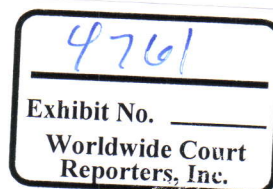




MMS Requirements Overview
Wellsite Leaders

Scherie Douglas
August, 2009

CONFIDENTIAL



MMS overview for wellsite leaders

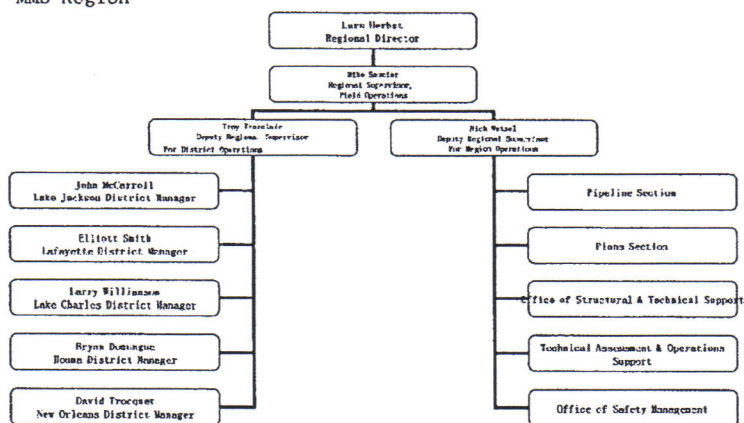


- Minerals Management Service (MMS) Organization
- General Regulations
- Incident Reporting
- Subpart D Regulations (Drilling)
- Subpart O Regulations (Training)
- NTL' s
- Regulatory Support
- Contact Information

MMS Organization



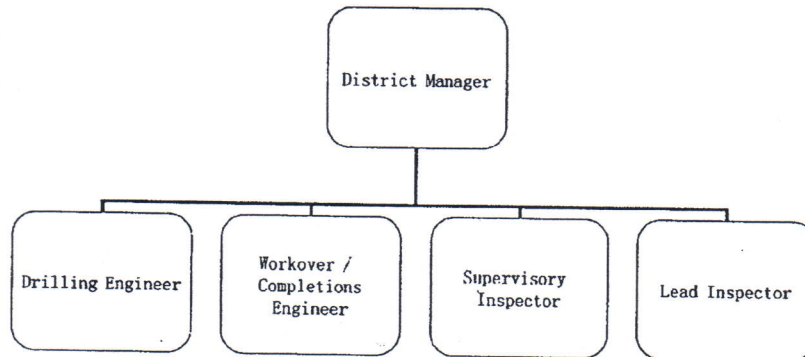
MMS Region



MMS Organization



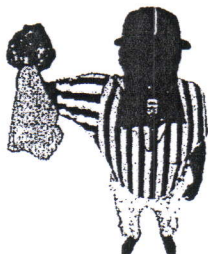
- MMS District Offices



MMS Regulations



- Majority of MMS regulations for offshore in 30 CFR 250
- Failure to comply can result in issuance of an Incident of Non-Compliance (INC) and/or civil penalty



MMS Regulations



- MMS conducts regular inspections on drilling rigs operating in OCS to ensure compliance with regulations and safe operations
 - Inspection may be scheduled or unscheduled
 - Operator must provide access to the facility and helicopter landing site
 - Operator must make available all records



General Regulations



- 250.154 - Identification Signs
 - Signs must be visible from the water line and air and must include lessee name, area and block and MODU name

Incident Reporting



- 250.187-190 - Incident Reporting
 - Lessees are required to report safety and environmental incidents to MMS.
 - A few require immediate notification by phone
 - Most can be reported by eWell within 12 hours
 - Some only need eWell reporting within 15 days
 - All reports to MMS will be done by regulatory staff
 - Regulatory staff responsible for making the decision to report
 - See BP Reporting Matrix for details (copies available)

Incident Reporting



- Incidents that require immediate oral notification to MMS (*as soon as situation is stabilized*)
 - All fatalities
 - Includes non-work related fatalities
 - Loss of well control (*except shallow water flows*)
 - Explosions
 - Fires lasting more than 5 minutes
 - Structural damage to a facility
 - Oil spills 10 barrels or greater

