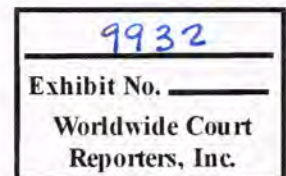


From: Sanders, Robert O
Sent: Mon Jul 26 18:38:09 2010
To: Sims, David C
Subject: FW: Gents - MoC and attached slide pack regarding accountabilities et al during well kill and cementing operations
Importance: Normal
Attachments: DCMOC-10-0120 - MC 252-3 Relief Well Kill, Control, and Cementing Accountability Change.pdf; Kill Organization for Macondo #3.ppt

Previous communications. Notes I have indicate a call to rig on 7/9 - 2 pm with Ronnie, Ernie, and Chuck.

From: Sanders, Robert O
Sent: Friday, July 09, 2010 11:25 AM
To: DD3 Well Site Leader; Tate, Ernest G; Sepulvado, Murry R; Sepulvado, Ronald W; Speirs, Tim; Nunley, Dwight D; Wright, Craig (US); Purvis, Wayne; Shaughnessy, John M.; Ware, Charles C
Cc: Daigle, Keith G
Subject: Gents - MoC and attached slide pack regarding accountabilities et al during well kill and cementing operations
This is the MoC that covers the shift in accountability for operations from David Sims for the Well Kill and Post Kill cementing operations to Mark Mazzella. Wanted to get this out to you guys so that you could look it over and then we could schedule a time to review either via VC, teleconference, or by other one on one etc. Lots of info but probably best to review via a discussion versus trying to do it over e-mail.
Let me know what works best for you. If I don't hear from you I will be calling to review it!!!
Thanks
Robert

<<...>> <<...>>





8 July 2010 (Rev.2)

EXECUTE STAGE TEAM ORGANIZATION

- | | |
|-------------------------|-------------------------------|
| •Organization Strategy | •Staffing |
| •Organization Structure | •Principal Roles |
| •Team Deliverables | •Key Decision Rights |
| •SPA Assignments | •Kill and Cementing Operation |

Organization Strategy



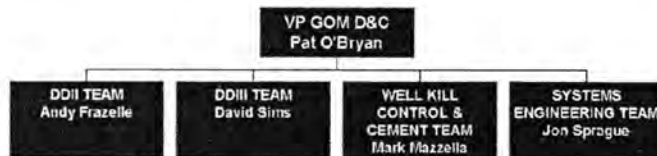
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 - DDII Team ----- Andy Frazelle
 - DDIII Team----- David Sims
 - Kill, Control & Cement Team ----- Mark Mazzella
 - Systems Engineering Team ----- Jon Sprague
2. Avoid "Kill By Committee". Focus on Identifying Points during the kill operation when time-outs will be called and the team huddles up.
3. Plan the work; Work the plan:
 - Focus on Operational Procedures
 - Joined -up Offshore Team Organization
4. Recognize Accountabilities
 - Accountability Transfer of Well Bore During Kill, Cementing Operations
 - Engineering Alignment

Organization Structure

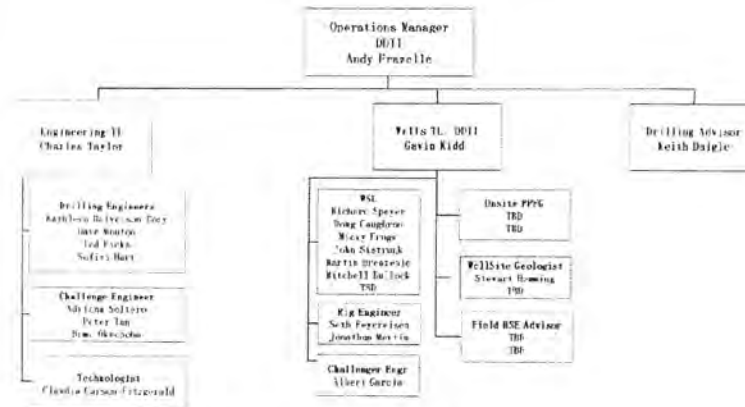


- VP GOM D&C
- DDII Team
- DDIII Team
- Well Kill, Control and Cement Team
- Systems Engineering Team

VP GOM D&C



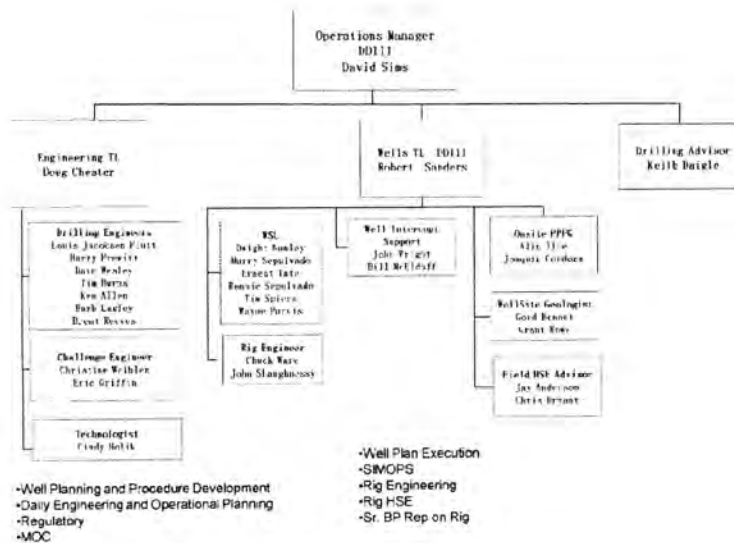
DDII TEAM



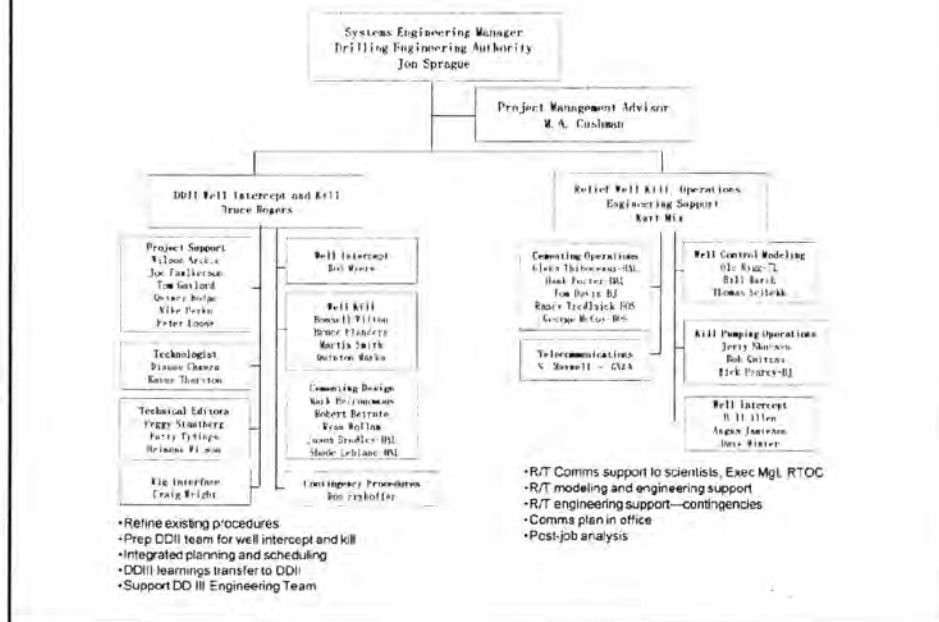
•Well Planning and Procedure Development
•Daily Engineering and Operational Planning
•Regulatory
•MOC

