



Mercenary Alert: A Field Tour of the Operations of Energy Fuels Inc

A Special Alert Musing from Mickey the Mercenary Geologist

For Subscribers Only

[Contact@MercenaryGeologist.com](mailto:contact@mercenarygeologist.com)

May 27, 2014

As a practicing economic geologist, my due diligence on any resource company begins with a project evaluation. As subscribers know, I reject the overwhelming majority of companies because the flagship project does not pass muster.

Recently I was afforded a tour of [Energy Fuel Inc's \(UUUU.MKT; EFR.T\)](#) mine and mill operations in Arizona, Utah, and Colorado. My guide was Curtis Moore, the company's director of investor and public relations.

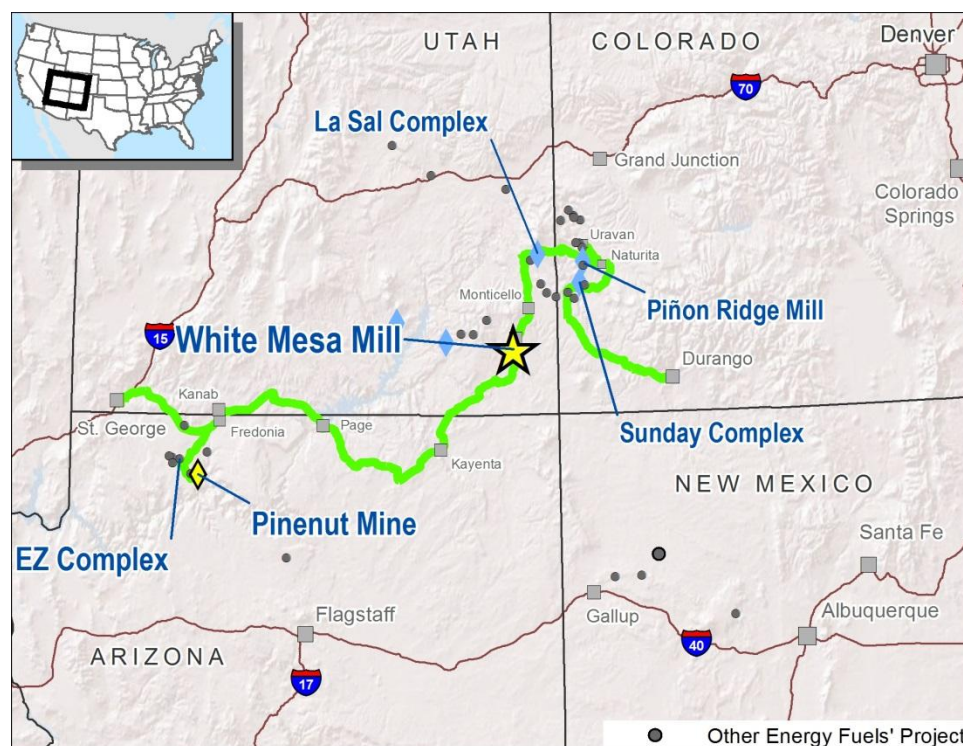
Before we go road-tripping, let's review the performance of and news from Energy Fuels Inc since I initiated coverage at \$5.61 ([Mercenary Alert, December 27, 2013](#)). Within nine weeks, the company had soared to a price of \$11.85. Subsequent profit-taking and a weaker uranium market gave back most of those gains, with the stock trading as low as \$6.62 before a recent rally. It closed Friday at \$7.65. Here's the six-month chart:



On the news front, Energy Fuels announced management and director changes; extended the mine life at its operating Pinenut, Arizona mine to 2015; tabled new resource estimates for its La Sal Complex of mines in Utah; filed a PEA on its Juniper Ridge, Wyoming project; submitted a preliminary short form base shelf prospectus for up to \$100 million over a period of 25 months once final registration is effective; replaced its regulatory bonding requirements with surety bonds thus releasing \$12.3 million to the company coffers; and announced year-end 2013 and Q1 2014 financial results.