Incident Reporting



- Incidents that require an oral or eWell report *within 12 hours*:
 - *Occupational* injuries that require evacuation for medical treatment
 - Shallow water flows
 - Fires lasting less than 5 minutes
 - Reportable releases of H₂S gas
 - Collisions that result in property damage >\$25,000
 - Crane or personnel/material handling incidents
 - Incidents that damage or disable safety systems or equipment (including fire-fighting systems)
 - Oil spills >1 bbl and <10 bbls (all spills must be called in to the environmental pager regardless of size)

Incident Reporting



- Incidents requiring only a *written report within 15 days*:
 - Reportable injuries not requiring evacuation
 - Natural gas releases that initiate equipment or process shutdown
 - Incidents that resulted in property or equipment damage >\$25,000



Incident Reporting



- Crane or personnel/material handling incident
 - Incident involving a failure of the crane itself (e.g. boom, cables, winches, ballring)
 - Other lifting apparatus (e.g. air tuggers, chain pulls)
 - Rigging hardware (slings, shackles, turnbuckles)
 - Load (striking personnel, dropping the load, damaging the load, damaging the facility)



Incident Reporting



- Fire incident

- Where there is visible flame, *or* evidence that burning has occurred
- Duration begins when fire is discovered and ends when it is completely extinguished
- Fires that occurred but were not witnessed can be deemed to have lasted <5 minutes



Incident Reporting



- Injuries that require evacuation
 - *Occupational* injuries that require the evacuation of the IP from the facility to shore or to another offshore facility *for the purpose of receiving medical treatment*
 - Medical treatment
 - Management and care of a patient to combat disease or a disorder. It does *not* include:
 - Visiting a physician solely for observation or counseling
 - Conducting diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (eye drops to dilate pupils, etc.)
 - Providing first aid

Documentation - IADC reports, pit & trip drills, BOP tests, approved permits, etc.

Emergency drills - especially if non-English speaking personnel are on board. Intent is to see if orientations are being done in a manner that is understood.

Incident Reporting



- Complete list of First Aid Treatment



Using a non-prescription medication at non-prescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a *non-prescription* medication at *prescription* strength is considered medical treatment)

- Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment)
- Cleaning, flushing, or soaking wounds on the surface of the skin



Documentation - IADC reports, pit & trip drills, BOP tests, approved permits, etc.

Emergency drills - especially if non-English speaking personnel are on board. Intent is to see if orientations are being done in a manner that is understood.

Incident Reporting



- Complete List of First Aid Treatments cont.
- Using wound coverings such as bandages, Band-Aids, or gauze pads, or using butterfly bandages or Steri-Strips (other wound closing devices such as sutures and staples are considered medical treatment)



Using hot or cold therapy

- Using any non-rigid means of support, such as elastic bandages, wraps, or non-rigid back belts (devices with rigid stays or others systems designed to immobilize parts of the body are considered medical treatment)

Incident Reporting



- Complete List of First Aid Treatments cont.



- Using temporary immobilization devices while transporting an accident victim (e.g. splints, slings, neck collars, back boards)

- Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister

- Using eye patches

- Removing foreign bodies from the eye using only irrigation or a cotton swab

Incident Reporting



- Complete List of First Aid Treatments cont.
 - Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs, or other simple means
 - Using finger guards
 - Using massages (physical therapy or chiropractic treatment are considered medical treatment)



- Drinking fluids for relief of heat stress

Incident Reporting



- Reportable Injuries

- *Occupational injuries* that result in either lost work time, restricted work, or job transfer in which work time is lost
- Injured person is restricted or transferred to another job for a period of at least one day
 - "One day" means the person was not able to return to work or resume all of his or her normal duties on the day after the injury occurred.

