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## Reed hears rocks to roll in the dough

by Lucy Higginbotham

Sep 15, 2014 | 202 views | 0  | 4  |  | 



Nicole Reed: "I want to stand on volcanoes for a living."

She listens to static and turns it into money. What she discovers in her apartment ends up in your gas tank or your pot roast. She won't be famous, but Exxon and Pennzoil depend on her kind of work.

She is a rock listener, and her name is Nicole Reed.

Actually, her professional title is geophysical analyst. The "static" she listens to is the auditory signature of layers of rock beneath the earth's surface. To the untrained ear, it sounds like static or the soothing sounds on a white noise machine.

But to Reed, the minor nuances of pitch can translate into major payouts in oil or in life-producing water in the desert as she determines the depth and character of the resources.

Her analysis, with the aid of a proprietary machine called a Petro-Sonde, tells companies where to drill and how deep to go. A few feet can make all the difference.

For example, one client already had a well but it only produced 10-15 barrels of oil a day. Her analysis showed all they had to do was drill 5-10 feet a little higher and voilà! The new yield was 30-50 barrels a day.

"I have to double up on the coffee in the morning to stay alert, but I like the white noise sound. I also like the challenge," she said.

"I wish I had 10 more of her," her boss, Jerry Conser, owner and president of Geophysics International Corporation, said.

"She is a great worker, very meticulous and learns quickly. Plus, she a sweetheart," he said.



Photos by Lucy Higginbotham

According to Reed, each kind of rock has its own sound, so she has learned to discern when the signal is moving through sand, shale, limestone, coal or other materials.

"Hearing the difference between oil and water is very tricky. If it's oil, the frequency goes lower. If it's water, it sounds more bubbly," she explained.

The lower the tone, the more porous the layer, like sand that has "a very deep sound..." she pauses, searching for words, "... sort of hollow."

Currently, she is graphing a reading of limestone that has a higher frequency. Readings from the Petro-Sonde may discover water in California, coal in Kentucky, oil in Colorado, natural gas in Texas, sinkholes in Florida or even a tomb in China.

From a little nook in her East Dallas apartment, surrounded by rock samples and a large poster of the Hawaiian Islands peering down, Reed slips on noise cancelling headphones and listens to recordings sent by clients via computer. Clients of Geophysics International make the recording at the site they are interested in, send her the recording just a few minutes later, and she begins dialing her way down into the earth's core, graphing what she hears.

"It's pretty easy for them. They just set the box on the ground, push the button, wait five minutes and turn it off. It saves a ton of time and money on field research," she said.

Nor is there any impact on the environment — no drilling, no damage, high confidentiality and extreme accuracy, Conser added.

Not that she would mind being out in the field if it were in a place like Colorado. But far west Texas?

"Nah ... I did that once and decided it was not for me when our guide told us to look out for rattlesnakes!" she laughed. But Colorado is where she discovered her obsession with Obsidian rock and other formations during college. An environmental science major at the time, she took an elective class in geology.

"The professor was so into his subject that it made it fascinating for me. Others were falling asleep in class, but I thought it was cool!" she said.

After that, she switched her major, but when she graduated with a bachelor of science in geology, getting a job was tough. She wanted to work for the United States Geological Survey (USGS). It is the federal agency that, according to their website, usgs.gov, "collects, monitors, analyzes and provides scientific understanding about natural resource conditions, issues and problems."

Reed is passionate about volcanoes and wanted to do research on those (hence the poster of Hawaii).

"I want to stand on volcanoes for a living," she said. "I want to monitor them, predict eruptions and save people."

But USGS funding was drastically cut just as she was graduating, so ... no jobs there. Through a friend's recommendation, she contacted Conser and has been working for his company since February of 2012.

After a full year of training on the equipment and passing the hearing test with a mandatory 100 percent accuracy, she began her analysis. While not as thrilling as smelling sulphur and eavesdropping on the angry gurgling lurking beneath the surface, what she does is highly unusual and very lucrative.

"She may be doing the equivalent of drilling 10 wells a day," Conser explained. "It's like Christmas! A new discovery every day!"

Water wells are Geophysics International's biggest moneymakers. Those baby carrots that go great in pot roast or your kid's lunch box? They are grown in the desert as a result of this technology.

"You can live without oil. You cannot live without water," Conser emphasized.

The working conditions aren't shabby, either. Reed is not allowed to work more than six hours a day, Monday through Friday and can work in her pajamas if she wanted ... all for up to \$100,000 a year salary.

"But you have to have a lifetime passion for what makes up Mother Earth," cautioned Conser. "Otherwise you'll be bored to tears doing this."

Reed agreed.

"It can get pretty monotonous. I have to take breaks to clear my ears," she said.

A break for her might include listening to music (anything but country) or riding her motorcycle, as long as it's not 100 degrees outside.

For now, Reed is happy with her electronic divining rod. But someday, she may become the hood ornament on Mount St. Helens and the savior of many.

For an interesting explanation of how the Petro- Sonde "hears" the earth, visit [geophysicsinternational.com](http://geophysicsinternational.com).