30-005-29176

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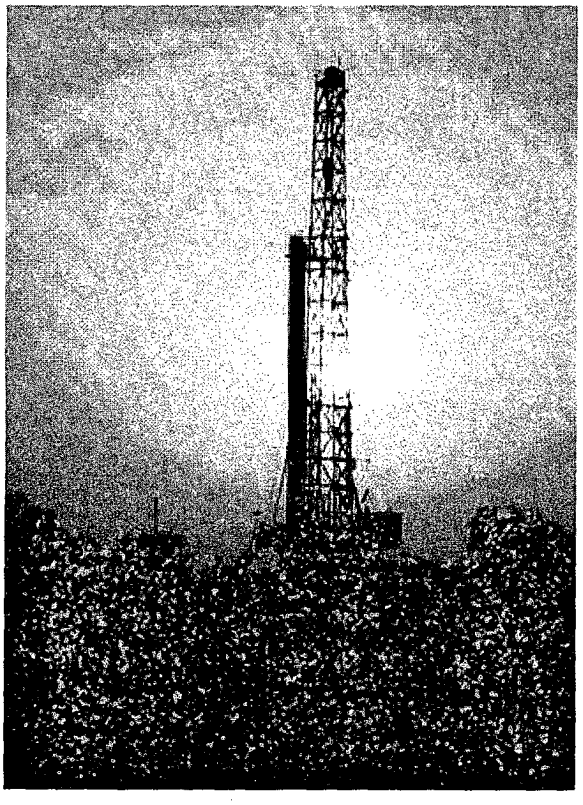
MiSWACO

Marshall & Winston
Cactus Federal 25-1H
Section 25, T15S, R31E
Chaves County, New Mexico



Integrated Fluids Program

Prepared for Mr. Gabe Herrera

Date prepared: October 21, 2010

Prepared by: Todd Passmore

October 21, 2010

Mr. Gabe Herrera
6 Desta Drive
Suite 3100
Midland, TX 79705

Dear Mr. Herrera,

Thank you for giving M-I SWACO this opportunity to serve you by submitting the enclosed integrated fluids program for your upcoming 'Cactus Federal 25-1H' well to be drilled in Chaves County, New Mexico. I sincerely hope this information will aid you in planning your drilling operation.

To prepare this program, we have used well data from several wells located in the vicinity of your proposed location. This information is included in the reference wells section of this program for your use and evaluation. We recommend a Gel/Water spud mud to surface casing point at 350 feet. Below surface casing, drill out with the existing fluid from surface and prior to the salt section, 1800' ± we recommend adding 10 lb/gal Brine Water to reduce wash out. Maintain salt concentrations to the intermediate casing point of 3,950 feet. From 3,950 feet to 8,500' feet we recommend Cut Brine Water. At 7,300' mud up with a Duo Vis/Poly Pac system for <20cc fluidloss and 34 sec/qt funnel viscosity to reduce wetting of the shale in the Abo and Wolfcamp formations. For the lateral section of the well we recommend using Cut Brine with Duo-Vis sweeps for viscosity and proper hole cleaning. It also may be necessary to add Oil, KCL, or Glass Beads while building the curve to assist slide drilling thru a hard shale section.

We at M-I SWACO, would be pleased to be awarded the privilege of supplying the drilling fluid for your well and will strive for your complete satisfaction in both engineering service and product performance. Should you have any questions or comments concerning our recommendations or if we may be of further service, please do not hesitate to contact us at anytime.

Sincerely,

Todd Passmore
Tech Service Engineer

EXECUTIVE SUMMARY

- In reaching your objectives successfully, M-I SWACO will take a clear and precise drilling plan coupled with competent and experienced personnel with a personal goal in mind "To Succeed". Such will be the posture of M-I SWACO while working with Marshall & Winston on this project.

- M-I's primary objective will be to assist Marshall & Winston technically, competently as well as in a timely manner in order for all targets to be achieved. Our primary concern will be to perform safely and also apply the best drilling fluids practices for every interval of this well.