As of March 31, EFR had a strong balance sheet with working capital of \$42.3 million and long-term debt of \$20.3 million. For additional detail on any of these items, please access the company website, linked above.

- This map shows our tour route and operations visited:



Four Corners Region Showing Route and Operations Visited

On the morning of the first tour day, I flew via Denver to St. George, Utah and was met by Curtis Moore. We drove to the old Western movie-set town of Kanab to spend the night. The next morning I was introduced to Director of Operations and geologist Donn Pillmore at the company's office in Fredonia, Arizona. Donn gave us a compelling presentation on the high-grade breccia pipe uranium deposits of the Arizona Strip.

The Arizona Strip, herein defined as that area surrounding the Grand Canyon on its North and South Rims, hosts nearly 1300 known breccia pipes that span a geological section from Triassic to Mississippian-age rocks. These pipes are vertical collapse features related to cave formation in the underlying Mississippian Redwall Limestone. However, a very minor percentage of the known structures host significant mineralization with only about 60 known to be "heavily mineralized" according to Donn.

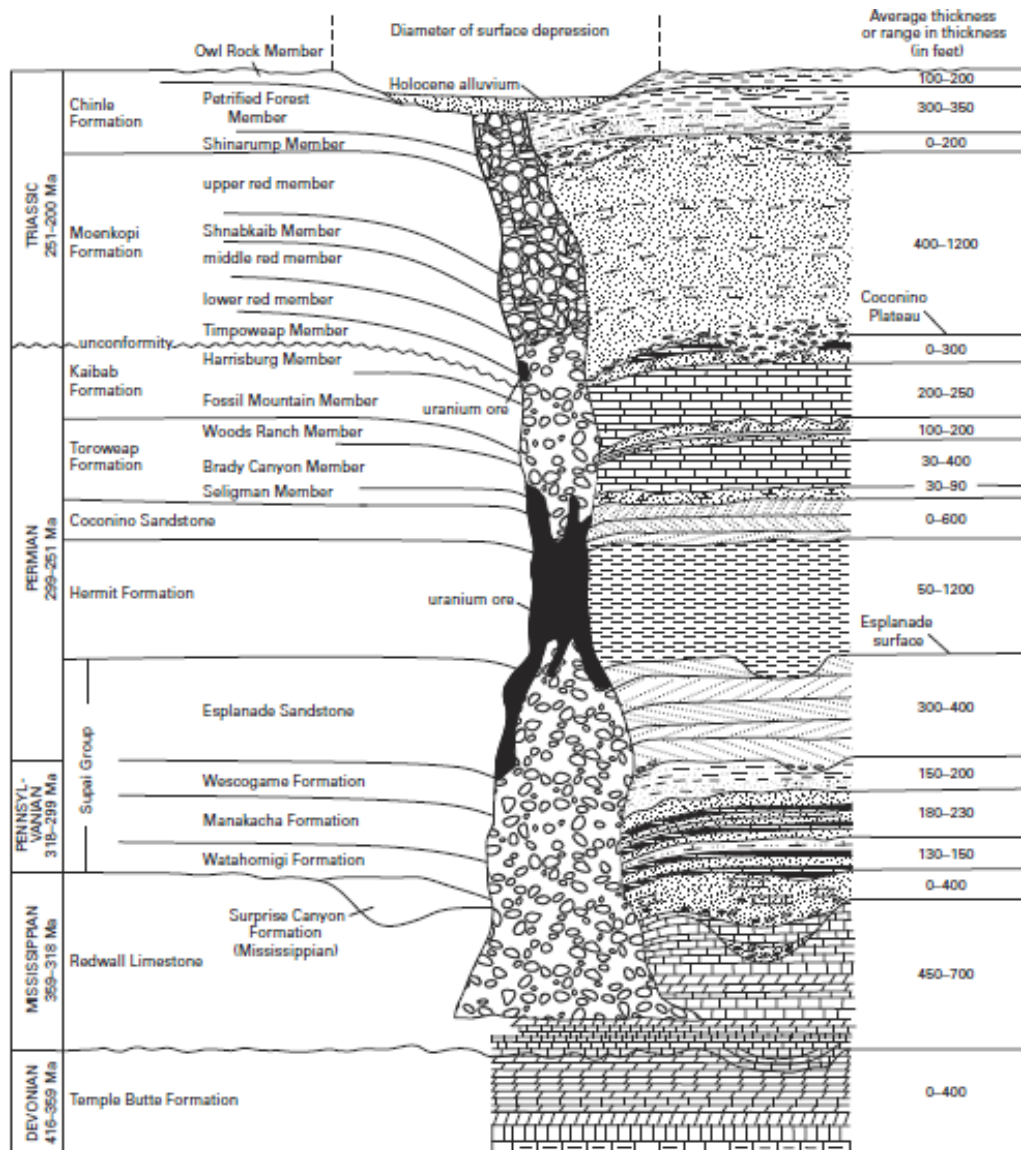
Copper mining began in the 1870s on many pipes that are exposed in the walls and along the rims of the Grand Canyon and tributary drainages. Uranium mining on a commercial scale commenced in the early 1950s at the Orphan Mine near the South Rim, which was previously mined for copper. Several new uranium breccia pipes were discovered and mined in the 1970s-80s, others were partially developed, and exploration, development, and mining continue today at Energy Fuel's Arizona operations.

