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SET® Technology A Real-Time Success Stories

Neven Ruzic, Sales Director US and Canada

June 23, 2011



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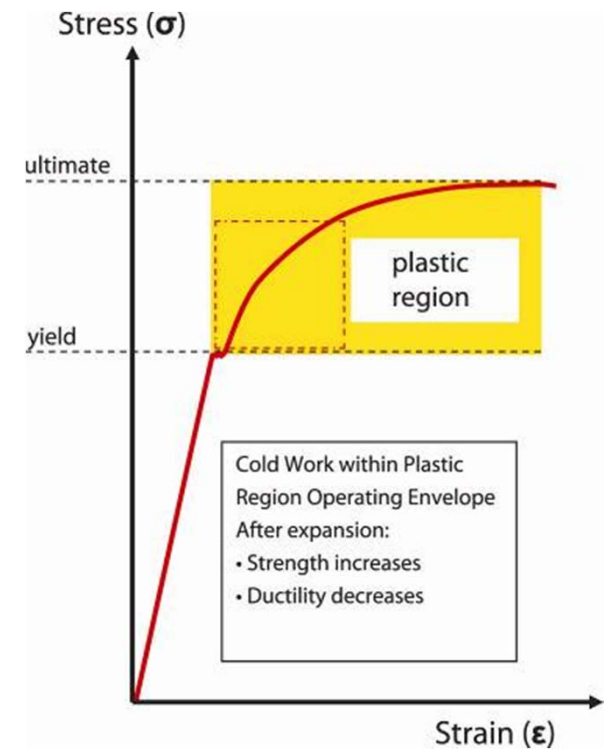
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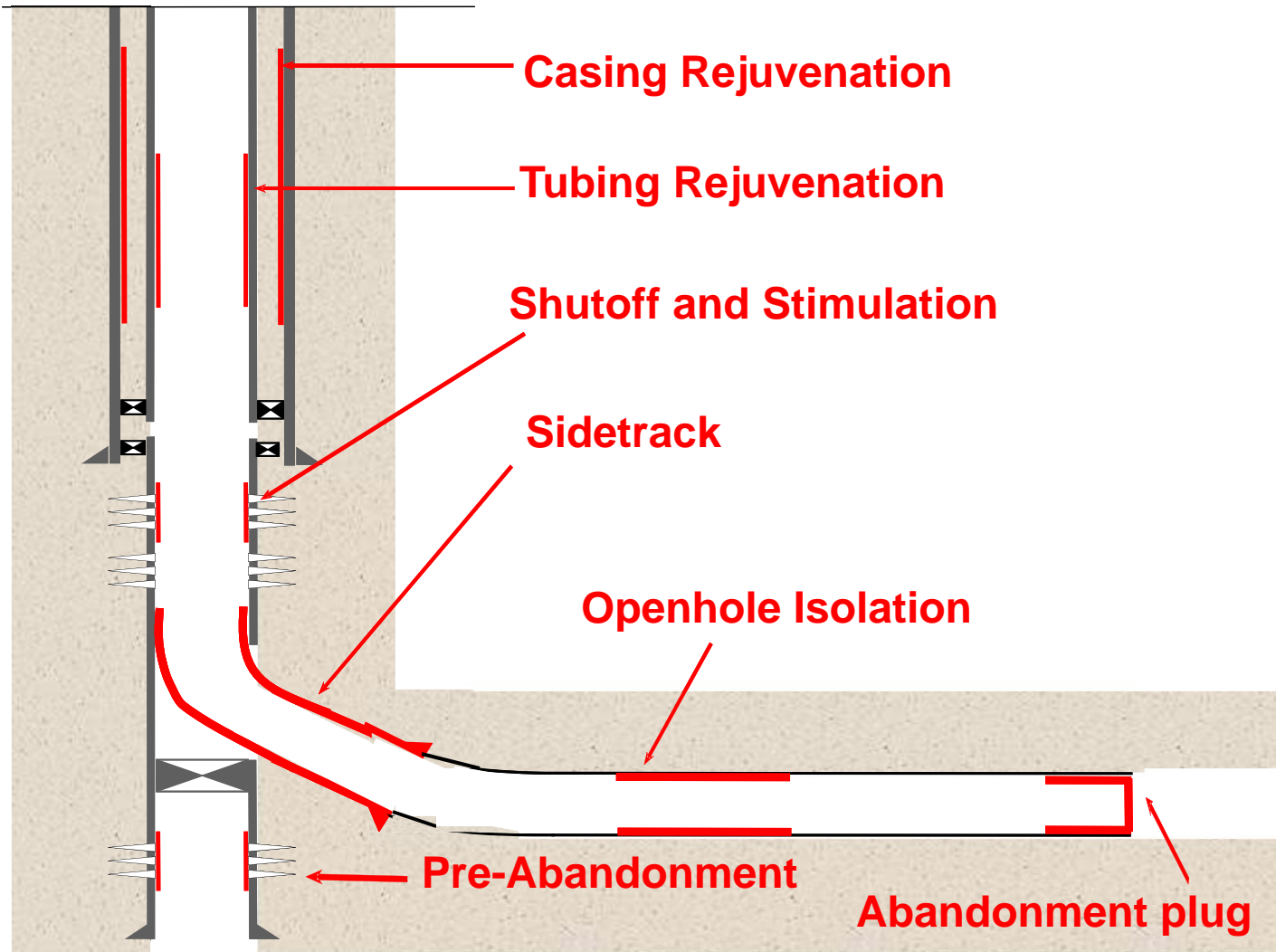
Agenda

