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Mining

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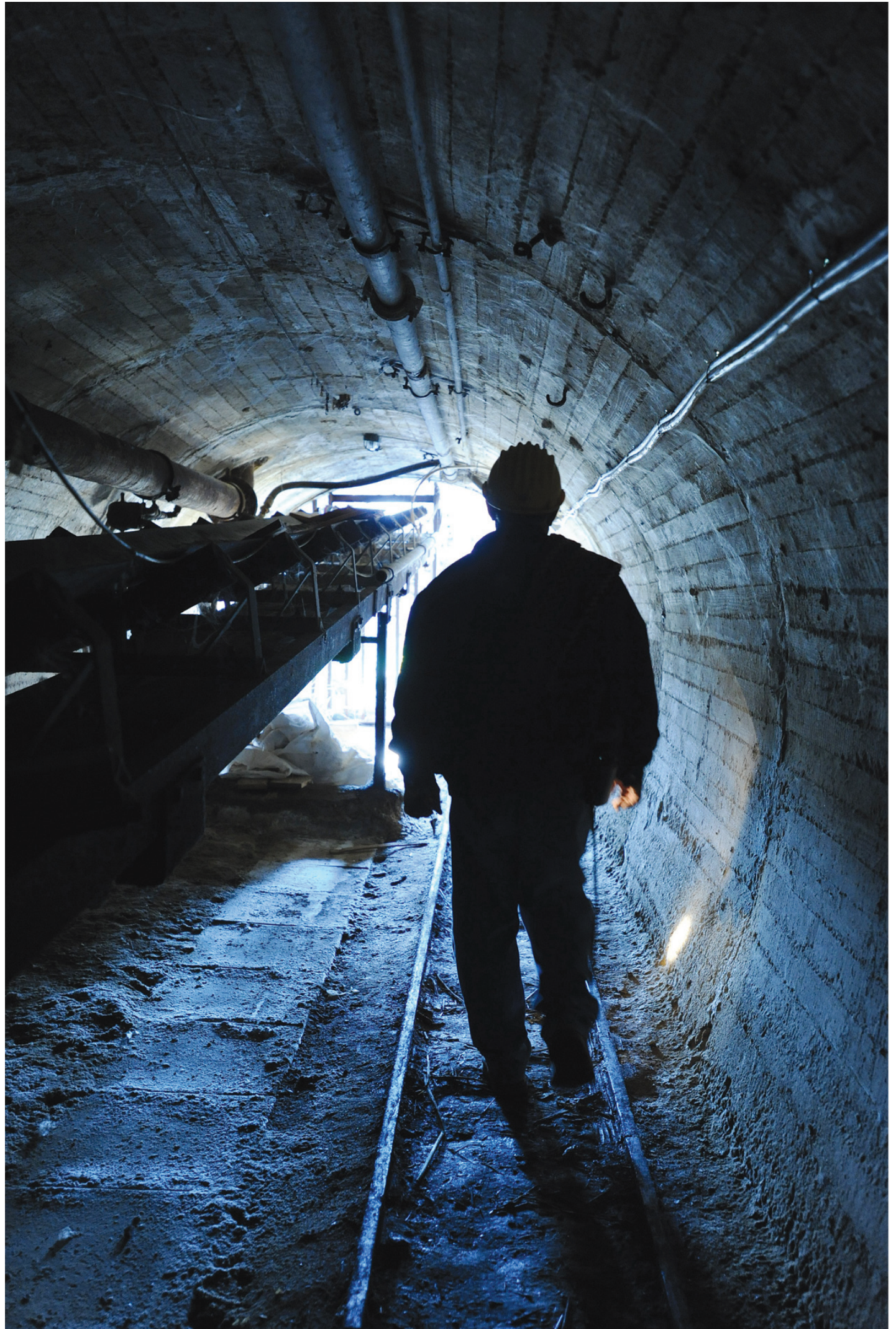
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Proliferation of smartphones a boon for Brush Resources' beryllium mine 40 miles northwest of Delta

By Andrew Haley

The Enterprise

Behind its gleaming touch-screen that streams live television to you poolside, your smartphone runs on a lacework of electronic circuitry that could not operate without the substance Brush Resources pulls out of earth in the heart of Utah's Sevier Desert.