- Major challenges in this well will be:
  - A) Proper Well Hydraulics and Hole Cleaning.
  - B) Minimizing mud losses while drilling and running casing.
  - C) Hole stability while drilling the Abo section.

- Total mud related costs are estimated at $45,000-50,000. This estimate is based on the M-I pricing proposal contained in this program.

- The total estimated drilling time is thirty to thirty-five (30 – 35) days.

Marshall & Winston
Cactus Federal 25-1H
Chaves County, New Mexico

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Mr. Gabe Herrera
Marshall and Winston

6 Desta Drive, Suite 3100
Midland, TX 79705

Re: Drilling Fluid Bid for West Texas / New Mexico Wells to April 30, 2009

WATER-BASE MUD PRODUCTS with SERVICE

PRODUCT	SIZE	PRICE
M-I Wate Bulk 4.1 sg	ton	$ 146.36
M-I Wate 4.1 sg	100 lb	$ 8.68
Federal Bentonite	100 lb	$ 8.94
Salt Gel	50 lb	$ 9.01
MF-55	5 gal	$ 97.62
Poly-Plus	5 gal	$ 95.63
Defoam A	5 gal	$ 89.83
Polypac	50 lb	$ 145.05
Duo-Vis	25 lb	$ 184.71
Lime	50 lb	$ 6.25
Caustic Soda	50 lb	$ 29.14
Soda Ash	50 lb	$ 12.68
My Lo Jel	50 lb	$ 27.42
Yellow Starch	50 lb	$ 18.03
Cottonseed Hulls	50 lb	$ 9.01
Fiber Plug	40 lb	$ 8.60
Paper	40 lb	$ 10.50
Fiber Seal	40 lb	$ 15.19

40% Discount on all other products listed on August 15, 2008 Price List (attached)

Pallets and Shrink Wrap - $15/each
Plastic - $ 50/roll
24 Hour Engineering Service - $ 800/Day
Trucking Service at Published Rates Provided by LDI

Thank you for your consideration.

Sincerely,

M-I LLC.

Mike Prewit
Midland Regional Manager

KEY ISSUES

Lost Circulation - Causes and Preventative Measures

- **Mechanical:**
  - Improper hydraulics, excessive pump rates and annular velocities (causing high ECD's)
- ***Drilling Practices:***
  - Increasing pump rates too rapidly after connections and trips
  - Raising and lowering the pipe too fast (Swab/Surge)
  - Excessive penetration rates which result in high cuttings concentration in the annulus
- **Hole Conditions:**
  - Kicks and well control procedures
  - Depleted sand zones
  - Slow penetration rates
- **Preventive Measures:**
  - Rotating the drill string when breaking circulation helps break the gels and minimize pump pressure surges.
  - Bring the pumps up slowly after connections and periods of non-circulation. Plan to break circulation at 1 to 2 different depths while tripping in the hole.
  - Additional LCM material (SAFE CARB fine, medium, and course and Mica) should be ordered and stored at location to combat losses.

Hole Cleaning Recommendations

- Rheology and hydraulics calculations will be run as needed and the mud properties will be adjusted as needed to maximize hole cleaning.
- Use the highest possible annular velocity to maintain good hole cleaning without inducing excessive ECD's. Annular velocity provides the upward impact force necessary for good cuttings transport.
- Control drill to manage difficult hole cleaning situations.
- As much pipe rotation as possible while drilling.
- Pump Hi-Viscosity sweeps at the current mud weight in the 17.5" and 12.25" OH sections, plan sweeps to cover 60'- 90' of annular volume in the 17.5" section and 100' – 200' of annular volume in the 12.25" section. Sweep should be pumped every 3 to 4 connections. Sweeps should be monitored upon return
- DO NOT AT ANY TIME HAVE MORE THAN ONE SWEEP IN THE HOLE AT A TIME.
- Circulate at least one bottom up prior to pulling out of the hole.