- **Overview of SET® Technology**
- **Recent success stories**
- **SET in deep wells**
- **Conclusion**
- **Questions**



Pipe expansion using a solid cone and hydraulic pressure





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Recent Success Stories



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Success Story #1

Sidetrack, Deepwater GOM, TLP, 2010

Challenge

- TD significantly deeper than previous wells
- First two conventional casing attempts failed
- 13-3/8 in. casing was damaged

Objective

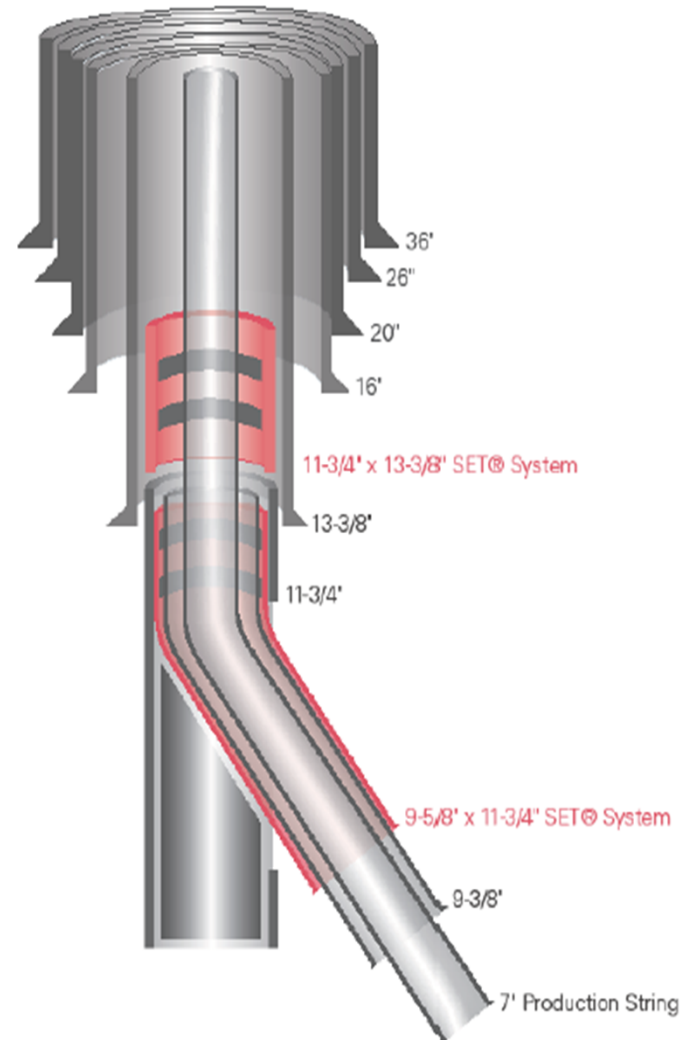
- Repair damaged 13-3/8 in. casing
- Add casing string to address wellbore instability

