

Oxy Long Beach, Inc. Drilling Program Overview

Occidental Petroleum Corporation ■ ISCWSA ■ Long Beach ■ 5/9/2014 ■ Julien Roubaud / Jason Mena



Agenda

- Introductions
- History
- Island layouts
- Well design
- Anti-collision challenges



Bio – Julien Roubaud

- Drilling Engineer – Oxy Long Beach, Inc. (OLBI)
- Experience
 - 8 years in the industry
 - 6 years with Schlumberger Wireline
 - Vernal UT – Reservoir Evaluation
 - Bakersfield CA – Reservoir Evaluation
 - Long Beach CA – Reservoir Evaluation and Completion / Production
 - 2 years with Oxy
 - Drilling Engineer for onshore rigs and offshore platform

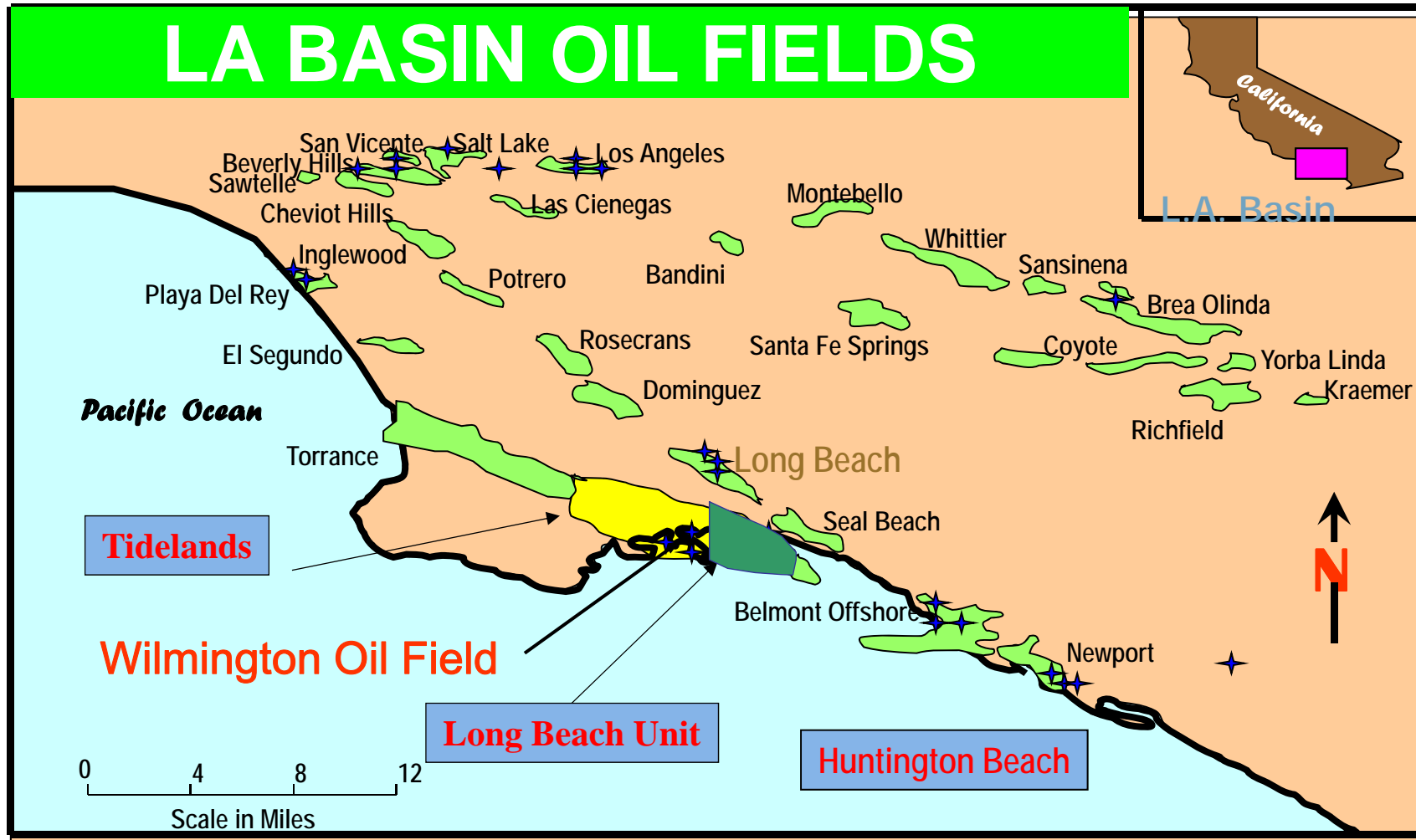


Bio – Jason Mena

- Senior Drilling Engineer – Oxy Long Beach, Inc. (OLBI)
- Experience
 - 10 years in the industry
 - Schlumberger REW as an Open Hole Logging Engineer
 - 2004 Bakersfield, CA (FE REW)
 - 2005 Villahermosa, Mexico (FE D&M)
 - 2006 Egypt (FE REW)
 - 2007-2009 Saudi Arabia (FE Offshore Operations)
 - 2009-2010 GOM (SFE DW Offshore Operations)
 - 4 years with Oxy
 - THUMS / Tidelands / Huntington Beach



Los Angeles Basin



North America's Giant Oil Fields

Total Recovery (Bbbls)

- Prudhoe Bay
- East Texas
- **Wilmington***
- Midway Sunset
- Kuparuk

* Reached 1 billion bbls recovered in the Long Beach Unit July 2011



History

- Wilmington field discovered 1932
- Rapid development of onshore portion 1930's - 1950's
- "Subsidence Bowl" develops onshore 1940's

- 29 feet
- 5.5 miles long
by 0.75 miles wide
- Max subsidence rate
28 inches per year



