

# ROCK: Taking additional magnetic readings from the air

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area — such as the magnitude 6.2 quake that shook Milton-Freewater in 1936.

The Confederated Tribes of the Umatilla Indian Reservation, meanwhile, is interested in identifying geothermal resources for possible future development as it strives to become energy independent.

It was the tribes that reached out to the USGS earlier this year — the agency was already studying earthquake hazards farther north in Washington around Hanford and the Tri-Cities. One of those fault systems, the Hite Fault Zone, just so happens to follow the Blue Mountains south through the Umatilla Indian Reservation,

Patrick Mills, project manager with the CTUIR Department of Natural Resources, said their mutual interests coalesced nicely into a single strategy. Field studies began in mid-May, with funding from the Bureau of Indian Affairs and Energy Trust of Oregon.

“We know there are geothermal resources,” Mills said. “It’s a matter of finding out how close they are to the surface.”

One way to detect hidden underground features is to measure subtle differences in gravity and magnetic fields at the Earth’s surface. Because some rocks are more dense and more magnetic than others, they trigger delicate signals that can be detected with the right equipment.

Enter Glen and Ritzinger, who hiked up steep basalt to gather data Monday from Thom Hollow. Ritzinger climbed first up the rocky slope, wearing ear guards and wielding a rock drill converted from an old chainsaw.

The drill tip, studded with diamonds, made quick work carving small cylindrical holes into the basalt. From there, Glen followed with a specialized instrument known as an orienter, which he placed inside each hole to gauge the angle and dip of the rock.

“What this is providing us is a measure of the magnetization of the rocks,” Glen said. “We need that data to properly model the faults in



Staff photo by E.J. Harris

**USGS geophysicist Jonathan Glen takes readings off a device called an orienter while taking measurements for a core sample of basalt rock off Thom Hollow Road, east of Pendleton.**



Staff photo by E.J. Harris

**USGS geophysicists Jonathan Glen aligns an orienter in a core sample of the basalt rock.**

the subsurface.”

Anomalies in gravity and magnetics suggest rocks that have broken and moved toward or away from the surface. That often happens along fault lines, Glen explained, and they can use those readings to further model the subsurface geometry. Not only are faults key to anticipating earthquake hazards, but they are also permeable, which means they could provide a path for hydrothermal springs to flow to the surface.

“There are multiple components of this research,” Glen said.

The USGS is taking additional magnetic readings from the air, using a low-flying Cessna fitted with an electronic magnetometer. The plane began flying June

8, and will take several weeks to cover a 5,000-square-mile area over Pendleton and the Umatilla Indian Reservation.

Rick Blakely, geophysicist and research associate emeritus with the USGS, said that once all the information comes together, they will have a colorful map full of magnetic anomalies showing where faults may be hiding.

“We can learn something about the geology beneath the ground we can’t see,” Blakely said. “It helps us to locate faults we may not have known about before.”

Mills, who is heading up the CTUIR geothermal energy assessment, said he expects to finish the first phase of their analysis by the end of the year. That will determine whether the tribes move forward with Phase II

of the project, which would include digging test wells.

More than 200 springs and seeps have been identified on or near the reservation. Mills said they hope to find sources with enough heat and permeability that would allow them to develop an enhanced geothermal system.

The CTUIR has partnered with AltaRock Energy, a company that specializes in geothermal development, to analyze and interpret the subsurface models once they are formed.

“There’s a chance this could be the single biggest discovery in the history of (the CTUIR),” Mills said.

Geothermal power would need to be harnessed at a scale of megawatts to be worth the expense, Mills said. If the numbers pencil out, it could be an important source of baseline, emission-free renewable energy to balance more intermittent wind and solar generation.

“It’s always going to be there. It’s always on,” Mills said. “It’s a reliable energy technology.”

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# COOK: In talks to have St. Anthony prepare meals

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ization aspect that CAPECO wants to maintain.

During the employee search, McMurphy said staff asked local restaurant owners whether they employed any cooks who were looking for extra work.

From those discussions, CAPECO concluded that the labor market for people willing to work in the kitchen was tight, especially for a 35-hour-per-week position. With CAPECO also requiring job candidates pass a background check, the candidate pool shrunk further.

McMurphy said CAPECO plans to reopen

the senior center on July 10 “come heck or high water,” and could find a solution to their cook vacancy even if staff can’t find a candidate.

McMurphy said CAPECO is in talks with St. Anthony Hospital to have its kitchen staff prepare the meals for its congregate and delivery programs while CAPECO continues to cover handling and distribution.

St. Anthony spokesman Larry Blanc said the hospital and CAPECO have had discussions on the proposal but nothing is set in stone.

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Contributed by Echo School District

**This conceptual drawing shows plans for an updated, secure entryway into Echo School.**

# ECHO: Will give ag and art programs a permanent home

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“The community will have 24-hour access to that fitness center,” said Linda Muller, Echo School District’s business manager, who will also serve as project manager.