•Well Plan Execution
•SIMOPS
•Rig Engineering
•Rig HSE
•Sr. BP Rep on Rig

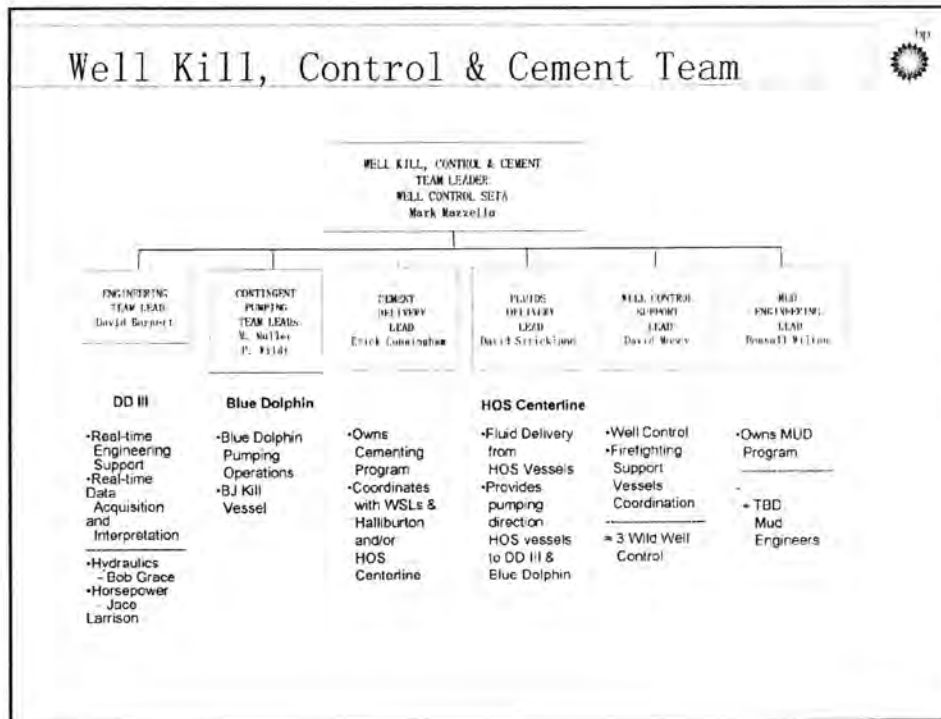
DD III TEAM



Systems Engineering



Well Kill, Control & Cement Team



Principal Roles / Key Decision Rights



- DDII Team
- DDIII Team
- Kill, Control & Cement Team
- Systems Engineering

Principal Roles/Key Decision Rights: DDII/DDIII Well Drill Intercept Team



SPA	Principal Role	Key Decisions
OFFSHORE - Well Drill & Intercept Team		
1 TOI OIM	<ul style="list-style-type: none"> Accountable for overall Rig Operations Assumes role as OSC 	<ul style="list-style-type: none"> Responsible for Safety of MODU and All personnel Authority for 50Cm exclusion zone
2 BP Well Site Leader Dwight Nunley Wayne Purvis Murry Sepulvado Ronnie Sepulvado	<ul style="list-style-type: none"> Responsible for leading well drilling and intercept efforts Sr. BP Rep on rig 	<ul style="list-style-type: none"> Safe, efficient execution of well procedures All Systems Ready Execute and direct technical decisions Manage interfaces onshore & offshore Manage / coordinate third party contractors
3 WSL / SIMOPS Coordinator Tim Speirs Ernie Tate	<ul style="list-style-type: none"> Coordinates DD3 Vessel operations with SIMOPS Source Control Branch Director Supports BP Sr WSLs 	<ul style="list-style-type: none"> Interface with ongoing Operations (SIMOPS) Communication with containment vessels
4 Sr Tool Pusher	<ul style="list-style-type: none"> Directs TOI Personnel on Rig activities as requested by WSL and OIM 	<ul style="list-style-type: none"> Confirms Operational Readiness Directs TOI personnel
5 Mud Engineers	<ul style="list-style-type: none"> Provide Fluid Assurance Provide support with fluids (mud volumes, conditioning, secondary actions, etc.) 	<ul style="list-style-type: none"> Decisions of fluid quality Maintain volume additional fluids are needed
6 Deck Pushers	<ul style="list-style-type: none"> Directs crane and labor support 	<ul style="list-style-type: none"> Operational readiness
7 ROV Supervisors	<ul style="list-style-type: none"> Coordinate ROV movement 	<ul style="list-style-type: none"> ROV positioning, operation as directed
8 Logistics TBD - BP Clerk	<ul style="list-style-type: none"> Coordinate travel to and from vessels Coordinate movement of people and material 	<ul style="list-style-type: none"> Interface with ongoing operations (SIMOPS)

Principal Roles/Key Decision Rights: DDII Well Intercept and Kill



SPA	Principal Role	Key Decisions
ONSHORE – DDII Well Intercept and Kill (Rogers)		
1 <i>Engr Planning TL</i>	<ul style="list-style-type: none"> • Refine existing procedures • Supports DDII and DDIII Engr TL's • Integrated planning and scheduling • Prep DD II for well intercept 	• Ensures Procedure Readiness
2 <i>Project Support</i>	<ul style="list-style-type: none"> • Schedule Updates • Status Updates • Meeting Organization 	• Communicates Progress & Delays & decides actions on interventions
3 <i>Technologist</i>	<ul style="list-style-type: none"> • Rig Time Curve updates • Morning Reports 	
4 <i>Technical Editor</i>	<ul style="list-style-type: none"> • Procedure Preparation • Document Control • SharePoint Management 	• Procedure Formatting
5 <i>Rig Interface</i>	<ul style="list-style-type: none"> • Operations input into procedure 	

Principal Roles/Key Decision Rights: DDII Well Intercept and Kill



(cont.)

SPA		Principal Role	Key Decisions
ONSHORE – DDII Well Intercept and Kill (Rogers)			
6	<i>Well Intercept</i>	<ul style="list-style-type: none"> Wellbore 3D modeling Ranging Program Ranging Updates Advise on Intercept Procedure <ul style="list-style-type: none"> Field testing WY Technical Assistance Advice to Offshore Intercept Team 	<ul style="list-style-type: none"> Assist DDIII Intercept Team on well directional changes, BHA design, ranging strategy
7	<i>Well Kill</i>	<ul style="list-style-type: none"> Advise on Well Kill Procedure 	<ul style="list-style-type: none"> Mud Weight Required Pump Rate Required Mud Volume Required Well Status Determination
8	<i>Cementing</i>	<ul style="list-style-type: none"> Refine Well Cementing Procedure Cement Slurry Design Cement Spacer Design 	<ul style="list-style-type: none"> Cement Type Cement Weight Cement Volume Cement Pump Rate
9	<i>Contingency</i>	<ul style="list-style-type: none"> 7-5/8" Liner Procedure 7" Liner Procedure Perforating Procedure 	

Principal Roles/Key Decision Rights: Relief Well Kill Ops Engineering Support



SPA	Principal Role	Key Decisions
ONSHORE – Relief Well Kill Operations Engineering Support (Mix)		
1 OPS TL	<ul style="list-style-type: none"> Leads well kill/cementing Ops support efforts Assemble Support Team Advise and Assist Well Drill and Intercept Team 	<ul style="list-style-type: none"> All Systems ready Direct technical decisions Coordinate Table Top Exercise
2 BP Well Control Modeling	<ul style="list-style-type: none"> Technical Advisor to Well Kill / Control/ Cement TL and Offshore Team 	<ul style="list-style-type: none"> Technical readiness Consults with management as to the status of the well and Operations Advise on Decision Making & Trouble Shooting Operations
3 Well Kill Pumping	<ul style="list-style-type: none"> Technical Advisor to Well Kill / Control/ Cement TL and Offshore Team 	<ul style="list-style-type: none"> Support Kill Pumping operations Support pumping ops for Blue Dolphin and HOS vessels as required
4 Cementing Operations	<ul style="list-style-type: none"> Technical Advisor to Offshore Team 	<ul style="list-style-type: none"> Support issues involving fluid quality Support offshore team as needed
5 Telecommunications	<ul style="list-style-type: none"> Insure data stream flows to all necessary locations Assist in real time data issues during all pumping operations 	
6 Reporting	<ul style="list-style-type: none"> Coordinate Real-time Kill Assessment Data acquisition Provide post-operational report 	

Principal Roles/Key Decision Rights: DDIII Engineering Team



SPA	Principal Role	Key Decisions
ONSHORE – DD III Engineering Team		
1 Engineering TL Doug Chester	<ul style="list-style-type: none"> Leads well planning and operations procedure development Advises, assists WTL Integration with Systems Engineering and DDII Engineering Teams 	<ul style="list-style-type: none"> Procedure readiness Engineering assurance and compliance Regulatory compliance Contingency planning Risk assess procedures
2 Drilling Engineers Louise Jacobsen Plutt Harry Prewett Dave Wesley Tim Burns Ken Allen Bartara Lasley T. Brent Reeves	<ul style="list-style-type: none"> Prepare procedures Provide daily engineering assurance to well plan execution / drilling operations MOC Advise on regulatory compliance Data QC Cost control 	<ul style="list-style-type: none"> Advises Well Kill Engineering TL
3 Challenge Engineers Christine Weiblen Eric Griffin	<ul style="list-style-type: none"> Assist with procedure development Rigsite lessons learned capture Assist rigsite engineering 	
4 Technologist Cindy Holik	<ul style="list-style-type: none"> Rig Time Curve updates Morning Reports Data QC JV audit support 	

Principal Roles/Key Decision Rights: DDIII Operations Team



SPA	Principal Role	Key Decisions
ONSHORE/OFFSHORE – DDIII Well Operations		
1 Wells Team Leader Robert Sanders	<ul style="list-style-type: none"> Accountable for safe, efficient, execution of Drilling and Intercept well plans/procedures 	<ul style="list-style-type: none"> Rig Operations Drilling, Intercept, and Conventional Downhole Issues
2 Wellsite Leaders Dwight Nunley Wayne Purvis Murry Sepulveda Ronnie Sepulveda Tim Speirs Ernie Tate	<ul style="list-style-type: none"> Responsible for safe, efficient, execution of well plans/procedures Sr. BP Rep on rig SIMOPS Consult with DIM in all phases of rig operations 	<ul style="list-style-type: none"> Execute Well Plan Rig operations Logistics Permit to work Regulatory compliance Manage interfaces / 3rd parties
3 Rig Engineers John Shaughnessy Chuck Ware	<ul style="list-style-type: none"> Engineering assurance at rig site Casing, cementing assurance Lessons learned capture Planning Audit procedures, processes, compliance 	<ul style="list-style-type: none"> Assist with daily operations decisions
4 Well Intercept Support John Wright Bill McEliduff	<ul style="list-style-type: none"> Leads Intercept operations 	<ul style="list-style-type: none"> Ranging methods, timing, ranging data interpretation
5 Onsite PPFG Ailin Ili Joachim Cordazzi	<ul style="list-style-type: none"> PPFG monitoring, prediction 	<ul style="list-style-type: none"> Mud weight changes
6 Well Site Geologist Cord Bennett Grant Rowe	<ul style="list-style-type: none"> Subsurface characterization 	<ul style="list-style-type: none"> Lithology changes
7 Field HSE Advisor Jay Anderson Chris Bryant	<ul style="list-style-type: none"> Safety Training Promote safe operations Audit, investigation 	<ul style="list-style-type: none"> Compliance with safety management systems

