

News from the Water Resources Department's Well Construction and Compliance Section

## KLAMATH BASIN ADJUDICATION

After 38 years of hard work, the Oregon Water Resources Department is pleased to announce delivery of the Findings of Fact and the Final Order of Determination in the Klamath River Basin Adjudication. With the delivery of these historic documents to the Klamath County Circuit Court on March 7, 2013, the Department has completed Phase One of the Klamath River Basin Adjudication. The completion of the Final Order of Determination means that the recognized claims are now part of Oregon's "first in time, first in right" prior appropriation system. Water users with recognized claims may now make calls for regulation of junior water users if doing so will result in additional water being available to the senior user. The delivered adjudication is the culmination of work to determine the validity of 730 claims to the use of surface water in the Klamath River Basin.

Since 1975, the Department has systematically reviewed and determined these claims. Additionally, the Department has received and resolved 5,660 contests to these claims. With the Department's issuance of the Final Order of Determination, the administrative phase of the Klamath River Basin Adjudication is now complete. For more information about the Klamath Basin Adjudication please go to the Water Resources Department website at <http://www.oregon.gov/owrd/Pages/adj/index.aspx>



Dangerous Old Dug Well

## DUG WELLS

Since January 2010, two fatalities have occurred in Oregon after individuals fell into dug wells and became trapped. The wells were not properly covered. The wells have now been properly abandoned; however, there may be more dug wells in Oregon that still remain a threat to public safety. Most dug wells are 30 inches in diameter or larger and contain water. Oregon Administrative Rules require wells that are temporarily removed from service to be properly covered. This is especially important with large diameter dug wells. Landowners with questions about the proper way to either cover or permanently abandon dug wells are encouraged to contact Kristopher Byrd by e-mail at [kristopher.r.byrd@wrds.state.or.us](mailto:kristopher.r.byrd@wrds.state.or.us) or by phone at (503) 986-0851.

## DEPARTMENT OFFERS ONLINE RULES COURSE

Well constructors will have the ability to obtain the required 2 Continuing Education Credits in the rules category through an online course offered by the Department. There will be a charge of \$40 per credit hour as required by law. Continuing education credits will be assigned after the licensee successfully completes the online course and submits the appropriate fee. The online rules course should be available on or before May 1, 2013, in time for license renewals. Questions should be directed to Tracy Fox at (503) 986-0856.



## ARTICLES

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## TURBINE PUMP INSTALLATIONS

During recent routine well inspections, it was noted that on several occasions well heads have been lowered to facilitate the installation of turbine pumps. An alternative to lowering wellheads is to install a pump pedestal around the well. The pedestal supports the weight of the pump and allows the top of the well head to remain at the required height. Another option is to install a flange on the well head that supports the pump. Both of these options meet State requirements and allow property owners to utilize turbine pumps as desired. Questions about surface completions should be directed to Kristopher Byrd at (503) 986-0851 or by e-mail at [kristopher.r.byrd@wrd.state.or.us](mailto:kristopher.r.byrd@wrd.state.or.us).

Flange for a Turbine Pump



Turbine Pump Pedestal

## HYDRAULIC FRACTURING FLUIDS

There has been a lot of concern throughout the United States and all over the world regarding chemicals used in the fracking process. Fracking involves injecting chemicals, water and sand into natural gas wells to fracture tight geological formations in order to free up more gas. Critics of the process claim it has led to drinking water contamination and that the chemicals used for fracking should be fully disclosed to the public. While the majority of the fluid used in the fracking process is simply sand and water, the remaining portion is a mixture of various additives. Since individual companies use their own unique mix for specific well needs, protecting the proprietary nature of their additives is a major concern.

