

North Carolina's Private Drinking Water Well Program



Rules Governing Private Water Supply Wells in North Carolina

- 15A NCAC 2C .0100 – NC Well Construction Standards.
- 15A NCAC 2C .0300 – Rules for Permitting and Inspecting of Private Water Supply Wells.
- 15A NCAC 18A .3800 – Private Water Well Sampling

2C .0100 Well Construction Standards

North Carolina Administrative Code
Title 15A

Department of Environment and Natural Resources
Division of Water Quality



Subchapter 2C
Section .0100

Well
Construction
Standards

Criteria and Standards
Applicable to Water Supply
and Certain Other Wells

Current Through October 1, 2009
Environmental Management Commission
Raleigh, NC

- Administered by the Division of Water Resources and the Division of Public Health

2C .0100 History



- **The North Carolina Well Construction Act was passed in 1967** (NCGS - Chapter 87 Article 7)
- **The first set of rules were effective on January 1, 1972**

IV. STANDARDS OF CONSTRUCTION FOR WATER-SUPPLY WELLS

A. Location

1. Except when prior written permission is granted by the Department, or an agency designated by the Department, the well shall be located:
 - a. At a site not generally subject to flooding.
 - b. At a minimum horizontal distance of fifty (50) feet from any water-tight sewage and liquid-waste collection facility (such as cast iron pipe).
 - c. At a minimum horizontal distance of one hundred (100) feet from any other sewage or liquid-waste collection and disposal facility and any other source of potential pollution or contamination.
 - d. At a minimum horizontal distance of ten (10) feet from any property boundary.
 - e. At a site that permits access for maintenance, repair, treatment, testing, and such other attention as may be necessary.

2C .0107 – Location Setbacks

500 ft. Separation:



solid waste landfill



c & d landfill

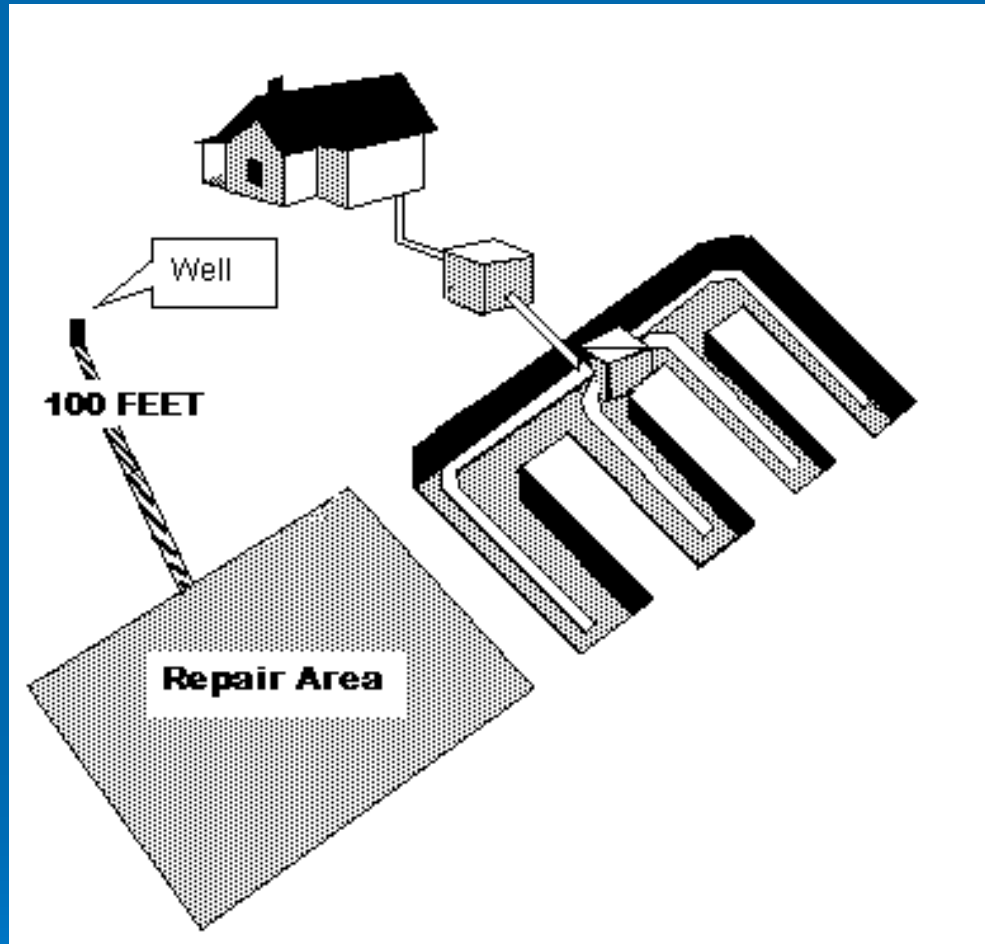


incinerator

Sanitary landfills, municipal solid waste landfill facilities, incinerators, construction and demolition (C&D) landfills and other disposal sites except Land Clearing and Inert Debris

2C .0107 - Location Setbacks

100 ft. Separation:



- Septic tank and drainfield including the repair area
- Other subsurface systems

2C .0107 - Location Setbacks

100 ft. Separation:



New setback category

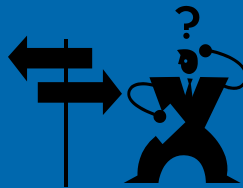
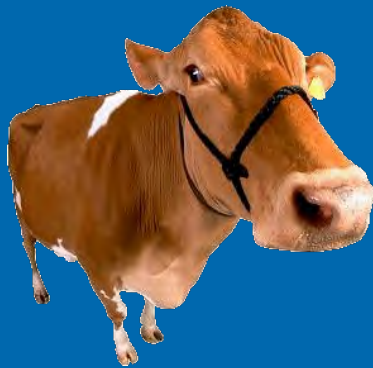
All other petroleum or chemical storage tank systems...100 feet

*This does not include tank systems regulated under 2N or heating oil tanks

2C .0107 - Location Setbacks

100 ft. Separation:

Animal feedlots, as defined by G.S. 143-215.10B(5), or manure piles..... 100 feet



G.S. 143-215.10B(5) states:

"Feedlot" means a lot or building.....in which animal waste may accumulate or where the concentration of animals is such that an established vegetative cover cannot be maintained.....Pastures shall not be considered feedlots for purposes of this Part.

