REGULATORY REVIEWS FOR FPSO's IN THE GULF OF MEXICO

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FPSO Workshop

Overview

- MMS Position Regarding FPSOs
- Existing Regulatory Model
- Present MMS Guidelines and Policies
- What Lies Ahead

MMS Position Regarding FPSOs

- 3 Workshops
- OTC 8768; OTC 10701
  - "MMS will need to be assured that the use of [FPSO] technology does not increase the general risk to the environment over other alternatives"
- Environmental, Technical, Conservation challenges must be addressed
- No long term flaring; no reinjection without commitment to produce later

MMS Position Regarding FPSOs

- Environmental
  - site specific analysis
  - EA vs. EIS
- Conservation
  - gas disposition - flaring; reinjection
  - metering; commingling; premature abandonment; full development
- Technical
  - DOCD, DWOP, etc.

MMS Position Regarding FPSOs

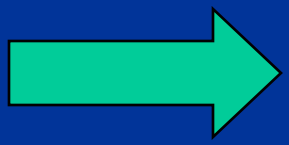
- Research and programmatic studies
- Permitting and regulatory changes
  - Subparts B, D, and I enhancements
    - incorporating RPs; rewrites for clarity
- Interaction with Industry and USCG
  - API, DeepStar, IPAA, IRF, ISO, OOC
    - standards, guidelines, past experiences

Interface with USCG

- Memorandum of Understanding
  - Effective 12/16/98
- Implementation
  - Identifying standards and regulations
  - Determine where changes or enhancements needed to table of responsibilities
  - Clear jurisdictions; component level
- Active and ongoing dialogue with USCG

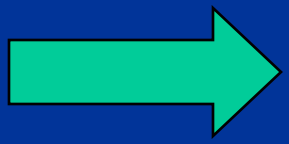
Existing Framework
What Happens After the EIS

Application Filed
Within the Bounds
Investigated in EIS



Prepare a Site-Specific EA

Application Filed
Outside the Bounds
Investigated in EIS



Prepare supplemental EIS?

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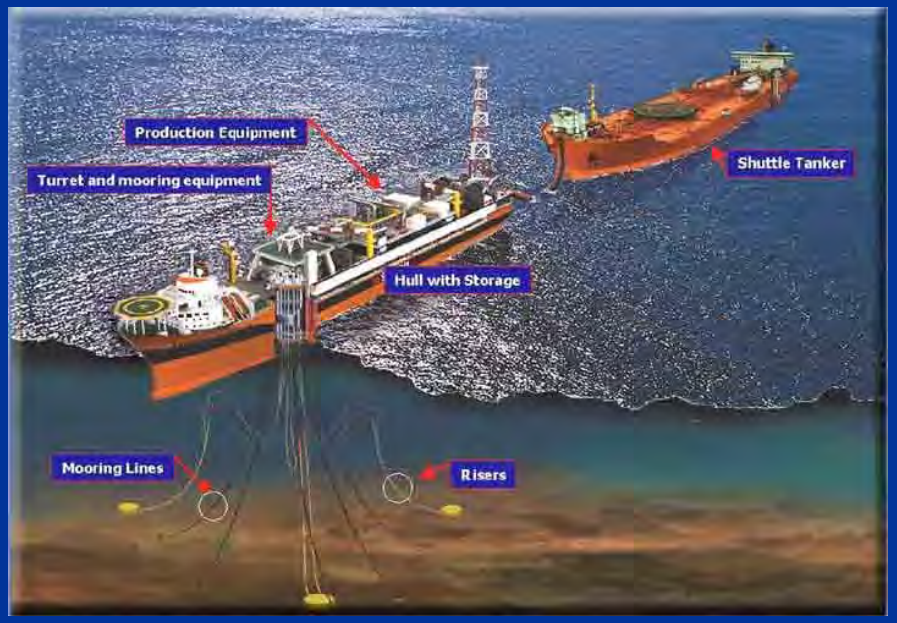
FPSO Configuration Analyzed in EIS and CRA

- Western and Central GOM
- Range of variations
- 1MM bbl oil storage
- Processing
  - up to 300,000 BOPD
  - up to 300MM CFGPD
- Multi-well subsea cluster(s)



