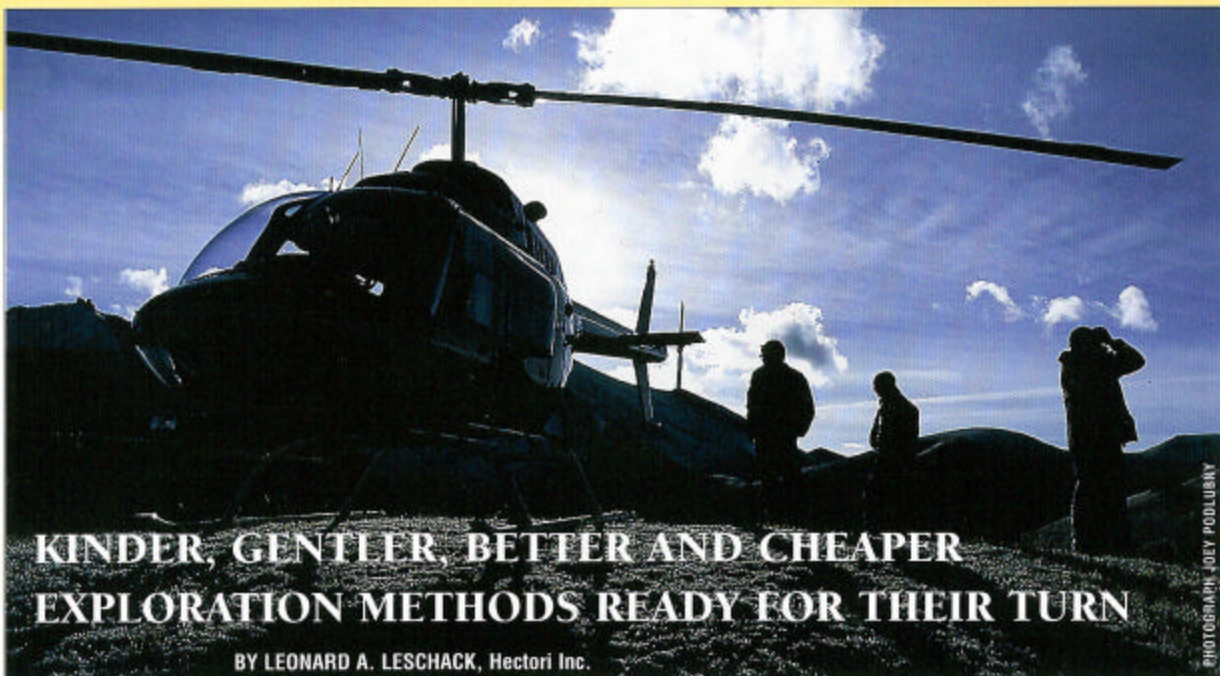


Leonard A. LeSchack, oilfinder and retired intelligence officer: his 3-point “Oilweek” OpEd written before Iraq war recommends (1) reducing dependency on unfriendly oil sources by increasing exploration focus in Western Hemisphere, (2) exploring with proven, environmentally friendly surface exploration technologies to at least double successes while halving exploration costs, and (3) substituting “above-reproach” arbitration between producers and the environmentally concerned for the adversarial methods currently used to assure that timely resource development *needed by all* can proceed, commensurate with legitimate environmental concerns. Titled, “Kinder, Gentler, Better and Cheaper Exploration Methods Ready for Their Turn,” it was published in Oilweek, April 7, 2003, V54, N14, pp 22-24. LeSchack is co-editor of the AAPG-SEG book, “Surface Exploration Case Histories: Applications of Geochemistry, Magnetism, and Remote Sensing,” and is a retired U.S. naval intelligence officer.



## KINDER, GENTLER, BETTER AND CHEAPER EXPLORATION METHODS READY FOR THEIR TURN

BY LEONARD A. LESCHACK, Hecori Inc.

PHOTOGRAPH: JOEY POOLIBRY

**T**HE UNITED STATES HAS GONE from being a net exporter of oil at the beginning of the Second World War to importing more than 60% of its needs. A significant portion of the imported oil derives from politically unstable and not necessarily friendly countries. Some exporters may become even less friendly should a U.S.-led war against Iraq prove long and bloody.

A cursory glance at a world map of petroleum reserves shows that a significant percentage of oilfields are located in regions that are homes to radical Islamists. If we believe Osama bin Laden, their spiritual leader, they will use "economic warfare" next in their jihad against the West. He urged this in a video that had worldwide distribution. Economic warfare no doubt means withholding oil. Is there any reason not to believe such a threat from a movement whose followers seek personal martyrdom?

