

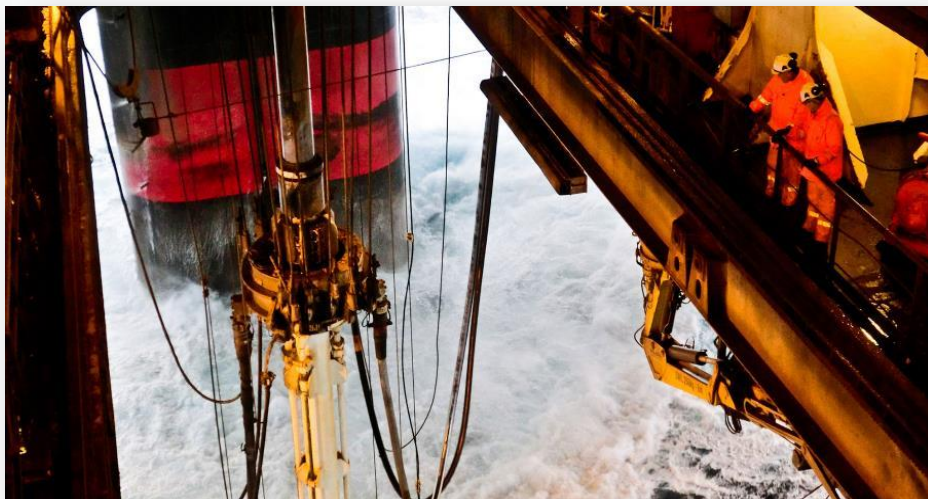


Improving offshore safety on late field life transaction – Brazilian experience

Agenda

- **Brazil highlights – offshore sector;**
- **Offshore late life field transaction – Brazilian experience**
 - ✓ **Polvo Field Case**
 - ✓ **Lessons learned**
- **Conclusion**
 - ✓ **ANP main actions**
 - ✓ **Lapa Field Case (new approach)**

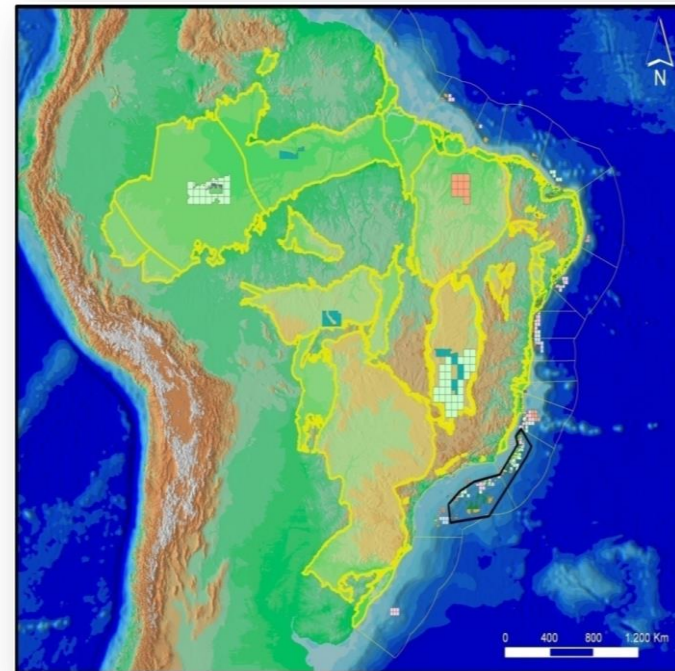
Brazil highlights



Brazil highlights

The offshore sector in perspective

- Proven reserves - Almost 14 billion barrels of oil and 430 billion m3 of NG;
- Billions of oil barrels already discovered waiting to be produced;
- 3,3 millions boe/day (~52% from pre-salt fields);
- 158 offshore production units, 8 new units in 2018, 20 up to 2022;
- 14 Biddings rounds from 2000 to 2017 – billions of investment;
- 3 Offshore Bidding rounds in 2018 & 2 in 2019 - new operators at pre-salt áreas and billions of investment;
- Massive potential for creating new jobs & opportunities for suppliers;



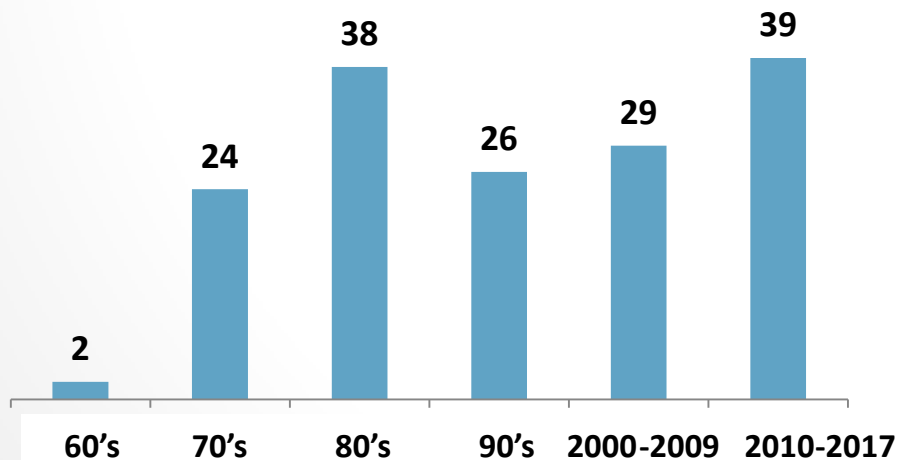
Source: ANP

Brazil highlights

Offshore Production unit's profile:

