

ORANGE COUNTY HEALTH DEPARTMENT

Environmental Health Services

WELL ABANDONMENT BY A PROPERTY OWNER

Any person carrying out the abandonment of a well must be registered with the Orange County Health Department and must be the owner of the well or must be certified as a well contractor by the State of North Carolina.

All well construction, repair, or abandonment must be conducted after obtaining a permit from the Orange County Health Department

The Orange County Health Department must be notified and staff must be on site during well abandonment procedures.

**The following text is an excerpt from the Regulations for Groundwater Protection adopted by the Orange County Board of Health
The complete rules must be referenced when using this document**

SECTION IV (B) - ABANDONMENT OF WELLS

- (1) *Wells that have been taken out of service shall be abandoned in accordance with one of the following:*
- (a) ***Temporary Abandonment***
Any well which is temporarily taken out of service shall be temporarily abandoned in accordance with the following.
 - (i) *The well shall be protected with an approved casing, and;*
 - (ii) *sealed with a water-tight cap or seal compatible with casing that cannot be removed without the use of tools, and*
 - (iii) *the well shall be maintained whereby it is not a source or channel of contamination while out of service.*
 - (b) ***Permanent Abandonment***
Any well which is permanently taken out of service shall be permanently abandoned in accordance with the following procedures:
 - (i) ***Wells other than bored and hand dug wells:***
 - (A) *All casing and screen materials may be removed prior to initiation of abandonment procedures if such removal will not cause or contribute to contamination of the groundwaters. Any casing not grouted in accordance with Section II (E) of these Rules shall be removed or properly grouted.*
 - (B) *The entire depth of the well shall be sounded before it is sealed to ensure that there are no obstructions that may interfere with sealing operations.*
 - (C) *Chlorine shall be placed in the well in sufficient quantities to produce a chlorine residual of at least 100 parts per million (ppm) in the well as specified in Section II(P)(1)(a) of these rules.*

- (D) In the case of gravel-packed wells in which the casing and screens have not been removed, neat-cement, or bentonite grout shall be injected into the well completely filling it from the bottom of the casing to the top.*
- (E) Wells constructed in unconsolidated formations shall be completely filled with cement grout, or bentonite grout by introducing it through a pipe extending to the bottom of the well which shall be raised as the well is filled.*
- (F) Wells constructed in consolidated rock formations or that penetrate zones of consolidated rock may be partially filled with cement grout, bentonite grout, sand, gravel or drill cuttings opposite the zones of consolidated rock. The top of the partial fill shall terminate at least 10 feet below the top of the consolidated rock or five feet below the bottom of casing. Cement grout or bentonite grout shall be placed beginning 10 feet below the top of the consolidated rock or five feet below the bottom of casing and extend to land surface. For any well in which the depth of casing or the depth of the bedrock is not known or cannot be confirmed, then the entire length of the well shall be filled with cement grout or bentonite grout up to land surface.*

(ii) Bored and hand dug wells:

- (A) All plumbing and piping in the well, along with any obstructions inside the well shall be removed; and*
- (B) Well tile casing shall be removed to a depth of at least three feet below land surface;*
- (C) An excavation shall be made extending to the top of the casing and extending to a width of at least 12 inches outside of the casing on all sides;*
- (D) Chlorine shall be placed in the well in sufficient quantities to produce a chlorine residual of at least 100 parts per million (ppm) in the well as specified in Section II(P)(1)(a) of these rules.*
- (E) The well shall be filled to the top of the casing with either:
 - i. cement grout, concrete grout or bentonite grout, or;*
 - ii. dry clay, or material excavated during drilling of the well and then compacted in place in lifts of no more than five feet;**
- (F) A one foot thick minimum concrete grout or cement grout plug that fills the entire excavated area above the top of the casing shall be poured; and*

(G) The remainder of the excavation above the cured concrete or cement plug shall be filled with additional concrete grout, cement grout, or soil.

*(iii) **Temporary wells or monitoring wells***

(A) less than 20 feet in depth which do not penetrate the water table shall be permanently abandoned by filling the entire well up to land surface with cement grout or bentonite grout. Dry clay or material excavated during drilling of the well may be used if compacted in lifts of five feet or less.

(B) Temporary or monitoring wells greater than 20 feet in depth or that penetrate the water table shall be permanently abandoned by completely filling with a bentonite or cement - type grout.

- (2) Wells that penetrate the water table shall be abandoned by completely filling with bentonite grout or cement grout. Hand-dug wells and other wells not protected by a properly grouted casing shall be permanently abandoned when they are no longer in service.*
- (3) Any well which acts as a source or channel of contamination shall be repaired or permanently abandoned within 30 days of receipt of notice from the OCHD.*
- (4) The drilling contractor shall permanently abandon any well in which the casing has not been installed and grouted or from which the casing has been removed, prior to removing their equipment from the site.*
- (5) The owner shall be responsible for permanent abandonment of a well except that:*
 - (a) the well driller is responsible for well abandonment if abandonment is required because the driller improperly locates, constructs, repairs or completes the well; or*
 - (b) the person who installs, repairs or removes the well pump is responsible for well abandonment if that abandonment is required because of improper well pump installation, repair or removal.*
 - (c) The person abandoning the well shall provide a minimum 24-hour notice to the OCHD prior to commencement of permanent abandonment procedures.*

*History Note: Substitute for NCAC 02C .0113
Eff. July 1, 2008.*

Footnotes:

*** For Drilled Wells:**

If it cannot be determined if the well was grouted to the proper depth, the well shall be abandoned by completely filling the well with cement grout.

