

Reliance, Wyoming Mine Subsidence Mitigation Project¹

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Abstract: The Reliance Subsidence Mitigation Project was sponsored by the Wyoming Abandoned Mine Lands Program (AML). BRS Engineering and Western Engineers & Geologists collaborated on the project beginning in 2015. The project is located along eastern portions of Reliance, Wyoming approximately 3 miles north of Rock Springs in Sweetwater County, Wyoming³. Underground coal mining in Reliance began in 1910 at the No. 1 and No. 3 mines followed by the No. 7.5 in 1913, No. 7 1936, and No. 11 mine in 1941. The eastern portion of Reliance is underlain successively by the No.1, No. 7, No. 7.5, and No. 11 mines, with the depth to the No. 1 mine workings as shallow as 40 feet from the ground surface. In 1926 a mine fire erupted in the No. 1 mine and in 1933 the No. 1 mine was closed. The Wyoming AML program closed mine portals in the area beginning in the late 1980's and in 2007 AML began reclaiming mine subsidence features, which were expressed at the surface and began monitoring the No. 1 mine fire, which was also expressing itself at the surface. In 2015 investigative drilling showed that mine subsidence and the No.1 mine fire was encroaching on residents in the eastern portions of Reliance. Mitigation of hazards relating to the mine subsidence and mine fire were immediately initiated in the most critical areas using pressurized void-fill grouting. The initial work was then followed by phased construction proceeding west in 2016 and 2017. In 2017 verification coring of the site was completed which demonstrated the grouting had stabilized the mine voids and extinguished the mine fire where it was impacting the Reliance residents. The presentation addresses the general history of the project; challenges faced during investigation and mitigation, and documents the success of the project.

Additional Keywords: Coal Mine Fire, Underground Mine Subsidence, Void-Fill Pressure Grouting, Wyoming Abandoned Mine Lands Program.

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 3. Work reported here was conducted near 41° 40' 16" N, 109° 10' 59" W.