Kill and Cementing Operation

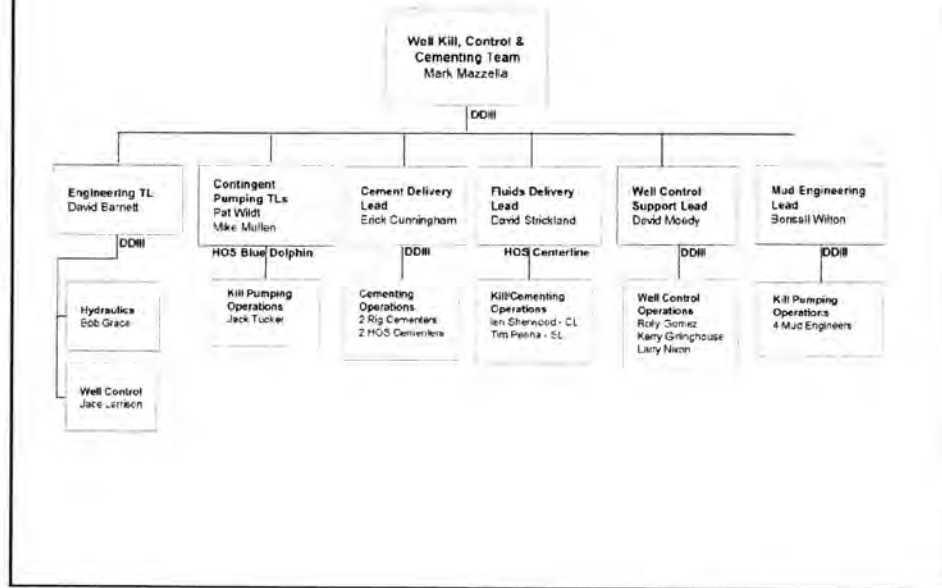


- Accountability Transfer
- Offshore Organization during Kill, Control and Cement Operation

Key Points

- Accountability for Kill/Cementing transfers to Mark
- Unique operation, high stakes
- Unique expertise
- Reduce interfaces – simplify reporting – direct to Pat
- Engineering support/accountability shifts to Mix from Chester
- WTL retains accountability for all other rig operations – assists Well Kill
- MOC required for Approved Early Intercept, Kill Procedures

Offshore Organization During Kill Operation



Principal Roles/Key Decision Rights: Well Kill, Control & Cement Team



SPA	Principal Role	Key Decisions
OFFSHORE - Well Kill Control & Cement Team		
1 <i>TOI OIM</i>	<ul style="list-style-type: none"> Accountable for overall Rig Operations & HSE Assumes role of OSC 	<ul style="list-style-type: none"> Go / No-Go Responsible for safety of MOCU and all personnel Authority for 500m exclusion zone
2 <i>Well / Kill Control Commander</i> Mark Mazzella	<ul style="list-style-type: none"> Overall Well Kill/Control/Cementing Accountability Advise Well Intersect Team Kill Well 	<ul style="list-style-type: none"> Go / No Go - All Systems Ready Execute and direct technical decisions Manage interfaces onshore & offshore
3 <i>DDIII / BP WSLs</i> Dwight Nulitty Wayne Purvis Murry Sepulveda Ronnie Sepulveda Tim Speirs Ernie Tate	<ul style="list-style-type: none"> Provide Assurance for DD III Rig Ops Advise, Assist, Support Well Kill Operations as required by Well Kill / Control Commander Logistics, Communications, vessels, rig accountability 	<ul style="list-style-type: none"> Go / No-Go Rig floor Ops If manifold is ready to pump Manifold Integrity BOP Controls Vessel Coordination SIMOPS
4 <i>TOI Sr. Tool Pusher</i>	<ul style="list-style-type: none"> Directs TOI personnel on Rig activities as requested by WSL and OIM Advise OIM on Well Control event Ensure rig crews follow TOI guidelines for well kill 	<ul style="list-style-type: none"> Go / No-Go Confirms operational readiness for Kill Team Directs TOI personnel in Well Control situations
5 <i>Well Control</i> David Moody	<ul style="list-style-type: none"> Well Control support to Well Control Commander Coordinate firefighting support vessels Support WSL Well Control Requirements 	<ul style="list-style-type: none"> Go / No-Go Confirmation of Equipment Configuration Advise actions on Kill & Contingencies
6 <i>Kill Fluids Delivery</i> David Stockland	<ul style="list-style-type: none"> Provide Fluid Delivery Assurance Provide support with fluids (mud volumes, conditioning, secondary actions, etc.) Support Well Kill operations as required by Well Kill / Control Commander 	<ul style="list-style-type: none"> Go / No-Go Decisions of fluid delivery outside of DDIII Coordinate fluid delivery with Strongline and Centerline to rig and/or DDIII if additional fluids are needed

Principal Roles/Key Decision Rights: Well Kill, Control & Cement Team
(cont)



SPA	Principal Role	Key Decisions
OFFSHORE - Well Kill Control & Cement Team		
7 Cementing Enck Cunningham	<ul style="list-style-type: none"> Provide Cement Assurance Provide support with cement volumes, conditioning, secondary actions, etc Support Well Kill operations as required by Well Kill / Control Commander 	<ul style="list-style-type: none"> Go / No-Go Decisions of fluid quality If additional cement is needed sequence cement pumping operations
8 Pumping Pat Vildt	<ul style="list-style-type: none"> Coordination of Blue Dolphin pumping operations Support Well Kill operations as required by Well Kill / Control Commander 	<ul style="list-style-type: none"> Go / No-Go Sequence Kill pumping operations Remotely direct pumping ops from Blue Dolphin if necessary
9 Kill Engineering David Barnett, Bob Grace, Joe Lamson	<ul style="list-style-type: none"> Primary real-time engineering support to Well Kill Control Commander Real-Time Kill Assessment Data Acquisition Provide post-operational report 	<ul style="list-style-type: none"> Go / No-Go Advise on pressure limitations and rate changes Advise actions on Kill and Contingencies
10 Mud Engineering Bonsal Wilton	<ul style="list-style-type: none"> Provide fluid assurance Provide support with fluids (mud volumes, conditioning, secondary actions, etc.) 	<ul style="list-style-type: none"> Decisions of fluid quality Maintain volume additional fluids are needed
11 Deck Pushers	<ul style="list-style-type: none"> Directs crane and labor support for Kill Team 	<ul style="list-style-type: none"> Operational readiness
12 ROV Supervisors	<ul style="list-style-type: none"> Coordinate ROV movement 	<ul style="list-style-type: none"> Go / No-Go ROV positioning Plume and pressure monitoring
13 BJ and HES Pumping Vessel Supervisors	<ul style="list-style-type: none"> Confirms readiness with WKT Vessel Sups Responsible for pumping job 	<ul style="list-style-type: none"> Go / No-Go for pumping readiness
14 SIMOPS Coordinator	<ul style="list-style-type: none"> Coordinates Field SIMOPS with Houston DC Coordinates DDIII vessel ops with SIMOPS Field Command 	<ul style="list-style-type: none"> Interface with ongoing operations (SIMOPS)

Intercept and Kill Engineering



Systems Engineering – Mix, Rogers

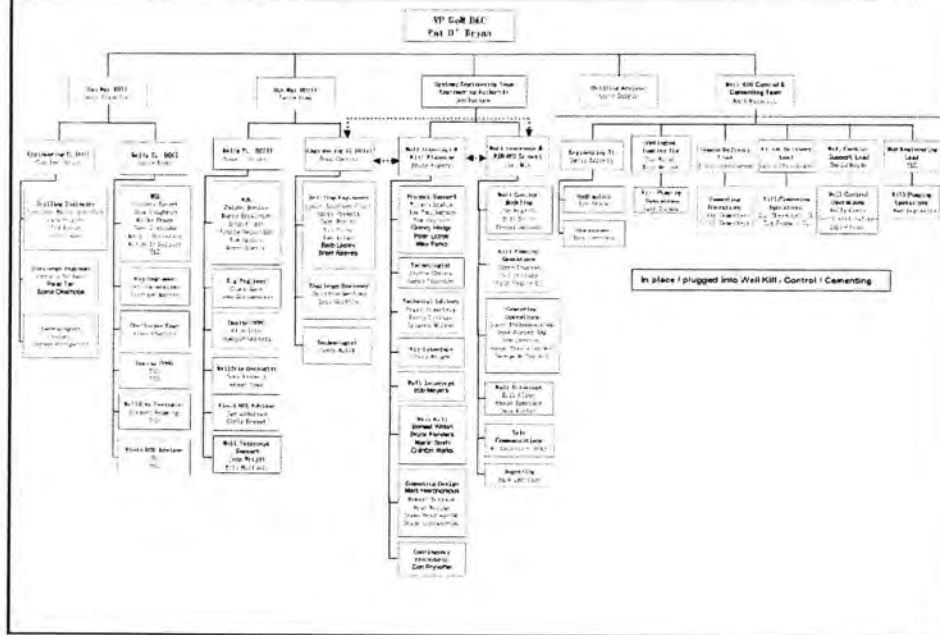
1. Early Intercept Recovery
 2. Well Intercept, Kill
 3. Mud, Cement, Pumping
 4. Kill Drills/Diagnostics/Communications/ Contingencies/ Fishing
 5. R/T Engineering Support for Kill, Cementing
 6. Prep DDII
-