2C .0107 - Location Setbacks

50 ft. Separation:

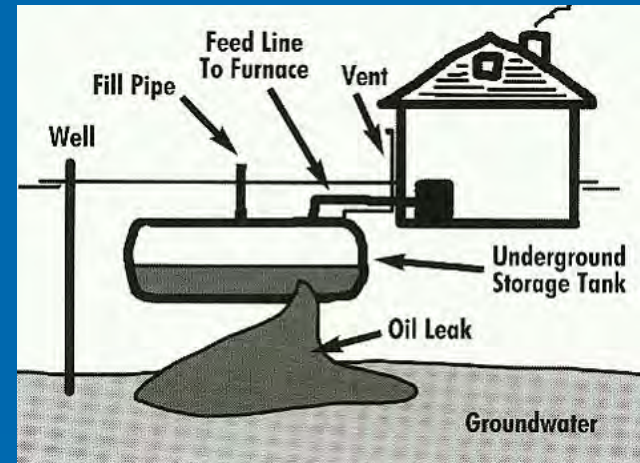
- Sewage or liquid waste collection or transfer facilities constructed to water main standards (2T or 18A)
- Surface water bodies that act as sources of groundwater recharge, such as ponds, lakes, and reservoirs
- 2N regulated USTs that have secondary containment



2C .0107 - Location Setbacks

50 ft. Separation:

- Heating oil tanks either above ground or below



Note: Tanks that contain propane, LP, or natural gas have NO setback



2C .0107 - Location Setbacks

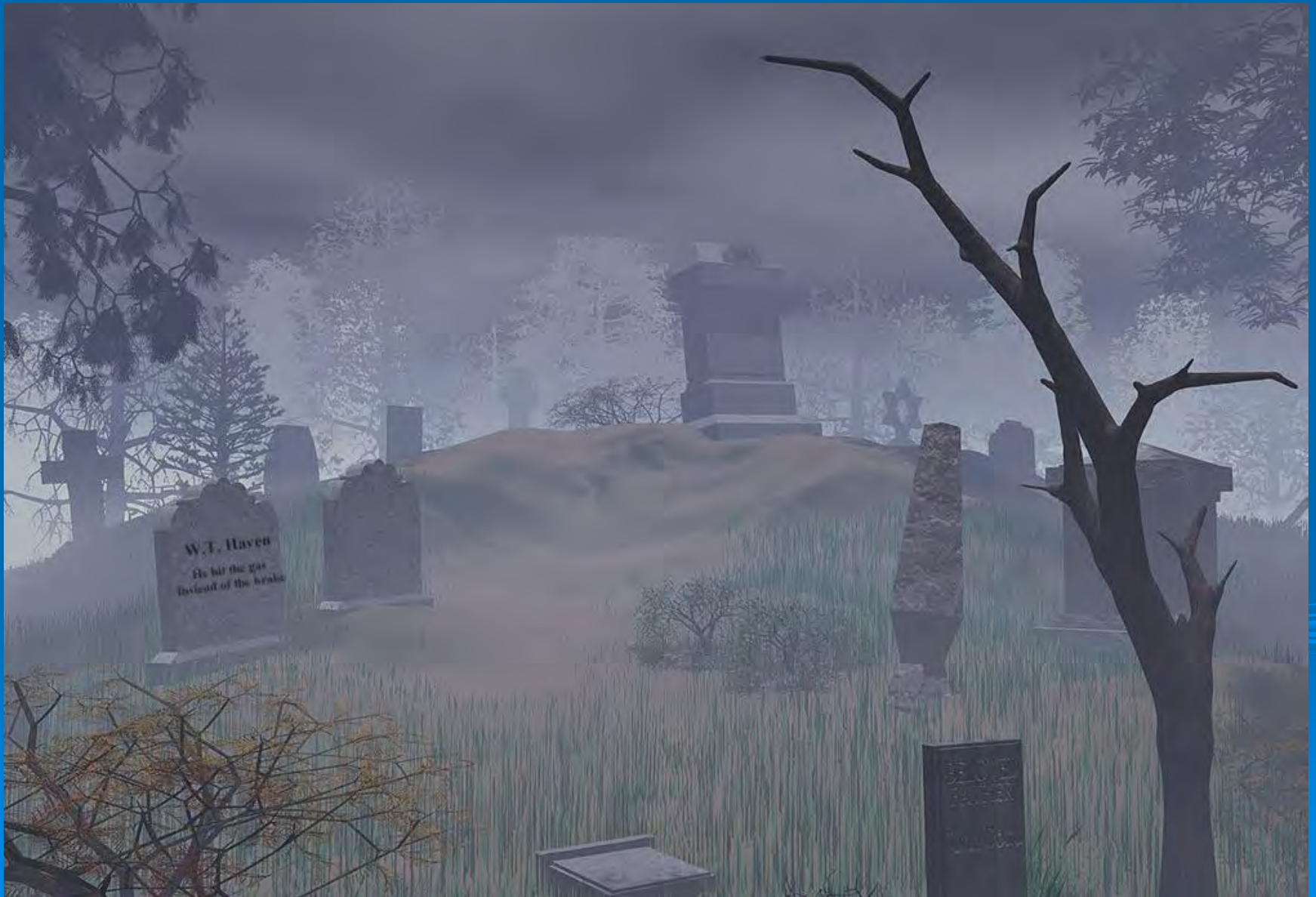
50 ft. Separation:

- All other potential sources of groundwater contamination



2C .0107 - Location Setbacks

50 ft. Separation:



2C .0107 - Location Setbacks

25 ft. Separation:

- Building perimeters, including any attached structures



2C .0107 - Location Setbacks

25 ft. Separation:

- All other surface water bodies that do not serve as a groundwater recharge (creeks, rivers, and sounds)



2C .0107 - Location Setbacks

The Infamous!!! Much Abused!!!

