

# Oil & Gas

May/June 2005 • Volume 9, Number 3 • www.baumpub.com

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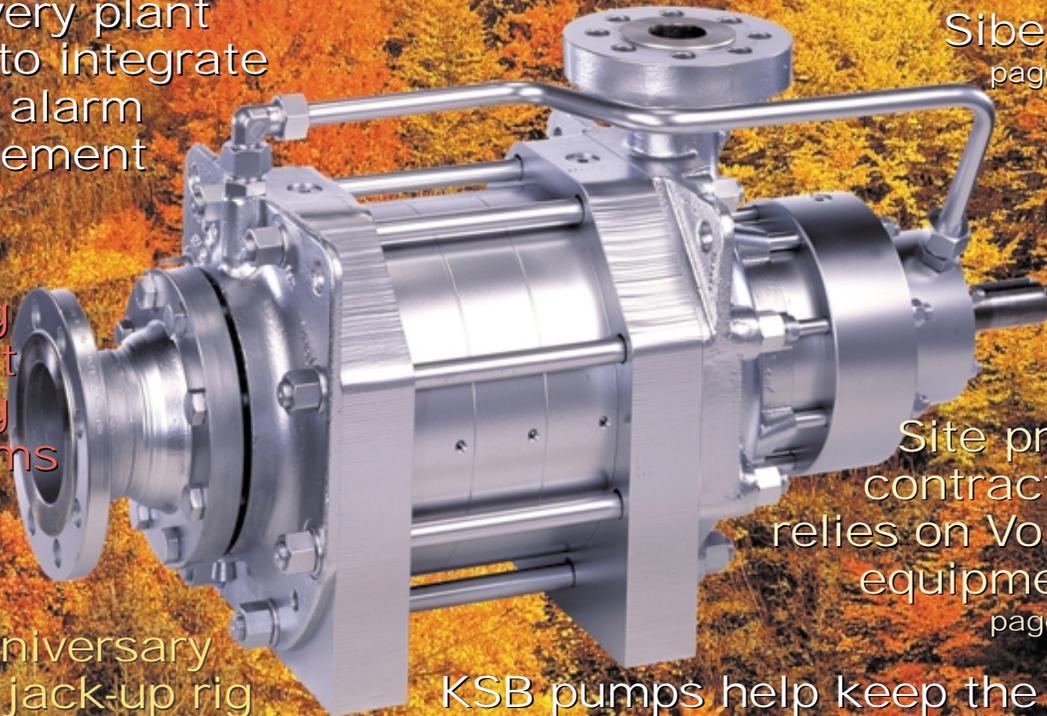
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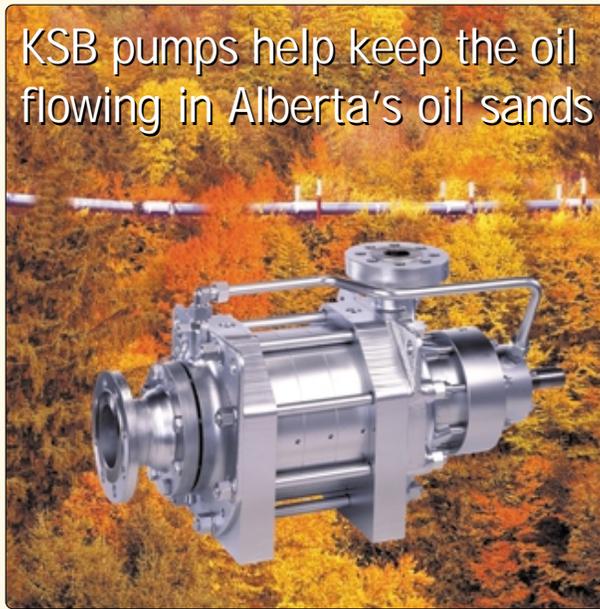


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PUBLICATIONS MAIL AGREEMENT NO. 40069270

From the Cover

## KSB pumps help keep the oil flowing in Alberta's oil sands



KSB's HGM high-pressure boiler feed pumps are playing their part in making new steam-assisted in-situ technologies economically attractive for tapping buried deposits in the Alberta oil sands.

**W**ith the world's thirst for crude fuelling rapid expansion of production in Alberta, KSB's HGM family of high-pressure pumps aims to become as commonplace in the oil sands as nodding donkeys in Texan oil fields.

While much of the current oil sands development is surface mining, increasingly, deeper deposits are being developed using in-situ technologies like Steam Assisted Gravity Drainage (SAGD) or Cyclic Steam Stimulation (CSS), where extraction of the bitumen is performed by injecting massive amounts of steam into underground deposits. In SAGD installations, high quality steam is injected under pressure into underground, bitumen deposits up to 100 metres down via horizontal injection wells that can extend 500-800 metres parallel to the surface. A second set of horizontal wells running parallel and beneath the steam lines collects and brings the oil, ground water and steam condensate to the surface for further separation and refining. Everything depends on a constant supply of high quality steam produced in large gas-fired boilers or steam-flood heaters, which in turn requires an uninterrupted supply of large volumes of water.

Leading in-situ operators have chosen the HGM pumps for steam generation because of their high efficiency rating and low total ownership costs. HGM pumps boast an extremely compact design, which makes it simple to lay out piping for efficient flows and easy access. As the world's only pump in its class, the

HGM offers major benefits such as bearings that are lubricated directly by the liquid being pumped. Also, the mechanical seals are flushed internally and do not require external cooling water, a significant cost and environmental benefit, given how oil sands expansion is placing enormous demands on the available water resources.

The self-lubricating technology does away with external supply lines, oil pumps and other expensive equipment usually associated with lube oil and cooling systems for lower installation, operational and maintenance costs. It even eliminates the cost of waste oil and water disposal. The combination of short shafts and closely-spaced, medium-lubricated bearings results in very smooth-running, quiet pumps with long service intervals. With seven hydraulic configurations, offering flow rates from 10 m<sup>3</sup>/hr to 274 m<sup>3</sup>/hr, heads up to 1,400 m and a maximum temperature of 160°C, it is easy to select an HGM configuration with an optimum duty point matched to the boiler requirements. This helps the pump operate close to its peak efficiency and reduces energy costs.

All these factors contribute to lowering unit production costs of in-situ equipment, a strong selling point for KSB Canada, a subsidiary of KSB Group, one of the world's most experienced and largest manufacturers of highly-engineered pumps.

**KSB Canada, a subsidiary of KSB Group**

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