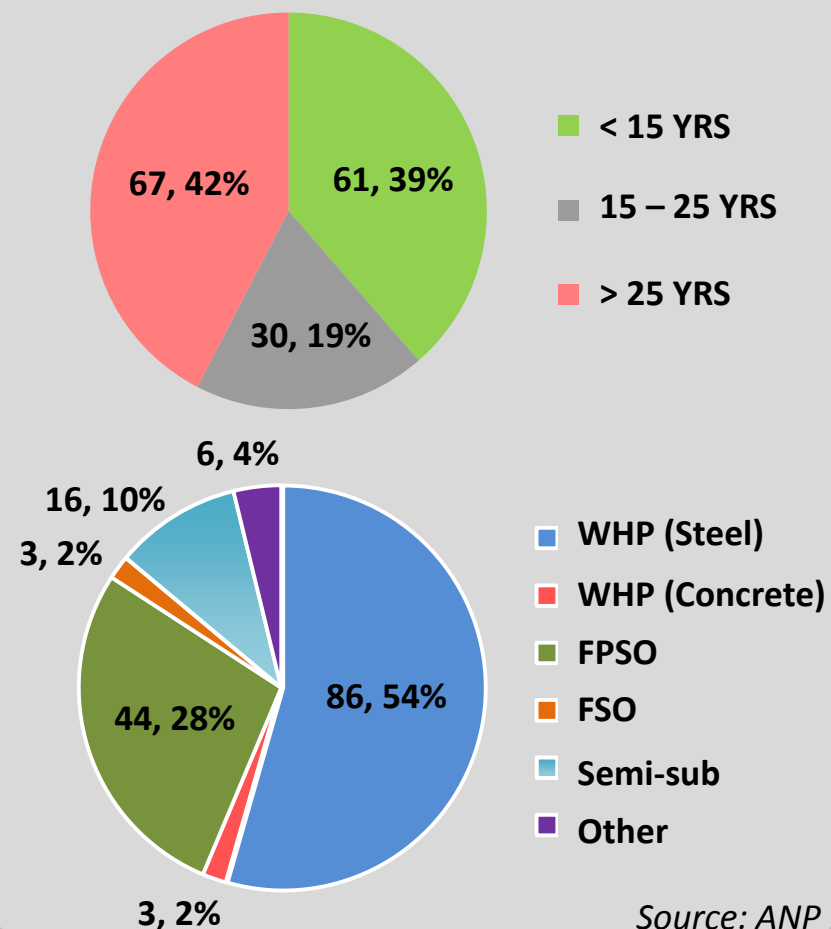
- World largest FPSO & flexible riser markets
- Considerable scenario for decommissioning – ageing units
- Petrobras divesting programm - sell late life fields

Nº of production units - 1st Oil



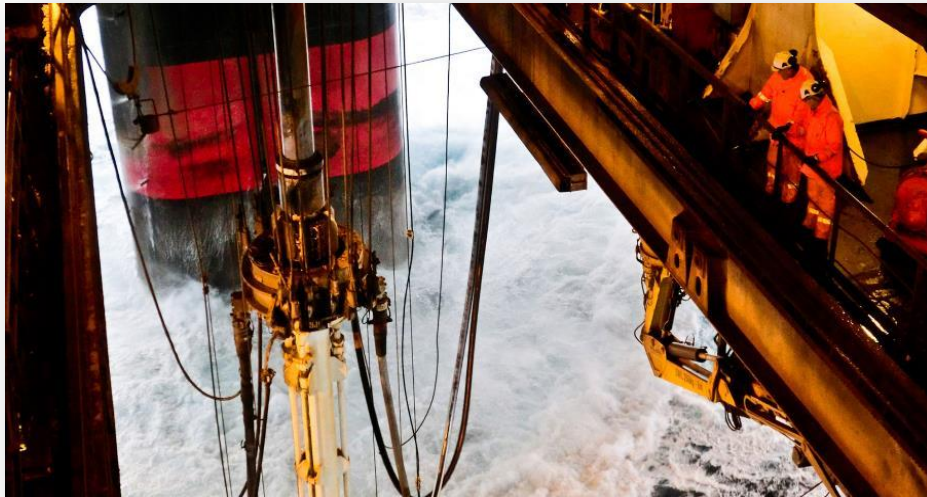
Source: ANP

Production unit's profile



Source: ANP

Late Field Life Transaction



Late Field Life Transaction

Brazilian experience: Polvo Field (1st round)