'Fixed Lot Size Provision'

A well serving a single-family dwelling where lot size or other fixed conditions preclude the separation distances, the required horizontal separation distances shall be the maximum possible but shall in no case be less than the following:

- Septic tank and drainfield.....50 ft.
- Water-tight sewage or liquid-waste collection or transfer facility.....25 ft.
- Animal barns.....50 ft.

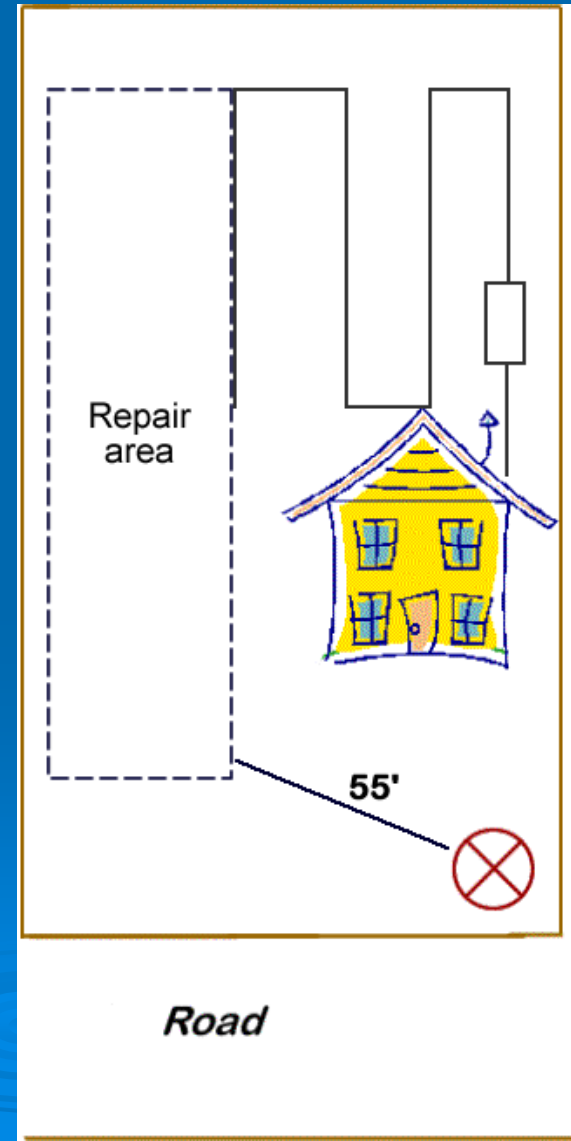
.0107 - Location

Fixed lot size conditions

Only for a single-family dwelling. No reductions for anything else.

Like a built-in variance.

If used, the source of the water must be greater than 35 feet in depth (i.e.. cased)





.0107 Casing



- Most of the state has 20' of casing except:
- Cannot drive PVC casing but it can be pushed
- Must have a cap on the well prior to the equipment leaving the site

	Maximum Depth (in feet) for SDR 21	Maximum Depth (in feet) for SDR 17	Maximum Depth (in feet) for SDR 13.5
All Diameters	185	355	735

Nominal Diameter (inches)	Maximum Depth (in feet) for Schedule 40	Maximum Depth (in feet) for Schedule 80
2	485	1460
3	415	1170
3.5	315	920
4	253	755
5	180	550
6	130	495
8	85	340
10	65	290
12	65	270
14	50	265
16	50	255

.0107 – Grout Types



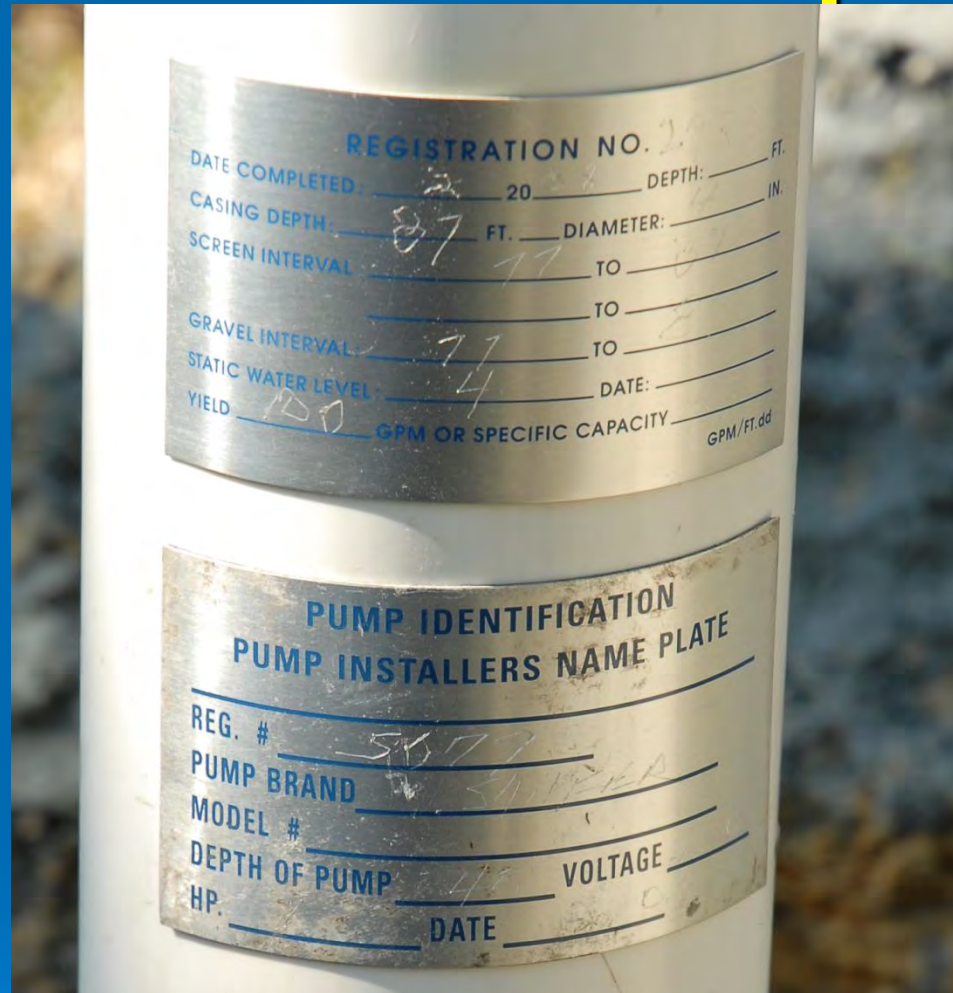
- **Cementitious – several types**
- **Bentonite slurry grout – 3 ft bls**
- **Bentonite chips and pellets**

