The Mad Dog prospect is located in the Green Canyon Area of the Gulf of Mexico. The water depth at the site varies from about 1370 m (4500 ft) on top of the Escarpment to about 1680 m (5500 ft) below.

The field architecture consists of a truss Spar platform moored by a taut leg system consisting of 11 polyester lines distributed in three clusters with suction anchors at the end to provide holding capacity.

Two anchor clusters lie on top of the Sigsbee Escarpment while one anchor cluster lies in a slump unit below the Escarpment. The soil conditions at the four pile locations in the slump deposit vary significantly and are very different from the soil conditions on top of the Escarpment.

Suctions anchors were selected as the preferred option due to the following evaluation:

- high positioning accuracy which is important in a slump deposit where soil conditions may change significantly within short distances
- robustness to varying/uncertain soil conditions can be accommodated by using different anchor diameters and depth to diameter ratios
- proven technology with more than 500 suction anchors installed worldwide at more than 50 locations per 2003.

The penetration analysis includes calculation of:

- skirt penetration resistance
- underpressure needed to reach target Depth
- allowable underpressure limited to avoid large soil Heave
- soil heave inside the anchor

The soils investigation and foundation design of the Mad Dog platform is described in detail in an OTC paper from 2006 - https://www.onepetro.org/conference-paper/OTC-17949-MS.