Graphic courtesy of Aker Engineering

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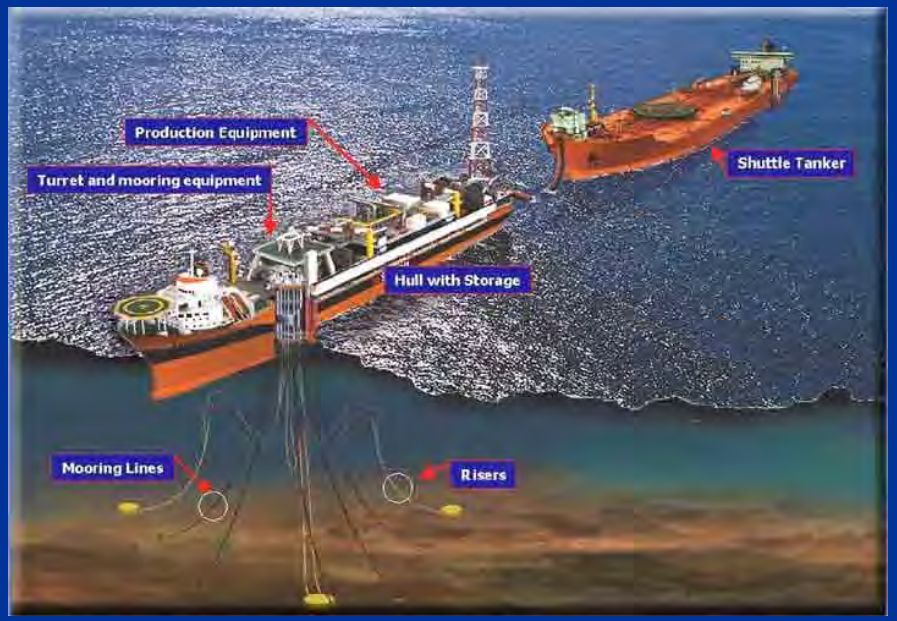
FPSO Configuration Analyzed in EIS and CRA

- Transport
  - 500,000 bbl shuttle tankers to Gulf coastal ports
  - gas pipeline
- Permanently moored
- Double hulled
- Ship shaped



Graphic courtesy of Aker Engineering

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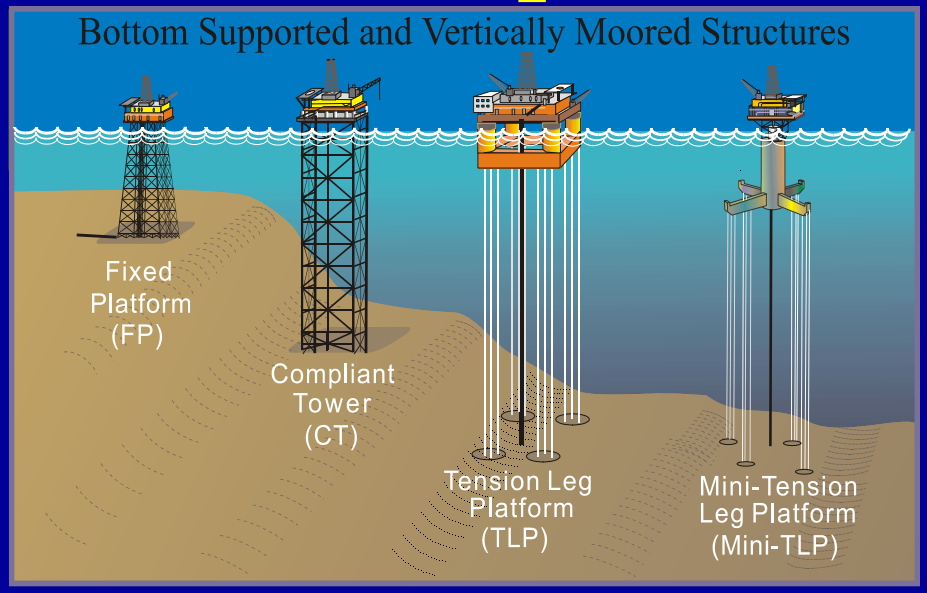
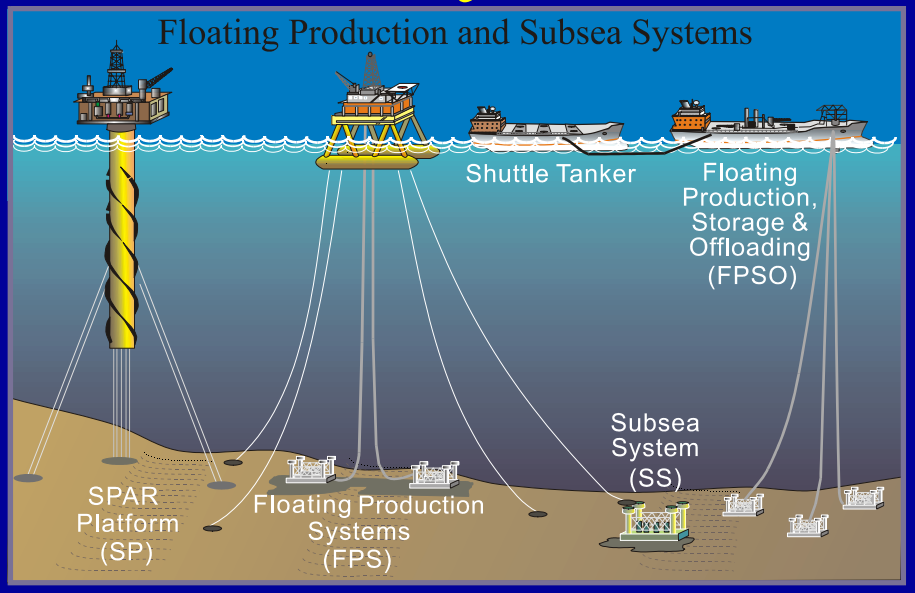
EIS Findings

