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TOP STORY

## Twin Creeks undertakes underground

Story and photos by Suzanne Featherston Mining Quarterly editor Dec 8, 2017

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Newmont Mining Corp. declared achievement of commercial production Twin Creeks Underground expansion project July 3. This 2017 file photo shows an overview of a portal at the Twin Creeks mine.

Suzanne Featherston

Twin Creeks celebrated three landmarks in 2017: 30 years since inception, 20 years since becoming a Newmont Mining Corp. property, and commencing the site's first underground mining.

“It's exciting that the timeline lines up,” Twin Creeks General Manager Melissa Harmon said Nov. 9. “Twin underground is really our first effort to go underground here at Twin Creeks, and to have that be on the 30-year anniversary at Twin Creeks and 20 years of being a Newmont site, it gives this site some hope for longevity in the future.”

After completing a feasibility study, Newmont earned approval and funding for the project in July. Authorization kicked off preparations underground and on the surface to move the project toward commercial production, projected to begin in mid-2018. About 45 miles northeast of Winnemucca, the Twin Creeks site totals 13,000 acres, with 9,000 acres used for operations.

Small Mine Development mobilized this summer to build the mine below the two existing portals in Twin Creeks' Vista pit. The portals were built 2011-2013 after surface exploration results justified continuing underground. Subsequent drilling from drifts, sampling, modeling, detailed engineering and SMD test mining helped Newmont experts determine they had an economically viable project.

The underground mining contractor began building drifts in August — one month ahead of schedule. SMD works under some Newmont management and has been daily driving drifts of 60 feet — or 100 feet on exceptional days, said Ezekiel Easley, Newmont Twin Creeks underground superintendent. “It's advancing pretty quickly,” he said.

Doing a tour underground, Easley stopped a side-by-side to visit with SMD driller Leo Castillo. He paused in the process of drilling 45 holes for explosives to advance a heading about 8 feet. On the rock face, red- orange spray paint marks the vein that Newmont geologist Angela Russo identified earlier.

“We do this every day,” Castillo said with a grin. “I’m going to try to do four.”

In other areas, Castillo’s SMD colleagues perform underground mining tasks, such as bolting screens on ribs, mucking out waste rock and microscopic ore, and operating a lift basket from which Russo takes samples and marks the veins in headings.

As of the November tour, the tunneling had ended down a dark drift dimly lit with darting headlamps and headlights.

“Just around the corner is our next level down,” said Norm Bisson, Twin Creeks underground project manager. “It’s pretty exciting. It’s progress. It’s heading to the bottom.”

To access the deposit — with a thickness of 2 to 20 feet and at a 65-70-degree dip — the crews will follow two methods planned for mining Twin Creeks underground. The plan includes the long hole stoping retreat and Avoca techniques but emphasizes the Avoca method.

“That allows you to be drilling on one side and blasting and filling from the other side and at the same time,” Bisson said. “The design was laid out so we could maximize Avoca because it is a more efficient mining method.”

Once stoping begins between 60-foot levels to a planned depth of 800 feet below the portals, the team anticipates that the mine initially will produce about 600 ore tons a day and ramp up to about 1,200 ore tons a day in the last two years covered by the mine plan, which extends through 2021. The development is expected to total 9.7 miles.

“SMD is here, and they’re mining, and they are getting everything set up to go to full production,” Bisson said. “There are still a lot of things we need to set up on surface for them to be able to support them in mining.”

To prepare the surface, Newmont hired contractors to construct support facilities. The site will include a cement mixing batch plant, metal screening plant, long- and short-term storage areas, a shop and warehouse, and a changing facility.

“One of the things the project team has done here at Twin underground is to think ahead on all of that segregation and to plan how the portal area is going to be set up,” Harmon said.

The surface layout features exclusion zones to help segregate activities. Designated areas will help keep light vehicles and pedestrians away from heavy equipment. Walkways keep pedestrians behind barriers. Three ramps into the pit are designed to ensure that heavy equipment and haul trucks, underground equipment, and light vehicles enter separately and remain separate.

“I think one of the things we have done here that is pretty unique is the three ramps we’ve put in to segregate,” Bisson said. “You don’t see that in other portal mines.”

The site is expected to employ about 90 people full time, including SMD workers.

“This was exciting to see start up for those of us living in Winnemucca,” Russo said. “It’s nice to be close to home.”

Bisson put in perspective the economic impact: “That’s 90 families that are impacted by this mine starting up.”

Those employees — and all the surface and underground teams — are expected to follow Newmont’s recently rolled out Fatality Risk Management program at Twin Creeks. The plan identified 16 FRMs, or activities that are likely to have significant

consequences if performed improperly, then created a plan to help avoid incidents.

“We put a team together to put controls in place to mitigate that situation,” said Gordon Maxwell, Twin Creeks loss control specialist.

A questionnaire for each task helps staff determine if all the critical controls are in place for an activity before starting. If those controls are not there, they will not start a job.

“It’s a nonstop process,” said Tige Brown, Twin Creeks mine manager, “but this is just a bit more formalized.”

The Twin Creeks underground defined resource is about 1.3 million tons containing more than 244,000 ounces of gold. With those numbers, the mine plan shows that Twin Creeks underground is viable for about five years, but Harmon said she anticipates that mine life will extend much longer.

“What we needed to do was get underground and be able to use it as a platform to continue to explore,” Harmon said. “As we do that, we would expect that we can extend the life of this underground. We fully believe we will not be done here at 2021.”

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## Twin Creeks Timeline

1987 Chimney Creeks and Rabbit Creeks established

Owned separately by Goldfields and Santa Fe Pacific

**1993** Mining companies combined efforts

**1997** Newmont Mining Corp. merged with Santa Fe Pacific

Changed name to Twin Creeks

**2017** Newmont began underground mining

**2018** Commercial production expected to begin



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## Suzanne Featherston

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