DDII Engineering - Chester

Operationalized Procedures

1. 9-7/8" hole section – drilling, ranging, casing
2. 8-1/2" drill out, ranging, intersect annulus
3. Kill and Cement/Isolate annulus
4. Locate, mill into 7"
5. Kill and Cement/Isolate
6. Abandonment / Monitoring

Relief Wells Teams



Intercept, Kill, Control & Cementing Operations RACIE Chart



	Pat O'Bryen	David Sims	Mark Mazzella	Jon Sprague	Robert Sanders	Doug Chester	Ernie Rogers	Kurt Mix	David Barnett	Pat Wilt / Mike Mules	Erick Cunningham	David Strickland	David Moody	Bonnie Wilton
HSE:	E													
1 Drilling OPS	A	C	R	R	R	R	R	R	R	R	R	R	R	R
2 Well Kill OPS	C	A	R	R	R	R	R	R	R	R	R	R	R	R
RIG OPERATIONS:	E													
1 Logistics	A	I		R	R									
2 Station Keeping	A	I		R										
3 Stability	A	I		R										
4 Equipment Maintenance	A	C		R	R									
5 Communications	A	C		R	R									
6 SMOPS	A	C		R	R									
DOWN HOLE ACTIVITIES:	E													
1. Drillout/Perform HIT	A	C		R	R	I	I	I		I	I	I	I	I
2. Range & Intercept	A	C	C	R	R	I	R	I		I	I	I	I	I
3. Commence Kill Procedures, including diagnostics	C	A	C	R	R	I	R	C	R		R	R	R	R
4. Cement & Isolate	C	A	C	R	R	I	R	C		R	R	R	R	R
5. Return to Drilling Operations	A	C	C	R	R	I	I	I						
6. POOH / Pick up Mill	A	C	C	R	R	I	R	I						
7. Range / Mill T	A	C	C	R	R	I	R	I						
8. Kill Casing	C	A	C	R	R	I	R	C	R		R	R	R	R
9. Cement/ isolate Casing	C	A	C	R	R	I	R	C		R	R	R	R	R
10. Return to Drilling Operations	A	C	C	R	R	I	I	I						
11. Drill to top of Reservoir	A	C	C	R	R	I	I	I		I	I	I	I	I
12. Kill Well	C	A	C	R	R	I	R	C	R	I	R	R	R	R
13. Cement & Isolate	C	A	C	R	R	I	R	C		R	R	I	R	R
14. Return to Drilling Operations	A	C	C	R	R	I	I	I						
15. Prepare Relief Well for Monitoring	A	C	C	R	R	I	R	I						
HOUSTON SUPPORT:	E													
1. Modeling	C	C	A	C	R	C	R							
2. Cement Design	C	C	A	C	R	C	R							
3. Contingency Planning	C	C	A	C	R	R	R							
4. Well Planning Procedure Development	A	C	C	R	R	R	C							
5. Daily Engineering & Operational Planning	A	C	C	R	R	R	C							

R - Responsible - Bold "R" indicates primary person to work issues, other R's implement the assurance. (Person doing the work)

A - Accountable - Accepts accountability for decision (there can only be one accountable Party). ("Buck stops here")

C - Consulted - Individual required to be in the decision making process. (Consulted and Provides advice)

I - Informed - Individual is to be informed of the decision within an appropriate time. (Post)

E - Endorses - Endorses and has power to veto

8 July 2016 F. rat. Version

MC252#1 Relief Wells/Well Intercept and Hydraulic Kill



8 July 2010 (Rev.2)

EXECUTE STAGE TEAM ORGANIZATION

- | | |
|--------------------------------|--------------------------------------|
| •Organization Strategy | •Staffing |
| •Organization Structure | •Principal Roles |
| •Team Deliverables | •Key Decision Rights |
| •SPA Assignments | •Kill and Cementing Operation |

Organization Strategy



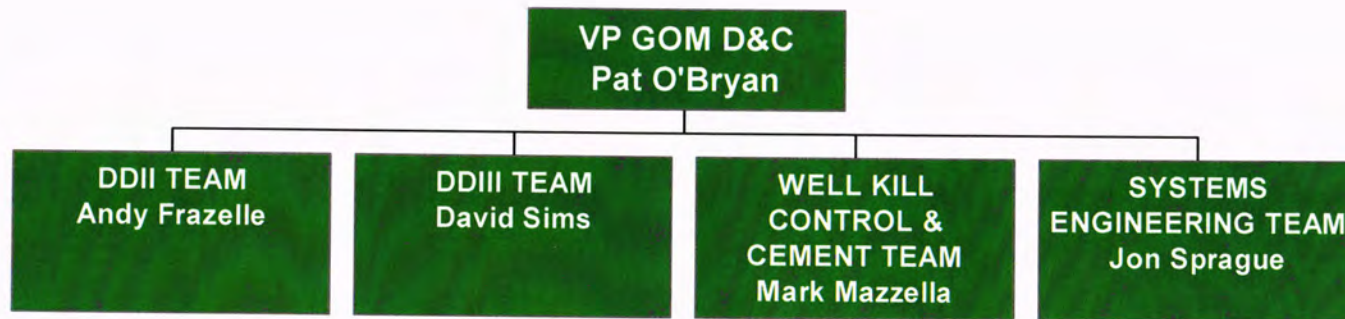
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2. Avoid “Kill By Committee”. Focus on Identifying Points during the kill operation when time-outs will be called and the team huddles up.
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 - ☐ Accountability Transfer of Well Bore During Kill, Cementing Operations
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Organization Structure

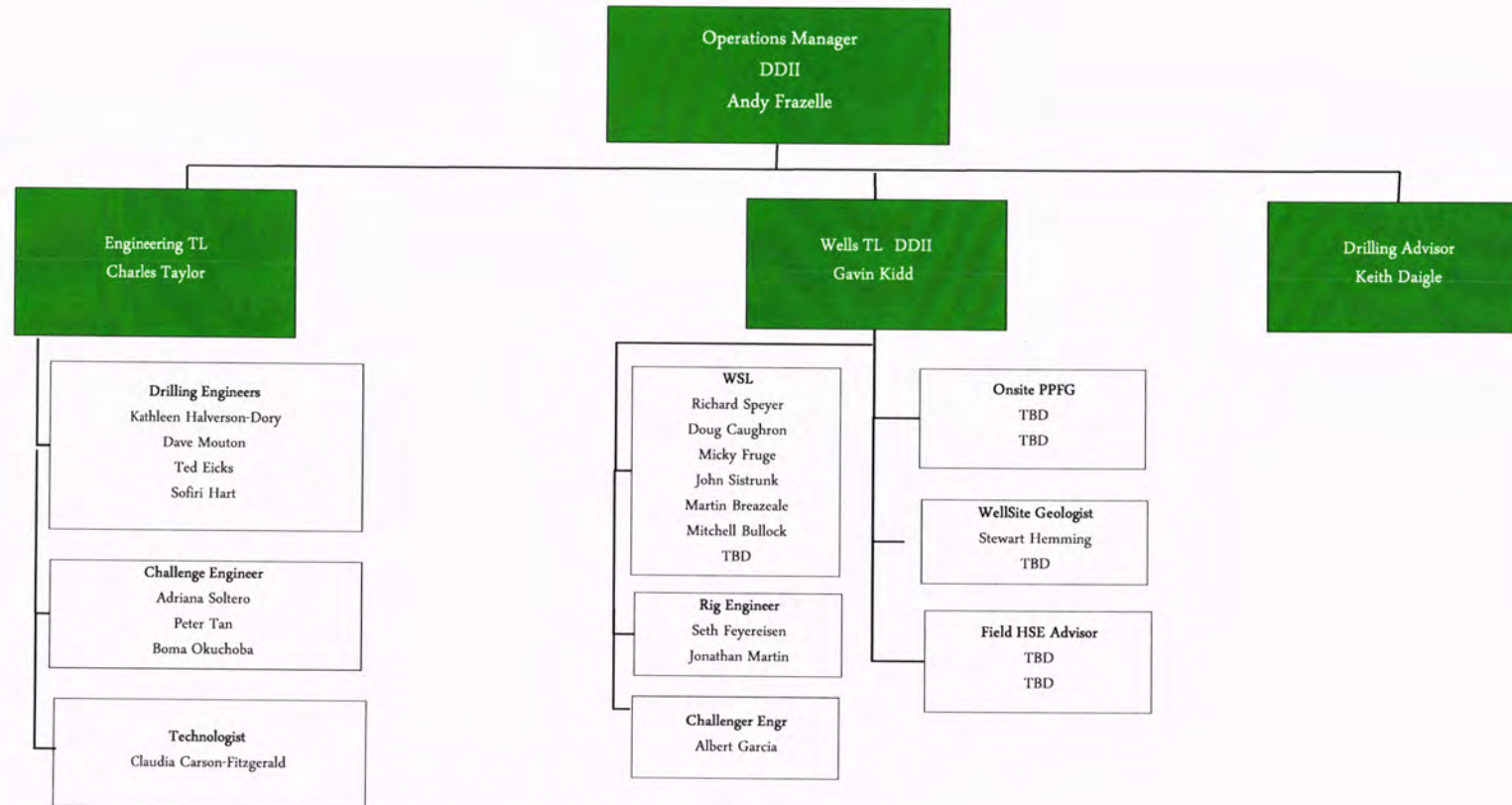


- VP GOM D&C
- DDII Team
- DDIII Team
- Well Kill, Control and Cement Team
- Systems Engineering Team

