

The Enterprise F1

July 22, 2019

INSIDE



It didn't come easy

Utah has a long history of oil and gas exploration and discovery. But that history is filled with failure and trajedy, including an early disaster in Washington County where 10 lives were lost when wildcatters tried to "fracture" the oil-bearing sandstone formation with explosives while almost 100 St. George residents looked on. page F4

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OIL, GAS & ENERGY

SAND for the oil industry

Southern Utah has plenty of the red stuff and now a new company has discovered it may be ideal for use in the oil fracking process

John Rogers

The Enterprise

"Northern white" could soon give way to "southern red."

Energy developers in Eastern Utah's Uinta Basin and throughout the western United States and Canada engaged in the oil extraction process known as "fracking" need thousands of tons of sand to use in the contro-

versial process. And the sand has to be just right. It must be clean silica sand with grains that are basically round, the right size and hard enough to withstand the extreme pressure inherent in the process.

Today, that sand has to be shipped to Utah by train from sand mines in the upper Midwest, primarily Wisconsin. Known as "northern white," the sand fits all the demands of the fracking drillers. The

Wisconsin quarries, along with a mine in Texas, are the only major domestic sources of "frac sand."

But that might be about to change.

A Southern Utah startup called Southern Red Sands LLC received the initial go-ahead earlier this month from Kane County officials to begin mining, processing and shipping "southern red" sand that it will mine just north of Kanab. The Kane County Planning Commission voted to issue a conditional use permit to the company and approved the sale of the water Southern Red Sands will

are standard procedure for new works on county lands, a commission spokesperson said. According to Kane County Attorney Rob Van Dyke, the site is on lands leased from and administered by the School and Institutional Trust Land Administration (SITLA), so that body still has to give its approval for mining to begin. The mining process would ini-

tially take place on a 640-acre tract near a rock formation north of Kanab known as "Red Knoll" that Southern Red Sands has leased from SITLA, but sand miners hold about 500 mining claims on approximately 12,000 additional acres in the area containing sand that fits the fracking requirements.

Demand for frac sand reached as much as 60 million tons per year between 2012 and 2014, but has dropped off as oil prices have come down.

Test have shown the southern Utah sand to be suitable — perhaps even ideal — for the fracking process.



A site near a rock formation known as the "Red Knoll" north of Kanab may soon be the site of a mining operation from which red sand will be collected, processed and shipped to petroleum fracking sites in Utah's Uinta Basin and around the western U.S.

need to process its product.

The permit issued by the commission list 48 conditions the company must abide by in order to minimize the impact of the proposed mine on the county. The conditions

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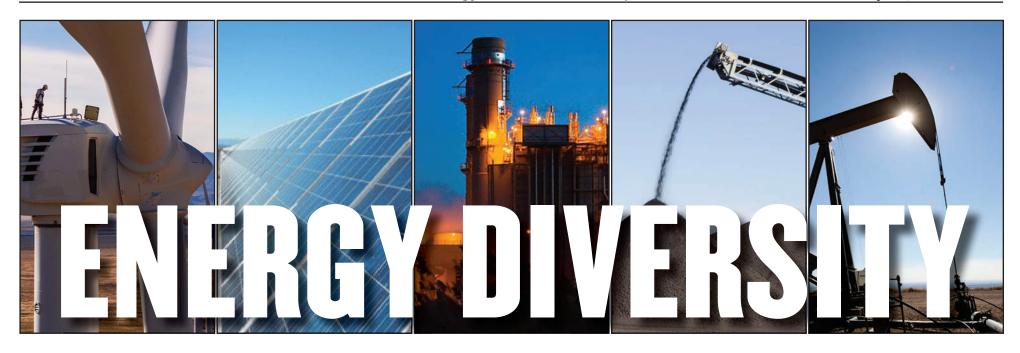












Herbert points to emerging renewable energy sources in speech at Energy Summit

Brice Wallace

The Enterprise

Gov. Gary Herbert likes to brag about Utah having the nation's mostdiverse economy. That same diversity is manifesting itself in the state's energy industry, where renewable resources are emerging from once-minuscule levels

Speaking at the Governor's Energy Summit in late May in Salt Lake City, Herbert noted that Utah now is a hub for both traditional and renewable energy resources.

"While conventional fossil fuels make up the foundation of Utah's affordable and reliable baseload of power, the state's energy portfolio is growing more and more diverse," he said.

Just a few years ago, 85 percent of energy produced in Utah was from coal, while less than 1 percent was from renewable sources. The rest was from natural gas. Now, renewables account for nearly 11 percent and are "rising fast," he said.

