Lucius and Hadrian South Projects: Development Overview
Presented to Marine Technical Society
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Matt Lamey, Facilities Project Manager
Lucius Location and Key Project Metrics

Discovery – Dec 2009
Sanction – Dec. 2011
First Oil – Jan 2015
Safety – 0.38 TRIR, 1 LTI
Construction - 10.2 MM Hrs
Reserves – 300 MMBOE+
Well Prod. Index - 40 - 99

Lucius Partners
Anadarko 23.8
ExxonMobil 23.3
Freeport 25.1
Petrobras 11.5
ENI 8.5
Teikoku 7.8
Lucius Field Layout and Sub Sea Architecture
**Export Pipelines**

- **Oil export line (18”) owned by Enterprise.**
  - Converted abandoned gas export line at Red Hawk to oil. Saved 50 miles.

- **Gas export line (20”) owned by Discovery.**
  - Line runs by Heidelberg and Shenandoah Fields.
Facilities Summary

- Safety - 0.38 TRIR on 10.2 MM hours, 1 LTI
  - 80k BOPD, 150 MMcf/d, 120k BFPD – Proven Spar and Sub Sea Design
  - Hadrian South Expansion of 300 MMcf/d
  - All Major Construction Complete
    - 22,000 Ton Spar (110 * 605 feet)
    - 14,500 Ton Topsides (16K Ton Ult.)
    - 13 mi Flow Lines
    - 20 mi Poly Rope
    - 209 mi Gas Export
    - 100+50 mi Oil Export
  - First Oil Jan 2015
  - South Hadrian First Gas Mar 2015
Lucius Summary of Installation Lifts

- Flare
- East Compressor Module
- Living Quarters
- North Stair Tower
- West Compressor Module
- West Crane
- West Stair Tower
- Main Deck Module
- Temporary Work Deck and Sub Cellar Module
Lucius and Accommodation Vessel

Installation Challenges:
- Multiple Lifts
- F/L and SS Carry Over
- T/S Carry Over and QA
- Export Riser Installation
- Gas Export Comm.
- SIMOPS w/Planned HUC

Successes:
- Safety Performance
- Expl./Appraisal Cycle
- Discovery to 1st Oil Cycle
Lucius Video Presentation
Lucius Challenges and Opportunities

CHALLENGES
• First post-SEMS Anadarko Facility
• New Build Vessels
• Generally Busy Time for Offshore Industry
• “Crew Change”

FOCUSED IMPROVEMENT AREAS
• Use as Template for Future Facilities But Reduce Lifts
• Improve Coordination Among Topsides Contributors
  • Engage and Develop External Engineering Resources
  • Align Current Fab. Methods and Engineering Standards
  • Add APC Materials Management and HUC Personnel
• Build and Extend Document Management Practices thru Livelink

BEST PRACTICE FOR FUTURE PROJECTS
• Anadarko LiveSafe and Project Culture
• Executive Steering Committees (Project Communication)
• Integrated Project Teams (APC, Partners and Contractors)
• Continue to Build Contractor Relationships
Lucius Successes Since Start Up

- Start-up to name plate: 111 Days
- 2015 YTD uptime: 98%
- Max oil production: 82,183 BPD
- Max gas production: 91,314 MCFD
- Oil produced to date: 20 MMbbl
- Productivity index: Flat lined
- Additional tie-backs: 300 MMcfd from HS
- Heidelberg: Leveraging Knowledge
Acknowledgements / Thank You / Questions

Anadarko Project Personnel
ABS
Aker
Allseas
Baker Hughes
CANUSA
Discovery Production System
Edda Accommodation Company
Enterprise Partners
FMC
GATE
Gulf Island/Dolphin
Harkand

Hereema Marine Contractors
Kiewit Offshore Services
Matthews Daniel
Oceaneering
Rosen
RTI Energy Systems, Inc.
Saipem
Technip Offshore Inc.
Vector (Freudenberg O&G Tech.)
VersaBuild, LLC
W-Industries
Wood Group Kenny
Wood Group Mustang