.0107 – Grouts - Emplacement



- Pumping, pressure, or gravity flow.
- Grouting by gravity flow cannot be done if there is any water or visible obstruction within 20 feet of the land surface.

.0107 Wellhead Completion



- ID plate and Pump Installers Plate required. Must be stamped on ID plate
- No Scratching!

.0111 – Disinfection



- Well must be disinfected with a hypochlorite solution sufficient to produce 100ppm in the well.

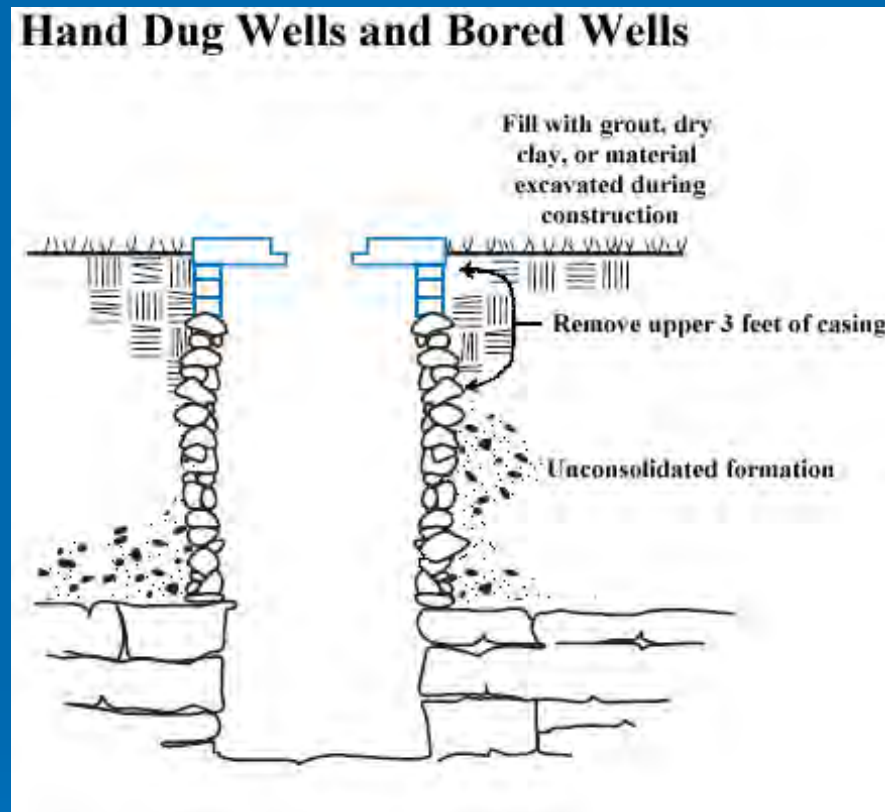
.0113 - Abandonment



- **Two types – temporary and permanent.**
- **Permanent abandonment entails a complete filling of the well with various abandonment material based on geology and well type.**
- **Well must be disinfected prior to abandonment.**

.0113 – Abandonment

Bored and Hand Dug Wells – Highlights:



- Bored or hand dug wells must have the uppermost 3 feet of the casing removed.
- The soil or other material in this upper three feet must be removed extending to a width of at least 12 inches outside of the former well casing.

What Brought about the need for permitting?

- NC did not begin a statewide well permitting program until July 1, 2008!
- 5-part series in the News and Observer (2nd largest paper in NC)
- Identified the need to further protect groundwater resources and well owners.

Summary of the General Statutes under Session Law 2006-202



- In July, 2006 the General Assembly ratified House Bill 2873, which became Session Law 2006-202.

Summary the General Statutes under Session Law 2006-202



G.S. 87-85

Definition of a private well includes:

wells that serve 14 or fewer service connections or that serves or is proposed to serve 24 or fewer individuals. The term 'private drinking water well' includes a well that supplies drinking water to a transient noncommunity water system.....

From a Public Health Perspective Which is More Important: The Well or The Septic System?




OR



- They are equally important!!

