



WELL INSPECTION TRAINING FOR WATER WELLS

May 20, 2011

II. INTRODUCTION

In 1973, the Kansas Legislature adopted the Kansas Groundwater Exploration and Protection Act. Shortly thereafter the Water Well Program was formed to support the Act. The purpose of the Act is to provide for the exploration and protection of groundwater through the licensing and regulation of water well contractors in Kansas. This was done to protect the health and general welfare of the citizens of the state. In order to achieve these objectives, the Act requires licensing of water well contractors, establishes standards for water well construction, reconstruction, treatment and plugging.

The Geology Section within the KDHE Bureau of Water, administers the Water Well Program. The water well program regulates various types of water wells by their status. The status of the water wells is determined by KDHE. There are three types of water well status' described as follows:

- * Active: A water well which is an operating well used to withdraw water, or to monitor or observe groundwater conditions.
- * Inactive Water Well: 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.
- * Abandoned: A water 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.

II. DEFINITIONS

- + Water Well Contractor or contractor means any person who constructs, reconstructs or treats a water well. The term does 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 purpose 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.
- + 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.
 - + 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.
 - + 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.
 - + Test Hole or Hole means any excavation constructed for the purpose of determining the geologic, hydrologic and water quality characteristics of underground formations.
 - + Annular Space means the space between the well casing and the well bore or the space between two or more strings of well casing.
 - + 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.
 - + Pump Pit means a watertight structure which:
 - 1.) is constructed at least two feet 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.
 - + Uncased Test Hole means any test hole in which casing has been removed or in which casing has not been installed.

III. ROUTINE FIELD INSPECTIONS

Purpose:

The purpose of field inspections is to determine the status of a water well, either active, inactive or abandoned and to insure water wells are constructed, reconstructed or plugged in accordance with the requirements of Articles 12 and 30. Determine if a well has been repaired and if the repairs have been made as required or that enforcement actions are satisfactorily resolved. Field presence and feedback are necessary to carry out an effective program.

Authority:

The authority to allow KDHE the power to inspect water wells in all phases of construction, reconstruction, treatment or plugging and right of entry is established in Article 12 in K.S.A. 82a-1205(c).

IV. PROCEDURE

Below is a discussion of the procedure to follow for inspection of a water well and how to determine if a water well is active, inactive or abandoned.

Constructed Water Well:

- + Contact the well owner to arrange a time for the inspection. Although KDHE has authority to conduct unannounced inspections, it is generally best to make prior arrangements for the inspection. This will assure that a person familiar with the well will be available during the inspection to answer any questions and resolves any access issues.
- + Make an overall inspection of the well and surroundings. All sources of contamination shall be at least 50 feet from the well, according to KDHE's requirements. Local Environmental Protection Groups (LEPG) may require a greater distance than what is required by KDHE. (See attached Table 1 listing separation distances from water wells and specific sources of contamination).
- + The water well casing shall extend a minimum of 12 inches above the finished grade of surrounding soil unless the well was given a variance prior to construction by KDHE. No holes shall be made in the casing except to install a pitless adapter (See attached Table 2 listing KDHE approved water well casing).
- + The top of the water well casing shall be equipped with a KDHE approved sanitary seal. No set screws shall be used to secure the sanitary seal to the well casing except if the casing is constructed of steel. The sanitary well seal shall be equipped with a screened vent constructed of brass, bronze, or copper with 16-mesh or greater and turned down in a full 180 degree return bend so as to prevent the entrance of contaminated materials.

- + Grout shall be present in the annular space from ground level to a depth of 20 feet or into the first clay or shale whichever is greater, providing a pitless adaptor is not used. If a pitless adaptor is used, the grout in the annular space shall extend from directly below the pitless adaptor to a depth of at least 20 feet or into the first clay or shale layer whichever is greater. When inspecting the well, a thin pointed rod or spear should be pushed next to the well casing to determine if grout is present. Resistance should be noted if bentonite is used for a grouting material. If cement is used, the spear will immediately stop when grout is encountered.

NOTE When pushing the spear or rod, always do so on the opposite side where the electrical lines and plumbing lines exit the casing to avoid personal injury and damage to the electric or plumbing lines.
- + The original borehole is required to be 3 inches larger than the casing placed in the hole. This is to accommodate grouting the casing in the annular area.
- + A water well record (WWC-5 Form) is required to be submitted to KDHE within 30 days of completion of the constructed, reconstructed or plugged water well.
- + If all of the above listed requirements are satisfied the well is in compliance. If the well is being used, the well is considered Active. If the well is not in compliance and the well is in use the well owner shall be told of the deficiencies in well construction and allowed a period of time to correct the deficiencies. (Meets definition on page 1)
- + If the well is in compliance and is not being used and it appears it will not be used for awhile, the well is considered Inactive. To obtain Inactive well status, a WWC-6 Form (see example) must be submitted to KDHE for review and approval. (Meets definition on page 1)
- + If the well is not in compliance and the well has not been used for a significant period of time, the well is considered abandoned and efforts to plug the well should begin immediately. If the well appears to be a conduit for pollutants to enter the well, the well is considered abandoned and must be plugged. (Meets definition on page 1)
- + All hand dug wells that are not being used is considered a potential source of contamination to the aquifer and therefore shall be required plugged and abandoned. Hand dug water wells that are being used are also a potential threat to contaminate the aquifer and cause severe health problems. In this case the well owners should be notified of the potential threat of the hand dug wells and advised to have the water tested in an attempt to replace the hand dug well with a drilled well.

During the inspection, advise the well owner of any problems encountered. The water well contractor is responsible for properly constructing the well. The well owner is responsible for any construction or modification of the construction he/she does.

When the inspection is complete, submit an originally signed inspection report form to the Topeka Central Office so appropriate follow-up may be made. (See example)

d:/Water Wells/Well_Inspection_Training_for_Water_Wells.doc