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Building 11, Oilfield Supply Centre  
Jebel Ali Free Zone  
Dubai  
United Arab Emirates  
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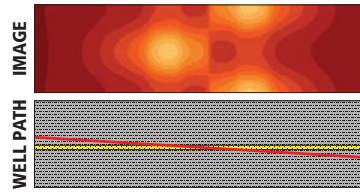
**North America Region**

17015 Aldine Westfield Road  
Houston, TX 77073  
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Tel: 713-625-4200

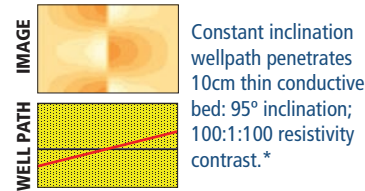
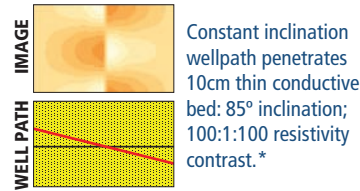
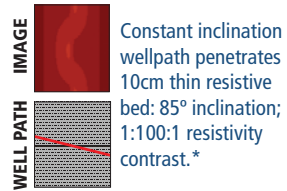
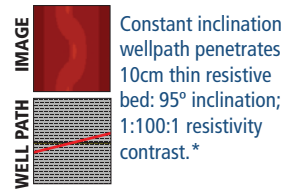
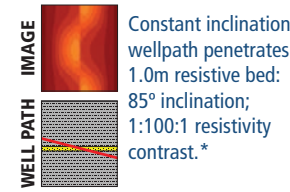
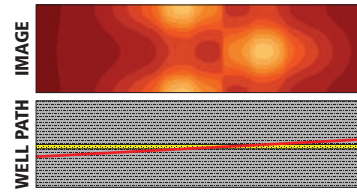
E-mail: [answers@INTEQ.com](mailto:answers@INTEQ.com)  
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**PENETRATION OF THIN BEDS, RESISTIVE AND CONDUCTIVE, AT HIGHER AND LOWER ANGLES**

Constant inclination wellpath penetrates 1.0m resistive bed: 89° inclination; 1:100:1 resistivity contrast.\*

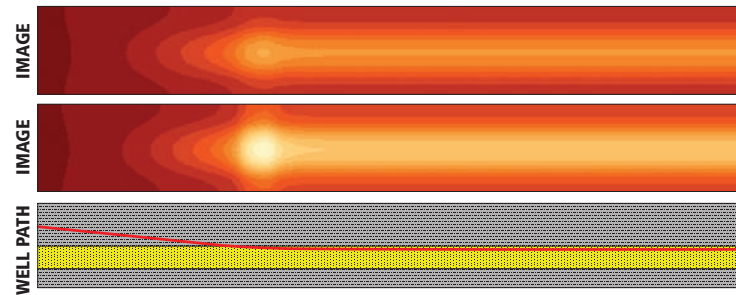


Constant inclination wellpath penetrates 1.0m resistive bed: 91° inclination; 1:100:1 resistivity contrast.\*

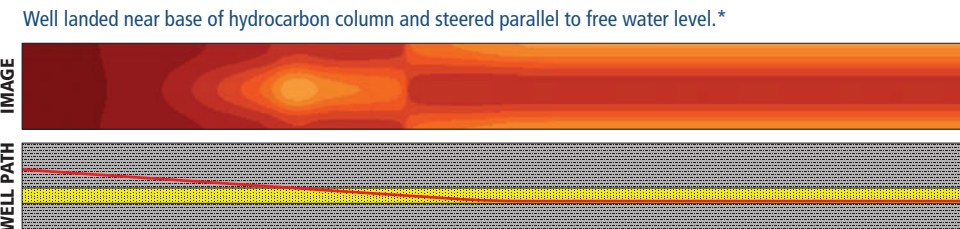


\* Refer to scale below.

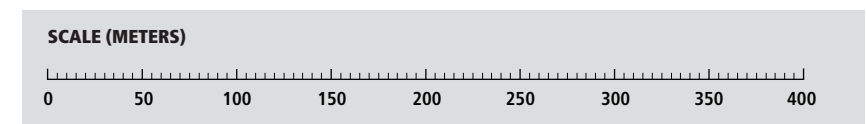
**LANDING A WELL**



Well landed near top of reservoir and steered parallel to roof: moderate (1:20) resistivity contrast.\*  
Well landed near top of reservoir and steered parallel to roof: high (1:100) resistivity contrast.\*



Well landed near base of hydrocarbon column and steered parallel to free water level.\*



**AziTrak™**

Quick Reference Guide for Reservoir Navigation Using Azimuthal Resistivity Imaging

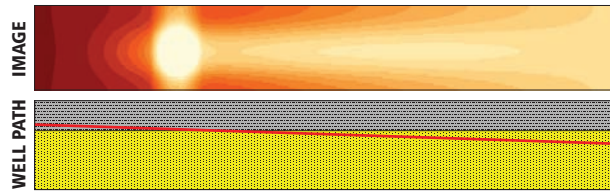
## AZITRAK AZIMUTHAL IMAGING

This guide is designed to provide a quick reference to some of the basic azimuthal image motifs produced by INTEQ's AziTrak™ Deep Azimuthal Resistivity Service. Each image is linked to the specific sand/shale sequence and well path shown directly below the AziTrak response.