Highlights of the 2C.0300 Rules

- Application requires a plat or a site plan.
 - Permits valid for 5 years.
 - Permit to be conditioned on abandonment of improperly abandoned wells.
 - Permit revocation power
- 

Highlights of the 2C.0300 Rules

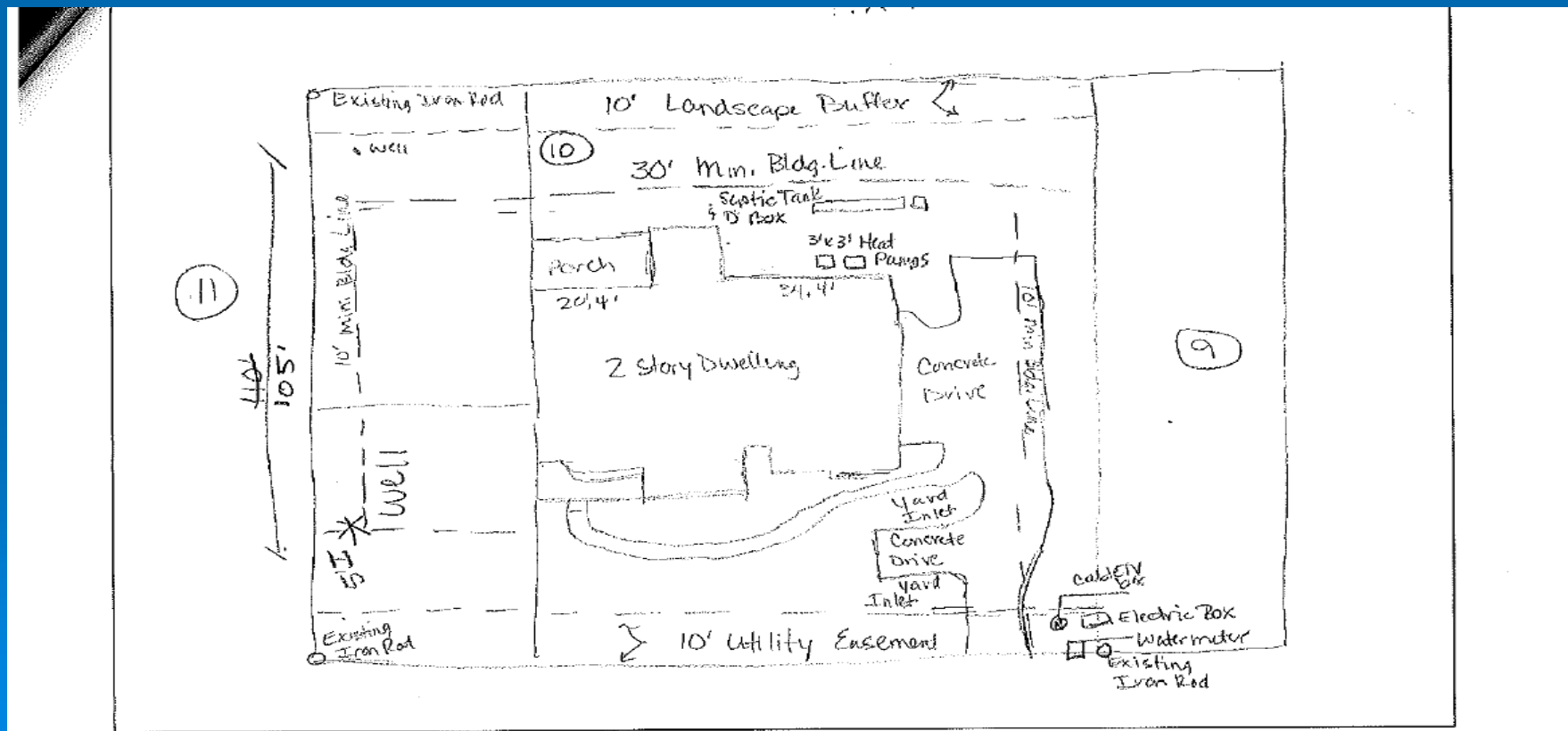
-Permits-



- Required for construction of new wells.
- Includes all TNC wells that serve 14 or less connections and 24 or fewer people.
- Required for repairs of existing wells.
(examples: liners, extending casing)
- Not required for pump maintenance, repair, or replacement.

Site plans:

- County must “sketch” the proposed well area.



