HALLIBURTON SERVICES

TICKET NO. 51459600
DD-MDC-80
HDBS

FORMATION TESTING SERVICE REPORT

GAUGE NO: 3407 DEPTH: 4612.0 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE MINUTES	PRESSURE PRESSURE	TIME MINUTES	TIME PRESSURE	TYPE
A	INITIAL HYDROSTATIC	2115	2128.3			
B	INITIAL FIRST FLOW	45	42.9	30.0	30.1	F
C	FINAL FIRST FLOW	229	243.7			
C	INITIAL FIRST CLOSED-IN	229	243.7	66.0	64.1	C
D	FINAL FIRST CLOSED-IN	1640	1634.4			
E	INITIAL SECOND FLOW	298	304.9	92.0	90.5	F
F	FINAL SECOND FLOW	560	577.4			
F	INITIAL SECOND CLOSED-IN	560	577.4	178.0	179.4	C
G	FINAL SECOND CLOSED-IN	1640	1653.6			
H	FINAL HYDROSTATIC	2115	2130.7			

GAUGE NO: 1636 DEPTH: 4592.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE MINUTES	PRESSURE PRESSURE	TIME MINUTES	TIME PRESSURE	TYPE
A	INITIAL HYDROSTATIC	2160	2167.8			
B	INITIAL FIRST FLOW	15	133.5	30.0	30.1	F
C	FINAL FIRST FLOW	219	296.9			
C	INITIAL FIRST CLOSED-IN	219	296.9	66.0	64.1	C
D	FINAL FIRST CLOSED-IN	1677	1683.4			
E	INITIAL SECOND FLOW	314	327.2	92.0	90.5	F
F	FINAL SECOND FLOW	613	624.5			
F	INITIAL SECOND CLOSED-IN	613	624.5	178.0	179.4	C
G	FINAL SECOND CLOSED-IN	1689	1695.7			
H	FINAL HYDROSTATIC	2160	2166.7			

EQUIPMENT & HOLE DATA

FORMATION TESTED: QUEENS
NET PAY (FT): 10.6
GROSS TESTED FOOTAGE: 65.6
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (FT): ---
HOLE OR CASING SIZE (IN): 7.875
ELEVATION (FT): 3089
TOTAL DEPTH (FT): 4595.0
PACKER DEPTH(S) (FT): 4525, 4530
FINAL SURFACE CHOKE (IN): 1
BOTTOM HOLE CHOKE (IN): 0.750
MUD WEIGHT (lb/gal): 8.90
MUD VISCOSITY (sec): 33
ESTIMATED HOLE TEMP. (°F): 118 @ 4595.0 ft.

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
SAMPLER	0.053 @ 74 °F	184000 ppm
1000 TOP	0.052 @ 74 °F	188000 ppm
TOP RECOVERY	0.049 @ 74 °F	19000 ppm
PIT SAMPLE	0.530 @ 74 °F	4800 ppm
	@ °F	ppm
	@ °F	ppm

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): @ °F
GAS GRAVITY: (Air=1.0) par brtis
GOR: cu.ft./bbl.

RECOVERED:
200 FEET OF WATER
600 FEET OF DRILLING MUD
300 FEET OF 3 CUT DRILLING MUD

REMARKS:
ELEVATION REPORTED IS AT GROUND LEVEL.

SAMPLER ANALYSIS: SPECIFIC GRAVITY=1.198; PH=6.4; CR-9600; MG-8360; SO4=2250; HCO3-305; TFE-75.

TICKET NUMBER: 51459600
DATE: 11-28-93 TEST NO: 1
TYPE DST: OPEN HOLE
HALLIBURTON COMP: HOBBS
TESTER: LOU URSO
WITNESS: CARROLL BULLAR
DRILLING CONTRACTOR: WTX #2

SAMPLER DATA

Pw'g AT SURFACE: ---
cu.ft. OF GAS: 0.00
cu. OF OIL: 0
cu. OF WATER: 2400
cu. OF MUD: 0
TOTAL LIQUID cu. 2400

CUSHION DATA

TYPE	AMOUNT	WEIGHT

DRILL PIPE: 4.000 X 3.340

TYPE & SIZE MEASURING DEVICE: MISSING CHART TICKET NO: 51459600

TIME	CHOKE SIZE	SURFACE PRESSURE PSIG	GAS RATE MCF	LIQUID RATE BPD	REMARKS
11-28-93					
0900					ON LOCATION
0930					STARTED TEST TOOLS IN HOLE
0939					SET PACKERS
0735	BH				OPENED TOOL WITH WEAK BLOW
0740	BH				INCREASING
0755	BH				
0805					GOOD BLOW - CLOSED TOOL
0911	BH				OPENED TOOL WITH WEAK BLOW
0921	BH				INCREASING BLOW
0931	BH				INCREASING BLOW
0941	BH				FAIR BLOW
0951	BH				NO CHANGE FOR REST OF FLOW
1041					CLOSED TOOL
1141					OPENED BYPASS & STARTED OUT
1600					BROKE DOWN TOOLS
1800					JOB COMPLETED