Construction will be done by Kirby Nagelhout of Pendleton. With the exception of upgrading a few things in the current school, work will largely be focused on the new addition that will connect to the south end of the existing school and extend out to its greenhouses.

Smith said some of the additions will allow

programs like agriculture and art to have a permanent home, instead of shuttling back and forth between empty classrooms.

A small crowd of Echo students, parents, teachers and board members came to witness the first step in the process.

“I’m excited,” said Becky Bacon, instructional coach and testing coordinator at Echo School District. “After 13 years at Echo, to be able to be a part of this is pretty amazing.”

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# RAINBOW: Incident command team will include roughly 25 law enforcement officers

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they are a non-organization with no official leaders.

Instead, the Forest Service will assign an operating plan with conditions and criteria to protect natural resources, safety and public health at the gathering. The plan also addresses post-event cleanup.

Ethan Ready, a Forest Service spokesman in charge of handling the Rainbow Gathering, said 20 different natural resource specialists have visited the site to identify potential impacts. Their findings should be completed soon, Ready said.

Ready works for the Green Mountain National Forest in Vermont, where last year’s Rainbow Gathering was held. He said Rainbow members are usually open to working with the agency and want to adhere to the rules.

“They’ve been receptive in the past,” Ready said.

The Forest Service is working with a number of partners in preparation for the gathering, Ready said, including the Confederated Tribes of the Umatilla Indian Reservation, which has an interest in the area as part of the tribes’ ceded territory.

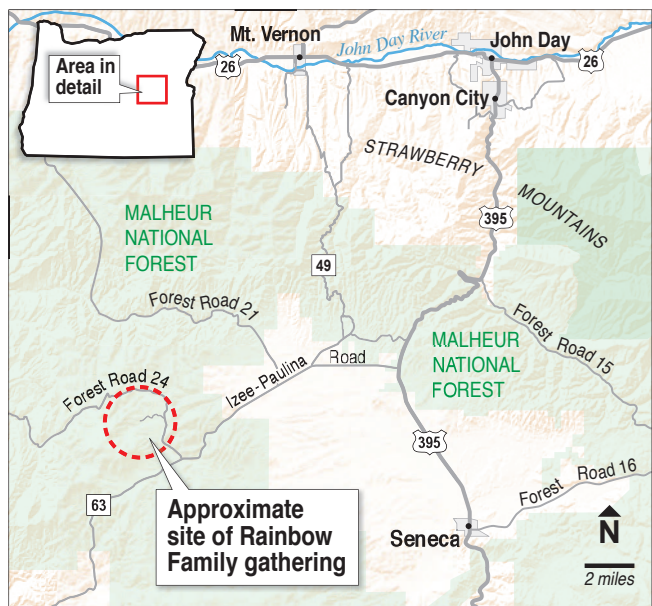
Chuck Sams, spokesman for the CTUIR, said the Rainbow Family did reach out to the tribal Department of Natural Resources as early as March, when members were scouting locations for the 2017 gathering.

At the time, Sams said the scouts proposed seven possible locations, including Flagtail Meadow — two on the Wallowa-Whitman National Forest, one on the Umatilla National Forest, three on the Malheur National Forest and one on the Ochoco National Forest.

The tribes spent months evaluating each location, Sams said, analyzing impacts to water quality and quantity,

## Rainbow gathering

The annual Rainbow Family gathering, which could attract 10,000-30,000 people, is taking place in Flagtail Meadow on the Malheur National Forest off of Forest Road 24 west of Seneca.



Source: U.S. Forest Service

Alan Kenaga/EO Media Group

native fish, traditional plants and the possibility of ground disturbances at former village and burial sites.

On June 12, the CTUIR concluded that all of the sites were a high risk for damage.

“As for the proposed locations within the CTUIR’s ceded territory, given the potential impacts to both renewable and non-renewable resources, we would respectfully request that your gathering be held elsewhere,” the tribes said in its formal response.

Sams said the Rainbow Family members also asked tribal officials to bless the gathering, which the tribes declined.

“We can’t do that in good faith,” Sams said. “There just aren’t currently any facilities in any of those reaches they proposed that could deal with that many people.”

Sams said the tribes will continue to work closely with the Forest Service, which has jurisdiction over the

area. Ready said they will have an incident command team on hand to deal with any problems that arise, and enforce the guidelines of the operating plan.

The incident command team will include roughly 25 law enforcement officers brought in to assist the Grant County Sheriff’s Department and Oregon State Police. Other staff will take charge of things like logistics, planning and fire hazard mitigation.

“You’re talking about a massive group,” Ready said. “We’re doing everything we can in the preliminary stages.”

Sams said the primary concern among the tribes is the protection of natural resources related to cultural sites and first foods.

“We just want people to be respectful and good stewards of the landscape,” Sams said.

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