Virginia Department of Health (VDH)
Private Well Regulations Workgroup
December 8, 2016, Meeting Summary

Peninsula Health Center
416 J. Clyde Morris Boulevard
Conference Room 1
Newport News, Virginia 23601

List of Attendees:

Private Well Regulations Workgroup Members

John Danielson – Virginia Water Well Association
Dan Botdorf – VDH (Office of Drinking Water)
Jon Richardson – VDH (local health department)
Scott Bruce – Department of Environmental Quality
Dr. Kelsey Pieper – Civil and Environmental Engineering, Virginia Tech
Wayne Fenton – Virginia Water Well Association
Dennis Duty – Manufacturer
Bob Willoughby – Onsite Soil Evaluator
Ben Spence – Virginia Water Well Association

VDH Staff and Members of the Public

Lance Gregory – VDH
Amy Pemberton – VDH
Daniel Blasche – VDH
Corey Dixon – VDH
Adam Feris - VDH

Administrative

1. Welcome and Travel Reimbursements.

Mr. Gregory welcomed the workgroup, thanked the members for their participation and distributed travel reimbursements to workgroup members.

2. Introduction of Workgroup Members.

Workgroup members then introduced themselves.

3. Approve agenda.

The workgroup reviewed and approved the agenda.

4. Review Summary from October 5, 2016 meeting.

The workgroup reviewed the summary from the October 5, 2016, meeting; there were no edits.

General Information

1. Purpose of the Private Well Regulations Workgroup.

Mr. Gregory reiterated the purpose of the workgroup is to assist VDH in developing proposed revisions to the Private Well Regulations (12VAC5-630-10 et. seq., the Regulations).

2. Ground rules for workgroup meetings.

Mr. Gregory reiterated the ground rules for the workgroup as discussed during the August 4, 2016, meeting.

Discussion

1. Follow up on questions from previous meetings.

    a. Statutory revisions necessary for previous recommendations.

At the October workgroup meeting, Mr. Gregory discussed several revisions proposed as part of a 2003 workgroup that would require changes to the Code of Virginia. Following the October meeting Mr. Gregory confirmed that VDH would need additional statutory authority to: require abandonment of wells; create construction and abandonment criteria for geotechnical wells and exploration wells; revise section 340 to require easements even if the property owner is the same; create maintenance requirements for wells; or create regulations for water haulers.

    b. Basis for original separation distances.

Mr. Gregory shared information with the workgroup regarding the development of the original Regulations beginning in 1986; specifically the establishment of minimum separation distances. The information Mr. Gregory found shows that, among other factors, the separation distances were based on: i) separation distances contained in existing VDH regulations (e.g. 100 foot separation from an onsite sewage system to a private well in the Sewage Handling and Disposal Regulations); ii) regulations from other states; and iii) separation distances established by the U.S. Department of Housing and Urban Development (HUD). Mr. Gregory stated that he would continue to research how the separation distances established by HUD and other states were developed.

2. Issues of local concern; Eastern Virginia.

The following issues of local concern were raised by attendees:

- Need to establish a setback from abandoned septic systems now on sewer.
- Complaints that the 30 day expiration date on express wells should be extended.
- VDH should stop requiring a new application and fee when a well site needs to be moved.

- Buried wells need to have some type of above grade marker to make them easily identifiable.
- Need specific grouting procedures for paleochannels on the Eastern Shore.

Brainstorming recommendations.

The workgroup then split into small groups to brainstorm recommendations to for the various issued raised in previous meeting. The comments and recommendations developed are covered in the attached list of issues.

Discuss Recommendations

The workgroup then began discussion on the various recommendations. However, given the limited amount of time, the workgroup was not able to discuss most of the recommendations. Further discuss is required.

Next Steps

1. Discuss next steps.

Mr. Gregory stated that he would draft a Notice of Intended Regulatory Action (NOIRA) for the Regulations to share with the workgroup prior to the next meeting. In addition, he will work on draft revisions based on the recommendations provided by the workgroup.

Adjourn

Virginia Department of Health
Private Well Regulations Workgroup
Tentative Agenda

Date:	December 8, 2016
Time:	10 am to 2 pm
Primary Location:	Peninsula Health Center 416 J. Clyde Morris Boulevard Conference Room 1 Newport News, Virginia 23601

Administrative (20 minutes)

1. Welcome and Travel Reimbursements. (5 minutes)
2. Introduction of Workgroup Members. (5 minutes)
3. Approve agenda. (5 minutes)
4. Review Summary from October 5, 2016 meeting. (5 minutes)

General Information (10 minutes)

1. Purpose of the Private Well Regulations Workgroup. (5 minutes)
2. Ground rules for workgroup meetings. (5 minutes)

Discussion (50 minutes)

1. Follow up on questions from previous meetings. (20 minutes)
   c. Statutory revisions necessary for previous recommendations.
   d. Basis for original separation distances.
2. Issues of local concern; Eastern Virginia (30 minutes)

Break (10 minutes)

Brainstorming recommendations (60 minutes)

1. Small group discussion #1. (20 minutes)
2. Small group discussion #2. (20 minutes)
3. Small group discussion #3. (20 minutes)

Break (5 minutes)

Discuss Recommendations (60 minutes)

