borehole is located, shall submit a completed report of the work on the department's plugging record form WWC-5P or WWC-5 to the department and the district. (Authorized by and implementing K.S.A. 2004 Supp. 82a-1028 and K.S.A. 82a-1213; effective P-September 30, 2005)

28-30-202. Plugging operations for an abandoned water well or borehole; responsibility.

(a) Each water well or borehole shall be considered abandoned if at least one of the following conditions exists:

(1) The water well or borehole was not completed.

(2) The water well or borehole threatens to contaminate fresh groundwater.

(3) The water well or borehole poses a safety or health hazard.

(4) Uncontrolled fluid flow is encountered or present in the water well or borehole.

(5) The use of the water well or borehole has ceased.

(6) The borehole testing, sampling, or other operations are completed within 30 days of completion of the borehole drilling.

(7) The water well or borehole owner has not demonstrated the intention to use the water well or borehole.

(8) The water well can not be maintained in an active or inactive status.

(9) The water well or borehole is not operational or functional for the intended use.

(b) Each water well or borehole owner or the landowner of the property shall plug or cause an abandoned water well or borehole to be plugged as required in subsection (c) of this regulation.

(c) Except as specified in subsection (e), the minimum plugging operations for an abandoned water well or borehole shall include the following:

(1) Before plugging operations begin, the following water well or borehole data shall be recorded as follows:

(A) The legal description of the water well or borehole location, to the nearest 10-acre tract and, if available, the geographic coordinates consisting of the latitude, longitude, and base datum;

(B) the diameter of the water well or borehole;

(C) the static water level; and

(D) the total depth of the water well or borehole.

(2) The materials used to plug a water well or borehole shall be clean, free of defects, properly prepared, and installed according to the manufacturer's specifications.

(3) All plugging material that forms a bridge, entraps air or other fluids, or forms a blockage in the water well or borehole shall be freed or removed before continuing plugging operations.

(4) All pumping, sampling, logging, and related equipment and any other material or debris in the water well or borehole shall be removed from the water well or borehole.

(5) The annular space of the water well shall be grouted as specified in K.A.R. 28-30-203.

(6) Before plugging operations begin and when plugging operations are suspended or interrupted, the opening of the water well or borehole shall be secured to prevent fluids from entering the water well or borehole.

(7) Before placement of any plugging material, the water well or borehole shall be disinfected as specified in K.A.R. 28-30-205.

(8) Except as specified in subsection (d) of this regulation, all of the following minimum grouting requirements shall be met:

(A) The water well or borehole shall be grouted from the bottom to three feet below ground level.

(B) Each water well meeting the requirements of subsection (d) shall be grouted from the top of the sand or gravel plugging material to three feet below ground level.

(C) Grout shall be placed in the water well or borehole using one of the following:

(i) A grout tremie pipe;

(ii) free-fall; or

(iii) a grouting procedure recommended by the grout manufacturer.

(D) Grout shall be allowed to cure as recommended by the grout manufacturer.

(9) Except as required by K.A.R. 28-30-203, the water well casing shall be cut off at a minimum of three feet below land surface and removed.

(10) From three feet below land surface to land surface, the water well or borehole shall be backfilled with clean, compacted topsoil and sloped so that drainage or runoff is directed away from the plugged water well or borehole.

(d) Any water well or borehole owner, landowner of the property, water well contractor, licensed geologist, or licensed professional engineer may utilize coarse sand or fine gravel to plug a water well by filling the water well casing to the static water level or six feet below ground level, whichever is the greater distance below ground level, if both of the following water well conditions are present:

(1) The water well is cased.

(2) The water well is completed in a single unconfined aquifer.

(e) Drill cuttings from the original borehole may be used to plug a borehole that meets all of the following conditions:

(1) The depth of the borehole is less than the highest historical groundwater level.

(2) The depth of the borehole is 25 feet or less below ground level.

(3) The borehole is not located in a contaminated area. (Authorized by and implementing K.S.A. 2004 Supp. 82a-1028 and K.S.A. 82a-1213; effective P-September 30, 2005)

28-30-203. Annular space grouting procedures.

(a) Each water well or borehole owner or landowner of the property with an abandoned water well that was constructed on or after May 1, 1983 shall have the water well's annular space grouted as follows:

(1) From three feet below ground level to a minimum of 20 feet below ground level; or

(2) below the point at which a pitless well adapter attaches to the well casing to a minimum of 20 feet below the pitless well adapter.

(b) The annular space of each abandoned water well in which the water well was constructed before May 1, 1983 shall be grouted as follows:

(1) If the annular space does not contain grout or gravel pack and is free of debris, the grout shall be placed in the annular space in the following manner:

(A) From three feet below ground level to 20 feet below ground level; or

(B) below the point at which a pitless well adapter attaches to the well casing to a minimum of 20 feet below the pitless well adapter.

(2) If the annular space contains gravel pack or other material, all of the following requirements shall be met:

(A) The well casing shall be removed to a depth of four feet below ground level.

(B) The annular space shall be freed of gravel pack, any other material, and fluid from the top of the casing to six feet below the top of the well casing.

(C) The grout shall be placed in the annular space from six feet below the top of the well casing to one foot above the top of the well casing.

(c) From three feet below ground level to ground level, the water well or borehole shall be backfilled with clean, compacted topsoil and sloped so that the drainage or runoff is directed away from the plugged water well or borehole.

(d) If groundwater is encountered at a depth less than the minimum grouting requirement, the annular space grouting requirement may be modified by requesting a variance from the district as specified in K.A.R. 28-30-208. (Authorized by and implementing K.S.A. 2004 Supp. 82a-1028 and K.S.A. 82a-1213; effective P-September 30, 2005)

28-30-204. Inactive well; application; construction and extension.

(a) Each owner of an inactive water well shall meet the following requirements:

(1) Submit a completed, signed, and notarized inactive water well agreement, on a form provided by the district, to the district manager 30 days before placing the well on inactive status. The form shall include a statement that the water well does not pose a public health or safety hazard and does not threaten to contaminate the groundwater;

(2) remove all pumping equipment from the water well;

(3) construct the water well and the annular space as specified in K.A.R. 28-30-6;

(4) seal and maintain the water well and the annular space to prohibit the entrance of surface fluids and materials and the vertical movement of subsurface water into the well and to prevent damage;

(5) post a sign that meets the following conditions within three feet of the water well:

(A) Has a minimum height of three feet above land surface;

(B) is easily visible;

(C) is continually maintained; and

(D) is constructed with the words "Inactive Water Well" and a legal description consisting of the 10-acre tract, section, township, and range description printed legibly; and

(6) securely install a watertight seal or cap on the water well casing opening a minimum of one foot above land surface that consists of one of the following:

(A) Steel plating that is a minimum of 1/4 inch thick and is welded to the casing opening;

(B) a polyvinylchloride cap glued to the water well casing opening, with a minimum standard dimension ratio (SDR) of 21 or less on well casing less than four inches in diameter and a minimum SDR of 26 or less on well casing four or more inches in diameter. The SDR shall be calculated by dividing the casing's outside diameter (OD) by its minimum wall thickness (MWT); or

(C) any other seal or cap that is approved by the district manager.

(b) Each water well owner shall repair all damage to the water well within 30 days, unless the district manager determines that the water well poses a public health or safety hazard, in which case the district manager shall set the time period for fewer than 30 days.

(c) Each water well owner shall notify the district within 30 days after the water well is returned to service as an active water well.

(d) The district manager or a staff member of the district may inspect any inactive water well.

(e) Each water well owner shall be responsible for properly maintaining the water well in the inactive status.

(f) A radius of 50 feet around the inactive well shall be free of contamination.

(g) An inactive water well shall not be used for disposal or injection of any fluids or materials.

(h) Each inactive water well shall be easily accessible for routine maintenance and inspection.

(i) Each water well owner shall notify the district manager of any change in the condition of the water well.

(j) Each inactive water well that does not meet the requirements of these regulations shall be deemed abandoned and shall be plugged in accordance with these regulations.

(k) The expiration date of the inactive water well period may be extended beyond the date authorized in the approved inactive water well agreement or the date of any extension authorized by the district manager, if the water well is in good repair and meets the requirements of these regulations. The extension of time shall not exceed one year beyond the expiration date of the inactive well agreement or the date of any authorized extension.

(l) Each approved inactive water well request and each approved extension of time shall be reported by the district to the department, in writing, within 30 days of approval on a form provided by the district. (Authorized by and implementing K.S.A. 2004 Supp. 82a-1028 and K.S.A. 82a-1213; effective P-September 30, 2005)

28-30-205. Disinfection of an abandoned water well or borehole.

(a) Except at specified in subsection (b), the following minimum quantities of sodium hypochlorite with 5.25 percent to 6.0 percent strength, manufactured under trade names including Clorox, Purex, Sno-White, and Topco, and other bleach products with similar properties, shall be used to disinfect each abandoned water well or borehole:

Water well casing or hole diameter (inches)	Sodium hypochlorite (fluid ounces per foot of water column)
1.25	0.015
1.5	0.023
2	0.041
2.5	0.064
3	0.094
3.5	0.127
4	0.165
5	0.259
6	0.381
8	0.660
10	1.036
12	1.490
14	2.031
16	2.650
18	3.354
24	5.966
30	9.317

(b) Any concentration of sodium hypochlorite not specified in subsection (a) or any combination of calcium hypochlorite may be used to disinfect an abandoned water well or borehole, if a minimum concentration of 100 milligrams of chlorine solution per liter per foot of water column in the water well or borehole is produced. (Authorized by and implementing K.S.A. 2004 Supp. 82a-1028 and K.S.A. 82a-1213; effective P-September 30, 2005.)

28-30-206. Administrative appeal to the board.

(a) Any owner of a water well or borehole or any person whose legal rights, duties, privileges, immunities, or other legal interests are affected by an order issued by the district may request an appeal hearing with the board.

(b) The request for hearing shall be filed with the board within 30 days after service of the order on the owner or owners of the water well or borehole or any person whose legal rights, duties, privileges, immunities, or other legal interests are affected by the order. The request for hearing shall state the basis for requesting a hearing and shall be accompanied by documentation supporting the request.

(c) During the hearing, the board may take into consideration any relevant information or data, including information and data from any person

whose legal rights, duties, privileges, immunities, or other legal interests may be affected by the order.

(d) After consideration of all information and data presented, the board shall issue one of the following:

(1) An order remanding the case to the district manager with instructions for additional investigation; or

(2) a final order that contains findings of fact and conclusions of law.

(e) Within 15 days of the service of a final order, the owner or owners of the water well or borehole or any person whose legal rights, duties, privileges, immunities, or other legal interests are affected may file a written petition for reconsideration to the board. The petition for reconsideration shall state the basis and contain any facts and conclusions of law that are in dispute.

(f) The board shall render a written order denying the petition for reconsideration, granting the petition for reconsideration and modifying the final order, or granting the petition for reconsideration and setting the matter for further proceedings. After further proceedings, the petition for reconsideration may be denied or granted in whole or in part.

(g) Unless clear and convincing evidence is presented to the board, the board shall not render a written order if the order would result in any of the following:

(1) The impairment of an existing groundwater use;

(1) an adverse effect on public health, safety, or the environment;

(3) the threat of groundwater contamination;

(4) an adverse effect on the public interest; or

(5) the impairment of the board's ability to apply and enforce these regulations or the management program specified in K.S.A. 82a-1029, and amendments thereto.

(h) Any owner or owners or any person whose legal rights, duties, privileges, immunities, or other legal interests are affected by a final order or order rendered upon reconsideration may seek judicial review pursuant to the act for judicial review and civil enforcement of agency actions specified in K.S.A. 77-601 et seq., and amendment thereto.

(i) Each order issued by the board shall be mailed to the owner or owners; any person whose legal rights, duties, privileges, immunities, or other legal interests are affected by the order; and the department. Service shall be deemed complete upon mailing. (Authorized by and implementing K.S.A. 2004 Supp. 82a-1028; effective P-September 30, 2005)

28-30-207. Variance; extension of time.

(a) If an individual or party wants a variance from any of the regulations contained in K.A.R. 28-30-200 through K.A.R. 28-30-206 or an extension of time pursuant to K.A.R. 28-30-204, the individual or party shall submit a request, in writing, to the district.

(1) Each request shall include the following:

(A) The name, address, telephone number, and contact person of the individual or party requesting the variance or extension of time;

(B) the specific legal description of the site location to which the variance or extension of time would apply;

(C) the specific regulation from which the variance is sought or the amount of time requested; and

(D) the reason for requesting the variance or extension of time and any supporting data.

(2) A variance or extension of time may be granted by the district manager if the variance or extension is in keeping with the purposes of the Kansas groundwater exploration and protection act and the groundwater management district act.

(c) Each variance or extension of time granted by the district manager shall be reported by the district to the department within 30 days of approval.

(d) Each individual or party who wants an extension of time for the inactive water well period shall submit the request at least 30 days before the expiration date on a form provided by the district. (Authorized by and implementing K.S.A. 2004 Supp. 82a-1028; effective P-September 30, 2005.)

Effective May 01, 1980

Kansas Department of Health and Environment
Approved Water Well Casing
(Authorization K.A.R. 28-30-6(h))

Water Well Casing for Water Wells Other Than Public
Water Supply and Reservoir Sanitation Zone Water Wells

STEEL AND WROUGHT IRON

	Nominal Diameter, (in inches)									
Dept of Casing in Feet	04	06	08	10	12	14	16	18	24	30
	Minimum Wall Thickness*									
0-100	10	10	10	10	10	10	10	10	7	.219
100-200	10	10	10	10	10	7	7	7	.219	.219
200-400	10	10	10	10	7	7	7	.219	.250	.250
400-600	7	7	7	7	7	7	.219	.250	.312	.312
600 +	7	.219	.219	.219	.219	.219	.250	.375	.375	.375

*Decimal numbers indicate thickness in inches. Whole numbers indicate the United States standard gage (10 gage=0.141 inches and 7 gage=.0179 inches.)

Kansas Department of Health and Environment
Approved Water Well Casing
(Authorization K.A.R. 28-30-6(h))

Water Well Casing for Water Wells Other than Public
Water Supply and Reservoir Sanitation Zone Water Wells

THERMAL PLASTIC WATER WELL CASING

For Polyvinyl Chloride (PVC), Styrene Rubber (SR)
which is the same as Rubber Modified Polystyrene (RMP)
and Acrylonitrile - Butadiene Styrene (ABS)

Minimum Wall Thickness (inches) and Tolerances (inches) made in
Standard Dimension Ratios (SDR)

Normal	SDR 26		SDR 21		SDR 17		SDR 13.5	
Pipe Size	Min.	Tol.	Min.	Tol.	Min.	Tol.	Min.	Tol.
2	-----	-----	0.113	0.020	0.140	0.020	0.176	0.021
2.5	-----	-----	0.137	0.020	0.169	0.020	0.213	0.026
3	-----	-----	0.167	0.020	0.206	0.025	0.259	0.031
3.5	-----	-----	0.190	0.023	0.235	0.028	0.296	0.036
4	0.173	0.021	0.214	0.026	0.265	0.032	0.333	0.040
5	0.214	0.027	0.265	0.032	0.327	0.039	0.412	0.049
6	0.255	0.031	0.316	0.038	0.390	0.047	0.491	0.058
8	0.332	0.040	0.410	0.049	0.508	0.061	-------	------
10	0.413	0.050	0.511	0.061	0.632	0.076	-------	------
12	0.490	0.059	0.060	0.073	0.750	0.090	-------	------
14	0.539	0.065						
16	0.616	0.074						

The minimum is the lowest wall thickness of the wall casing pipe at any cross section. All tolerances are on the plus side of the minimum requirement.

State of Kansas

CONSTRUCTING GUIDELINES FOR CLOSED LOOP HEAT PUMP WELL

(1) Casing Material. Permanent casing is needed in a heat pump well, it must meet standards set out by ASTM and the plastic must be grouted full-length of the bore hole.

(A) High Density Polyethylene Pipe. This pipe must be manufactured in accordance with dimensional specifications of **ASTM D-2513** or **ASTM F-714** and have a minimum cell classification of **PR 345434C** or **PE 355434C** when tested under **ASTM D-3350** to be acceptable for use in closed-loop heat pump systems.

(B) Polyethylene Pipe.

This pipe must be manufactured in accordance with ASTM D-2581. The pipe must be -

1. Either Class B (general purpose and dielectric, in colors) or Class C (weather resistance, black in color containing not less than (2%) carbon black);

2. Type II (density, ninety-one thousands to ninety-two (.0091 - .0092) grams per centimeter (g/cm);

3. Grade 1. (flow rate twenty-five thousands to seventy-five thousands (.0025 - .0075) gallons per ten (10) minutes (g/10 min).

(2) Connecting Closed-Loop Pipe.

Polyethylene and polybutylene pipe must be thermally fused according to the pipe manufacture's specifications and must not leak after assembly.

(3) Heat Transfer Fluid.

The fluid used inside the closed-loop assembly must be approved by the department and meet the following standards:

(A) Heat transfer fluids must be composed of-

1. Pure glycerine solutions-glycerine must be ninety-six and one-half percent (96.5%) United States pharmacopeia grade;

2. Food grade propylene glycol;

3. Dipotassium phosphate;

4. Sodium Chloride;

5. Potassium acetate;

6. Methanol;

7. Ethanol; or

8. Other fluids may be used if approved by the department is received in advanced with appropriate documentation.

(B) The fluid as it is used in a diluted state in the closed-loop must have the following properties:

1. Be ninety percent(90%) biodegradable;

2. Demonstrate low corrosion to all materials common to ground source heat pump systems;

3. Have a freezing point that exceeds minus twenty three degrees Celsius (-23°C);

4. Be homogenous, uniform in color, free from lumps, skins and foreign material would be detrimental to the fluid usage;

5. Not have a flash point lower than ninety degrees Celsius (90°C);

6. Not have a five (5)-day biological demand (BOD) at ten degrees Celsius (10°C) that exceeds more than two-tenths (0.2) gram oxygen per gram nor be less than one-tenth (0.1) gram per gram;

7. Not have a toxicity that is less than lethal dose (LD) fifty (50) oral-rats of (5) grams per kilograms; and

8. Show neither separation from exposure to heat or cold, nor show an increase in turbidity; and

(C) While this rule attempts to define antifreeze fluids that will protect the environment, it is the responsibility of the driller to become familiar with safe and proper use of these fluids and to take proper use of these fluids and to take necessary precautions to ensure groundwater protection.

(4) Hole Size.

The hole size for heat pump wells that are grouted full-length with high solids bentonite slurry must be of sufficient size to allow placement of a tremie pipe to emplace the high solids bentonite slurry. The slurry must fill the hole and surround all pipes. Their must be at least one-half inch (½") between the hole and all pipes. If full length high solids bentonite slurry is not used, then the following hole sizes are required.

(A) At least a five inch (5") borehole when the loop pipe is less than one inch (1") in diameter.

(B) At least a six inch (6") borehole when the loop is one and a quarter inch (1¼") or greater in diameter;

(5) Hole Depth.

Closed-loop heat pump wells have no limit as to how far the well bore can be drilled however all formations that are encountered that penetrates an aquifer containing water with more than 1,000 milligrams per liter, (mg/1), total dissolved solids or is in an area determined by the department to be contaminated, the entire hole shall be plugged with an approved cement grout. **A note shall be placed on the WWC-5 well log stating what type of contamination was encountered.**

6) Heat Pump System Design.

The heat pump system that utilizes wells must be designed so that the grout used to seal the wells does not dehydrate because of excessive heat caused by an improperly designed heat system.

(1) Grouting Depth of Vertical Heat Pump Wells

Grouting the annulus of a heat pump well is very important and must be completed immediately after the well is drilled due to cave-in potential. K.A.R 28-30-7 (3) *Plugging of heat pump wells for closed heat pump systems. The entire hole shall be plugged with an approved grouting material from bottom of the hole, to the bottom of the horizontal trench, using a grout tremie or similar method approved by the department.*

(2) Approved Grout Materials.