Forty miles northwest of Delta, Brush's Topaz Mine and mill produce the lion's share of the world's beryllium, a crucial component of consumer electronics as well as advanced medical, military, space and nuclear technologies. Brush Resources, a subsidiary of legacy metals company, Brush Engineered Materials Inc., has been mining the world's richest vein of bertrandite, a key source of beryllium, in the Topaz-Spor Mountain area since 1968.

While its operations and personnel will remain the same, Brush Resources, along with its parent company and all other Brush Engineered Materials subsidiaries, will change their name to Materion on March 8. While the name Brush was synonymous with beryllium from the Tesla and Edison days through the Space Age, the parent company has diversified its portfolio in recent decades and moved away from its original identity as a producer of raw beryllium and beryllium products. The change is a strategy devised by Brush Engineered Materials executives to rebrand the company and unify its sub-

sidaries under a single moniker.

"As we have grown, our businesses continued to operate under original names and brand identities," Richard Hipple, Brush Engineered Materials CEO said in a press release. "That has made it difficult to position the company as a single unified organization. We find that even some long-term customers are not aware of the full scope of our abilities."

While a corporation-wide rebranding is big news for Brush Engineered Materials, Brush Resources will continue doing what it does best, with little change besides a new sign on the door, said Brush Resources president Alex Boulton.

"Brush Resources, the Utah company, is not changing. The parent company is changing," he said.

The Brush in both Brush Resources and Brush Engineered Materials comes from Charles Brush, one of the pioneers of applied electricity and the inventor of the arc light, among many other things. In 1921, 42 years after installing electric streetlights in downtown Cleveland, he founded Brush Laboratories with his son Charles Jr. and Charles Baldwin Sawyer. Having moved away from electricity into metals, Brush Labs began exploring various uses of beryllium in 1926.

Scientists had already identified beryllium, but it was prohibitively expensive to produce in industrial quantities. In 1931, Brush Labs developed a cost-effective means of manufacturing the ultra-light



Brush Resources' Topaz mine produces the lion's share of the world's beryllium, a crucial component in consumer electronics.

metal and formed the Brush Beryllium Co. Half a century later, Brush beryllium had been a component part of the Manhattan Project, the Mercury space program and the F-14.

Beryllium is as rare as it is indispensable. International mining companies Redhill and Great Western Minerals Group have acquired two potential beryllium deposits near Brush Resources' Topaz mine: the Honey Comb Hills and the Deep

Sands. Boulton said Brush had long ago looked at both sites and decided against acquiring either.

"They're trying to tie up property," Boulton said. "Those deposits don't have near the grade of what we have. I'm not actually concerned."

At its remote 7,400-acre complex in Juab County, Brush Resources mines

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Arch Coal acquires stake in West Coast coal terminal, getting a leg-up in competition for booming U.S. exports to Asia

By Andrew Haley
The Enterprise

Arch Coal Inc. has acquired a 38 percent interest in Millennium Bulk Terminals-Longview LLC (MBT), owner of a proposed West Coast coal-dedicated marine terminal on the Columbia River near Longview, Wash. Arch, the nation's second largest coal producer, announced the \$25 million acquisition on Jan. 12. The acquisition of the first dedicated coal terminal on the country's West Coast gives Arch a leg-up in competition for the booming U.S. export market of thermal coal to Asia.

The St. Louis-based coal giant produces 16 percent of the nation's coal at mines in all three major U.S. low-sulfur coal basins, including the Western Bituminous Basin, which incorporates large swaths of Utah, Colorado and Wyoming. Both the Union Pacific and Burlington Northern Santa Fe railroads service the Longview site, enabling Arch to deliver coal to the terminal from its three mines in Carbon and Sevier counties as well as from two other western Bituminous Basin mines in Wyoming and Colorado and from its two mines in Eastern Wyoming's Powder River Basin. With the deal, Arch will control 38 percent of the throughput and storage capacity at MBT, which is expected to handle five million tons of coal per year.

The 400-acre industrial site, a former

Alcoa aluminum smelting plant, will undergo modifications of existing infrastructure before coal shipments are expected to begin in 2012. The Longview terminal will be equipped to handle Panamax freighters, so called because they are built to the maximum allowable size to pass through the Panama Canal. Panamax ships are currently the standard for thermal coal-bearing vessels bound for the Asia-Pacific market.