1. Abandonment. (5 minutes)
2. Consistency with other agencies/offices/regulations. (5 minutes)
3. Construction standards. (15 minutes)
4. Regulatory oversight. (5 minutes)
5. Separation distances. (15 minutes)
6. Water quality. (15 minutes)

Break (10 minutes)

Next Steps (15 minutes)

1. Discuss next steps. (15 minutes)

Adjourn

Virginia Department of Health
Private Well Regulations Workgroup
Summary of Issues Identified by Workgroup and Previous Draft Revisions

Issue	Recommended Revision(s)	Current Regulatory Requirement
Abandonment		
Clarify/revise abandonment requirements.	• Bored wells - include mix rate (1/1/2) same as grouting of the well. • Grout materials cannot contain CCP (fly ash). • Define clean fill as not containing source of contamination, impermeable material. • Use same grout requirements as used for construction. • Prefer the current regulations over the above comments. • Clean fill should be specified porous for water to move through, not clean fill dirt. Fill above bentonite plug can be clean fill dirt. • No flowable fill. • Pumpable grout with tremie line or pourable (chips) from surface. • Clean fill – no building materials, construction debris, petroleum products, or organic material. • Need to require pumping water out first.	See section 450.
Reduced setbacks from abandoned wells (e.g. separation distance from posed septic system).	• With documented properly abandoned well, reduce setback.	Case-by-case, see 450.C.7.
Consistency with Other Agencies/Offices/Regulations		
Siting a well downslope of a septic system.	• Private Well Regulations are the most stringent.	See section 380.B.
Consistency with other, sometime more stringent, regulations (e.g. Ground	• DEQ reporting requirements for UWWCR/GW2.	n/a

Water Management Areas – screening and GPS requirements).	• Private Well Regulations should reflect that the driller is required to submit UWWCR/GW2, not the owner. • UWWCR versus GW2 –form name should be consistent across OEHS, ODW, and DEQ.	
Bring GMPs into the regulations.		See GMPs: 1990-01; 1997-01; 2006-01; 2008-01; 2009-04; 2010-01; and 2015-02.
Add substantial compliance (similar to Sewage Handling and Disposal Regulations).		n/a
Issue	**Recommended Revision(s)**	**Current Regulatory Requirement**
Consistency with Other Agencies/Offices/Regulations		
Bring frequent variances into the regulations.		Several variances requested to install a well closer to an existing termite treated foundation.
Consistency with GWMA regs requirement for GPS locations on UWWCR.	• Hopefully required by DEQ.	n/a
Construction Standards		
No emphasis on construction of the well; proper grouting and sealing.	• Add geologic parameters (e.g. first confining layer) with numeric minimum.	See section 410.C.
Revise grouting requirements for downslope siting of a well.		See section 380.B.
Alternate grouting procedures for closed-loop geothermal.		See section 380.G.
Requirement for mechanical seals/packers.	• In bedrock, the well casing must be properly sealed at the termination of casing into the bedrock.	n/a
Add substantial compliance.	• Variance process should adequately cover substantial	n/a

	compliance. • Allow local health department to grant variances instead of the Commissioner.	
Separate construction standards based on geology.		n/a
Effects of corrosive water on galvanized drop pipe/and casing	• Require that well components meet EPA lead free components for drinking water.	n/a
Proper sealing of PVC casing at interface with bedrock.		n/a
Revised construction standards for Class IIIA wells.	• Agree with proposed change in 2003 of full grouting of casing.	See section 410.
New types of Class IV wells (e.g. IVA)	• Recommend full grouting of casing depth.	n/a
Standards for converting a Class IV well to a Class III; revised grouting procedures for inner and outer casing.		See section 410.C.6.
Issue	**Recommended Revision(s)**	**Current Regulatory Requirement**
Construction Standards		
Requirement for lead-free components.	• Similar to effects of corrosive water.	n/a
Standards for product approvals (e.g. WSC, NSF).	• EPA or NSF, linked to lead-free but more inclusive.	n/a
Revised standards for wells in low areas.		See section 380.C.
Revisit construction standards exemptions for Class IIIC and Class IV wells.	• Agree with 2003 proposed changes.	See section 410.
Add screening requirements (Coastal Plain region).	• Stainless steel or plastic.	See section 400.C and 410.B.
Regulatory Oversight		
Driller notification to LHD for well construction.	• Require notification of grouting schedule; VDH will inspect a given percentage of grouting. • Not suitable for districts with high numbers of well	n/a

	installations. • Notification only. Don't hold up process waiting on local health department.	
Add substantial compliance.	• Absolutely not.	n/a
Revisions to administrative processes (hearings, variances) for consistency with other regulations.	• Agree to be consistent. • Give local health departments more authority. • Process to slow, need improvement.	See sections 90 to 300.
Process requirements for submitting completion reports.	• Send to VDH, VDH shares information with DEQ in groundwater management areas.	See section 440.
Revised procedures for product reviews and approvals.		n/a
Separation Distances		
Reduced setbacks from abandoned wells.	• If documented, properly abandoned. • Need procedure, get rid of variance process based on memo (only applies to bored and uncased wells, doesn't consider drilled wells).	See section 450.C.4.
Revise Table 3.1.	• Separation to private sewer lines/lift stations that connect to municipal system is discussed in footnote. • Needs to agree with onsite regulations as far as force mains, etc.	See section 380.
Revised setbacks for downslope siting of wells.	• Private Well Regulations are most stringent (as compared to the Sewage Handling and Disposal Regulations).	See section 380.B.
Recommended separation distance from utility lines.	• 10 feet if area permits. • Require utility lines to be marked at time of application. Should be noted on construction permit. • Reference OSHA and utility regulations/requirements.	See section 380.E.
Issue	**Recommended Revision(s)**	**Current Regulatory Requirement**
Separation Distances		
Create separation distance from inactive septic systems.	• Yes.	See section 380 and 1991 Dr. Buttery Memo.
Revised separation distance from	• Yes, according to type of treatment.	See section 380 and GMPs