The district hosts some of the highest uranium grades in the world outside Saskatchewan's Athabasca Basin. Nearly 25 million pounds of U₃O₈ have been produced at an average grade of 0.6%.

The surface on the North Rim is mostly underlain by Triassic Moenkopi redbeds and Permian Kaibab limestone. Breccia pipes are typically barren of uranium for the upper 1000 feet of sedimentary rocks until the Permian Coconino sandstone is encountered. Immediately below this permeable sandstone is the main ore host, consisting of matrix-dominated breccias located within altered mudstones and siltstones of the Permian Hermit Shale formation.

There is little outcrop in the region and, except where exposed in headlands and walls of the canyons, the pipes have scant surface expression. They are quite small in diameter, about 100-400 feet, but may exhibit a larger footprint over several hundreds to thousands of feet with overlying rock units dipping shallowly in toward the central pipe throat. This subtle geological characteristic plus occasional limestone-hosted copper oxide mineralization and/or a scarcity of vegetation constitute the surficial evidence for a pipe.

Below is a USGS schematic cross-section showing the geology and setting of a typical Arizona Strip uranium breccia pipe:



Idealized Uranium Breccia Pipe Cross-Section (Courtesy of USGS, 2010)

In the 1970s-1980s, breccia-hosted uranium deposits were found by a combination of surface mapping, airborne electromagnetic geophysics surveys, and aerial and later satellite photography along with helicopter reconnaissance support. Once located, a few holes were drilled to the target horizon to ascertain if ore-grade uranium was present. If surface drilling encountered significant mineralization, small shafts were sunk and followed by underground drilling to determine if mineralization was economic.

The pipes have no surficial geochemical signature. New-generation radon detectors that have been employed with exploration success in other uranium provinces have not proven effective in the Strip.

Exploration in the 2000s was largely unsuccessful with discovery of only one significant new uranium-bearing breccia pipe by junior Quaterra Resources. It was a blind discovery on the North Rim that did not penetrate up to the surface and was found with deep-penetrating airborne electromagnetic geophysics and oriented drilling. 3D seismic surveys can also be used to locate pipes but is a very expensive exercise.

After Donn's presentation and a look at mine models of various pipes exploited or developed by Energy Fuels, we drove about 45 mi south to the company's currently operating Pinenut mine for an underground tour. This mine was partially developed in the late 1980s when a shaft was sunk to 1350 feet and mining produced 526,000 lb U_3O_8 . When mining resumed in 2013, there were approximately 1,037,000 lb U_3O_8 contained in 95,000 tons of inferred resource at a grade of 0.54% and cut-off of 0.3% U_3O_8 . The mine is scheduled for shut-down when resources are exhausted in early 2015. However, EFR is encouraged by ongoing exploration that could add more economic mineralization and extend the mine life.

