

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

OIL CONSERVATION DIVISION
93 87 9 02

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 1073

APPLICATION OF Petroleum Development Corporation for a high angle/horizontal
directional drilling pilot project and for special operating rules therefor,
Chaves County, New Mexico.

PRE-HEARING STATEMENT

This prehearing statement is submitted by Petroleum Development Corporation
as required by the Oil Conservation Division.

APPEARANCES OF PARTIES

APPLICANT

ATTORNEY

Petroleum Development Corporation

Annie Laurie Coogan

9720-b Candelaria N.E.

P. O. Box 2073

Albuq. NM 87110

Espanola NM 87532

(505) 2934044

1-800-933-2214

Jim C. Johnson

name, address, phone and
contact person

OPPOSITION OR OTHER PARTY

ATTORNEY

name, address, phone and
contact person

PROPOSED EVIDENCE

APPLICANT

WITNESSES (Name and expertise)	EST. TIME	EXHIBITS
J. C. Johnson Petroleum Engineer 35 years Oil and Gas Exploration and Production from Canada to Gulf Coast	15 minutes	(4)

OPPOSITION

WITNESSES (Name and expertise)	EST. TIME	EXHIBITS
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PROCEDURAL MATTERS

(Please identify any procedural matters which
need to be resolved prior to the hearing)

None

Signature

STATEMENT OF CASE

APPLICANT

(Please make a concise statement of what is being sought with this application and the reasons therefore.)

Reenter Strange Federal #4 Well bore, mill a 60' + - section in existing 5'½" casing. Drill a 60' + - radii arc 85 degree to 90 degree into P2 San Andres Pay Zone. Continue to drill horizontally 790'+ - into Pay Zone maintaining a distance of 100' from any boundary of the 40 acre spacing tract. Reason for this procedure is to attempt to economically recover Oil and Gas reserves from the 40 acre tract that have not been recovered from the conventional verticle well bore.

OPPOSITION OR OTHER PARTY

(Please make a concise statement of the basis for opposing this application or otherwise state the position of the party filing this statement.)