termite treated structures.	• Add GMPs to regulations.	2006-01 and 2009-04.
Separation distance from repair drainfield to an existing well.	• Should meet existing standoffs and expectations.	See section 380.
Water Quality		
Improve upon the water quality parameters in section 370 (e.g. North Carolina sampling requirements).	• Additional parameters, nitrogen, lead, chloride.	See section 370.
Improve procedures regarding chlorination; chlorination related to pH.	• Define type of chlorine; define when and where to disinfect during drilling (e.g. issue with rotary drilling mud thickening) or homeowner perspective.	n/a
Develop sampling protocols for private wells.	• Yes.	n/a
Required use of lead-free components.		n/a
Effects of corrosive water on galvanized drop pipe.		n/a
Requirements for quality of water used in well construction process.		n/a
How is well yield actually estimated?		See section 460.

heating shall be that established by the ASHRAE Handbook of Fundamentals at the 97.5% winter design dry bulb temperature for the location involved. The outside design temperature for cooling shall be that established by the ASHRAE Handbook of Fundamentals at the 2.5% summer design dry bulb temperature for the location involved.

(f) *Water supply systems.*— (1) *General.* (i) Each living unit shall be provided with a continuing and sufficient supply of safe water under adequate pressure and of appropriate quality for all household uses. This system shall not impair the function or durability of the plumbing system or attachments.

(ii) The chemical and bacteriological standards of the local health authority shall apply. In the absence of such standards, the maximum contaminant levels of EPA shall apply. A water analysis may be required by either the health authority or the HUD Field Office.

(iii) Whenever feasible, connection shall be made to a public water system. When a public system is not available, connection shall be made to a community system which complies with HUD Handbook 4940.2, if feasible.

(2) *Individual water systems.* (i) The system should be capable of delivering a flow of 5 gpm over at least a 4 hour period.

(ii) Water that requires continuing or repetitive treatment to be safe bacterially or chemically is not acceptable. Individual dwelling water purification units are not an acceptable alternative but may be used to improve acceptable water.

(iii) After installation, the system shall be disinfected in accordance with the recommendations or requirements of the local health authority. In the absence of a health authority, system cleaning and disinfection shall conform to the current EPA Manual of Individual Water Supply Systems.

(iv) Bacteriological or chemical examination of a water sample collected by a representative of the local or state health authority shall be made when required by that authority or the HUD Field Office.

(3) *Location of wells.* (i) A well located within the foundation walls of a dwelling is not acceptable except in arctic or subarctic regions.

(ii) Water which comes from any soil formation which may be polluted, contaminated, fissured, creviced or less than 20 ft. below the natural ground surface is not acceptable, unless acceptable to the local health authority.

(iii) Individual water supply systems are not acceptable for individual lots in areas where chemical soil poisoning has been or is practiced if the overburden of soil between the ground surface and the water bearing strata is coarse grained sand, gravel, or porous rock, or is creviced in a manner which will permit the recharge water to carry the toxicants into the zone of saturation.

(iv) The following table shall be used in establishing the minimum acceptable distances between wells and sources of pollution located on either the same or adjoining lots. These distances may be increased by either the health authority having jurisdiction or the HUD Field Office.

DISTANCE FROM SOURCE OF POLLUTION

Source of pollution	Minimum horizontal distance (feet)
Property Line	10
Septic Tank	50
Absorption Field	[1] 100
Seepage Pit	[1] 100
Absorption Bed	[1] 100
Sewer Lines w/Permanent Watertight Joints	10
Other Sewer Lines	50
Chemically Poisoned Soil	[2] 25
Dry Well	50
Other	(3)

[1] The clearance may be increased or decreased depending upon soil and rock penetrated by the well and aquifer conditions. The clearance may be increased in creviced limestone and permeable strata of gravel and sand. The clearance may be reduced to 50 ft. only where the ground surface is effectively separated from the water bearing formation by an extensive, continuous and impervious strata of clay, hardpan, or rock. The well shall be constructed so as to prevent the entrance of surface water and contaminants.

[2] The recommendations or requirements of the local health authority shall apply.

[3] This clearance may be reduced to 15 feet only where the ground surface is effectively separated from the water bearing formation by an extensive, continuous and impervious strata of clay, hardpan, or rock.

(4) *Well construction.* (i) The well shall be constructed so as to allow the pump to be easily placed and to function properly.

(ii)(A) All drilled wells shall be provided with a sound, durable and watertight casing capable of sustaining the loads imposed.