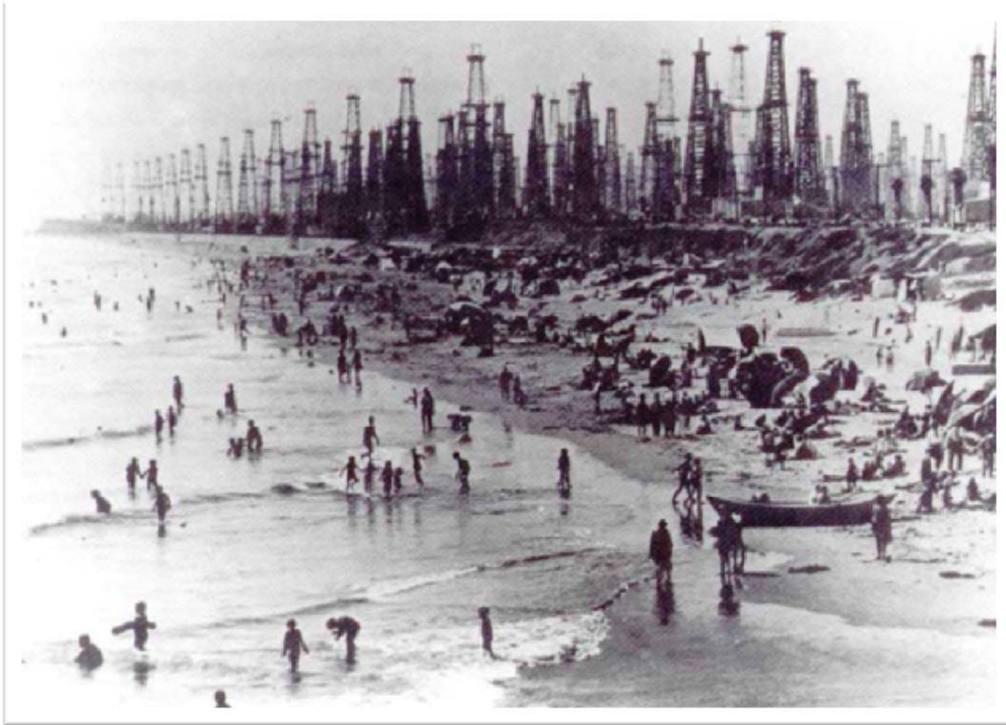
- Long Beach residents vote to prohibit offshore development 1956

History

- Waterflooding proved to control subsidence in the *Late 50's*
- Residents approve offshore leasing under strict controls in *1962*
- THUMS begins field development in *1965*



History



Huntington Beach in the 1930's
Surf City USA



Long Beach CA., Shoreline Drilling
(1930's)

What does THUMS stand for?



A Partnership



- OLBI is City's contractor
- Thums Long Beach Company is agent for OLBI
- Day to day operations
- Direction by City



- Major financial stakeholder



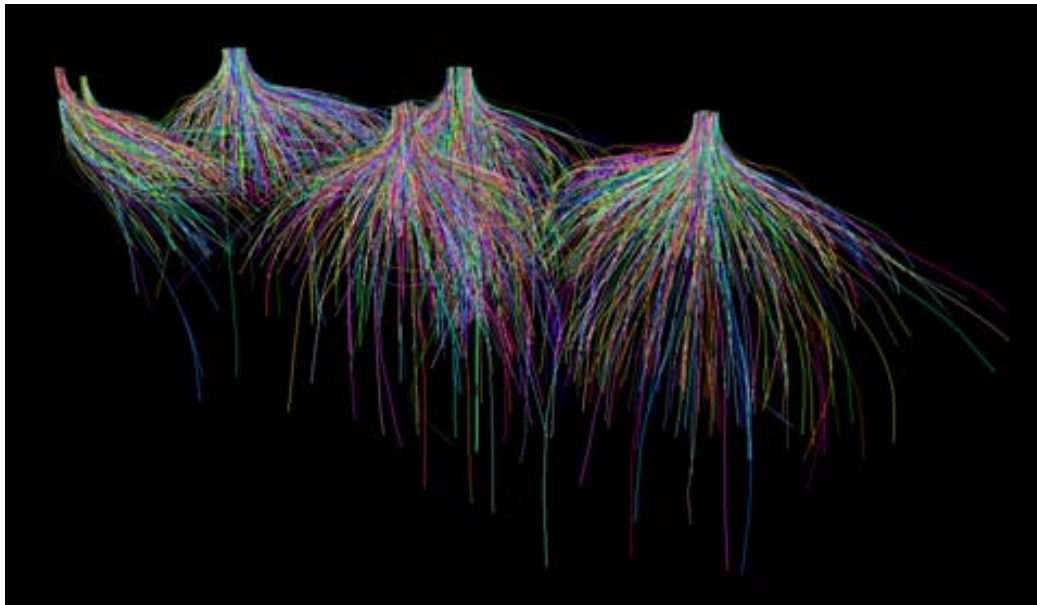
- Unit Operator - Long Beach Unit and other Wilmington Units
- Trustee for State for offshore area



Oxy: A global Leader in Close-Proximity Well Placement Challenges

Directional Drilling

- Experience and Technology
- Reduce Environmental Impact
- Minimize Footprint
- Increase Efficiency
- Lower Drilling Costs

