

Mine Subsidence Swallows a Tractor in North Dakota

Garner Sailer, a farmer from Beulah, North Dakota, was checking his machine shed for mice on Tuesday, February 6, 2001. Imagine his surprise when he found his Versatile 750 Tractor nose-down in a deep sinkhole inside the shed. The sinkhole was about twenty feet in diameter and twelve feet deep. A combine was also hanging precariously over the edge. It was caused by collapse of mined workings from the Knife River Underground Mine, operated from about 1920 to 1950. A thick mined coal seam (10-25') combined with fairly shallow (30-100') unconsolidated overburden has resulted in the sudden collapse of many deep and dangerous sinkholes in the Beulah area over the years.

Sailer reported the situation to the Abandoned Mine Lands Division of the North Dakota Public Service Commission (PSC) on February 7. PSC employees Bruce Beechie and Bill Dodd inspected the site on February 8 and found two dangerous sinkholes inside the machine shed. The first sinkhole, located near the doorway of the shed, contained the tractor. A second sinkhole at the opposite end of the shed was only about four feet in diameter at the surface but was much larger just beneath the surface. Another combine and a swather were parked above this developing sinkhole.

We E-mailed an AML Emergency Investigation Report, supporting documents and digital photographs to the OSM Casper Field Office on February 9. Casper immediately issued a finding that these sinkholes constituted an AML Emergency and were eligible for emergency reclamation funds. We telephoned contractors and scheduled an on-site bid meeting for February 12th. Eight contractors attended the bid meeting in Sailer's machine shed and all of them submitted bids. The low bidder was Basaraba Excavating and Dirtworks, L.L.C., of Wilton, North Dakota.

Basaraba began work on February 14th. The temperature hovered around -15°F. The first obstacle was to raise the combine, which had dropped farther and was setting on top of the tractor. A large timber was placed under the combine and one of its wheels was removed to allow the tractor clearance. Basaraba excavated a ramp into the sinkhole and used an excavator and a backhoe to pull the tractor out of the hole. Removing the tractor took most of the first day. The tractor was damaged moderately but appeared to be repairable. The sinkhole was filled with 195 cubic yards of dirt from a nearby spoil pile left by an abandoned surface mine. Next, the contractor removed all the farm implements from the shed in order to fill the second sinkhole. It was then filled with 210 cubic yards of dirt and the shop floor was graded to its approximate original condition.

The project was completed on February 15, 2001 and the total contract cost was \$3222.50. This was a difficult project because of the weather, tightly packed farm equipment, and low clearance inside the structure - not to mention the danger of collapsing mined workings. However, it was also an opportunity to provide some much needed public service. This is the kind of project for which Title IV of SMCRA was designed.

Our thanks go to the contractor for doing a great job, and to Garner Sailer for maintaining a positive attitude. Thanks also to Bill Powell and Guy Padgett, OSM-Casper, for their quick response time that allowed us to use emergency funds to repair these dangerous sinkholes as soon as possible. [Photo](#)

Bill Dodd and Bruce Beechie, Environmental Scientists
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