BLM finalizes Oil Shale Leasing PEIS

In 2011 the Department of Interior (DOI) announced it would revisit the 2008 oil shale PEIS and commercial leasing regulations. BLM cited changed conditions (e.g., sage grouse habitat and new USGS oil shale resource estimates), and the settlement of law suits brought against DOI challenging the earlier PEIS and regulations. In January of 2012 the BLM issued a new draft PEIS.

The Record of Decision for the final PEIS was issued in March 2013. BLM’s preferred alternative 2(b) was selected for the final PEIS. It dramatically reduced the acreage available for application for leasing, and only authorizes R&D leases—no commercial leasing without prior technology demonstration.

The map on the right shows the 2012 vs. 2008 acreage potentially available for leasing in Colorado (shown in red). Utah and Wyoming were similarly reduced, but less significantly.

Neither the 2008 version nor the 2012 PEIS authorized leasing without further environmental reviews and public input. Additional R&D lease applications have not been offered as of the date of this publication. Little if any interest is expected if more R&D leases are offered because of the limited preference right acreage (640-acres), and because the terms of such leases offer little, if any, incentive for companies to spend the millions on R&D.

No other mineral or oil & gas leased by BLM requires RDD on federal land before issuance of commercial leases.

The long awaited draft oil shale leasing regulations were issued for public comment by BLM in March 2013. The public comment period was in effect as of the publication of this update.

It is anticipated that the final regulations will have much more restrictive royalty, environmental and reporting requirements. Royalty rates in the 2008 regulations recognized the pioneering nature of the oil shale business and the desire of Congress to stimulate the domestic production of petroleum.

Estonian Oil Shale Symposium

Estonia hosted 430 participants from around the world at an international oil shale symposium in Tallinn in June 2013. It was a big success. Papers featured updates on projects in Estonia, Jordan, Canada, China, the United States and elsewhere. NOSA Board member Tony Dammer (shown on the right) presented a paper “Commercialization of Oil Shale in the United States”. Participants were given a tour of Estonia’s oil shale production facilities and enjoyed Estonian hospitality.
R,D&D oil shale lease activities

1st round RD&D leases

BLM issued five first round 160-acre R,D&D leases in 2007 after the lessees had completed Development Plans and BLM had conducted Environmental Assessments for each lease (see BLM map above). Leases are for 10-years with an option to extend for an additional 5-years. Lessees may expand the leases to 5,120 acres if BLM’s technical, economic and environmental requirements are met. Chevron dropped its RD&D lease.

American Shale Oil (AMSO)

American Shale Oil, a partnership of Total and Genie Energy, is preparing a pilot demonstration on its RD&D leasehold in Western Colorado. The conversion of the 160-acre East RD&D lease to a 5120-acre Commercial lease requires Shell to perform a pilot that demonstrates the production of “Commercial Quantities” of shale oil. Shell has begun work on a three phase pilot in the nahcolitic portion of the Parachute Creek member of the Green River Formation on the first of its three R,D&D leases. The first phase is hot water leaching of selected nahcolitic intervals to establish permeability. The second phase is the application of Shell’s ICP insitu retorting technology to produce shale oil. The third and final phase is cooling and surface reclamation.

To date, 21 wells (16 heater, 2 producer, and 3 observer wells) have been drilled. Phase two activities (heater deployment, a second facilities start-up, ICP testing, and horizontal heater testing) will be conducted in 2014-15. Pilot results will be used by Shell to inform the decision to convert to a commercial lease and proceed on the path to a commercial project.

Shell’s freeze wall demonstration facility is being dismantled and the area reclaimed.

Enefit American Oil

See article on page 3

2nd round RD&D leases

In 2012 Colorado BLM signed two more RD&D leases to encourage industry to develop and test technologies aimed at developing oil shale resources on a commercial scale. The leases went into effect on December 1, 2012. The approved leases were awarded to ExxonMobil Exploration Company and Natural Soda Holdings, Inc., each of whom submitted proposals for the in-situ development of oil shale, on adjacent 160-acre parcels in Rio Blanco County, Colorado. 2nd Round RD&D leases may be expanded to 640 acres if BLM requirements are met. The term of each lease is 10-years.

An Environmental Assessment covering both companies activities was completed by BLM, and BLM made a Finding of No Significant Impact. Operation Plans have been completed by both firms.

Both Natural Soda and ExxonMobil are continuing their geotechnical and other studies of the sites and preparing detailed plans for the research, development and demonstration work to follow.