Incident Reporting



- Muster Incident

- Incident that requires operations personnel to muster for evacuation for reasons not related to weather or drills
- Includes near misses (collision avoidance radar, etc)
- Does NOT include false alarms (malfunction of H₂S detector, etc)

Incident Reporting



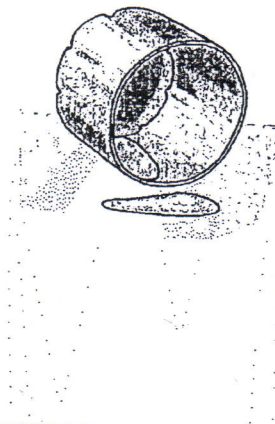
- Initial Notifications should be made according to the BP "Incident Notification, Reporting and Investigation Procedure"
- Regulatory Agency notifications will be made by Environmental and Regulatory personnel
- When in doubt, notify your Regulatory or HSSE Advisor. Your Regulatory Advisor will make the decision whether or not to notify MMS.



Incident Reporting



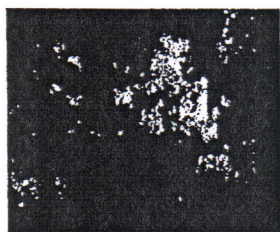
All spills.....



Incident Reporting



- All fires



Incident Reporting



- Crane incidents



Subpart D - Drilling



- 250.401 - Keeping wells under control
 - Operators must take necessary precautions to keep wells under control at all times
 - Use the best available and safest drilling technology to monitor and evaluate well conditions and to minimize the potential for the well to flow or kick
 - Have a person onsite during drilling operations who represents operators' interests
 - Ensure that the toolpusher, operator's representative, or a member of the drilling crew maintains continuous surveillance on the rig floor unless well has been secured

Subpart D - Drilling



- 250.402 - Securing a well

- When drilling operations are interrupted a downhole safety device (i.e. cement plug, bridge plug or packer) must be installed.

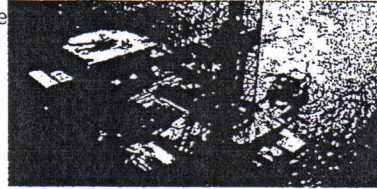


- On floating drilling operations, MMS may approve the use of blind or blind-shear rams or pipe rams and an inside BOP if there is not time to install a downhole safety device or if there are special circumstances. You must gain approval before unlatching.

Subpart D - Drilling



- 250.403 - Rig moves must be submitted 24 hours prior to moving on or off a location (notification filed by regulatory advisor)
 - USCG requires 48 hour notice



- 250.404 - The crown block must be checked at least once per week and after each drill-line slipping operation
 - Results must be recorded in driller's report

Subpart D - Drilling



- 250.410-418 - Application for Permit to Drill (APD)
 - MMS approval required prior to beginning operations



- APD includes location plat, casing design criteria, drilling prognosis, casing and cementing program, diverter/BOP information, rig information and certifications, H2S plan if applicable, directional plot, drilling fluids program
- Requests for departures from the regulations will be attached to the APD
- *All cement volumes and test pressures approved in the APD must be followed (minimums)*

Subpart D - Drilling

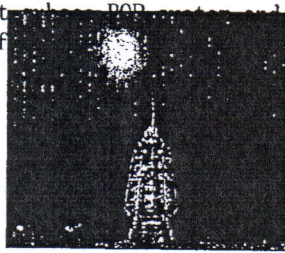


- 250.420-428 - Casing and cementing programs
 - Minimum casing/cementing requirements listed for each string
 - Before resuming drilling after cementing casing a satisfactory pressure test must be held for 30 min
 - If wellbore operations continue for 30 days within a casing string run to surface you must caliper or pressure test the casing and submit the results to MMS

Subpart D - Drilling



- 250.433-34 - Diverter system must be actuated at least every 7 days and record tests in driller's report
- 250.440-451 - BOP Systems
 - Must be installed prior to drilling out surface casing
 - Visually inspect BOP and marine riser every 3 days (if conditions permit)



Subpart D - Drilling



- 250.440-451 - BOP Systems cont
 - Must pressure test BOP system (this includes the choke manifold, kelly valves, inside BOP, and drill-string safety valve):
 - When installed
 - *No more than every 14 days*
 - Before drilling out of each casing string or liner unless:
 - BOP stack was not removed to run casing
 - Required BOP test pressures for the next hole section are not greater than the previous test pressure

Subpart D - Drilling



- 250.440-451 - BOP Systems cont
 - BOP tests consist of (for each BOP component):
 - Low pressure test between 200-300 psi for 5 min
 - High pressure test per APD for 5 min