Results

- 13-3/8 in. repaired with 11-3/4 x 13-3/8 in. High Performance SET® CHL
- Sidetracked with 9-5/8 x 11-3/4 in. SET® OHL; added casing string
- Longest sidetrack in GOM; TD below 31,000 ft MD

Value / Benefit

- Reduced NPT in 12-1/4 in. hole by 58% = 29 days = \$29M
- Discovered new reservoir
- TLP life extended by ~7 years





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Success Story #2

Sidetrack, Deep Shelf GOM, HPHT, 2009

Challenge

- Utilize existing infrastructure (older well) to access new ultra-deep target

Objective

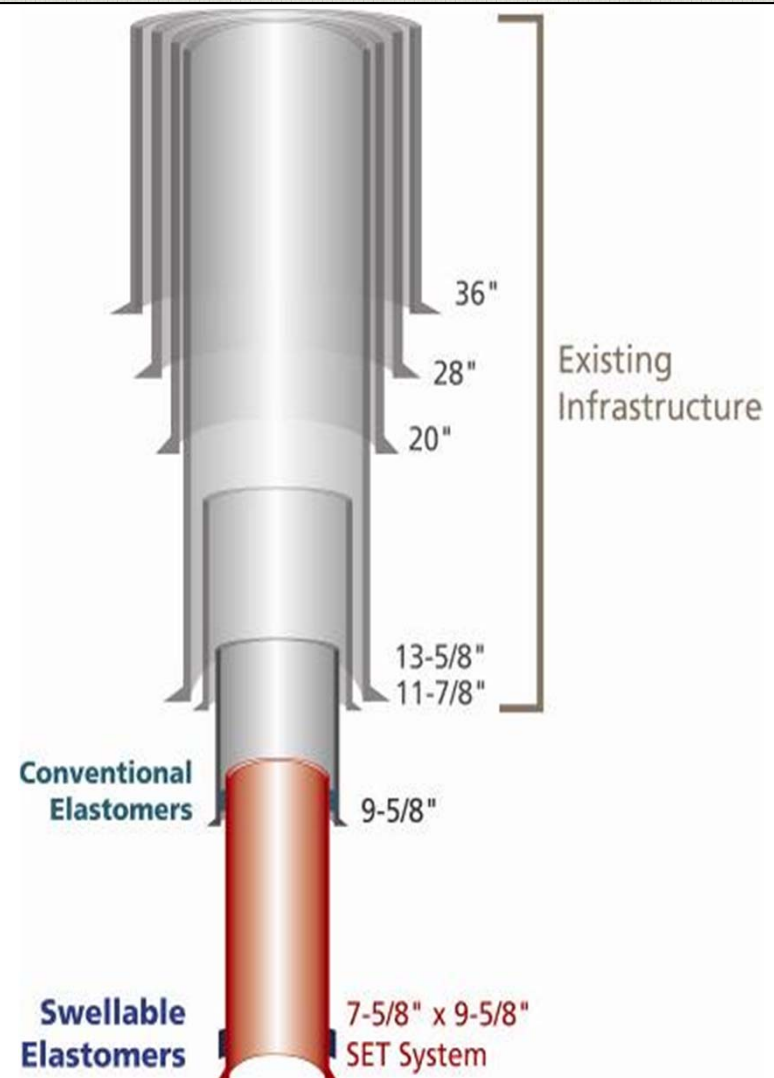
- Sidetrack thru 13-5/8 in. and 11-7/8 in. casing
- Extend 9-5/8 in. casing shoe with 7-5/8 x 9-5/8 in. SET® OHL

Results

- 6,935 ft (pre-expansion length, current World Record) 7-5/8 x 9-5/8 in. SET® OHL successfully installed
- First time swellable elastomers used with SET
- Average make-up 16 joints/hr; expanded 700 ft/hour