Exploding demand for coal in Asia has led to frenzied interest in the development of dedicated coal marine terminals on the West Coast. While the U.S. has long exported coal, the majority of its trans-Pacific coal shipments pass through the port of Vancouver, B.C. With the development of the Longview terminal, Arch and Australia-based Ambre Energy, which owns the other 62 percent of MBT, are the first companies out of the gate in what is expected to be a massive race to build up West Coast coal terminals servicing the booming economies of Asia.

"Taking a stake in the Longview terminal will give us greater capability to serve the fast-growing Asia market with Powder River Basin and even Western Bituminous Region coals," said Arch spokesperson Kim Link. "This project provides Arch with more exposure to the largest and fastest-growing coal market."

According to the U.S. Energy Information Administration (EIA), global coal consumption increased 46 percent



Arch Coal's Sufco mine near Emery is one of three coal-mining operations the company operates in Utah.

from 2000 to 2010, led by massive growth in China. The EIA projects that increased Chinese coal consumption will drive a 40 percent increase in global coal consumption by 2030. Indian coal consumption is also expected to expand at explosive rates as the government there tries to make good on promises to expand the power grid to the 50 percent of its population that currently goes without electricity.

Asia's voracious demand for coal flies

in the face of global economic declines. According to EIA figures, while overall U.S. coal exports declined 40.5 percent from 2008 to 2009, coal exports through its West Coast terminals increased 50 percent in the same period. With no West Coast terminal dedicated to coal, the bulk of that shipping traffic passed through the ports of Anchorage and Seattle.

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High food prices a windfall for Simplot Phosphates, operator of mine 12 miles north of Vernal since 1992

By **Andrew Haley**
The Enterprise

Simplot Phosphates LLC, a subsidiary of the JR Simplot Co., is reaping the benefits of high global food prices that are driving up demand for fertilizer.

The Boise-based agricultural giant has been mining phosphates 12 miles north of Vernal since 1992, when Simplot and Farmland Industries purchased the mine, along with a 96-mile-long pressurized slurry pipeline and a fertilizer manufacturing plant outside Rock Springs, Wyo., from Chevron. Simplot bought out Farmland's interest in their joint venture, the SF Phosphates Limited Co., in 2003 and created Simplot Phosphates LLC.

Simplot Phosphates president Martin Hunt said that in today's world unpredictable events around the globe have a tremendous impact on the domestic market values of commodities such as wheat and corn, affecting the behavior of farmers close to home, which in turn has an effect on the price of fertilizer.

"These days, whenever you are talking about wheat or corn, you might as well call it a world market," Hunt said. "When something happens in Russia or China, it affects wheat prices. When prices are up, farmers plant more, so they need more fertilizer, which goes all the way back to our phosphate mine in Vernal. It baffles me."

He cited last summer's drought in

Russia, the worst in 130 years, as one factor elevating global grain prices. That, coupled with concurrent summer floods in Canada, have caused a bonanza for U.S. wheat farmers who are buying large amounts of fertilizer to prepare their fields for what Hunt said is expected to be another bumper harvest in the coming year. In turn, Simplot Phosphates has had to dip into its fertilizer stockpiles to keep up with demand.

"I don't know if boom is the right word for it, [but] we're seeing a big demand for fertilizer right now," Hunt said. "It's a little bit of a different year for us. Typically we have a peak time in the spring and in the fall. We've had a pretty steady demand for fertilizer all year."

Phosphates are inorganic phosphoric acid salts. Phosphate ore, combined with ammonia and molten sulfur, makes mono-ammonium phosphate, or MAP, a dry, grainy fertilizer. Apply MAP to fields and you get stronger plants, bearing larger fruit and vegetables, and anchored to the ground with more robust roots that help keep soil from blowing and washing away.

Simplot Phosphates' Vernal and Rock Springs operation is a feat of vertical integration that owes its existence to Chevron, which bought the mine from its original developer, the San Francisco Chemical Co., in 1981, and began construction of the slurry pipeline and manufacturing plant three years later. The Vernal mine is locat-

ed in remote mountain country serviced by a few undivided highways winding treacherously, and spectacularly, through protected forest. Interstate-80, the nearest major freeway, lies 100 miles to the north on the far side of the Uinta Mountains, Utah's highest.