The following three (3) grout types are permitted for use in heat pump wells;

(A) Neat cement grout, a mixture consisting of one ninety four (94) pound bag of portland cement to five to six gallons of clean water. ASTM-C150, TYPE I

(B) Cement Grout, A mixture consisting of one ninety four (94) pound bag of portland cement to an equal volume of sand having a diameter no larger than 0.080 inches (2 millimeters) to five to six gallons of clean water. ASTM-C150, Type I

(C) Bentonite Clay Grout, a mixture consisting of water and commercial grouting or plugging sodium bentonite clay containing high solids such as that manufactured under a number of trade names of bentonite grout, approved by the department.

1. The mixture shall be as per the manufacture's recommendations to active a weight of not less than nine pounds four ounces (9.4) per gallon of mix. Weighted agents may be added as per manufacture's recommendations.

2. Bentonite hole plug chips will not be allowed.

3. Sodium bentonite products that contain low solids, are designed for drilling purposes, or contain organic polymers shall not be used.

STANDARD MONITORING WELL DESIGN

WELL HEAD PROTECTOR

Steel or PVC cover with water tight cap, set in the concrete pad. Should be equipped with a locking device to prevent tampering. Cover should provide adequate space to allow access to the well.

CONCRETE PAD

Should be a minimum of 2'x 2'x 4" thick to secure the protective cover, prevent pooling of water and vegetative growth around the well, and allow for placement of a surveyor pin.

IMPERVIOUS GROUT

The upper 20' of the well must be grouted with impervious grout as required by K.A.R. 28-30-2k and 6b (see reverse side for quotes)

SCREEN SEAL

A 2' layer of bentonite chips or pellets should be placed on the gravel pack to prevent infiltration of grout into the gravel pack.

GRAVEL PACK

The gravel pack should be sized to prevent infiltration of lines into the well. The source of the gravel pack material should be carefully determined to eliminate the possibility of contamination of the well during construction.

WELL CASING

Well casing shall terminate not less than one foot above ground surface. The following well casings are acceptable for monitoring well use.
2" 1.0. PVC schedule 40 or thicker 4" 1.0. PVC SDR 26 or thicker
5" 1.0. PVC SDR 26 or thicker
Steel casing shall be 10 gauge or thicker

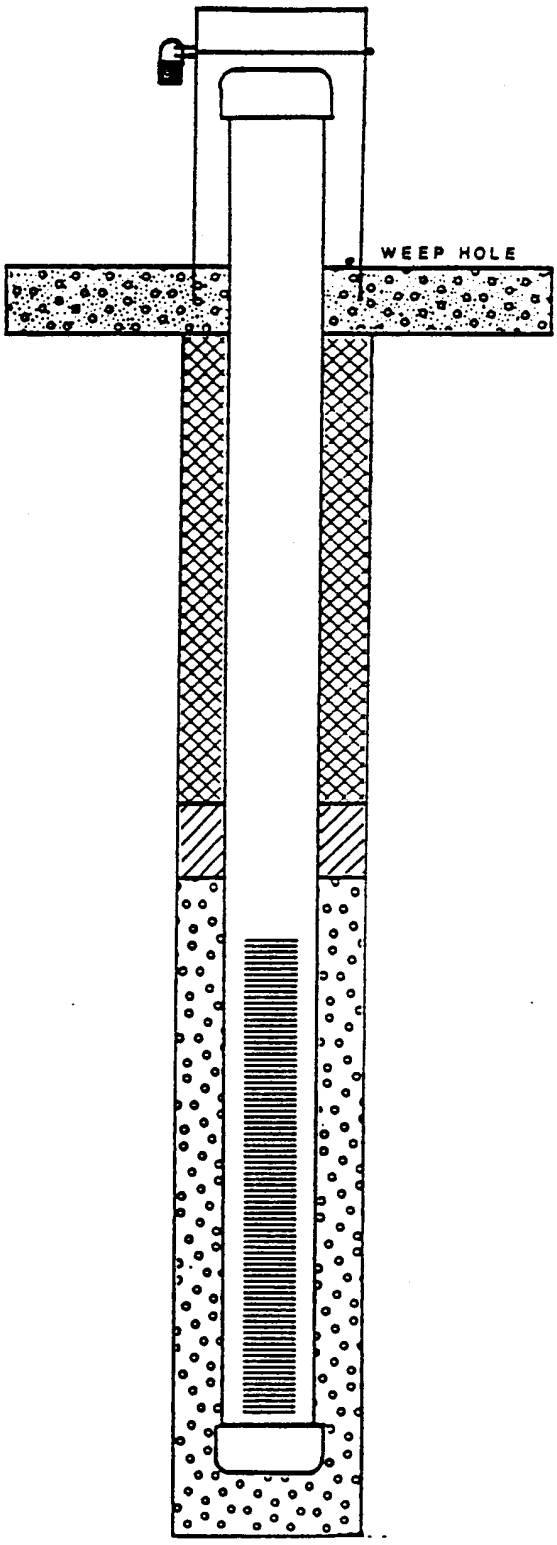
All casing materials must be connected without use of solvents, glues, or materials which would induce contamination into the well.
Some other casings are approved for well construction but are not as commonly used. All casing materials must be selected so that incompatibility problems do not occur.

SCREEN

Wells must be equipped with manufactured well screen which provides adequate communication with the aquifer to provide a representative sample without allowing the sediments to enter the well.

CONTRACTOR LICENSING

All monitoring wells must be constructed by a licensed water well contractor as specified under K.A.R.28-30-3 (see reverse side for quote)



DRAWING NOT TO SCALE

KDHE 5/89

K.A.R 28-30-2 (k) Grout

Grout means cement grout, neat cement grout, bentonite clay grout or other material approved by the department used to create a permanent impervious watertight bond between the casing and the undisturbed formation surrounding the casing or between two or more strings of casing.

(1) "Neat cement grout" means a mixture consisting of one 94 pound bag of portland cement to five to six gallons of clean water.

(2) "Cement grout" means a mixture consisting of one 94 pound bag of portland cement to an equal volume of sand having a diameter no larger than 0.080 inches (2 millimeters) to five to six gallons of clean water.

(3) "Bentonite clay grout" means a mixture consisting of water and commercial grouting or plugging sodium bentonite clay containing high solids such as that manufactured under the trade name of "volclay grout", or an equivalent as approved by the department.

(A) The mixture shall be as per the manufacturer's recommendations to achieve a weight of not less than 9.4 pounds per gallon of mix. Weighing agents may be added as per the manufacturer's recommendations.

(B) Sodium bentonite pellets, tablets or granular sodium bentonite may also be used provided they meet the specifications listed in K.A.R. 28-30-2(k), (3), above.

(C) Sodium bentonite products that contain low solids, are designed for drilling purposes or that contain organic polymers shall not be used.

K.A.R. 28-30-6 (b) Grouting

(1) Constructed or reconstructed wells shall be sealed by grouting the annular space between the casing and the well bore from ground level to a minimum of 20 feet or to a minimum of five feet into the first clay or shale layer, if present, whichever is greater. If a pitless well adapter or unit is being installed, the grouting shall start below the junction of the pitless well adapter or unit where it attaches to the well casing and shall continue a minimum of 20 feet below this junction or to a minimum of five feet into the first clay or shale layer whichever is greater.

(2) To facilitate grouting, the grouted interval of the well bore shall be drilled I to a minimum diameter at least three inches greater than the maximum outside diameter of the I well casing. If a pitless well adapter or unit is being installed on the well's casing, the well bore ; shall be a minimum diameter of at least three inches greater than the junction diameter of the well casing through the grouted interval below the junction of the pitless well adapter or unit where it attaches to the well casing.

(c) If groundwater is encountered at a depth less than the minimum grouting requirement, the grouting requirement may be modified to meet local conditions if approved by the department.

K.A.R. 28-30-3 Licensing

(a) Eligibility. To be eligible for a water well contractor's license an applicant shall:

(1) Have passed an examination conducted by the department; or

(2) meet the conditions contained in subsection (c).

(b) Application fees.

(1) Each application shall be accompanied by an application fee of $10.00.

(2) Before issuance of a water well contractor's license, each contractor shall pay a license fee of $100.00 plus $25.00 for each drill rig operated by or for the contractor. These fees shall accompany the application and shall be by bank draft, check or money order payable to the Kansas department of health and environment - water well licensure.

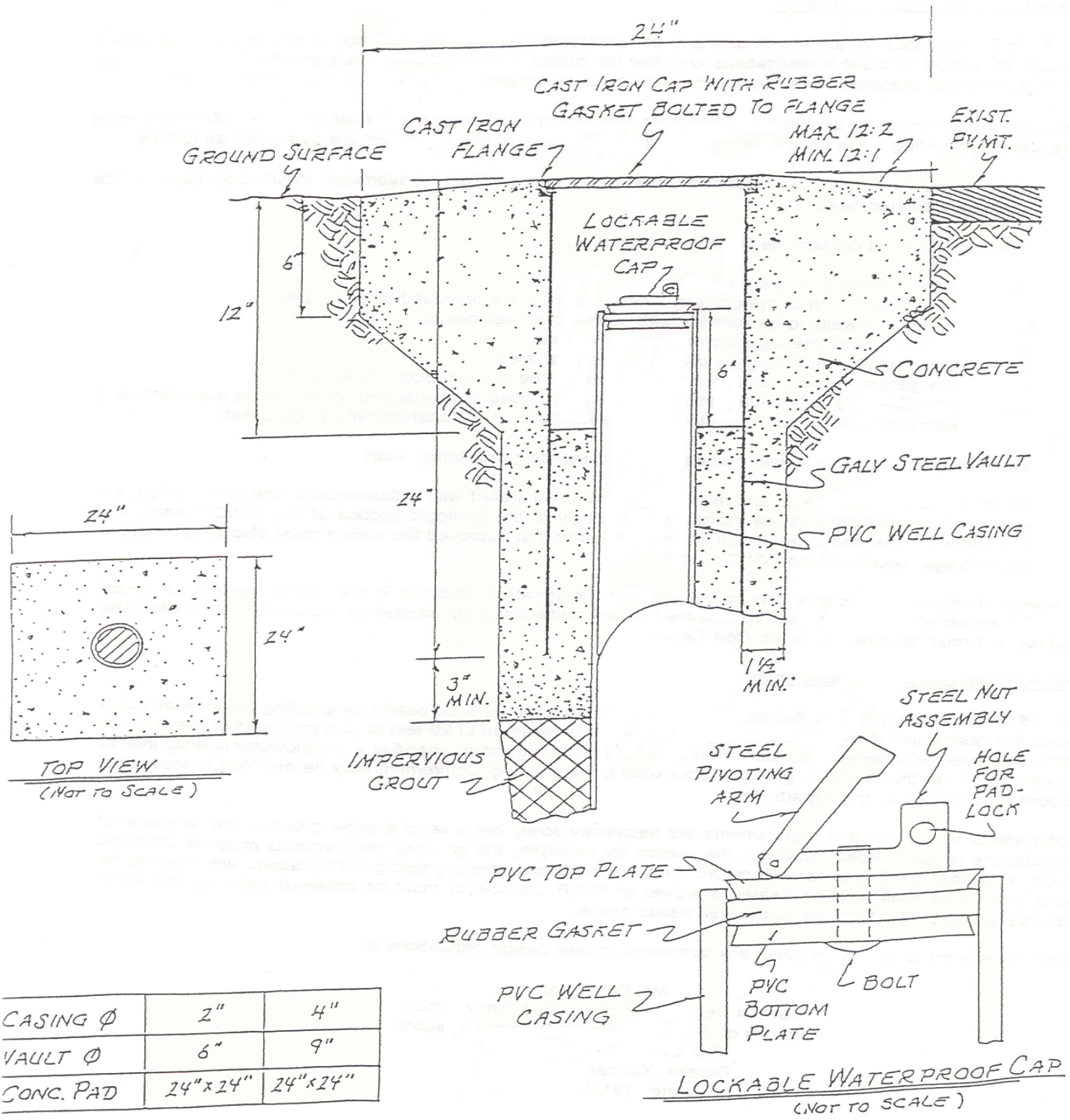
(c) Reciprocity.

(1) Upon receipt of an application and payment of the required fees from a nonresident, the secretary may issue a license, providing the nonresident holds a valid license from another state and meets the minimum requirements for licensing as prescribed in K.S.A. 82a-1207, and any amendments thereto.

(2) If the nonresident applicant is incorporated, evidence shall be submitted to the department of health and environment showing that the applicant meets the registration requirements of Kansas secretary of state.

(3) Nonresident fees for a license shall be equal to the fee charged a Kansas contractor by the applicant's state of residence but shall not be less than S 100.00. The application fee and drill rig license fee shall be the same as the Kansas resident fees.

FLUSH-MOUNT WELL CONSTRUCTION DETAIL
(Not to Scale)



CASING Ø	2"	4"
VAULT Ø	6"	9"
CONC. PAD	24"x24"	24"x24"

SEPT. 10, 1993

MONITORING WELL DESIGN ADDITIONAL INSTRUCTIONS

Flush-Mount Well Head Completion:

K.A.R. 28-30-6(e) does not allow well casing to be terminated less than one foot above finished ground surface. Because state trust fund site investigations are often conducted in areas where completing monitoring well heads above grade is not practical, consideration must be given to completing flush-mount monitoring well heads.

If monitoring wells must be completed with a flush-mount well head design, a waiver of K.A.R. 28-30-6(e) must be requested in writing. The procedures for requesting a waiver of this regulation are described as follows:

Prior to the monitoring well installation, the written request must be submitted to Mr. Richard Harper at the address indicated below.

1. The request must contain the following information:
   a. Facility name and street address;
   b. Legal description of the property where the wells are proposed to be located;
   c. _____1/4_____1/4_____1/4 Sec. _____ Town. _____ Range _____
   d. Number of wells to be installed with flush-mount well heads;
   e. Reason(s) why the regulation should be waived;
   f. Approximate depth to groundwater in the local area;
   g. The general geology or lithologies expected to be encountered in drilling; and
   h. Specifications and/or diagrams of the vault proposed to be installed including the manufacturer's name and any other descriptive information such as a manufacturer's trade sheet.

2. Wait for approval of the waiver request before completing monitoring wells.

3. When waivers are approved and monitoring wells are installed with a flush-mount well head design, the well head completion must be indicated accordingly in the lithologic section of the WWC-5 water well record form. The name of the KDHE contact person that approved the waiver must also be provided in the lithologic section of the WWC-5 form.

4. Kansas licensed water well contractor and number.

Any waiver of regulations applies only to the wells and information indicated in the written request. A verbal request for waiver of regulations may be approved on any additional wells needed for the same area or site. The verbal request must be directed to Mr. Richard Harper.

Monitoring Well Grouting Requirements:

K.A.R. 28-30-6, part (b) requires that constructed or reconstructed wells be sealed by grouting the annular space between the casing and the well bore from ground level to a minimum of 20 feet or to a minimum of five feet into the first clay layer, whichever is greater. Part (c) of the same regulation specifies if groundwater is encountered at a depth less than the minimum grouting requirements, the grouting requirement may be modified to meet local conditions if approved by the department.

If modifications to the grouting requirements are necessary solely because of shallow groundwater, a waiver of the regulations is not needed; however, the reason for modifying the grouting requirements must be indicated accordingly on the WWC-5 water well record form. In situations where grouting modifications are required for reasons other than shallow groundwater, a waive of K.A.R. 28-30-6(b) must be obtained following the same procedures as described for flush-mount well heads above.

Submit requests for waivers and direct any questions on well design regulations to:

Mr. Richard Harper
Kansas Department of Health & Environment
Bureau of Water - Geology Section
1000 S.W. Jackson Street, Suite #420
Topeka, Kansas 66612-1367
Phone: (785) 296-3565

STANDARD CASED TEST HOLE DESIGN

Pipe Specifications

Schedule 40

4" NSF for potable water

O.S.D. 4.5"

Wall thickness 0.237"

Or

SDR 26

4"

Wall thickness 0.173

O.S.D. 4.5"

Hole Diameter

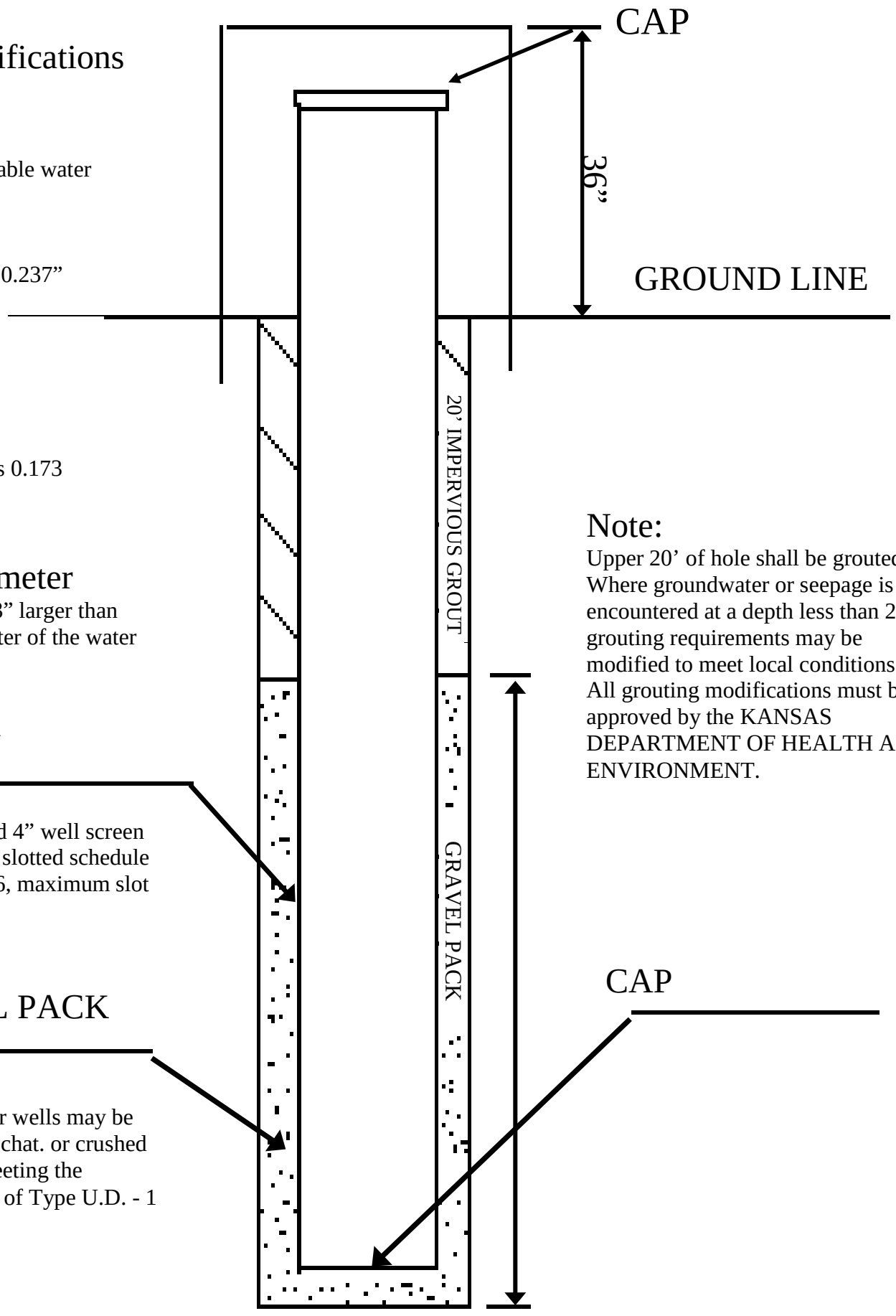
Minimum of 3" larger than outside diameter of the water well casing.