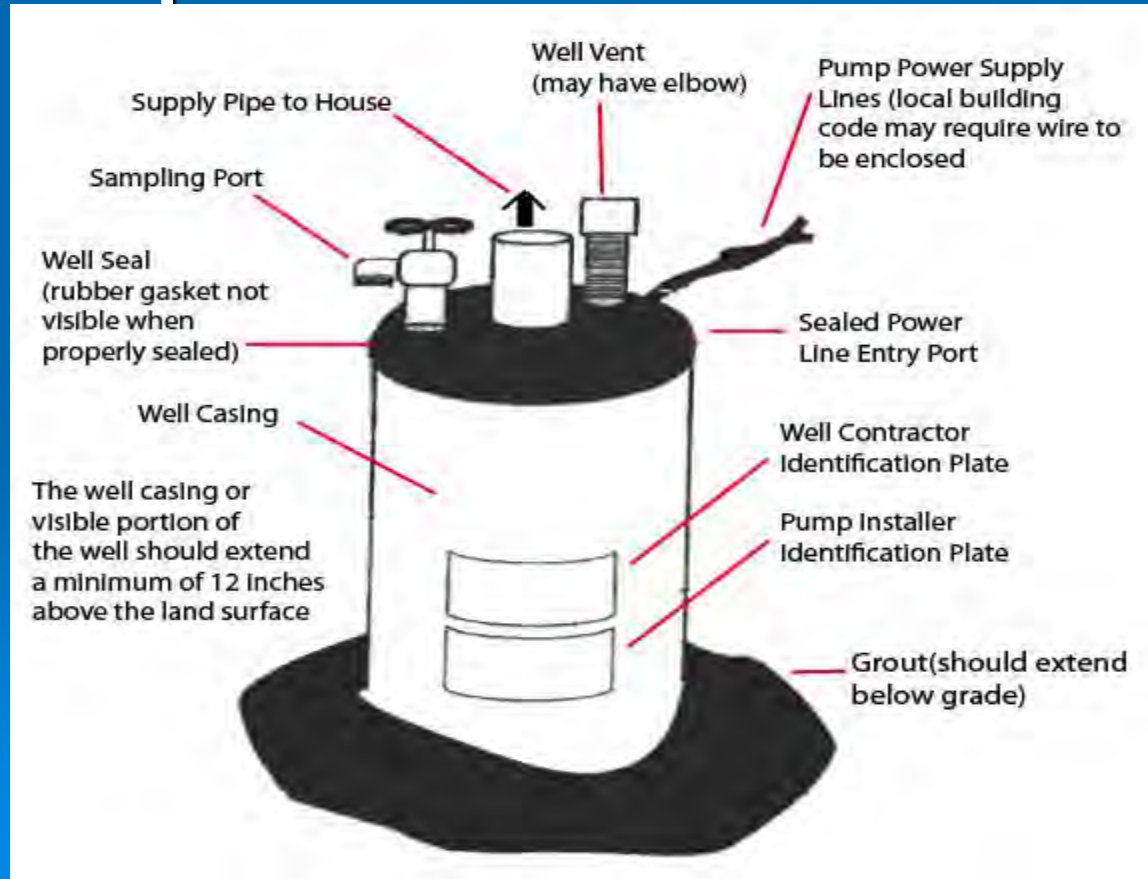
2C .0300 Highlights Grout Inspection

- Well contractor must drill well in an “approved” area.
- Once drilled they must contact the health department to schedule a grout inspection.
- 1-hour rule!



Well Head Inspection

- Upon completion of the well, the county shall inspect the well head.



- **Assistance must be given to inspect well. (i.e. well house, etc.)**

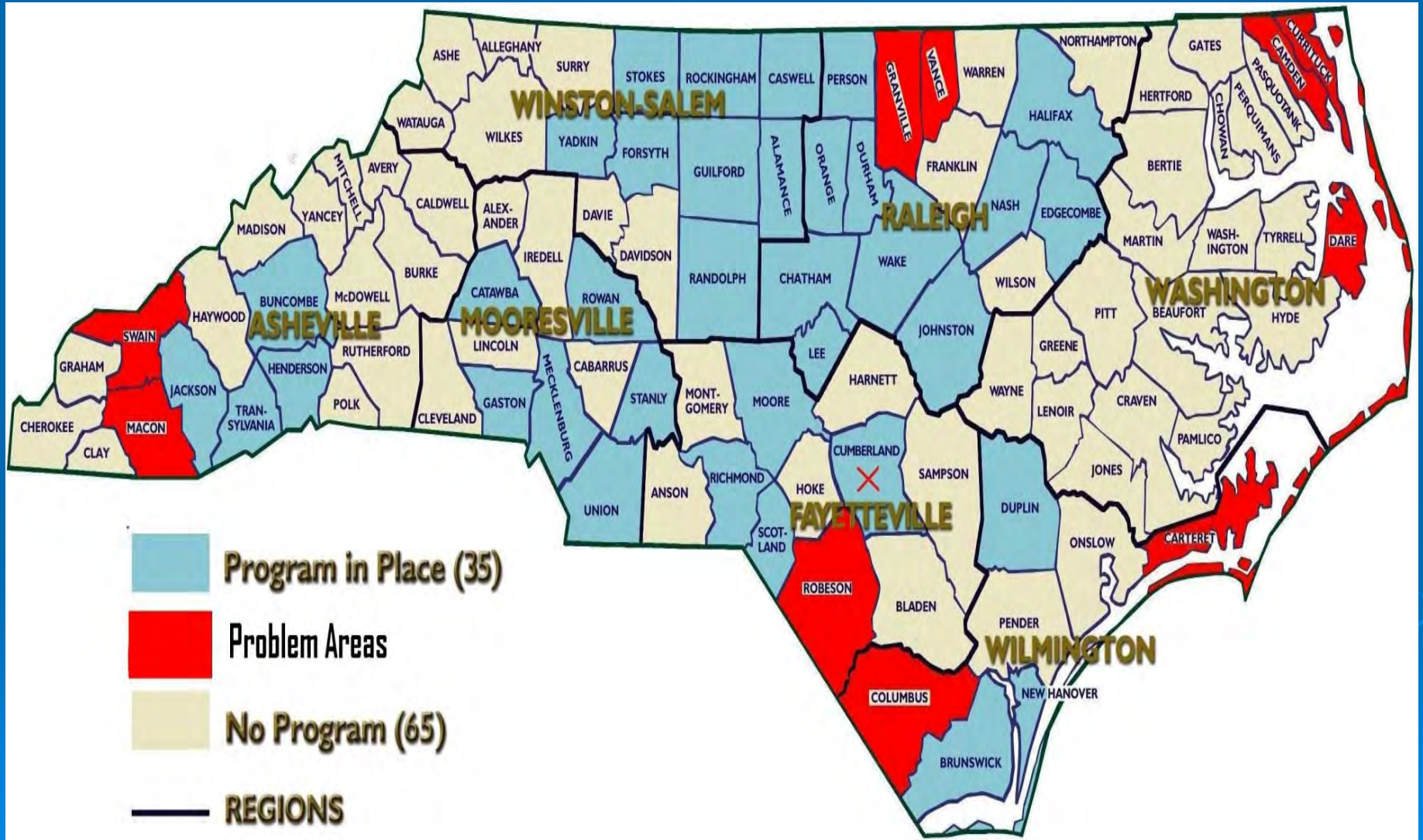


Once Certificate of Completion is issued: .3800 Sampling Rules

- **Sample for bacteria, pH, nitrate, nitrite, arsenic, barium, cadmium, chromium, copper, fluoride, lead, iron, magnesium, manganese, mercury, selenium, silver, sodium, and zinc**
- **Must be sampled within 30 days of Certificate of Completion and be taken from the tap at the well head**
- **Sampled by Env. Health Spec. or another approved party**
- **Samples sent to State Public Health Lab, or Certified Lab**

Challenges and Successes within the Private Well Program

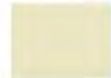
- Prior to statewide permitting in 2008, only 35 counties permitted wells.
- Required to “authorize” staff in all 100 counties!
- Also had to convince well contractors this benefited their industry.