Devising the means to transport tons of phosphate ore, year round, from the Vernal mine to a site conducive to fertilizer manufacturing and distribution posed a thorny problem. By building a pressurized pipeline over the east slope of the Uintas to Rock Springs, one of several blue-collar towns along the seemingly endless expanse of open range between Cheyenne and Evanston, Chevron was able to deliver phosphate slurry, around the clock, to a low-cost facility adjacent to the interstate and railroads and near Wyoming's oil and natural gas fields, where sulfur and ammonia are ready byproducts. It was a stroke of business and engineering acumen, imbued with the true grit the JR Simplot Co. knows how to appreciate.

Half a century before, vertical integration had begun to transform J.R. "Jack" Simplot's fledgling business exploits into the privately held empire it is today. Born in Dubuque, Iowa mid-winter 1909, Simplot was raised on a farm in central Idaho's Magic Valley. A high-school dropout at 14, by his early 30s he was the largest shipper of fresh potatoes in the country and was selling the wartime military mil-

lions of pounds of dehydrated spuds and onions.

During the war, nitrates and phosphates, the key ingredients of fertilizer, were commandeered for the production of explosives. When fertilizer shortages threatened his business, Simplot went into the fertilizer business, building the company's first fertilizer plant in Pocatello and manufacturing his own. A decade later, he introduced the world to the frozen french fry.

Today, the JR Simplot Co. operates six potato processing plants in Idaho, Washington and North Dakota, as well as a vegetable processing plant in West Memphis, Ark. It has feedlots in Grand View, Idaho and Pasco, Wash.; ranches in four western states; seed plants in Post Falls, Idaho and Albany, Ore.; two feed plants in Burley and Caldwell, Idaho; five stores across Idaho and Oregon; fertilizer manufacturing plants in California, Pocatello and Rock Springs; a fertilizer import terminal and distribution complex in Portland, Ore.; the Vernal mine; the Smoky Canyon phosphate mine in Afton, Wyo.; and a silica mine in Overton, Nev. that has nothing to do with agriculture. The silica is sold for glass.

The Vernal and Rock Springs mine and manufacturing plant run 24 hours a day, seven days a week, producing 400,000

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Kennecott hopes to extend life of copper mine, upgrade on-site power plant

Plans by Kennecott Utah Copper to extend the life of its Bingham Canyon Mine go hand-in-hand with the firm's intent to upgrade its power plant to a high-efficiency natural gas system.

The country's second largest copper producer is seeking regulatory approval for the Cornerstone Project, which would allow the company to maintain current production levels to 2028, pumping an average of \$1 billion a year into the local economy through the mid-2030s. But Cornerstone requires that Kennecott be allowed to push back the southern wall of the Magna mine by about 1,000 feet and deepen the mine some 300 feet to reach 700 million tons of ore resource.

"If we don't start moving more rock

now we won't be near any ore deposits by 2019," said company spokesperson Jana Kettering. "We have seven years worth of waste rock ahead of us. Now we can move 197 million tons of rock on an annual rotating basis; we need to go to 260 million."

Contingent on the mine expansion project are plans by Kennecott to significantly increase the energy efficiency of its power plant by converting the majority of its on-site, coal-fired facility to a combined-cycle natural gas operation that would reduce emissions, increase efficiency and generate additional power to fuel the ore-crushing involved in the extension of the mine's life.

Government approval of the mine

life extension would also create the need for new infrastructure at Kennecott's concentrator to crush the additional rock, Kettering said. That new infrastructure would require 100 megawatts of additional power from the power plant.

If the mine life extension plan is rejected by regulators, Kettering said the power plant would continue as a coal-burning facility that adversely affects the air quality in the Salt Lake Valley.

Kennecott says the improved power generation strategy will be the firm's single largest effort to improve air quality in the Salt Lake Valley since an upgrade of the smelter's emissions control technologies in 1995. The new power plant would not

only meet Kennecott's need for additional power, but would free up energy it now buys from the power grid for use by other users. Additionally, the company says the new power plant would decrease annual emissions of sulfur dioxide by 99 percent, nitrogen dioxide by 95 percent, PM10 emissions by 60 percent, primary PM2.5 emissions by 30 percent and truck trips for power plant fuel deliveries by 60 percent, as natural gas would be delivered via pipeline directly to the new plant.

Kennecott's existing power plant doesn't operate during four winter months in an effort to reduce air pollution during inversions. But it is permitted to operate year-round on natural gas.

Four mining firms honored for preservation efforts with Earth Day Awards

Georgia Pacific Gypsum, Energy West Mining Co., Rio Tinto-Kennecott Utah Copper Co. and Simplot Phosphates LLC were honored last year with 2010 Earth Day Awards from the Utah Division of Oil, Gas and Mining.

