

# Akac acquisition strengthens offshore knowhow



*SEIC oil production in spring 2007.*

**Aker Arctic acquired the Canada-based company Akac Inc. in June 2015. Akac specialises in tailored solutions for offshore operations in ice conditions and complements Aker Arctic's icebreaker and offshore design expertise.**

The founder of Akac Inc., Mr Arno Keinonen, is originally from Finland and began his career at Wärtsilä Ice Model Basin. He founded Akac in 1984, after having been in charge of arctic R&D for Dome Petroleum, the oil company that started the arctic offshore work. "Our approach from the beginning was to gain a full understanding of an arctic offshore operation, and this has been the foundation of almost everything we have done during the 31 years of our existence," Mr Keinonen says.

## Arctic understanding

The inside understanding of arctic offshore operations and their pioneering nature is the most fundamental and unique contribution Akac has systematically brought to its clients, a result of having been so centrally involved in a wide range of operational projects.

Due to its extensive experience and strong analytical support, Akac is able to directly benefit client projects by confidently providing ways to optimally and safely apply an existing ship or

combination of ships to any operational project in ice. This is particularly the case for challenging arctic offshore operations.

"Akac was, for instance, in charge of developing and managing the ice risk of the only arctic offshore oil production project in the world that used a floater as part of the oil production and export system. Phase 1 of the Sakhalin-2 project lasted eight years (1999–2007) and used a SALM buoy and FSO off the coast of Sakhalin," Mr Keinonen continues.

## Background in operations

Akac complements Aker Arctic's expertise by bringing direct hands-on offshore experience. Some of the key services provided are to develop full risk management for arctic offshore operations, as well as to train people in safety in arctic offshore operations, including ice management and station-keeping.

The newly appointed president, Evan Martin, is confident that the combination of the expertise of Aker Arctic and Akac's

practical approach and unique operational expertise in the arctic offshore industry will benefit customers.

**"What separates Akac from most others is our strong background in operations. The ability to integrate real-life operational practices into engineering design and planning allows us to best serve our clients, and now together with Aker Arctic," Mr Martin says.**

"We look forward to providing our clients with a full range of ice-related engineering services, including conceptual and engineering design, model testing, operational planning, field trials, and operational support and training."

Akac will continue operations in both their Canadian locations under the management of newly appointed company president, Mr Evan Martin. Akac's previous owner and founder, Dr Arno Keinonen, will remain in the company and provide his valuable knowhow through his role as senior advisor.

## Key projects

### Arctic Coring Expedition

ACEX was a venture by the International Ocean Drilling Program to extract core samples from the Lomonosov Ridge. The expedition took place in 2004 in water about 1.2 km deep. The operation used the icebreaker *Vidar Viking* as a drillship, supported by icebreakers *Sovetskiy Soyuz* and *Oden*. This operation was a unique challenge due to the constant motion of the polar ice pack.

Akac had the rare opportunity to be part of performing this ocean floor coring operation – the first of its kind. The successful operation demonstrated that station-keeping in thick moving ice could be successfully performed.

### Stena IceMAX

A recent project has been assisting Stena in establishing the station-keeping limits of the Stena IceMAX.

"Akac's operational experience allowed for the development of ice model testing procedures for DP platforms that better represent the managed ice conditions and operational procedures," Mr Martin says.

The work involved multiple series of model tests, each further refining the scaled environmental conditions and behaviour of the DP system. Akac's role was to assist in model test planning and to analyse the data in a manner that is consistent with how the platform would be operated during actual operations.

### Documentation of Unforeseen Events

Akac's operational experience was used to document a large number of events and sequences of events that all have the potential to be unforeseen to new operators in ice conditions. The events, and their possible solutions, will serve to educate clients about potential challenges. It will also allow them to begin to develop operational risk management systems that will permit operations to continue safely despite the potential for unforeseen events.



Arctic Coring Expedition in 2004. Icebreakers *Vidar Viking*, *Sovetskiy Soyuz*. Photo taken from the *Icebreaker Oden*.

### CSO Constructor – DP in Ice

The *CSO Constructor* was used to construct the subsea infrastructure required for Phase 1 of the Sakhalin-2 project. It was the first ever dynamically positioned vessel to operate in ice. Akac was responsible for selecting the construction vessel, providing ice management support, and training the operators of the *CSO Constructor*, who never had operated in ice before.



*Icebreaker Smit Sakhalin* cutting ice for *CSO Constructor*.

### Sakhalin-2, Phase 1

Beginning in 1999, Sakhalin Energy contracted Akac to help them to take advantage of the transition periods, from fully operable open water to non-operable ice covered conditions, at each end of the oil production season. Akac's initial involvement was to upgrade the design of the SALM buoy and FSO for ice performance and ice class designation. Once production started, AKAC developed and managed an ice management system that would ensure that the oil production operations could take place safely and efficiently when ice was present.

Akac performed ice management services for Sakhalin Energy for sixteen of the fall shutdown and spring start-up sessions from 1999 to 2007, and was responsible for a ten-person ice management team. A total of 15 different icebreakers were used as ice management vessels in support of this operation. Akac also conducted training programs for the crew of all key production and ice management team members, to familiarise them with ice and ice risk management, station-keeping in ice, and associated planning and operational decision-making. ■

Photo left: Mike Neville driving the *Svitzer Sakhalin* terminal tug in Spring 2007.

Photo right: Arno Keinonen and Mike Neville awaiting transfer to FSO *Okha* in Sakhalin in Fall 2006.

