



OIL SHALE UPDATE

National Oil Shale Association

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Oil shale receives national attention

During the second quarter of 2008 President Bush included the need for oil shale in an energy address to the nation. His remarks were part of an appeal to increase the domestic supply of petroleum. It was, we believe, the first time a President of the United States has mentioned oil shale in an address since President Carter did so during the energy crises era of the 1970's when national policies encouraged oil shale development.

President Bush made an appeal to Congress to lift the moratorium on the completion of oil shale leasing regulations being prepared by the Bureau of Land Management (BLM).

Following the President's speech, the debate on the need for and viability of oil shale heightened and the national press, radio and TV ran stories on oil shale.

On June 20th CBS Evening News presented a piece filmed in Western Colorado where representatives from

Shell and the National Oil Shale Association were interviewed.

Articles on oil shale appeared across the nation in newspapers and journals, including interviews with politicians and oil shale experts.

As a result of the President's address and the increase in petroleum and transportation fuel prices, NOSA has seen a big increase in requests for oil shale information. Questions from the Web Site Contact page have also increased.

One of the questions being asked is "with oil prices skyrocketing why is there not a greater push by industry to move ahead with oil shale projects?". The answer given follows. There are many firms working toward commercializing oil shale. They are progressing at varying speeds depending on several factors.

Some firms have technology

in the research and development stage and they plan to complete a demonstration before making a decision to invest in a large venture. Others do not have oil shale resources upon which to base a commercial project and are awaiting the final BLM leasing regulations to determine the value of their technologies. Others are concerned about the political climate in the areas where they are working and are cautious about moving ahead too quickly.

Lastly, some entrepreneurial firms are very bullish about their technologies, have an oil shale resource position, and are moving ahead with commercial planning.

Essentially all of the funds being spent on oil shale development are coming from private sources. There is a substantial investment risk because of the pioneering nature of the business. Time will tell how the industry develops.

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Special points of interest:

- Oil shale receives national attention.
- OSEC announces deal with Petrobras and Mitsui to move project closer to commercialization.
- New oil shale technologies and projects surface.

Chattanooga Corp

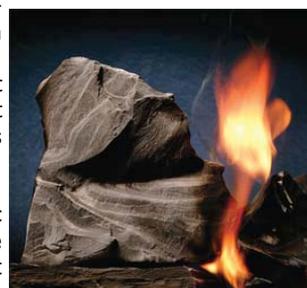
Enshale

Petro Probe

Peak oil and oil shale

"The concept of peak oil relates to the fact that oil is a finite resource and that at some point, world oil production will reach a maximum and go into decline (and not meet world demand). The world will not collapse due to peak oil. We are a sturdy lot and we will find ways to mitigate this terrible problem. But it won't be easy nor quick." (Kjell Aleklett, Global Energy Systems group, Uppsalla University, Sweden, www.fysast.uu.se/ges).

Oil shale can play a role in stemming the decline of domestic petroleum production. Much of the debate surrounding oil shale currently relates to the extent peak oil is upon us or is imminent and what role oil shale should play in helping the U.S. through this period of transition to a society less reliant upon petroleum.



AMSO Presents Development Plan to BLM

On April 30, 2008, the American Shale Oil Company (AMSO) submitted to the Bureau of Land Management an In-Situ Development Plan ("ISDP") outlining AMSO's plan for using its Colorado RD&D Lease tract to conduct a shale oil recovery research program to develop and demonstrate a commercially and environmentally acceptable shale oil recovery process.

Specifically, the ISDP employs AMSO's patent-pending Conduction, Convection, Reflux (CCR) process, which uses a linear heat source to heat a boiling oil pool, which, in turn, distributes the heat through the thermally fractured formation.

The ISDP reflects AMSO's efforts over the past two years to improve heat delivery methods and reduce environmental impacts by retorting within the illite mining interval, which is significantly below protected aquifers, and by reducing the footprint of equipment at the surface level.

AMSO is evaluating meth-

ods of down-hole heat delivery such as recirculating hot fluids and downhole burners, and is preparing to study the important issues of hydrological isolation of the illite oil shale (the interval AMSO will be testing) and CO2 sequestration in spent retorts.