The mine tour was led by mine manager Laury Shumway in company of mine geologist Matt Germanson. This is a small, conventional drill-blast-muck operation mined by shrink stoping with load-haul-dump machines. I was duly impressed with Matt's enthusiasm for the job and his curiosity and drive to understand the characteristics of the deposit and find more ore at Pinenut.

Following the mine tour, Curtis, Donn and I did surface tours of the Arizona One mine, which produced from 2007-2013 and is now undergoing reclamation; the EZ1 deposit, which is scheduled for future mining when the uranium price recovers; and the reclaimed Hermit mine where mining ceased in 1989.

Here is a set of photos from the day's activities:



Surface Facilities at the Pinenut Mine



Pinenut Breccia Ore with Black Uraninite



EZ1 Pipe with Shallowly Dipping Kaibab Limestone in Lower Right and Hills on Horizon



Reclaimed Hermit Mine with Power Line in Distance

We also took time to drive a few miles from the Pinenut Mine to get a stunning North Rim view of the Grand Canyon near Kanab Creek. Anyone who has ever visited the Canyon knows that this is a scene that never gets old:



Kanab Creek in Left Center and Colorado River Canyon in Far Distance

We returned with Donn to the mine office and Curtis and I drove to Page, Arizona for the night. The next day featured a drive east to Kayenta and then north thru Monument Valley, the Goosenecks of the San Juan, lunch in Bluff, and on to Blanding, Utah. Here are a couple of nice views from the highway on a hazy day.



Monument Valley North of Kayenta, Arizona



Goosenecks of the San Juan River, SE Utah

A visit to Energy Fuels' White Mesa mill in Blanding occupied the afternoon. White Mesa is the only conventional uranium mill operating in the United States and it also produces significant vanadium. Additionally, it is a custom toll mill that accepts uranium \pm vanadium ores and other uranium-bearing intermediate products and waste streams from outside sources.

The tour was led by Dan Hillsten, mill superintendent, and we were accompanied by EFR CEO Steve Antony. The recovery of uranium and vanadium from ores requires very complicated multi-stage processes and the White Mesa mill is most akin to a large chemical processing plant.

Dan first explained the uranium and vanadium recovery from start to finish with a series of stoppered reagents bottles demonstrating all steps from crushing of ore to addition of reagents, intermediate products, barren and pregnant solutions, etc.

We then walked thru the many mill circuits including both mined ore processing and also the alternative feed circuit, which produces yellowcake from unconventional uranium-bearing sources.

The mill's final products are high-purity yellowcake (U_3O_8) and ultra-high-purity, fused-flake vanadium pentoxide (V_2O_5) used in high strength steel alloys.

The variety of ores and materials that Energy Fuels encounters from its own mines of the Arizona Strip, Uravan, and SE Utah districts, its custom toll milling of ores from other producers, and its alternative feed circuit is astounding. It seems to me that the knowledge, experience, and expertise of the engineers, chemists, and other technical and skilled employees at EFR's White Mesa mill likely are unrivaled anywhere else in the world.

Now it's photo time from the mill site tour:



Energy Fuels Inc White Mesa Mill, Blanding, Utah



Dan Hillsten and Yours Truly with 900 lb Drums of Yellowcake in Background

After the tour, we drove north to Monticello, Utah for the night. I enjoyed a big steak dinner and an interesting evening of conversation and camaraderie with Steve, Dan, and Curtis.

The next morning Curtis and I were on the road again, driving north to La Sal Junction, and then east along Energy Fuels' La Sal Complex. The company controls most of the past- and recently producing mines along this 20 mi trend of uranium-bearing channel sandstones.

We were met by EFR employee Todd Eldridge in La Sal and viewed surface facilities including head frames and declines accessing the Energy Queen, Beaver, La Sal, Pandora, and Snowball mines. Mining was suspended in late 2012 due to a weak uranium price. However, the Beaver and Pandora mines are on care and maintenance and will be among the first mines restarted when uranium prices recover. The La Sal Complex is a major constituent of Energy Fuels potential production scalability.