Subpart D - Drilling

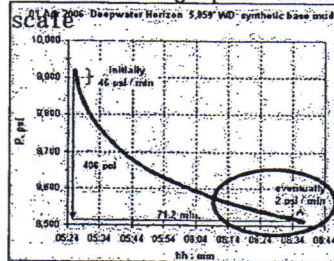


- 250.440-451 - BOP Systems cont
 - Additional BOP requirements include
 - Stump test with water prior to installation
 - Alternate tests between control stations and pods
 - Pressure test blind or blind shear rams during stump tests and at all casing points
 - Blind or blind shear ram test required at least every 30 days
 - Function test rams and annulars every 7 days
 - Wellsite leader must sign and date BOP test charts

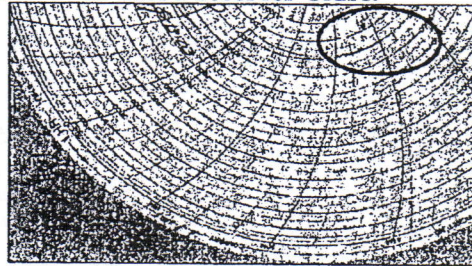
Digital BOP Testing



Small pressure declines
visible when graphed on this



appear stable when viewed
on chart recorder scale.



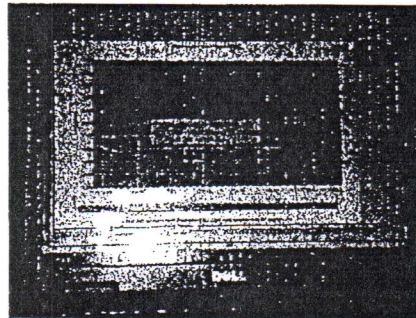
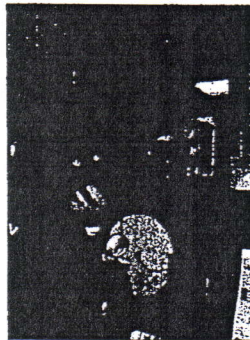
- Ability to detect pressure change on a chart is 3-4 psi/min
 - Tests are ended when pressure appears stable for 5 min
 - 3-4 psi/min is the *de facto* testing standard

This was key point in technology application - achieving consensus with regulators that what is "stable pressure" on chart is actually still declining 3-4 psi/min. We weren't changing anything - but agreement on this point was critical.

Digital BOP Testing



- BP developed digital software to optimize test timeframes
 - More efficient and accurate
 - Less exposure to high pressures



Additional benefits: Shorter exposure time for personnel working with high pressure lines; Less wear and tear on BOP and surface equipment;

Digital BOP Testing



- Digital algorithm predicts the pressure at which the test would be interpreted as stable and ended using a chart (i.e. decline rate 3 psi/min)
- Computer predicts if the stable pressure is above or below the approved test pressure
 - If greater, test is positive
 - If less, test is negative

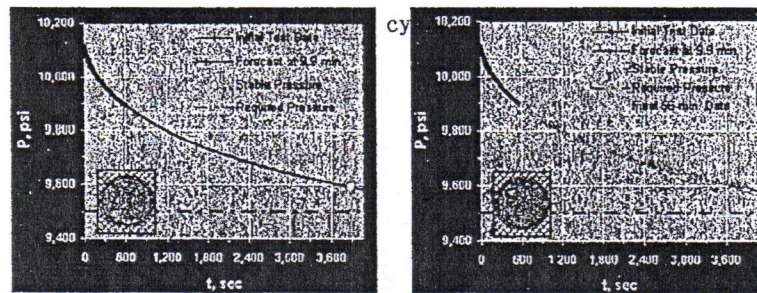


Our software is extremely conservative. Model generates "predictions" at one per second. Must have 60 consecutive "predictions" of stable pressure (within the 3 psi/min decline rate) and above the required test pressure for the light to go green. If have 58 or 59 good results then one bad result, model continues running.

Digital BOP Testing



- Digital Algorithm steps
 - Fit an appropriate mathematical function to the early pressure data
 - Extrapolate pressure trend and predict stable pressure
 - Test for confidence



Good example of software running in the background behind an actual pressure test using the conventional chart method.