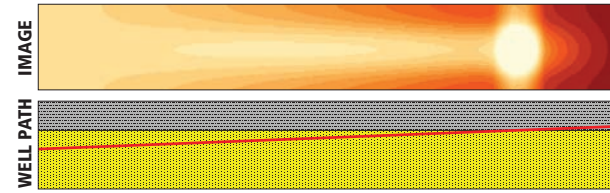
With INTEQ's deep-reading AziTrak images, you can calculate the distance and angle of the deviation several hours and hundreds of feet earlier than with conventional technology—offering the ultimate in well plan flexibility.

## PENETRATION OF A SINGLE INTERFACE AT HIGH INCIDENCE ANGLE

Constant inclination wellpath penetrates reservoir from top seal: 89° inclination; 1:100 resistivity contrast.\*

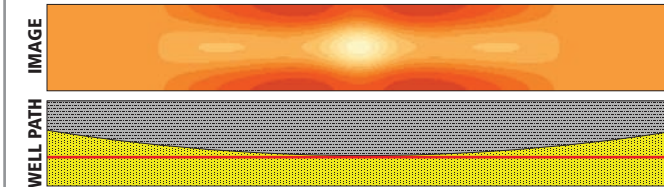


Constant inclination wellpath penetrates top seal from reservoir: 91° inclination; 100:1 resistivity contrast.\*

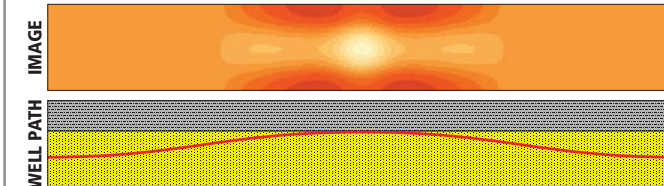


## WELLPATH TANGENT TO BOUNDARY AT A SINGLE POINT

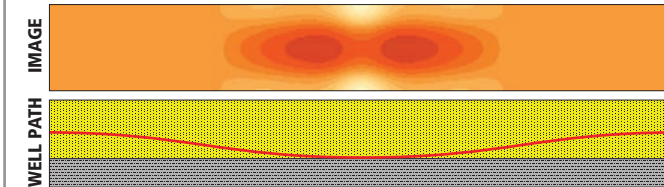
Horizontal wellpath touches top seal swale into reservoir.\*



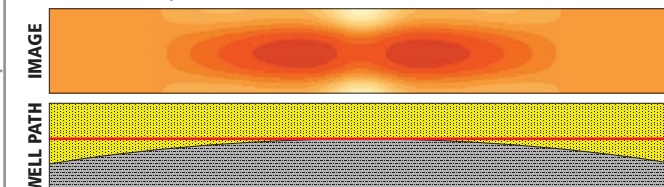
Sinuous wellpath remains in reservoir but touches top seal.\*



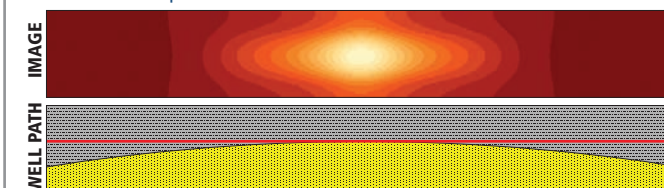
Sinuous wellpath remains in reservoir but touches conductive boundary.\*



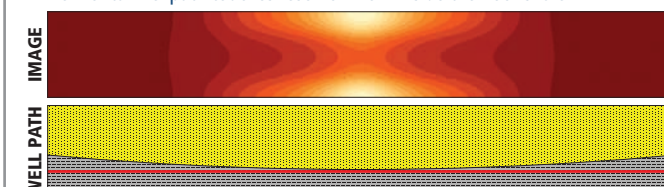
Horizontal wellpath touches reservoir floor.\*