VP GOM D&C



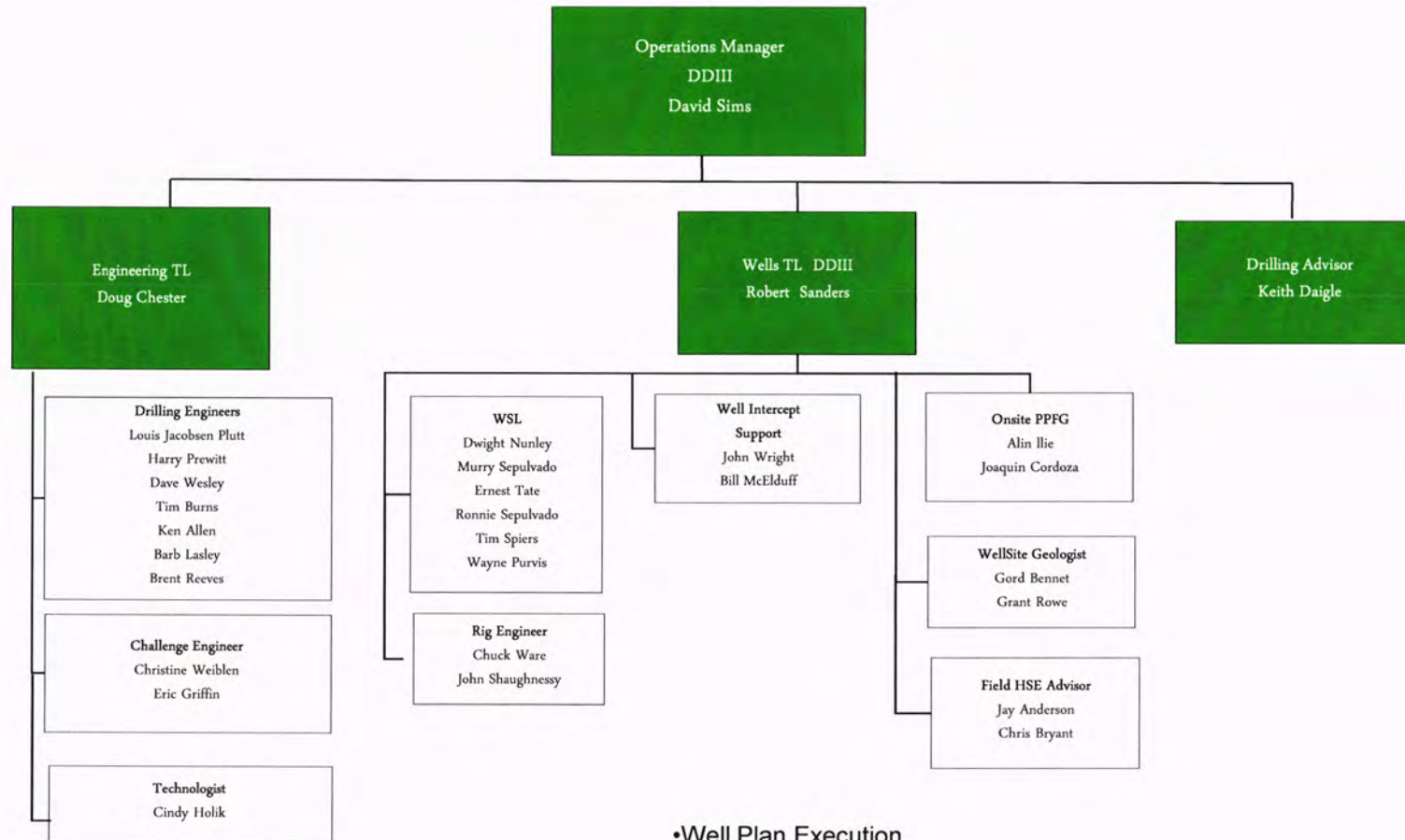
DDII TEAM



- Well Planning and Procedure Development
- Daily Engineering and Operational Planning
- Regulatory
- MOC

- Well Plan Execution
- SIMOPS
- Rig Engineering
- Rig HSE
- Sr. BP Rep on Rig

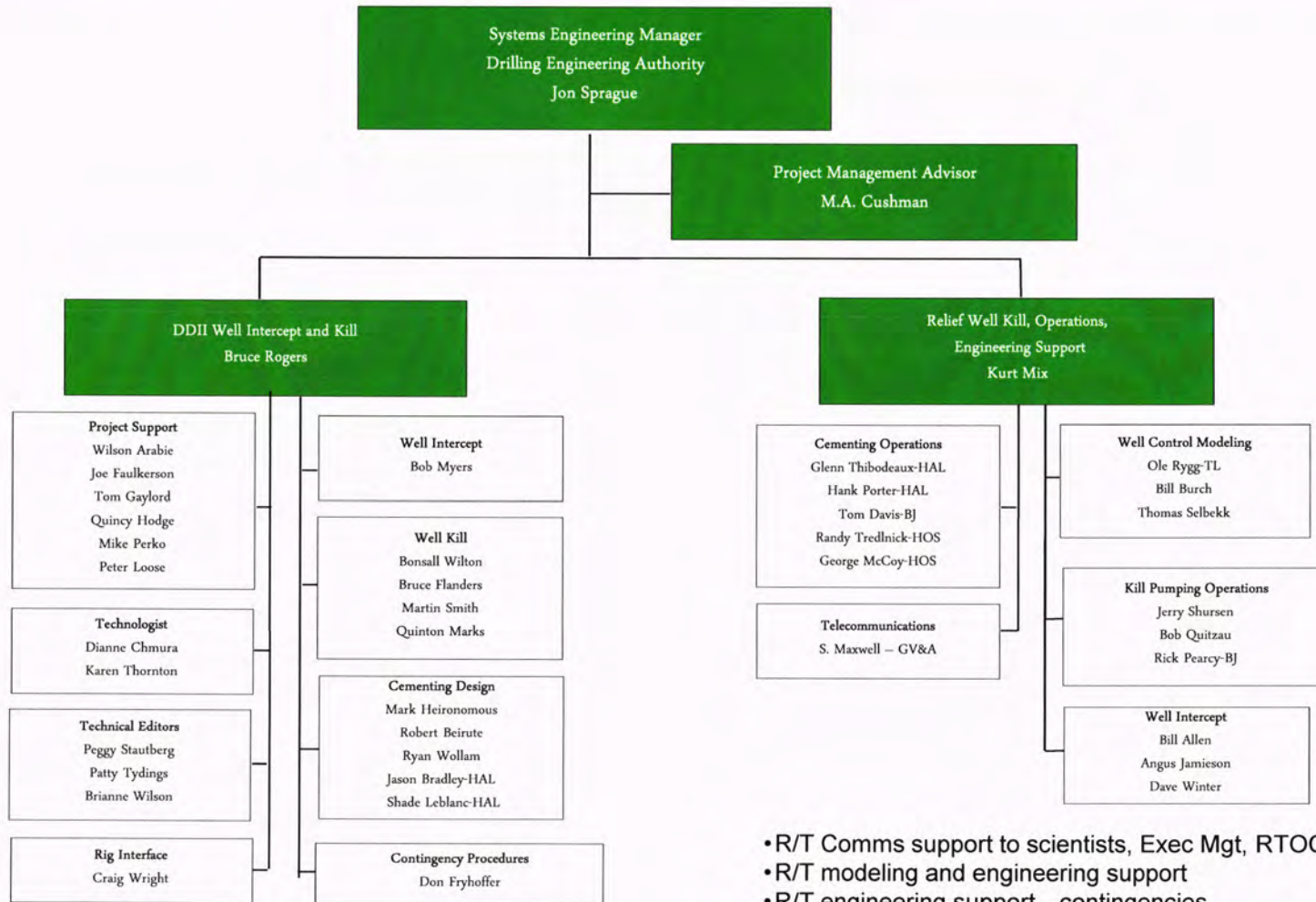
DD III TEAM



- Well Planning and Procedure Development
- Daily Engineering and Operational Planning
- Regulatory
- MOC