(B) The casing shall extend from a point several feet below the water level at drawdown or from an impervious strata above the water level to 12 in. above either the ground surface or the pump room floor. The casing shall be sealed at the upper opening to a depth of at least 18 feet.

(iii) Bored wells shall be lined with concrete, vitrified clay or equivalent materials.

(iv) The space between the casing or liner and the wall of the well hole shall be sealed with cement grout.

(v) The well casing shall not be used to convey water except under positive pressure. A separate drop pipe shall be used for the suction line.

(vi) When sand or silt is encountered in the water-bearing formation, the well shall either be compacted and gravel packed, or a removable strainer or screen shall be installed.

(vii) The surface of the ground above and around the well shall be compacted and graded to drain surface water away from the well.

(viii) Openings in the casing, cap, or concrete cover for the entrance of pipes, pumps or manholes shall be watertight.

(ix) If a breather is provided, it shall extend above the highest level to which surface water may rise. The breather shall be watertight, and the open end shall be screened and positioned to prevent entry of dust, insects and foreign objects.

(5) *Pump and equipment.* (i) Pumps shall be capable of delivering the volume of water required under normal operating pressure within the living unit. Pump capacity shall not exceed the output of the well.

(ii) Pumps and equipment shall be mounted to be free of objectionable noises, vibrations, flooding, pollution, and freezing.

(iii) Suction lines shall terminate below maximum drawdown of the water level in the well.

(iv) Horizontal segments of suction line shall be placed below the frost line in a sealed casing pipe or in at least 4 in. of concrete. The distance from suction line to sources of pollution shall be not less than shown in the table at § 200.926d(f)(3)(iv).

(6) *Storage tanks.* (i) A pressure tank having a minimum capacity of 42 gallons shall be provided. However, prepressured tanks and other pressurizing devices are acceptable provided that delivery between pump cycles equals or exceeds that of a 42 gallon tank.

(ii) Tanks shall be equipped with a clean-out plug at the lowest point, and a suitable pressure relief valve.

§ 200.926e Supplemental information for use with the CABO One and Two Family Dwelling Code.

The following shall be used in Table No. R-202, Climatic and Geographic Design Criteria of the CABO One and Two Family Dwelling Code.

(a) *Roof live loads.*

Roof slope 3 in 12 or less: 20 psf
Roof slope over 3 in 12: 16 psf
Roof used as deck: 40 psf

(b) *Roof snow load.* The roof snow load shall be in accordance with section 7 of ANSI A58.1-82.

(c) *Wind pressures.* The minimum Design Wind Pressures (net pressures) set forth below apply to areas designated as experiencing basic wind speeds up to and including 80 mph, as

1. Sewage Handling and Disposal Regulations, Articles 5 and 11.

As we began the process of developing private well regulations, we used as a model the standards established in the Sewage Handling and Disposal Regulations which became effective in 1982. Article 5 contains the table of minimum separation distances and specific setback requirements, and Article 11 contains the standards for wells.

2. Inter-Office Correspondence, dated July 10, 1985, to Robert B. Stroube, M.D., Assistant Commissioner, Office of Health Protection & Environmental Management, from Khizar Wasti, Ph.D., Toxicologist, Bureau of Toxic Substances Information.

The subject of the memorandum is Chlordane and Dursban. Dr. Wasti summarized that he had reviewed five references submitted by the Virginia Pest Control Association. The references deal with movement of chlordane and other organochlorine insecticides in soil. The studies concluded that chlordane and a few other organochlorine insecticides when applied to the soil surface penetrated only a few inches below the surface over a period of several years. The studies did not address injected pesticides.

No studies were provided on the movement of Dursban in soil or that indicated granular form of pesticides move slower in the soil than the emulsion form. A computerized literature search revealed a limited number of studies. One study indicated that the leaching of Dursban is not significant (pesticide was applied to the soil surface and not by pressure.

Dr. Mampe, consultant to the National Pest Control Association, indicated no groundwater contamination in his observations when chlordane was poured. However, where it was injected into the soil by pressure, it found its way through some channels to the wells.

Dr. Armstrong states we have a history of groundwater contamination by chlordane in Virginia. He states there are provision for reducing the distance to 50 feet depending upon the quality of the well, the soil and rock penetrated by the well and aquifer conditions. A blanket relaxation of the regulations should not be allowed.

3. Letter, date stamped August 1, 1985, to James B. Kenley, M.D., State Health Commissioner, from John A. Moore, Assistant Administrator for Pesticides and Toxic Substances.

Mr. Moore states that it does not appear that decreasing the

distance from 100 feet to 50 feet would cause well water contamination from labeled termiticide treatments.

4. Federal Registrar/ Vol. 50, No. 188/ Friday September 27, 1985/ Rules and Regulations 39599.

Establishes a general setback distance of 25 feet between wells and chemically poisoned soil. It discusses geologic conditions where this distance may be reduced or increased. Wells are not recommended for lots in areas where chemical soil poisoning has been practiced if the soil bearing strata is coarsed grained sand or water occurs at less than 20 feet. The set back can be reduced to 15 feet if the aquifer is confined.

5. National Pest Control Association, Inc., Technical Release ESPC 055005A 11/25/87.

Discusses methods of termiticide application and potential ways that well water contamination can occur. Cites the Federal Registrar Vol. 50, No. 188.