What's more, he said, new technologies and investments are making fossil fuel energy cleaner. Utah's energy portfolio has reduced its carbon footprint by about 15 percent in the past decade despite Utah's large population growth.

Laura Nelson, the governor's energy advisor and executive director of the Governor's Office of Energy Development, said Utah has seen over \$2 billion in renewable energy investments, and the solar industry alone employs more than 6,000 people in the state.

Among the companies boosting the renewable-energy figures is Dominion Energy, which has operations in 18 states and serves nearly 7.5 million customers. Thomas Ferrell, chairman, president and CEO, said the company in 2014 had a total of 1 megawatt of solar generation, or enough to pow-

er 250 homes. Now it has about 2,600 megawatts. In Utah alone, it has eight solar projects totaling 580 megawatts, representing an investment of just under \$1 billion, he said.

The company also is involved in a process to convert food waste into methane that can be used to heat homes and run businesses, and a project that captures waste methane from hog farms.

ing equivalent of taking over 3 million cars off the road for a year. "Again, not a government mandate, like our carbon target," Ferrell said. "It is a voluntary goal that we've set for ourselves."

Rick Perry, U.S. secretary of energy, commended Utah's actions that have helped the U.S. rise to global energy supremacy during the past 15 years. "You all have contributed to one of the most



U.S. Secretary of Energy Rick Perry, Wyoming Gov. Mark Gordon and Utah Gov. Gary Herbert address reporters at the Governor's Energy Summit in May at the Grand America Hotel in Salt Lake City.

"Energy and innovation are the two most important, the two most fundamental, forces behind modern humans' well-being," Ferrell said.

"Shifting from legacy generation sources, such as coal and natural gas, to solar and wind has helped us cut carbon emissions from our power stations by over 50 percent in just the last 14 years, and that's about twice the industry average," he said.

And most of the changes have occurred not because of government regulation but instead through technological advancements, he added. The company's goal is to cut carbon emissions by 80 percent by 2050 and methane emissions in half by 2030 — the latter be-

remarkable stories of our lifetime," he told the crowd.

"We're now producing more energy more abundantly, more affordably and, I might say, more cleanly and efficiently than ever before, and we're obtaining it from this wider range of sources than anyone ever thought possible," he said.

In 2005, he said, experts said all energy resources had been found and if any more were discovered, it would be "exorbitantly expensive" to extract. Instead, inccreased energy production has resulted in more jobs and economic prosperity. "I don't think Americans understand this great revolution that's happened," Perry said.

Perry commended Utah officials, research institutions and the private sector for their efforts to deliver energy more efficiently and in a more environmentally sound way. "I am delighted that Utah remains all-in on the 'all of the above' strategy," he said.

Nationally, President Trump's "all of the above" strategy has meant removing "draconian" regulations on energy produced by oil, gas and coal; "reviving, not reviling" nuclear energy; and supporting continued growth of renewable resources, he said.

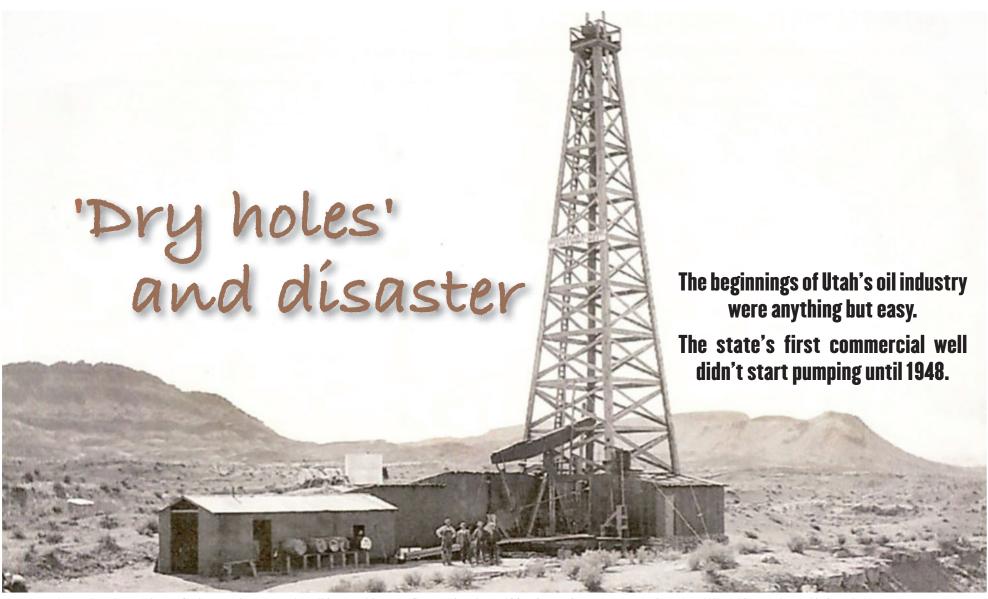
"Instead of punishing fuels that produce emissions through regulation, we're seeking to reduce those emissions through innovation, and by any measure — any measure — we're succeeding," Perry said.