- Well Plan Execution
- SIMOPS
- Rig Engineering
- Rig HSE
- Sr. BP Rep on Rig

Systems Engineering



- Refine existing procedures
- Prep DDII team for well intercept and kill
- Integrated planning and scheduling
- DDIII learnings transfer to DDII
- Support DD III Engineering Team

- R/T Comms support to scientists, Exec Mgt, RTOC
- R/T modeling and engineering support
- R/T engineering support—contingencies
- Comms plan in office
- Post-job analysis

Well Kill, Control & Cement Team



DD III

- Real-time Engineering Support
- Real-time Data Acquisition and Interpretation
-
- Hydraulics
 - Bob Grace
- Horsepower
 - Jace Larrison

Blue Dolphin

- Blue Dolphin Pumping Operations
- BJ Kill Vessel

HOS Centerline

- Owns Cementing Program
- Coordinates with WSLs & Halliburton and/or HOS Centerline

- Fluid Delivery from HOS Vessels
- Provides pumping direction HOS vessels to DD III & Blue Dolphin

- Well Control
- Firefighting Support Vessels Coordination
-
- ≈ 3 Wild Well Control

- Owns MUD Program
-
-
- ≈ TBD Mud Engineers

Principal Roles / Key Decision Rights



- DDII Team
- DDIII Team
- Kill, Control & Cement Team
- Systems Engineering

Principal Roles/Key Decision Rights: DDII/DDIII Well Drill Intercept Team



SPA	Principal Role	Key Decisions
OFFSHORE - Well Drill & Intercept Team		
1 TOI OIM	<ul style="list-style-type: none"> Accountable for overall Rig Operations Assumes role as OSC 	<ul style="list-style-type: none"> Responsible for Safety of MODU and All personnel. Authority for 500m exclusion zone.
2 BP Well Site Leader Dwight Nunley Wayne Purvis Murry Sepulvado Ronnie Sepulvado	<ul style="list-style-type: none"> Responsible for leading well drilling and intercept efforts Sr. BP Rep on rig 	<ul style="list-style-type: none"> Safe, efficient execution of well procedures All Systems Ready Execute and direct technical decisions Manage interfaces onshore & offshore Manage / coordinate third party contractors
3 WSL / SIMOPS Coordinator Tim Speirs Ernie Tate	<ul style="list-style-type: none"> Coordinates DD3 Vessel operations with SIMOPS Source Control Branch Director Supports BP Sr. WSLs 	<ul style="list-style-type: none"> Interface with ongoing Operations (SIMOPS) Communication with containment vessels
4 Sr Tool Pusher	<ul style="list-style-type: none"> Directs TOI Personnel on Rig activities as requested by WSL and OIM 	<ul style="list-style-type: none"> Confirms Operational Readiness Directs TOI personnel
5 Mud Engineers	<ul style="list-style-type: none"> Provide Fluid Assurance Provide support with fluids (mud volumes, conditioning, secondary actions, etc.) 	<ul style="list-style-type: none"> Decisions of fluid quality Maintain volume additional fluids are needed
6 Deck Pushers	<ul style="list-style-type: none"> Directs crane and labor support 	<ul style="list-style-type: none"> Operational readiness
7 ROV Supervisors	<ul style="list-style-type: none"> Coordinate ROV movement 	<ul style="list-style-type: none"> ROV positioning, operation as directed
8 Logistics TBD – BP Clerk	<ul style="list-style-type: none"> Coordinate travel to and from vessels Coordinate movement of people and material 	<ul style="list-style-type: none"> Interface with ongoing operations (SIMOPS)

Principal Roles/Key Decision Rights: DDII Well Intercept and Kill



SPA		Principal Role	Key Decisions
ONSHORE – DDII Well Intercept and Kill (Rogers)			
1	Engr Planning TL	<ul style="list-style-type: none"> • Refine existing procedures • Supports DDII and DDIII Engr TL's • Integrated planning and scheduling • Prep DD II for well intercept 	<ul style="list-style-type: none"> • Ensures Procedure Readiness
2	Project Support	<ul style="list-style-type: none"> • Schedule Updates • Status Updates • Meeting Organization 	<ul style="list-style-type: none"> • Communicates Progress & Delays & decides actions on interventions
3	Technologist	<ul style="list-style-type: none"> • Rig Time Curve updates • Morning Reports 	
4	Technical Editor	<ul style="list-style-type: none"> • Procedure Preparation • Document Control • SharePoint Management 	<ul style="list-style-type: none"> • Procedure Formatting
5	Rig Interface	<ul style="list-style-type: none"> • Operations input into procedure 	

Principal Roles/Key Decision Rights: DDII Well Intercept and Kill



(cont.)

SPA		Principal Role	Key Decisions
ONSHORE – DDII Well Intercept and Kill (Rogers)			
6	Well Intercept	<ul style="list-style-type: none"> • Wellbore 3D modeling • Ranging Program • Ranging Updates • Advise on Intercept Procedure <ul style="list-style-type: none"> • Field testing WY • Technical Assistance • Advice to Offshore Intercept Team 	<ul style="list-style-type: none"> • Assist DDIII Intercept Team on well directional changes, BHA design, ranging strategy
7	Well Kill	<ul style="list-style-type: none"> • Advise on Well Kill Procedure 	<ul style="list-style-type: none"> • Mud Weight Required • Pump Rate Required • Mud Volume Required • Well Status Determination
8	Cementing	<ul style="list-style-type: none"> • Refine Well Cementing Procedure • Cement Slurry Design • Cement Spacer Design 	<ul style="list-style-type: none"> • Cement Type • Cement Weight • Cement Volume • Cement Pump Rate
9	Contingency	<ul style="list-style-type: none"> • 7-5/8" Liner Procedure • 7" Liner Procedure • Perforating Procedure 	

Principal Roles/Key Decision Rights:Relief Well Kill Ops Engineering Support



SPA	Principal Role	Key Decisions
ONSHORE – Relief Well Kill Operations Engineering Support (Mix)		
1 OPS TL	<ul style="list-style-type: none"> • Leads well kill/cementing Ops support efforts • Assemble Support Team • Advise and Assist Well Drill and Intercept Team 	<ul style="list-style-type: none"> • All Systems ready • Direct technical decisions • Coordinate Table Top Exercise
2 BP Well Control Modeling	<ul style="list-style-type: none"> • Technical Advisor to Well Kill / Control/ Cement TL and Offshore Team 	<ul style="list-style-type: none"> • Technical readiness • Consults with management as to the status of the well and Operations • Advises on Decision Making & Trouble Shooting Operations
3 Well Kill Pumping	<ul style="list-style-type: none"> • Technical Advisor to Well Kill / Control/ Cement TL and Offshore Team 	<ul style="list-style-type: none"> • Support Kill Pumping operations • Support pumping ops for Blue Dolphin and HOS vessels as required
4 Cementing Operations	<ul style="list-style-type: none"> • Technical Advisor to Offshore Team 	<ul style="list-style-type: none"> • Support issues involving fluid quality • Support offshore team as needed
5 Telecommunications	<ul style="list-style-type: none"> • Insure data stream flows to all necessary locations • Assist in real time data issues during all pumping operations 	
6 Reporting	<ul style="list-style-type: none"> • Coordinate Real-time Kill Assessment • Data acquisition • Provide post-operational report 	

Principal Roles/Key Decision Rights: DDIII Engineering Team



SPA	Principal Role	Key Decisions
ONSHORE – DD III Engineering Team		
1 Engineering TL Doug Chester	<ul style="list-style-type: none"> • Leads well planning and operations procedure development • Advises, assists WTL • Integration with Systems Engineering and DDII Engineering Teams 	<ul style="list-style-type: none"> • Procedure readiness • Engineering assurance and compliance • Regulatory compliance • Contingency planning • Risk assess procedures
2 Drilling Engineers Louise Jacobsen Plutt Harry Prewett Dave Wesley Tim Burns Ken Allen Barbara Lasley T. Brent Reeves	<ul style="list-style-type: none"> • Prepare procedures • Provide daily engineering assurance to well plan execution / drilling operations • MOC • Advise on regulatory compliance • Data QC • Cost control 	<ul style="list-style-type: none"> • Advises Well Kill Engineering TL
3 Challenge Engineers Christine Weiblen Eric Griffin	<ul style="list-style-type: none"> • Assist with procedure development • Rigsite lessons learned capture • Assist rigsite engineering 	
4 Technologist Cindy Holik	<ul style="list-style-type: none"> • Rig Time Curve updates • Morning Reports • Data QC • JV audit support 	