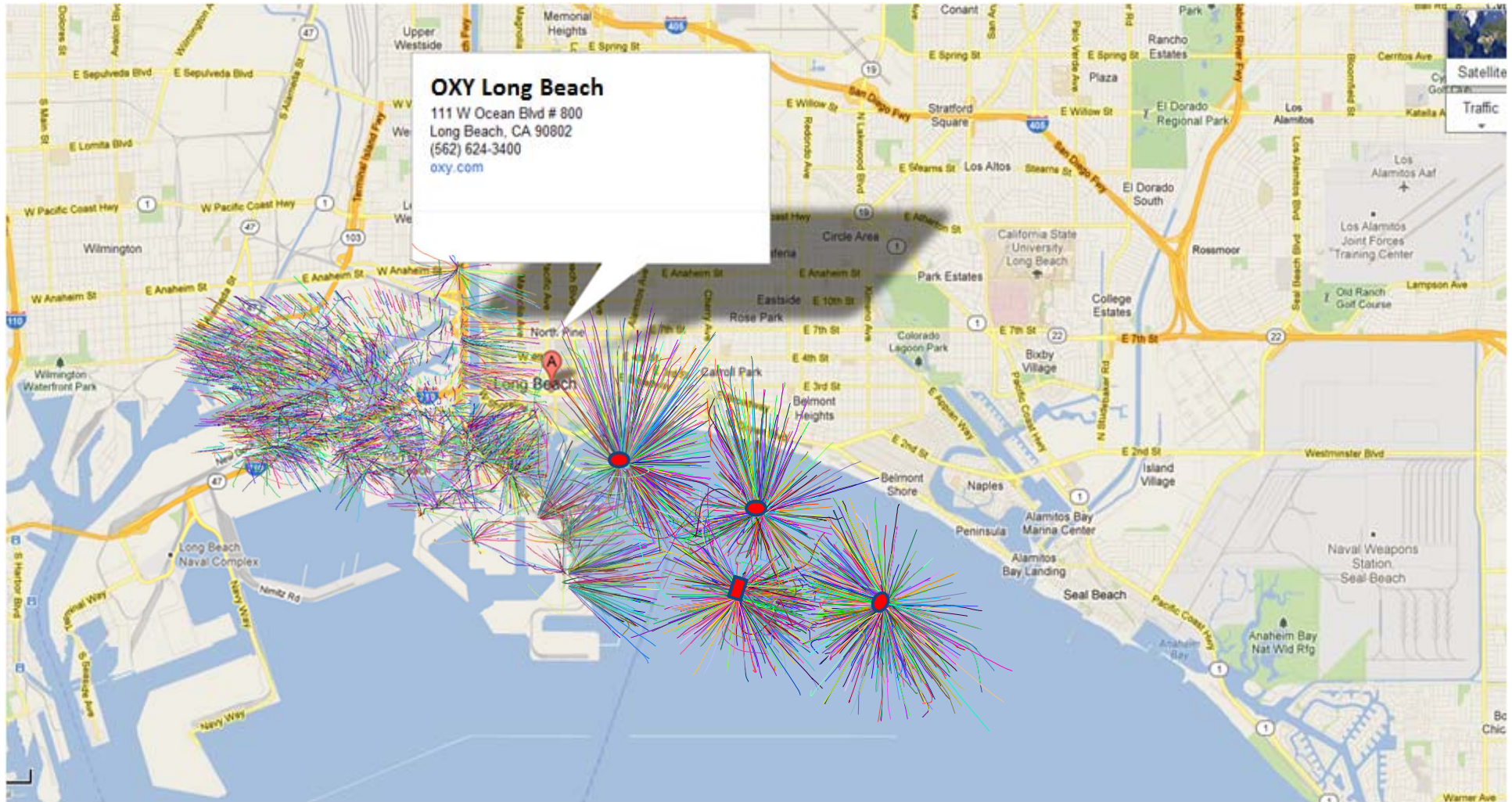


Onshore Multi-Well Pads & Island Locations

Long Beach, CA



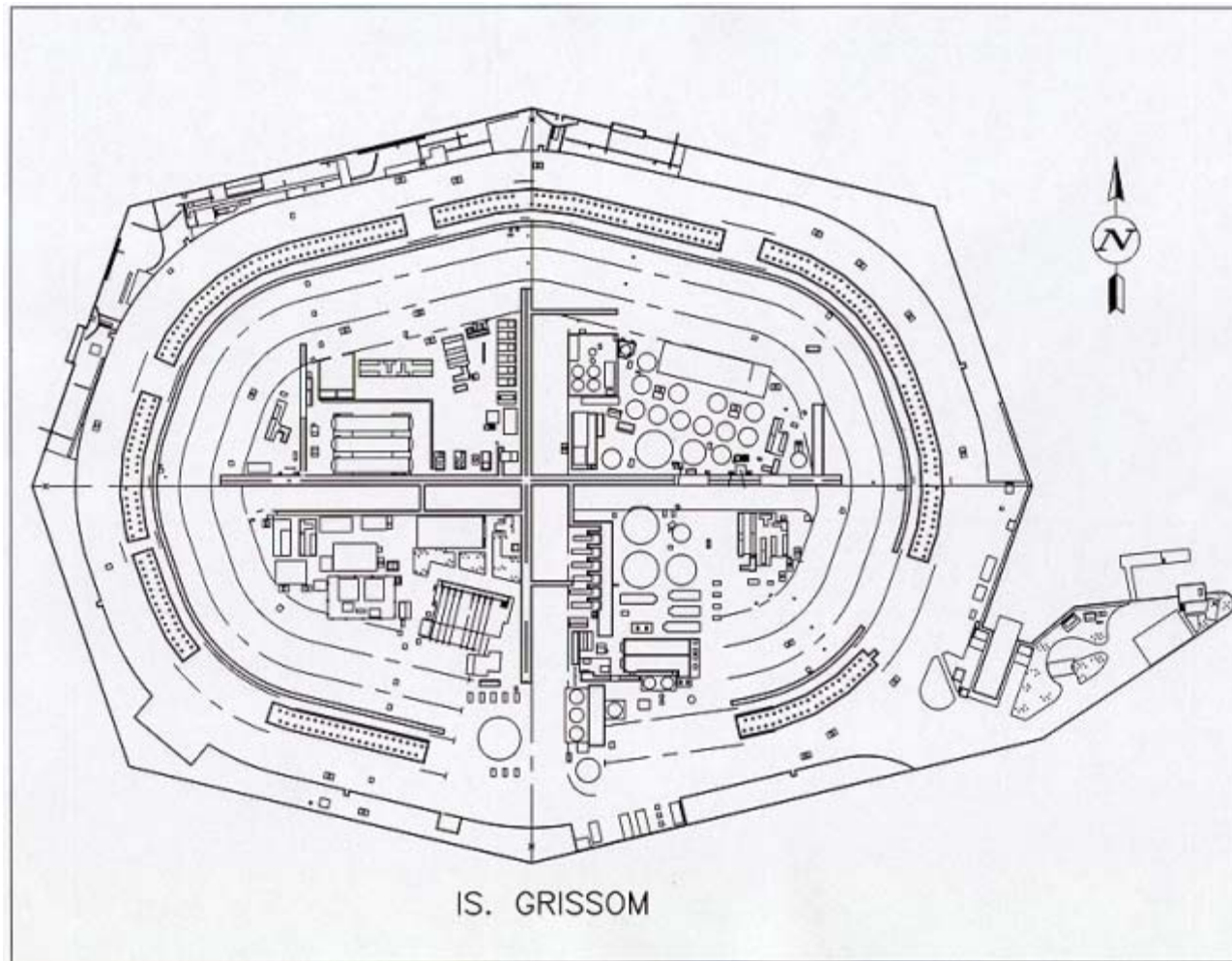
Oxy Long Beach Office



Wilmington Field (West to East View)



Island Grissom Schematic



THUMS General Wellhead / Slot Layout

- Island Wellhead Spacing
 - 6' center to center
 - 12' between the double rows
 - Chaffee & Freeman have an additional cellar 50' behind the 1st cellar



