The Wildcatters, the Regulators and the Prize: Chronicles of the Cat Canyon Oil Field, Santa Barbara County, CA*

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Search and Discovery Article #20375 (2016)**
Posted December 19, 2016

*Adapted from oral presentation given at 2016 AAPG Pacific Section and Rocky Mountain Section Joint Meeting, Las Vegas, Nevada, October 2-5, 2016
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Abstract

Wildcatters spend a lifetime developing the skills to find the next Prize; a large oil or gas reservoir. Regulators have a mandate to protect both the environment and public from real or potential threats. Thus, a field of play is set where a wildcatter drives towards developing a Prize, while regulators plays defense, wanting all potential future threats to be mitigated. In California, the ‘wildcatter’ of old must become the new Playmaker, and navigate the team to the prize. PetroRock set its sights on the prize of the Sisquoc Oil Sands in the Cat Canyon Field, Santa Barbara County, CA. These Pliocene heavy oil sands were steamed cyclically from 1965 to 1997 by Texaco and produced 4 million barrels of 8 API oil. Oil prices and the regulatory environment in the late 1990’s prompted Texaco to abandon these leases. After a cursory look at the old Texaco production, PetroRock decided to ‘do what it takes’ to reactivate the field. That is when we learned about the Santa Barbara County Production Plan process. Impacts to air, tiger salamanders, ground water, ambient noise, visual impacts, traffic counts, and septic tanks, among other things, had to be addressed in a County application. How would PetroRock do this? To execute our plan we implemented a three-step process. First, by understanding the geology and reservoir characteristics of the Sisquoc sands and compared this with questions posed to us by the Regulators. Second, we took our knowledge, met face to face with regulators, and heard their concerns. This lost art of being in the ‘Room Where It Happens’ was crucial for our project. Finally, we changed our ‘team’ mindset and went from ‘Wildcatters versus Regulator’ to ‘we're all in this together’. As PetroRock has found, each day does not guarantee the ball will be moved down the field. However, the modern wildcatter's knowledge can develop the playbook and keep the team on a successful quest for the prize.

Joe Nahama, President, PetroRock LLC
Wildcatter - a prospector who sinks exploratory oil wells, a risky investor.

Yep, that’s my Mom holding me, a 4-year old kid, next to a flare.
Rod Nahama
...true Wildcatter

I want to be a Wildcatter.

Joe Nahama
...just happy to be in the picture with Rod Nahama
...one day a landowner walks into a bar and asks, “Do you want to lease my land?”
At Tunnell, injecting one barrel of steam yielded one barrel of oil.

30 wells making 1,000 BOPD during the early ‘80’s.

The more we looked, the more we liked it. Time to go to DOGGR, submit an NOI, wait 10 days and drill...just like Kern County.
Stack of Paper needed to obtain a permit to drill in Kern County

Stack of Paper needed to obtain a hearing/vote from Santa Barbara County Planning Commission
To regulate: control or supervise (something, especially a company or business activity) by means of rules and regulations.

**SB County (CEQA)**
- Air Quality
- Endangered Species
- Landscaping
- Noise
- Mobile Emissions
- Fresh Water Use
- Traffic
- Paint Color on Tanks
- Archeology
- Greenhouse Gas
- Septic Tanks

**State**
- UIC Injection
- Drilling Permits

**Federal**
- US Fish & Wildlife

**Corporate**
- Board of Managers
- The Bank

What are the thresholds for each item?
The Field of Play is set
Lesson #1: Learn the reservoir and the production process to answer the regulators’ questions.
How does the geology fit with Texaco’s development plan?

Add PUDs to Patterns (Red Locations)

Where do we drill?

Salamander are everywhere. Can’t drill on habitat.

Endangered Salamanders
The size of the drilling island determines how many wells.

The old Texaco Office is on disturbed lands. How many wells can we fit?

We have to put the facilities with the wells, what will we need?
The type of facilities depends on how much wells will make. When we estimated production and what equipment is needed, we addressed the air issues.

County Threshold is 55 lbs/day for NOx and ROC. We are below the threshold.
Water

How much fresh water do we ask for?

19 wells need 19.5 Acre-Feet per year based on a 1 to 1 steam-oil ratio.

We asked for 18 Acre-Feet per year.

The project is in an overdraft basin and 25 Acre-Feet is the County Threshold.

What do we do with 1,000 BWPD of produced water?

Aquifers
UIC Applications

How to get the S1b permitted when you have no clue as to the TDS of the water.
Economics: Can you sell it to the Board and the Bank?

WTI Oil Price: $69.60/Bbl
Santa Maria 12 API: $54.60/Bbl
PV10%: $17.7 Million
Internal ROR: 34%
Payout: 4.5 years

Expected Value in 2010
Lesson #2: Be in the room where it happens!

Santa Barbara Planning & Development
Orcutt DOGGR

Bank of Oklahoma
PetroRock Board of Managers
So, what happened?

Santa Barbara Planning & Development

They approved it!

Orcutt DOGGR

Bank of Oklahoma

PetroRock Board of Managers

Santa Barbara APCD

Dear Ms. Hunter:

Enclosed is the final Authority to Construct (ATC) No. 12949

$13,000,000 Senior Secured Revolving Credit Facility
Dated as of September 14, 2009
### Economics of the original 19 wells

<table>
<thead>
<tr>
<th>Year</th>
<th>MBO</th>
<th>Op Rev ($mm)</th>
<th>Facility ($mm)</th>
<th>Drilling ($mm)</th>
<th>Total Rev ($mm)</th>
<th>PV10% ($mm)</th>
<th>IRR</th>
<th>Payout (years)</th>
</tr>
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<tbody>
<tr>
<td>2006</td>
<td>739</td>
<td>$27</td>
<td>($7)</td>
<td>($7)</td>
<td>$13</td>
<td>$8</td>
<td>43%</td>
<td>4.5</td>
</tr>
</tbody>
</table>
The Modern Wildcatter

...A Team!

Angela

Ken

Ross

DOGGR

Jon

David & Mike

SBAPCD

Erik

Joe

Seth

Chad

Stephen

Erin

County of SB

Sonja

Guy

Bank of Oklahoma