Energy West was recognized for the innovative use of environmental technology in assisting the North Emery Water Users Special Service District in permitting and constructing the Elk Springs water project. The project involved improvements to Elk Spring and Spring 89-61 on East Mountain that included installation of more than 4.5 miles of pipeline to provide additional capacity to meet expanding customer needs.

Of major importance was a plan to

traverse rugged cliffs that have been a barrier to the development of the springs, which have been a dependable source of drinking water for decades but which had not been used by the communities of northern Emery County because there was not a feasible way to run a pipe to deliver the water down the 700-foot cliffs of Meetinghouse Canyon. Energy West donated manpower, expertise and equipment to construct a 2,600 foot long directional drilling borehole to traverse under the cliff section. The project minimized surface disturbance and streamlined permitting. Water began flowing through the pipeline in August of 2009.

Energy West has helped the special service district with a variety of water

development and improvement projects over the years in anticipation of its mining activities potentially affecting North Emery's source of water. Although no such adverse effect materialized, Energy West undertook this project to develop Elk Springs because of its desire to apply technology used in its underground directional drilling coal exploration programs to help North Emery water users.

Georgia Pacific Gypsum achieved outstanding results following the application of innovative environmental technology after adopting a "bump blast" process to aid in reclamation of its North Quarry near Sigurd. Mining at the quarry resulted in a 15 to 20 foot-high ridge with

steep slopes that was difficult to reclaim using conventional methods due to very little available topsoil. A controlled blasting method was used to create a "bump blast" that lifted the pit floor to approximately the same level as the ridge. The blasts created topsoil that was worked more economically than it would have been with conventional methods and resulted in a more natural looking reclaimed site.

Rio Tinto-Kennecott Copper was recognized for outstanding final site restoration at its Magna Concentrator, located just west of Magna. The concentrator, built in the early 1900s, was closed in 2001 and demolished in 2007, shortly after which restoration began.

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BRUSH

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80,000 tons of bertrandite ore each year. That bertrandite ore, along with beryl ore it imports from outside sources, is milled and refined on site to produce beryllium, an extremely rare metal that is lighter than aluminum. Most of the beryllium produced at Brush Resources ends up orbiting the earth in a pure state or, when alloyed with copper, connecting the microprocessors of iPods, iPads, Androids and other consumer electronics to their circuitry.

While Brush Resources continues to benefit as a supplier to the space program — the main mirror on the proposed James Webb Space Telescope is beryllium — it has found thriving business in the booming market for telephones that store our music, house our libraries, take our pictures, play our movies and connect us to the Internet. The Great Recession dampened consumer enthusiasm for expensive consumer electronics, hurting Brush's sales, but things have been picking up for the previous several quarters. Increased consumer spending on the hand-held gadgets, here and abroad, is bolstering Brush's bottom line.

Because tomorrow's smartphones require the highest quality materials in order to compute vast amounts of information seamlessly, Brush fills a niche with the high-caliber product that it produces. As demand for smartphones grows worldwide, Brush's beryllium is found in more and more places. Boulton cited Chinese infrastructural investment in cell phone towers as one positive indication of future growth, giving credit to increased demand in Asia as well as to rebounding domestic markets.

"We had a tough year in 2009," he said. "But business is good now and it's projected to be good."

After the switch to Materion, Brush Engineered Materials' common stock will continue to trade on the New York Stock Exchange, though its ticker symbol will change from BW to MTRN.

SIMPLOT

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tons of fertilizer each year. In addition to MAP, Simplot Phosphate's Rock Springs facility also manufactures a 58 percent phosphoric acid solution, which is essentially MAP before the introduction of ammonia. The facility also manufactures a highly concentrated 68 percent super phosphoric acid, which is not used in making fertilizer.

Part mining complex, receiving facility and manufacturing plant, the Rock Springs operation also serves as its own warehouse and distribution center. An on-site storage facility is large enough to store 80,000 tons of MAP, a full 20 percent of one year's production, allowing Simplot Phosphates to wait out dips in the price of fertilizer and to hedge its bets on the global fertilizer market. From there, Simplot Phosphates delivers its products across the West and Midwest to distributors and large, working farms that act as distributors in their communities, while a fraction of the fertilizer goes back into the JR Simplot Co. for use in its massive Idaho

ARCH

from page 3

Helped in part by a weak dollar and resurgent global markets, overall U.S. coal exports increased 51.3 percent, year to date, from June 2009 to June 2010, the EIA reported. In the same period, U.S. coal exports to Canada decreased 20 percent, while coal exports to India were up 52.8 percent and those to South Korea were up 321.7 percent. During those 12 months, U.S. coal exports to China exploded more than 100,000 percent from 2,714 tons to 2.9 million tons, according to the EIA.