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Cactus Federal 25-1H
Chaves County, New Mexico

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Project Summary with Well bore Geometry

Casing Size	Hole Size	Casing Intervals	Depth MD	Mud System	Mud Weight (ppg)	Cum Days
Conductor at 60′	Surface				8.4	
				Spud Mud		
13 3/8″ 48#	17.5"		350′		8.6	3
	Intermediate				8.6	
9 5/8″ 40#				Saturated salt		
	12.25"		San Andres 3,940′			7
			3,950′		10.0	
	Production			Fresh Water / Brine	8.4	
	8.75"					
7″ 26#						
			Abo Shale 7.340′			
			Lower Abo target at 8,585′			
			Wolfcamp 8,875′		9.5	16
			8,900′			

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Project Summary with Well bore Geometry

Casing Size	Hole Size	Casing Intervals	Mud System	Mud Weight (ppg)	Days
13 3/8" 48# At 350'	Surface 17.5"				
9 5/8" 40# At 3,950'	Intermediate 12.25"				
7" 26# At 8,700'in curve	Production 8.75"		Brine / Duo Vis Pump High Vis Sweeps for hole cleaning As needed	9.0	
	KOP at 8,408'	Drill to 13,125' MD / 8,700' TVD 6.125" hole size		9.4	31

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Cactus Federal 25-1H
Chaves County, New Mexico

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17.5" OH Interval Procedures

0' MD – 350' MD 17.5" Open Hole - 13.375 " Casing	
Drilling Fluid System	*High Viscosity Sweeps / Fresh Water Spud Mud*
Key Products	M-I Gel , Lime
Solids Control	Linear & Dual Motion Shakers, Desander, Desilter, De-Watering Equipment
Potential Problems	Hole Cleaning, Lost Circulation

Interval Drilling Fluid Properties

Depth (MD ft)	Mud Wt. (ppg)	Funnel Viscosity (sec/qt)	Plastic Viscosity (cp)	Yield Point ($lb/100ft^2$)	API Fluid Loss (ml/30min)	Hardness (Ca^{2+})	pH
0'– 350'	8.4 – 8.6	30 - 32	1 - 4	1 – 4	NC	>400	10.0-10.5

Interval Objective:
Drill a 17.5" hole to 340' MD without mud losses while cleaning the hole. Run Conductor to 60 feet and set a full string of 13.375" casing to 340' and cement. To successfully utilize the MI-SWACO equipment to de-water the mud while drilling. This will lower the solids percentage while reclaiming water.

Interval Procedures:
Fluid
- This interval should be drilled with a low solids non-dispersed spud mud.
- Increase the funnel viscosity to 36-40 sec/qt. with M-I Gel and lime prior to drilling.
- The continuous use of the rig de-sander, desilter, and dewatering equipment are recommended to minimize low gravity solids. In addition water additions are recommended to minimize the density from increasing and reduce pump wear.
- High viscosity sweeps should cover 60-90' of annular volume.
- Sweeps containing 8-10 ppb of drill paper should be pumped as needed for seepage loss.

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Chaves County, New Mexico

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12.25" OH Interval Procedures

350' MD – 3,950' MD
12.25" Open Hole – 9.625 " Casing

Drilling Fluid System	*Fresh Water /Brine*
Key Products	**Fresh Gel, Salt Driller, Salt Gel , Lime, Oil**
Solids Control	Linear & Dual Motion Shakers, Desilter, De-Watering Equipment
Potential Problems	Hole Cleaning, Lost Circulation, Stuck Pipe

Interval Drilling Fluid Properties

Depth (MD ft)	Mud Wt (ppg)	Funnel Viscosity	Plastic Viscosity (cp)	Yield Point (lb/100ft²)	API Fluid Loss (ml/30min)	Hardness (Ca^{2+})	pH	% Oil
350'– 2,500'	8.4 – 8.8	32 - 36	1 - 4	1 – 4	N/C	>400	9.5 - 10.0	3-5%
2,500'- 3,950'	9.4-10.0	32 - 36	1 – 4	1 - 4	N/C	>400	9.5- 10.0	3-5%

Interval Objective:
Drill the 12.25" hole from 350' to 3,950' MD without mud losses while cleaning the hole. Drill through the salt sections with 10.0ppg brine to reduce wash out in the salt sections. Run and cement a full string of 9.625" casing with full returns. To successfully utilize the M-I SWACO equipment to de-water the mud while drilling. This will lower the solids percentage while reclaiming water.