The need for oil to drive western economies is absolute. There must be adequate and sustained supplies at reasonable prices or economies will collapse. No doubt science and engineering will eventually develop energy sources that do away with this dependence on oil. It is unlikely that the current generation will live to see that day unless the current rate of technology development accelerates significantly.

Nonetheless, there are ways to reduce North American oil imports. They are available now—if intellectual and political shifts can be made in three patterns

of acquiring supplies: where we explore for oil, how we do it, and how industry accommodates legitimate community and environmental concerns.

### PARADIGM ONE —WHERE WE EXPLORE:

At this relatively late stage of oil development—with reserves declining worldwide on the standard yardstick, the Hubbert Curve—there is a widespread consensus that all the largest, most easily found reservoirs have been discovered. This is likely correct. The reservoirs that remain to be found are probably smaller. Indicators of their locations are more subtle. This means they will be more expensive to find using traditional exploration methods. It also means that, in practice, the international oil corporations that need large reserves to stay profitable will tend to continue exploring in regions that have most of the largest reservoirs. Those are well known to be the Middle East, the Caspian Sea Basin, Indonesia and parts of Africa. All are home to the Islamists. The corporations will continue operating there until they are excluded. That time may not be far off.

Although the apparent U.S. strategy on Iraq seems to envision a brief war on one front, there is another possibility. An attack on Iraq may unleash a protracted and worldwide reaction by Islamists that inhibits, for years to come, easy access to oil in their homelands. Saddam Hussein has suggested he will follow a "scorched-earth" policy if he is attacked. There is

no reason for this to exclude the oilfields of Iraq and possibly Saudi Arabia. He already showed his destructive capabilities in the oilfields of Kuwait. The extent of Iraqi ties to bin Laden's al-Qaeda network may be open to question. But it is well known that Islamists everywhere, who are people that truly hate North Americans, will likely view a U.S. attack on Iraq as an attack on all Muslims. Further incitement by bin Laden to use the "economic weapon" may well mobilize the martyr brigades into action. The destruction of oilfields and pipelines, even where they live, will not likely reduce their own standard of living. For these Islamists, such destruction might even hasten regime change to leaders who share their values. Whether the use of bin Laden's economic weapon occurs in 2003 or 10 years from now, it would be dereliction of duty for North Americans to ignore the possibility. Recent history shows that al Qaeda and Saddam Hussein act on their threats.

The virgin oil reservoirs that remain in the world will be small compared to the giant pools of the Middle East. But there are many of them left to find in the U.S. and Canada. There are thousands of small companies in North America to find them, if they have the right technical, legal and policy tools to explore on their home continent rather than just pour their money into the asset trading game to buy and sell one another's reserves. In the aggregate, the oil in the new pools could both help reduce

dependence on politically-risky foreign oil and increase employment and wealth.

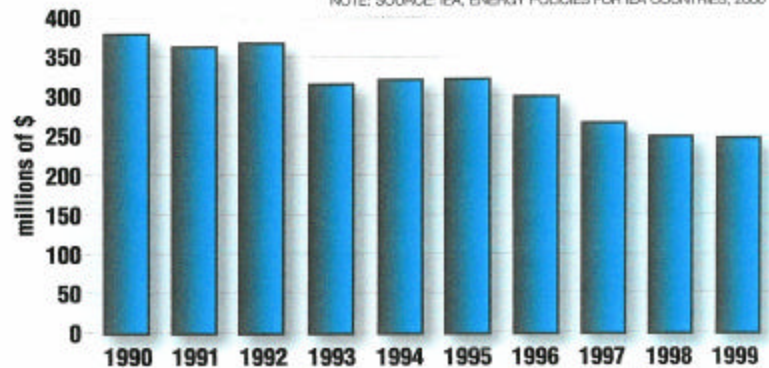
**PARADIGM TWO**

**—HOW WE EXPLORE:**

There now exist under-used but cost-effective and environmentally friendly exploration technologies. Since the 1930s, prospecting for hydrocarbons has been based on the intuition of geologists verified by seismic exploration. Despite a growing body of geological knowledge and increasing sophistication of seismic data and processing, the chances of drilling an economically successful exploration well vary from 10% to 40%. Over the years, a number of other, far less expensive technologies—called surface exploration methods—have been tried that achieve 70%-90% success when coupled with conventional methods. These alternatives are all environmentally friendly compared to seismic exploration. Long scorned by an oil establishment that did not take the time to understand them, these new methods are beginning to attract attention from the industry mainstream. Last fall, the American Association of Petroleum Geologists and the Society of Exploration Geophysicists published a thick treatise on the alternatives, titled *Surface Exploration Case Histories—Applications of Geochemistry, Magnetism and Remote Sensing*.

