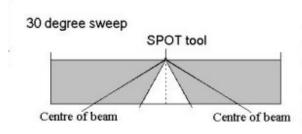
S.P.O.T OPERATION

The sonar beam

The head of the SPOT tool is deployed from the vertical position to a horizontal position, and then rotates around in 1 degree steps transmitting and receiving acoustic signals until a full 360 degree sweep is completed.

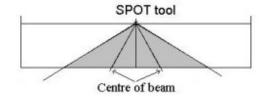
The sonar head has a vertical beam width of 60 degrees therefore two 360 degree sweeps are required to scan all of the area around an entry position. The first sweep is done with the transducer tilted at 30 degrees to the horizontal, and the second is done at a tilt of 60 degrees to the horizontal.



The transducer is tilted at 30 degrees to the horizontal, the area beneath the transducer is not covered by the sweep.

The gray area shows the theoretical coverage of the 30 degree sweep. In reality this is limited by the attenuation of the sound in oil.

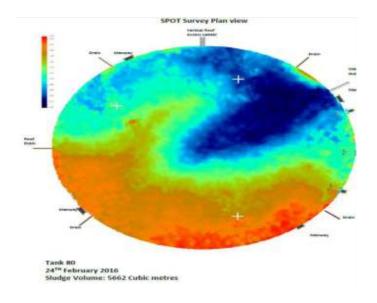
60 degree sweep



The transducer is tilted at 60 degrees to the horizontal, to cover the area below the transducer.

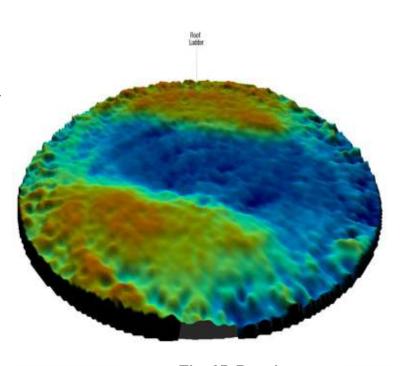
The SPOT survey image

As the tool scans it builds an image on the computer display using different colours to indicate different sludge heights so that sludge banks are easily visualised. The plan view data appears after a 360 degree sweep is completed. The sludge can be viewed on a plan, three-dimensional or cross sectional view.



The computer also calculates the volume of sludge within a tank, the volume is displayed in cubic meters, cubic yards or barrels depending on option selected, and indicates the percentage of the tank that has been covered.

An 80 meter diameter tank can usually be covered using three entry positions depending on the availability of entry positions and the type of oil. Each entry position takes up to an hour to survey. This means that within a single working day, a colour image of the sludge contours present in an oil tank, together with an accurate figure of the total sludge volume are available to the refinery.



The 3D Result