Principal Roles/Key Decision Rights: DDIII Operations Team



SPA	Principal Role	Key Decisions
ONSHORE/OFFSHORE – DDIII Well Operations		
1 Wells Team Leader Robert Sanders	<ul style="list-style-type: none"> Accountable for safe, efficient, execution of Drilling and Intercept well plans/procedures 	<ul style="list-style-type: none"> Rig Operations Drilling, Intercept, and Conventional Downhole Issues
2 Wellsite Leaders Dwight Nunley Wayne Purvis Murry Sepulvado Ronnie Sepulvado Tim Speirs Ernie Tate	<ul style="list-style-type: none"> Responsible for safe, efficient, execution of well plans/procedures Sr. BP Rep on rig SIMOPS Consult with OIM in all phases of rig operations 	<ul style="list-style-type: none"> Execute Well Plan Rig operations Logistics Permit to work Regulatory compliance Manage interfaces / 3rd parties
3 Rig Engineers John Shaughnessy Chuck Ware	<ul style="list-style-type: none"> Engineering assurance at rig site Casing, cementing assurance Lessons learned capture Planning Audit procedures, processes, compliance 	<ul style="list-style-type: none"> Assist with daily operations decisions
4 Well Intercept Support John Wright Bill McElduff	<ul style="list-style-type: none"> Leads Intercept operations 	<ul style="list-style-type: none"> Ranging methods, timing, ranging data interpretation
5 Onsite PPFG Alin Ilie Joaquin Cordoza	<ul style="list-style-type: none"> PPFG monitoring, prediction 	<ul style="list-style-type: none"> Mud weight changes
6 Well Site Geologist Gord Bennett Grant Rowe	<ul style="list-style-type: none"> Subsurface characterization 	<ul style="list-style-type: none"> Lithology changes
7 Field HSE Advisor Jay Anderson Chris Bryant	<ul style="list-style-type: none"> Safety Training Promote safe operations Audit, investigation 	<ul style="list-style-type: none"> Compliance with safety management systems

Kill and Cementing Operation

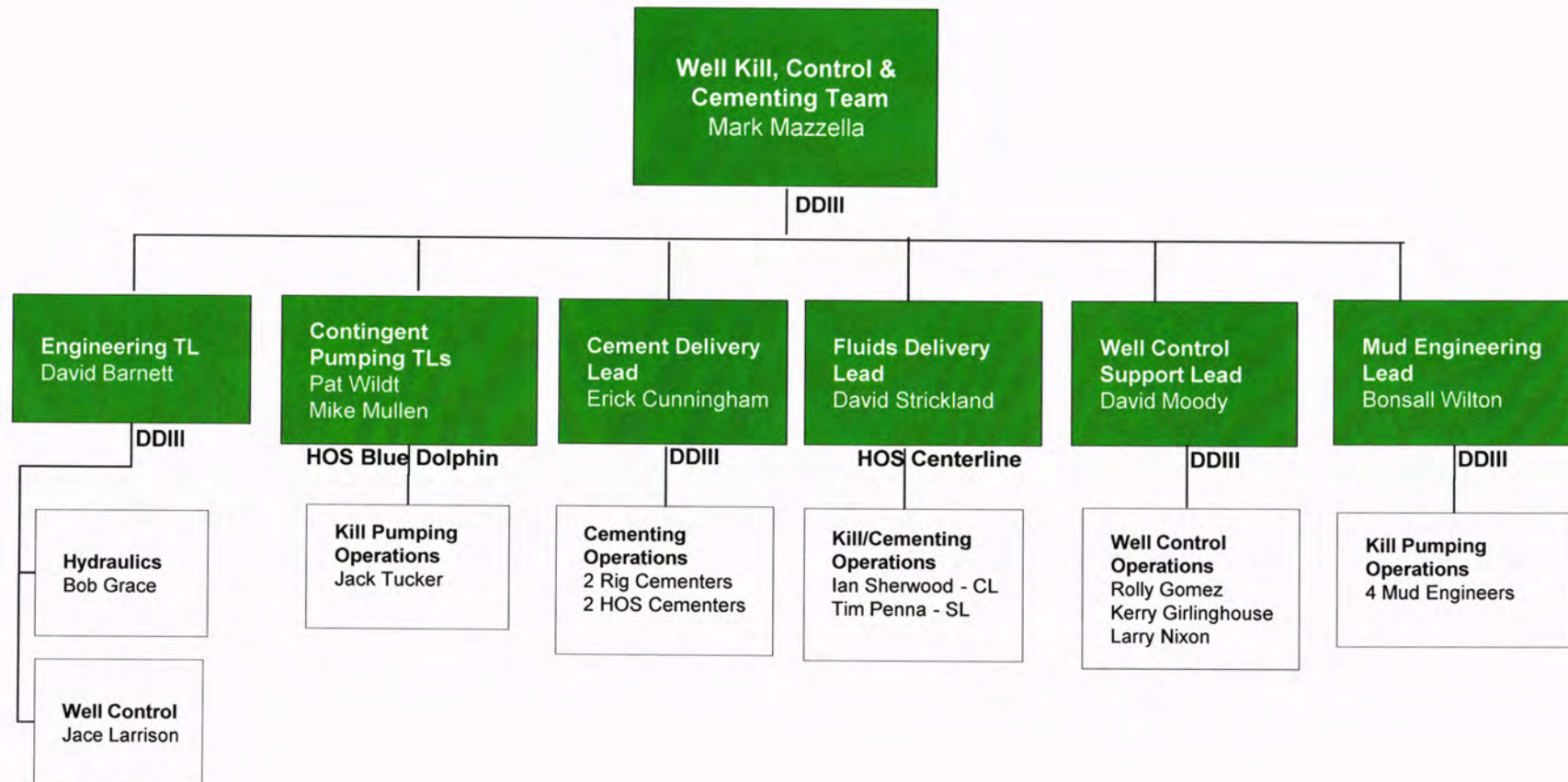


- Accountability Transfer
- Offshore Organization during Kill, Control and Cement Operation

Key Points

- Accountability for Kill/Cementing transfers to Mark
- Unique operation, high stakes
- Unique expertise
- Reduce interfaces – simplify reporting – direct to Pat
- Engineering support/accountability shifts to Mix from Chester
- WTL retains accountability for all other rig operations – assists Well Kill
- MOC required for Approved Early Intercept, Kill Procedures

Offshore Organization During Kill Operation



Principal Roles/Key Decision Rights: Well Kill, Control & Cement Team



SPA	Principal Role	Key Decisions
OFFSHORE - Well Kill Control & Cement Team		
1 TOI OIM	<ul style="list-style-type: none"> Accountable for overall Rig Operations & HSE Assumes role of OSC 	<ul style="list-style-type: none"> Go / No-Go Responsible for safety of MODU and all personnel Authority for 500m exclusion zone
2 Well / Kill Control Commander Mark Mazzella	<ul style="list-style-type: none"> Overall Well Kill/Control/Cementing Accountability Advise Well Intersect Team Kill Well 	<ul style="list-style-type: none"> Go / No Go - All Systems Ready Execute and direct technical decisions Manage interfaces onshore & offshore
3 DDIII BP WSLs Dwight Nunley Wayne Purvis Murry Sepulvado Ronnie Sepulvado Tim Speirs Ernie Tate	<ul style="list-style-type: none"> Provide Assurance for DD III Rig Ops Advise, Assist, Support Well Kill Operations as required by Well Kill / Control Commander, Logistics, Communications, vessels, rig accountability 	<ul style="list-style-type: none"> Go / No-Go Rig floor Ops If manifold is ready to pump Manifold Integrity BOP Controls Vessel Coordination SIMOPS
4 TOI Sr. Tool Pusher	<ul style="list-style-type: none"> Directs TOI personnel on Rig activities as requested by WSL and OIM Advise OIM on Well Control event Ensure rig crews follow TOI guidelines for well kill 	<ul style="list-style-type: none"> Go / No-Go Confirms operational readiness for Kill Team Directs TOI personnel in Well Control situations
5 Well Control David Moody	<ul style="list-style-type: none"> Well Control support to Well Control Commander Coordinate firefighting support vessels Support WSL Well Control Requirements 	<ul style="list-style-type: none"> Go / No-Go Confirmation of Equipment Configuration Advise actions on Kill & Contingencies
6 Kill Fluids Delivery David Strickland	<ul style="list-style-type: none"> Provide Fluid Delivery Assurance Provide support with fluids (mud volumes, conditioning, secondary actions, etc.) Support Well Kill operations as required by Well Kill / Control Commander 	<ul style="list-style-type: none"> Go / No-Go Decisions of fluid delivery outside of DDIII Coordinate fluid delivery with Strongline and Centerline to rig and/or DDIII if additional fluids are needed

Principal Roles/Key Decision Rights: Well Kill, Control & Cement Team (cont)