Oxy Long Beach Inc. - Drilling/Well Servicing Rigs

- The LBU owns 3 drilling rigs and Oxy owns 1 drilling rig in Huntington Beach (Offshore Platform Emmy)
 - Labor contracts in place for each of 4 rigs
- 4 contract drilling rigs supporting LBU, Tidelands and Huntington Beach programs
- 11 contract production rigs at the LBU and Tidelands
- 5 contract production rigs at Huntington Beach and other sites



Island Drilling Rigs



- T5 on Grissom



- T9 on Chaffee

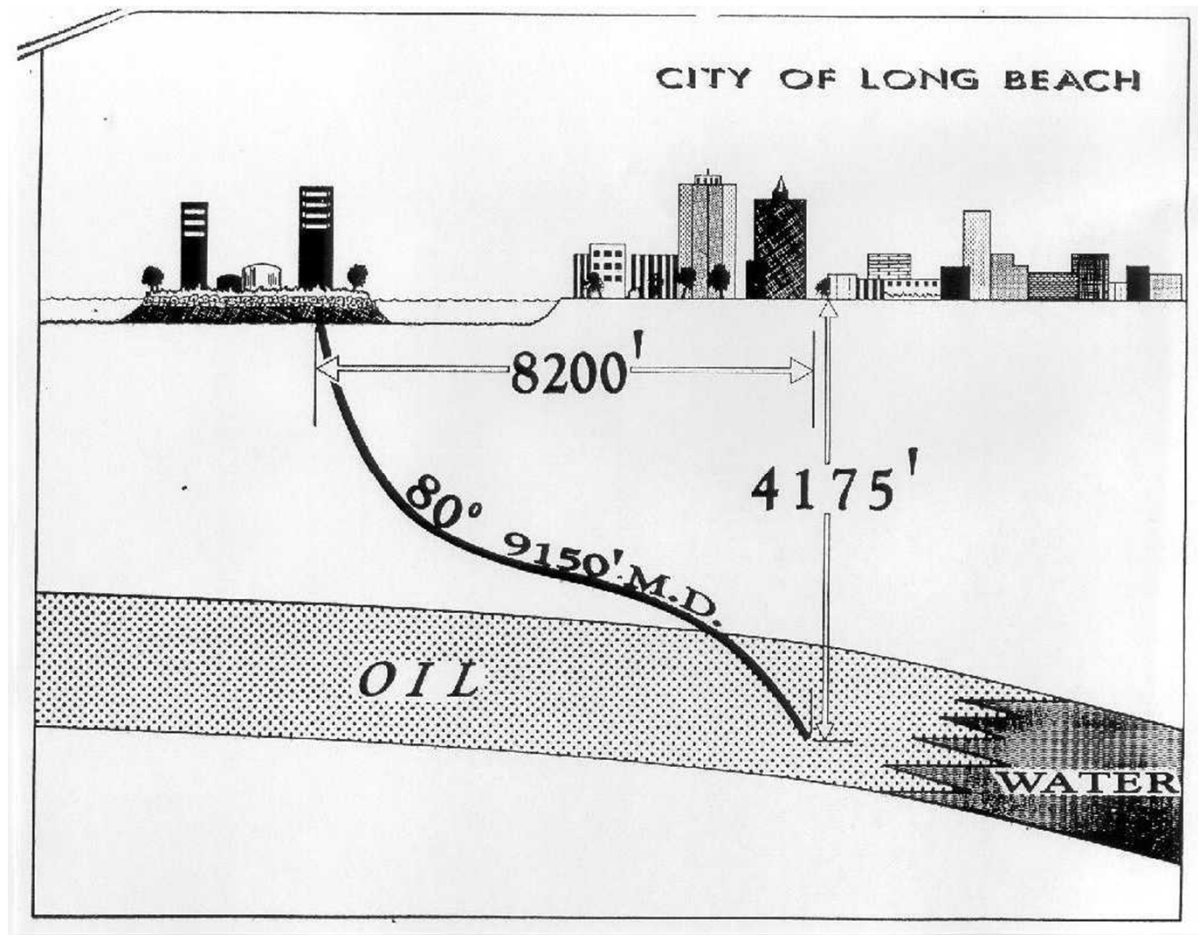


- T3 on White

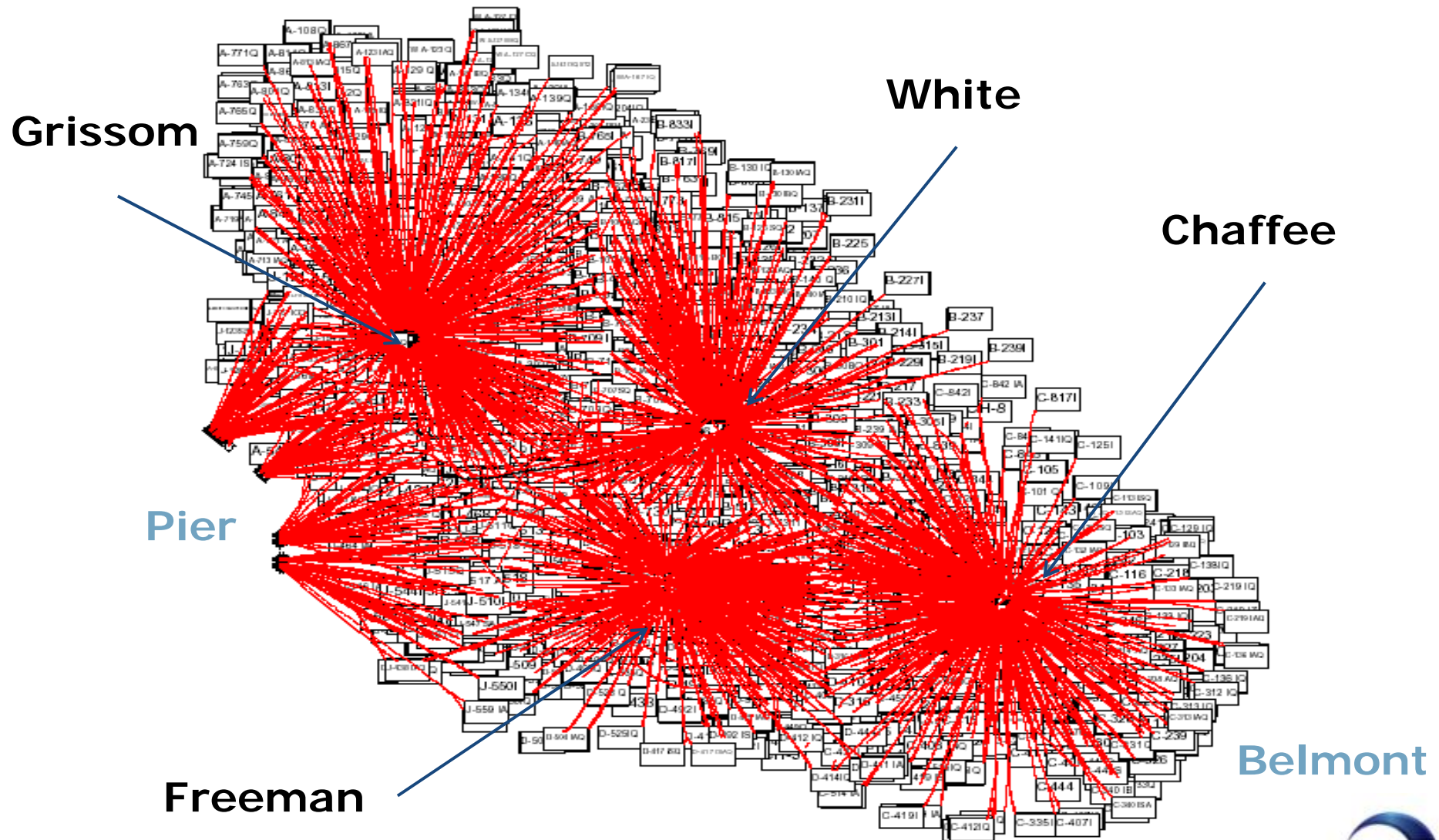
Huntington Beach – Enclosed Drilling Rig