With export prices for coal running at \$100 per ton, compared to the domestic price of \$13 to \$18 per ton, it is small wonder mining companies like Arch are itching to connect the country's massive proven coal reserves with Asia-bound trans-Pacific shipping. While Arch and Ambre are the first to tackle the logistical problems of transporting coal from mines in the Mountain West to smog-draped boomtowns on the Chinese coast, competition is not far behind. Peabody Energy, the country's largest coal producer, told investors on Jan. 26, two weeks to the day after Arch's MBT announcement, that it was looking at a 25 million ton annual capacity West Coast coal terminal and hoped to provide investors with more information on the facility in June.

Coal mined in the Powder River and Western Bituminous Basins is especially sought after by booming Asian markets. Low in sulfur and high in energy, thermal coal is used primarily for electricity generation, as opposed to coking coal, which is used primarily for making steel. Burning low-sulfur thermal coal from the U.S. enables a country such as China to meet sulfur emissions levels at its power plants while stockpiling its own coal supply.

The low-sulfur coal mined in the western U.S. became prized late in the last century when acid rain was linked to sul-

potato fields.

Hunt said another reason for this year's constant and heavy demand for fertilizer, besides high global food prices, was fallout from the 2008 bursting of a bubble in the micro-economy of the fertilizer market. That year, the price of MAP peaked just shy of \$1,000 per ton, a record high, and fertilizer distributors across the country stockpiled the pricey substance just before the bottom fell out. These days, with prices tending to fluctuate between \$550 and \$600 a ton, distributors are spreading out their purchases across the year, careful not to get burned, although demand is steady enough and high enough that it is exceeding Simplot Phosphates' supply.

"Our [Rock Springs] warehouse is not even close to being full," Hunt said.

With steep inflation of global food prices ramping up demand for fertilizer, if there is any limiting factor to Simplot Phosphates' growth, besides the Earth's own supply of phosphate ore, it is the cost of transportation. MAP is heavy, farms and farm stores are located far from rail lines, and any barges bearing monoammonium phosphate to market from Rock Springs

fur dioxide emissions from Midwest factories burning high-sulfur coal. So-called clean coal from the Western Bituminous and Powder River Basins produces sulfur dioxide levels that meet EPA regulations put in place to combat acid rain. But all coal, low-sulfur or otherwise, releases nitrous oxide and carbon dioxide, the gases linked to global warming.

Environmental groups worry that their efforts to stifle U.S. coal consumption will be in vain if U.S. coal is burned in China instead. Emissions such as mercury from Chinese power plants and factories ride the jet stream across the Pacific and fall on the western seaboard of North America. Nitrous oxide and carbon dioxide emissions into the atmosphere are believed to be the primary culprits for rising global temperatures, irrespective of their points of origin.

There is little chance Asia's appetite for coal will be dampened by environmental efforts in the United States, where activists are already maneuvering to block construction of the Longview terminal. In December 2010, a group of environmental groups including Earthjustice, the Sierra Club, Climate Solutions and the Washington Environmental Council challenged Cowlitz County's issuing to MBT of requisite permits for modification of the existing Longview industrial site into a dedicated coal marine terminal. A trial is set for April.

Proponents of U.S. coal exports to Asia point out that China is already burning coal and that, from a global warming standpoint, it makes little difference where that coal originates. Economically, the U.S. stands to become one of the world's chief energy exporters if it can connect the country's coal reserves to Asia. With sufficient infrastructure and logistics to bring it to market, coal from the Powder River Basin in particular, where surface mining equals cheap extraction, can compete with its Chinese counterpart, whose cheap labor costs are offset by clogged and insufficient rail lines.

would first have to navigate the Gates of Lodore before reaching Desolation Canyon. Limited to moving MAP by truck, deliveries farther afield than the Midwest rapidly reach a point of diminishing returns, particularly as Gulf and Atlantic marine terminals and an extensive network of waterways in the eastern portion of the country make transport easy for Simplot's competitors.