SCREEN

Manufactured 4" well screen or horizontal slotted schedule 40 or SDR 26, maximum slot size 1/8"

GRAVEL PACK

Aggregate for wells may be sand, gravel, chat. or crushed sandstone meeting the requirements of Type U.D. - 1

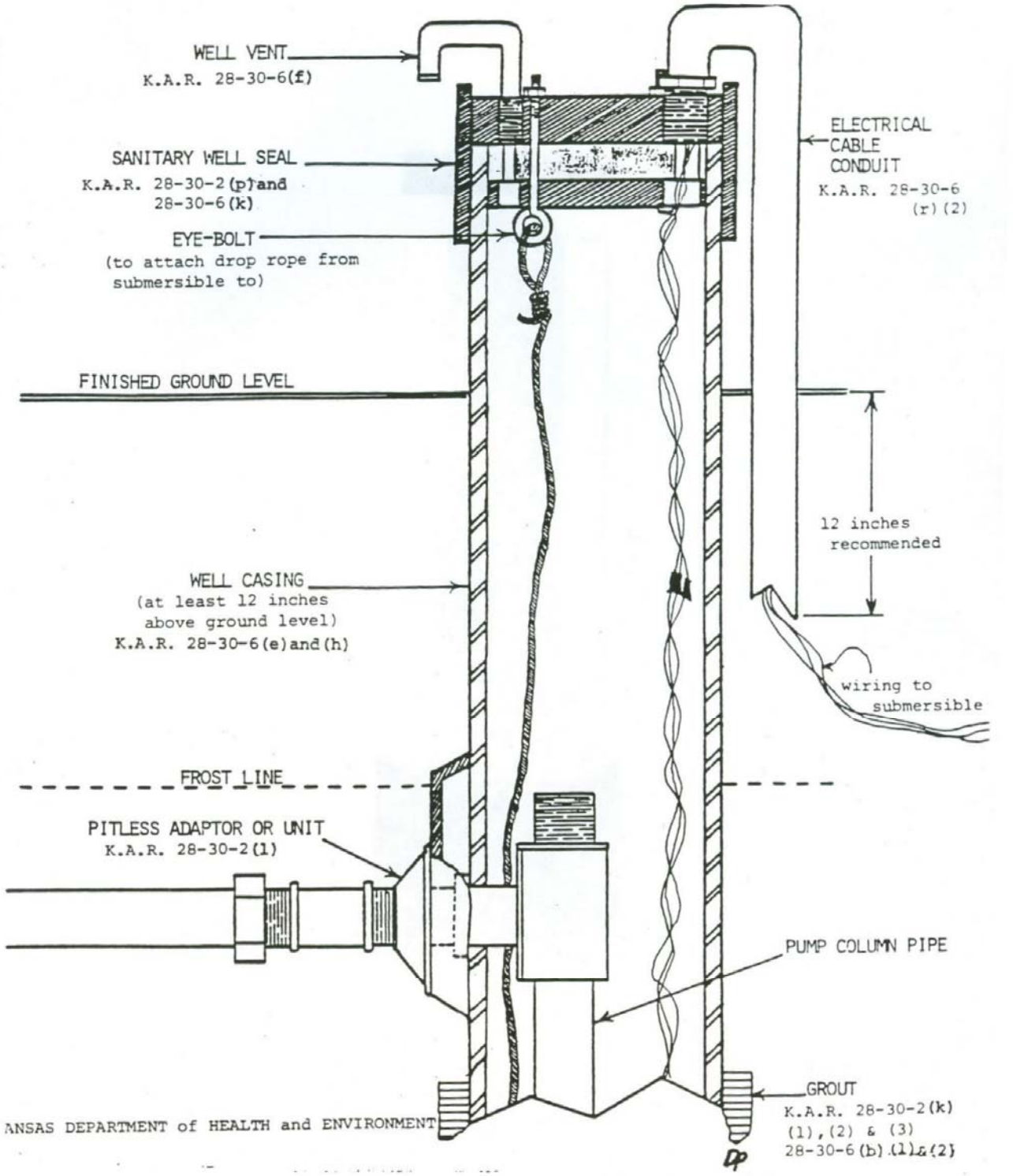


Note:

Upper 20' of hole shall be grouted. Where groundwater or seepage is encountered at a depth less than 20' grouting requirements may be modified to meet local conditions. All grouting modifications must be approved by the KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT.

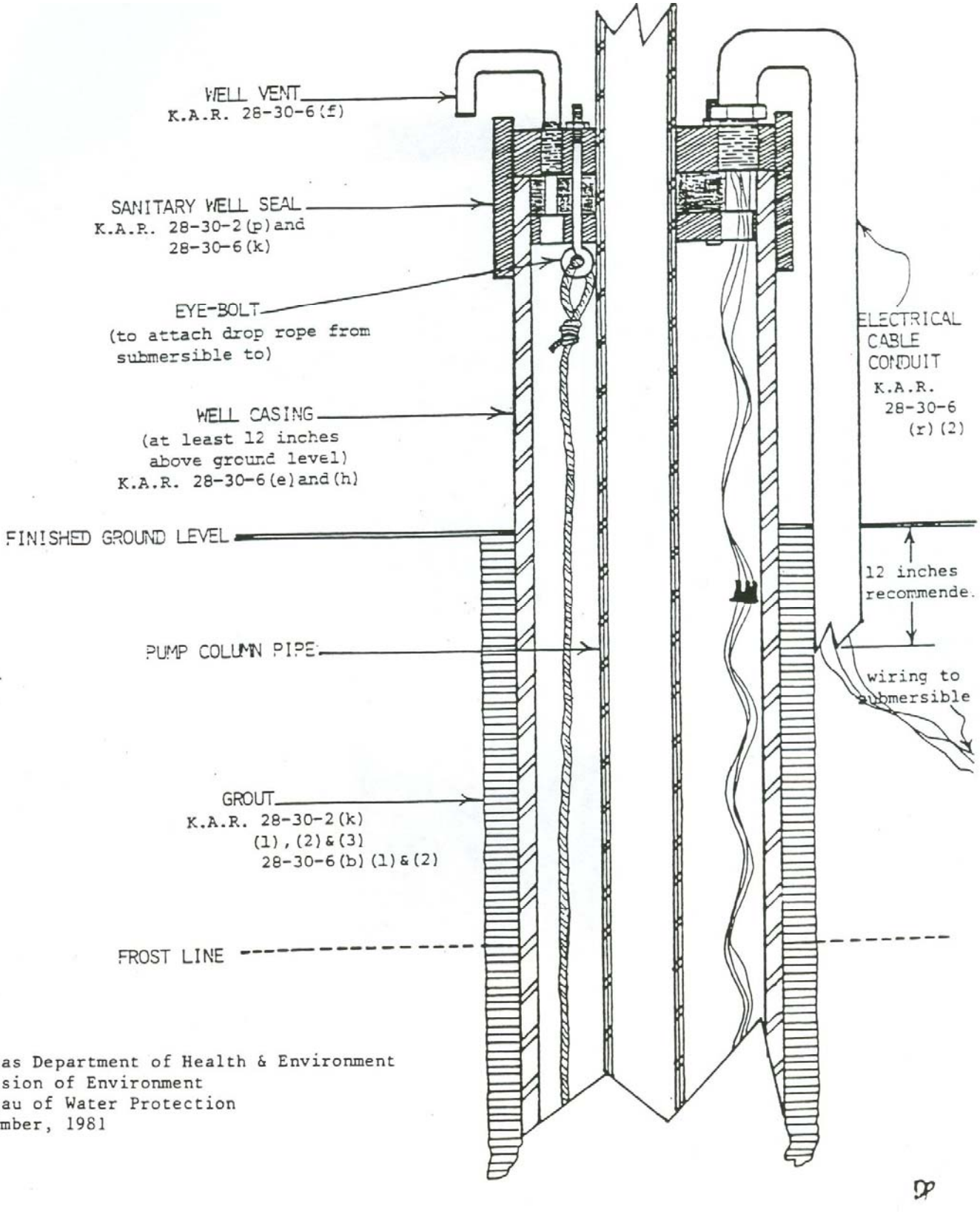
WATER WELL COMPLETION DIAGRAM

USING SUBMERSIBLE PUMP WITH PITLESS



WELL HEAD COMPLETION DIAGRAM

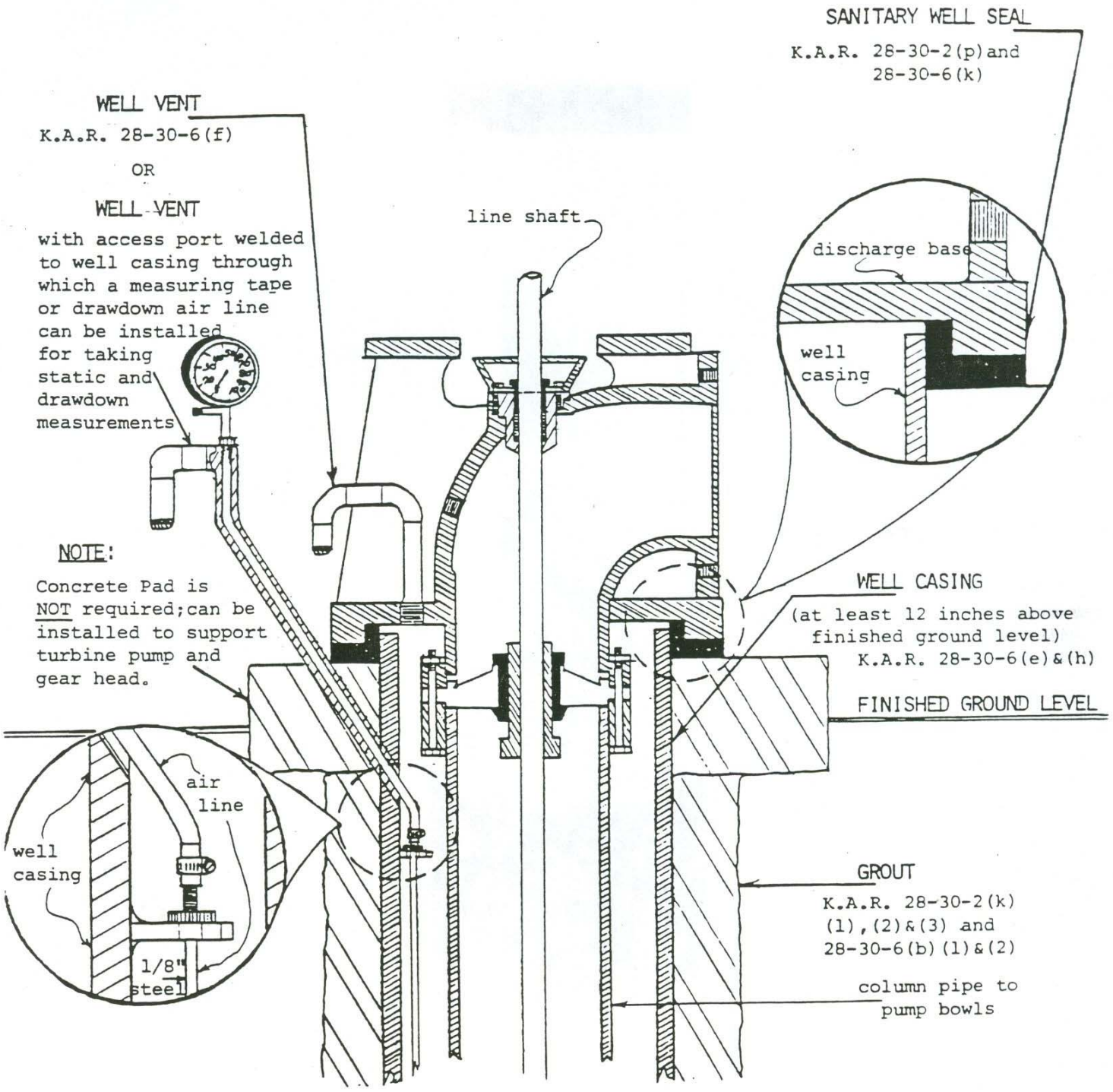
USING SUBMERSIBLE PUMP WITHOUT PITLESS



ansas Department of Health & Environment
ivision of Environment
ureau of Water Protection
ecember, 1981

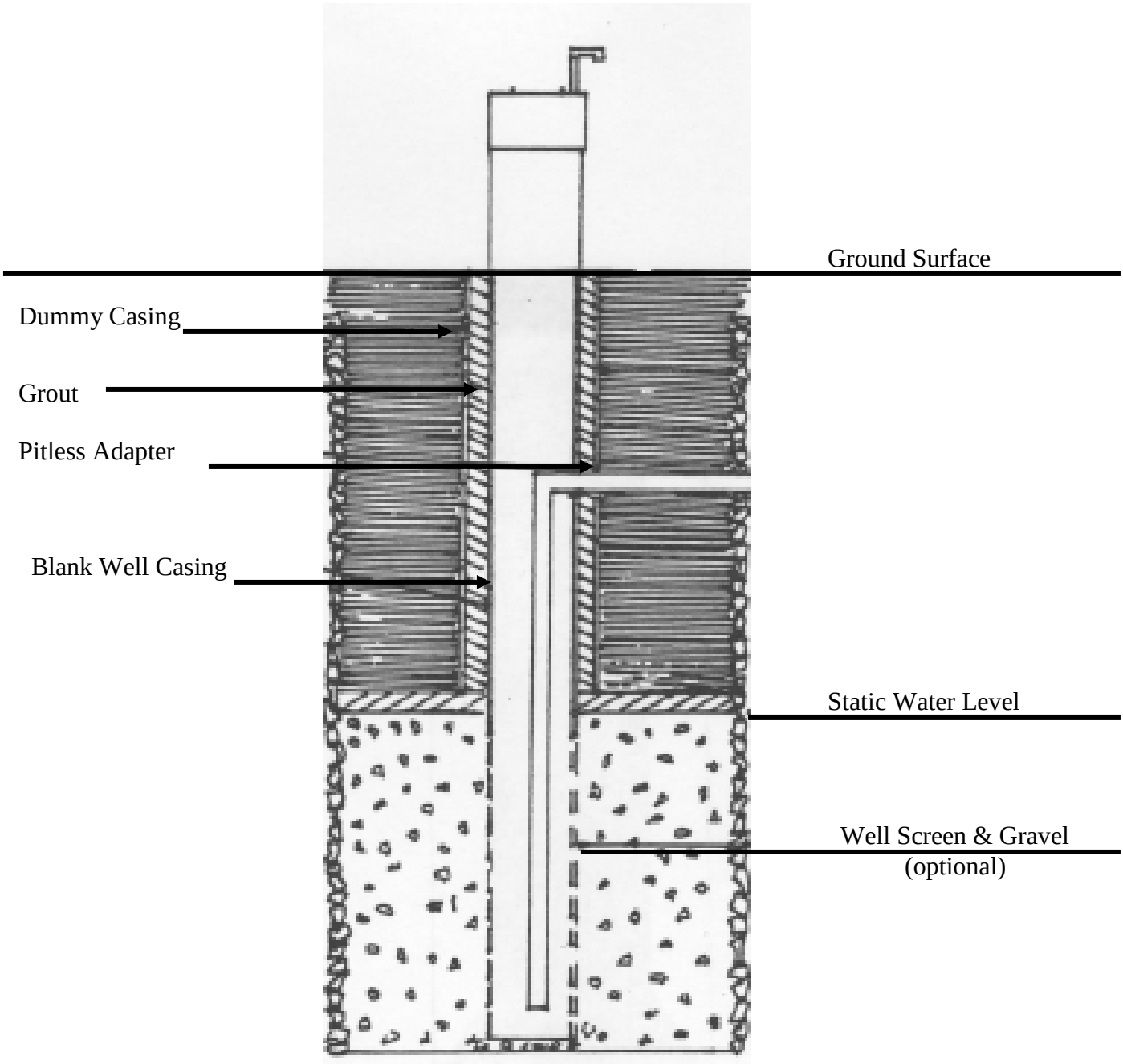
WATER WELL COMPLETION DIAGRAM

IRRIGATION OR INDUSTRIAL WELL U SING ABOVE GROUND DISHCARGE
WITH LINE SHAFT TURBINE PUMP



KANSAS DEPARTMENT of HEALTH & ENVIRONMENT
Division of Environment 042282drp
Bureau of Water Protection

Dug Well Reconstruction

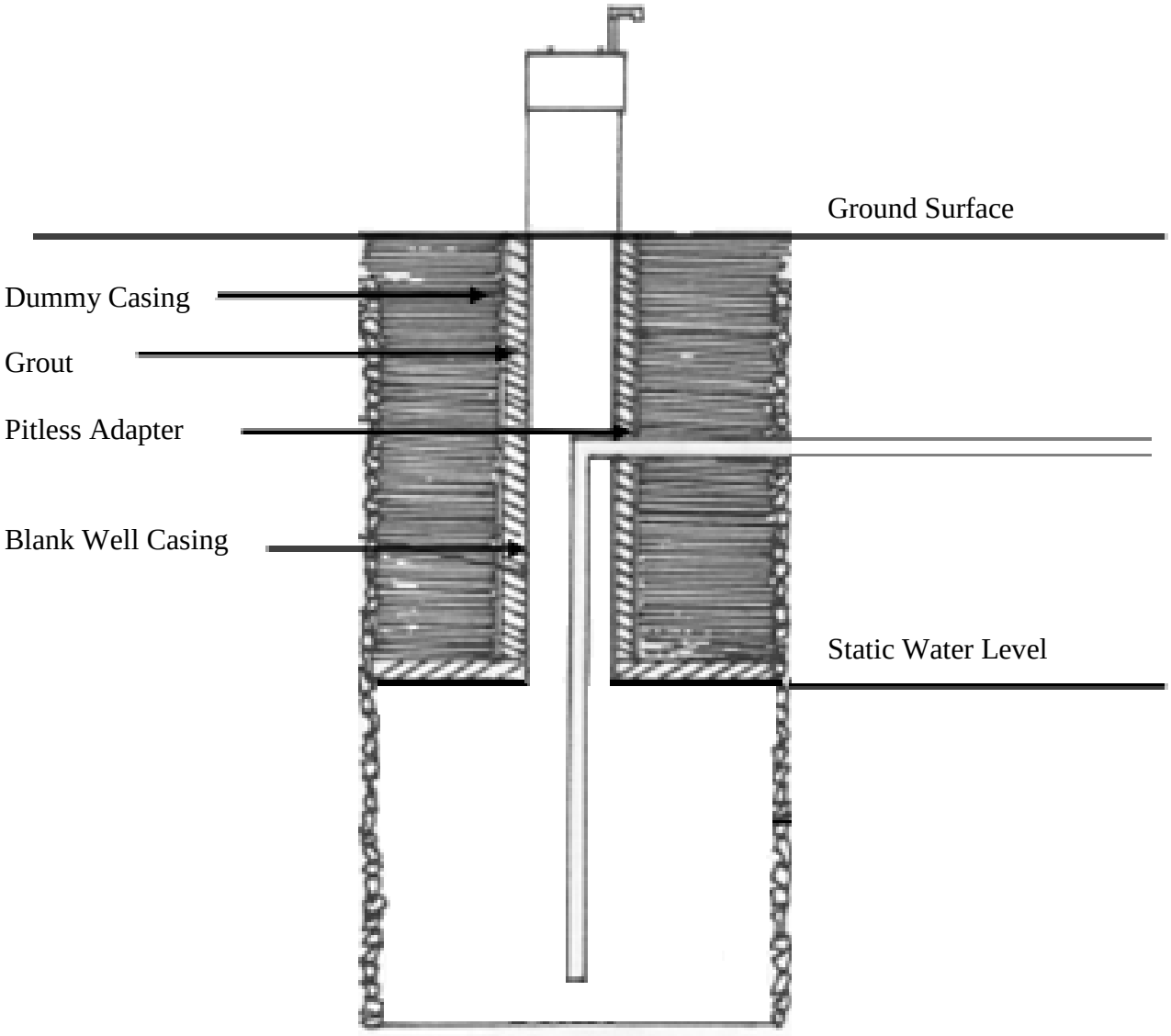


Compacted Clay

Washed Sand & Gravel

Approved Grout Material

Dug Well Reconstruction
(Open Hole)



Compacted Clay

Washed Sand & Gravel

Approved Grout Material

Kansas
Department of Health and Environment

Methods for Chlorinating Private Water Supplies

(1) The well cover should be removed so that fluid can be dumped or pored into the well, if possible the pumping system should remain functional. **Caution must be taken to avoid electrical shock.**

(2) The volume of water contained in the system should be estimated so that the appropriate amount of chlorine bleach can be added. The volume of water in the well, piping, pressure tank, and water heater must be totaled.

a. The volume of the well should be estimated by subtracting the depth of the water inside the well from the total depth of the well. This will tell you how many feet of water are in the well. The attached chart shows how many gallons of water per foot are contained in each different size (diameter) wells.

b. The volume of the water heater and the pressure tank (if used) should be readily available.

c. The piping from the well to the point of use can be estimated at between 20 and 100 gallons depending on the length and size of piping to the house and the number of sinks, toilets, showers, or other dispensers. If the well is a long distance from the housed (over 200 ft.) Some additional volume should be added.

d. Total the volume of water contained in the entire system.

