

Directional Survey

THOMPSON & ASSOCIATES

D-1-30N-16W

DATE MARCH 4, 1980

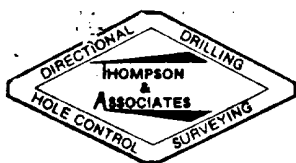
COMPANY DRILLING DEVELOPMENTS

WELL TALL JIM

WELL NO: 2-1

LOCATION HARLAN

TYPE OF SURVEY MULTISHOT



THOMPSON & ASSOCIATES

COMPANY DRILLING DEVELOPMENTS
 LOCATION HARLAN
 HOLE TALL JIM
 TYPE OF SURVEY MULTISHOT

DATE 3-4-80

JOB NO. D-247

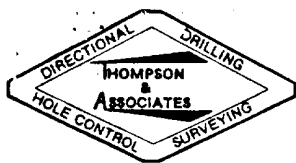
COMPUTATIONS AVERAGE ANGLE

HOLE NO: 2-1D

COMPANY ORDER NO:

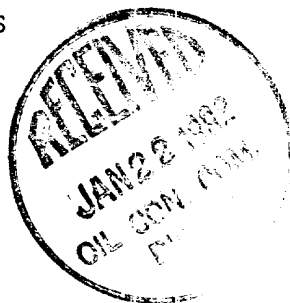
MEASURED DEPTH	TRUE VERTICAL DEPTH	DRIFT ANGLE	DRIFT DIRECTION	RECTANGULAR COORDINATES			
				NORTH	SOUTH	EAST	WEST
950'	949.85	1°	N 51 W	10.43			12.89
1250	1249.78	1½	N 53 W	14.46			18.47
1540	1539.66	1¾	N 44 W	19.91			24.63
1685	1684.60	1½	N 2 W	23.70			26.24
1690	1689.59	7	N 24 E	24.06			26.17
1695	1694.52	12½	N 24 E	24.83			25.83
1700	1699.34	18½	N 29 E	26.03			25.23
1705	1703.98	25	N 32 E	27.63			24.29
1710	1708.37	32	N 35 E	29.62			22.97
1715	1712.47	38	N 36 E	31.95			21.30
1720	1716.25	43¾	N 39 E	34.55			19.31
1725	1719.67	50	N 40 E	37.37			16.99
1730	1722.69	55¾	N 42 E	40.38			14.37
1735	1725.29	61½	N 45 E	43.48			11.43
1740	1727.48	66½	N 48 E	46.57			8.17
1745	1729.26	71¾	N 50 E	49.63			4.64
1750	1730.65	76	N 52 E	52.65			.91
1755	1731.64	81½	N 56 E	55.53		3.06	
1760	1732.20	86	N 60 E	58.16		7.27	
1765	1732.43	88¾	N 66 E	60.43		11.72	
1770	1732.54	88¾	N 66 E	62.46		16.29	
1775	1732.58	90½	N 68 E	64.41		20.89	





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COMPANY DRILLING DEVELOPMENTS
LOCATION HARLAN
HOLE TALL JIM
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DATE 3-4-80

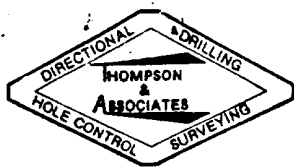
JOB NO. D-247

COMPUTATIONS AVERAGE ANGLE

HOLE NO: 2-1D

COMPANY ORDER NO:

MEASURED DEPTH	TRUE VERTICAL DEPTH	DRIFT ANGLE	DRIFT DIRECTION	RECTANGULAR COORDINATES			
				NORTH	SOUTH	EAST	WEST
1780'	1732.53'	91°	N 70 E	66.20		25.56	
1785	1732.43	91½	N 72 E	67.83		30.29	
1790	1732.42	89	N 74 E	69.29		35.07	
1795	1732.51	89	N 74 E	70.67		39.89	
1800	1732.68	87	N 73 E	72.09		44.68	
1805	1733.01	85½	N 71 E	73.63		49.43	
1810	1733.40	85½	N 70 E	75.29		54.13	
1815	1733.81	85	N 68 E	77.08		58.78	
1820	1734.27	84½	N 67 E	78.99		63.38	
1825	1734.73	85	N 67 E	80.94		67.96	
1830	1735.17	85	N 67 E	82.89		72.55	
1835	1735.62	84¾	N 67 E	84.84		77.13	
1840	1736.08	84¾	N 66 E	86.83		81.70	
1845	1736.55	84½	N 66 E	88.85		86.25	
1850	1737.05	84	N 66 E	90.87		90.79	
1855	1737.58	83¾	N 66 E	92.89		95.33	
1860	1738.14	83½	N 66 E	94.91		99.87	
1865	1738.71	83½	N 66 E	96.93		104.41	
1870	1739.28	83½	N 66 E	98.95		108.95	
1875	1739.87	83½	N 66 E	100.97		113.47	
1880	1740.47	83	N 66 E	102.99		118.00	
1885	1741.09	82¾	N 66 E	105.01		122.53	