The Ground Water Protection Council (GWPC) and the Interstate Oil and Gas Compact Commission debuted a new website in April 2011. The website provides the public with objective information on hydraulic fracturing, the chemicals used, the purposes they serve and the means by which groundwater is protected. This web site allows operators to voluntarily register the chemicals used in the fracking process and explains their purpose. The site remains neutral on the hydraulic fracturing debate. It does not argue either for or against the use of hydraulic fracturing and is not meant to provide scientific analysis of the associated risks or benefits. The web site contains information on wells drilled after January 1, 2011 and can be found at [www.fracfocus.org](http://www.fracfocus.org).  
*Adapted from a June, 2011 article in World Drilling Resource.*

### WELL SAID NEWSLETTER

Available on the web at [www.wrd.state.or.us/OWRD/GW/forms.shtml](http://www.wrd.state.or.us/OWRD/GW/forms.shtml) Please share with others at your organization.

*Well Said* is a production of the Oregon Water Resources Department's Well Construction & Compliance Section and is designed to inform the drilling industry and the public about program activities and other items of interest.

Questions or suggestions about this newsletter may be directed to Kristopher Byrd at (503) 986-0851 or [Kristopher.R.Byrd@wrd.state.or.us](mailto:Kristopher.R.Byrd@wrd.state.or.us)



For Well Construction & Compliance resources, log onto [http://www.oregon.gov/owrd/Pages/gw/wcc\\_index.aspx](http://www.oregon.gov/owrd/Pages/gw/wcc_index.aspx)

## NASA'S DRILLING ROVER

The National Aeronautics and Space Administration (NASA) has created an Autonomous Drilling Rover. The rover uses a laser-light camera to select a site for drilling and collects three-foot samples of soil and rock. A rover like the one described above must be designed to prospect for ice in lunar craters, and has to operate in continual darkness at extremely cold temperatures with little power. The moon has one-sixth the gravity of Earth, so a lightweight rover will have a difficult job resisting drilling forces and remaining stable. If a drill strikes ice, it will likely have the consistency of concrete. According to NASA, meeting the challenges of drilling in space with one system requires ingenuity and teamwork.

Adapted from NASA's website at [http://www.nasa.gov/centers/glenn/multimedia/imagegallery/if034\\_scarab\\_rover.html](http://www.nasa.gov/centers/glenn/multimedia/imagegallery/if034_scarab_rover.html)



## LICENSE RENEWALS FOR 2013

Well Constructor's License Renewal Forms will be sent out soon for licenses expiring June 30, 2013. Well constructors may renew online or by mail. If renewals are mailed, be sure to include the required Continuing Education Credit documentation and the renewal fee in the amount of \$150. Renewal Forms and fee must be postmarked no later than June 30, 2013, to avoid the late fee. Questions about license renewals should be directed to Tracy Fox at (503) 986-0856.

## EXEMPT WELL RECORDING

Property owners that have a new well drilled, or that have an existing well converted to allow groundwater use for a purpose that is exempt from a water right permit, are required to submit a map to the Water Resources Department within 30 days after the well is completed. Along with the map, the landowner is required to submit a recording fee in the amount of \$300. The map may be generated on the Department's website or sent in by mail. The recording requirements are detailed in Oregon Administrative Rule 690-190-0100.

Questions about the program should be directed to Scott Kudlemyer at (503) 986-0861 or by e-mail at [scott.b.kudlemyer@wrp.state.or.us](mailto:scott.b.kudlemyer@wrp.state.or.us).

## NEW STAFF

Please welcome Buffy Gillis to the Well Construction and Compliance Section. She comes to the Section with a technical background and is a welcome addition to the Department. Buffy's duties include responding to calls from individuals looking for copies of well reports and reviewing well reports submitted by drillers for completeness. Buffy can be reached at (503) 986-0850.

Please welcome Ladeena Bell to the Well Construction and Compliance Section. Ladeena comes to us from the Agency's Administrative Services Division where she worked as a receptionist and as a mailroom assistant. Ladeena's main responsibilities include issuing well identification labels and reviewing Well Identification Applications and Start Cards for completion. If you need supplies or have questions regarding the Well Identification Program, contact Ladeena at (503) 986-0854.