Interval Procedures:

Fluid

- Drill out below casing with existing fluid from surface section.
- It may be necessary to add 3% oil to the system to aid in drilling through the Red Bed section.
- Prior to drilling salt section (2,500'+/-) begin additions of 10.0ppg brine water to help reduce washout.
- Pump 15 to 20 barrel High Viscosity sweeps. High viscosity sweeps should be pumped every 3 to 4 connections. Sweeps should be made up with Fresh Water, Soda Ash for hardness, and M-I Gel. Sweeps should be monitored upon return. Do not have more than 1 sweep in the hole at a time.
- Keep mud weights as low as hole conditions will allow.
- **Prior to pulling out of hole circulate at least one bottom up to determine if hole is clean.**
- **Once drilling fluid is saturated, limit the additions of fresh water to minimize wash out of salt section.**
- Prior to running casing circulate two hi-vis sweeps to insure hole is clean.

- Set 9 5/8" casing at 3,950'.

- ** There is a good possibility you will encounter lost returns in the Capitan Reef Section.
    - We recommend bulk fibrous LCM material to combat losses.
    - We recommend using M-I Gel pill sweeps to ensure a clean hole if dry drilling becomes necessary.

For Losses mix the following pills:

Seepage Losses (<10 bbls/hr) - Pump 30-50 bbl sweeps as needed to control seepage.
- Pre-Hydrated M-I GEL 20-30 ppb
- MIX II Fine 6-8 ppb

Partial Losses (10-100 bbls/hr) – Spot 50 bbl pill just above loss zone and let hole heal.
- Pre-hydrated M-I GEL 20-30 ppb
- Fiber Seal 10 ppb
- Cedar Fiber 10 ppb
- MIX II Medium 10 ppb

Total Losses (>100 bbls/hr) – Spot 50-100 bbl pill just above loss zone and let hole heal.
- Pre-Hydrated M-I GEL 20-30 ppb
- Fiber Seal 15 ppb
- Cedar Fiber 15 ppb
- MIX II Medium 10 ppb

8.75" OH Interval Procedures

3,950' MD – 8,900' MD 8.75" Open Hole 7" Casing	
Drilling Fluid System	*Cut Brine / Caustic to control pH*
Key Products	Cut Brine, Poly Pac R, Duo-Vis, Lime
Solids Control	Linear & Dual Motion Shakers
Potential Problems	Hole Cleaning, Lost Circulation, Stuck Pipe

Depth (MD ft)	Mud Wt. (ppg)	Funnel Viscosity (sec/qt)	Plastic Viscosity (cp)	Yield Point ($lb/100ft^2$)	API Fluid Loss (ml/30min)	Hardness (Ca^{2+})	pH
3,950'– 7,300'	8.4 - 9.5	28 – 29	1 – 4	1 – 4	N/C	< 400	9.5 – 10.0
7,300'- 8,900'	8.6 – 9.5	36 - 45	5 - 8	6 – 10	< 12	>400	10.0 – 11.0

Interval Objective:
Drill the 8.75" hole to 8,900' MD without mud losses while cleaning the hole. Set cement plug existing 8-3/4" hole and kick off at 8,408', land curve at 8,790' TVD 9,002' MD and run 7" casing.

