



Drilling News of Interest:

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Are You Building a Bomb in Your Shop?

By Joseph Hogan, *Tailgate Talk*; p.1. Winter, 2003

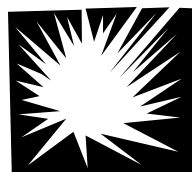
Aluminum, zirconium, magnesium, and titanium have become increasingly common-use metals. It is important that your employees understand some of the special hazards these metals present when being ground or machined. Dust from these metals is combustible and poses a serious fire and explosion hazard. Wet machining or wet grinding processes do not significantly reduce the hazards, and may increase the explosion hazard as the wet sludge dries out. Any process that creates aluminum, zirconium, magnesium, or titanium dust, chips, or turnings should be considered hazardous. This includes grinding, cutting, turning, milling, filing, deburring, sanding, buffing, spray painting with aluminum-based paints, and thermal spray coatings, to name just a few.

If a sufficient cooling flow is not used, improperly designed or dull tools can produce high temperatures at the tool/work piece interface, potentially causing ignition of any "sludge" or metal chips and turnings. Even if an explosion does not occur, a metal fire burns very hot and is difficult to extinguish. Many of today's metal working fluids are water based. Aluminum dust reacts with water in the presence of air to produce hydrogen, which is highly flammable. It is possible for metal dust (from machining or wet dust collectors) to spontaneously ignite if not totally submerged under a cover of water at all times.

Many people wonder how much metal dust must actually be present to ignite. The answer is far less than you would imagine. This is dependent on the size of the dust particle. Because these metals are so highly reactive, it does not take much. Aluminum dust combined with iron oxide is used to create thermite. Thermite is used to fill incendiary bombs and burns at 6300° (F) 3500°(C).

An individual in Australia was using a belt grinder in his home to smooth the edge of a hacksaw cut on a 2-inch piece of 1.5-inch angle iron. He had been grinding less than two minutes when there was a loud "thump" accompanied by a 2-foot-diameter fireball. Both of his hands and lower arms were severely burned. His face and neck were burned and facial hair was burned off by radiant heat from the fireball. Safety glasses protected his eyes but eyebrows and eyelashes were singed. A few days before, the man's teen-aged son had ground the heads off 12 small aluminum pop rivets on the same belt sander. The finely divided aluminum powder from the rivet heads mixed with the finely divided ferrous oxide from the angle iron being sanded down produced thermite that was ignited by the heat from the sanding/grinding process.

The following actions are recommended. Aluminum and steel should never be ground, buffed, or polished on the same equipment unless a thorough cleaning of all equipment and associated ventilation and dust collection systems is first completed. A special fire extinguisher rated for metal fires should be available when aluminum, zirconium, magnesium, or titanium are being machined. Never put water on a metal fire—it may cause an explosion! Use a special "metal fire" rated extinguisher or dry clean sand.



Board Meeting

The next scheduled meeting of the Kentucky Water Well Certification Board will be June 20, starting at 9 a.m. at the Division of Water in Frankfort.

The meeting will be open to all drillers and the public.

Workshop Summary

The Division of Water registration went well this year at the Kentucky Groundwater Association's 18th Annual Drillers Workshop. There were 122 certified drillers on hand to get their training cards stamped by Division of Water personnel. The Division would like to thank Holly Lyell of the KGWA for her help in stamping cards. Be sure to check the KGWA newsletter for overall attendance and items about this year's workshop.

There were a lot of positive compliments about the programs this year. The KGWA did an excellent job in putting the workshop together. Ten people took a total of 18 exams this year. That was down about 50% from the past four years. Hope to see you at next year's workshop.

Groundwater Protection Plans

Generic Groundwater Protection Plans (GPP) for well drillers are available. Drillers are required to keep and implement a GPP. Also, generic GPPs for domestic wells and septic systems are available to homeowners. These GPPs can be located on the Groundwater Branch's Web site at: <http://water.nr.state.ky.us/dow/dwgr.htm> or by contacting Pat Keefe at (502) 564-6120, Ext. 4565



Call Before You Dig

Kentucky Underground Protection, Inc., is a nonprofit organization established to provide a communication link between excavators and operators of underground utilities.

KRS 367.4901 to 367.4917 requires that you call two business days before you dig in the state of Kentucky.

The toll free number to call is:
1-800-752-6007
In Louisville, (502) 266-5123



Training Opportunities

**Florida Ground Water Association's
Annual Convention and Trade Show**

Cape Canaveral, FL

May 15 - 17, 2003

Florida Ground Water Association

Phone: (863) 293-5710

2003 South Atlantic Well Drillers Jubilee

Myrtle Beach, SC

August 2 - 5, 2003

Phone: Jane Cain or Donna Milstead at

(540) 740-3329

E-mail: info@well-drillers.com

Ohio Water Well Association Convention

Wilmington, OH

October 30 - 31, 2003

Ohio Water Well Association

Phone: (419) 845-2023

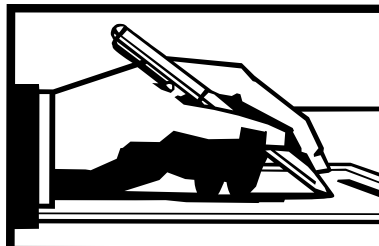
In order to use training other than the Kentucky Ground Water Association's Annual Driller's Workshop, you MUST contact Joe Moffitt, Harold Lee or David P. Leo at the Groundwater Branch. Phone: (502) 564-3410.

Remember to obtain proper attendance documentation when attending any training for your continuing training requirement. This includes a signed certificate, training card or letter along with an agenda.

Reminder

Look for your certificate renewal application in June

Please be sure it is complete before submitting



Kentucky Driller Quarterly is a publication of the Kentucky Division of Water.

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Visit the Groundwater Branch page on the Internet at:

<http://water.ky.gov/dow/dwgr.htm>

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