## WATER AND VOLCANO NEAR BEND

Engineers have been injecting cold water on hot rocks thousands of feet below the surface of Newberry volcano, 20 miles south of Bend. The plan is to create reservoirs of boiling water, as much as 20 million gallons worth, by cracking open fissures in the deep rock. Drawn to the surface, the boiling water would create steam to spin electricity-generating turbines. Until now, those enhanced reservoirs have not been big enough to power commercial power plants. They have also been dogged by fears of earthquakes. The developers hope to generate as much as 50 megawatts of power, but say that an operating power plant is at least six years away. The 48 degree water for the cracking process is drawn from a well 600 feet beneath the test site which is cool enough to contract the 600-degree rocks 10,000 feet below. This allows for the opening of small fissures where the water can boil.

Along with the steam, the process will also create small earthquakes. A network of 15 seismic sensors encircles the test site, allowing the depth and location of the small quakes generated during stimulation to be pinpointed. Project officials say any earthquakes will be too small to be felt, even by the crew at the test site.

Adapted from an October 18, 2012, article in the *Ventura County Star*.



"Serving the public by practicing and promoting responsible water management."





## WATER WELL HELPS CHANGE RANGELAND TO FARMLAND

The Oregon Department of State Lands (DSL) recently worked with lessees on completion of a conversion of 250 acres from rangeland to pivot irrigation of certified organic alfalfa. The state paid for below-ground infrastructure, which included drilling a new water supply well and electrical service, while the lessee paid for above-ground improvements such as land clearing, planting and central-pivot installation and equipment. In addition to 630,000 acres of rangelands, the DSL leases about 4,500 acres of land for agriculture. Nine leaseholds cover such crops as wheat, alfalfa hay, potatoes, onions and poplar trees. If you have questions or are interested in converting a portion of your state leasehold, call Randy Wiest in the Eastern Region office in Bend: 541-388-6456. *Adapted from Fall 2012 Rangeland Newsletter.*

## REVISED COLIFORM RULE

On February 13, 2013, the Environmental Protection Agency published in the Federal Register the revisions to the 1989 Total Coliform Rule. The Revised Total Coliform Rule, which applies to all public water systems, offers an opportunity for greater public health protection against waterborne pathogens while at the same time reducing the implementation burden for water systems. The rule is based on the Agency's consideration of public comments and recommendations from the total coliform distribution system advisory committee. The committee includes a broad range of stakeholder groups including States, environmental groups, utilities, and public health and public interest groups. Public water systems and primacy agencies must comply with the revised requirements by April 2016. For more information you may visit: [http://water.epa.gov/lawsregs/rulesregs/sdwa/tcr/regulation\\_revisions.cfm](http://water.epa.gov/lawsregs/rulesregs/sdwa/tcr/regulation_revisions.cfm)

*Adapted from the February 19, 2013, EPA Weekly Newsletter.*

## GEOLOGY + WELLS + PUMPING = Drops in Water Levels in Columbia Plateau

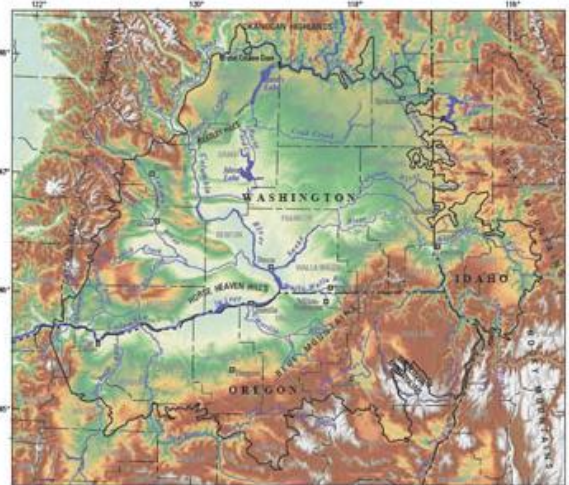
Geologic barriers, the intermixing of water between aquifers through wells, and groundwater pumping contribute to the pattern of declines of groundwater levels of the Columbia Plateau, according to a report published by the U.S. Geological Survey.