6. Manual of Individual Water Supply Systems, U.S. Environmental Protection Agency, EPA-570/9-82-004, October 1982. Selected pages 24 through 26.

Reviews geological, chemical and other environmental parameters that should be considered when establishing separation distances between wells and sources of contamination. Establishes 50 feet (in favorable formations) as a reasonable initial set back distance. Depending upon other factors such as the nature of the contaminant, the depth of disposal, filtration capacity of the overlying material, the nature of the aquifer, the volume and concentration of contaminants present and the contact surface to which the contaminants are applied, the 50' distance may be increased or reduced.

7. A chart entitled, A Comparison of Termiticides, provided by the Department of Agriculture and Consumer Services.

Chemical characteristics of eight termiticides are compared.

8. Detailed description of chlordane. Source is Clement Associates Inc. (October 1985). Prepared for the U.S. Environmental Protection Agency final report entitled, Chemical, Physical, and Biological Properties of Compounds Present at Hazardous Waste Sites.

August 29, 1990 - Meeting with the "Protect Our Water Well Rights" - Dr. Buttery, Hicks, Alexander, Hagy, Tripathi, and Wasti.

Group's goal is to allow industry to continue and meet the spirit of regulations. Believe industry will shut down if standards become effective September 1, 1990.

Objection 1.

Setback standard for Class IV wells is too stringent for termiticide treated buildings.

Recommendation: 20' setback to termiticide treated buildings.

Grouting to the first aquifer. If using second aquifer, seal to the bottom of first aquifer.

Objection 2.

Setback standard for Class IV wells is too stringent for sewer lines.

Recommendation: 10' setback to sewer lines.

Objection 3.

Setback standard for Class IV wells is too stringent for property and utility lines.

Recommendation: 5' setback to property and utility lines.

Objection 4.

Emergency replacement of wells not possible without variance from State Health Commissioner.

Recommendation: Include emergency provision and/or addressed first three objections.

Department actions: On August 31, 1990 attempted to withdraw a part of the regulations. §9:6.14:9.4, Administrative Process Act. Virginia Registrar would not allow partial withdrawal. The Department rejected withdrawing the entire regulation.

Prepared an indirect variance. See attached memorandum dated

August 31, 1990 from Dr. Buttery to Regional and District Directors. Agreed to file notice of intent with the Virginia Registrar to open regulations to the public participation process.

Conference call on the afternoon of August 31, 1990 between some members of "Protect Our Water Well Rights" and Bob Hicks.

Issues raised included a clarification of memorandum descibing variance conditions. The depth of casing and grouting when the first aquifer is not used and the second aquifer is used. Grouting extends to the bottom of first aquifer.

Although variance would allow well to be 25' from termiticide treated building, the local zoning ordinance has a maximum of 30' from front property line to building. This would place well too close to front property line. Need to have variance to 5' for property line.

Need memorandum on packer and suction wells.

Concerns of 15 to 25 working days to analysis water sample for termiticides. Cost is $95 per sample. I would listen to any other proposal to obtain sufficient data to determine appropriate setback from termiticide treated building. What is negative sample? I responded where analysis does not show any termiticide. To what concentration should be analysed? I answer to what lab routinely runs. They answered 'ppm'.

As far as setback from sewer lines, we both agreed to look for other standards which may meet the intent of the pressure testing. For example, does Schedule 40 sewer line pipe connected and installed in accordance with the Statewide Building Code if tested, meet the pressure testing requirements. I will check with the Department of Housing and Community Development. They will check with their local building officials.

Bentonite

Regional + district involvement

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

Aug 5/85

AUG 1 1985

OFFICE OF PESTICIDES AND TOXIC SUBSTANCES

James B. Kenley, M.D.
State Health Commissioner
Commonwealth of Virginia
Department of Health
Richmond, VA 23219

Dear Dr. Kenley:

Thank you for your letter of July 9, 1985 requesting our advice/recommendation concerning the safety aspect of decreasing the distance of wells from dwellings treated with termiticides from 100 feet to 50 feet.

As you may know, the Agency is presently investigating the significance of indoor air contamination from termiticide treatments and is conducting an extensive risk/benefit review in this regard. However our focus on potential well water contamination from termiticide use has been limited primarily to an upgrading of the termiticide product label. This upgrading, which was completed in 1981, dealt primarily with alerting pesticide users, 1) not to treat soil when wells or cisterns were located beneath a dwelling, 2) to use antiback-flow equipment or procedures to prevent siphonage of pesticide back into water supplies and, 3) to consider the water table, soil type, soil compaction, grade conditions and location and type of domestic water supplies before/during treatment. The distances of wells from dwellings has never been an EPA issue since such distances have always been guided/regulated by federal (HUD), state and local housing specifications and standards. To assure that federal and state guidelines are adhered to, EPA, via the label, requires applicators to consult state and local specifications for recommended distances of treatment areas from wells and to refer to Federal Housing Administration Specifications for further guidance. The basis for this label referral by EPA is due primarily to the fact that soil permeability varies widely throughout the United States and therefore we believe that the state and local health or housing standards would

provide the most applicable requirements for soil treatments in a given area including safe distances for wells.