Interval Procedures:

Fluid

- This interval will be drilled with cut brine to approximately 8,900'.
- After drilling cement, casing shoe and 10' of new formation, test casing shoe.
- Keep mud weights as low as hole conditions will allow.
- Have enough LCM material on hand at all times. If losses occur follow lost circulation tree on page 14.
- At 7,300' mud up with Duo Vis/Poly Pac for a 34 sec/qt funnel viscosity, <12cc fluid loss and 9.3-9.5 fluid weight.
- It may be necessary while drilling the Abo section to add Oil to the system to assist drilling.
- 100' prior to T.D. increase the funnel viscosity to 38 sec/qt with Duo Vis and lower the fluid loss to <12cc with Poly Pac R for logging operations.
- Pump 15 to 20 barrel High Viscosity sweeps. High viscosity sweeps should be pumped as need to insure hole proper hole cleaning. Sweeps should be made up with Fresh Water, Soda Ash for

hardness, Mi Gel, and Caustic for flocculation. Sweeps should be monitored upon return. Do not have more then 1 sweep in the hole at a time.

- *Hole stability is an issue with the Abo section in this area. Make sure to have the fluid above 100,000 Chlorides prior to drilling the Abo section and increase the funnel viscosity to 31-33 sec/qt and lower the fluidloss to 20cc's. Maintain chloride levels above 100,000 until TD. Monitor cuttings while drilling the Abo and Wolcamp formations to determine hole stability.*

6.125" Lateral Procedures

8,860' MD – 13,252' MD
6.125" Lateral Procedures - 4 ½" Casing

Drilling Fluid System	*High Viscosity Sweeps /Cut Brine*
Key Products	Duo-Vis / Cut Brine
Solids Control	N/A
Potential Problems	Hole Cleaning, Lost Circulation

Interval Drilling Fluid Properties

Depth (MD ft)	Mud Wt. (ppg)	Funnel Viscosity (sec/qt)	Plastic Viscosity (cp)	Yield Point ($lb/100ft^2$)	API Fluid Loss (ml/30min)	Hardness (Ca^{2+})	pH
8,860'– 13,252'	9.0 – 9.4	28 – 32	1 - 4	1 – 4	NC	>400	10.0-10.5

Interval Objective:
Drill a 6.125" lateral from 8,250' to 13,125' MD without mud loss while keeping hole clean.

Interval Procedures:

- While milling window, use the fluid from the previous interval. Displace to 8.5 lb/gal clear Cut Brine system when on bottom with the first drilling bit.
- It may be necessary while drilling the curve to add Oil, KCL, or Glass Beads to the system to assist drilling.
- Water additions are recommended to minimize the density of the fluid from increasing, to minimize LGS from increasing, and reduce pump wear.
- Pump 20-25 barrel High Viscosity sweeps. High viscosity sweeps should be made up of Duo-Vis and brine. Sweeps should be pumped as needed to insure proper hole cleaning. Sweeps should be monitored upon return. Do not have more than 1 sweep in the hole at a time.
- Monitor for metal shavings which could indicate damage to existing casing
- If lost circulation is encountered follow the lost circulation tree on page 14.
- Keep mud weights as low as hole conditions will allow.
- Maintain an adequate supply of Salt Driller and Brine to weight the entire system up at all times.
- Do not use Poly Plus or MF-55 while drilling the lateral section because of possible completion issues.
- If Kill mud is needed, utilize Duo-Vis and Barite. For pH control use caustic soda, do not use lime.

- Recommend prior to pulling out of hole to circulate at least one bottom up to determine if hole is clean.
- If torque and drag become a problem raise low end rheologies with Duo-Vis to aid in hole cleaning.