Paraho II™ Technology Advances

The Paraho II™ demonstration scale plant owned by QER near Gladstone, Australia has now been producing oil for almost two years. QER reports it is very pleased with the results, but will continue to investigate ways of gaining greater efficiencies, while ensuring the community has every opportunity to visit the facility, and understand what the project is trying to achieve.

The project recently produced specification grade jet fuel and ultra low sulfur diesel fuel derived from shale oil produced at the plant.

Queensland’s Minister for Environment and Heritage Protection, Andrew Powell, reportedly emphasized that strict environmental controls would apply to any proposal to mine and process oil shale. Mr Powell also said the QER pilot plant near Gladstone has successfully demonstrated the viability of its processing technology. “The report into the QER plant demonstrated it operated well within the environmental performance requirements of its Environmental Authority issued by my department,” he said.

Shale Tech International Services LLC (STIS) recently announced the completion of a batch retort and liquid recovery system in Colorado to augment their test work around the Paraho II™ process. The new system is designed to simulate the rapid retorting process occurring within a full-sized Paraho retort. It can operate in the indirect heating mode or full combustion mode to determine which retorting style is appropriate for various global resources.

STIS also has developed a model to reliably detect the kerogen content in oil shale utilizing an advanced online Near Infrared (NIR) spectrometer analyzer, which aids in online calculations and processes.

http://shaletechinternational.com/
Enefit American Oil advances Utah Project

Enefit American Oil (EAO) is making progress on multiple fronts, including work supporting Bureau of Land Management’s (BLM) Environmental Impact Statement (EIS) for rights-of-way required for the project. In addition activities are proceeding on baseline data collection, project design, resource testing and public outreach.

EIS: The Bureau of Land Management has begun an Environmental Impact Statement on a 19-mile utility corridor needed to serve Enefit American Oil’s planned 50,000 bpd oil shale project in eastern Utah’s Uinta Basin. While EAO’s project will be located on private land, the company requires a right-of-way from the BLM for a utility corridor across federal land, which necessitates the environmental review. BLM conducted scoping meetings in mid-July and a draft EIS is expected in mid-2014.

Data Collection: 1.5 years of ambient air quality baseline measurements have been completed along with surveys of biological, cultural and archeological resources.

Design: A preliminary design and cost estimate is expected to be completed this summer for the surface mining, retorting, upgrading and reclamation operations.

Testing: 180-tons of oil shale from a box cut on the site (picture on the right) were sent to Enefit’s testing facility in Germany. Bench scale tests were conducted there last year and larger pilot plant tests should be completed soon. These test will assist EAO in determining the optimum process conditions for Utah oil shale.

Outreach: Enefit continues to work with the local community to both educate the public, and build lasting relationships for the future.


Red Leaf Resources Utah project moves ahead

Construction on the commercial scale Red Leaf EcoShale In Capsule Technology project is proceeding on schedule. Startup is expected later this year. The goal of the project is to continuously produce up to the equivalent of 10,000 barrels per day of shale oil in 2015.

Commercial production of shale oil at this level has not been achieved in the U.S. since the Unocal project in the 1980’s that was shut down in the 1990’s. The Red Leaf project is a giant step forward for the U.S. oil shale industry. First, permits were obtained that assure the public that oil shale can be safely developed in the United States. Second, this company is proving that oil shale can be a sustainable industry providing a secure source of energy for the future from a domestic resource.

In the process, oil shale is mined and placed in an excavation that has been lined with an impermeable liner. Expendable heating pipes are placed throughout the capsule. A liquid drain system for produced oil is included in the bottom of the capsule. Perforated pipes at the top of the capsule collect hydrocarbon vapors. Clean natural gas burners exhaust hot gas that is circulated through the capsule. A gas and water impermeable liner surround the entire capsule.

Oil Shale History Revisited*

From many recent press accounts a reader would be led to believe that all of the impacts from past oil shale development were negative. That is not the case. In the 1970’s over $100 million dollars from the Oil Shale Trust Fund was distributed to local communities in Colorado to improve infrastructure and services. The town of Battlement Mesa (pictured on the right) was built with private funds. Today it is a thriving community.

The 1970’s was a period when the Federal government pushed for energy independence and offered financial incentives to build large synfuel plants. The Federal government is not now incentivizing oil shale commercialization. Companies alone will decide if it is profitable.

Today the population in the region has grown, a robust energy business has evolved, and services and infrastructure have kept pace. The area is much better prepared for an oil shale industry than it was 30-years ago. Nonetheless, funds can become available to communities from taxes, bonus payments and royalties, if and when BLM issues commercial oil shale leases.

