



May 13, 2009
For immediate release
Photo attached, cutline below

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Milestone reached at Sanford Underground Lab

LEAD, S.D. -- The water level at the Sanford Underground Science and Engineering Laboratory at Homestake reached the 4,850-foot level today, Gov. Mike Rounds announced.

"This is a benchmark day in the quest to convert the mine into a world-class laboratory for underground science," the Governor said. "The historic Homestake Mine yielded 40 million ounces of gold before it was shut down in 2001, but it will someday yield something more valuable than any precious metal: knowledge about the universe and the world around us."

South Dakota Science and Technology Authority Executive Director Ron Wheeler said a four-member crew inspected the level. "The water at 11 a.m. this morning was 2 inches below the 4,850-foot level," Wheeler said. A hazard assessment crew walked more than a kilometer from the Ross shaft to Yates shaft. "They report the ground conditions look good," Wheeler said. "We have some sand built up around the Ross station, but it won't be hard to remove."

The Ross and Yates shafts run from the surface to below the 4,850-foot level. (A "station" is where the shaft accesses a "level" of horizontal tunnels.)

Deep labs protect sensitive experiments from cosmic radiation, and Homestake is 8,000 feet deep. Shafts called "winzes" connect the 4,850-foot level to deeper levels. (See the photo.)

Homestake was slowly filling with water until last year, when the South Dakota Science and Technology Authority (SDSTA) began pumping it out. The high-water mark was 4,530 feet underground. The water level has been lowered 320 feet since then. The SDSTA is reopening Homestake to the 4,850-foot level, and the National Science Foundation (NSF) is considering a proposal to make Homestake a national underground laboratory, with facilities from the surface all the way down to 8,000 feet underground.

"There is broad statewide support for the Sanford Laboratory," Gov. Rounds said. The state Legislature approved about \$40 million to develop the underground lab, and South Dakota used a \$10 million federal grant to rehabilitate the Ross Shaft, which is 5,000 feet deep. The governor said the effort to turn the mine

South Dakota Science and Technology Authority

into the deepest laboratory in the world took a giant step forward in 2006, when T. Denny Sanford pledged \$70 million for the project. "T. Denny Sanford's generosity has been a key ingredient in the success and progress we've had to date with this monumental project," the Governor said.

Sanford, a Sioux Falls businessman and philanthropist, said many people deserved credit for reaching the 4,850-foot level. "I am overwhelmed that this level and a whole new world has been opened up for the benefit of mankind," he said. "How marvelous! My congratulations to all of the very dedicated people, past and present, who made this happen."

Sanford also noted that the dewatering at Homestake continues despite heavy spring snow and rain. "My hat is especially off to Gov. Rounds and to Ron Wheeler for their efforts in creating this but also for making certain that it happened on schedule, in spite of the weather in Lead."

"Access to the 4850 Level will allow us, in the near future, to start construction of the Sanford Underground Lab," Wheeler said. Hazard assessments will continue for about 30 days, before construction begins. The first physics experiment at the 4,850-foot level will be the Large Underground Xenon detector, or LUX, which will search for a mysterious substance scientists call "dark matter."

Dr. Kevin Lesko, a physicist at Lawrence Berkeley National Laboratory and the University of California at Berkeley, is leading the team of scientists and engineers who are designing the proposed national laboratory at Homestake. "This celebration recognizes the tremendous efforts by the SDSTA in regaining access to the 4850 Level," Lesko said. "It's a critical milestone for the Sanford Lab and ultimately for the NSF's national laboratory. It allows the re-introduction of physics experiments into Homestake -- the birthplace of neutrino astrophysics." The late Dr. Ray Davis won a Nobel Prize for physics in 2002 for a neutrino detector he installed at the 4,850-foot level. The LUX detector will use the same cavern excavated for Dr. Davis in 1965. "We are naturally led to remember Ray Davis, and we quickly recognize strong parallels with Governor Rounds' support and leadership in creating the Sanford Lab," Lesko said.

Wheeler credited the Sanford Underground Lab staff for today's milestone. "The actual achievement of dewatering the Homestake mine to this level has been accomplished by the hard work of all the employees of the Sanford Underground Lab," Wheeler said. He noted that many of those employees previously worked at the Homestake Mine. "They have worked countless long hours in difficult conditions, including blizzards, to keep pumps and equipment running. They have pumped and treated hundreds of millions of gallons of water to get us here. When you work with people that are this capable and dedicated, it makes you proud to be part of the Sanford Underground Lab family."

Wheeler also acknowledged Sanford's generosity, Gov. Rounds' commitment and strong support from the state Legislature and the citizens of South Dakota. "Tremendous public support here has helped us win support throughout the country," he said.

Sanford's \$70 million donation stipulated that \$20 million be used to create a science education center on the campus of the Sanford Underground Laboratory. Planning for it is under way. SDSTA Board Chairman Dave Bozied (pronounced boh-ZAYD) said he and fellow board members felt especially privileged to be part of a project that will have a profound effect on education. "The Sanford Underground Science and Engineering Laboratory will change the future of science education in South Dakota, and the lab's impact will be felt around the world," Bozied said.

Sanford said it was also gratifying to see how the project is revitalizing Lead, contributing to growth in the

Black Hills and helping to grow the economy of the entire state. "I am so very proud to have my name on an organization that will mean so much to mankind in the future," he said. "I thank everyone involved."

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A Sanford Underground Laboratory hazard-assessment crew poses on the 4,850-foot level in front of Six Winze, an internal shaft that drops from the 4,550-foot level all the way down to Homestake's lowest level, which is 8,000 feet underground. Left to right: Infrastructure Technician Bill Heisinger, Engineering Project Manager Willy McElroy and Mining Engineer Bryce Pietzyk. Underground Operations Foreman Jack Stratton took this photo.