- Potential for localized impacts essentially the same as for currently accepted systems
- Comparable risks
  - "FPSO and shuttle tanker risk are comparable to the existing deepwater production structure and oil pipeline risks…the net gain in risk would be negligible"
- Potential emission impacts
  - modeled diesel-powered tanker idling during offloading; location dependent

Comparative Risk Analysis





- Risk Assessment of an FPSO in GOM (Bechtel '99)
- Consistent, objective study of overall system risks
- Existing deepwater systems provide known risks
  - designed/operated under existing standards & regulations
  - exhibit satisfactory operating experience

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CRA Conclusions

- No significant difference in
  - fatality risks
  - oil-spill risks
- Transportation system is highest contributor to overall spill risk in all systems studied
- Uncertainty
  - attributed to limited deepwater performance data

Record of Decision

- Signed on December 31, 2001
- Summarizes EIS findings
- Summarizes other considerations
  - CRA; regulations; EIS comments
- Identifies environmentally preferable alternative(s)
- Documents and explains MMS decision
- Approves conceptual use an FPSO's in GOM

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Existing Regulatory Reviews

- Development Operations Coordination Document
  - the "development plan"
  - APD, Sundries
- Deepwater Operations Plan
- Platform Application
- Pipeline Application
- Commingling
- Production Measurement
- Production Safety Systems

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Development Plan

- Plan of Development - 30 CFR 250.204
  - DPP for EGOM; DOCD for WGOM
- DOCD approval prior to...
  - Application for Permit to Drill; Platform application; Lease term pipeline application
- Conservation Review - NTL 2000-N05
  - develop economically producible reservoirs
  - sound conservation, engineering, economic practice
  - penetrated; capable of producing in paying quantities per MMS

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DOCD Proposing FPSO

- NEPA review - EA initially
  - site- and proposal-specific focus
- Many aspects tiered off EIS
  - risk of very large spills (1MM bbl); offloading operations; surface transport of OCS crude oil; port impacts from tankering
- Timeframe: 6 to 9 months?
- Required consultations
  - NMFS; USFWS; EPA; States
    - E&T; EFH; AQ; CZM