Despite being the world's top oil and gas producer, the U.S. also is leading the world in reducing energy-related carbon emissions. "You heard that correctly," Perry said. "All too often, either people aren't hearing or they don't want to hear or they don't believe it, but we have proved that we can make our energy cleaner without surrendering one single fuel, one bit of growth, one iota of opportunity."

Herbert said Utah is working to meet the goals of energy consumers, who want energy that is reliable, sustainable, affordable and cleaner.

"It's pretty hard to have a good and healthy economy if you don't have energy. ... With the complexity of energy, as you all know here, it's very emotional for some people what we do, what we don't do, and how we should do it or if we should do it," Herbert said.

"All of those things are things that need to be addressed. And we ought not to be afraid of having a discussion and bring, as Secretary Perry has always taught us, a little common sense to the discussion, and see what is practical and what is realistic to actually accomplish."



Arrowhead Petroleum Co.'s Escalante No. 1 well in Washington County in about 1935, just prior to an explosion that killed 10 people and injured dozens more.

After decades of expensive failed exploration attempts — "dry holes" — the first Utah oil well finally was completed on Sept. 18, 1948, near Vernal in the Uinta Basin.

"The honor of bringing in the state's first commercial oil well went not to 'one of the major oil companies, but to an independent, the Equity Oil Co.," noted Osmond Harline in a 1963 article in *Utah Historical Quarterly*.

The Ashley Valley No. 1 well, about 10 miles southeast of Vernal, produced about 300 barrels a day from a 4,152-foot-deep well, Harline explained. "It is interesting to note that J.L. (Mike) Dougan,

president and general manager of Equity Oil Co. and a Salt Lake City resident, had been drilling for oil in Utah for over 25 years."

Dougan beat out larger and better financed competitors, including Standard Oil of California, Pure Oil, Continental Oil and Union Oil. Unlike the earlier attempts, Dougan had drilled far beyond the basin's typical depth of 1,000 feet to 2,000 feet. His Utah discovery quickly launched a deep-drilling boom.

Within three months, eight more wells were drilled. Development of the field quickly followed. Production soon averaged just under 1 million barrels a year from about 30 wells in the booming oilfield.

Exploration companies then begin drilling 5,000 feet to 8,000 feet and even deeper into the

Uinta Basin.

Long before the first Utah oil well, signs of petroleum (natural oil seeps) had been noted by geologists near Rozel Point on the northern shore of Great Salt Lake as early as the mid-1850s.

"The exploratory period began in 1850 when Captain Howard Stansbury, while on a survey of the Great Salt Lake for the Army Corps of Topographical Engineers, discovered evidence of 'petroliem' along the northern shore of the lake," explains Utah historian Walter Jones. During the next 40 years Utah explorers found other signs of oil.

Jones reported that in 1891 the Utah



J.L. "Mike" Dougan, left, watches oil flow from his historic 1948 Ashley Valley No. 1 well about 10 miles southeast of Vernal. Photo courtesy of the Utah State Historical Society.

Oil Co., whose board included future Utah Gov. Simon Bamberger, drilled a well 1,000 feet deep near Green River. It was a dry hole. During the remainder of the 1890s, oil and natural gas prospectors sank more than two dozen unsuccessful wells in various parts of the state.

Then in March 1908, a former gold prospector named E.L. Goodridge produced an oil gusher in San Juan County, reported Jones, "and by the end of 1909 approximately seven oil companies had started work on no less than twenty-five wells near Mexican Hat." Jones added that Goodridge's Mexican Hat oilfield never became a major oil producer, but it and

another discovered nearby produced enough oil to supply small local refineries that operated intermittently for years.

Jones also wrote in *The Growth* of *Utah's Petroleum Industry* that in the 1920s enterprising petroleum operators began testing offshore drilling technologies at the Great Salt Lake. The Lakeside Oil Co. drilled on the western shore of the lake and an offshore rig was built on a pier near Rozel Point at the lake's northern tip. But the state's petroleum industry was still decades away from its true beginning.

