

Americas'

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MINES & QUARRIES

Powering the present

WYOMING FRONTIER: 1843

Six horsemen riding across the chilly sagebrush plain stop for a short rest. Two dismount. The tallest stares at the ground and then kicks a large black rock. He leans down and picks it up. "Coal," he says with a smile. Curious, his companions dismount and look around as well. They remount and move on. The tall gentleman makes a notation in his journal.

John Frémont, famous Pathfinder of the West, was the first to document the abundance of coal in what would become the state of Wyoming.

Now, 166 years later, the Chevron Kemmerer Mine benefits from Mr. Frémont's discovery to the tune of five million tons per year. The mine is now the deepest open-pit coal mine in Wyoming.

The Kemmerer Mine's primary customer is PacifiCorp's 715-megawatt Naughton Plant, located nearby. The rest of their production goes to a variety of customers served by the Union Pacific Railroad. Railroads have figured prominently in Wyoming's coal industry since 1869 when steam-powered locomotives consumed mountains of the fuel. The mine and nearby town are named after Mahlon S. Kemmerer, the mine's first financier.

HITACHI EXCAVATORS PERFORM

"The surface-oriented mine was acquired by Chevron in 1984," says Maintenance Manager George Crank. "The new owners started using the Hitachi UH801 along with other equipment, and did well with the open-pit concept."

From 1881 to 1950, the coal was mined underground, first by pick and shovel, and eventually by mechanization. Kemmerer retired its UH801 Hitachi excavator in 1998 after 75,000 hours of reliable service. One of the first Hitachi EX2500 excavators produced appeared at the mine in 1998, and an early production EX3600-6 followed in 2009. Both have been stalwart performers.

"All of the Hitachi excavators have worked well for us," says Erick Esterholdt, Production Manager. "Productivity is as we expected, downtime is minimal, and the new model is a for-real improvement."

THERE'S A MAJOR EXTRACTION PROBLEM



"The Hitachi 3600-6 has worked well for us." — George Crank, General Maintenance Supervisor

Kemmerer Mine's "Big Pit," one of three at the complex, produces coal from the Adaville Formation, with multiple seams that dip from 17 to 23 degrees. That means most of the coal acquired is mined at a fairly severe slope. To accommodate that obstacle, the mine found the steel-tracked



Coal seams are at angles ranging from 17 to 23 degrees, making for difficult extraction.

Hitachi units worked quite well. The backhoe configuration allows them to scrape the coal surface from the top down. More importantly, the overburden is also worked from the top down, so the tilted coal seams can be easily identified and worked.

"Our first Hitachi was remarkable. Our subsequent Hitachi backhoes have also done a nice job. We're quite happy with our newest Hitachi, the EX3600-6," says Esterholdt.

Kemmerer Mine is serviced by Arnold Machinery, Salt Lake City, Utah.



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All in the family

You could say this family-established mining operation represents the backbone of Eastern Kentucky contour coal mining. It's resourceful, good to its employees, and observant of the rules and regulations leading to good stewardship of the land they mine — the Appalachian Mountains.

"My father learned how to mine from his father," says Jeff Dean, whose father, Aubra Paul Dean, founded JAD Coal. "He began mining on his own around 1970, and the company remained a family operation for over 30 years. We recently joined forces with U.S. Coal Corporation, which was formed to acquire both us and Licking River Resources. But we're still privately owned and privately funded."

A FIRST-CLASS OPERATION

JAD Coal is a first-class operation. It's currently contour mining three different mountains near its home base in Coldiron, Kentucky. According to Surface Foreman Harvey Henderson, the mine was worked on a limited scale in the late 1950s when seams were augered with little benching. "Back then they didn't have the right equipment. Today we take bigger cuts, build bigger benches, and use a really transformational machine — the highwall miner. Our highwall miner allows us to go way past where the little auger holes quit and get into solid coal. It goes back a thousand feet or so. When we're done, nobody will be coming behind us. We extract it all.

"We have a good idea where the coal is, but make multiple core-sampling holes and use GPS-plotting machines to create a map of the area we intend to mine. Then, armed with that knowledge, we make a specific plan for opening up a relatively small portion of the mountain to reveal, through separate benches, the two or three thin seams of coal we're after.

"From then on, we focus on getting the bench built, extracting coal, and preparing for our highwall miner to dig out almost all of the seam. When the miner is done, reclamation starts immediately.

"We're constantly working the seams," continues Henderson. "We blast at least twice a day, and sometimes three or four times. We're working the seams all the way around the mountain. On average the seams are 30 inches thick. We advance about 500 feet at a time so that there's enough coal opened up for the miner. The overburden is loaded onto the haul trucks and the coal is either loaded directly into highway trucks or dumped on the bench for future loading. We use smaller Hitachi excavators for the reclamation."