SPA	Principal Role	Key Decisions
OFFSHORE - Well Kill Control & Cement Team		
7 Cementing Erick Cunningham	<ul style="list-style-type: none"> • Provide Cement Assurance • Provide support with cement volumes, conditioning, secondary actions, etc. • Support Well Kill operations as required by Well Kill / Control Commander 	<ul style="list-style-type: none"> • Go / No-Go • Decisions of fluid quality • If additional cement is needed sequence cement pumping operations
8 Pumping Pat Wildt	<ul style="list-style-type: none"> • Coordination of Blue Dolphin pumping operations • Support Well Kill operations as required by Well Kill / Control Commander 	<ul style="list-style-type: none"> • Go / No-Go • Sequence Kill pumping operations • Remotely direct pumping ops from Blue Dolphin if necessary
9 Kill Engineering David Barnett, Bob Grace, Jace Larrison	<ul style="list-style-type: none"> • Primary real-time engineering support to Well Kill Control Commander • Real-Time Kill Assessment • Data Acquisition • Provide post-operational report 	<ul style="list-style-type: none"> • Go / No-Go • Advise on pressure limitations and rate changes • Advise actions on Kill and Contingencies
10 Mud Engineering Bonsall Wilton	<ul style="list-style-type: none"> • Provide fluid assurance • Provide support with fluids (mud volumes, conditioning, secondary actions, etc.) 	<ul style="list-style-type: none"> • Decisions of fluid quality • Maintain volume additional fluids are needed
11 Deck Pushers	<ul style="list-style-type: none"> • Directs crane and labor support for Kill Teams 	<ul style="list-style-type: none"> • Operational readiness
12 ROV Supervisors	<ul style="list-style-type: none"> • Coordinate ROV movement 	<ul style="list-style-type: none"> • Go / No-Go • ROV positioning • Plume and pressure monitoring
13 BJ and HES Pumping Vessel Supervisors	<ul style="list-style-type: none"> • Confirms readiness with WKT Vessel Sups • Responsible for pumping job 	<ul style="list-style-type: none"> • Go / No-Go for pumping readiness
14 SIMOPS Coordinator	<ul style="list-style-type: none"> • Coordinates Field SIMOPS with Houston DC • Coordinates DDIII vessel ops with SIMOPS Field Command 	<ul style="list-style-type: none"> • Interface with ongoing operations (SIMOPS)

Intercept and Kill Engineering



Systems Engineering – Mix, Rogers

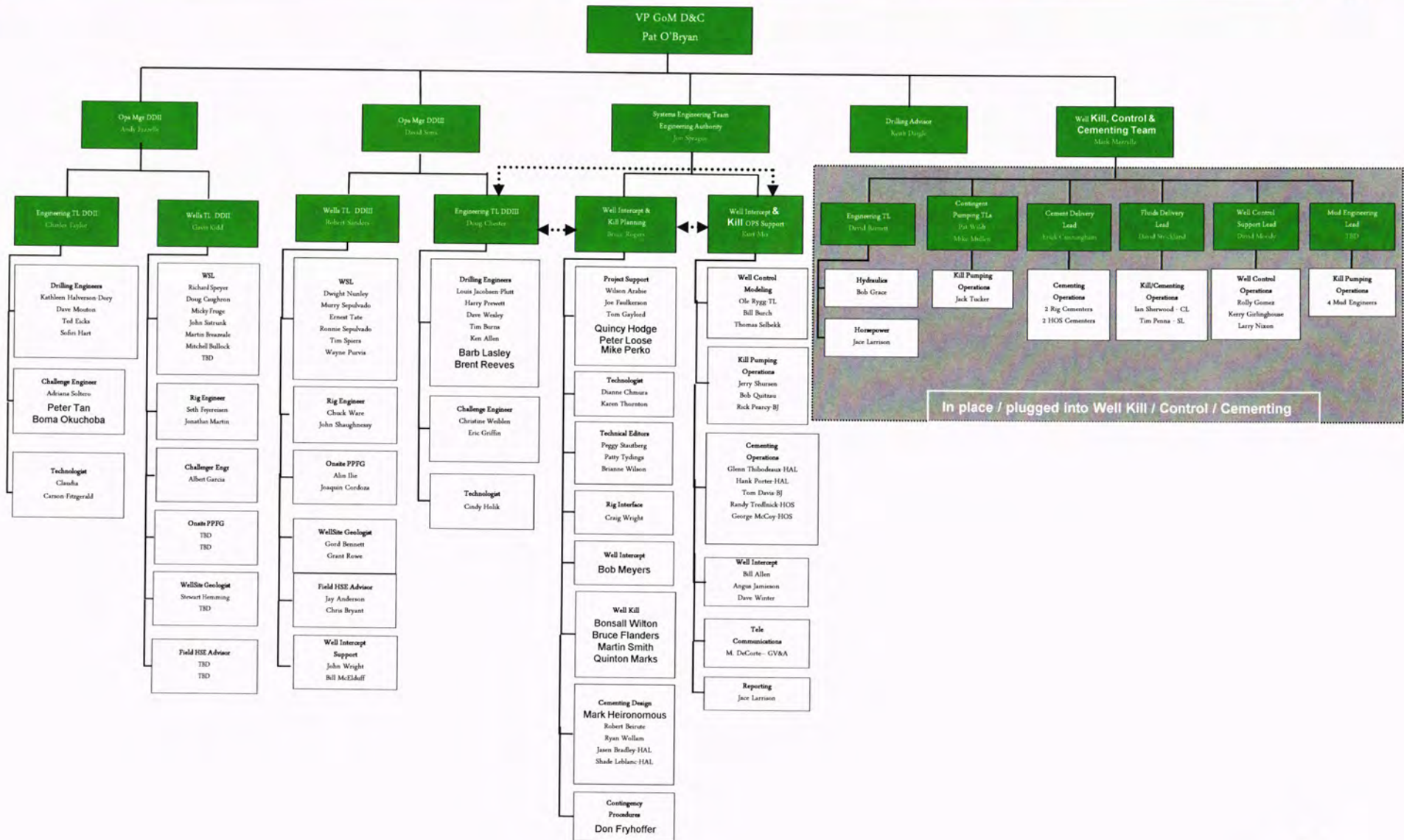
1. Early Intercept Recovery
 2. Well Intercept, Kill
 3. Mud, Cement, Pumping
 4. Kill Drills/Diagnostics/Communications/ Contingencies/ Fishing
 5. R/T Engineering Support for Kill, Cementing
 6. Prep DDII
-

DDIII Engineering - Chester

Operationalized Procedures

1. 9-7/8" hole section – drilling, ranging, casing
2. 8-1/2" drill out, ranging, intersect annulus
3. Kill and Cement/Isolate annulus
4. Locate, mill into 7"
5. Kill and Cement/Isolate
6. Abandonment / Monitoring

Relief Wells Teams



Intercept, Kill, Control & Cementing Operations RACIE Chart



- HSE:**
- 1 Drilling OPS
 - 2 Well Kill OPS
- RIG OPERATIONS:**
- 1 Logistics
 - 2 Station Keeping
 - 3 Stability
 - 4 Equipment Maintenance
 - 5 Communications
 - 6 SIMOPS
- DOWN HOLE ACTIVITIES:**
- 1 Drillout/Perform FIT
 - 2 Range & Intercept
 - 3 Commence Kill Procedures, including diagnostics
 - 4 Cement & Isolate
 - 5 Return to Drilling Operations
 - 6 POOH / Pick up Mill
 - 7 Range / Mill 7"
 - 8 Kill Casing
 - 9 Cement / Isolate Casing
 - 10 Return to Drilling Operations
 - 11 Drill to top of Reservoir
 - 12 Kill Well
 - 13 Cement & Isolate
 - 14 Return to Drilling Operations
 - 15 Prepare Relief Well for Monitoring
- HOUSTON SUPPORT:**
- 1 Modeling
 - 2 Cement Design
 - 3 Contingency Planning
 - 4 Well Planning Procedure Development
 - 5 Daily Engineering & Operational Planning

	Pat O'Bryan	David Sims	Mark Mazzella	Jon Sprague	Robert Sanders	Doug Chester	Bruce Rogers	Kurt Mix	David Barnett	Pat Wildt / Mike Mullen	Erick Cunningham	David Strickland	David Moody	Bonsall Wilton
F														
	A	C	R	R	R	R	R	R	R	R	R	R	R	R
	C	A	R	R	R	R	R	R	R	R	R	R	R	R
E														
	A	I		R	R									
	A	I		R										
	A	I		R										
	A			R										
	A	C		R	R									
	A	C		R	R									
E														
	A	C		R	R	I	I	I			I	I	I	I
	A	C	C	R	R	I	R	I			I	I	I	I
	C	A	C	R	R	I	R	C	R		R	R	R	R
	C	A	C	R	R	I	R	C		R	R	R	R	R
	A	C	C	R	R	I	I	I				I	I	I
	A	C	C	R	R	I	R	I				I	I	I
	A	C	C	R	R	I	R	I				I	I	I
	C	A	C	R	R	I	R	C	R		R	R	R	R
	C	A	C	R	R	I	R	C		R	R	R	R	R
	A	C	C	R	R	I	I	I				I	I	I
	A	C	C	R	R	I	I	I				I	I	I
	C	A	C	R	R	I	R	C	R		I	R	R	R
	C	A	C	R	R	I	R	C		R	R	I	R	R
	A	C	C	R	R	I	I	I				I	I	I
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E														
	C	C	A	C	R	C	R							
	C	C	A	C	R	C	R							
	C	C	A	C	R	R	R							
	A	C	C	R	R	R	C							
	A	C	C	R	R	R	C							

R - Responsible - Bold "R" indicates primary person to work issues, other R's implement the assurance. (Person doing the work)

A - Accountable - Accepts accountability for decision (there can only be one accountable Party). ("Buck stops here")

C - Consulted - Individual required to be in the decision making process. (Consulted and Provides advice)

I - Informed - Individual is to be informed of the decision within an appropriate time. (Post)

E - Endorses - Endorses and has power to veto.

8 July 2010 Final Version