1. The amount of water contained in the well _____
2. Capacity of water heater _____
   Capacity of pressure tank _____
3. Estimated volume contained in the piping _____
4. Total: add the four numbers above to obtain the total volume of water in the system. _____

One ounce of chlorine bleach should be added for every 2 gallons of water in system. More chlorine may be required for heavy concentrations of bacteria to insure that the disinfection of the system is complete. In most cases 1\2 to 1 gallon of chlorine laundry bleach is an ample amount to obtain complete disinfection of the system even with heavy bacteria concentrations. The chlorine bleach should be dilute before it is added to the well to minimize any corrosion of metal casing or pump parts from concentrated chlorine.

(3) Obtain a tank or enough clean buckets or containers which can be filled with chlorinated water to equal at least the volume of water contained in the well. The chlorine solution can be mixed up by adding 1 oz. of chlorine bleach to every 2 gallons of water in the containers. These containers should be placed near the well before the chlorine solution is mixed since they will be poured into the well once step 4 has been completed.

(4) Add the required amount of chlorine to the well. Run the hose from the nearest faucet to the well and circulate the chlorine mixture through the hose and back into the well. By circulating the water in the well an even mixture of chlorine solution can be obtained. While mixing the chlorine solution with the hose, the sides of the casing and the drop pipe for the pump can be washed with the chlorinated mixture. **A strong odor of chlorine smell should be present after the mixing process has been completed. If the chlorine smell is not strong more chlorine should be added.**

(5) Pour the mixture of chlorinated water into the well and allow the well to set 2 or more hours before proceeding with step 6.

(6) Run water from each faucet in the distribution system until a chlorine odor is present in the water. This should be done for hot and cold water. The hot water should take longer the cold because the hot water tank holds a large volume of water. Chlorinated water should be allowed to enter all of the lines in the distribution system including lines to bathtubs, showers, toilets, and outside hydrants so complete disinfection can be achieved. Carbon filters should be removed or bypassed. The air pressure should be released from the pressure tank (except those with a permanent air cushion) so the entire tank may be filled with chlorinated water.

Caution: Some pressure tanks may be damaged by strong chlorine solutions. The manufacturer should be contacted to provide need information about disinfection of pressure tank.

It may be necessary to repeat steps 4 and 5 if the chlorine smell reaching the faucets is weak. The chlorinated water should be allowed to remain in the well and piping for 12 to 24 hours if possible.

The chlorinated water contained in the system should be pumped to waste when the allotted time has passed. The water having a strong chlorine smell should not be discharged to a septic tank as it may kill the needed microorganisms in the septic system. This water should be discharged onto a drive way or area where damage will not be done to vegetation or other property. The chlorinated water contained in the plumbing system should be discharged until the chlorine odor is absent from all water sources. A small amount of chlorinated water contained in the plumbing of the housed should not effect the septic tank. If bacteria problems persist the chlorination process may need to be repeated.

After the well has been chlorinated the well must be sealed to prevent surface water, small animals and insects from entering the well. A screened vent should be provided in the casing or well seal so air may enter the well but water and insects cannot.

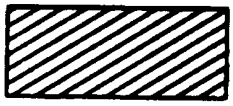
Some wells are constructed so that it is not possible to install a positive well seal such as a dug well. These wells can be reconstructed and cased or a continuous chlorination system can be installed which will kill the unwanted bacteria.

If after reading this publication you are unsure of this procedure for chlorination you may contact the Bureau of Water Protection within the Department of Health and Environment located in Topeka at 785-296-3565 or at one of the six district offices at the location below.

Dodge City	620-225-0596
Wichita	316-337-6020
Chanute	620-431-2390
Lawrence	785-842-4600
Salina	785-827-9639
Hays	785-625-5664

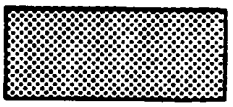
Pipe or Well Diameter (inches)	**Gallons of Water Per for Foot of Length**
1/2	.010
3/4	.023
1	.041
1 1/4	.067
1 1/2	.092
2	.163
2 1/2	.255
3	.37
3 1/2	.50
4	.65
5	1.02
6	1.50
8	2.60
10	4.08
12	5.87
14	8.00
16	10.44
18	13.21
24	23.50
30	36.70

PLUGGING MATERIAL KEY CODE



GROUT

SOIL OR CLAY

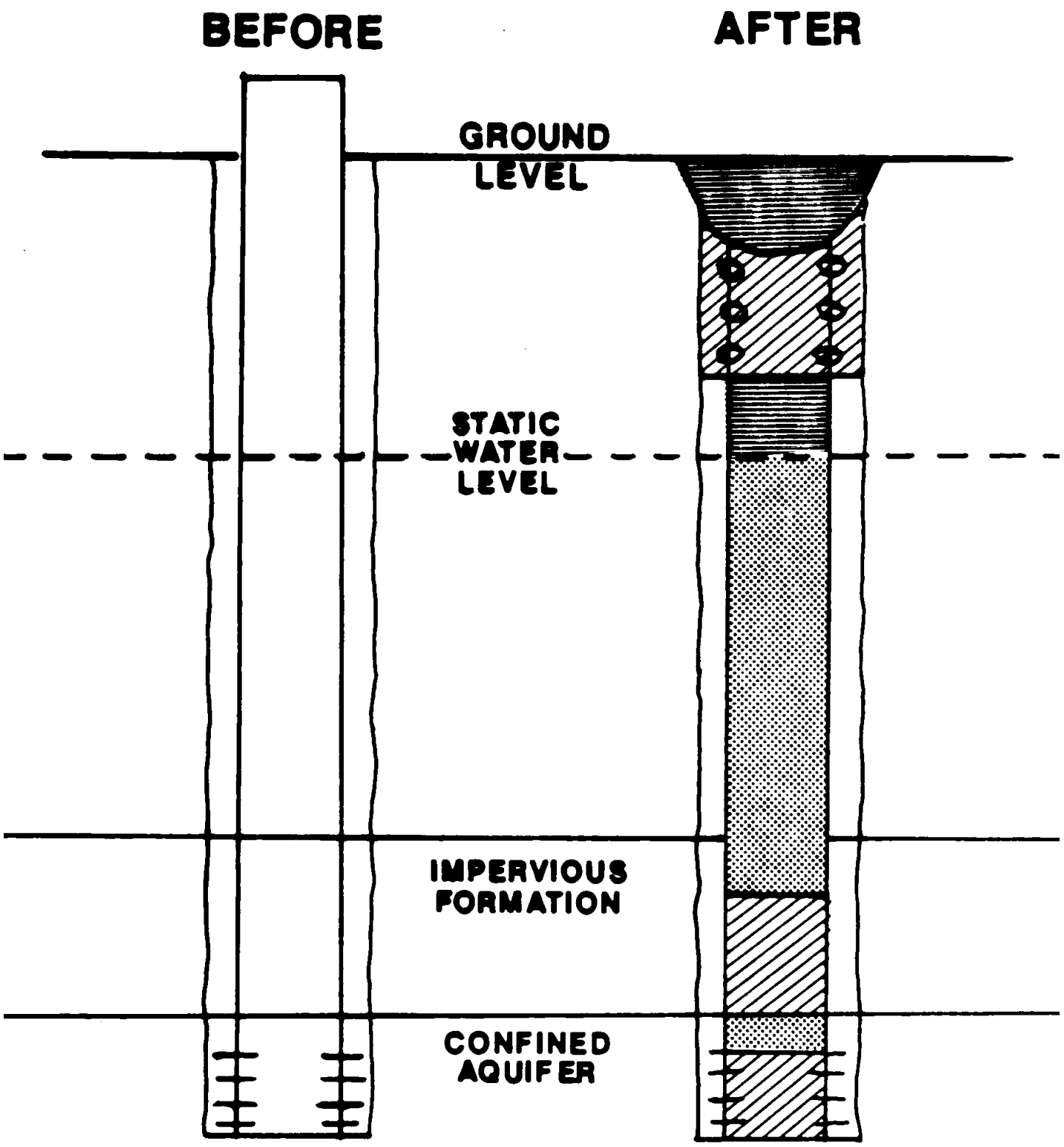


SAND & GRAVEL

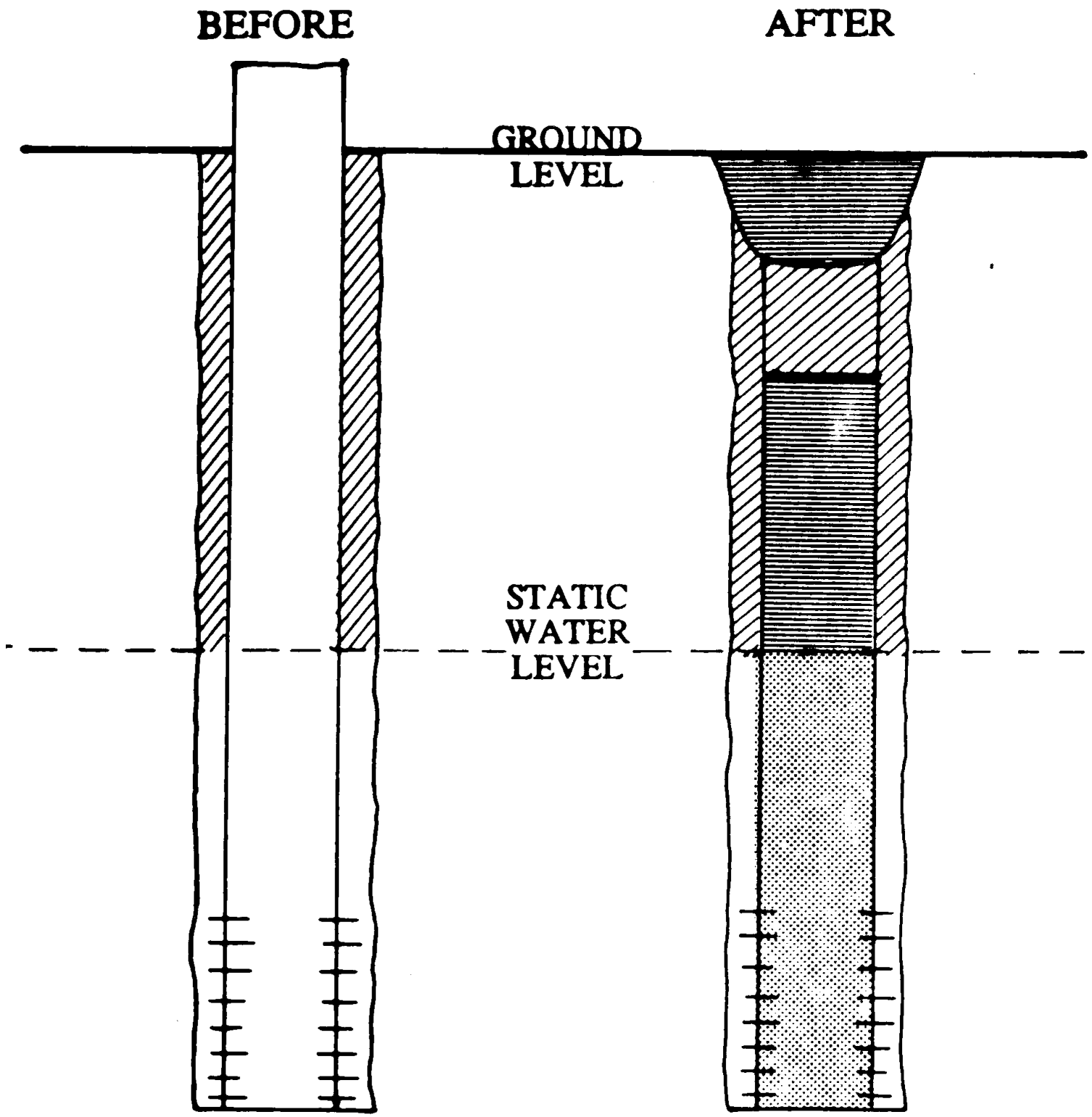
CASING RIPPED

WELL SCREEN

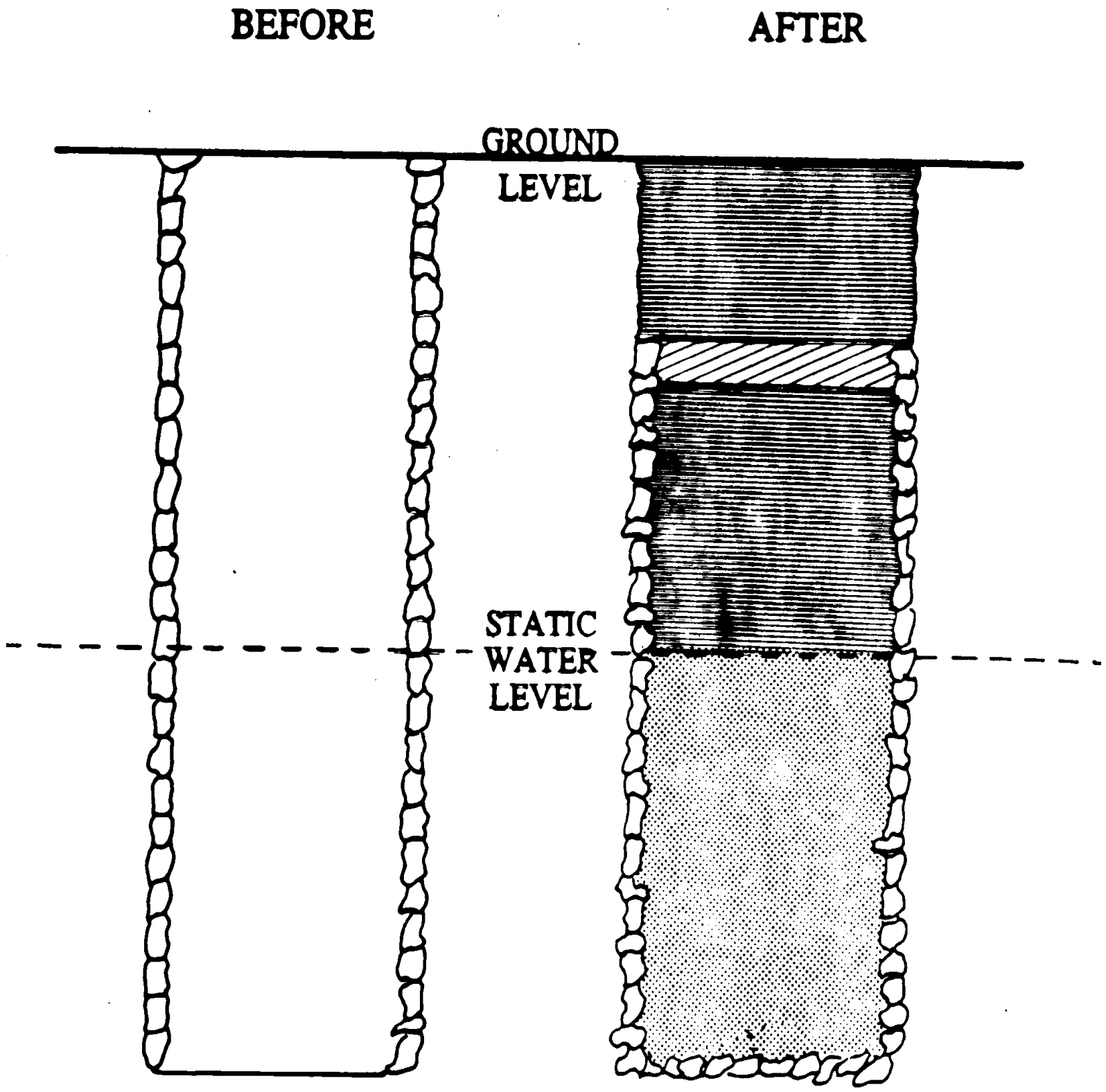
PLUGGING OF AN UNCONFINED WELL
(not grouted)



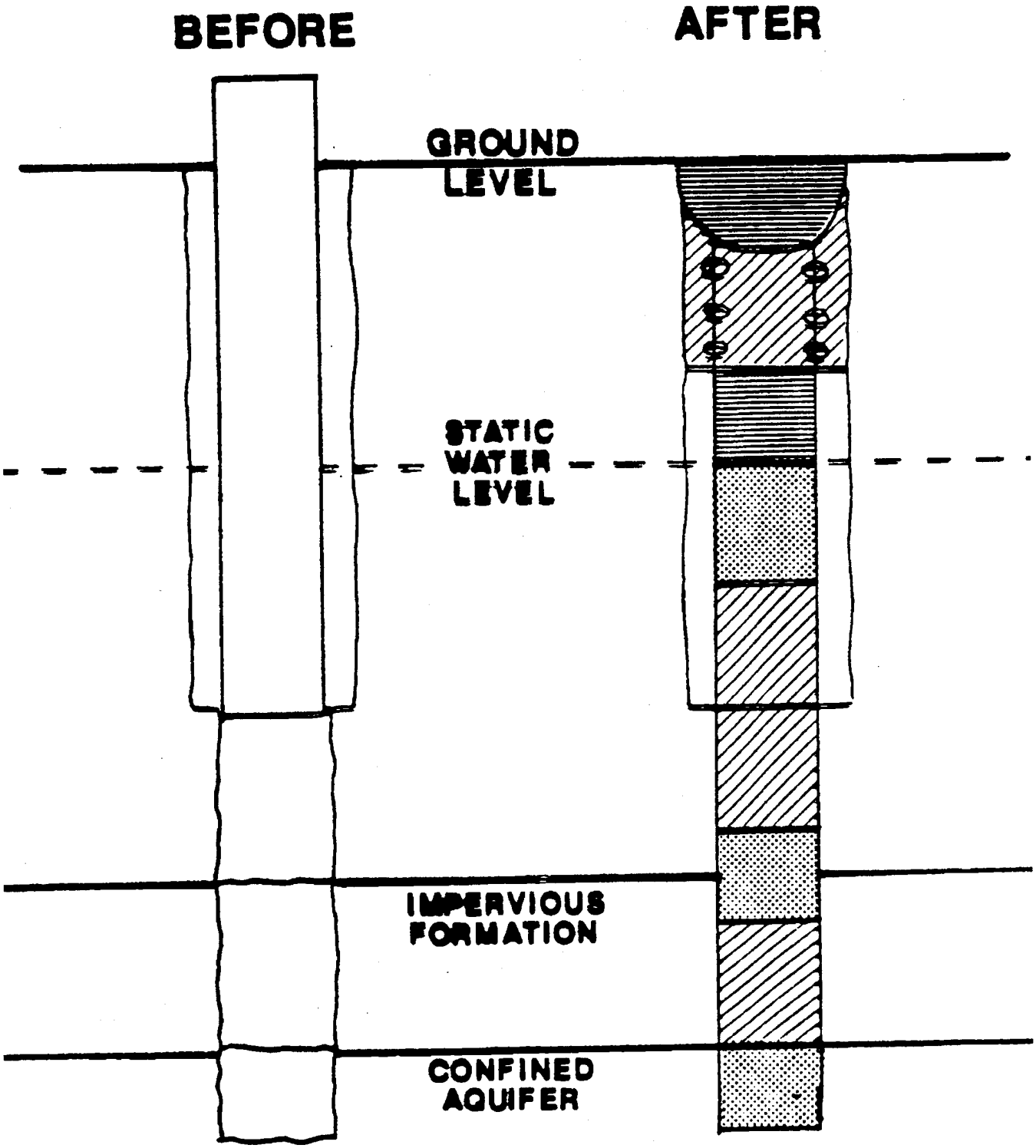
PLUGGING OF AN UNCONFINED WELL
(grouted)