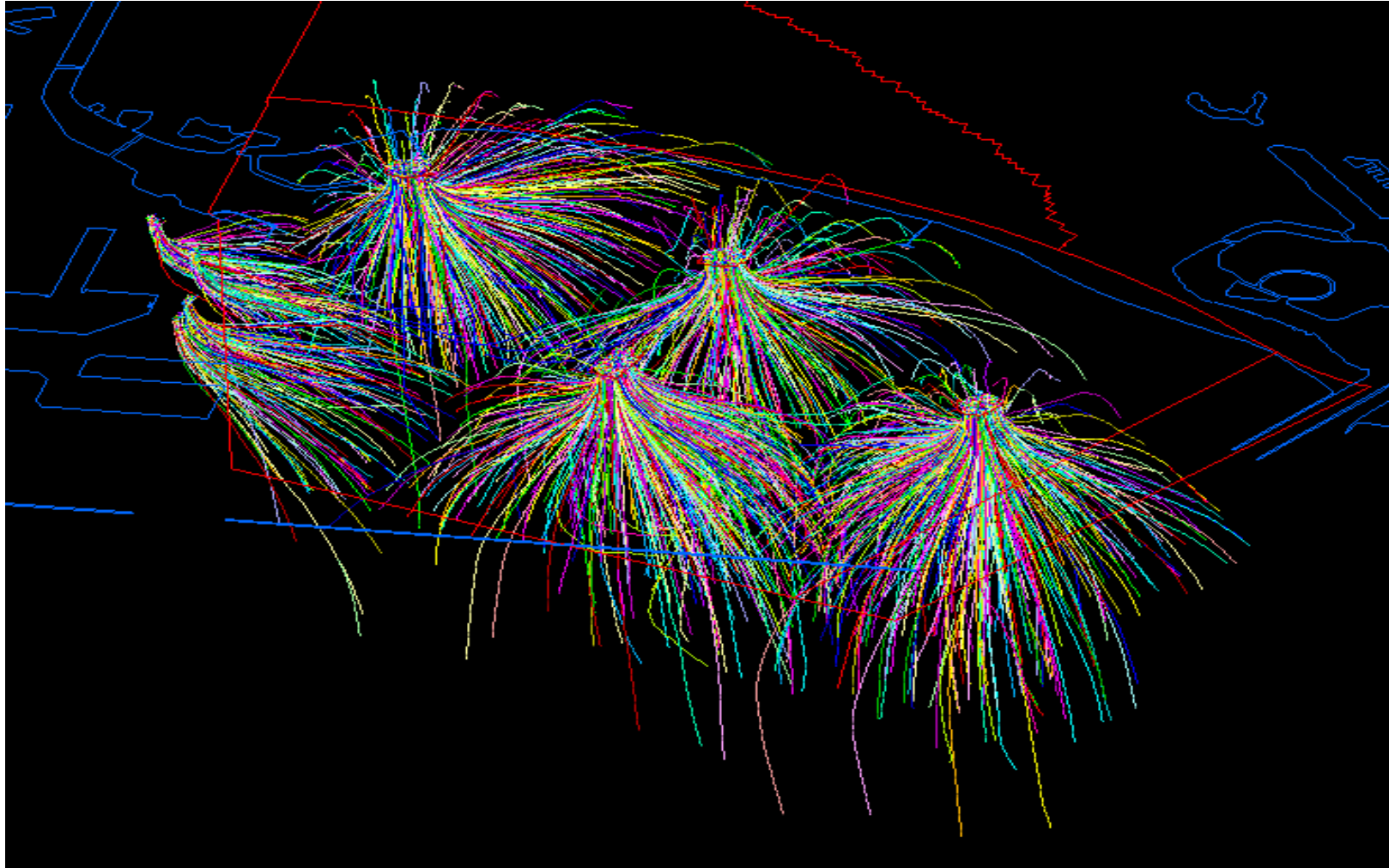
Deviated Well Design



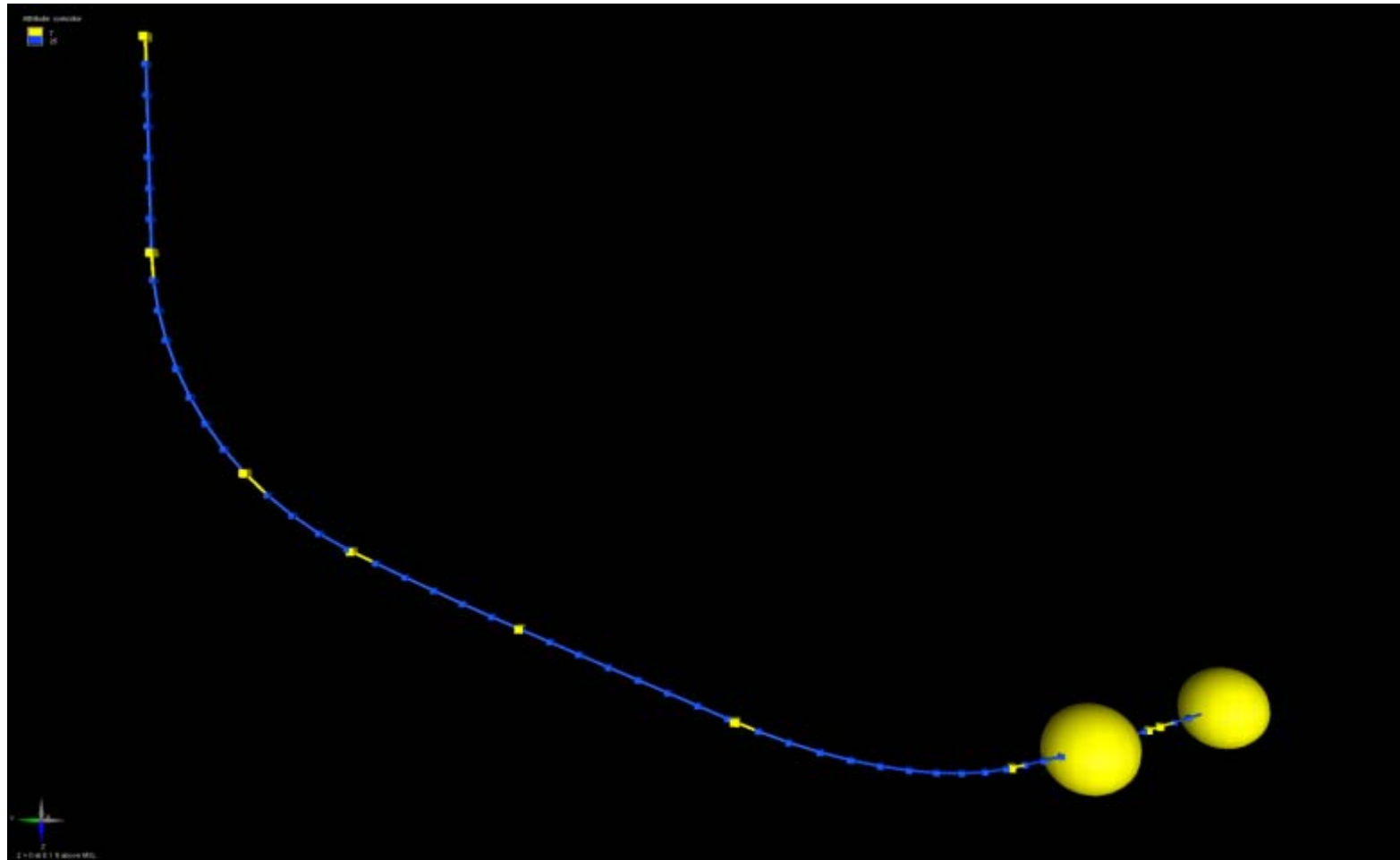