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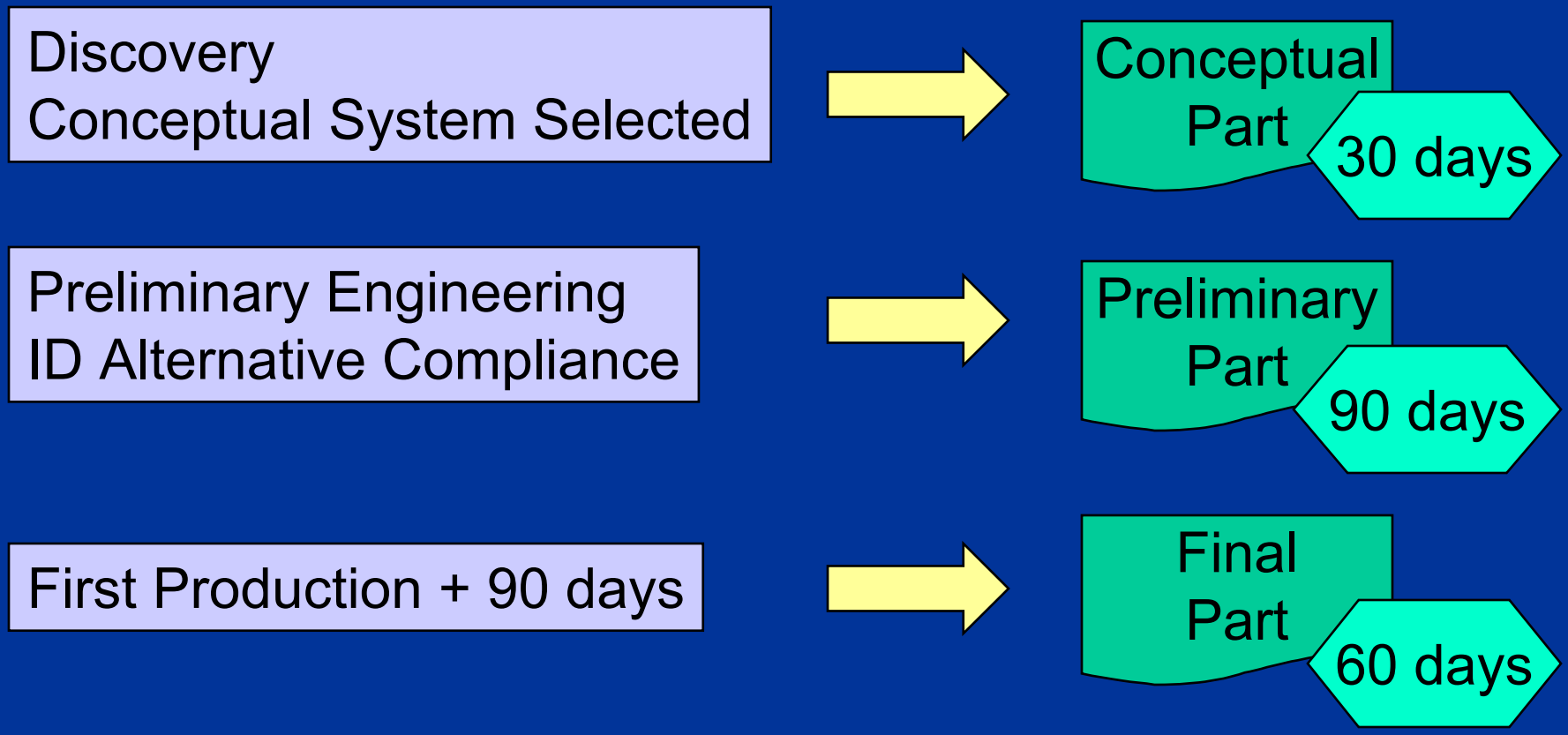
Deepwater Operations Plan

- Phased review strategy (NTL 2000-N06)
  - Conceptual, Preliminary, Final Parts
  - Guideline - Industry/MMS effort
- Early dialogue; focus on "total system"
  - MMS approval prior to major $$ commitments
  - Alternative compliance and departures
- Best Available and Safest Technology