- 100km from shore - Campos Basin
- Shallow water: 103m depth
- 1st Oil: Aug/2007
- 1 WHP & FPSO, 12 wells
- 1st operator: DEVON
- New operator: British Petroleum (BP)
- May/2011: ANP approved BP as the new operator - production 20.000 boe/d;



Source: google- <http://petronoticias.com.br>

Key aspects: 1st Polvo Field transfer

- ANP analysis focused on financial guarantees and legal terms;
- NO safety issues were considered before and during the asset transfer;
- ANP inspections 1yr before transfer – safety management system implemented

Late Field Life Transaction

Brazilian experience: Polvo Field (2nd round)

- 2nd operator: BP farmed out
- New operator: HRT (PETRORIO) farmed in
- Jan/2014: ANP approved HRT (PETRORIO) as the new operator - production 11.600 boe/d;
- 1st HRT offshore operation ever



Key aspects: 2nd Polvo Field transfer

Source: google- <http://petronoticias.com.br>

- ANP analysis focused on financial guarantees and legal terms (Bid qualification)
- NO safety issues were considered before and during the asset transfer
- ANP inspection after transfer – safety management system incomplete & lack of regulatory compliance
- Fines – close monitoring by ANP (last inspection Mar/2017 – safety management implemented)

Late Field Life Transaction

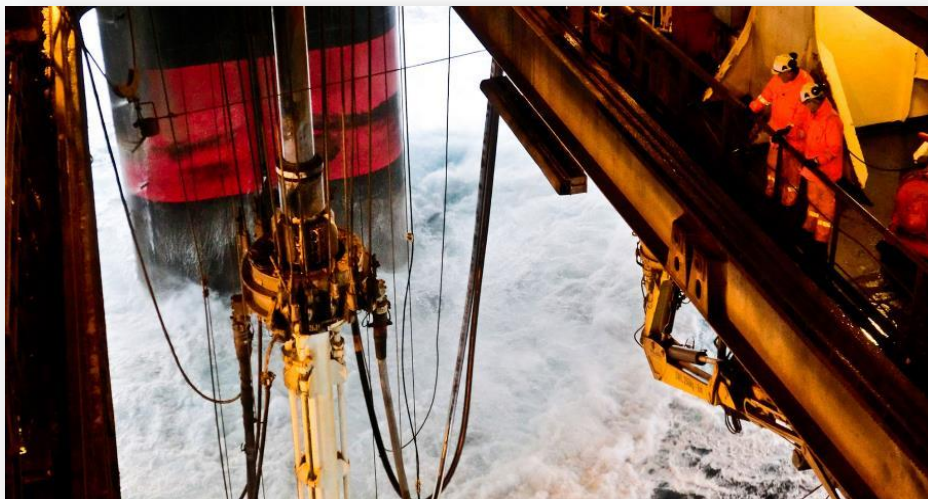
Brazilian experience: Lessons learned

- ANP Safety Division should take place at Asset Transfer Committee (ATC)
- Regulatory gaps – scope of safety regulation should approach asset transaction aspects
- Attention to facility safety indicators – reduced budgets
- ANP should inspect facilities before/after transactions
- Gaps of information between companies
- ANP should guarantee the best information exchange during asset transfer process
- ANP should monitor closely the operational handover process between companies



Source: google- <http://petronoticias.com.br>

Conclusions



Conclusions

ANP main actions:

- ANP Safety & Environment Division takes place at Asset Transfer Committee
- Safety guidelines were prepared to guarantee best transfer of information
- Close monitoring – technical meetings during/after transfer process (with both companies)
- Safety inspections before/after transfer process
- ANP send to new operator all safety information records (inspection reports, incident communication & performance indicators...)
- Update safety regulation scope regarding assets transactions
- Late field life – decommissioning vs lifetime extension



Conclusion

Brazilian experience: Lapa Field (new approach)

- 300km from shore - Santos Basin
- Deep waters: 2140m depth
- 1st Oil: Aug/2016
- 1 FPSO, 6 wells
- 1st operator: PETROBRAS
- New operator: TOTAL
- Dec/2017: ANP approved TOTAL as the new operator - production 40.000 boe/d



Source: google- <http://www.sofec.com>

Key aspects: Lapa Field transaction

- Identification of informations gaps - even with safety asset transfer guidelines
- Effective agenda of technical meetings between ANP, Total, Petrobras during transfer process
- Reliable transfer process – all safety important gaps fulfilled
- Safety management implemented

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