GIL CONSERVATION DIVISION
RECEIVED
'93 JUL 14 AM 9 35

Case No. 10713

REPORT OF

SUB-SURFACE
DIRECTIONAL
SURVEY

API #

PETROLEUM DEVELOPMENT CORPORATION

STRANGE FEDERAL # 4

CHAVES COUNTY, NEW MEXICO

JOB NUMBER

430-1617

430-1617

TYPE OF SURVEY

Gyroscopic Survey

Steering Tool

DATE

May 21, 1993

May 28, 1993

SURVEY BY BART WELCH/RON COLLINS

OFFICE: MIDLAND, TX

PETROLEUM DEVELOPMENT CORPORATION

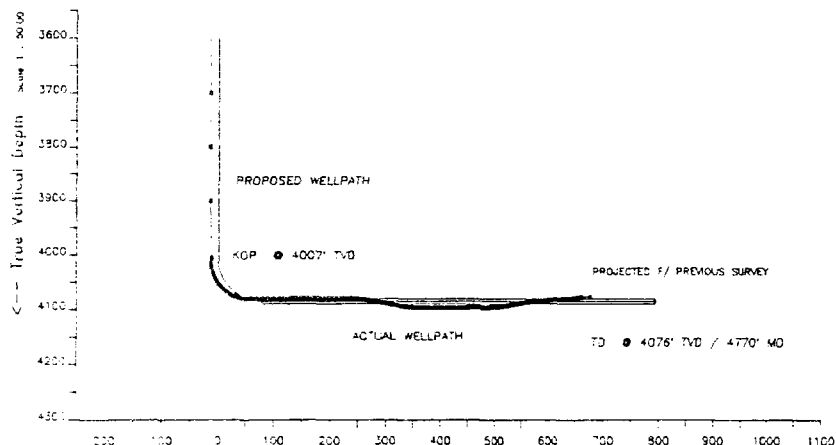
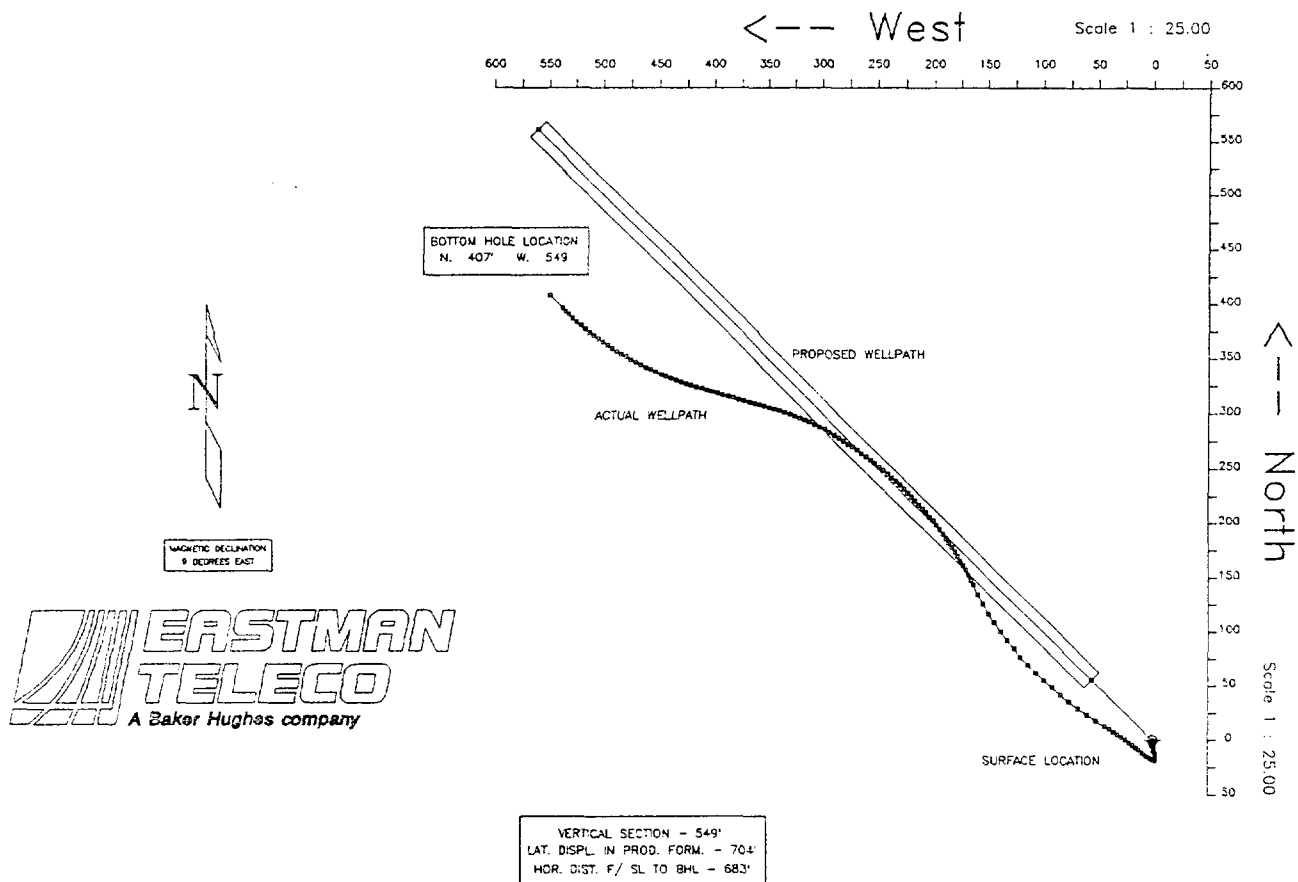
Structure : STRANGE FEDERAL #4

Field : TOM TOM

Location : CHAVES COUNTY, NEW MEXICO

WELL PROFILE DATA

Point	UD	Inc	Dir	TVD	North	East
Origin	0	0.00	315.00	0	0	0
KOP	4007	0.00	315.00	4007	0	0
End of Build	4130	90.00	315.00	4085	55	-55
Target	4244	90.00	315.00	4085	55	-55