DWOP Timing



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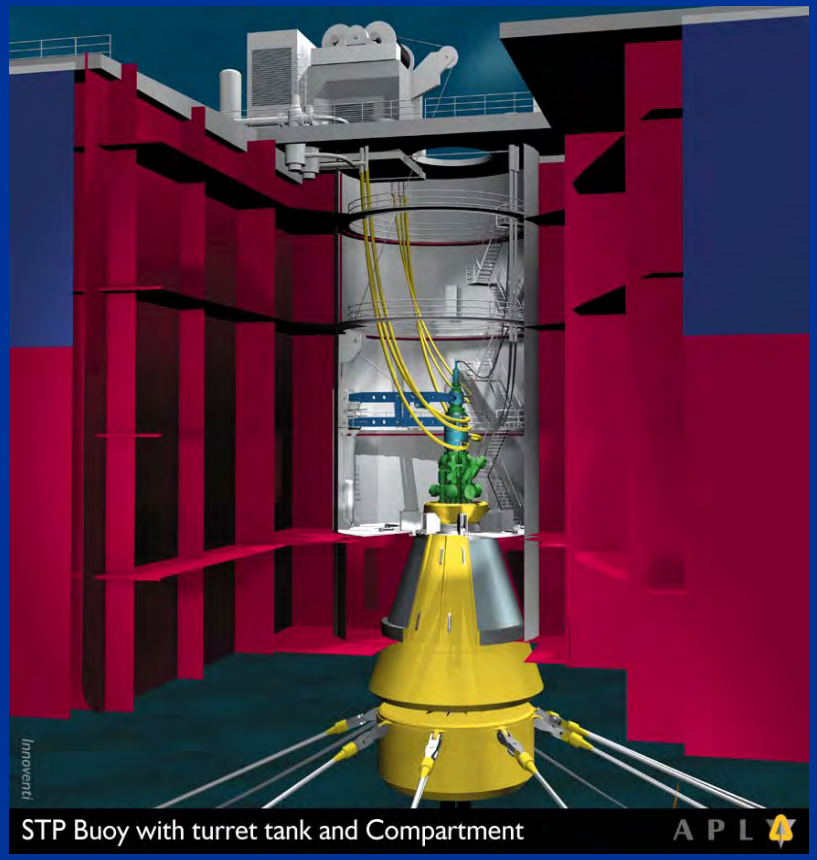
DWOP Contents

- Wellbore
  - drilling/completion considerations
- Structural information
  - design, fabrication, installation (fitness)
  - design criteria; analysis; materials; inspections
  - class society providing certification



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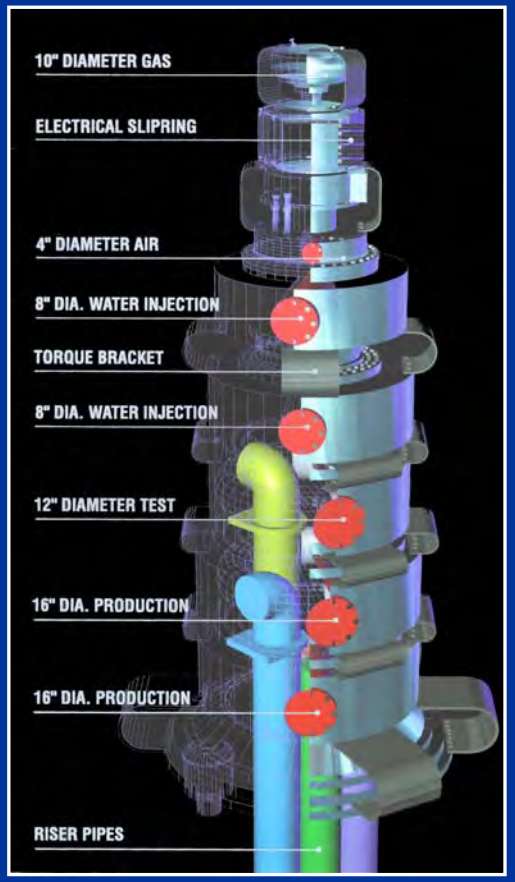
DWOP Contents

- Stationkeeping
  - active vs. passive
  - relationship to other system components
- Multipath swivel
  - seals; sealing surfaces
  - safety devices
  - ratings
- Interfaces