Long before the state's first commercial well was completed, residents of St. George had hoped the "shooting" of Arrowhead Petroleum Co.'s Escalante No. 1 wildcat well on March 6, 1935, would bring prosperity to their small town a few miles north. Unaware

of impending danger, between 70 and 100 people gathered to watch as workers prepared to fracture a sand formation 3,200 feet deep.

An explosion occurred at about 9:40 p.m. while six 10-foot-long torpedoes, "each loaded with nitroglycerin and TNT and hanging from the derrick, were being lowered into the well," noted the Washington County Historical Society. Ten people lost their lives and dozens were injured by the explosion, which "sent a shaft of fire into the night that was seen as far as 18 miles away."

Memorial services for the victims were held in the St. George Tabernacle on March 8, 1935. The accident, still Utah's worst petroleum-related disaster, was in investigated in The Escalante Well Incident, a personal perspective written in 2007 by Clark N. Nelson Sr., "based upon historical accounts, photograph comparisons, abstract conclusions and assumptions, following a search for the former site."

"Toward the end of World War II, oilmen began to accelerate Utah's petroleum operations once again," Jones explained. "From 1945 through 1947 they succeeded in finishing the groundwork necessary to propel the state into a period of commercial oil production."

The focal point of drilling became the Uinta Basin, where a number of large companies searched. "From the late 1940s until 1957 almost all of Utah's oil development occurred along the eastern border of the state from the Uinta Basin to



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Panelists at Utah Governor's Energy Summit acknowledge demonstration with discussion of protestors' issues

Brice Wallace

The Enterprise

The protest was brief — only about three minutes — but the ensuing discussion about it took a little longer.

A group of perhaps 20 environmentalists took over the stage at the Governor's Energy Summit in late May in Salt Lake City, standing in front of a panel discussing energy policy. They held up signs and banners and chanted, "Your time is up; people are rising," prompting boos and catcalls from the crowd. Eventually, the lights were dimmed and music turned up to drown out the chants before the group was ushered off the stage.

After their departure, panelists — including the U.S. energy secretary, two governors and an energy company executive — commended the protestors' passion but suggested that their complaints were misdirected, misguided or aired at the wrong venue.

"We do appreciate the youthful enthusiasm and we saw that demonstrated here today, and their voices need to be heard, considered, respected," said Utah Gov. Gary Herbert. "Sometimes we don't dialogue well, we don't understand, sometimes we get offended easily ... and having the opportunity to communicate is something we should do better.

"I would say this, though: What we've talked about today and what they want us to do, is provide cleaner fuels. That's happening. They want it to happen now, but the practical reality is it takes some time to transition without crashing the economy. They would like us to quit by Friday [and] not take anything out of the ground. That obviously doesn't work, from a practical standpoint. We're doing

some good things here and I appreciate the work of many people here doing it."

Herbert suggested the protestors start their own conference: "Have your own conference and see how many people show up that would support your cause, rather than to come and disrupt what we've done here. ..."

Wyoming Gov. Mark Gordon said many of the environmental woes cited by protestors are occurring beyond the borders of the United States.

"The problem is that we in this country have tried to suggest that a 100 percent renewable portfolio is somehow going to address climate change," Gordon said. "It will reduce the amount of carbon we release in the atmosphere domestically, not globally, but domestically reduce the increase of that, but it doesn't take carbon out of the atmosphere. It doesn't address climate change."

Gordon said he is frustrated that instead of having a "good conversation," the sides of the energy development/environmental disputes become polarized.

"And as part of that polarization, we will not listen to the other. And these folks had really good points to make. It was a lovely song. But let's do something about getting carbon out of the atmosphere. ... That's the innovation that I feel we need to have."

Rick Perry, U.S. energy secretary, said "this globe is more than just the United States" and that young people in the U.S. "might look at this a little bit differently" if they instead were living in Africa without even a single light bulb.

"America leads the world in the reduction of emissions today, and

it's because of our innovation, it's because of people like these sitting on the stage, in the private sector, through government, through the universities, working together to find these solutions to the challenges of the climate," Perry said.

The U.S. has a moral responsibility to be able to help deliver energy to parts of the world without it, he said. "If you really care about this world, in your youthful exuberance, I hope will take the time to think about how do we help the rest of the world clean up their environment?" he said.

Perry said the country should have a conversation about "are you really an environmentalist or is there some other basis to your opposition to fossil fuels being used, particularly when the clear science is that these fuels can be used with innovation, with technology, in a cleaner way?"

"We don't sit on an island here in the United States. It's a global environment that we live in. So I hope that those young people will think about 'what is it that we really want to accomplish with our protests?""