Horizontal wellpath touches reservoir from inside the roof shale.\*

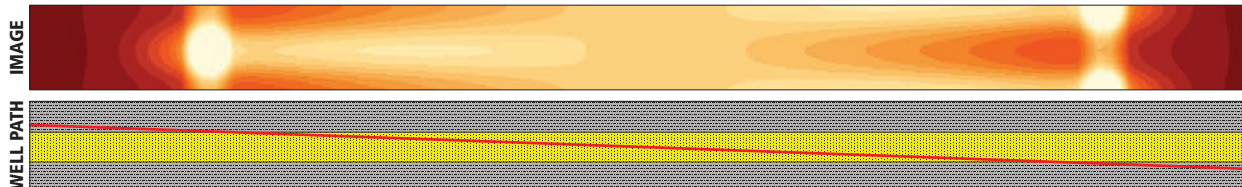


Horizontal wellpath touches reservoir from inside the floor shale.\*

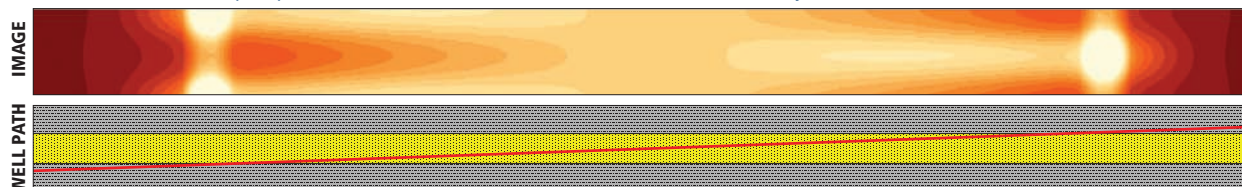


## PENETRATION OF SINGLE THICK BED AT HIGHER AND LOWER INCIDENCE ANGLES

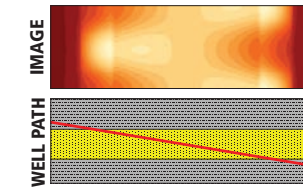
Constant inclination wellpath penetrates 10.0m resistive bed: 89° inclination; 1:100:1 resistivity contrast.\*



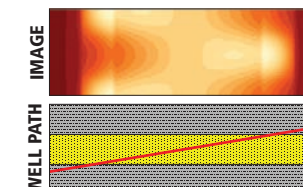
Constant inclination wellpath penetrates 10.0m resistive bed: 91° inclination; 1:100:1 resistivity contrast.\*



Constant inclination wellpath penetrates 10.0m resistive bed: 85° inclination; 1:100:1 resistivity contrast.\*

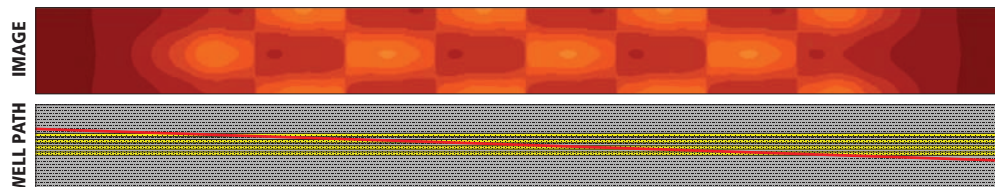


Constant inclination wellpath penetrates 10.0m resistive bed: 95° inclination; 1:100:1 resistivity contrast.\*

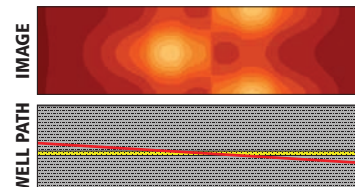


## PENETRATION OF ONE, TWO, AND FOUR THIN BEDS AT LOWER AND HIGHER INCIDENCE ANGLES

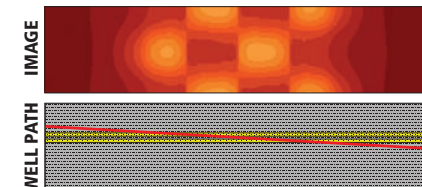
Constant inclination wellpath penetrates periodic array of four resistive beds: 89° inclination; 1:20:1:20:... resistivity contrast.\*



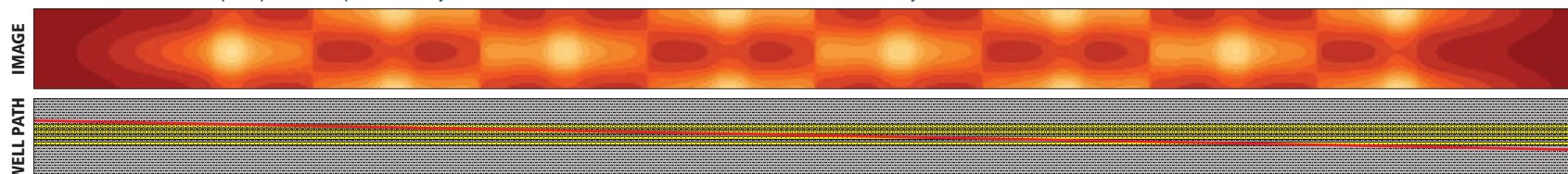
Constant inclination wellpath penetrates 1.0m resistive bed: 89° inclination; 1:100:1 resistivity contrast.\*



Constant inclination wellpath penetrates two resistive beds: 88.25° inclination; 1:50:1:50:... resistivity contrast.\*



Constant inclination wellpath penetrates periodic array of four resistive beds: 89.5° inclination; 1:20:1:20:... resistivity contrast.\*



\* Refer to scale on reverse side.