

Optical Televiewer

The OBI-40 Optical Televiewers used by Southwest Exploration are manufactured by ALT as well. These tools are used to define fractures and fractured intervals in water and air filled boreholes. It is a centralized digital imaging tool. Southwest Exploration has 3 generations of OBI imaging tools including the latest OBI-Mk4. General specifications are as follows:

Length of tool	86.16" (1.8 m)
Diameter of tool	1.6" (40 mm)
Weight	20.02 lbs (9.1 kg)
Pressure rating	2320 PSI (200 bar)
Operating Temp.	32 – 132 Deg F (0 – 50 Deg C)
Sensor	CCD Camera
Measurement range	High resolution 2.4" - 14"
Accuracy	Applied Physics 3-Axis mag/accelerometer package
Resolution	2mm Fractures to 0.1 mm. User defined vertical resolution.
Head Focal Length	7"

The optical televiewer is a high resolution borehole imaging tool designed to run in open hole or fresh fluid filled holes. This tool operates in boreholes from 2.5" to 14" in size. As with the ATV when larger holes are encountered the user defined vertical resolution can be increased to get the best overall imagery possible.

The optical televiewer was purchased by Southwest to compliment the ATV data in the upper portions of

exploration holes where drilling could not keep fluid to the surface. The data acquired from this tool is very color accurate and resolution is incredibly high when attempting to see small structural and optical variations in rock types. There are 2 distinct advantages the OBI has over the ATV or the ABI. The 1st is the ability to acquire data above fluid level as mentioned above. As important if not more so are the filled fractures and clay zones that may not be seen or identified by the ATV. Fractures which have been filled with material of similar physical properties and are not broken off during drilling operation will not be seen by the ATV. In boreholes drilled into thick clays where the acoustic signal is nearly totally absorbed by the formation the image appears to show dark areas as voids. In this case the OBI is the perfect choice. Many vein filled fractures which were not seen or not fully identified acoustically can be easily seen when imaged with the OBI since it has a color CCD camera. Since the OBI is an optical tool like a video log its imagery in fluid is limited to the quality/clarity of the fresh water in the well.