Vertical Section on 315.00 azimuth with reference 0.00 N, 0.00 E from structure

PETROLEUM DEVELOPMENT CORPORATION
STRANGE FEDERAL #4

Slot #1
TOM TOM
CHAVES COUNTY, NEW MEXICO

S U R V E Y L I S T I N G

by
Eastman Teleco

Your ref :
Our ref : svy154
License :

Date printed : 21-Jun-93
Date created : 20-May-93
Last revised : 21-Jun-93

Field is centred on 0.000,0.000,0.00000,+
Structure is centred on 0.000,0.000,0.00000,N

Slot location is n0 0 0.000,w4 29 18.843
Slot grid coordinates are N 0.000, E 0.000
Slot local coordinates are 0.00 N 0.00 E
Reference North is Grid North

PETROLEUM DEVELOPMENT CORPORATION
STRANGE FEDERAL #4, slot #1
TOM TOM, CHAVES COUNTY, NEW MEXICO

SURVEY LISTING Page 1
Your ref :
Last revised : 21-Jun-93

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert. Depth	R E C T A N G U L A R C O O R D I N A T E S		Dogleg Deg/100Ft	Vert Sect
0.00	0.00	0.00	0.00	0.00	N	0.00	0.00
100.00	0.42	225.06	100.00	0.26	S	0.26	0.42
200.00	0.44	236.04	200.00	0.73	S	0.84	0.84
300.00	0.37	200.58	299.99	1.25	S	1.27	1.27
400.00	0.56	211.50	399.99	1.97	S	1.64	1.64
500.00	0.51	198.15	499.99	2.81	S	2.03	2.03
600.00	0.45	160.55	599.98	3.60	S	2.04	2.04
700.00	0.73	128.92	699.98	4.37	S	1.41	1.41
800.00	0.40	120.16	799.97	4.95	S	0.62	0.62
900.00	0.46	39.33	899.97	4.81	S	0.06	0.06
1000.00	0.43	32.39	999.97	4.18	S	0.40	-0.40
1100.00	0.40	47.33	1099.96	3.63	S	0.85	-0.85
1200.00	0.16	68.30	1199.96	3.34	S	1.24	-1.24
1300.00	0.11	281.42	1299.96	3.27	S	1.28	-1.28
1400.00	0.34	193.54	1399.96	3.54	S	1.11	-1.11
1500.00	0.74	174.48	1499.96	4.47	S	1.10	-1.10
1600.00	0.78	182.47	1599.95	5.80	S	1.14	-1.14
1700.00	0.47	170.22	1699.94	6.88	S	1.18	-1.18
1800.00	0.32	181.72	1799.94	7.56	S	1.24	-1.24
1900.00	0.23	185.87	1899.94	8.04	S	1.21	-1.21
2000.00	0.34	231.24	1999.94	8.43	S	0.96	-0.96
2100.00	0.23	247.85	2099.94	8.69	S	0.54	-0.54
2200.00	0.20	228.38	2199.94	8.88	S	0.22	-0.22
2300.00	0.06	6.62	2299.94	8.94	S	0.10	-0.10
2400.00	0.23	164.59	2399.94	9.08	S	0.16	-0.16
2500.00	0.44	124.42	2499.94	9.50	S	0.53	-0.53
2600.00	0.58	127.95	2599.93	10.02	S	1.24	-1.24
2700.00	0.57	161.61	2699.93	10.81	S	1.80	-1.80
2800.00	0.66	152.03	2799.92	11.79	S	2.23	-2.23
2900.00	0.63	176.04	2899.91	12.84	S	2.54	-2.54
3000.00	0.52	181.36	2999.91	13.85	S	2.56	-2.56
3100.00	0.58	183.11	3099.90	14.81	S	2.52	-2.52
3200.00	0.36	159.94	3199.90	15.61	S	2.60	-2.60
3300.00	0.33	190.51	3299.90	16.18	S	2.66	-2.66
3400.00	0.21	180.21	3399.90	16.65	S	2.61	-2.61
3500.00	0.35	204.18	3499.90	17.11	S	2.48	-2.48
3600.00	0.10	197.86	3599.90	17.48	S	2.33	-2.33
3700.00	0.20	188.20	3699.90	17.73	S	2.28	-2.28
3800.00	0.20	237.58	3799.90	18.00	S	2.11	-2.11
3900.00	0.31	241.21	3899.89	18.22	S	1.72	-1.72
3984.00	0.42	355.77	3983.89	18.02	S	1.50	-1.50
4005.00	0.04	284.20	4004.89	17.94	S	1.49	-1.49
4007.00	1.06	298.67	4006.89	17.94	S	1.47	-1.47
4010.00	2.60	299.00	4009.89	17.89	S	1.39	-1.39
4015.00	5.60	292.40	4014.88	17.74	S	1.06	-1.06
4020.00	8.90	294.00	4019.84	17.49	S	0.48	-0.48
4025.00	12.02	294.80	4024.75	17.12	S	0.34	-0.34
4030.00	16.10	294.80	4029.60	16.61	S	1.45	1.45
4035.00	18.80	295.90	4034.37	15.96	S	2.80	2.80
4040.00	22.40	298.00	4039.05	15.16	S	4.37	4.37

