

# Coals, cleats and clues

## Ken Sinclair's search for treasure in British Columbia's coal fields

BY ANDREA LORENZ

On March 15, at 4:00 p.m. mountain standard time, Ken Sinclair and Phil Geiger announced that production from their company's b-92-H test well was commercial. They made public their results—production of between 250 and 300 thousand cubic feet per day—with a combination of excitement tinged with regret. They felt that disclosure laws under National Instrument 51-101 had forced them to report “material” progress before they were really ready, in the process allowing competitors of their company, Canadian Spirit Resources Inc.—which had been working hard to unlock the secrets of the potentially immense reserves of methane clinging to the Peace River coal seams—in on the location and potential of their promising wells.

Sinclair is a baby boomer geologist who has spent much of his career at the forefront of the quest to find Western Canada's most productive natural-gas-bearing coal seams. “A lot of us call Ken the godfather of [coalbed methane] in Canada,” said Mike Gatens, chairman of MGV Energy and past chairman of the Canadian Society for Unconventional Gas. “He's the first guy that really made it a priority in Canada—that made it a passion.”

The conventional gas pools yet to be discovered in the Western Canada Sedimentary Basin may be getting smaller and less productive, but its coals contain an ocean of gas. Tests reveal that a section of land (256 hectares) underlain by coal in southern Alberta could contain an average of two billion cubic feet of recoverable natural gas, and the Alberta Geological Survey reports that the total could be 500 trillion cubic feet. The potential “contingent resource” of British Columbia's Peace River coalfield, where Sinclair and his business partner, Geiger, have just declared commercial test results, is estimated at 60 Tcf, while recoverable Gething reserves over the 45-section swath of land have been pegged by Sproule's engineers at about 500 Bcf. By comparison, Canada's remaining reserves of conventional natural gas are estimated at about 56 Tcf.

Although gas-bearing coals in shallow Cretaceous rocks underlie a huge swath of Alberta and part of British Columbia, the science of producing them is still in its infancy. High gas prices have allowed

investment, making it possible for companies like CSRI to surge ahead into uncharted territory.

In 2004, Canada produced a mere 130 million cubic feet per day of natural gas from coal (NGC, as producers now call it). That figure doubled in two years. The National Energy Board expects it will reach 900 MMcf per day by 2007.

Of the 3,500 NGC wells drilled in Canada last year, all but a handful were drilled into the Horseshoe Canyon coals of southern and central Alberta. The two formations on which producers have focused the most concentrated energy are the Horseshoe Canyon and the Mannville Group. The former are dry coals, making it easier and cheaper to produce gas from them, while the latter are wet, and producers are still experimenting with the best methods of extracting the gas.

When Nexen, Trident Exploration and Red Willow announced in July that they had achieved commercial production in the Mannville, a ripple of excitement ran through the community. It meant that horizontal drilling could be successfully used to produce from these wet coals, dramatically enhancing the viability of future Mannville developments.

The place Sinclair and Geiger chose to plant their flag, the Gething Formation in the Farrell Creek area of northeast British Columbia, contains coals with characteristics closely resembling those of the Mannville. The rock package sits just before the first thrust of the mountains, in a relatively unexplored area.

“We've got a very thick resource—200 to 300 metres thick with multiple thin coal seams,” said Sinclair. He describes it as interbedded layers of shale, coal, silt and sand: 35 different seams at depths of 700 to 900 metres. The formation is saturated with brackish water.

Nine days before announcing that their b-92-H well was commercial, Sinclair and Geiger talked to *Oilweek* about this milestone in their five-year-old company's history. During the interview, they were like two kids who had discovered a dinosaur bone, had been sworn to secrecy about its whereabouts but were dying to talk about it. They had kept the information they had gleaned from the core they had cut and analyzed confidential for as long as they could.

“We don't want to report what that one well is currently producing,” said Sinclair. The fact that b-92-H was generating a roaring flare that could be heard for miles around was a matter of pride, nonetheless. If competitors were wondering what was happening on CSRI's site, Sinclair challenged them to “drive up to our wellsite and take a look at our flare.”