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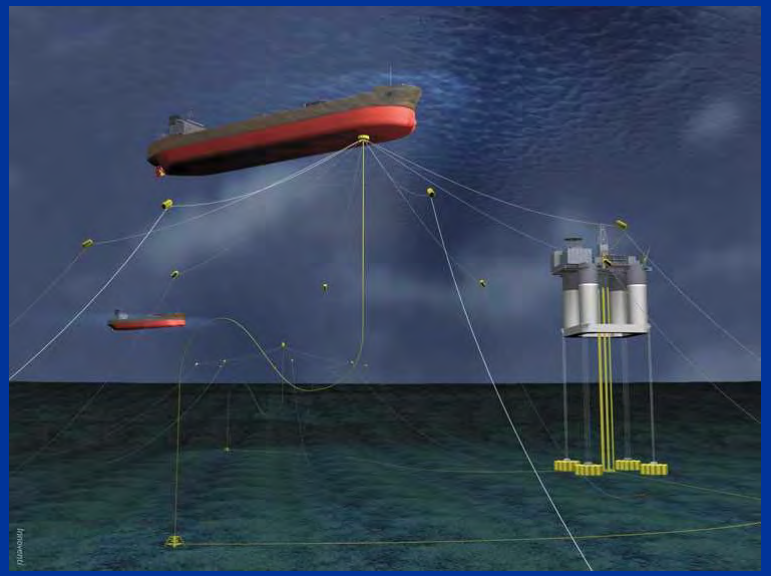
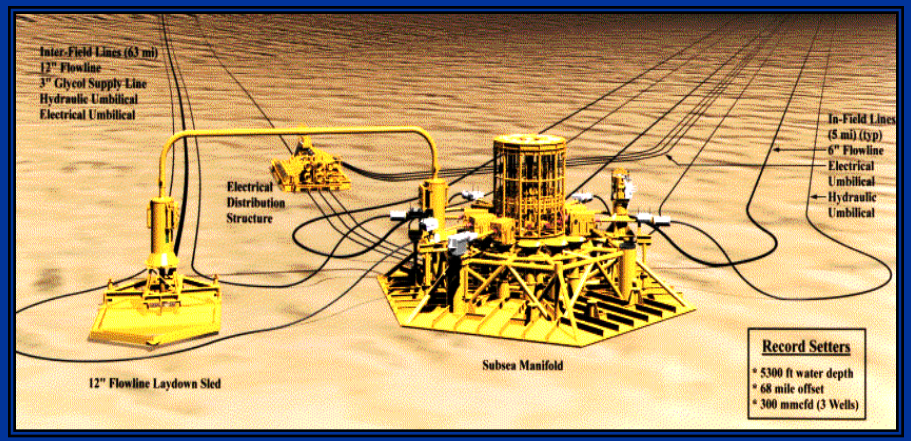
DWOP Contents

- Risers
- Offtake systems
  - shuttle tanker; pipeline
- Surface and subsea production systems
  - design, operation, testing
- Operating procedures
- Hazards Analysis





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Proposed Subpart B Enhancements

Subpart B - “Plan Submittal Requirements”

- Incorporate DWOP
- Curtailment of operations planning
- Hazards analysis
- Conservation review
  - full development
  - premature abandonment

Photo courtesy of Bluewater Offshore

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Proposed Subpart I Enhancements

Subpart I - "Platforms and Structures"

- Current
  - design, fabrication, installation, use, inspection, and maintenance for fixed facilities
    - application process; verification program (CVA)
- Rewrite
  - fixed and floating production facilities
  - streamline review process
  - benefit through use of recognized standards
    - RP 2FPS; RP 2A; expanded role of CVA

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Proposed Incorporation of Industry Standards

- API RP 2FPS - *Planning, Design, and Construction of Floating Production Systems*
- API RP 2RD - *Design of Marine Risers for Floating Production Systems and TLP's*
- API RP 2SK - *Design and Analysis of Stationkeeping Systems*
- API RP 2SM - *Synthetic Fiber Rope Moorings*
- API RP 14J - *Hazard Analysis for Offshore Production Facilities*

