

N.D. Public Service Commission continues to fight that sinking feeling

Crews filling sinkholes around Beulah

BY CHRIS GESSELE

There's something lurking beneath the ground in Mercer County, something that has swallowed dogs out for a run and half of a four-wheel drive tractor.

They're underground mine rooms and tunnels, remnants of the underground mining operations that took place in this area a long time ago. The North Dakota Public Service Commission's Abandoned Mines Division is currently in its 12th year of filling underground rooms and tunnels in the Beulah and Hazen area.

Those underground caverns have collapsed to form many sinkholes surrounding Beulah ever since the end of underground mining operations in the area in 1953 and beginning of surface mining. The caverns generally range from 10-40 feet deep.

Few caverns gradually cave in, according to PSC assistant director of abandoned mine lands Bill Dodd.

"Usually they collapse suddenly and unexpectedly," Dodd said.

Contractors generally locate underground voids using exploratory drilling or maps from the mine's operating days, said Jim Deutsch, director of the PSC abandoned mine lands and reclamation division. When a void is found, crews drill a hole, case the hole with a PVC pipe and fill the void with grout-- a mixture of fly ash, Portland cement, sand, water and super plasticizers to keep the sludge flowing. The material is about one-tenth the strength of concrete when solidified.

A cavern filled with grout shouldn't collapse. The bad news, however, is that crews never know if the grout they are pumping is reaching its desired destination, Dodd said.

Depth of the mine voids depends on surface elevation. In the Beulah area, however, Dodd estimated the coal is just over 100 feet below the surface with coal seams generally about 20 feet thick.

"There can be some pretty large, void spaces," he said. "They're big, deep and wide ... especially around Beulah where the coal (veins) is so thick."

Last week, contractors filled underground tunnels running parallel to North Dakota Highway 200 just east of Beulah. In about three weeks, crews have pumped about 3,000 yards of grout into the ground, or about 600 yards per hole. They hope to finish in the Beulah area this year by mid-October.

"It's kind of a crap shoot. We never know how much grout is going to go in each hole," abandoned mines division environmental scientist Tim Oswald said.

"The lucky thing is that 200 was a road even at the time that mine was operating," Dodd said. "So it's mainly just the haulage tunnels running underneath the road."

The mission of the Abandoned Mine Lands Division is to eliminate potential or existing hazards associated with abandoned coal mines in North Dakota for which there is no continuing liability under state or federal law.

There are several areas where sinkholes have been reported, such as Garrison, Wilton and Williston, but some of the largest have been found in the Beulah area. The deepest sinkhole Oswald has seen was 73

feet deep.

“By far, around Beulah has been the biggest I’ve seen,” Oswald said. “The Beulah area is a priority.”

Many times open holes are surrounded by tall grass, which makes them difficult to see until at the edge of the hole.

“Sometimes all you’ll see are pigeons flying out of the ground,” Oswald said.

The PSC’s main priority is protecting public infrastructure, though will also fill sinkholes on private land with dirt after communicating with the landowner.

Landowners can call the PSC’s Reclamation Division at 701-328-4096 to report any sinkholes on their land. The PSC also sends landowners maps of known abandoned underground mining operations upon request.

Oswald said hazards posed by underground mine rooms and tunnels include collapse, potential buildup of poisonous gases and the potential for grass fires to burn into underground coal veins and smolder for a long time, igniting more grass fires and weakening the ground above the caverns.

Building in an area littered with sinkholes is at the landowner’s risk, Oswald noted.

“We recommend not to but can’t stop them. It’s dangerous just to drive out there,” he said.

The PSC has completed several underground and surface reclamation projects in the Beulah and Hazen area.

In 2009, the PSC used about 508,000 cubic yards of excavation was used to eliminate about 5,000 feet of dangerous highwalls on a 50-acre site at an abandoned surface mine west of Hazen and northeast of Beulah.

IN 2002 AND 2005, THE PSC HELPED PUT OUT A COAL REFUSE FIRE BURNING UNDERGROUND IN THE BEULAH AREA, AND IN 2001 FILLED TWO SINKHOLES THAT HAD OPENED IN THE FLOOR OF AN EQUIPMENT SHED NORTHEAST OF BEULAH THAT CONSUMED PART OF A TRACTOR.