Five years ago, when others in the business rushed to secure leases in southern Alberta, where EnCana and MGV had drilled the first commercial NGC wells in Canada, Geiger and Sinclair had taken off in a different direction, uncertain what they would find but certain they did not want to follow the crowd.

“Our idea was to buy as much land as possible and drill wells in parallel,” said Sinclair. “Not to drill production wells, but to drill test holes and to keep the results confidential for three years.”

Their industry colleagues were curious. These two were known to be among the handful of experts with decades of accumulated knowledge on Canada's NGC potential. “We've run one scout off the property already,” said Sinclair.

CSRI has purchased 66 sections to date (40,000 acres), and Sinclair and Geiger have set their sights on 150 more. They would have preferred to continue quietly drilling and analyzing core (the British Columbia Department of Mines and Minerals allows companies to keep information confidential for three years) while simultaneously buying more land.

Ideally, they would have liked to purchase this land without paying the proceeds from production of their first-born well, but as soon as they reported their results, they knew their competitors would begin to cast hungry eyes on acreage nearby. They feared the price of land would shoot up as it had in the Mannville after companies declared commercial production, placing it easily in reach of cash-bloated whales like EnCana and Burlington Resources, but out of reach of a small fish like CSRI.

“The more we disclose, the more we educate our competitors,” said Sinclair. “The bigger companies with bigger bank accounts can come and buy up the land.”

And what they're looking for, said Rudy Cech, senior vice-president of Sproule Associates, who has studied NGC for four



## **Ken Sinclair**

### **AT A GLANCE**

**EDUCATION:**

Bachelor of Science, Geology, University of Houston

**MENTOR:**

His first geology professor, Dr. Bob Bereskin

**BOOK BESIDE HIS BED:**

An autographed copy of Aubrey Kerr's *Redwater*

**PROUDEST ACCOMPLISHMENT:** Creation of the Canadian Coalbed Methane Forum

decades, is a resource that could potentially dwarf the reserves of conventional gas already found and produced across Western Canada.

"There is 10 to 15 times more gas in the coal than in the pores of conventional clastics or carbonates. It's huge. The question is how to get it out."

Determining just where to drill is the mind-bending puzzle that explains why CSRI has cut over 700 metres of core. "Coal is so complex," said Cech. Cracking the code involves analyzing pressure, thickness and core data to establish the Langmuir Isotherm curve for the reservoir. The Langmuir Isotherm indicates the point at which gas desorbs from coal as well as the rate at which it does so. From this data, it is possible to compute the volume of gas in place and the percentage of recoverable gas.

Coals are ranked based upon their maturity, and the higher their gas content, the less their permeability. "For example, anthracite [the most thermally mature coal] has great gas content but low permeability," said Cech. Colorado's Powder River Basin has a sub-bituminous gas content of 20 to 30 standard cubic feet per ton of coal; the Horseshoe Canyon contains between 20 and 120 cubic feet per ton, while the Mannville contains as much as 450 cubic feet per ton.

Wet coals such as those in the Mannville and the Gething tend to contain more gas than dry coals. Knowledge of how to extract the gas from Alberta's dry coals has progressed so far that they are now considered as predictably productive as growing wheat on the prairies. "In the Horseshoe Canyon, they now call it 'gas farming,'" said Cech. To extract the gas, companies have perfected the technique of injecting liquid nitrogen into the wellbores. The fact that they are dry obviates the need for expensive water separators and reinjection equipment.

Cech described the Gething Formation as having a cumulative thickness equivalent to the Mannville. What is unknown are the permeabilities. "They need still to outline the volume of the coal and to understand its gas content."

