

# From The Steppe To The Step-Out - A case study of a 3D seismic program through a complex production field in Kazakhstan

L.Verlaan\*, W.G.Quirk and M.H.L.Morrish  
Aguila International Inc., 1500 717 7th Ave. SW, Calgary, AB, T2P 0Z3  
aguila@aguilaexpl.com

and

G. Smith, G. Strother-Stewart and Vladimir Zorin  
Hurricane Kumkol Munai, Kyzylorda, Kazakhstan

## ABSTRACT

Nimiq 2 was launched into space December 30, 2002 from Baykonur Cosmodrome in Central Kazakhstan. This attention grabbing example of Canadian Communication Technology soared over an area of the Kazak Steppe where a Canadian Exploration and Production Company with a large foot print in Kazakhstan has applied modern geophysical 3D techniques over the past three years.

The Kumkol field in the steppes of Central Southern Kazakhstan was acquired by Hurricane Kumkol Munai (HKM) in 1995. The Kumkol South field is the biggest producing block of the South Turgai basin which was discovered in the last century yet is still being actively expanded.

As experienced in other former CIS locations a great volume of the historical well data was of limited use due to the age, quality and dubious accuracy of the well-logs. In addition there are two coordinate systems in common use – with a variation of up to 2km – which can cause confusion when using existing data from different spheroid sources.

HKM enlisted the Project Management abilities of Aguila International Inc. to assist with the planning and execution of a 3D seismic survey in 2001. The goal of the 3D Program was to accurately delineate the existing fields, assist with expansion into neighbouring lands, to provide a reference for possible future reservoir monitoring and to add to the data volume for reservoir characterisation models. In addition, HKM recognised the need to carry out a GPS engineering survey of the infrastructure in the area so that an accurate position could be obtained for everything, with a true geographic reference.

A 3D seismic survey through the production field posed many safety issues and logistical problems. Within the seismic program area there were 671 wells, over x miles of pipeline, y miles of powerline, an industrial area, a processing facility and a 3000 man permanent camp.