Speaking about the protesters, Thomas Farrell II, chair, president and CEO of Virginia-based Dominion Energy, said it was "very interesting to hear their voices." But he also found irony in their use of smartphones to video-record their activities that no doubt would end up on social media.

"That iPhone was charged this morning, or overnight, with electricity that came, because there was no solar power overnight, that came either from natural gas or coal," he said. "In our part of the country, it would have come from nuclear or coal or natural gas."

SAND

from page F1

Southern Red Sands expects the quality and proximity of its sand to the fracking operations of the West — especially those in Utah — will greatly reduce the costs energy producers pay for the crucial element in the process. A single bore hole in the fracking operation can require hundreds of tons of sand, which is mixed with fluids and injected underground to fracture rock formations and release the hydrocarbons they contain. Energy developers call a sand a natural "proppant" because it holds open the fissures created by

the hydraulic fracturing process.

Currently, acquisition of sand is one of the major costs of the fracking process, with transportation from the Midwest to western drilling sites accounting for as much as half the cost.

As expected, some Kanab-area residents are concerned about the environmental impact of mining and processing the sand within about 10 miles of the city. Dozens of residents have attended hearings before the planning commission and city council as the bodies debated the permitting process. Additional concerns were voiced about the effect on the city's water supply and the impact on the area's vistas.

City officials have said that

despite the protests, they expect the project to move forward. "Regardless of what we do here tonight, this project will go forth," Kanab Mayor Robert Houston told attendees at a hearing before the council voted in favor of selling water to the mining company. "The ultimate decision will be made by the state engineer."

Southern Red Sands officers said that the project would create about 40 direct jobs. Additional jobs will be created by trucking the products, which will be outsourced, they said.

Under the water agreement approved this month, Kanab will sell the company 600 acre-feet of water per year, one-third more than the project's estimated use of 400 acre-

feet per year. The company has made a separate agreement with the Kane County Water Conservancy District for an additional 600 acre-feet per year.

The 12,000-acre sand-producing area in Kane County could provide enough to meet the needs for Utah oil producers for 40 to 50 years, according to energy industry representatives speaking in May at Gov. Gary Herbert's Energy Summit in Salt Lake City.

"We have some of the best frac sand in the country," J.T. Martin, president of Salt Lake City-based Integrated Energy Co., told conference attendees. "We are calling this 'Utah pink Champagne.' The Wisconsins have nothing on us."

DOE launches \$8 million study into Paradox Basin oil and gas potential

The U.S. Department of Energy (DOE) plans to invest nearly \$8 million in a research project conducted by the University of Utah into the geology of the Paradox Basin to test its oil and natural gas potential.

Research into the Paradox, primarily in Utah but also extending to parts of Colorado and northern Arizona, marks the DOE's single largest investment into unconventional areas as part of a larger agency initiative consisting of multiple research projects. The DOE's investment adds to existing regulatory activity around the Utah oil and gas development, which has been the subject of a dispute between conservationists and the Trump administration.

The tussle started in 2017 when the White House reduced the size of national monuments within Utah by 2 million acres, which was largely a nod to expanding oil and gas drilling in the area. Trump signed a proclamation to reduce the size of the Bears Ears National Monument by 83 percent and reduce the Grand Staircase-Escalante National Monument in southern Utah by 46 percent.

In April, the Southern Utah Wilderness Alliance (SUWA) filed a lawsuit alleging the Interior Department's Bureau of Land Management (BLM) violated federal law in 2018 when it

HISTORY

from page F4

the San Juan River," said Jones. However, major oil companies like Standard Oil of California and Gulf continued to drill only expensive dry holes. The basin's first commercial oil discovery came in September 1948 - a well drilled by Mike Dougan's small, independent exploration company.

"Shortly thereafter, Utah was one of the top 15 oil producing states – a position it has held since," Jones concluded.

Today, the Uinta Basin's coalbed methane in Utah and Colorado is considered one of the major producing areas in the nation. According to the giant energy service company Halliburton, the basin: "located on a remote desert plateau in Utah and Colorado, and is considered one of the major coalbed methane producing areas in the United States, Uinta is estimated to have between 8 and 10 trillion cubic feet of gas reserves. Coal depths in this basin vary from 1,000 feet to 7,000 feet over a 14,450-square-mile region."

By 2010, Utah had produced more than 8.1 trillion cubic feet of natural gas valued at more than \$1.7 billion. "Utah ranked 11th in the country in oil production during 2014 and 10th in natural gas gross production in 2013. There are approximately 12,300 wells currently in production within the state," according to the Utah Department of Natural Resources.

offered 35 leases covering about 54,508 acres at two lease sales (The Southern Utah Wilderness Alliance v. David Bernhardt et al.).

