

A. P. D. (cont.)
Thirteen Point Surface Use Plan
Indian Hills Unit #22

Test Frequency

1. When installed.
2. Anytime a pressure seal is broken (test confined only to affected equipment).
3. At least every 20 days.
4. Blind and pipe rams shall be activated each trip but not more than once/day.

4. Casing and Cement Program:

---DEPTH---		SECTION	HOLE	CSG	WT.		THREADS		NEW
FROM	TO	LENGTH	SIZE	SIZE	PPF	GRADE	COUPLINGS		USED
0	1800'	1800'	17.50"	13 3/8"	54.50#	K-55	8rd, STC		New
0	4800'	4800'	12.25"	9 5/8"	40#	L-80	8rd, LTC		New
4800'	8800'	4000'	12.25"	9 5/8"	53.50#	C-75	8rd, LTC		New

Casing	DV		Lead	Amt	Type	Yield	Wt.			
String	Depth	Stg.	Tail	SXS	Cement	CF/SX	PPG.	TOC	Additives	
13 3/8"			L	100	"C"	7.15	9.5		DiaSeal	
13 3/8"			L	100	Thixset	1.52	14		Thixset	
13 3/8"			L	746	Lite	2.02	12.4	Surface	2% CaCl2	
13 3/8"			T	300	PremPlus	1.34	14.8			
9 5/8"	6400'	1	L	350	PremPlus	2.18	9.2		N2	
9 5/8"		1	T	700	PremPlus	1.44	13.0		N2	
9 5/8"		2	L	1360	Interfil "C"	2.47	11.9		Flocele	
9 5/8"		2	T	200	PremPlus	1.32	14.8		NEAT	

Each stage will be preceded by an appropriate mud flush. Actual production hole volumes will be based on the caliper volume plus 15% excess.

Centralizer Program:

13 3/8" Conventional centralizers. Bottom 3 joints and every fourth joint to surface.

9 5/8" Conventional centralizers middle of 1st joint, then every joint to 7500', and 1 centralizer every 4th joint thereafter to 1100'.

5. Mud Program:

---DEPTH---			WEIGHT		WL			VISUAL
FROM	TO	MUD TYPE	(PPG)	VIS	CC	ADDITIVES		MONTR.
0	1200'	fresh water	8.3	28	N/A	Gel, Lime		Steel Pits
1200'	5000'	fresh	8.5	28-32	N/C	Gel, caustic, H ₂ S Scavenger		Reserve
5000'	7000'	fresh	8.9	32-36	N/C	Gel, caustic, H ₂ S Scavenger		Reserve
7000'	8800'	fresh	8.9	32-36	<20	Gel, caustic, H ₂ S Scavenger		Steel Pits

Sufficient quantities of additives will be on location to maintain above mud properties for any anticipated well conditions.

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