AMSO has also completed material balanced assays on the illite shale to understand the fate of organic and mineral carbon, sulfur, and nitrogen during retorting.

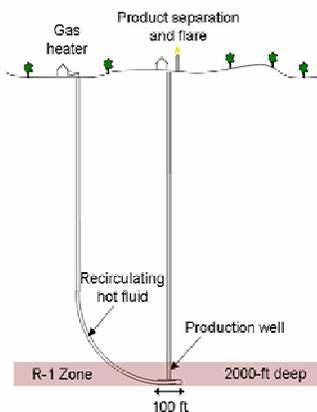
Given these improvements over its original plan of operations submitted in the 2005 nomination process, AMSO expects the BLM to approve the ISDP in the near term.

AMSO has also submitted a Notice of Intent to Prospect to the Department of Natural Resources for the State of Colorado for drilling formation and hydrology characterization wells. Over the next year, AMSO will be conducting hydrological characterization of its RD&D site with these wells.

The following are excerpts

from the E.G.L. Oil Shale, LLC (AMSO) Insitu Development Plan:

"A challenge associated with the illite oil shale strategy is the limited knowledge of illite oil shale properties. As shown in Appendix A, initial characterization of illite oil shale samples indicates that the kerogen quality is similar to that from the carbonate oil shale from higher strata. The fractional conversion of kerogen to oil during Fischer assay is about the same for both carbonate and illite oil shales. The oil retorted from illite oil shale contains slightly more long-chain alkanes (wax) than in typical Mahogany zone (carbonate) oil shale. These long-chain alkanes are actually beneficial, as they boil at a higher temperature, thus enhancing the reflux action in EGL's proposed Conduction, Convection, Reflux (CCR) retorting process."



Oil Shale Exploration Company (OSEC) Press Release

The following are excerpts from the OSEC press release:

"Oil Shale Exploration Company ("OSEC"), a Utah based private company, announced it has signed an agreement with affiliates of Brazilian integrated energy company Petroleo Brasileiro S/A ("Petrobras") and Japanese investment and trading company Mitsui & Co Ltd. ("Mitsui") pursuant to

which Petrobras and Mitsui acquired rights to 10%-20% interests each in an oil shale joint venture with OSEC. Petrobras has also agreed to undertake a technical, economic and environmental commercial feasibility study testing its Petrosix® oil shale processing technology on lands owned or leased by OSEC in Utah. Mitsui will also provide advice for project management.

Petrobras, as the company is known, Mitsui and Oil Shale Exploration Co., based in Vernal, Utah, will study the development of more than 30,000 acres (12,140 hectares) of leases containing an estimated 2.7 billion barrels of recoverable shale oil, according to statements from the companies today."

www.oilshaleexplorationcompany.com



Shell Mahogany Research Project

Research and development activities continue on Shell's private property in the northern Piceance Basin. Field activities have been ongoing since 1996, with the last heating test successfully recovering oil and confirming the viability of Shell's In-situ Conversion Process (ICP) technology. The main currently active project in Colorado is the Freeze Wall Test (FWT) where Shell is testing the ability to isolate an area to be heated, while protecting the adjacent water-bearing formations, by surrounding the perimeter of the area to

be heated with a subsurface curtain of ice. This is being done in a novel application of conventional engineering technology typically used in places such as construction sites where soil moisture is an issue. The FWT was constructed in 2006 and 2007, became fully operational in late 2007, and will continue for 3-4 years as Shell learns more about how best to manage and protect groundwater in proximity to its operations.

In the next phase of testing, Shell intends to propose a pilot project on federal R,D&D leases to demon-

strate a fully integrated application of combined heating and freeze wall technology.

The ultimate objective is to make a decision about commercial scale development in the middle of the next decade, depending on the timing and results of ongoing research and on the timely development of a supporting federal and state regulatory scheme that facilitates its implementation.

For more information, see web site

www.shell.com/us/mahogany.