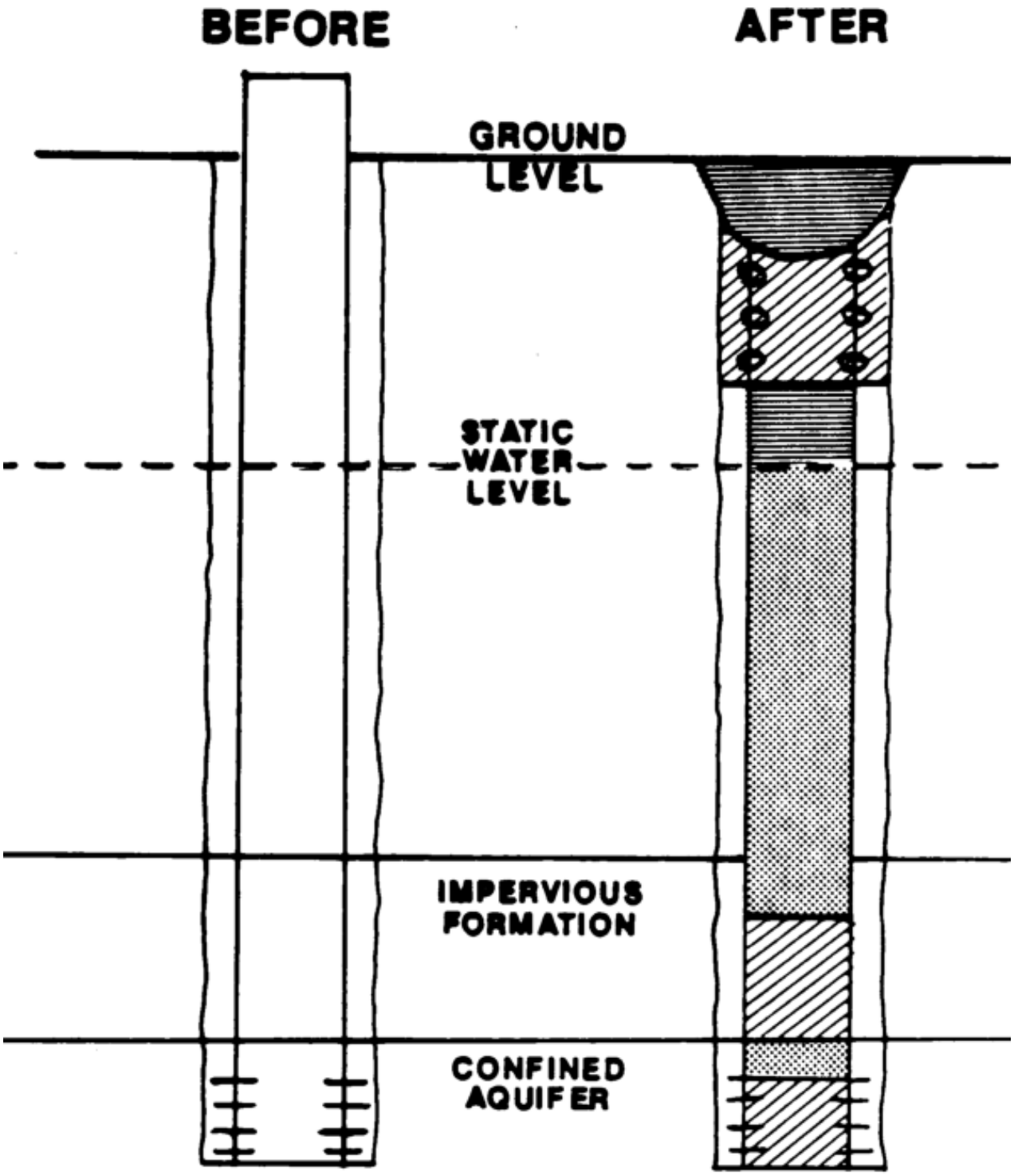
PLUGGING OF A DUG WELL



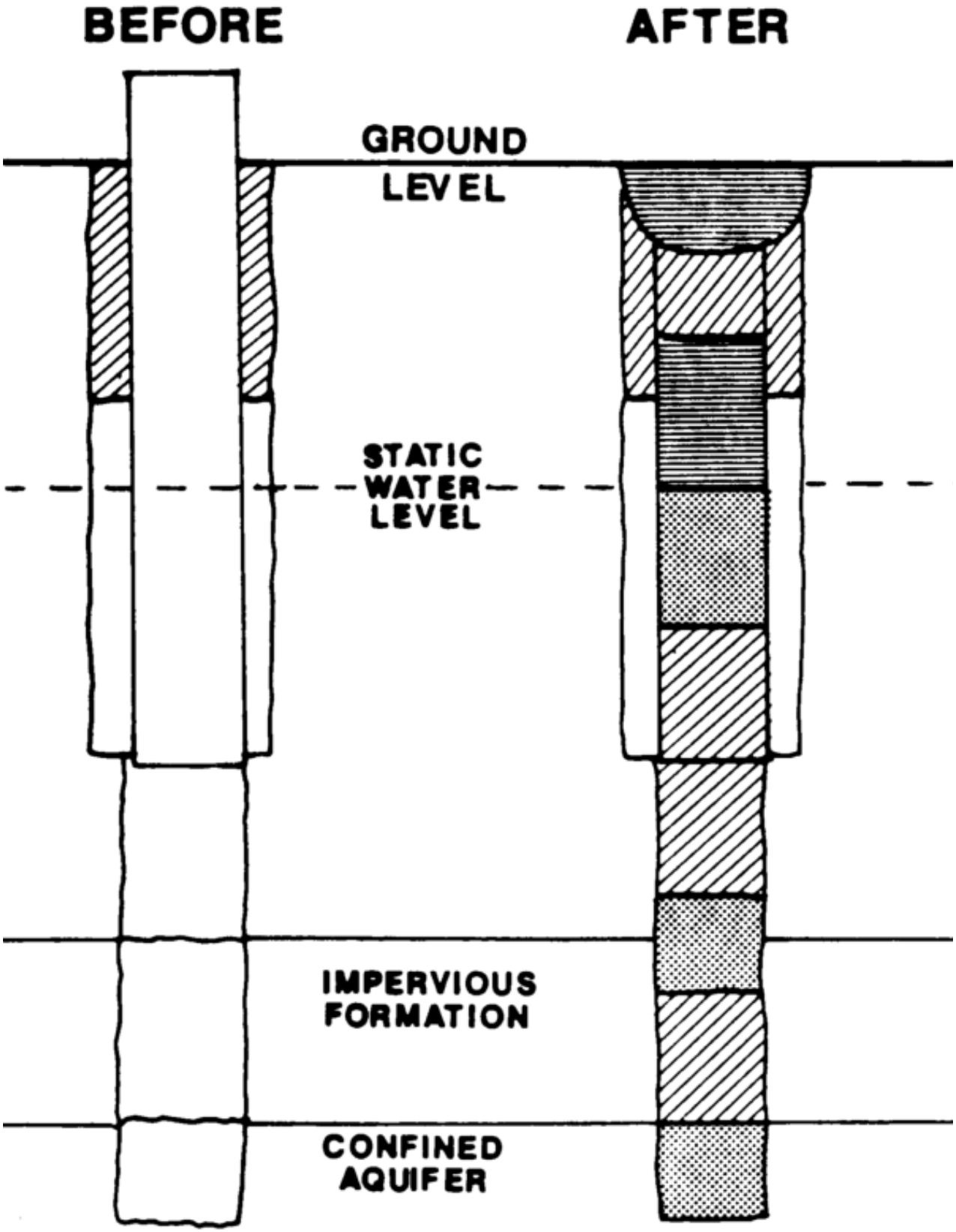
PLUGGING OF A CONFINED WELL
(open hole, ungrouted)



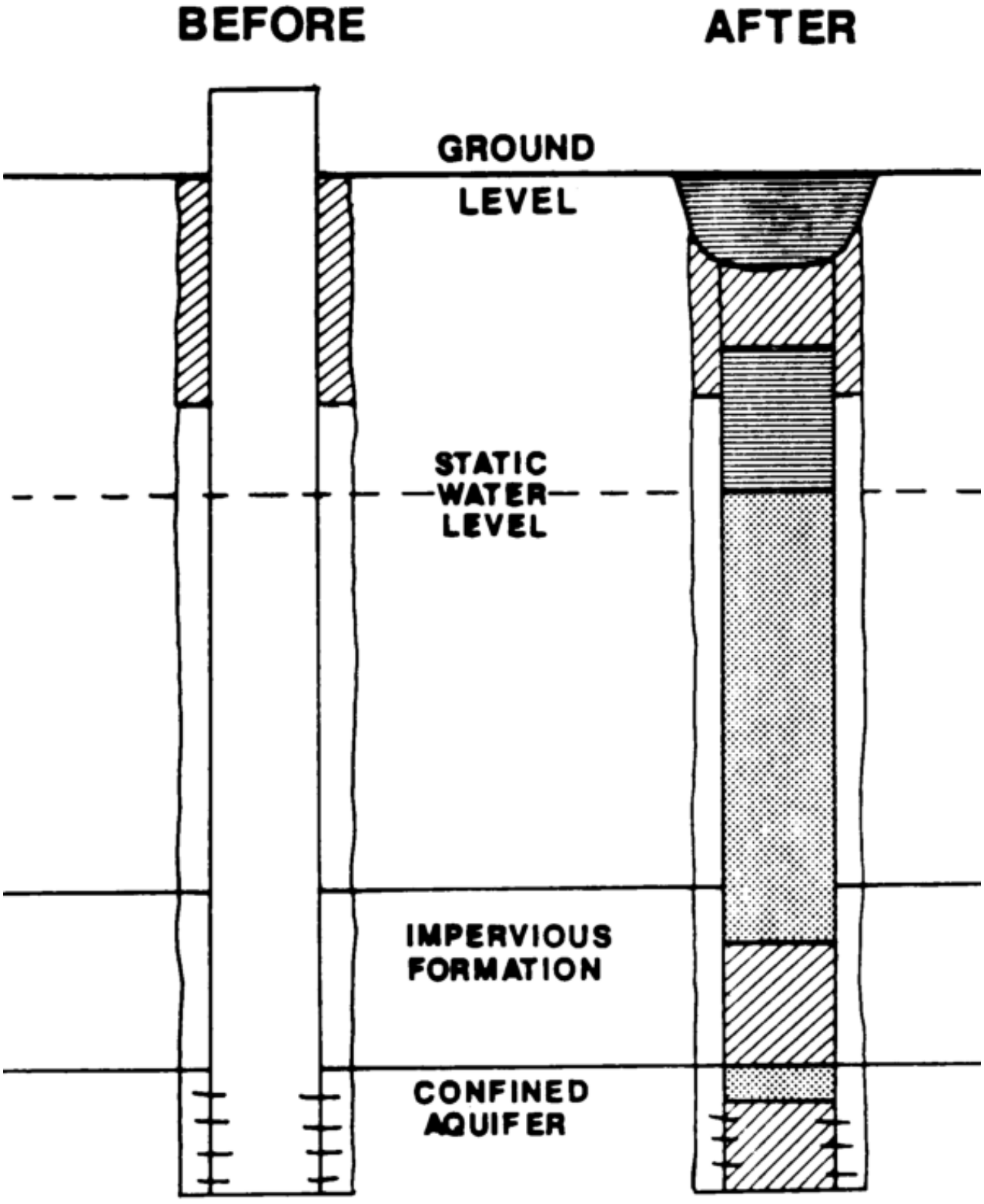
PLUGGING OF A CONFINED WELL
(not grouted)



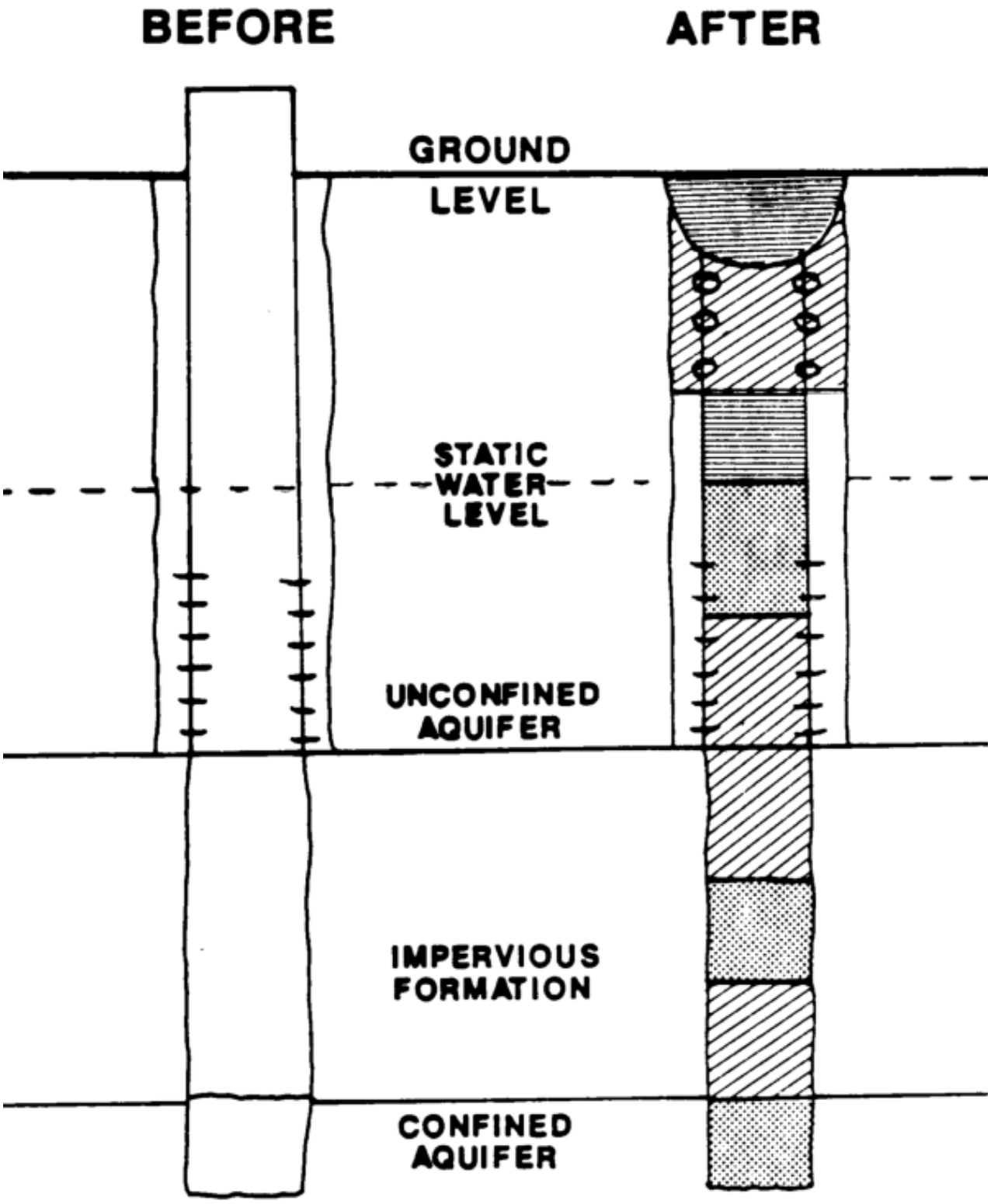
PLUGGING OF A CONFINED WELL
(open hole, grouted)



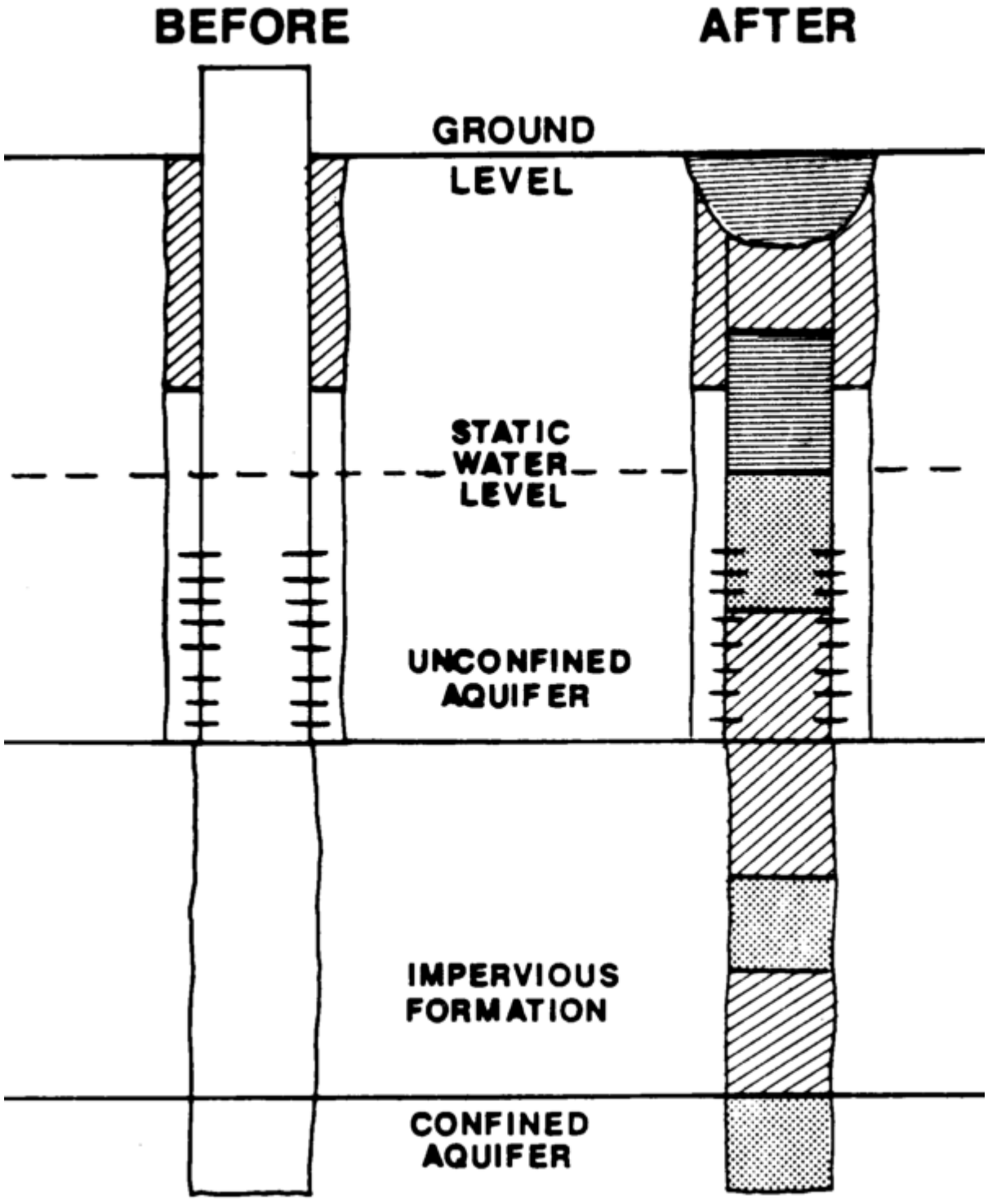
PLUGGING OF A CONFINED WELL
(grouted)