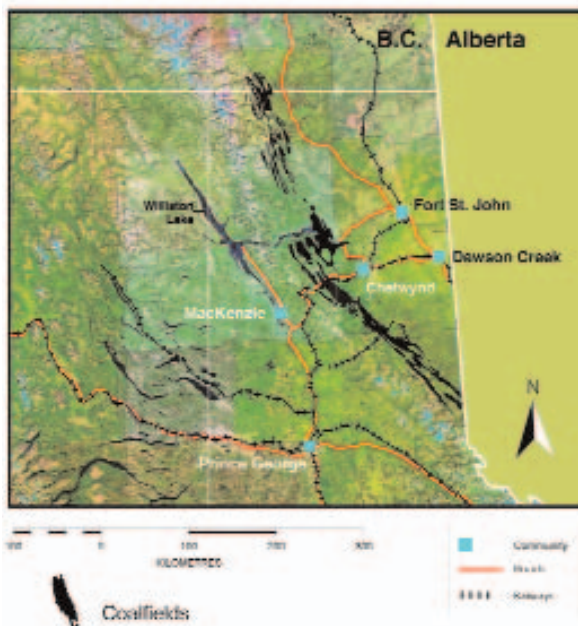
The partners chose the Gething Rock Package with the knowledge that their costs would be higher than in the Horseshoe Canyon. There it costs \$350,000 to complete a well. In the

Mannville, the price of completing a well doubles, and, said Cech, "you're still producing less than half the gas [per individual well], and you still have to dispose of the water."

It cost CSRI a hefty one to two million dollars to complete, case and frac each of its test wells.

Production should rise to between one and two MMcf per day within six months, said Sinclair. As a Duke Energy pipeline runs across CSRI's leases, if all goes well, the wells could be tied in by January 2007.

### Peace River Coalfields



One senses when talking to Sinclair and Geiger that they have been so intimately involved for so long in the NGC sector that they can talk frankly about their failures as well as their achievements. They exude a confidence that comes only from the certainty that they are at the forefront of an industry that is finally coming into its own.

In our interview, they were candid about what they saw as their one major miscalculation: not securing a larger land base in Alberta before the prices shot up. "We were shocked at the exponential speed at which people picked up on the Mannville," said Geiger. "People assumed it would be a slam dunk." This was demonstrated by the Dec. 14, 2005 land sale at which EnCana paid \$156 million for leases in the Mannville area. "Everybody was blown away by the prices," echoed their friend Cech. "Yes, they should be sorry that they didn't start earlier in Alberta."

One of the characteristics of high achievers is optimism, and in Sinclair, the quality is infectious—as is his kid-like enthusiasm for the search for treasure in Western Canada's coal seams.

"I get on a Calgary Transit bus at about 6 a.m. I'm here by 6:30. The phone starts ringing by 7:00. Investors start calling. It's steady. In the afternoon, I look for new opportunities to evaluate. They could be in China, India, Russia—wherever there's a CBM project." He also possesses a disarming ability to poke fun at himself with jokes accompanied by a belly laugh.

The son of a Calgary judge, Sinclair grew up in a household with four rambunctious siblings. "My dad was a hard worker, very focused. He let my mom raise us. With five kids, Mom had a handful."

He readily admits to being something of a renegade himself as a teenager. While he was at the University of Houston, he says, "My grade point average was really bad. I was 17 years old—too young." He also briefly experimented with drugs. "It was during Vietnam. The Mexican border was close and tequila was cheap."

His father wanted him to go into law, but Sinclair knew it was geology that fascinated him. In need of money and wanting to stay in the United States beyond his student visa, he started looking for work. When his roommate told him that CoreLab was looking for someone to sit one of the company's wells while the well-site geologist took time off to get married, he immediately phoned for an interview.

The boss asked him, "Can you drive a standard?" When Sinclair said "yes," the boss said, "You're hired." That very day he decided to clean up his act. "I went cold turkey and cut my hair."

His experimentation with and subsequent rejection of drugs while he was a teenager no doubt influenced his decision to choose a camp for underprivileged youth with drug problems as his company's main focus of corporate giving.

"Camp Carmongay teaches them self-esteem by letting them ride and care for horses," he said.

Although Sinclair stands less than five feet tall, his presence fills a room. His influence on the sector looms large as well, and no one talks about the history of the NGC industry in Canada without mentioning his name. ■