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JOB NO. D-247

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HOLE NO: 2-1D

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COMPANY DRILLING DEVELOPMENTS

LOCATION HARLAN

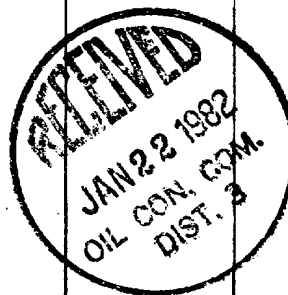
HOLE TALL JIM

TYPE OF SURVEY MULTISHOT

MEASURED DEPTH	TRUE VERTICAL DEPTH	DRIFT ANGLE	DRIFT DIRECTION	RECTANGULAR COORDINATES			
				NORTH	SOUTH	EAST	WEST
1890'	1741.75'	82°	N 65 E	107.07		127.04	
1895	1742.46	81½	N 65 E	109.16		131.53	
1900	1743.19	81½	N 65 E	111.25		136.01	
1905	1743.93	81½	N 65 E	113.34		140.49	
1910	1744.68	81½	N 65 E	115.43		144.97	
1915	1745.42	81½	N 65 E	117.52		149.95	
1920	1746.14	81½	N 65 E	119.61		154.43	
1925	1746.86	81½	N 65 E	121.70		158.91	
1930	1747.59	81½	N 65 E	123.79		163.39	
1935	1748.31	82	N 65 E	125.88		167.87	
1940	1749.06	82	N 65 E	127.97		172.36	
1945	1749.76	82	N 65 E	130.06		176.85	
1950	1750.46	82	N 64 E	132.19		181.32	
1955	1751.13	81½	N 64 E	134.36		185.77	
1957	1751.43	81½	N 63 E	135.24		187.54	

231.22' N-54° 12' E.

@ 1751.43' T.V.D.



1937 T.D. M.D.

1925

1900

1975

1850

1825

1800

1775

1750

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Closure @ 1957 M.D.
231.22' N 54°12' E
1751.43 T.V.A

HARLAN TALL JIM

#2 - 10-2-D

HORIZONTAL SECTION

1" = 50'

Closure @ 1783 M.D.
177.43' S 50°12' W
1622.11 T.V.A

T.D. 1783

© 1940. M. D.

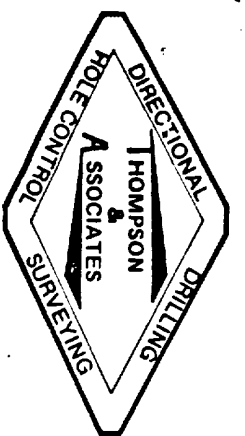
VERTICAL SECTION

$1'' = 50'$

Closure @ 1703 M.D.
177.48' S 50° 12' W
1629.11 T.V.D.

Closure @ 1957 M.D.
231.22' N 54° 12' E
1751.43 T.V.D.

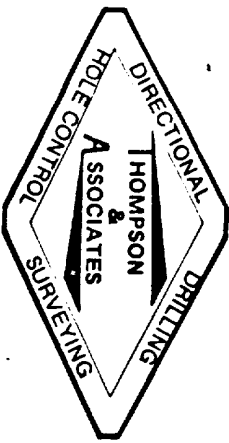
1805 T.D. Ventral



COMPANY Delta Development Co. FIELD Houston Area JOB NO. 11-246
LEASE Block 944 Sec. 10 WELL NO. #2-20 DISTRICT Quarta
TYPE OF SURVEY Profile COMPUTATIONS Average DATE 2-28-80
ENGINEER M. Donald OBJECTIVE to go & find SHEET 1 OF 3