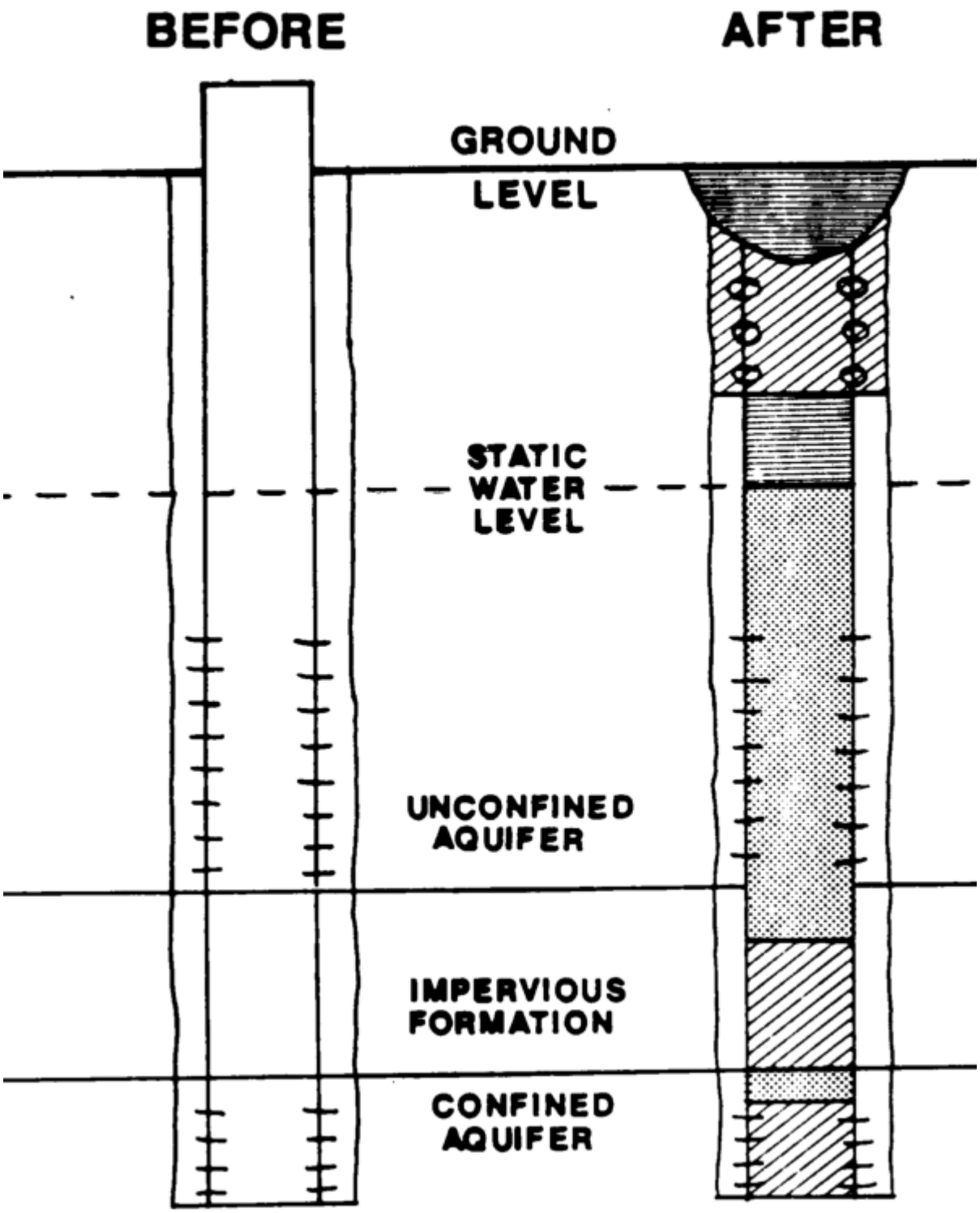
PLUGGING OF AN UNCONFINED, CONFINED WELL (open hole, ungrouted)



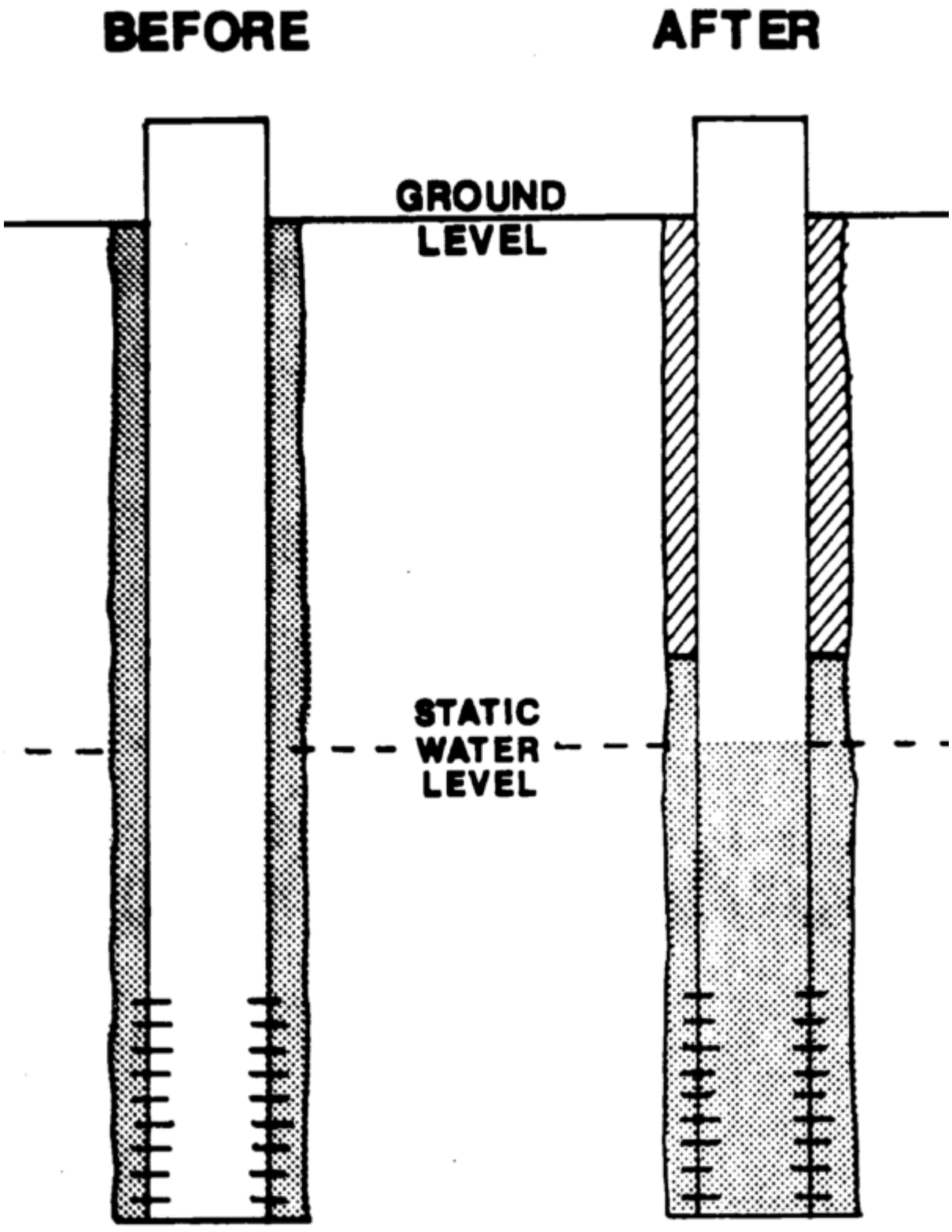
PLUGGING OF AN UNCONFINED, CONFINED WELL (open hole, grouted)



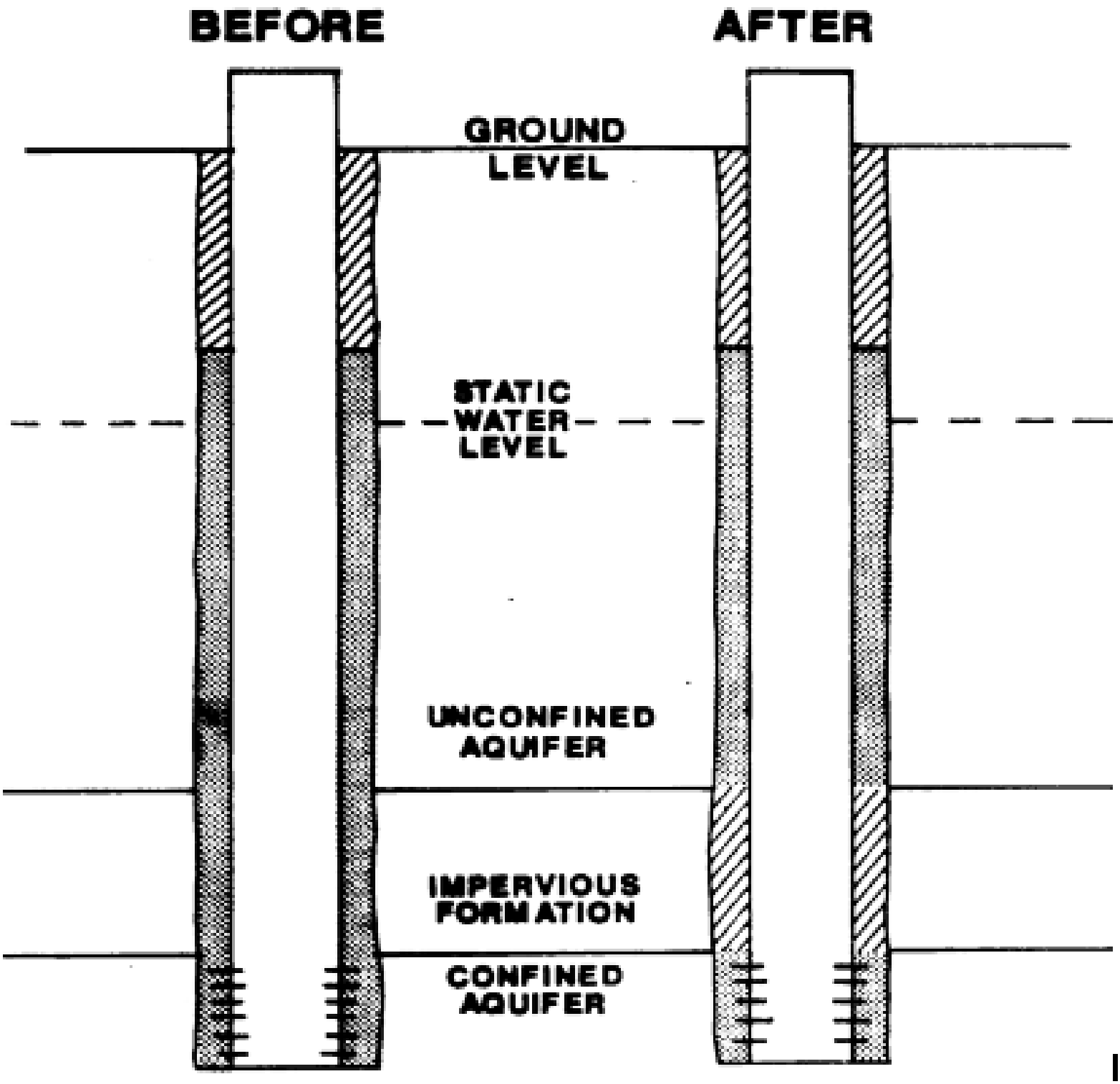
PLUGGING OF AN UNCONFINED, CONFINED WELL (not grouted)



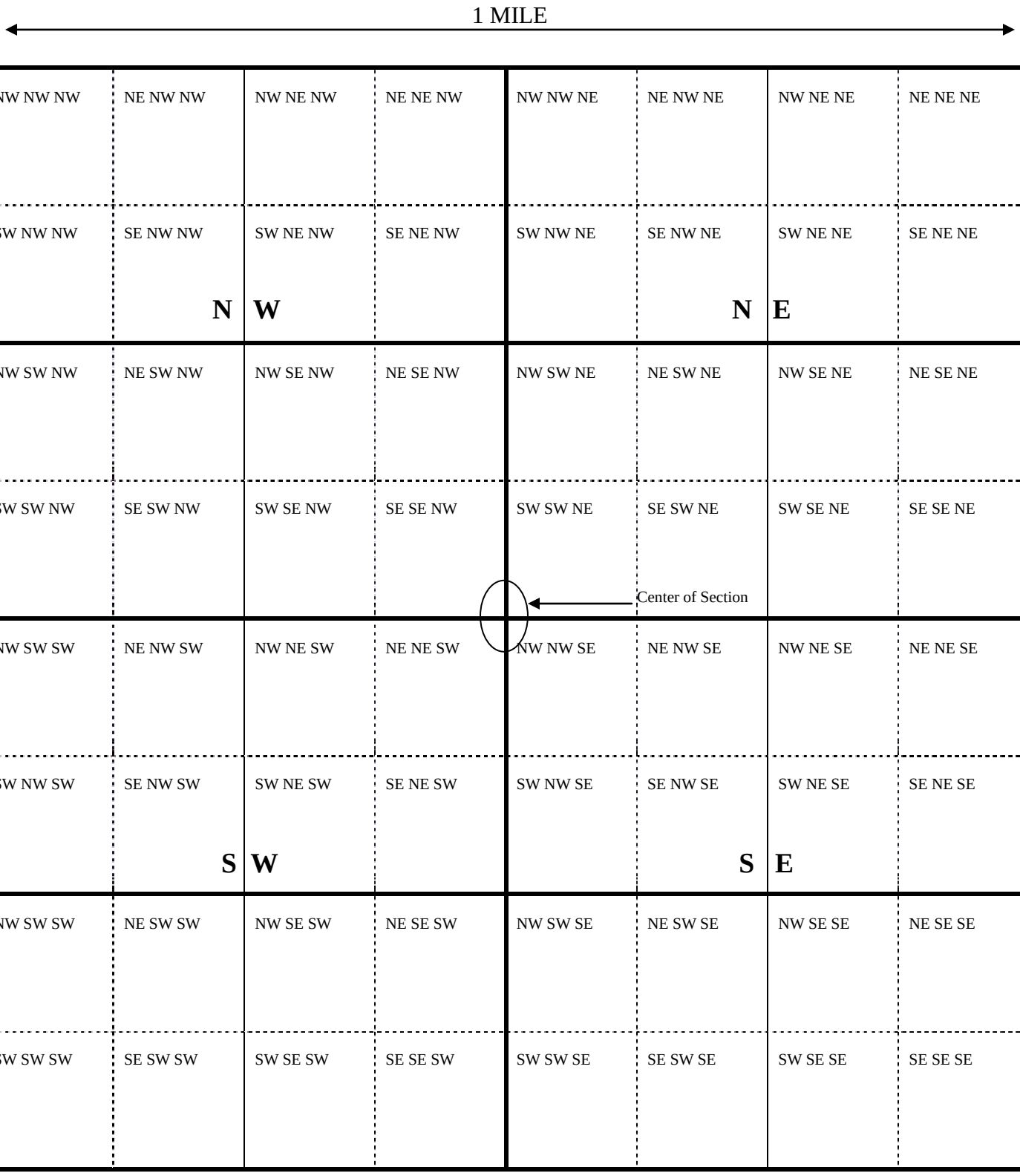
GROUTING AN UNCONFINED WELL



GROUTING A CONFINED WELL

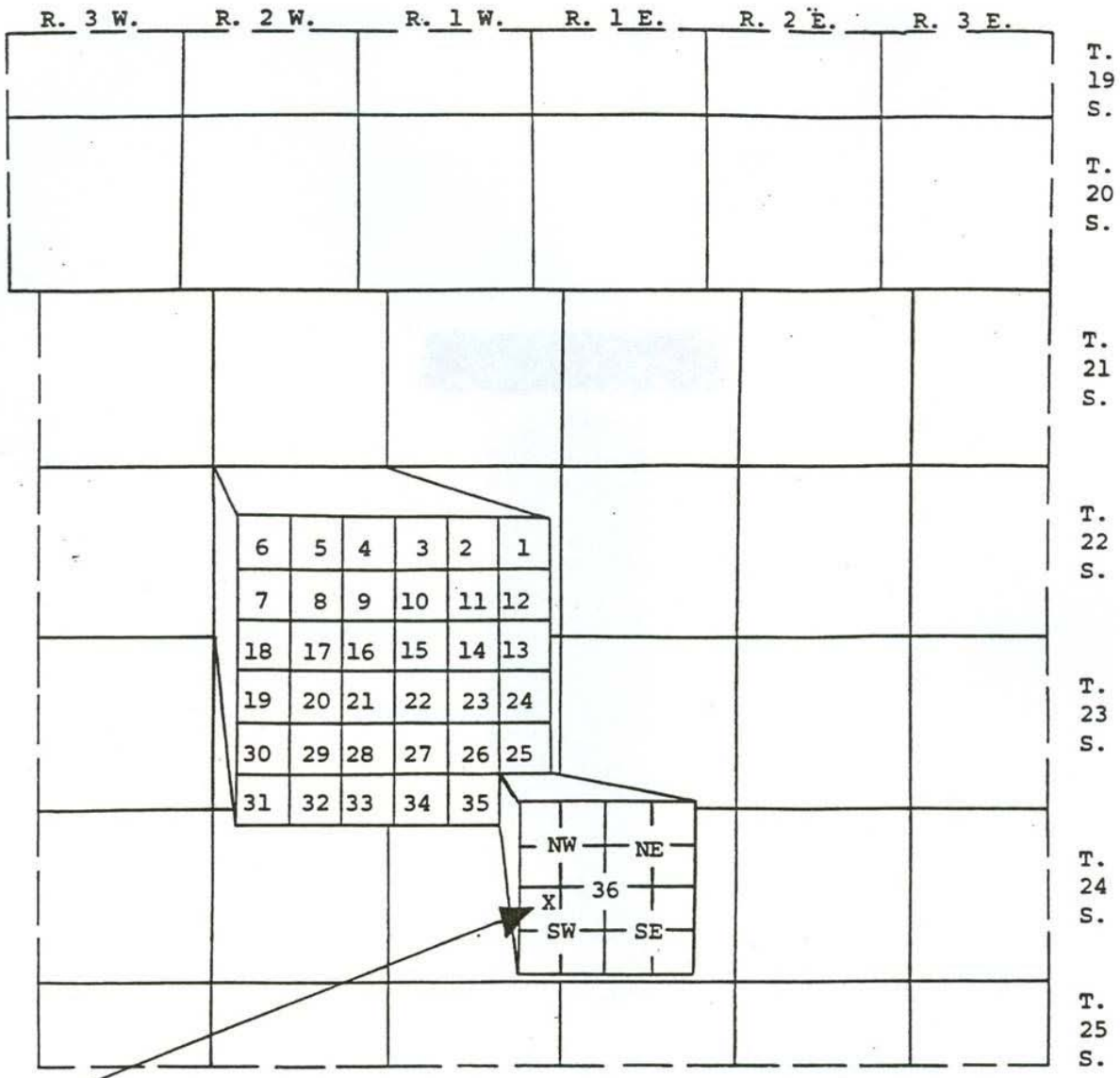


LEGAL DESCRIPTION DIAGRAM



KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT

WATER WELL LOCATION DIAGRAM



Location of Well	County	Fraction	Section	Town #	Range #
	Harvey	NE¼NW¼SW¼	36	T22S	R2W

The water well location description is found by starting with the smallest parcel of land and working towards the largest parcel of land.