Value / Benefit

- Swellable elastomers ensured successful LOT; no remedial squeeze
- Maximized hole size at TD
- Proper target zone evaluation; Planned future completions
- Facilitated ultra-deep discovery





Success Story #3

New exploratory well, GOM Deepwater, Sub-sea, 2011

Description

- First post-Macondo deepwater exploration well to receive a permit; subsea BOPs

Challenges

- Achieve isolation across hydrocarbon-bearing sands below 16 in. casing
- Provide additional, proven mechanical barrier above upper hydrocarbon sands
- Reduce ECDs during cementing production liner

Objective

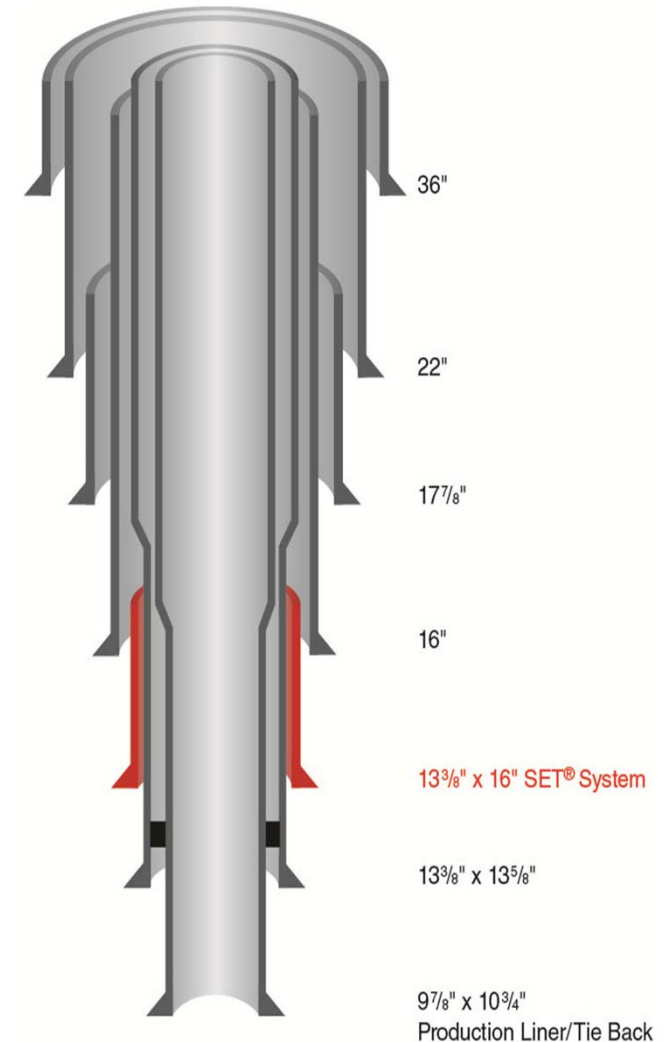
- Optimize well design using Solid Expandable Technology

Results

- 2,278 ft, 13-3/8 x 16 in. SET® OHL safely and successfully installed
- Attained zone isolation and second mechanical barrier above upper hydrocarbon sands
- Production casing run as liner with tie back; lowered ECDs during cementing; obtained 100% returns

Value / Benefit

- Third well into structure; contains 130 million bbls
- Hydrocarbons (75% oil) @ \$90/bbl, well's value = \$2.9B





- **Planning-in larger SET system sizes (9-5/8 in. and 13-3/8 in.) higher in wells**
- **Re-development of mature assets to extend life of older offshore facilities/fields**
- **Additional mechanical barrier to hydrocarbon reservoirs**
- **Use of swellable elastomers technology with SET**



What does SET Technology offer you?

Optimized drilling and completion

- **Reduces tapering effect in deep wells**
- **Provides maximum hole size at TD**
- **Optimizes drilling BHA performance**
- **Enhances zonal isolation**
- **Improves well hydraulics (ECDs) and optimizes cementing**
- **Reduces drilling NPT**

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Questions?



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