While the fertilizer market historically fluctuates in boom and bust cycles, analysts are predicting steady increases in food costs for the foreseeable future. With prices high, farmers are farming, and when they are farming, they are buying fertilizer. In a Feb. 2 article on agricultural investment, *Forbes* magazine called fertilizer companies "a sector at the front end of a giddy climb."

Demand is only one side of the coin. Two of the world's key suppliers of fertilizers are Egypt and Tunisia, where recent political upheavals have interrupted supplies. The *International Business Times* reported earlier this month that Credit Suisse believes civil unrest in North Africa will likely prove beneficial for the global fertilizer market.

Because of the quality of its coal and because it is surface mined, the Powder River Basin is touted as the likely origin of the majority of expected U.S. coal exports to Asia. In 2009, Arch sold 96.1 million tons of coal mined at the Coal Creek and Black Thunder mines in the Powder River Basin, while in the same year it sold 16.7 million tons of coal mined in the Western Bituminous Region and 13.3 million tons mined in Central Appalachia. In addition to the Arch of Wyoming and West Elk mines in southern Wyoming and western Colorado, the company owns three mines in Utah: the Skyline mine near Scofield, the Dugout mine near Price, and the Sufco mine near Emery.

Arch controls 2.8 billion tons of coal reserves in the Powder River Basin and 467 million tons of proven and probable reserves in the Western Bituminous Region. The coal it ships through the Longview Terminal will be transported from the former by the Northern Burlington Santa Fe railroad, while coal from its Utah mines will be delivered by Union Pacific. Arch said in a press release that the Longview terminal's annual capacity of five million tons could be expanded were there sufficient demand and, while the majority of that is bound to come from the Powder River Basin, it is likely that coal mined in Utah will soon light up homes in China.

AWARDS

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Because the majority of Kennecott's disturbance was done long before the passage of the Surface Mining Control and Reclamation Act of 1977, Kennecott and the state maintain a contract that covers reclamation work to be done as facilities are no longer needed. The contract required only the removal of the concentrator building itself, but restoration work performed by Kennecott included razing all buildings and support structures, removing overhead tailings piping over Highway 201, excavation of below-grade foundations, placement of more than 1,500 cubic yards of soil, re-contouring and seeding of 16 acres of grasses and shrubs and stormwater management and containment to enhance long-term stability of the site. Arrangements were made for the concrete removed from the site to be used by a third party. Reclamation was accomplished in less than a year at a cost of \$4.6 million and far exceeded regulatory requirements.

Simplot Phosphates' mine north of Vernal is, unlike many mining operations in Utah, readily visible to the public from a major highway, US 191, which runs through the mine site. The total site encompasses about 23,500 acres, of which fewer than 575 acres are currently disturbed. Simplot has an active reclamation program that consistently exceeds regulatory requirements in a number of ways. For example, the firm has taken extra steps to introduce biodiversity with micro environments built into reclaimed areas that encourage the return of native wildlife. The company also varied slope angles of reclaimed areas to better blend with the surrounding environment and create a natural-looking space.



Loads of jobs

Rio Tinto's Kennecott Utah Copper employs 2,000 people. Another 400 employees work at the Rio Tinto Regional Center in South Jordan and other local offices supporting Rio Tinto's operations around the globe. We are geologists, accountants, engineers, environmental scientists, operators and craftsmen. We are your neighbors, friends and coaches.

Rio Tinto is also responsible for an additional 14,800* indirect local jobs. In fact, our operation contributes \$900 million* to the Utah economy through jobs, taxes, fees, and purchases from 1,000 Utah area businesses. We're proud to contribute to Utah's success. The Bingham Canyon Mine has been in operation since 1903 and we are looking at ways to extend our operation for decades to come. To learn more about our plan for the future, visit www.kennecott.com.

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*Based on the 2009 study by the University of Utah Bureau of Economic and Business Research

Our Commitment *as responsible corporate citizens*



Caring for local communities is a serious commitment — and we take our commitment very seriously. We reach out to our Utah neighbors through volunteerism and special community programs, such as our Arch Coal Teacher Achievement Awards and Earth Day student celebrations. And we go to great lengths to protect the environment and to make coal an increasingly clean resource. Learn more about our efforts at www.archcoal.com. *Arch Coal's Canyon Fuel Company operates Dugout, Skyline and Sufco mines in Utah.*



Arch Coal, Inc.