The SUWA lawsuit is not the only one of its kind, but one of the more recent. The BLM has recently agreed to suspend leases auctioned for oil and natural gas development to reconsider the environmental review and examine possible impacts on climate change.

The DOE's funding, combined with outside funding of \$2 million, would contribute to the university's efforts to characterize the regional geology, stress regime, fracture networks and optimal stimulation practices, DOE said. Researchers plan to collect data from three undisclosed operators within the basin and endeavor to forecast the effectiveness of production stimulation approaches.

The Paradox project is one of 12 similar projects focused on oil and gas recovery technology, adding up to a total DOE investment of \$44.5 million.

Crude production in Utah has recently risen by 2.6 percent from previous months and 2.9 percent from last year, according to the latest data from the Energy Information Administration. Natural gas production, on the other hand, has fallen steadily over the same period, down by 0.4 percent per month in April and down by 8.6 percent from a year earlier.

Exploration of Utah is new relative to other major Lower 48 areas like the Permian and Anadarko basins, leaving much still to be discovered, according to the Utah Geological Survey (UGS). "The regional distribution and thickness

of these rocks are poorly mapped and the extent of the gas plays has not been defined," UGS said on its website.

In the Paradox Basin specifically, pores in the shale and tight formations have only recently been recognized, meaning "new gas discoveries are highly probable not only from the shales themselves, but also from the associated carbonates," UGS said. The Paradox is already home to the state's largest oil field, the 450-million-barrel Greater Aneth oil field.

The top operator by crude production volumes in Utah's San Juan County, which sits atop the Paradox formation, is Elk Operating Services LLC, according to the Utah Division of Oil, Gas and Mining. The top gas producer in the county by volume is Capitol Operating Group LLC.





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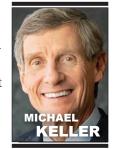
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Environmental review process underway for Uintah Basin railway project

The Seven County Infrastructure Coalition, composed of seven counties in Eastern Utah, has proposed building the Uinta Basin Railway Project, an approximately 80-mile rail line connecting two termini near South Myton

Bench in Duchesne County and Leland Bench in Uintah County, to the national rail network. The purpose of the project is to provide a safer, more efficient way of transporting oil, mined minerals and



other goods in and out of the Uinta Basin. The line would also be used to transport steel, machinery, fracturing sand and proppant into the Uinta Basin.

The coalition estimates seven trains a day will move along the railway in either direction. Currently, the primary method of transporting goods in and out of the Uinta Basin is trucking over rural highways. Utah's oil refineries, located in the Salt Lake City area, process nearly 200,000 barrels of crude oil per day, most of which is brought in by pipeline from Utah, Colorado, Wyoming and Canada. The proposed railway would expand transportation options and access to markets.

Major players involved in the project's public-private partnership include the coalition, the U.S. Surface Transportation Board (STB), Drexel Hamilton and the Rio Grande Pacific Corp. As the lead federal agency tasked with determining whether the project will be authorized, the STB is responsible for preparing the environmental impact statement (EIS) and coordinating with federal and state regulatory agencies, including the Bureau of Land Management (BLM), U.S. Forest Service, U.S. Army Corps of Engineers, Bureau of Indian Affairs

and State of Utah Public Lands Policy Coordinating Council. The STB will also engage in government-to-government consultation with potentially affected Indian tribes. Drexel Hamilton (an investment bank) and Rio Grande



short-line railroad holding company) make up the private portion of the partnership and will be responsible for financing, construction, operation and maintenance of the

railway.

The environmental review process, under the National Environmental Policy Act of 1969 (NEPA), is designed to assist the STB and the public in assessing and weighing the potential environmental consequences of the proposed railway. The coalition has proposed three alternative railway routes for consideration: the Indian Canyon route, the Craig route and the Wells Draw route. The coalition's preferred Indian Canyon route, located south of Duchesne, would connect an existing Union Pacific rail line near Kyune to a terminus point in the Uinta Basin near Leland Bench. The EIS will analyze the potential impacts of 1. construction and operation of the proposed rail line, 2. all reasonable and feasible alternative routes, and 3. the no-action alternative (denial of construction and operation authority). Specifically, the EIS will address issues of safety, transportation systems, land use, parks and recreation, biological resources, water resources, geology and soils, air quality, noise and vibration, energy resources, socioeconomics, cultural and historic resources, aesthetics and environmental justice.