Radial Drilling Pattern



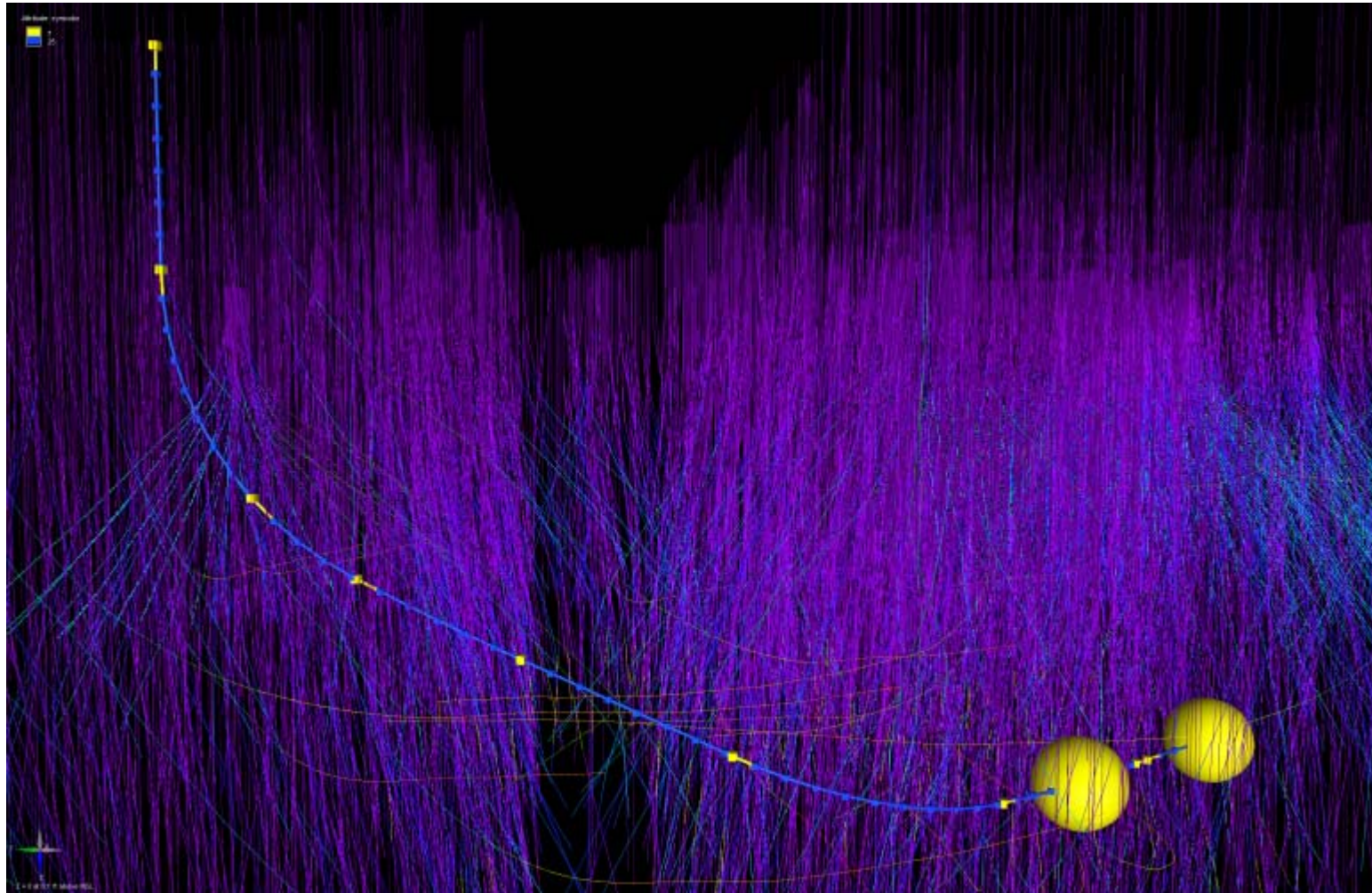
THUMS