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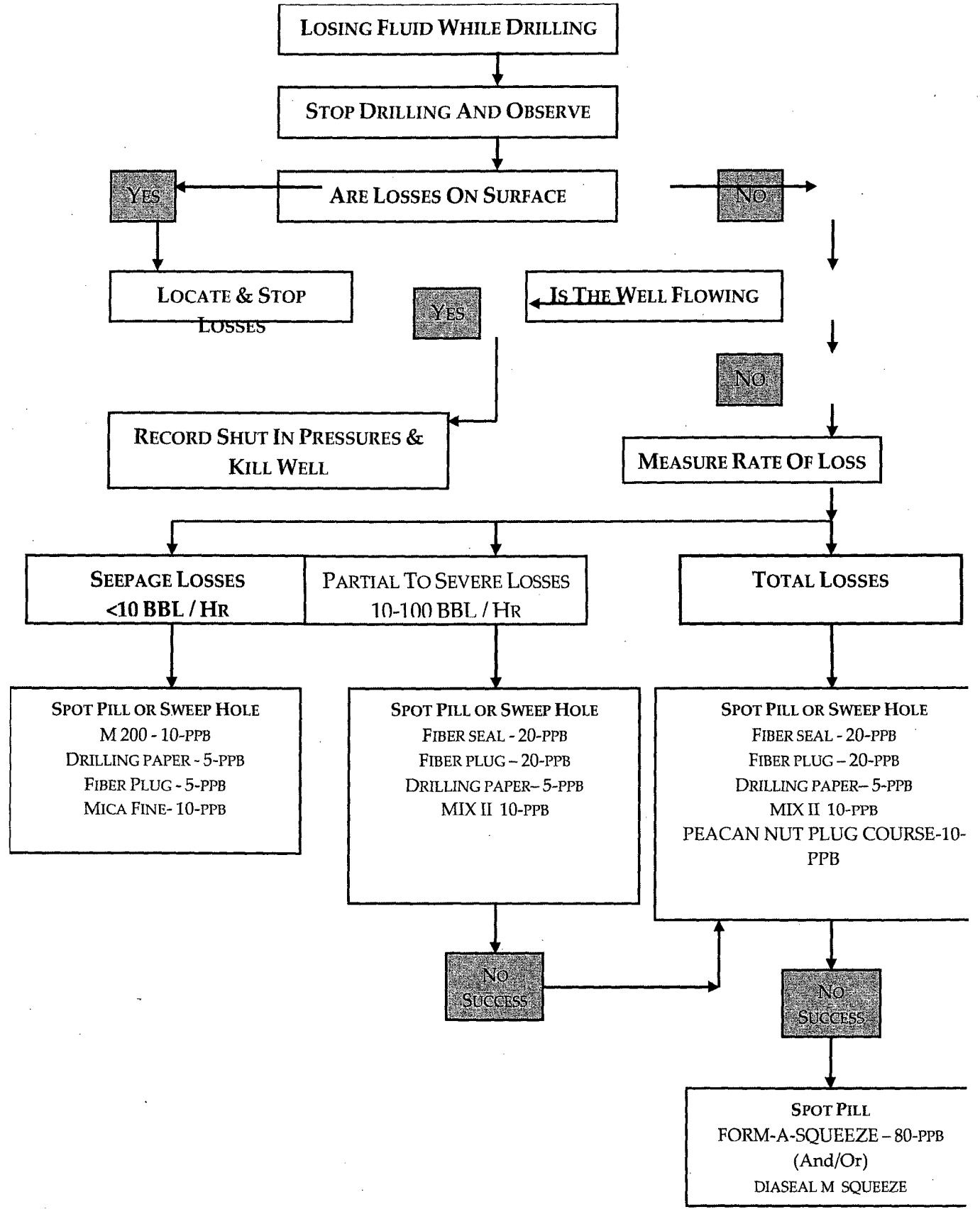

Contacts

DISTRICT MANAGER:	Mike Prewit
LOCATION	Midland, Texas
TELEPHONE NUMBER	432-683-2065
E-MAIL	mprewit@miswaco.slb.com
EPS MANAGER:	Keith Solley
LOCATION	Odessa, Texas
TELEPHONE NUMBER	432-550-2944
E-MAIL	ksolley@miswaco.slb.com
ENGINEER MANAGER:	Wayne Cleere
LOCATION	Midland, Texas
TELEPHONE NUMBER	432-683-2065
E-MAIL	wcleere@miswaco.slb.com
FIELD TECH SERVICE ENG	Don Hammer
LOCATION	Hobbs, New Mexico
TELEPHONE NUMBER	575-390-3440
E-MAIL	dhammer@miswaco.slb.com
TECH SERVICE ENGINEER	Todd Passmore
LOCATION	Midland, Texas
TELEPHONE NUMBER	469-238-9560
E-MAIL	tpassmore@miswaco.slb.com