The environmental review process for the project was effectively initi-

ated on June 19, when the Office of Environmental Analysis (OEA) of the STB published a "Notice of Intent to Prepare an Environmental Impact Statement" and a "Draft Scope of Study" for the project in accordance with NEPA. Public comments are invited on the range of alternatives and potential impacts to be considered. Public meetings were scheduled in local communities in mid-July, and the comment period on this initial scoping for the EIS closes Aug. 3.

Following the current scoping process, the STB will draft the EIS, hold additional public meetings, and accept public comment on a draft EIS. Then, the STB will complete the final EIS, which will be open for public comment before a final record of decision is issued for the project.

The coalition ambitiously projects completing the environmental review process and design of the railway project in 2021, with construction to begin in either 2022 or 2023. For such a major infrastructure project, this timeline may appear to be aggressive, but might be possible under the current administration's new "One Federal Decision" protocol. On Aug. 15, 2017, President Trump issued Executive Order (EO) 13807, "Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects." The purpose of the EO is to achieve more effective and efficient federal decisions on infrastructure projects so Americans can reap the economic benefits of improved infrastructure more expeditiously. All federal agencies involved in an infrastructure project are to cooperate and come to a unified decision on whether a project is authorized. The goal under the EO is for the NEPA review process to be completed and to have a record of decision prepared within two years of the publication of the Notice of Intent to prepare

an EIS.

In a memorandum of understanding, federal agencies, including the STB, have explicitly agreed to cooperate and implement a timely process of environmental reviews according to the timeline set out by the EO.

Even in a favorable regulatory environment, the EIS process for the project will be complicated and challenging. The One Federal Decision protocol and its compressed review times have not yet been tested in the courts, and undoubtedly, there will be opposition, just as there is for any major project significantly affecting the environment and public lands.

The BLM's Little Snake, Vernal, Price, White River and Salt Lake field offices intend to participate with the STB on the EIS. Both the Indian Canyon route and the Wells Draw route would require issuing a rightof-way across lands managed by the BLM and could require amendments to the Vernal, Price and Salt Lake field offices resource management plans. Also, the Craig route would require an issuance of a right-of-way across BLM lands and amendments to the Little Snake and White River resource management plans. For similar reasons, the U.S. Forest Service's Ashley National Forest will participate as a cooperating agency for this environmental review process. The Indian Canyon route would cross National Forest System lands, so a right-of-way may be required, which too would require amending the Ashley Forest Land and Resource Management Plan. Analysis of those various amendments will be included in the EIS and may complicate the environmental review process.

H. Michael Keller practices environmental law and energy law as a shareholder in the Salt Lake City office of the Fabian VanCott law firm. Elizabeth Stubbs is a student at the University of Oregon School of Law and a 2019 summer associate at Fabian VanCott.



OIL PRODUCERS IN UTAH

Top 10 Ranked by 2018 Production in Barrels



	Company Name / Address	Phone / Web	2018 Production in Barrels	Number of Active Wells	Owner (ticker symbol) Headquarters
1	Newfield Production Co. 10530 S. County Road 33 Myton, UT 84052	435-646-3721 newfield.com	9 million	1,480	Encana Corp. (ECA) Denver, CO (U.S. Operations)
2	EP Energy E&P Co. LP 17900 W. 3750 N. Altamont, UT 84001	435-454-3394 epenergy.com	6.8 million	337	EP Energy (EPEG) Houston, TX
3	Crescent Point Energy U.S. Corp. 555 17th St., Suite 1800 Denver, CO 80202	720-880-3610 cresentpointenergy.com	6 million	333	Cresent Point Energy Corp. (CPG) Calgary, Ontario, & Denver, CO (U.S. Operations)
4	Elk Operating Services LLC 1700 Lincoln St., Suite 2550 Denver, CO 80203	N/A	3.6 million	338	Elk Operating Services Denver, CO
5	Axia Energy II LLC 1805 Shea Center Drive, Suite 400 Highlands Ranch, CO 80129	720-746-5200 axiaenergy.com	2.5 million	63	Axia Energy Highlands Ranch, CO
6	Finley Resources Inc. 2388 W. 2000 S. Roosevelt, UT 84066	435-722-0879 finleyresources.com	2.4 million	295	Finley Resources Fort Worth, TX
7	Wolverine Gas & Oil of Utah LLC 55 Campau Ave. NW, No. 1 Grand Rapids, MI 49503	616-458-1150 wolvgas.com	1.3 million	27	Wolverine Gas & Oil Co. of Utah LLC
8	Berry Petroleum Co. LLC 4028 W. 4000 S. Roosevelt, UT 84066	435-722-1325 berrypetroleum.com	1.1 million	860	Berry Petroleum (BRY) Dallas, TX
9	Ultra Resources Inc. 116 Inverness Drive East, Suite 400 Englewood, CO 80112	307-708-9740 ultrapetroleum.com	514,000	N/A	Ultra Petroleum (UPL)
10	QEP Energy Co. 1050 17th St., Suite 800 Denver, CO 80265	303-672-6900 qepres.com	480,000	856	QEP Resources (QEP)