*OIL SHALE HISTORY REVISITED
Arnold L. Mackley, Dianne Lynn Boe, Alan K. Burnham, Roger L. Day American Shale Oil, LLC
R. Glenn Vawter, National Oil Shale Association
32nd Oil Shale Symposium
Other oil shale activities

**Colorado School of Mines**

The Center for Oil Shale Technology and Research (COSTAR) at the Colorado School of Mines continued its applied research on oil shale and leadership of the October Oil Shale Symposium.


**Idaho National Laboratory**

INL continued its work on oil shale and other energy resources in the Western U.S. For information on INL oil shale studies go to [www.inl.gov](http://www.inl.gov).

**University of Utah**

The University of Utah continues to be a center for oil shale research that is particularly focused upon Utah resources and projects.

[http://www.heavyoil.utah.edu/](http://www.heavyoil.utah.edu/)

**Projects Outside U.S.**

Estonia, China and Brazil continue to produce shale oil in commercial quantities. Estonia is expanding its output of shale oil, and China continues to identify more oil shale resources. Jordan has become very active in the oil shale arena.

Jordan

Enefit and the government of Jordan announced commencement of a shale combustion power plant project.

Israel

IEI, a Genie Energy subsidiary, submitted their EIS to the Jerusalem District planning committee to formally begin the oil shale pilot permitting process. The permit when issued will allow IEI to begin construction of its pilot test in the Elah Valley.

China

The construction of the large scale ATP retort is nearing completion with start-up activities underway.

Australia

See article on page 2 discussing Paraho technology demonstration in Queensland for QER.

India

The Directorate General of Hydrocarbons (DGH), under the Ministry of Petroleum and Natural Gas, has embarked on a project for the evaluation of oil shale resources and their synrude potential in parts of Upper Assam and neighboring area in Arunachal Pradesh.

Mongolia

In April, a subsidiary of Genie Energy entered into an agreement with the Petroleum Authority of Mongolia to explore and evaluate the commercial potential for oil shale development on 34,470 square kilometers in Central Mongolia. Genie Mongolia will identify and characterize the oil shale resources in the survey area, and may conduct a pilot test using in situ technology on an appropriate site.

Brazil

Irati Energy LLC is making plans to build a new oil shale plant in Brazil using a modification of the Petrosix design.

NOSA Celebrates Six Years of Service

- The mission of the National Oil Shale Association (NOSA) is to educate the public about oil shale.
- NOSA is a not-for-profit 501(c)(6) corporation.
- The Association was formed in the 1970’s when it actively engaged in oil shale education.
- NOSA was reinstated in 2007 in response to a renewed interest in oil shale.
- There are two classes of membership: Sustaining and Associate Members. Sustaining Members are profit making firms and Associate Members are individuals and not-for-profit groups.
- NOSA’s Web Site at [www.oilshaleassoc.org](http://www.oilshaleassoc.org) provides copies of the bylaws and a membership application.

NOSA UPDATED EDUCATIONAL BROCHURE

**OIL SHALE—AMERICA’S UNTAPPED ENERGY SOURCE**

On Web Site—Hard Copies available—email request to NOSA

33rd Annual Oil Shale Symposium to be held in Golden, CO


The information presented in this document has been prepared by the staff of NOSA and is intended to give a snapshot of the status of oil shale technology and projects, and is not endorsed by the principals of those technologies or projects, or the members of NOSA. NOSA has drawn upon publically available information.

NOSA Board of Directors

Roger Day was re-elected 2013 Chairman of the National Oil Shale Association (NOSA) at its Board of Directors meeting in December 2012. Roger is Vice President of American Shale Oil, LLC (AMSO) and heads up oil shale operations for AMSO’s BLM Oil Shale RD&D lease in Colorado. AMSO’s office is near the site of its RD&D lease in the Piceance Basin.

The 2013 Board of Directors of NOSA: Roger Day, Gary Ahn, Pierre Allix, Tony Dammer and Tracy Boyd representing AMSO, Enefit American Oil, Total, Red Leaf Resources, and Shell respectively.

For more information see [www.oilshaleassoc.org](http://www.oilshaleassoc.org) and individual project web sites.

MEETING ANNOUNCEMENT

NOSA will hold its 2013 Annual Meeting at 7:00 AM on October 15th in conjunction with the 33rd Annual Oil Shale Symposium in Golden, Colorado. The public is invited to attend.