EXAMPLE: (as above) (NE¼ = 10 acres) (NW¼ = 40 acres) (SW¼ = 160 acres) (Section 36 = 640 acres) (T22S & R2W = 36 sections = 1 township) (County = many townships) (State = many counties)

COMPUTERIZED WATER WELL RECORDS

Lithologic Names

Clay
Silt
Silty Clay
Sandy Clay
Sand
Very Fine Sand
Fine Sand
Medium Sand
Coarse Sand
Very Course Sand
Gravel
Very Fine Gravel
Fine Gravel
Medium Gravel
Coarse Gravel
Very Coarse Gravel
Sand and Gravel
Boulder
Shale
Limestone
Shale and Limestone
Cherry Lime
Sandstone
Sand and Shale
Dolomite
Cherty Dolomite
Coal
Rock
Rock and Sand
Rock and Clay
Caliche
Flint
Chert
Pyrite

Clay and Gravel
Gyp Rock
Red Bed (Shale)
Overburden (Clay)
Bedrock (Shale)
Ocher (Shale)
Conglomerate (Sandstone)
Dakota Clay (Sandstone)
Sandstone and Clay (Sandstone)
Red Rock (Shale)
Post Rock (limestone)
Sand Rock (Sandstone)
Soap Stone (Shale)
Limestone and Clay (Shale and Limestone)
Rock & Clay (Shale and Limestone)
Shale and Rock (Shale and Limestone)
Shale and Clay (Shale)
Hard Pam (Shale)
Cresswell Lime
Wellington Shale
Aluvium Sand
Winfield Lime
O'Dell Shale
Nolans Lime
Havensville Shale
Schroyer Lime
Wymore Shale
Kenny Lime
Blue Spring Shale
Florence Lime
Cottonwood Lime
Iron Stone

WATER WELL PLUGGING RECORD Form WWC-5P KSA 82a-1212 ID NO.

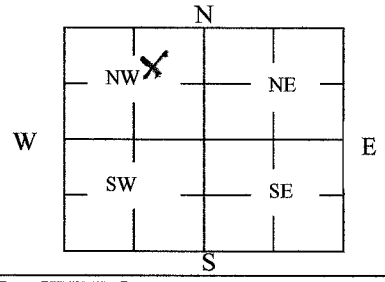
1 LOCATION OF WATER WELL: County: Gray | Fraction: SW ¼ NE ¼ NW ¼ ¼ | Section Number: 13 | Township Number: T 26 S | Range Number: 29 ☐ E ☑ W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☑ 225 S and 0.25 E of Ingalls

Global Positioning Systems (GPS) information:
Latitude: _____ (in decimal degrees)
Longitude: _____ (in decimal degrees)
Elevation: _____
Datum: ☐ WGS84, ☐ NAD83, ☐ NAD27
Collection Method:
☐ GPS unit (Make/Model: _____)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☐ < 3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ > 15 m

2 WATER WELL OWNER: John Doe
RR#, St. Address, Box #: RR2
City, State ZIP Code: Ingalls, KS 67858

3 MARK WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF WELL 241 ft.
WELL'S STATIC WATER LEVEL 6.5 ft
WELL WAS USED AS:

☐ Domestic	☐ Public Water Supply	☐ Dewatering
☑ Irrigation	☐ Oil Field Water Supply	☐ Monitoring
☐ Feedlot	☐ Domestic (Lawn & Garden)	☐ Injection Well
☐ Industrial	☐ Air Conditioning	☐ Other _____

Was a chemical/bacteriological sample submitted to Department? Yes ☐ No ☐

5 TYPE OF BLANK CASING USED:

☑ Steel	☐ RMP (SR)	☐ Wrought	☐ Fiberglass	☐ Other (Specify below)
☐ PVC	☐ ABS	☐ Asbestos-Cement	☐ Concrete Tile	

Blank casing diameter 16 in. Was casing pulled? Yes ☐ No ☐ If yes, how much _____
Casing height above or below land surface 3 ft below in.

6 GROUT PLUG MATERIAL: ☐ Neat cement ☑ Cement grout ☐ Bentonite ☐ Other _____

Grout Plug Intervals: From _____ ft. to _____ ft., From _____ ft. to _____ ft., From _____ to _____ ft.

What is the nearest source of possible contamination:

☐ Septic tank	☐ Seepage pit	☐ Fuel Storage	☐ Other (specify below)
☐ Sewer lines	☐ Pit privy	☐ Fertilizer storage	
☐ Watertight sewer lines	☐ Sewage lagoon	☐ Insecticide storage	
☐ Lateral lines	☐ Feedyard	☐ Abandoned water well	Direction from well? Southeast
☐ Cess pool	☑ Livestock pens	☐ Oil well/Gas well	How many feet? 150 foot

FROM	TO	PLUGGING MATERIALS	FROM	TO	PLUGGING MATERIALS
141	65	Sand & Gravel (248.8 cubic ft)			
65	6	Clays (8.34 cubic ft)			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was plugged under my jurisdiction and was completed on (mo/day/year) 2/16/81 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. n/a. This Water Well Record was completed on (mo/day/year) 2/20/81 under the business name of n/a by (signature) John Doe

INSTRUCTIONS: Use typewriter or ballpoint pen. Please press firmly and print clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Ste. 420, Topeka, Kansas 66612-1367. Telephone: 785/296-5524. Send one to Water Well Owner and retain one for your records. Visit us at http://www.kdheks.gov/waterwell/index.html.

Check one: ☐ White Copy ☐ Blue Copy ☐ Pink Copy

SIGNIFICANCE OF WATER MINIERALIZATION

(THESE ARE ONLY SUGGESTED FOR PRIVATE WELLS)

- **Total Dissolved Solids:** The total dissolved solids is a measure in weight (mg/l) of the mineral matter dissolved in the water. This figure multiplied by 8.34 gives pounds of mineral matter per million gallons of water. The U.S. Public Health Service Drinking Water Standards recommend less than 500 mg/l total solids for drinking or culinary uses. If such water is not available 1000 mg/l will be considered satisfactory. The specific conductance (micromhos per centimeter) is a measure of the water's ability to conduct an electric current and is therefore an indication of the ionic strength, or mineralization of the water.

- **Total Hardness:** The calcium ion and the magnesium ion cause the hardness of water and the sum of the two, both expressed as $CaCO_3$, is termed the total hardness. Hardness is undesirable in water in that it produces an insoluble sticky curd with soap and produces scaling in teakettles and hot water tanks. A total hardness above 400 mg/l as $CaCO_3$ is considered excessive for public water supplies in Kansas. Hardness can b e removed readily by the softening process.

- **Sodium:** Sodium is not particularly significant physiologically except to those persons having an abnormal sodium metabolism and who are thus on a restricted sodium diet. It is important in irrigation waters because a high sodium to calcium-magnesium ratio tends to decrease the permeability of the soil and thus will have a harmful effect on soil structure. The base exchange or zeolite process of softening increases the sodium content of the water being softened. Limit 100 mg/l.

- **Iron and Manganese:** Iron and manganese have little significance physiologically but they are undesirable in a public water supply because both will produce staining of laundered fabrics and porcelain plumbing fixtures and create consumer complaint. If present in an appreciable amount, iron gives the water a rusty turbid appearance and an unpleasant taste. Both substances create problems in the chlorination of water. The U.S.P.H.S. Drinking Water Standards recommend that iron be less than 0.3 mg/l and manganese less than 0.05 mg/l. Iron and manganese can be readily removed by treatment, particularly if lime-soda softening is also being practiced.

- **Sulfate:** Sulfate is one of the principal mineralizing substances present in water in Kansas and if present in large amounts it will impart a bitter taste to the water and it may act as a laxative to people who are not accustomed to drinking the water. The drinking water standards recommend that sulfate be less than 250 mg/l. Sulfate cannot be removed economically.

- **Chloride:** Chloride is one of the principal mineralizing substances present in water in Kansas. When present in sufficient amount, chloride imparts a salty taste to the water but otherwise has little or no physiological significance when present in concentrations not offensive to taste. The drinking water standards recommend that chloride be less than 250 mg/l. Chloride cannot be removed economically.

- **Nitrate:** Nitrate is important in drinking water because high concentrations may produce cyanosis or methemoglobinemia in infants. The recommended limit for public water supplies in Kansas is 10 mg/l nitrate (as N) when used for infants under one year of age. Older children and adults are not affected. Nitrate is also important in water to be used for livestock watering because excessive amounts may be harmful, particularly to young animals. Nitrate cannot be removed economically.

- **Fluoride:** Fluoride is important in drinking water because in high concentration it may produce a mottling or discoloration of the tooth enamel of children and in low concentration it does not afford sufficient protection for the prevention of dental decay in children. A concentration of 10 mg/l fluoride is considered optimum for public water supplies in Kansas and a concentration of 1.5 mg/l fluoride is the recommended limit. It is re commended that fluoride be added to public water supplies when the concentration is substantially less than the optimum.

- **Phosphate:** Total phosphate represents all forms of phosphate in water including polyphosphates used in the treatment of water. Phosphate in water has little physiological significance but it does stimulate the growth of algae and thus may cause water treatment problems. If a poly-phosphate is being fed to stabilize iron, it is recommended that the feed rate be limited to 3 mg/l phosphate per 1 mg/l iron.

****

* mg/l = milligrams per liter
* One gallon weighs 8.34 pounds
* 1 mg/l = 8.34 lbs. per million gallons
* 17.1 mg/l = 1 grain per gallon
* To obtain results in grains per gallon, divide results in milligrams per liter by 17.1
* Reacting values are in terms of milligram equivalents per liter

KANSAS STATE DEPARTMENT OF HEALTH AND ENVIRONMENT

DIVISION OF ENVIRONMENT
(March 1975)

DISINFECTION TABLE TO DISINFECT THE WELL WATER
(Produces a 100 mg/liter chlorine solution per-foot of casing size)

CASING SIZE Nominal diameter (INCHES)	GALLONS OF WATER PER ONE FOOT OF CASING SIZE (GAL/FT/CA SIZE)	OUNCES OF PRODUCT ADDED TO DISINFECT ONE (1) FOOT OF WATER PER CASING SIZE		
		5.25% to 6.0% Chlorine	10% Chlorine	70% Chlorine
		PRODUCT: Clorox, Purex, Sno-White, Kandu, Topco, Action, White Magic, Surefine and MC_2 or other brand names. (sodium hypochlorite) (FLUID OUNCES)	PRODUCT: Liquid Bleach. Purchased from a chemical supply company. (sodium hypochlorite) (FLUID OUNCES)	PRODUCT: High test Calcium Hypochlorite. Purchased from a chemical supply company. (calcium hypochlorite) (DRY OUNCES)
1.25	0.06	0.015	0.008	0.0011
1.5	0.09	0.023	0.012	0.0017
2	0.16	0.041	0.021	0.0031
2.5	0.25	0.064	0.033	0.0048
3	0.37	0.094	0.049	0.0071
3.5	0.50	0.127	0.067	0.0095
4	0.65	0.165	0.087	0.0124
5	1.02	0.259	0.136	0.0194
6	1.50	0.381	0.200	0.0286
8	2.60	0.660	0.347	0.0495
10	4.08	1.036	0.544	0.0777
12	5.87	1.490	0.782	0.1118
14	8.00	2.031	1.066	0.1523
16	10.44	2.650	1.391	0.1988
18	13.21	3.354	1.761	0.2515
24	23.50	5.966	3.132	0.4474
30	36.70	9.317	4.891	0.6988

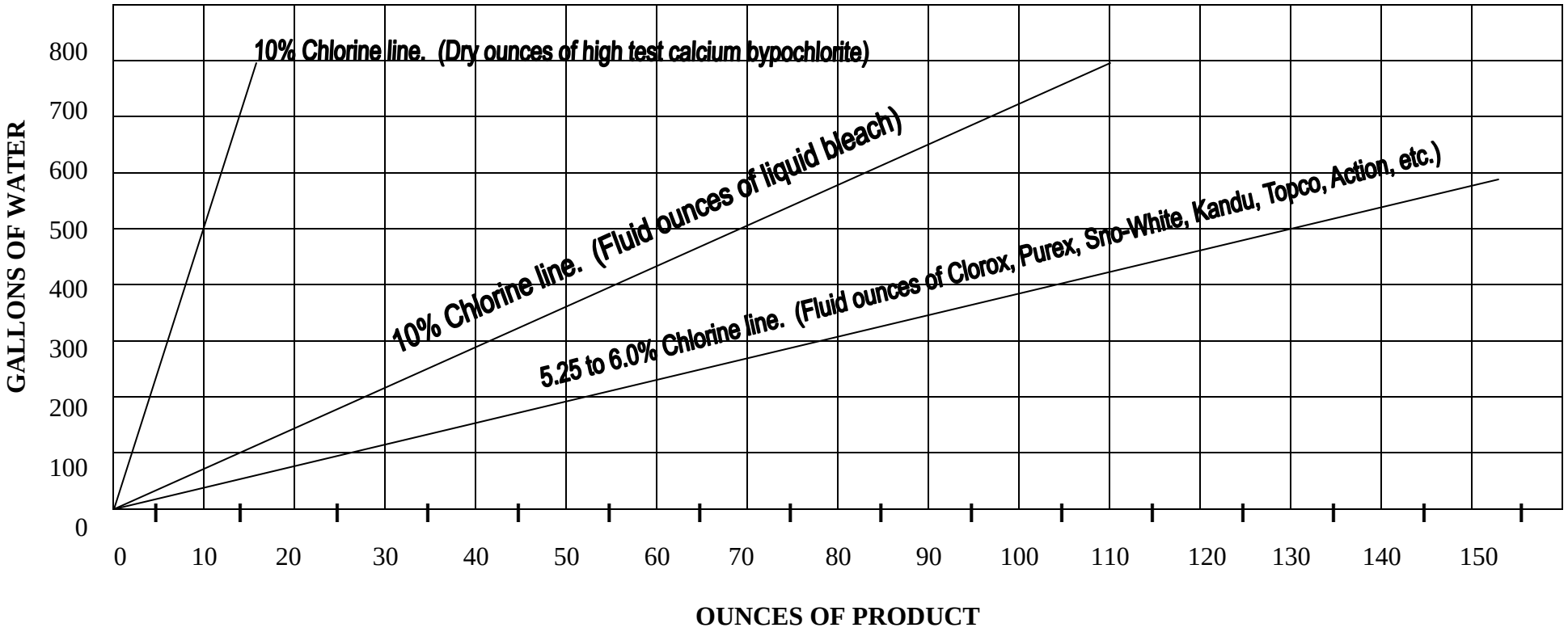
1. FORMULA TO FIND HEIGHT OF WATER COLUMN: (total depth of water well) – (measured static water level) = (height of water column)
   EXAMPLE: (216 feet depth of well) – (37 feet static water level) = (179 feet of water column)

2. FORMULA TO FIND NUMBER OF OUNCES USED TO DISINFECT THE WELL WATER: (height of water column) x (ounces of PRODUCT added to disinfect one (1) foot of water per casing size) = (ounces of PRODUCT needed to be placed and mixed with the water in the well) EXAMPLE: For a 5 inch casing using 5.25% Clorox Product: (179 feet) x (0.259) = (46.36 fluid ounces) which is approximately 3 pints of Clorox placed down the well and mixed with the well water by surging and left standing in the well for 8-10 hours to properly disinfect the well water.

3. FORMULA TO FIND NUMBER OF GALLONS INSIDE THE CASING: (gallons of water per one (1) foot of casing size) x (height of water column) = (gallons of water inside the casing) EXAMPLE: For 5 inch casing: (1.02) x (179) = (183 gallons)

DISINFECTION GRAPH TO DISINFECT THE WELL WATER

(Produces a 100 MG/Liter Chlorine Solution when Mixed with the Number of Gallons of Water)



NOTE: 1 Pint = 16 Fluid Ounces; 1 Pound = 16 Dry Ounces

16 Ounces = 1 Pint = 1 pound	64 Ounces = 4 Pint = 4 pound	112 Ounces = 7 Pint = 7 pound
32 Ounces = 2 Pint = 2 pound	80 Ounces = 5 Pint = 5 pound	128 Ounces = 8 Pint = 8 pound
48 Ounces = 3 Pint = 3 pound	96 Ounces = 6 Pint = 6 pound	144 Ounces = 9 Pint = 9 pound

A 200 mg/liter chlorine solution used to disinfect the gravel pack, casing, pump and pump column can be made by using twice as much PRODUCT for the number of gallons of water mixed with it.

EXAMPLE: Say you have a 200 gallon tank and you are using the 5.25% Clorox product: by following the 200 gallon line on the graph, read across until you intersect the 5.25% to 6.0% Chlorine line, then looking straight down onto the OUNCES OF PRODUCT line you get 51 ounces. So 2 X 51 = 102 ounces of 5.25% Clorox is mixed with the 200 gallons of water in the tank and used to wash the gravel pack, casing, pump and pump column.

The Kansas Department of Health and Environment

Sam Brownback, Governor - Robert Moser, MD, Secretary

Curtis State Office Building, 1000 SW Jackson, Topeka, Kansas 66612

Bureau of Water

Public Water Supply Section

- Purpose of the Section
- Groundwater Rule NEW
- New EPA Rules
  - Stage 2 DDBPR Fact Sheet
  - LT2 Fact Sheet
- PWS Contact Change Form
- Primary Drinking Water Regulations
- Kansas Statutes Pertaining to Public Water Supply
- Survival Guides for Drinking Water Rules and Regulations
- Public Water Supply Section Staff
- Kansas Primary Drinking Water Regulation Package
- Drinking Water Contaminants and Maximum Contaminant Levels
- Standards for Secondary Drinking Water Contaminants
- Engineering and Permits Unit
  - Plan Review and Permits
    - Minimum Design Standards
    - Public Water Supply Permit Applications
    - CT Helper
  - State Revolving Loan Fund
- Capacity Development Program
- Data Management & Compliance Unit
  - Total Coliform
  - Arsenic
  - Asbestos
  - Nitrate/Nitrite
  - Inorganic Compounds (IOC)
  - Volatile Organic Compounds (VOC)
  - Synthetic Organic Compounds (SOC)
  - Lead and Copper

- Disinfection By-Products
  - Stage 1 Compliance Report for populations greater than 10,000 (.xls)
  - Stage 1 Compliance Report for populations less than 10,000 (.xls)
  - Stage 1 Compliance Report with formulas for populations greater than 10,000 (.xls)
  - Stage 1 Compliance Report with formulas for populations less than 10,000 (.xls)
  - TOC Report Forms with formulas (.xls)
  - TOC Reports blank (.xls)
- Surface Water Treatment
- Radionuclides
- Sampling Information Guide
- Public Notification
- Consumer Confidence Reports (CCRs)
  - CCR Quick Reference Guide
  - Blank Certificate of Delivery
- Annual Compliance Reports
- Related Links

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Karrie Ullery, Administrative Assistance, 296-6340
William Carr , Intended Use Plan, State Revolving Loan Fund, 296-0735
Dan Clair , Engineering and Permits Unit Chief, 296-5516
Andrew Hare, Disinfection Byproducts, Lead and Copper Compliance Officer, 296-5946
Patti Croy , Annual Compliance Reports; Consumer Confidence Reports, 296-3016
Rex Cox , Plan Review, 296-5539
Christianne Huard, Administrative Assistant, 296-7111
Dianne Sands, Chemical Monitoring Requirements, (IOC, VOC, SOC; Nitrate; Radiological), 368-8336
Jonathan Haynes , Monitoring & Compliance Supervisor; Surface Water Treatment Monitoring Requirements, 296-0643
Jean Herrold , Bacteriological Monitoring Requirements, 296-5518

Vacant, Enforcement and Regulation Development Supervisor, 296-6297
Vacant, Plan Review, 296-0051

Darrel Plummer , Compliance and Data Management Unit Chief, 296-5523
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Ellan Spivey , Data Management Supervisor, 296-6434
Cathy Tucker-Vogel , Capacity Development, 368-7130
Linda White , Administrative Assistance, 296-5514

Purpose of the Section:

The Public Water Supply Section (PWSS) of the Kansas Department of Health and Environment's Bureau of Water is charged with regulating all public water supply systems in the state and assisting them in providing safe and potable water to the people of Kansas. The PWSS oversees more than 1,086 public water supply systems including municipalities, rural water districts, and privately owned systems. These systems may serve a small community of several families to a city of more than 300,000 persons.