First graph is software predicting a "forecast" (purple line) to a stabilized pressure. Forecast made at 9.9 minutes.

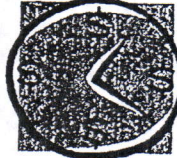
Second graph is actual result allowing the test to proceed normally (using chart method). Stabilized pressure observed via chart after 56 minutes.

Might also be a good place to mention that we ran our Digital BOP software in the background of conventional chart interpretation (like the above) for ~2 years.

Digital BOP Testing



- MMS approval states the Anatomize software meets the intent of the regulations
- Notification of intention to use Digital BOP Method included in each APD
- Currently installed on 4 BP rigs
- Shut-in times reduced and significant time/cost savings realized (68-75%)



7 - 8 hours saved on Horizon

Subpart D - Drilling



- 250.462 - Well control drills
 - Conduct weekly well-control drills with each drilling crew
 - Record in the driller's report

- 250.465 - Changes to drilling program
 - Revisions to the approved well plan (APD) require MMS approval
 - Approval will be obtained from MMS by regulatory staff

Subpart 0 - Training



- Subpart 0 - Well Control Training
 - Operators must ensure employees and contract personnel engaged in well control or production safety operations understand and can properly perform their duties
 - MMS may conduct on-site oral, written or hands-on testing
 - MMS audited BP's Subpart 0 plan recently and did not issue any INCs
 - Very complimentary of BP plan and implementation

Notices to Lessees (NTL)

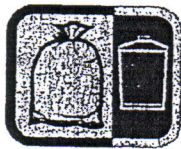


- MMS issues Notices to Lessees (NTLs) as guidance documents to:
 - Clarify
 - Supplement
 - Provide more detail
 - Outline information required for various submittals
 - Set forth policy and interpretation of a regulatory requirement that provides clear and consistent approach to compliance

NTL' s



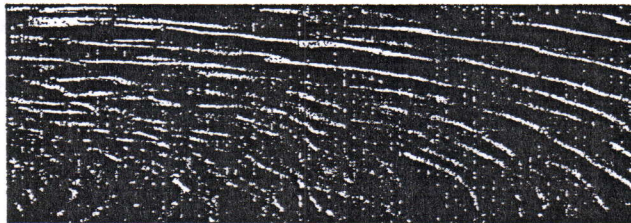
- Marine Trash & Debris (NTL No. 2007-G03)
 - Must post specified placards in prominent places on the rig
 - Offshore personnel must complete awareness training annually



NTL' s



- Ocean Current Monitoring - NTL 2009-G02
 - Floating MODU operations require continuous real-time current monitoring and data gathering
 - No longer need to notify MMS when the current monitor is out of service for repairs



NTL' s



- 2009-G25 Shutting in producible wells during rig moves
 - Provides guidelines for requesting departures from the requirement to shut in producing wells when moving a rig onto a platform or skidding between wells on a producing platform
- 2009-G17 - Designated Safe Welding and Burning Areas
 - Describes the process to gain approval for designated safe welding and burning areas on rigs
 - Details requirements for posting the approval on the rig

Regulatory Support



- Your Regulatory Advisor is your friend.....
- Regulatory Staff
 - Linda Onstott
 - Greg Wiltz
 - Bekki Winfree
 - Dennis Sustala
 - Teri Halverson
 - Anne-Renee Laplante
 - Scherie Douglas
 - Heather Powell



Regulatory Support



- Link to 30 CFR Part 250
 - [http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=6f840c986a5ae511a8dd858efb04d937&tpl=/ecfrbrowse/Title30/30cfr250 main 02. tpl](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=6f840c986a5ae511a8dd858efb04d937&tpl=/ecfrbrowse/Title30/30cfr250%20main%2002.tpl)
- Link to NTL' s
 - <http://www.gomr.mms.gov/homepg/regulate/regs/ntl1tl.html>
- Link to CyberRegs
 - <http://bp.citation.com>
 - Once you establish your unique User Name and Password, you will have full access to CyberRegs™.

MMS overview for wellsite leaders



- Failure to comply could lead to this...



Contact Information



- If you have questions or want more information contact me at:

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Cell - [REDACTED]

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