**Canadian Government Technology Research**

NOTE: SOURCE: IEA, ENERGY POLICIES FOR IEA COUNTRIES, 2000



These proven but still generally little known technologies can reduce exploration costs by at least 50%. They can also reduce the number of exploratory wells and the need for costly and environmentally disruptive seismic discovery. Environmentally sensitive areas can potentially be opened up because surface exploration methods have demonstrably far less impact. Several of the techniques employ airborne and satellite data collection. They can yield valuable exploration leads by over-flying hitherto unexplored areas that are in politically friendly hands, say

in South America. To reduce dependence on oil from unstable or unfriendly regions by increasing activity in the U.S., Canada and friendly lands, requires assistance by government officials at all levels, corporate executives and institutional investors—all of whom need to consider a new paradigm for oil exploration.

**PARADIGM THREE**

**—THE ENVIRONMENT:**

The accommodation of legitimate political and environmental concerns must be addressed efficiently. Exploration of any sort alters the landscape, whether ▶

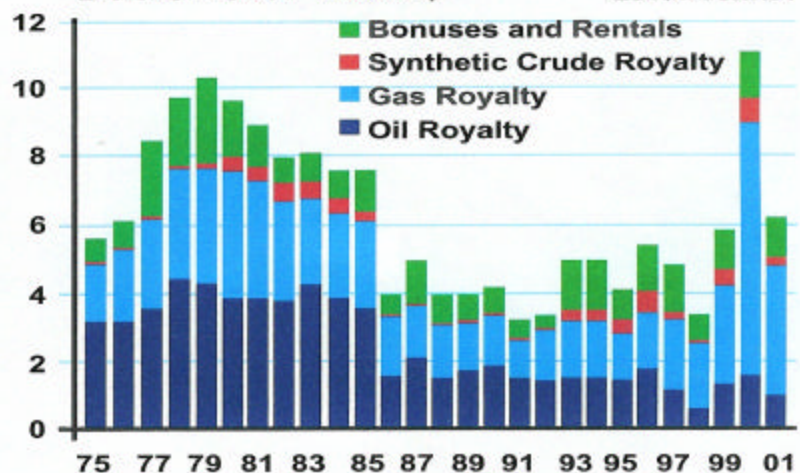
it is for petroleum, minerals or lumber. The products of such activity are absolutely essential to the North American lifestyle. People who live in comfortable houses, drive cars, use electricity and cherish creature comforts do not want to return to living like cave-men. But this lifestyle is reaching a point where—unless the U.S. plans to institute an expanded version of the 19th-Century Manifest Destiny policy that drove settlement of the American West to include Iraq, Saudi Arabia and other oil-rich foreign countries—the NIMBY or not-in-my-backyard habit of resisting industry may no longer be an acceptable policy at any level.

This is a political problem. It can no longer be solved in the customary, time-consuming adversarial manner. Accommodation must be made by both resource developers and the public. No one will be entirely pleased with the results, but everyone needs to be partially satisfied for supplies to be developed in this century. Acquiring resources from less-developed countries, where governments formerly cared little about environmental damage, may be an option that is gradually being foreclosed. North Americans need to be prepared for such an eventuality and begin to look closer to home for necessities.

**Canadian Provincial Resource Revenues**

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DATA FROM GOVERNMENT OF ALBERTA, ANNUAL BUDGETS



Scientists, engineers, planners, politicians and arbitrators—people of good will, knowledge and integrity—must develop an efficient, non adversarial way of providing for 21st-Century needs while honouring concerns of an environmentally astute electorate. A major step in this direction would be using the environmentally-friendly methods described in the AAPG-SEG book on

surface exploration technologies. These approaches, by themselves, have essentially no impact on the environment and result in drilling fewer dry holes on it. ■

**Leonard LeSchack** is an oil hunter and co-editor with Dietmar Schumacher of the AAPG-SEG book on surface exploration technologies. A Canadian resident and a retired U.S. Navy intelligence officer, his specialties were geographical intelligence and political terrorism. E-MAIL: topaz@telusplanet.net