In considering the safety aspects of decreasing the present 100 ft. standard I suggest you contact other state regulatory and/or health departments in this regard. My staff informs me that in certain cases several states have reduced the 100 ft. distance since this standard was impractical considering the average size of residential lots and the fact that the state had no incidents of well water contamination except when the wells were close to the dwellings. For example, New York has decreased the minimum distance between the well and the dwelling, under certain circumstances, to 25 feet. Therefore it does not appear that decreasing the distance from 100 ft. to 50 ft., as you propose, would cause well water contamination from labeled termiticide treatments.

I appreciate your letter and if I can be of further assistance please let me know. Also if you or your staff have questions regarding the environmental fate of certain termiticides, including chlordane and chlorpyrifos, please contact Dr. John H. Jordan of our Exposure Assessment Branch at (703) 557-0267.

Sincerely yours,

John A. Moore
Assistant Administrator
for Pesticides
and Toxic Substances

WELL CONTRACTORS HANDBOOK

DNREC - WATER SUPPLY BRANCH

This booklet is intended as a guide to brief water well contractors on the basic requirements of well construction which are described in detail by the Department's Regulations Governing the Use of Water Resources and Public Subaqueous Land.

To help make the regulations simpler to understand, the lengthy but important requirements have been taken from the regulations, shortened, and then diagrammed.

The people at the Water Supply Branch hope that this guide will be useful as a handy reference for you - the well contractor. If you have questions or suggestions for improvement on this format, please contact the Water Supply Branch at 678-4793 or 678-4794. Our office is located on the mezzanine in the Blue Hen Mall in Dover.

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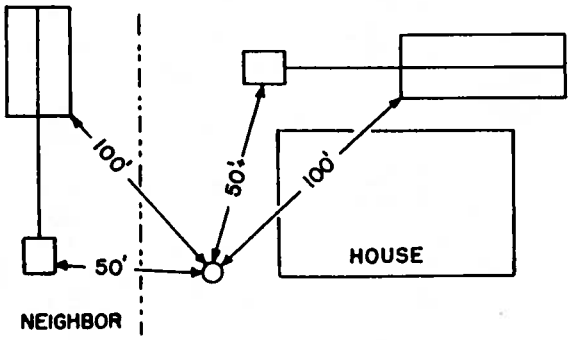
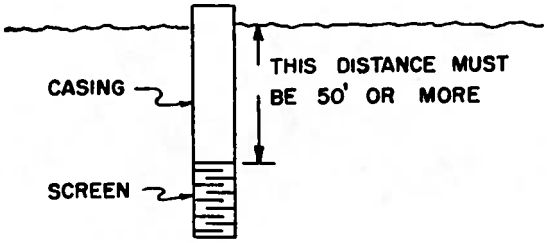
DOMESTIC WELLS

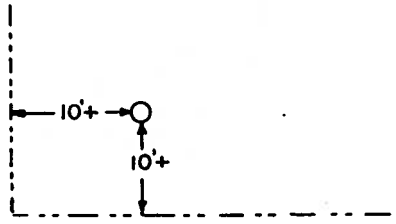


- Must be at least 50' from any septic tank in the area (even on adjoining properties).

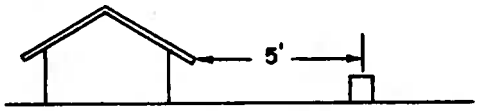
- Must be at least 100' from any tile field or cesspool in the area (even on adjoining properties).



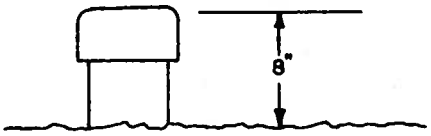
- In special cases when the lot size is small, the well can be closer than 100' from the tile field or cesspool if the casing is more than 50' in depth. (This must be included on the permit application and receive approval from the Department).



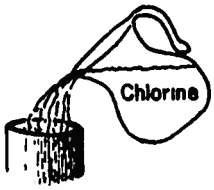
- Must be at least 10' from the property line.



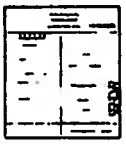
- Must be at least 5' away from any building projection. (Except where inside pump house).



- Must be finished at least 8" above ground.

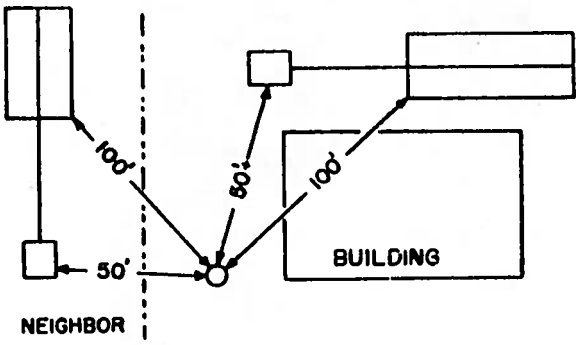


- Must be disinfected upon completion of the well.



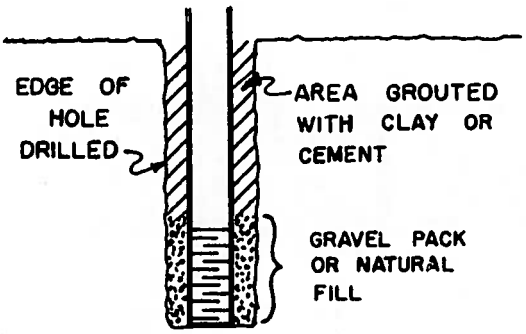
- A completion report is due 21 days after completion of the well.

