

The Mulvaney Pipeline

HIDDEN WATER

The largest consumer yet

It takes about 140 gallons of water to produce a dollar's worth of dog or cat food and 270 gallons of water to produce a dollar's worth of sugar, according to a study released earlier this year. As the researchers dug deeper into the hidden or indirect use of water, they came to the conclusion that indirect use of water exceeded direct use by as much as 96 percent.

What is "responsible" use of water? How much is it ethical to use and for what purposes? Is a swimming pool a good thing? How many swimming pools, how big, serving how many people, and at what cost? Americans use two to three times as much water per capita as Europeans. Is that ethical? Maybe even the Europeans are using too much. Africans use far less, particularly West Africans living in the Sahel. Food produced by industrial methods of agriculture has a much higher total "water footprint" than food produced by small farms and marketed locally. Coal that is mined through "mountain-top removal" or gold that is mined and processed with water-polluting methods, or electricity produced by dams that have severely altered water ecosystems are examples of indirect consumption of water. When we use the products produced with water, we are using water.

While life and death issues of water access are the most compelling aspect of water use ethics, there is also a very large grey zone of less dramatic but more commonplace issues of everyday water ethics: pollution of sacred rivers, water wastage by wealthy users who are immune to economic price signals, of the use of scarce irrigation water to grow flowers for export rather than food to alleviate local hunger. The stories are often complex and contradictory. Growing flowers for export might provide much needed income for poor farmers who have no comparable economic opportunities. Polluting the sacred river with dye from a textile factory might seem like the only option for economically viable production in a poor region.

Calculating your "Water Footprint". People use lots of water for drinking, cooking and washing, but even more for producing things such as food, paper, cotton clothes, etc. The water footprint is an indicator of water use that looks at both direct and indirect water use of a consumer or producer. The water footprint of an individual, community or business is defined as the total volume of freshwater that is used to produce the goods and services consumed by the individual or community or produced by the business.

How much water does it take to ..

MAKE GOODS

An average automobile	40,000 gallons
A pair of blue jeans...	1,800 gallons
A cotton tee shirt...	400 gallons
A 16 oz. glass of beer..	6 gallons
A latte coffee to go...	53 gallons
A gallon of paint..	15 gallons
A ton of steel....	60,000 gallons
A ton of concrete..	1,360 gallons
A serving of Chocolate	2,847 gallons

GROW FOOD (each)

Lettuce --	15 gallons
Tomatoes --	22 gallons
Cucumber --	28 gallons
Potatoes --	30 gallons
Oranges --	55 gallons
Apples --	83 gallons
Corn --	107 gallons
Bananas --	102 gallons
Rice --	403 gallons

Hydraulic Fracturing ... Forcing Mother Nature to cough up more oil & gas.

Hydraulic fracturing, commonly referred to as fracking, is a technological process which allows natural gas and oil producers to recover natural gas and oil from deep shale formations.

What is fracking?

Fracking is the process of creating fissures, or fractures, in underground formations to allow natural gas and oil to flow. Operations at Chesapeake Energy Corporation are typical of most deep shale natural gas and oil harvesters. A combination of water, sand and various chemicals are pumped under very high pressure into the shale formation to create fractures. The fluid is approximately 98% water and sand, along with 2% of special purpose additives. The newly created fractures are "propped" open by the sand, which allows the natural gas and oil to flow into the wellbore and be collected at the surface. Normally a fracking operation is only performed once in the life of a well.

This deep well fracking has proven to be an effective method in gathering natural gas and oil products from played out oil wells. In the beginning stages of a new well, "gushers" are not uncommon. The high pressure of crude oil seeks a path of least resistance and pushes its way out the well head. (Recall the recent BP oil release in the Gulf of Mexico). Once a maturing well loses its natural pressure, we begin to utilize deep well lift pumping to remove the remaining oil. (Recall those giant seesaw arms in older oil fields.) Once all oil is removed, the well is capped and removed from service. The ever increasing use of hydraulic fracturing has reopened many wells as deep rock deposits are fractured to allow release of trapped oil and gas.

Hopes are high and results thus far are very good. We are gathering more oil and gas from exhausted well sites. With this success comes some danger. The ever present danger of contaminating underground water tables that sit above oil shale deposits are exposed to possible contamination. Fracking fluid, although having only 2% chemicals content could escape and pollute the water table above.