The contractor must determine the depth of the casing and the depth to consolidated rock unless the well is to be completely filled with cement grout. This will require the use of a camera to determine depth to consolidated rock.

After determining the casing depth and depth to rock, the well may be filled with cement, sand, gravel or drill cuttings to a point 5 feet below the bottom of the casing

and 10 feet below the consolidated rock. The remainder of the well and casing must be grouted with cement. The top of the casing may be terminated below the finish grade.

**** For Bored Wells:**

Unless it can be determined that the casing of a bored well is properly grouted in accordance with these rules, the well must be permanently abandoned.

- Permanent abandonment requires the removal of the top sections of casing to a depth of at least 36” below finish grade, and excavating at least 12” beyond the edges of the casing. This requirement may not apply if the well is to be permanently abandoned by completely filling with cement grout.
- The well is filled to a depth of 20 feet from the ground surface with dry clay, cuttings, or grout. The remainder of the well (i.e. the top 20 feet) shall be filled with cement grout only. The cement grout shall form a ledge at least 12” beyond the circumference of the casing with a depth of at least 12”.
- When dry clay or cuttings are used, the fill material shall be compacted in lifts of 5 feet.

***** For Hand – Dug Wells:**

Hand dug wells are not protected by a properly grouted casing and therefore can not be temporarily abandoned, they must be permanently abandoned.

NOTE:

For any well abandonment, the owner or contractor conducting the abandonment must notify the Orange County Health Department when the abandonment is going to take place. [919-245-2360] A representative of OCHD must be on site during the abandonment process. If an owner of a well chooses to conduct their own abandonment, they are responsible for meeting all conditions of the Orange County Groundwater Protection Regulations as well as all requirements of the State Division of Water Quality.

For all well abandonments, provisions must be made to secure the abandoned well until the cement grout sets up to prevent accidental entry into the excavation.

After abandonment of the well, you must complete and submit a well abandonment record to the Orange County Health Department. See attached.

ORANGE COUNTY HEALTH DEPARTMENT

Environmental Health Services

REGISTRATION FOR WELL ABANDONMENT

Date: _____

Property TMBL: _____

Property Address: _____

Name of Owner: _____

Address: _____

City, State, Zip _____

Daytime Telephone: _____ Mobile Phone: _____

Email Address: _____

Type of well to be abandoned

- Drilled
 Bored
 Dug

Depth _____
Diameter _____

I plan to abandon the well myself I will hire a certified driller to abandon the well

I have received the information packet for well abandonment and have discussed abandonment procedures for my well with Environmental Health staff. If I abandon the well as the property owner, I accept responsibility for the proper abandonment and any corrective action that may be needed. If I do not abandon the well myself, I must hire a certified well contractor who is registered in Orange County.

Signature of Property Owner

Sign and return completed form to:

Orange County Health Department
Environmental Health Section
P.O. Box 8181
306-C Revere Road
Hillsborough, N C 27278



WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # _____

1. WELL CONTRACTOR:

Well Contractor (Individual) Name _____

Well Contractor Company Name _____

STREET ADDRESS _____

City or Town _____ State _____ Zip Code _____

(_____) - _____
Area code - Phone number

2. WELL INFORMATION:

SITE WELL ID # (if applicable) _____

STATE WELL PERMIT # (if applicable) _____

COUNTY WELL PERMIT # (if applicable) _____

DWQ or OTHER PERMIT # (if applicable) _____

WELL USE (Check applicable use): Monitoring Residential

Municipal/Public Industrial/Commercial Agricultural

Recovery Injection Irrigation

Other (list use) _____

3. WELL LOCATION:

COUNTY _____ QUADRANGLE NAME _____

NEAREST TOWN: _____

(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)

TOPOGRAPHIC / LAND SETTING:

Slope Valley Flat Ridge Other _____

(Check appropriate setting)

LATITUDE _____

LONGITUDE _____

May be in degrees,
minutes, seconds, or in a
decimal format

Latitude/longitude source: GPS Topographic map

(Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)

4a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)

FACILITY ID #(if applicable) _____

NAME OF FACILITY _____

STREET ADDRESS _____

City or Town _____ State _____ Zip Code _____

4b. CONTACT PERSON/WELL OWNER:

NAME _____

STREET ADDRESS _____

5. WELL DETAILS:

a. Total Depth: _____ ft. Diameter: _____ in.

b. Water Level (Below Measuring Point): _____ ft.

Measuring point is _____ ft. above land surface.

6. CASING:

Length

Diameter

a. Casing Depth (if known): _____ ft. _____ in.

b. Casing Removed: _____ ft. _____ in.

7. DISINFECTION: _____

(Amount of 65%-75% calcium hypochlorite used)

8. SEALING MATERIAL:

Neat Cement

Sand Cement

Cement _____ lb.

Cement _____ lb.

Water _____ gal.

Water _____ gal.

Bentonite

Bentonite _____ lb.

Type: Shurry Pellets

Water _____ gal.

Other

Type material _____

Amount _____

9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.

11. DATE WELL ABANDONED _____

I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C. WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CERTIFIED WELL CONTRACTOR _____ DATE _____

SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL _____ DATE _____
(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)

PRINTED NAME OF PERSON ABANDONING THE WELL _____