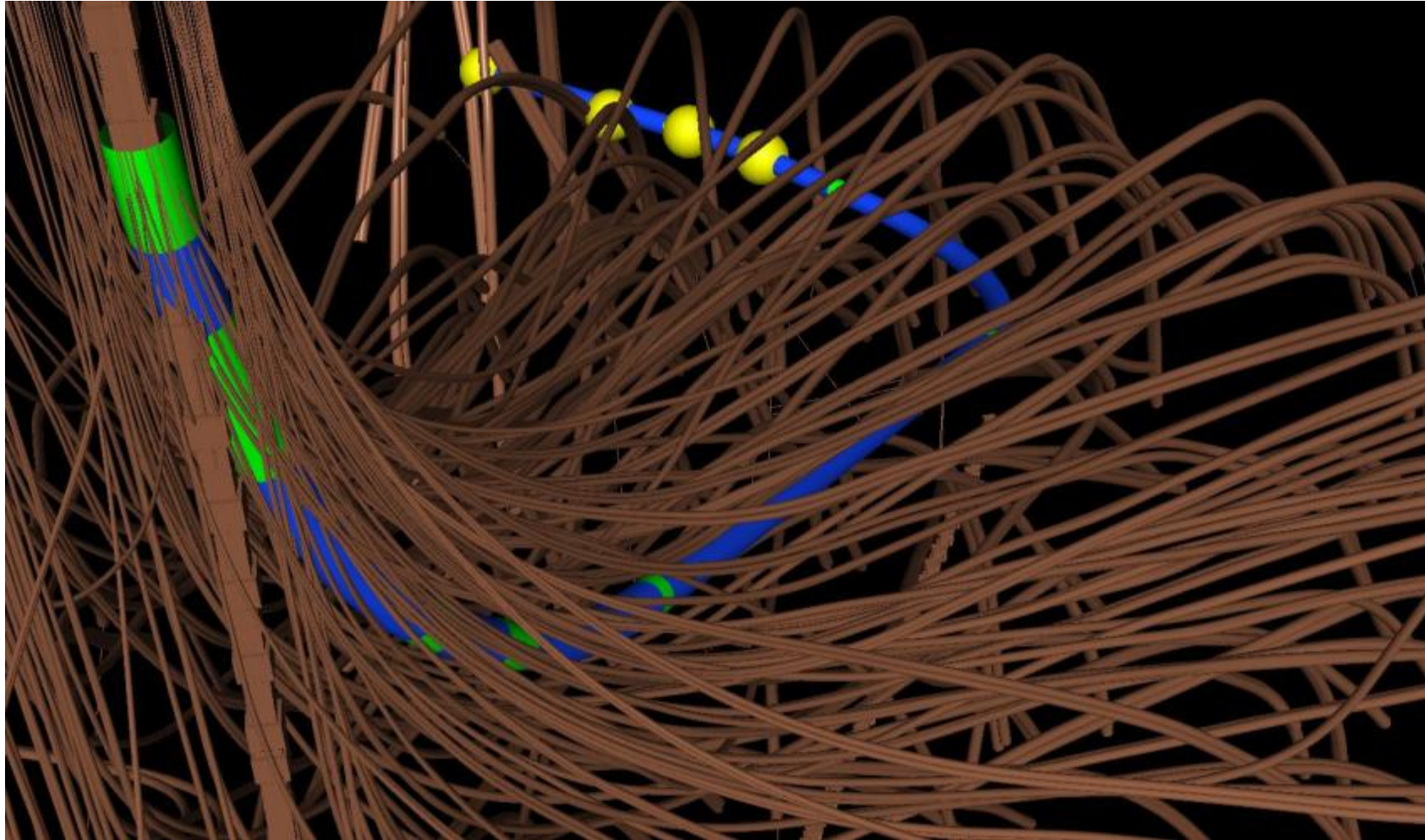
Example 3D Horizontal Path (Actual Well)