COMMERCIAL WELLS

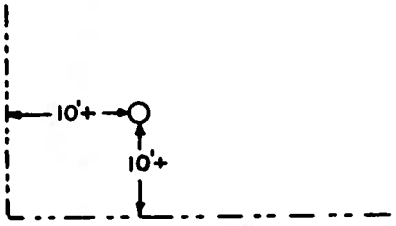


- Must be at least 50' from any septic tank in the area (even on adjoining properties).

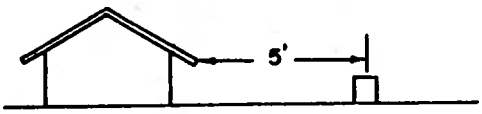
- Must be at least 100' from any tile field or cesspool in the area (even on adjoining properties).



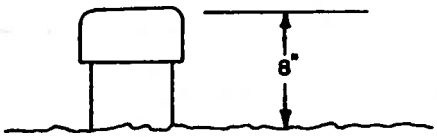
- Must have annular spaces grouted with cement or bentonite clay to at least 20'.



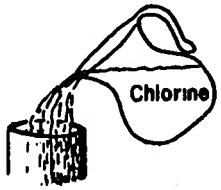
- Must be at least 10' from the property line.



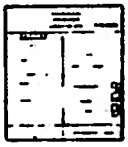
- Must be at least 5' away from any building projection. (Except where inside pump house).



- Must be finished at least 8" above ground.

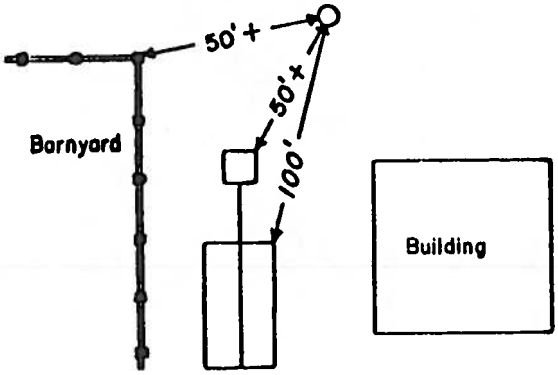


- Must be disinfected upon completion of the well.



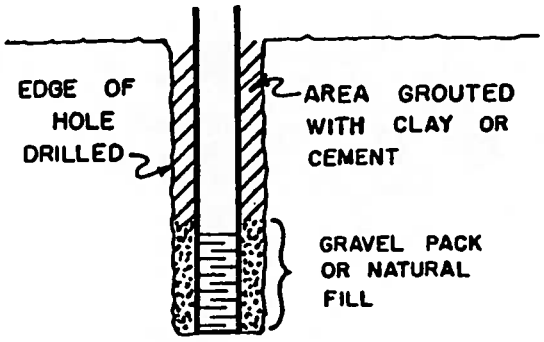
- A completion report is due 21 days after completion of the well.

AGRICULTURAL WELLS

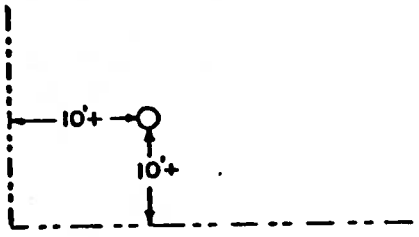


- Must be at least 50' from any septic tank or barnyard in the area.

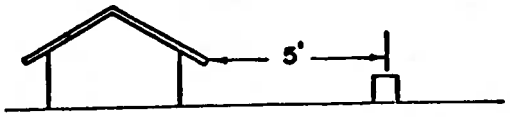
- Must be at least 100' from any tile field or cesspool in the area (even on adjoining properties).



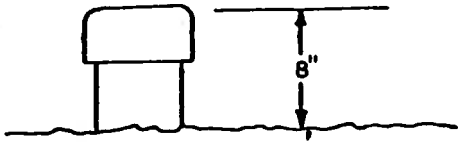
- It is suggested that annular spaces be grouted with cement or bentonite clay.



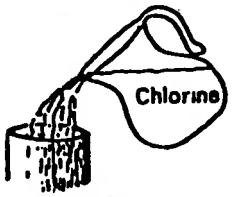
- Must be at least 10' from the property line.



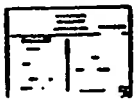
- Must be at least 5' away from any building projection. (Except where inside pump house).



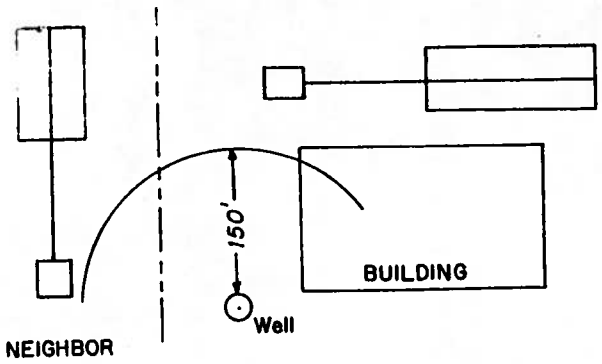
- Must be finished at least 8" above ground



- Must be disinfected upon completion of the well.