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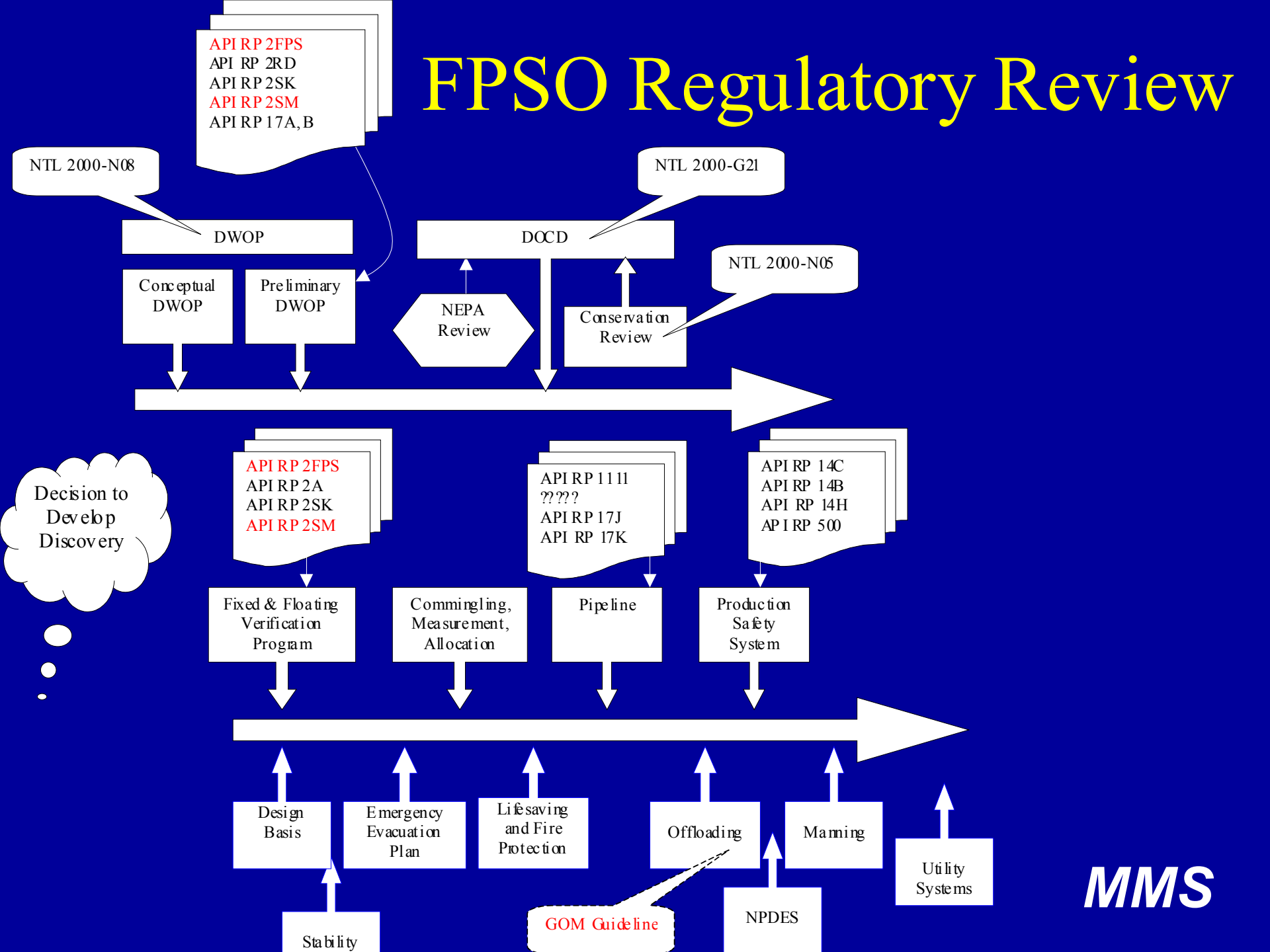
Final Rule Publication (Subpart I + RPs) - October 2002?

FPSO Regulatory Review



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Summary

- Final EIS released in January 2001
- Record of Decision signed on December 31, 2001
- Record of decision approves the concept to use an FPSO's in the Gulf
- Will not consider FPSO's in the Coast Guard lightering prohibited area
- No application has been filed to date

Summary

- Permitting and regulatory changes
- Interaction with industry and USCG
  - –standards, recommended practices, guidelines

- When filed:
  - –A complete Technical and Safety Review
  - –A site specific Environmental Assessment

Thank You

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