Program in Place (35)



Problem Areas



No Program (65)



REGIONS

2011

A Busy Year in the Legislature

- Many state programs were cut.
- Bullseye on DENR's environmental programs



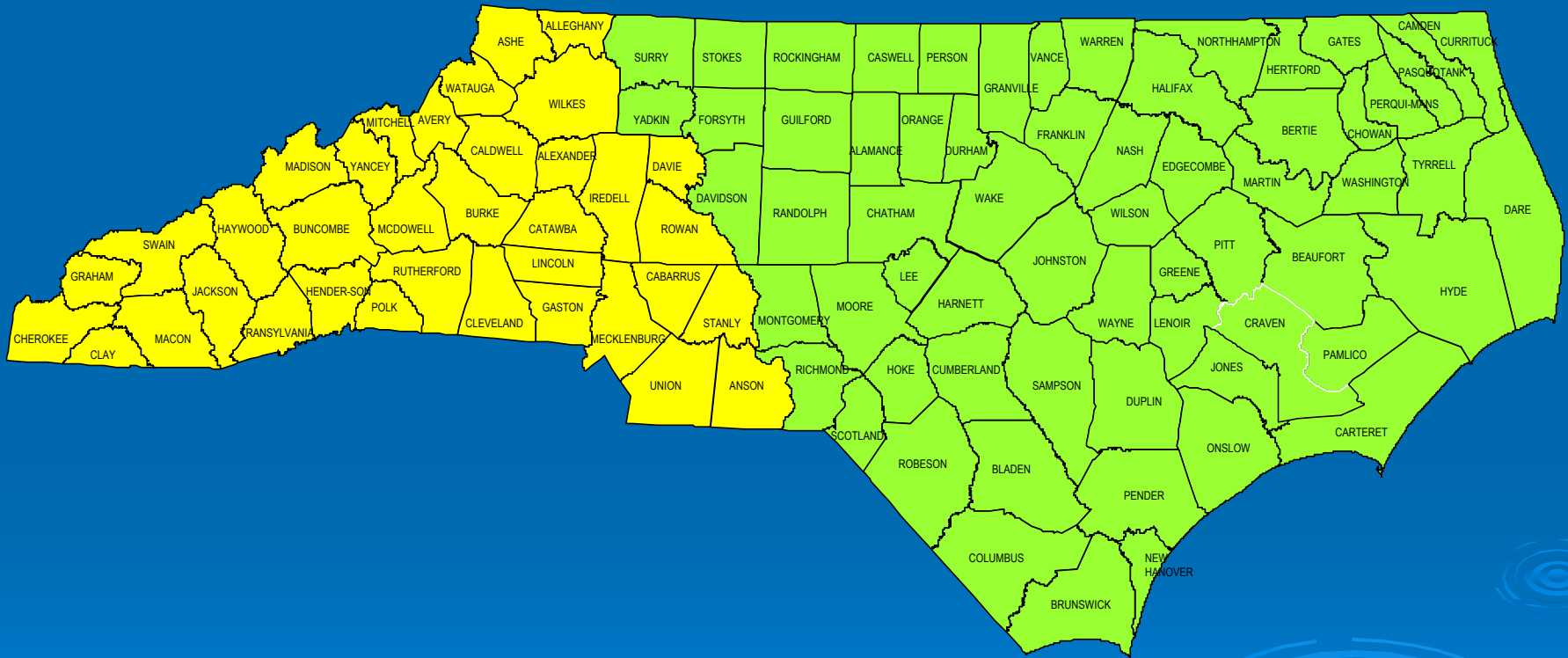
2011 Legislative Actions in The Private Wells Program

- **Joint Appropriations Subcommittee on Natural and Economic Resources recommended the elimination of the 5 state positions in the Private Wells Program (\$348,372).**
- **A resolution passed by the Rutherford County Board of Commissioners to repeal the entire private well program including supporting statutes was adopted by the legislature as HB 705.**

On-Site Water Protection

Regional Well Territory Map

August 1, 2013



● Wilson Mize (919) 218-5383
wilson.mize@dhhs.nc.gov

● John Brooks (828) 713-3335
john.brooks@ncmail.net

Despite the Challenges, the Program Has been a Huge Success!!

- Very few wells are now being installed by “illegal” well contractors.
- Wells are being properly grouted, sealed, and protected.
- Homeowners are much more aware of the water quality in their wells (HREs).
- Wells are being properly abandoned.



Private Well Information and Use Recommendations

For Inorganic Chemical Contaminants

County:

Name:

Sample ID #:

Reviewer:

TEST RESULTS AND USE RECOMMENDATIONS

- Your well water meets federal drinking water standards for inorganic chemicals. Your water can be used for drinking, cooking, washing, cleaning, bathing, and showering.
- The following substance(s) exceeded federal drinking water standards or the North Carolina 2L calculated health levels. The North Carolina Division of Public Health recommends that your well water not be used for drinking and cooking, unless you install a water treatment system to remove the circled substance(s). However, it may be used for washing, cleaning, bathing and showering.

Arsenic	Barium	Cadmium	Chromium	Copper	Fluoride	Lead	Iron	
Manganese	Mercury	Nitrate/Nitrite	Selenium	Silver	Magnesium	Zinc	pH	

- a. Sodium levels exceed the U.S. Environmental Protection Agency's (USEPA) Health Advisory level for sodium of 20 mg/l. The North Carolina Division of Public Health recommends that only individuals on no or low sodium restricted diets not use this water for drinking or cooking. It may be used for washing, cleaning, bathing, and showering.

b. Levels over 30 mg/l may pose aesthetic problems such as bad taste, odor, staining of porcelain, etc.