TICKET NO: 51459600
CLOCK NO: 27306 HOURS: 24
HALLIBURTON
GAUGE NO: 3407
DEPTH: 4612.0

REF	MINUTES	PRESSURE	ΔP	100 PSI/MIN	100 PSI/MIN
		FIRST FLOW			
B	0.0	42.9			
	5.0	54.7	21.4		
	10.0	69.3	26.6		
	15.0	105.5	37.8		
	20.0	188.0	52.5		
	25.0	229.0	40.9		
C	30.1	243.7	25.8		
		FIRST CLOSED-IN			
C	0.0	243.7			
	5.0	700.5	525.3	4.3	0.040
	10.0	1129.9	1012.5	8.4	0.084
	15.0	1290.7	986.0	10.6	0.078
	20.0	1347.5	1120.9	12.0	0.060
	25.0	1374.9	1172.6	13.0	0.052
	30.0	1476.9	1296.2	14.6	0.049
	35.0	1525.5	1376.6	16.2	0.046
	40.0	1570.9	1447.9	17.8	0.044
	45.0	1576.9	1456.7	19.3	0.043
	50.0	1598.4	1502.7	18.8	0.040
	55.0	1611.9	1532.1	19.4	0.038
	60.0	1625.3	1561.8	20.0	0.037
D	64.1	1634.4	1580.7	20.5	0.147
		SECOND FLOW			
E	0.0	304.9			
	10.0	339.4	34.5		
	20.0	379.9	75.0		
	30.0	415.4	34.5		
	40.0	448.9	32.0		
	50.0	475.4	26.5		
	60.0	502.9	27.5		
	70.0	527.9	25.0		
	80.0	553.4	25.5		
F	90.5	577.4	23.5		
		SECOND CLOSED-IN			
F	0.0	577.4			
	10.0	1155.7	578.3	5.3	1.115
	20.0	1411.7	1034.3	9.4	0.517
	30.0	1520.5	1071.1	11.7	0.357
	40.0	1494.5	892.4	12.9	0.224
	50.0	1537.5	943.4	14.0	0.189
	60.0	1557.4	940.6	15.1	0.157
	70.0	1581.5	985.2	16.2	0.141
	80.0	1592.7	995.3	16.9	0.126
G	90.5	1653.6	1076.2	17.9	0.119

REMARKS:

TICKET NO: 51459600
CLOCK NO: 27304 HOURS: 24
HALLIBURTON
GAUGE NO: 1636
DEPTH: 4592.0

REF	MINUTES	PRESSURE	ΔP	100 PSI/MIN	100 PSI/MIN
		FIRST FLOW			
B	0.0	133.5			
	5.0	150.5	17.0		
	10.0	214.5	64.0		
	15.0	218.5	35.5		
	20.0	242.5	50.0		
	25.0	281.5	39.0		
C	30.1	296.9	26.7		
		FIRST CLOSED-IN			
C	0.0	296.9			
	5.0	633.5	511.4	4.3	0.040
	10.0	1129.9	1000.4	8.4	0.084
	15.0	1290.7	994.2	10.6	0.078
	20.0	1413.7	1135.9	12.0	0.060
	25.0	1464.9	1188.6	13.0	0.052
	30.0	1476.9	1246.6	15.3	0.052
	35.0	1481.5	1295.1	16.2	0.046
	40.0	1570.9	1447.9	17.8	0.044
	45.0	1576.9	1456.7	19.3	0.043
	50.0	1581.4	1452.7	18.8	0.040
	55.0	1611.9	1532.1	19.4	0.038
	60.0	1676.9	1678.5	20.1	0.037
D	64.1	1683.4	1690.7	20.5	0.147
		SECOND FLOW			
E	0.0	327.2			
	10.0	392.4	65.5		
	20.0	441.4	49.0		
	30.0	483.9	54.5		
	40.0	498.9	51.5		
	50.0	525.4	26.5		
	60.0	552.9	27.5		
	70.0	577.9	25.0		
	80.0	603.4	25.5		
F	90.5	624.5	22.7		
		SECOND CLOSED-IN			
F	0.0	624.5			
	10.0	1155.7	538.0	5.3	1.115
	20.0	1411.7	1034.3	9.4	0.517
	30.0	1520.5	1071.1	11.7	0.357
	40.0	1494.5	870.0	12.9	0.224
	50.0	1537.5	943.4	14.0	0.189
	60.0	1557.4	940.6	15.1	0.157
	70.0	1581.5	985.2	16.2	0.141
	80.0	1593.5	995.3	16.9	0.126
G	90.5	1695.7	1101.2	18.2	0.123

REMARKS:

TICKET NO. 51459600

		B.S.	I.D.	LNG'H	DEPTH
1	DRILL PIPE.....	4.000	3.340	3860.0	
2	X-OVER.....				
3	DRILL COLLARS.....	6.250	2.250	535.0	
4	IMPACT REVERSING SUB.....	6.500	3.500	1.0	4497.0
5	X-OVER.....				
6	DRILL COLLARS.....	6.250	2.250	55.0	
7	CROSSOVER.....	5.750	2.250	1.0	
8	HALFWAY CIP SAMPLER.....	5.000	0.750	8.0	4506.0
9	EXTENSION JOINT.....	5.000	0.870	15.5	
10	AP RUNNING CASE.....	5.000	3.000	4.0	4510.5
11	DISTRIBUTOR VALVE.....	5.000	1.000	3.0	
12	OPEN HOLE PACKER.....	7.000	1.530	5.0	4525.0
13	OPEN HOLE PACKER.....	7.000	1.530	5.0	4530.0
14	INNER PIPE SAFETY JOINT.....	5.750	1.500	4.0	
15	CROSSOVER.....	5.750	2.500	1.0	
16	DRILL COLLARS.....	6.250	2.250	92.0	
17	CROSSOVER.....	5.750	2.500	1.0	
18	FLUSH JOINT ANCHOR.....	5.750	3.500	20.0	
19	BLANKED-OFF RUNNING CASE.....	5.750		4.0	4592.0
	TOTAL DEPTH				4595.0

EQUIPMENT DATA