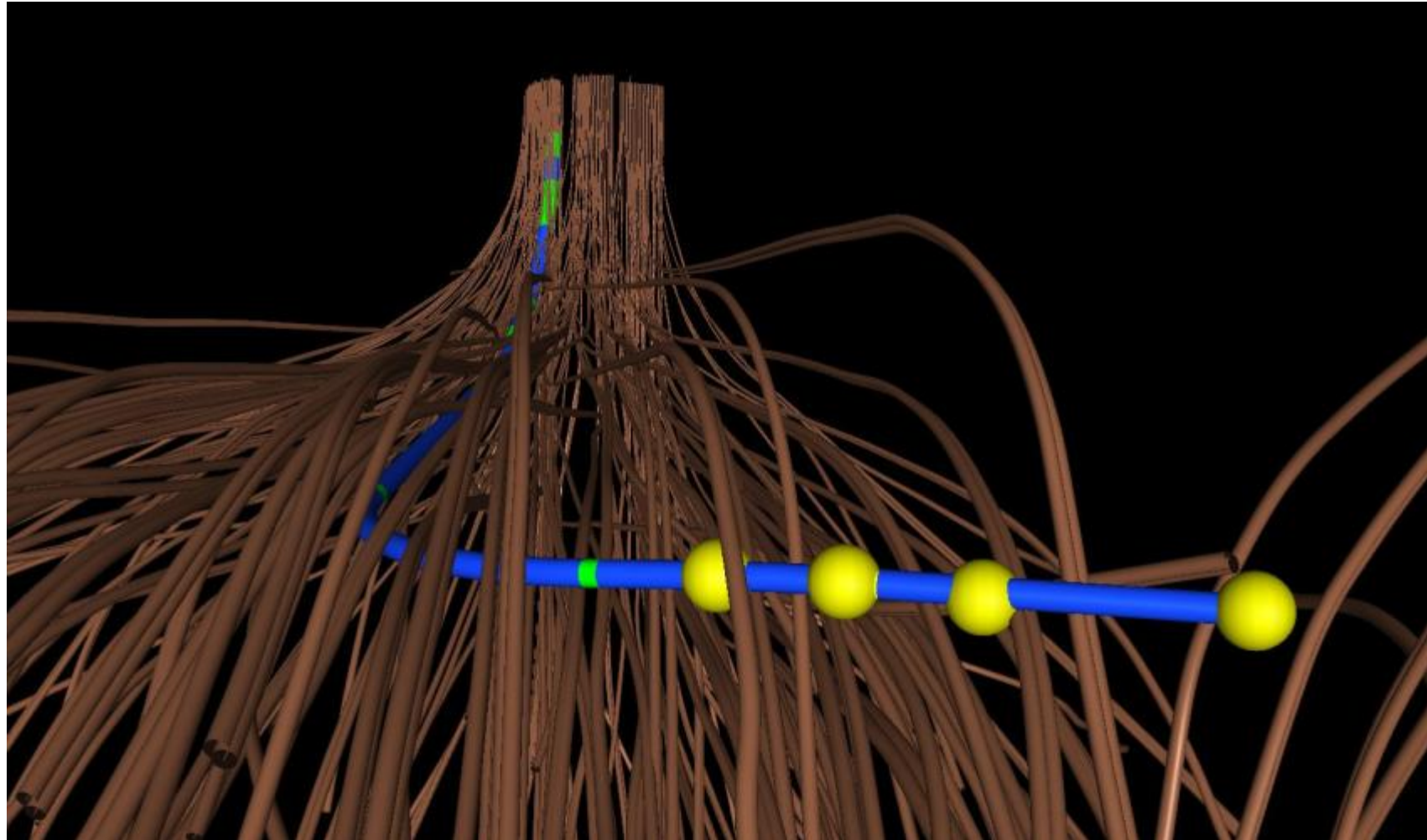
3D Horizontal Wellpath with Offsets



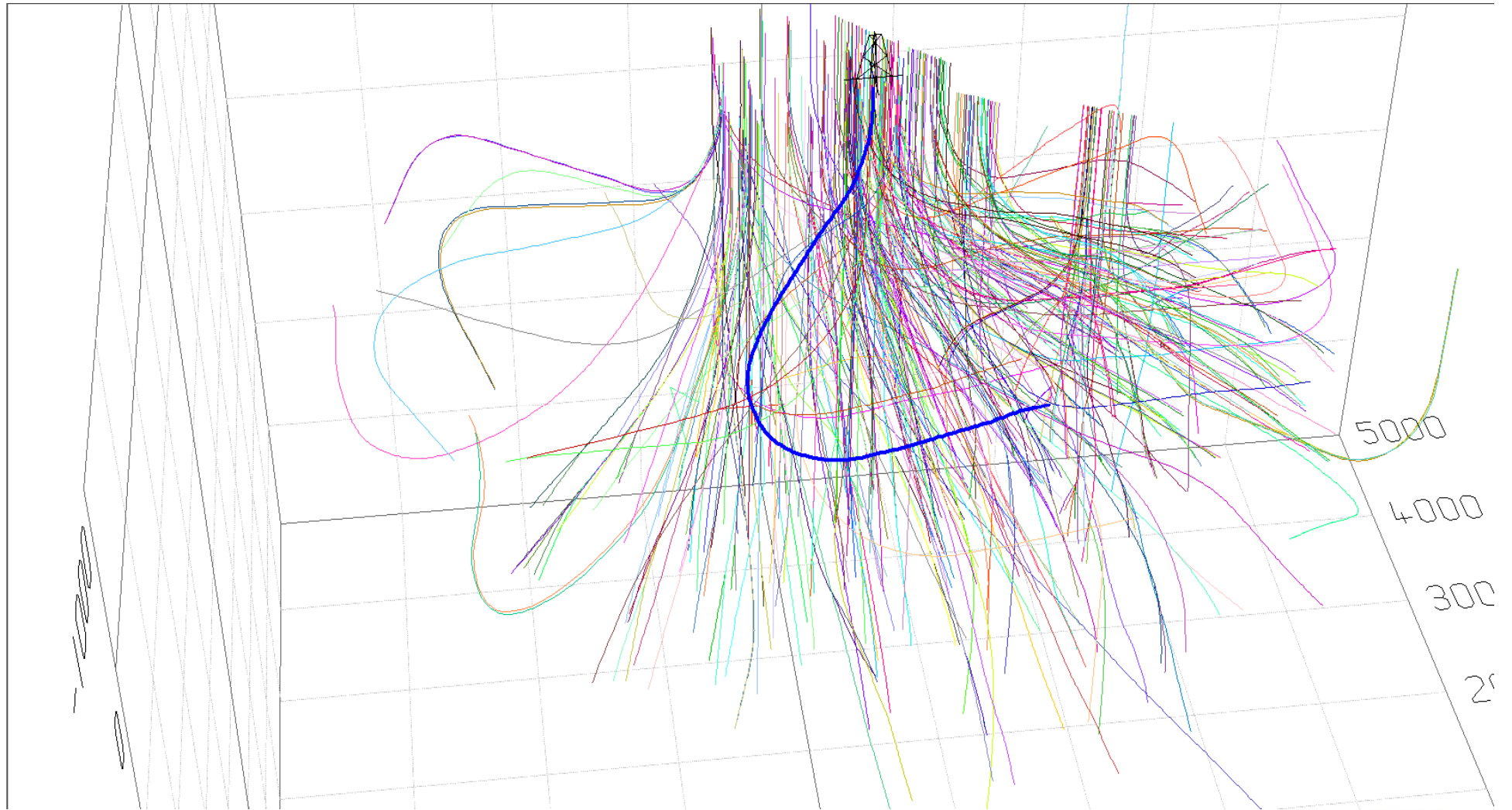
Horizontal Wellpath with Large Azimuth Turn



Alternate View Horizontal Wellpath



Tidelands Horizontal





Oxy Long Beach, Inc.

A subsidiary of Occidental Petroleum Corporation