- Re-sampling is recommended in _____ months.
- Re-sample for lead and /or copper. Take a first draw, 5 minute, and 15 minute sample inside the house (preferably the kitchen) and if possible a first draw, 5 minute and a 15 minute sample at the well head to determine the source of the lead and/or copper.
- The following substance(s) exceeded federal drinking water standards. Your water can be used for drinking, cooking, washing, cleaning, bathing, and showering, but aesthetic problems such as bad taste, odor, staining of porcelain, etc. may occur. You may want to install a household water treatment system to address aesthetic problems.

Barium	Cadmium	Chromium	Fluoride	Iron	Magnesium
Manganese	Selenium	Silver	pH	Zinc	

For more information regarding your well water results, please call the North Carolina Division of Public Health at 919-707-5900

- **County staff educate well owner's concerning treatment options.**
- **Counties are prepared/trained to assist during natural disasters (i.e. flooding due to Hurricanes).**
- **Counties are much more equipped to handle large scale incidents (i.e. Duke Power Coal Ash).**









08 13 2002





11/28/2005



Workers rescue toddler from well

MIDLAND (AP) — Eighteen-month-old Jessica McClure was rescued Friday night from an abandoned well by workers who spent 2½ days drilling through solid rock to reach her as the nation waited anxiously to learn her fate.

Barefoot, caked with dirt and strapped with gauze to an immobilizing backboard, Jessica was hoisted by cable out of the shaft just before 8 p.m. CDT to the cheers of her parents, neighbors and rescue workers.

She had been in the well nearly 58½ hours.

"They brought her out feet-first. They had put Vaseline on her to get her through the hole," said Police Sgt. Jeff Haile. "She was very alert, very bright-eyed. They got her through with no scratches. She's fine.

"I didn't have any dry eyes," he said. "I'm relieved and am glad it's over."

The toddler, who had gone without food or drink since plunging into the narrow well Wednesday morning in her aunt's back yard, appeared alert as she rubbed her eyes in the glare of floodlights.

ABC, NBC and CBS-TV all interrupted their prime-time shows to televise the final minutes of the rescue, and CNN carried long live reports throughout the ordeal.

Jessica was rushed to a waiting ambulance for a one-mile drive to Midland Memorial Hospital.

Dr. Carolyn Rhode said the girl suffered no broken bones, but could have circulation problems with her right leg, which was wedged along-side her body in the narrow crevice

Please see related stories, 1-C

so that her foot was next to her head.

The child weighed 21 pounds six weeks ago, but had dropped to 17½ pounds and was 10 percent to 15 percent dehydrated, Rhode said.

"It's a matter of rehydrating her and observing her and observing patches of skin that suffered from lack of blood circulation," she said. "I think considering the length of time she was in there and the position she was in, she's a very spunky girl."

A deafening shout of jubilation rose from the crowd of onlookers as Jessica first emerged, and horns honked throughout the neighborhood.

"We knew we would get her out," said exuberant driller Ribbie Boler. "I saw her face and it felt real good."

Bob Hawk, a local contractor who was on the scene, said the abandoned well was immediately covered and that the rescue hole was to be filled in soon. He said the sign of a job well done is a satisfied customer, but "this is way, way above that. This is personal satisfaction."

Jessica's parents, Chip and Reba Gayle McClure, had been summoned to the well just before 7 p.m., a signal that an end was finally near to a drama that started at 9:30 a.m. Wednesday morning.

A short while later a paramedic was lowered into a parallel shaft that rescue workers had dug two days before. Later still, a tube of lubricating jelly apparently to help

make Jessica slippery enough to squeeze out of her jam was sent down, as well as the backboard.

Jessica had been wedged in a narrow crevice 22 feet below ground. Rescue workers had to first dig a parallel shaft about five feet away, then create a 20-inch diameter tunnel across to the well through rock so hard it dulled diamond-tipped drills.

Just after noon, workers bored a hole into the well shaft that was large enough for a paramedic to reach in and check her condition, Midland Police Chief Richard Czech said. She appeared fine, but her right leg was somehow stuck.

"He was able to talk to the little girl. She was able to respond to commands, lift her foot up, do a few little things. She's helpful," said Czech. "We still don't have enough room to get her out."

High-pressure water drill equipment had to be flown in from Houston to widen the rescue tunnel, forcing yet another delay in a process that workers had first predicted would end early Thursday night.

During the life-saving efforts, the child cried and repeatedly said "Mommy" when her 17-year-old mother talked to her. The little girl's breathing was monitored by microphone as her anxious parents and well-wishers clung to hope.

Jessica, described by an uncle as "a fighter," slept during the night after heaters were installed to blow warm air into the 8-inch-wide entrance to the well.

The workers bent themselves go-



Please see RESCUE, 2-A

Jessica is carried from well where she was trapped since Wednesday morning.

AP LASERPHOTO

Girl who fell down well thanks rescuers

Posted: Jul 24, 2012 12:19 AM EDT

Updated: Aug 21, 2012 12:21 AM EDT

By Derek Dellinger

CONNECT

HENDERSONVILLE, NC (FOX Carolina) - It was an emotional reunion Monday night in Henderson County, as a teenage girl reunited with the dozens of people who helped rescue her last month.

Alyson Myers fell some 60 feet down a well before being able to climb back up and call for help. She was in the well for around six hours before she was finally rescued. Between surgeries and recovery, she's kept a high spirit.

Monday, Myers joined her mother and father in thanking everyone who was involved in the rescue. The reunion took place at the Dana Fire Department

"I just can't thank everyone enough for what happened and how much they helped me. It's just a job to some people, but after this it's so much more," she said.

Rescuers said they still remembered that day, and said that all that happened was a miracle. They are also calling Myers' recovery a miracle because she's made incredible progress in such a small amount of time.

Myers is still recovering from two back surgeries and a reconstructive surgery on her nose, but she plans to make a return to her high school in the fall.



Alyson Myers talks with one of the paramedics who helped rescue her from a well in June. (July 23, 2012/FOX Carolina)

[Previously: 911 recordings released of Henderson Co. well rescue](#)



DANGER
OPEN
Well

09/08/2010







QUESTIONS?