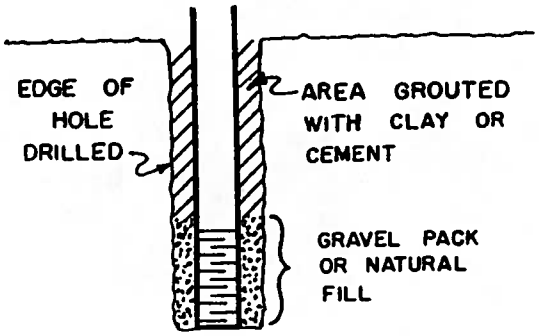


- A completion report is due 21 days after completion of the well.

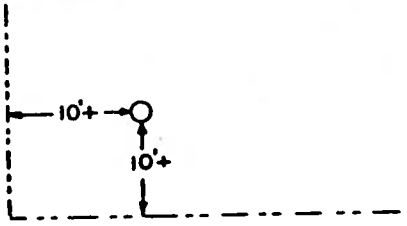


- Can not be driven.

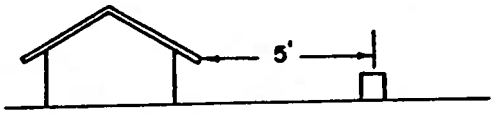
- Must be at least 150' from any sources of pollution such as, septic tanks, tile fields, & cesspools.



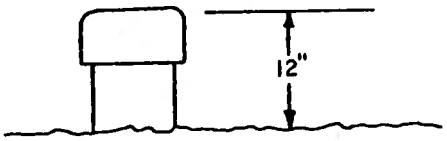
- Must have annular spaces grouted with cement or bentonite clay to at least 20'. Confined or Artesian aquifers must be grouted to the top of the water producing aquifer.



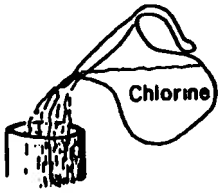
- Must be at least 10' from the property line.



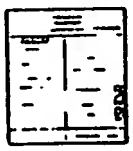
- Must be at least 5' away from any building projection. (Except where inside pump house).



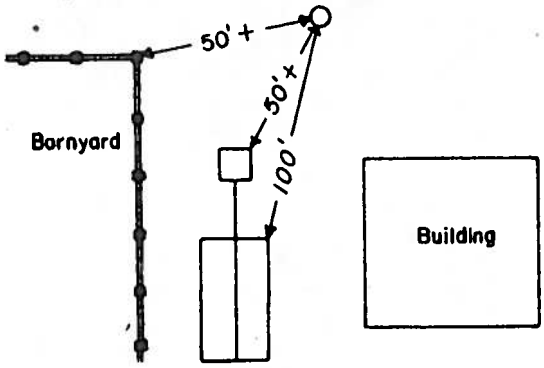
- Must be finished at least 12" above ground.



- Must be disinfected upon completion of the well.



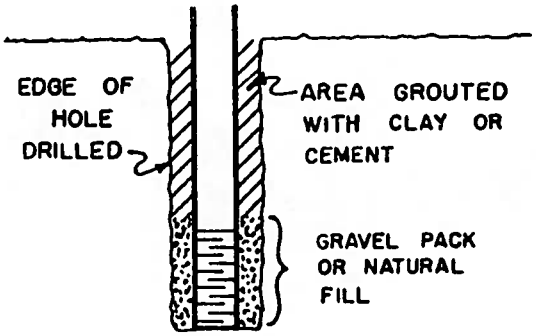
- A completion report is due 21 days after completion of the well.



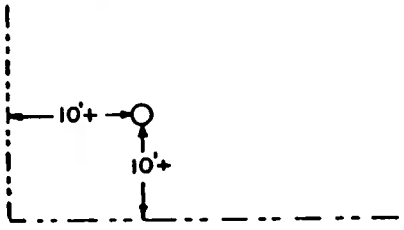
- Can not be driven.

- Must be at least 50' from any septic tank or barnyard in the area.

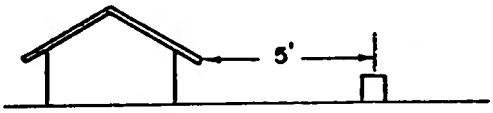
- Must be at least 100' from any tile field or cesspool in the area (even on adjoining properties).



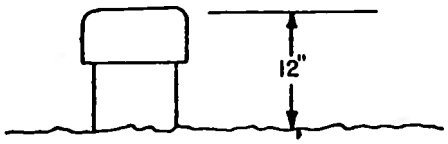
- Must have annular spaces grouted with cement or bentonite clay to at least 20'. Confined or Artesian aquifers must be grouted to the top of the water producing aquifer.



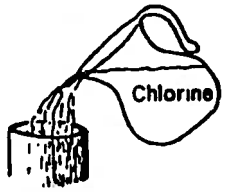
- Must be at least 10' from the property line.



- Must be at least 5' away from any building projection. (Except where inside pump house).



- Must be finished at least 12" above ground



- Must be disinfected upon completion of the well.

- A completion report is due 21 days after completion of the well.