Groundwater from the 44,000-square-mile Columbia Plateau Regional Aquifer, a system in decline since the 1970s, is a critical resource for the nearly 1.3 million people in Idaho, Oregon, and Washington as it provides irrigation water for the region's estimated \$6 billion-per-year agricultural industry.

To help resource managers in the region, the USGS Groundwater Resources Program began a study in 2007 of the Columbia Plateau Regional Aquifer System. The purpose of the study is to answer key questions about widespread water-level declines, reductions in groundwater flow into rivers, and the as-yet unknown effects of a changing climate on groundwater resources.

As part of this effort to document changes in the aquifer system, scientists compiled water levels measured in approximately 60,000 wells over the last 100 years. From a subset of the collected information, scientists developed a groundwater-level trend map for a period of widespread groundwater level changes (1968 to 2009). The average rate of change for all wells was 1.9 feet per year of decline, with 72 percent of all wells declining.

Scientists also analyzed water-level data to define areas of similar groundwater flow conditions. The areas of focus for this analysis included two large areas of continued concern for locals and state agencies: the Umatilla area, Oregon, and the Palouse Slope/eastern Yakima Fold Belt in the Columbia Basin Ground Water Management Area (GWMA) consisting of Adams, Franklin, Grant, and Lincoln Counties, Washington. Scientists found that in these areas groundwater levels have declined hundreds of feet, and that geologic barriers to groundwater flow protect some areas from decline while making declines in other areas more severe. Evidence suggests that both groundwater pumping and leakage of groundwater between aquifers through long open intervals in wells is contributing to the observed groundwater level changes.



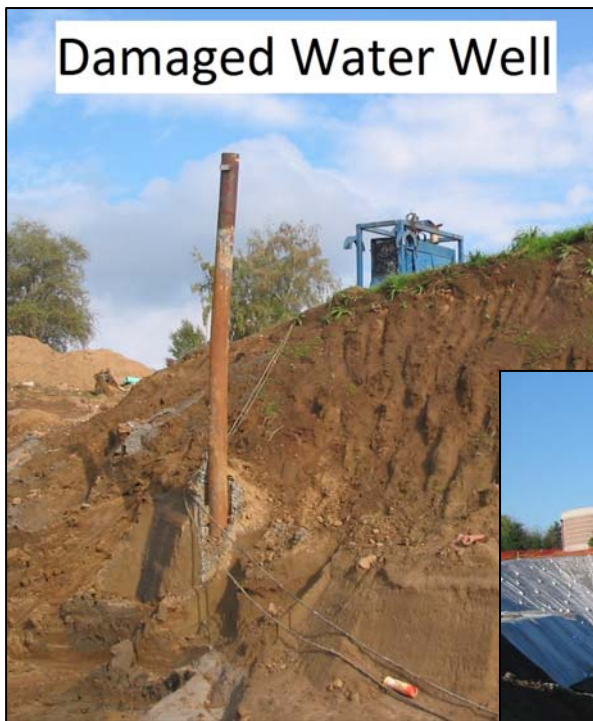
Information gathered in the study was used to identify groundwater flow paths and major barriers to groundwater flow. Understanding the features that control the direction of flow will help scientists build a groundwater flow simulation model that water managers can use to test ways of managing the region's groundwater under different development and climate conditions.

The report is published as U.S. Geological Survey Scientific Investigations Report 2012-5261 and is available on the Web. *Adapted From February 5, 2013, USGS News Release*



Abandoning a Monitoring Well with a Vac Truck

Monitoring Well



Damaged Water Well



Dewatering Well Project





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