What is a public water supply system?
In the State of Kansas, a public water supply system is defined by Kansas Statutes Annotated (K.S.A.) 65-162a and Kansas Administrative Regulations (K.A.R.) 28-15a-2 as a "system for delivery to the public of piped water for human consumption that has at least 10 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year." These systems are regulated by the state to assure the citizenry safe and pathogen-free drinking water. Private domestic/residential groundwater wells are not considered a public water supply systems and are not regulated by the PWSS.

How does the PWSS regulate public water supply systems?
To maintain a high degree of water quality, the PWSS has set up three units to developed and implemented several regulatory programs. These three units are: The Permits and Engineering Unit, The Data Management and Compliance Unit, and The Capacity Development Unit.

Related Links

- KDHE Environmental Microbiology Lab-Monitors Kansas public water supplies to ensure health and safety.
- Midwest Assistance Program (MAP) The Midwest Assistance Program is dedicated to helping rural communities improve their environment, quality of life and be self-sustaining.
- American Water Works Association (AWWA)-The American Water Works Association (AWWA) is an international nonprofit scientific and educational society dedicated to the improvement of drinking water quality and supply.
- Kansas Rural Water Association-The Kansas Rural Water

Association provides leadership and educational opportunities to help its more than 650 municipal and rural water district members and other professionals wisely manage water and wastewater resources.

- Kansas Water Office-Lead office for the Governor's Water Quality Initiative.
  - Drought Report
- U.S. EPA Laboratories with Approval Pending-Laboratories with approval pending for the analysis of *Cryptosporidium* under the LT2 Rule, Safe Drinking Water Act
- U.S. EPA Office of Water
- U.S. EPA Ground Water & Drinking Water
- U.S. EPA Region 7 Home Page (Iowa, Kansas, Missouri, Nebraska)
- U.S. EPA National Home Page

POLICIES, GENERAL CONSIDERATIONS AND DESIGN REQUIREMENTS FOR PUBLIC WATER SUPPLY SYSTEMS IN KANSAS

http://www.kdheks.gov/pws/index.html

(If you do not have access to the internet, call 785/296-5516 and ask for assistance)

STATE OF KANSAS
DEPARTMENT OF HEALTH AND ENVIRONMENT
DIVISION OF ENVIRONMENT
BUREAU OF WATER
PUBLIC WATER SUPPLY SECTION

May 2011

The Kansas Department of Health and Environment
Sam Brownback, Governor - Robert Moser, MD, Secretary
Curtis State Office Building, 1000 SW Jackson, Topeka, Kansas 66612

Bureau of Water

Livestock Waste Management Section

NOTICE OF CHANGE – NUTRIENT MANAGEMENT PLANS
Due to changes in requirements set forth by the Environmental Protection Agency's 2008 Concentrated Animal Feeding Operations Rule, all livestock facilities applying for National Pollutant Discharge Elimination System Permit coverage must now submit a Nutrient Management Plan (NMP) as a part of the permit application process. The Kansas Department of Health and Environment (KDHE) has updated the Nutrient Management Section of this webpage to include a Guidance Document outlining regulatory changes regarding NMPs, a revised Technical Standard for Nutrient Management, and updated NMP template documents that will assist producers in complying with the new requirements. This section also includes updated documents necessary for a Nutrient Utilization Plan (NUP), which is required for swine facilities with 1,000 animal units or more. Effective July 1, 2009, the Kansas Legislature transferred responsibility for review and approval of all swine NUPs from the Kansas Department of Agriculture to the KDHE Livestock Waste Management Section.

NOTICE OF CHANGE – 2010 OPERATIONS AND ANNUAL REPORT Effective January 1, 2010 Due to changes in requirements set forth by the Environmental Protection Agency's (EPA)

Concentrated Animal Feeding Operations Rule, the Kansas Department of Health and Environment has revised the Operations and Annual Report. These revisions are intended to assist you in meeting the reporting requirements in EPA's Rule. Primary changes include modifications to the Operations Reports, the addition of a Land Application worksheet, and modifications to the Annual Report worksheet. The revised Operations and Annual Report, completed in Microsoft Excel, may be found below in the Forms Section of this webpage.

- EPA's Concentrated Animal Feeding Operations (CAFO) - 2008 Final Rule
- Regulatory Guidance for Large Dairy Operations
- Statutes and Regulations
- Swine Applications
- Related Links and Forms
- Kansas Sensitive Groundwater Areas for Wastewater Lagoons
- Design Standards for Confined Feeding Facilities (October 20, 2006)

Terry Medley, Chief
Bureau of Water
Livestock Waste Management Section
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(785) 296-0075
FAX: (785) 296-5509

Livestock Waste Management Staff

For general correspondence, please send an e-mail to feedlots@kdheks.gov or call 296-6432.

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- Vacant, Engineer Associate
- Vacant, Professional Environmental Engineer
- Vacant, Professional Environmental Engineer

Purpose of the Livestock Waste Management Section

The Livestock Waste Management Section is organized within the KDHE Bureau of Water. The mission of the section is to protect the waters of the state of Kansas by educating and assisting the regulated community, reviewing and issuing **Livestock Waste Management Permits**, and ensuring compliance with applicable statutes, regulations and permitting requirements.

General Information

Any facility that has an animal unit capacity of 300 or more, or that has been determined to have significant water pollution potential must register with the Kansas Department of Health and Environment (KDHE). Upon evaluation of the facility by the Department, it will be determined if waste controls and a permit are necessary.

Each KDHE District Office maintains documentation of livestock facility compliance with Kansas statutes and regulations for facilities located within that district. Each District Office also maintains documentation relating to permitting requirements for new or expanding swine facilities in that district. The documentation includes all requirements which a swine facility must comply with and an explanation of the statutory and regulatory provisions on which the permitting requirements are based, an explanation of any departure from any requirements, and a fact sheet which contains a detailed description of the location of each new or expanding facility, a description of the new or expanding facility, a map, and a nutrient utilization plan, if required.

Swine

This Swine Applications link will allow you to view all complete applications for new or expanding swine facilities which are currently on Public Notice in the Kansas Register. Only after KDHE has determined that an application is complete will the application be placed on public notice.

Disclaimer

The purpose of this Web site is to provide users with a delivery system to review the Kansas Livestock Waste Management Permitting System as mandated by K.S.A. 65-1,179. Data provided is current as of the publication date. KDHE is not

responsible for database integrity following download and publication or for the use of the data for any purpose other than the purpose expressed.

KDHE has made every effort to ensure the accuracy of the data, however, errors in the data are possible. Therefore data is provided without representation as to accuracy and without any warranty, either express or implied, as to accuracy.

KDHE does not authorize, and is not responsible for, the use of the data contained in this Web site in any format other than that presented.

Kansas Sensitive Groundwater Areas for Wastewater Lagoons

- Kansas Sensitive Groundwater Areas for Wastewater Lagoons - January 1, 2005 (.pdf)
- Northeast District
- North Central District
- Northwest District
- Southeast District
- South Central District
- Southwest District

Related Links and Forms

Forms

- Registration (.doc)
- Registration (.pdf)
- Permit Application (.doc)
- Permit Application (.pdf)
- Permit Renewal (.doc)
- Permit Renewal (.pdf)
- Operations and Annual Report (.xls)
- Waste Management Plan (.doc)
- Habitable Structure - Separation Distance Agreement (.doc)

Nutrient Management

- Guidance Document for NMPs (.pdf)
- Technical Standards for Nutrient Management – Revised 2010 (.pdf)
- NMP Template – Non-Swine Facilities (.doc)
- NMP Template – Swine Facilities (.doc)
- NUP Form (.doc)
- NUP version 3.5 Workbook (.xls)
- Soil Sampling Certification (.doc)

*Contact – Rob Gavin, 785-296-5557

Kristen Baum, 785-296-5570

Environmental Links

- Environmental Protection Agency
- U.S. Fish and Wildlife Service

Government Links

- U.S. Geological Survey
- Natural Resource Conservation Service
- Kansas Department of Agriculture
- Kansas Department of Wildlife and Parks
- Kansas Agricultural Statistics
- Kansas State University Animal Science
- State Conservation Commission

Livestock Industry Links

- Kansas Livestock Association
- National Cattlemen's Beef Association
- Kansas Cattlemen's Association
- National Pork Producers Council
- Kansas Pork Association
- American Sheep Industry Association
- Kansas Dairy Association

Related Statutes and Regulations for Livestock Waste Management Programs

Article 18 - Animal and Related Waste Control

http://www.kdheks.gov/feedlots/download/Article_18_combined_w_index.pdf

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Article 18a - Swine and Related Waste Control

http://www.kdheks.gov/feedlots/download/Article_18a_combined_w_index.pdf

(If you do not have access to the internet, call 785/296-6432 and ask for assistance)

STATE OF KANSAS
DEPARTMENT OF HEALTH AND ENVIRONMENT
DIVISION OF ENVIRONMENT
BUREAU OF WATER
PUBLIC WATER SUPPLY SECTION

May 2011

Kansas
Department of Health and Environment

SANITATION ZONE REGULATIONS

WATER WELLS

TOPEKA, KS

MAY 2011

KANSAS

DEPARTMENT OF HEALTH
AND ENVIRONMENT

Division of Environment

Kathleen Sebelius, Governor
Roderick L. Bremby, Secretary

www.kdheks.gov

Dear: _____

Re: KWWC License No.: _____

Recent oil and gas exploratory holes have encountered strong flows of saltwater (up to 2000 gallons per minute) from depths of 130-160 feet below ground level in an area in Nemaha County. The most recent flow of saltwater originated at a depth of 135 feet, in consolidated sedimentary limestone. The saltwater flows have occurred in the Western Half (W/2) of Section 13-T2S-R14E, Nemaha County.

The purpose of this letter is to inform you of the potential pressurized saltwater flow problem whenever you may have an opportunity to drill test holes or construct or reconstruct a water well within this area of Nemaha and Brown Counties.

Enclosed is a map which defines an area, two townships in size (T2S-R14E, Nemaha County, and T2S-R15E, Brown County), where the Department is establishing the following restrictions to reduce the risk of penetrating a pressurized saltwater zone.

1. You may construct, reconstruct, treat or plug any water well, or test hole within this area, with the stipulation that all holes and borings do not penetrate through the unconsolidated formations (glacial tills, outwash, alluvial and colluvial deposits associated with valley fills),

2. Prior to the drilling of any test hole or the construction or reconstruction of any water well into or below the consolidated strata, underlying the unconsolidated formations, you must first contact this office to obtain approval to proceed. Approval may be granted to drill to a specified depth for the specific well site location by researching available water well information in our office. The Department will assist you in determining the maximum depth a boring may be completed to avoid intercepting the pressurized zone. It will be necessary for you to provide the legal location of the well or test hole location, and

3. The Department is requiring that groundwater samples be collected and sent to the Topeka Office for quality analysis. We are requiring at least a quart sample of groundwater be collected and submitted to us from any test holes and all water wells you may construct or reconstruct within the two townships. It is necessary that the collected samples be in our office within a week of collection so that deterioration of the minerals won't occur, thus altering the results of the analysis to reflect inaccurate concentrations. The groundwater samples will assist our effort to monitor the groundwater quality in this area, and to better define the lateral extent of the shallow pressurized saltwater zone.

The regulations which cover the above restrictions and requirements are from amended Article 30 and are as follows:

Section 28-30-6(d). Confined waters shall be separated from each other and from unconfined waters encountered in the same bore hole with grout or other approved materials in areas designated by the department.

Section 28-30-6(1). All groundwater producing zones that are known or suspected to contain natural or man-made pollutants shall be adequately cased and grouted off during completion of the well to prevent the movement of the polluted groundwater to either overlying or underlying fresh groundwater zone.

Section 38-30-4(d). Water samples. Within thirty (30) days after receipt of the water well record (form WWC-5) on a well, the department may request the contractor or landowner who constructs or reconstructs his or her own water well to submit a sample of water from the well for chemical analysis. Insofar as is possible, the department will define in advance, areas from which well water samples are required.

The Department appreciates your support and cooperation concerning this matter and we look forward to working with you. Please contact us if you have any questions concerning this matter.

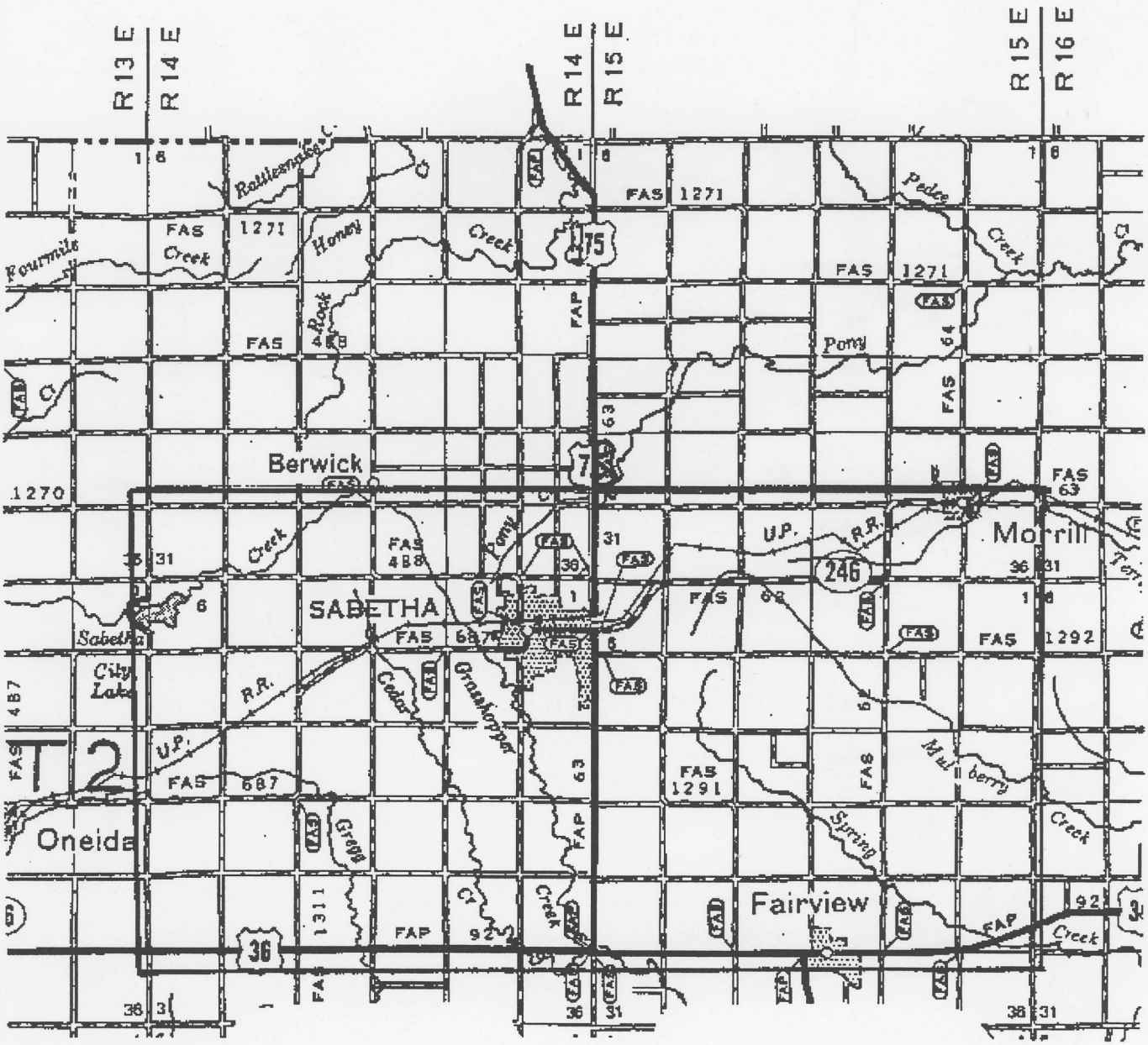
Sincerely,

Richard Harper
Unit Chief, Water Well Section
Bureau of Water

RH:db
Enclosure

c/water well section/Nemaha letter 09

DESIGNATED AREA FOR WATER WELL AND TEST HOLE DRILLING RESTRICTIONS AND MANDATORY GROUNDWATER SAMPLING BECAUSE OF SHALLOW PRESSURIZED SALTWATER FLOW ALONG THE NEMAHA AND BROWN COUNTY LINE.



NEMAHA COUNTY BROWN COUNTY

Kansas Department of Agriculture

Division of Water Resources

David W. Barfield, P.E. - Chief Engineer

The Division of Water Resources administers 30 laws and responsibilities including the Kansas Water Appropriation Act which governs how water is allocated and used; statutes regulating the construction of dams, levees and other changes to streams; the state's four interstate river compacts; as well as coordinating the national flood insurance program in Kansas. (David's Biography and Twitter account)

[Water Appropriation] [Water Structures] [Water Management Services]

[Interstate Water Issues] [Basin Management Team]

[Comments and Suggestions]

DWR is also on Facebook and Twitter:

News:

2011 Drought Options: Two options are available for water users needing additional pumping authorization to prevent crop failure, while insuring additional pumping will not worsen aquifer declines.
[Forms and Additional Information] [KDA Fact Sheet]

The **August 2, 2011** **DWR Currents,** our weekly newsletter with information about drought emergency term permits being extended to additional areas, Corps announcing strategy for evacuating Missouri River floodwaters and DWR wanting to develop LIDAR in more Kansas communities. [Subscribe by E-mail]

Surface water permits and water rights with priority dates after April 12, 1984 are being administered for **Mininimum Desirable Streamflow (MDS)** on portions of the Chikaskia River, Little Arkansas River above Alta Mills and Valley Center, Medicine Lodge River, Ninnescah River, Smoky Hill River and the Walnut River. More information about MDS administration can be found on our MDS webpage.

Supreme Court lets Kansas continue water suit against Nebraska - Kansas alleges Nebraska violated settlement and compact by overusing water from 2005 to 2006. See DWR's Republican River Compact and Enforcement website and the Attorney General's press release for more information.

The **dam safety toolbox** on our website has been updated to include fact sheets regarding, Conduit Inspection Repair and Renovation, Hazard Reclassification, High Hazard Emergency Action Plans, Significant Hazard Emergency Action Plans, Breach Inundation Maps, Dam Terminology, Selecting an Engineer, Dam Upgrading and Dam Safety Issues.

DWR is organized as follows:

- **Water Appropriation** - Manages the state's water supply through a system of permits, reviews and inspections.
- **Water Structures** - Regulates dams, stream modifications, levees and floodplain fills for the protection of life, property and public safety; also provides technical assistance and coordination to local communities participating in the National Flood Insurance Program.

- **Water Management Services** - Provides technical and data support to all agency water programs and includes the following sub-programs:
    - **Interstate Water Issues** - Kansas is party to compacts that allocate water from the Arkansas, Big Blue, Missouri and Republican rivers.
    - **Basin Management Team** - Works to develop water management strategies to address water resource issues identified in the Kansas State Water Plan.

Links to Key DWR Web Pages

DWR Statutes and Regulations

- Water Appropriation Statutes
- Water Structures Statutes
- Water Management Services

DWR Forms

- Water Appropriation Forms
- Water Structures Forms
- Make a Request for Open Records

Your comments and suggestions are encouraged! Here is how to contact us.

109 SW 9th Ave Topeka, KS 66612 -PH: 785 296 3556

DIVISION OF WATER RESOURCES

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DIVISION OF WATER RESOURCES
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Weston (Wes) Essmiller, Manager
Orrin Feril
Jenny Kisner

KANSAS DEPARTMENT OF AGRICULTURE

Kansas Water Appropriation Act K.S.A 82a-701 through 82a-737 and 82a-740 and K.S.A. 42-303 and 42-313

Kansas Water Appropriation Act K.S.A 82a-701 through 82a-737 and 82a-740 and K.S.A. 42-303 and 42-313

Revised September 2010

109 SW 9th Ave Topeka, KS 66612 -PH: 785 296 3556

This Button takes You Directly to the Kansas Department of Agriculture Web Site