"We make 10-foot lifts because of their reach. So, we make our lifts, saving our dirt for the outside slopes. We step in two feet for every 10 feet up, and we use the excavators to make everything work. It's a lot safer than using dozers. And, by keeping our reclamation work caught up, we don't have to carry material as far. Once we're done smoothing the ground with the excavators, we leave a road every 80 feet up so a vegetation package can be sprayed."

COUNTING ON HITACHI

The company is mining the three areas with two EX1100s, two EX1200s, one EX1900, and a fleet

of 14 Euclid R-85 and R-90 Rigid Trucks. A fleet of four smaller Hitachi backhoes, in the ZX350 range, perform the reclamation.

"I've never seen another piece of equipment that can keep up with the Hitachi family of backhoes," states Henderson. "The 1900 has 20-some thousand hours on it and we've had to replace maybe three or four hoses on it. We had a factory motor problem, but it was replaced by Hitachi, and that was 12 to 13,000 hours ago. I've been around the competition, but Hitachi is way ahead of them. It's the reliability of them and the speed. Like I say, you hardly ever have a breakdown."



Smaller Hitachi excavators are used for reclamation.

Sometimes, their EX1900 works side-by-side with the new EX1200-6. Surprisingly, the smaller machine more than holds its own. "The 1900 is faster, of course, because it takes a bigger bite. But after a day of loading 90-ton trucks, it's only 10 to 15 loads behind out of a total of 240 to 245 loads."

The Euclid trucks are all 1980s and early 1990 models with high hours. "We've had extremely good luck with the trucks," notes Henderson. "Everything wears out, but for durability, the Euclid trucks have been excellent."


View video at www.hitachimining.com/jadcoal.

The JAD Coal Division of U.S. Coal Corporation is serviced by Rudd Equipment Company, Corbin, Kentucky.




Harvey Henderson, surface foreman for all mines operated by JAD Coal.





“Our Hitachi 1200 and 1900 Backhoes are the most efficient way to start the contour-mining process. Our highwall miner finishes the job.”

— Jeff Dean, JAD Coal, a division of U.S. Coal Corporation



Four EX1200-sized Hitachi backhoes and one EX1900 account for all overburden removal.

EX1200-6

More productive than ever

The rugged, highly productive Hitachi EX1200-6 is equally at home in quarries, mines, and mass-excavation projects. In addition to the change to a Tier-2 engine, a number of productivity-related improvements greatly enhance this model's performance in the field.

MORE PRODUCTIVE

Swing torque boom-lifting force has been increased by eight percent, traction force by 14 percent. Bucket and arm-digging forces have been increased by 3.5 to 6.3 percent. A larger swing bearing, a longer boom cylinder, and a larger bucket capacity boost productivity as well. The front linkage has been redesigned to allow the front to excavate closer to the machine, improving performance when working with dump trucks. Operating weight has increased by about three percent.

Three special work-mode switches allow the operator to select boom-priority, swing-priority, or normal mode. Activate the boom-mode switch to reduce lifting and pulling on the body, which reduces vibration and increases the wear life of the machine.

MORE RELIABLE

The track, side, and mainframes have been strengthened to meet greater production demands. The number of balls in the swing bearing has been increased, yielding about a six-percent boost in the load-carrying capacity of the excavator. Track links are larger, as are the upper and lower rollers. The undercarriage is larger, too. The oil cooler and radiator

are separated to provide an effective heat balance. Inline hydraulic oil filters between the pumps and control valves have been added to improve filtration. The automatic dust ejector extends filter life; auto lubrication is standard at the front attachment. Like all Hitachi large EX-6 Excavators, the 1200 is Global e-Service ready, so owners can download critical field data to their office for remote field monitoring.

MORE COMFORTABLE

The EX1200-6 has a whole new cab, based on the very comfortable and highly ergonomic Zaxis Dash-3 Series. Seated on six elastic fluid-filled mounts and pressurized to help insulate the operator from

vibration and sound, the cab offers excellent visibility. The new wider seatback and the new low-effort short-stroke levers reduce operator fatigue. The large multifunction, multi-language LCD monitor is easy to read and gives easy access to a wealth of information. Air-conditioning and heating capacities have been increased. A rearview camera mounted on the counterweight gives an unobstructed view to the rear. A high cab with slide ladder is optional.

For more information about the EX1200-6, go online to www.hitachimining.com or visit your local Hitachi dealer.



It's about uptime.

The new Dash 3s use the fuel-efficient and more economical Tier 2 MTU Detroit Diesel engines. The frame is the result of hundreds of thousands of field-hours of use. The signature body design with its single-sloped floor and exhaust-heated body sheds material evenly. And the Hitachi trailing-arm suspension package delivers a better ride, more operator comfort, and faster cycle times.

Better productivity + better economy = lower cost-per-ton performance.

To learn more, visit www.hitachimining.com.

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