NATURAL GAS PRODUCERS IN UTAH

Top 10 Ranked by 2018 Production in 1,000 Cubic Feet

	Company Name / Address	Phone / Web	2018 Production in 1,000 cubic feet	Number of Active Wells	Owner (ticker symbol) Headquarters
1	Kerr-McGee Oil & Gas Onshore LP 1201 Lake Robbins Drive The Woodlands, TX 77380	832-636-1000 anadarko.com	105.2 million	2,688	Anadarko (APC)
2	EOG Resources Inc. 1111 Bagby St., Sky Lobby 2 Houston, TX 77002	713-651-7000 eogresources.com	26.7 million	1,135	EOG Resources (EOG)
3	Conoco Phillips Co. 6825 S. 5300 W. Price, UT 84501	435-613-9777 conocophillips.com	18.6 million	521	Conoco Phillips (COP) Houston, TX
4	EP Energy E&P Co. LP 17900 W. 3750 N. Altamont, UT 84001	435-454-3394 epenergy.com	17.5 million	329	EP Energy (EPEG) Houston, TX
5	QEP Energy Co. 1050 17th St., Suite 800 Denver, CO 80265	303-672-6900 qepres.com	13.8 million	N/A	QEP Energy
6	EnerVest Operating LLC 6250 S. US-40 Myton, UT 84052	435-722-5016 enervest.net	13.7 million	327	EnerVest Houston, TX
7	XTO Energy Inc. 978 Crescent Road Roosevelt, UT 84066	435-722-4521 xtoenergy.com	13.6 million	667	ExxonMobil Spring, TX
8	Avad Operating LLC 500 N. Akard St., Suite 2860 Dallas, TX 75201	214-484-4337 avadenergy.com	11.1 million	223	Avad Energy
9	Elk Operating Services LLC 1700 Lincoln St., Suite 2550 Denver, CO 80203	N/A	8 million	335	Elk Operating Services Denver, CO
10	Berry Petroleum Co. LLC 4028 W. 4000 S. Roosevelt, UT 84066	435-722-1325 berrypetroleum.com	7.9 million	905	Berry Petroleum (BRY) Dallas, TX



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VOLUNTEERS



International Relief Teams Seeks Skilled Construction Volunteers

International Relief Teams (IRT) is seeking volunteers with construction skills (handypersons or licensed contractors) for one week deployments to U.S. flood affected areas to help those families who cannot financially recover on their own, get back into their homes.

Our construction teams are currently working in Louisiana in the aftermath of last year's record floods, and anticipate we will be needed in Texas in the near future.

Although skilled construction volunteers are our first priority, we will be adding a limited number of unskilled volunteers to each team. All volunteers accepted for this assignment will be flown commercially from an airport near their home to an airport near the job site, leaving on a Sunday and returning the following Sunday. IRT will provide minivans for volunteers to use to for local transportation to and from the arrival airport and to and from the job site.

Teams will be housed at local churches or other suitable facilities. Volunteers are responsible for bringing their own bedding, towels, and toiletries. There is a \$150 volunteer participation fee to help cover airfare and local transportation costs, and volunteers are responsible for their own meals while on assignment.

Work is performed Monday through Friday (full days) and a half day on Saturday. Job assignments generally include installing windows, doors, kitchen cabinets; laying tile, linoleum, or wood flooring; building handicap ramps to the home; roofing; drywall and mudding; finish carpentry work, finishing plumbing; and other related tasks. We ask each volunteer to bring basic hand tools, such as a tool belt, hammer, pliers, putty knives, tape measure, etc. Power tools, generators, compressors, and other large specialty tools are provided by IRT and our local agency partners.

For more information, contact Brett Schwemmer (bschwemmer@irteams.org), or to apply for an assignment, fill out an online volunteer application (www.irteams.org).

About IRT: Since 1988, IRT has been actively involved in helping families in need in 68 international disasters, and 24 U.S. disasters. IRT construction teams worked for more than six years repairing and rebuilding homes in Mississippi after Hurricane Katrina, and four years in New Jersey after Superstorm Sandy, and is now working in Louisiana after last year's record floods.



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