

# Wyoming Water Well Contractors' Newsletter

## NEWS FROM THE DIRECTOR'S DESK



Last week I attended the Wyoming Ground Water Association's (WGWA) annual convention. I wasn't able to attend every class that was held at the convention, but the ones that I did attend were super informative! Kevin McGinnis, Cotey Chemical, presented the Benefits of Well Rehabilitation. He explained that vinegar is an effective solution in the use of killing bacteria in a well. Vinegar seems to be the new "miracle" product! It can be used for health and beauty, a cleaning solution, laundry, killing weeds, and now as an environmentally-safe alternative to chlorine to disinfect water wells! I'm not sure how effective it is in sanitizing a well, but it may be worth looking into.

Stay warm and have a great February!

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## Grouting of Water Wells

NGWA, The Groundwater Association

Sealing or grouting a well consists of filling the annular space, created during the well construction between the underground geological formations and the casing, with an impervious material. The principal reasons for grouting are (1) protection of the groundwater resource from surface and/or subsurface contamination, (2) preservation of the hydraulic characteristics of an artesian aquifer, and (3) sanitary protection of the water supply. In addition, secondary reasons include the protection of casing from corrosive waters, and increased structural integrity of the casing.

Forty-six percent of the U.S. population uses groundwater for their drinking water source. Approximately 95 percent of rural residents depend entirely on this resource for their domestic uses. Census figures indicate that during 2007 there were 13,249,000 occupied households served by private water wells. The federal Safe Drinking Water Act's provisions, which are intended to protect public drinking water, do not extend to private household wells.

The Michigan Department of Health has identified cases where improper grouting practices or lack of grouting in unconsolidated materials is suspected of casing leakage of contaminants downward along the well casing into lower potable aquifers. In addition, many cases have been documented in Michigan showing that a lack of grouting or

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State Board of Examining Water Well Drilling Contractors and Water Well Pump Installation Contractors

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## Lance Formation



Badlands in the Lance Formation along Cow Creek near the type locality. Niobrara County, Wyoming

Type	Sedimentary
Underlies	Fort Union Formation
Overlies	Meeteetse Formation
Thickness	up to 600 metres (1,970 ft)
<b>Lithology</b>	
Primary	Sandstone, siltstone, shale
<b>Location</b>	
Region	Wyoming
Country	United States
<b>Type section</b>	
Named for	Lance Creek, Wyoming

The formation is described by W.G. Pierce as thick-bedded, buff-colored sandstone, and drab to green shale. It is Upper Cretaceous in age.

The formation varies in thickness from about 90m (300 feet) in North Dakota, to almost 600m (2,000 feet) in part of Wyoming. *Wikipedia*

Triceratops bones found in the Lance formation



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improper grouting has contributed to the contamination of bedrock aquifers. Proper grouting of wells, on the other hand, can prevent contamination. In the Gateway Area Development District Water Well Study, the Kentucky Division of Water and the Kentucky Geological Survey report: “It was noted that the majority of wells which appeared to be properly constructed and had proper wellhead seals did not have a bacterial contamination problem.”

### Issue

Should all water wells be grouted? Should laws and regulations be adopted to this effect?

### Position

The National Ground Water Association believes that the grouting of water wells is an effective and necessary measure to protect public health and the quality of our groundwater supplies. Requirements for the grouting of all water wells should be an integral part of a state’s well construction code. As a follow-up to this, enforcement of the code must be carried out by governmental agencies in an aggressive manner with sufficient funding provided by the state legislature to support this effort. To protect against contamination by surface or shallow subsurface waters, an annular space of appropriate size should be constructed and grouted to whatever depth is necessary to protect the groundwater resource. In determining the grouting requirements of a specific well, consideration must be given to existing surface conditions, especially the location of potential pollution sources, and to subsurface geologic and hydrologic conditions. The surface seal depth may vary from as little as 10 feet to more than 100 feet depending upon conditions.

Subsurface formations that yield water of undesirable quality must be adequately sealed off to prevent contamination of the overlying or underlying water-bearing zones. To accomplish this, an annular space of appropriate size should be constructed and grouted.

Where the grout is to be placed under water or where the annular space to be sealed is not easily accessible from the surface, positive emplacement of grout by tremie, pumping, or pressure is recommended.

*For information on grouting requirements in Wyoming see Chapter 3, Section 2 (h) of the State Engineer’s Office, Regulations and Instructions, Part III, Water Well Minimum Construction Standards.*

## Calendar of Upcoming Events:

NDA	On-Line Certification Exams	Website	<a href="https://nda4u.com">https://nda4u.com</a>
AGWT	Educational Videos and Books	Website	<a href="http://WWW.AGWT.org">WWW.AGWT.org</a>
ISWD	International School of Well Drilling Online Courses	Website	<a href="http://welldrillingschool.com">welldrillingschool.com</a>
NGWA	Introduction to Groundwater Resources (#1012)	Website	Online self-paced course
NGWA	Selection and Operation of Meters for Safe and Successful Electrical Troubleshooting for Water Well Pump Systems (#7132-1)	Website	Online self-paced course
TLC	Technical Learning College	Website	Self-paced courses
CPS	2018 Contractor Training Schedule <a href="https://cpsdistributors.com/knowledge-center/">https://cpsdistributors.com/knowledge-center/</a>	Website	Classroom & Online Training
CPS	Electrical Troubleshooting for Irrigation	Feb 5 <sup>th</sup>	CPS – Cheyenne
CPS	Electrical Troubleshooting for Irrigation	Feb 6 <sup>th</sup>	CPS - Casper

*WWWA – Wyoming Water Well Association*

*NDA – National Drilling Association*

*NGWA – National Ground Water Association*

*NWDA – Nebraska Well Drillers Association*

*CWWCA – Colorado Water Well Contractors Association*

*WARWS – Wyoming Association of Rural Water Systems*

*WWA- Wyoming Water Association*

*WWQ & PCA – Wyoming Water Quality & Pollution Control Association*

*WWWCB – Wyoming Water Well Contractors Licensing Board*

*BIDP – Baroid Industrial Drilling Products*

*AGWT – American Ground Water Trust*

*SEDC – Shallow Exploration Drillers Clinic*

*ISWD – International School of Well Drilling  
[www.welldrillingschool.com](http://www.welldrillingschool.com)*

*CPS - CPS Distributors*

*Goulds - Goulds Water Technology Factory School WebEx Training*

*Technical Learning College  
[www.abctlc.com](http://www.abctlc.com)*

***For continuing education opportunities please refer to each respective association's website for additional information.***



Triceratops skeleton in the Museum of Natural History in New York City, found in Niobrara County.



### **TEST YOUR KNOWLEDGE**

1. Water is the only substance found naturally on earth in three forms? True (Solid, liquid and gas)
2. Does water regulate the earth's temperature? Yes (it is a natural insulator)
3. How much of the earth's water is suitable for drinking water? 1%
4. What were the first water pipes made from in the US? Fired charred bored logs