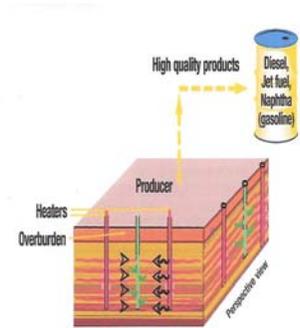


FIGURE A-7 Cross Section of Shell's Patented ICP Technology (Courtesy: Shell Exploration & Production; reprinted with permission)

Diagram of Shell Technology from Shell Brochure

EcoShale Process Description

Step 1. We mine the containment and prepare the impermeable barrier.

Step 2. Blast, crush, size, sort and convey rubble ore to containment.

Step 3. Although exempt under Bevill amendment, capsules are lined with bentonite / mineral liner for impermeability containment.

Step 4. Pipes which distrib-

ute gas heat for roasting are placed in capsule

Step 5. Natural gas burner heats pipes, roasting the mineral from the heap. Raw shale oil and gas are produced from the roast.

Step 6. The fine particles are filtered from the liquid.

Step 7. Further processing (hydrotreating and

isomerization) is required to upgrade the shale oil to synthetic oil for refinery feedstock.

- Lower Sulfur
- 35 – 40 API
- Bottomless
- Jet Fuel
- Naphtha
- Low Emission Diesel (ULSD)

Author: Dr. James Patten, CEO & President, EcoShale



Programmatic EIS for Oil Shale Leasing

In December 2006 the Bureau of Land Management (BLM) issued a Draft Oil Shale and Tar Sands Programmatic Environmental Impact Statement (PEIS).

The purpose was to identify those areas where oil shale and tar sands resources are present, decide which of those areas will be open to application for commercial leasing, exploration and

development, and amend the BLM's applicable land use plans.

The public comment period ended on April 21, 2008. Response by BLM to the public comments was not received as of June 30, 2008

The PEIS offered three options for oil shale develop-

ment, including a no-leasing option. The BLM reported that it received thousands of comments. The issuance of a Final PEIS and Record of Decision is anticipated by the end of 2008 if funding is made available to BLM to complete its work.

NOSA's submitted comments to BLM can be found on the NOSA web site.



National Oil Shale Association

Executive Director
National Oil Shale Association
P.O. Box 3080
Glenwood Springs, CO 81601
Phone: 970-389-0879
Fax: 970-945-2423
natosa@comcast.net
www.oilshaleassoc.org

Gary Aho, Chairman



Unocal Oil Shale Plant circa 1982

NOSA Welcomes New Members

- 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.
- Now NOSA has been reinstated in response to a renewed interest in oil shale. The organizers of NOSA have extensive experience in oil shale and energy development.
- 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 provides copies of the Bylaws and a membership application form.

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. NOSA has drawn upon publically available information.

Innovative Technologies and Ideas

A partial list of projects receiving attention during this period follows:

Shell Mahogany Project

Electric heated in-situ process pilot tested in the field. Freeze wall test in progress. Tests planned on three RD&D leases in Colorado.

Chevron

CO₂ injected in-situ process planned for testing at its RD&D lease in Colorado.

AMSO

Indirect heated in-situ process planned for testing at its RD&D lease in Colorado.

OSEC

Surface retorting and underground mining project in Utah with mine opening planned in the near term. See press release on page 2..

ExxonMobil

In-situ Electrofrac process under development with field tests planned in the future.

Raytheon/Schlumberger

Microwave in-situ technology tested at laboratory scale with field tests in the planning stage.

CRE Energy

Surface retorting process combined with coal gasification with pilot testing planned in the future.

Shale Technology International

Paraho surface retorting technology with pilot plant in Colorado where tests have been conducted on oil shales from around the world.

Mountain West Energy

In-situ processing that includes hot gas injection and in-situ vapor extraction.

Petro Probe Hydrocarbon Company

In-situ process using the Petro Probe Combuster to inject superheated air down-hole to recover shale oil and gas.

Enshale/Bullion Monarch Mining

Surface retorting process using low cost proven mining methods and surface retort. Work conducted at Idaho National Laboratory.

Chattanooga Corp

The process treats dry oil shale in a specially designed fluidized bed reactor that is heated and pressurized by recycled hot hydrogen.

For more information see links page on www.oilshaleassoc.org and individual project web sites.