These are photos from the La Sal Complex mines:



Energy Queen and Beaver Mine Shafts



Curtis Moore at the Snowball Mine Decline

Our road trip continued into Colorado and involved a circuitous route past EFR's fully permitted Pinon Ridge Mill site, a detour to the old uranium mining and milling town of Uravan, and lunch in the town of Naturita. We continued on past numerous formerly-producing uranium mines of the Uravan district and thru the towns of Slick Rock, Dolores, Cortez, and Durango. Curtis and I caught a plane to Denver in the late afternoon, said our goodbyes and good lucks, and I continued onto Albuquerque that evening.

I sincerely thank the management of Energy Fuels Inc and in particular, CEO Steve Antony for his continuing support. My appreciation goes out to Curtis Moore for his flawless organization of the logistics for this whirlwind tour and also his marathon driving ability. We covered most of the major uranium districts of Arizona, Utah, and Colorado over many miles and three long days, and it came off with barely a hitch.

In my opinion, concurrent with the uranium spot price decline over the past two months, Energy Fuels Inc has become oversold once again. For those who missed out on my initial coverage of the company last December, now may represent opportune timing to acquire a position. Alternatively, for those who follow my trading methodology and played the stock to a double and sold half, adding to your position at lower prices could be a sound strategy.

That said, be aware that my opinions are skewed to the upside because I am a long-term shareholder of Energy Fuels, it covered tour expenses, and it pays to sponsor my website.

Ciao for now,

Mickey Fulp
Mercenary Geologist



The [**Mercenary Geologist Michael S. "Mickey" Fulp**](#) is a Certified Professional Geologist with a B.Sc. Earth Sciences with honor from the University of Tulsa, and M.Sc. Geology from the University of New Mexico. Mickey has 35 years experience as an exploration geologist and analyst searching for economic deposits of base and precious metals, industrial minerals, uranium, coal, oil and gas, and water in North and South America, Europe, and Asia.

Mickey worked for junior explorers, major mining companies, private companies, and investors as a consulting economic geologist for over 20 years, specializing in geological mapping, property evaluation, and business development. In addition to Mickey's professional credentials and experience, he is high-altitude proficient, and is bilingual in English and Spanish. From 2003 to 2006, he made four outcrop ore discoveries in Peru, Nevada, Chile, and British Columbia.

Mickey is well-known and highly respected throughout the mining and exploration community due to his ongoing work as an analyst, writer, and speaker.

Contact: [**Contact@MercenaryGeologist.com**](mailto:Contact@MercenaryGeologist.com)

Disclaimer and Notice: I am a shareholder of Energy Fuels Inc and it pays a fee of \$4000 per month as a sponsor of this website. I am not a certified financial analyst, broker, or professional qualified to offer investment advice. Nothing in any report, commentary, this website, interview, and other content constitutes or can be construed as investment advice or an offer or solicitation or advice to buy or sell stock or any asset or investment. All of my presentations should be considered an opinion and my opinions may be based upon information obtained from research of public documents and content available on the company's website, regulatory filings, various stock exchange websites, and stock information services, through discussions with company representatives, agents, other professionals and investors, and field visits. My opinions are based upon information believed to be accurate and reliable, but my opinions are not guaranteed or implied to be so. The opinions presented may not be complete or correct; all information is provided without any legal responsibility or obligation to provide future updates. I accept no responsibility and no liability, whatsoever, for any direct, indirect, special, punitive, or consequential damages or loss arising from the use of my opinions or information . The information contained in a report, commentary, this website, interview, and other content is subject to change without notice, may become outdated, and may not be updated. A report, commentary, this website, interview, and other content reflect my personal opinions and views and nothing more. All content of this website is subject to international copyright protection and no part or portion of this website, report, commentary, interview, and other content may be altered, reproduced, copied, emailed, faxed, or distributed in any form without the express written consent of Michael S. (Mickey) Fulp, MercenaryGeologist.com LLC.

Copyright © 2014 Mercenary Geologist.com, LLC. All Rights Reserved.