The EPA has begun review of domestic hydraulic fracturing processes in an effort to quantify the dangers to the environment. Until all the data is in, we will not be certain if fracking causes more problems than it solves. In an oil hungry country such as ours, we tend to minimize the dangers of water pollution. Americans use 3 times more water per person than our next closest users. Furthermore the U.S. is among the top 3 consumers of oil per capita. (Canada, Saudi Arabia, & the United States). Per capita, we use at least twice the oil of our closest counterparts in Europe and 10 times more than most Asian cultures.

A delicate balance must be maintained to best supply our oil needs while protecting our precious water sources.



BEWARE! POSSIBLE CHILLER PIPE INSULATION FAILURE

Many facilities are experiencing chiller pipe condensation and massive insulation failure. It seems that the pipe-insulation failure involves the all-service-jacket (ASJ) vapor-barrier facer on the 1-in.-thick phenolic-foam insulation typically used for chilled-water pipes. Normally this insulation is designed to insulate chilled water piping operating at or below 45°F. The standard vapor-barrier jackets of this type insulation consist of a flame-resistant white embossed paper, glass-textile fibers, and a thin aluminum foil.

Problems arise when the aluminum foil barrier becomes damp and corrodes, thereby exposing the phenolic-foam to condensation and abrupt failure. Although there are many causes for this failure to occur, the major contributions are physical damage to the insulation membranes by various trades, the use of outdated insulation specifications and improper and inadequate installation of the initial piping insulation.

So what can you do to protect your new project? Consider the regional climate, use the most current insulation technologies and above all, select knowledgeable design engineers and contractors. Going into projects with your eyes open is your best protection against future failure.



IT'S REALLY HARD TO BELIEVE BUT...

- Hot drinks cause three times as many ER visits than lawn mowers.
- Fastest-healing part of the human body: the tongue.
- Number of sports-related eye injuries in the U.S.: 40,000 per year.
- Indoor air pollution can be 10 to 50 times higher than outside.
- Treadmills were invented so prison inmates could use them to grind grain.
- 1 in 5 people are immune to poison ivy.
- Tulsa, Oklahoma is the hailstorm capital of the United States.
- Sitting at a desk for hours is one of the top causes of back pain.
- Drivers are distracted for up to 2 minutes after a cell phone conversation.
- Americans skips 50 breakfasts per year. 17% never eat breakfast at all.
- New Hampshire is the only state with no seat-belt laws for adults.
- Less than half (40%) of all heart attacks are fatal.
- Your house creates more pollution than your car.
- 90% of deaths caused by hurricanes are the result of drowning.
- Walking an extra 20 minutes each day will burn off 7 lb. of body fat per year.
- Hail stones fall at a velocity of 70-100 mph.
- Respiratory disease is the leading cause of death in China.
- 7% of Americans claim they never bathe.
- The odds of being sued for illegally downloading music are about the same as dying from falling out of bed 4,700:1.
- The New Zealand kea birds drop stones on rooftops just to watch people run outside.
- Ninety percent of New York City cabbies are recently arrived immigrants.
- Over 50% of the world's population have never made a phone call.



What the Heck is it?

If you can name the item pictured, you may WIN A MULVANEY MECHANICAL Leather Jacket

If you e-mail your entry, you must write "NEWSLETTER CONTEST" in the subject line to avoid our SPAM filter. Please mail to janette@mulvaneyinc.com

Just like this one



If multiple correct answers are received, a winner will be selected at random.

The answer to last quarter's quiz.

The item pictured at the right is an early design of a fusible link. This design utilizes two interlocking cast iron links that are held together with a seam of a specially mixed lead alloy. The lead mix is created to melt and separate at predetermined temperatures. These links are much the same as their modern counterpart. Holding open fire damper, doors or emergency shut off valves are their primary use. There were no correct answers received.



WHAT'S GOIN' ON?

Jul 12 - 14 th	2011 ASME Power Conference	Chicago, IL
Jul 26 - 28 th	Americas Fire & Security Expo	Miami Beach, FL
Sep 18 - 21 st	2011 American Public Works Expo	Denver, CO
Oct 11 - 12 th	AFE Facilities America 2011	Las Vegas, NV
Oct 19 - 20 th	NAEM ESH Mgt Forum	Tucson, AZ
Oct 22 - 25 th	NECA Conf & Tradeshow	San Diego, CA
Oct 26 - 28 th	IFMA Workplace 2011	Phoenix, AZ