LOGS DEPTH	MEASURED DEPTH	COURSE LENGTH	DRIFT ANGLE	VERTICAL DEPTH	TRUE VERTICAL DEPTH		VERTICAL SECTION	SECTN DIFF.	COURSE DEVIATION	DRIFT DIRECTION	D.	COORDINATE DIFFERENCES				RECTANGULAR COORDINATES			
												NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
7446.	450	450'	1°		449	85	16.58			N	51 W					10.43			12.29
	1350	306'	1 1/2°		1249.	78	23.13			N	53 W					14.46			18.05
	1540	290'	1 3/4°		1539.	66	31.34			N	44 W					19.41			24.21
	1575	35'	1 1/2°		1574.	65	31.75			N	11 E					19.45			25.09
	1580	5'	9 1/2°		1579.	63	31.38			N	14 E					18.48			24.99
	1585	5'	16°		1584.	51	30.55			N	10 E					17.90			24.76
	1590	5	22°		1589.	24	29.47			N	4 E					16.28			24.56
	1595	5	28 1/2°		1593.	76	28.26			N	1 E					14.15			24.47
	1600		35°		1598.	01	27.07			N	2 W					11.52			24.49
	1605		41 1/4°		1601.	94	26.06			N	4 W					8.44			24.65
	1610		47°		1605.	53	25.44			N	6 W					4.97			24.95
	1615		54 1/2°		1608.	69	25.48			N	9 W					1.13			25.46
	1620		61 1/2°		1611.	34	26.41			N	12 W								26.53
	1625		66 1/2°		1613.	53	28.27			N	15 W								27.28
	1630		72°		1615.	30	30.95			N	19 W								28.57
	1635		80°		1616.	51	34.36			N	21 W								30.15
	1640		86 1/2°		1617.	10	38.36			N	24 W								32.05
	1645		90°		1617.	25	42.74			N	28 W								34.24
	1650		93 1/2°		1617.	09	47.37			N	32 W								36.74
	1655		99°		1616.	63	52.17			N	37 W								39.56



COMPANY Only Development FIELD Haradha River JOB NO. D-246
LEASE Fire/PA's Tail Sim WELL NO. #2-20 DISTRICT Greene
TYPE OF SURVEY Multistat COMPUTATIONS Average Angle DATE 2-28-80
ENGINEER W. Donald OBJECTIVE 6 to 98° + Hold SHEET 2 OF 3

LOSS DEPTH	MEASURED DEPTH	COURSE LENGTH	DRIFT ANGLE	VERTICAL DEPTH	TRUE VERTICAL DEPTH	VERTICAL SECTION	SECTN DIFF.	COURSE DEVIATN	DRIFT DIRECTION	O. D.	COORDINATE DIFFERENCES				RECTANGULAR COORDINATES			
											NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
	1660		99 1/2°		1615	41	57.04		S 41 W							37.85		42.67
	1665		100°		1615.06	61.97			S 55 W							41.15		46.33
	1670		99 1/2°		1614.21	66.86			S 55 W							43.98		54.37
	1675		95 1/2°		1613.56	71.80			S 55 W							44.82		54.43
	1680		92 1/2°		1613.08	76.75			S 55 W							49.67		58.51
	1685		91 1/2°		1612.91	81.73			S 55 W							52.54		62.00
	1690		90 1/2°		1612.82	86.71			S 54 W							55.44		66.62
	1695		89 1/2°		1612.82	91.70			S 52 W							58.45		70.66
	1700		88 1/4°		1612.92	96.70			S 51 W							61.56		74.57
	1705		87 1/4°		1613.12	101.69			S 51 W							64.70		78.45
	1710		85 1/2°		1613.44	106.68			S 50 W							67.87		82.30
	1715		84 1/2°		1613.88	111.66			S 50 W							71.07		86.12
	1720		83 1/2°		1614.40	116.63			S 50 W							74.27		89.43
	1725		82 1/4°		1615.02	121.59			S 49 W							77.49		93.70
	1730		81 1/4°		1615.74	126.54			S 49 W							80.74		97.43
	1735		80°		1616.55	131.47			S 50 W							83.94		101.18
	1740		79°		1617.46	136.38			S 50 W							87.10		104.95
	1745		77 3/4°		1618.47	141.28			S 50 W							90.25		108.70
	1750		76 3/4°		1619.57	146.16			S 50 W							93.38		112.44
	1755		75 1/2°		1620.77	151.01			S 50 W							96.50		116.16