All data is in feet unless otherwise stated
Coordinates from structure and TVD from wellhead.
Vertical section is from wellhead on azimuth 270.00 degrees.
Declination is 0.00 degrees, Convergence is 0.00 degrees.
Calculation uses the minimum curvature method.
Presented by Eastman Teleco

PETROLEUM DEVELOPMENT CORPORATION
 STRANGE FEDERAL #4, slot #1
 TOM TOM, CHAVES COUNTY, NEW MEXICO

SURVEY LISTING Page 2
 Your ref :
 Last revised : 21-Jun-93

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert. Depth	R E C T A N G U L A R C O O R D I N A T E S		Dogleg Deg/100Ft	Vert Sect
4045.00	25.70	301.80	4043.62	14.14 S	6.13 W	72.87	6.13
4050.00	30.00	304.80	4048.04	12.86 S	8.08 W	90.43	8.08
4055.00	34.80	307.80	4052.26	11.27 S	10.23 W	101.21	10.23
4060.00	39.10	309.60	4056.25	9.39 S	12.58 W	88.67	12.58
4065.00	43.70	310.30	4060.00	7.27 S	15.11 W	92.46	15.11
4070.00	47.90	309.60	4063.49	4.97 S	17.86 W	84.60	17.86
4075.00	52.30	308.10	4066.70	2.56 S	20.85 W	90.96	20.85
4080.00	56.80	306.60	4069.59	0.09 S	24.08 W	93.25	24.08
4085.00	60.30	305.10	4072.20	2.40 N	27.54 W	74.53	27.54
4090.00	65.10	303.50	4074.50	4.90 N	31.21 W	100.12	31.21
4095.00	69.60	302.00	4076.42	7.40 N	35.09 W	94.16	35.09
4100.00	73.50	301.40	4078.00	9.89 N	39.13 W	78.82	39.13
4105.00	80.10	300.50	4079.14	12.39 N	43.30 W	133.16	43.30
4115.00	86.90	303.40	4080.28	17.65 N	51.72 W	73.84	51.72
4125.00	90.10	304.90	4080.54	23.26 N	59.99 W	35.34	59.99
4135.00	90.60	306.10	4080.48	29.07 N	68.14 W	13.00	68.14
4145.00	90.00	307.60	4080.42	35.06 N	76.14 W	16.16	76.14
4155.00	88.90	309.60	4080.52	41.30 N	83.95 W	22.82	83.95
4165.00	89.90	311.60	4080.62	47.81 N	91.54 W	22.36	91.54
4175.00	91.40	313.60	4080.51	54.58 N	98.90 W	25.00	98.90
4185.00	92.50	315.30	4080.17	61.57 N	106.04 W	20.24	106.04
4195.00	91.80	317.30	4079.80	68.80 N	112.94 W	21.18	112.94
4205.00	90.10	319.50	4079.63	76.28 N	119.58 W	27.80	119.58
4215.00	89.20	321.30	4079.69	83.98 N	125.95 W	20.12	125.95
4225.00	89.20	322.60	4079.83	91.85 N	132.11 W	13.00	132.11
4235.00	89.70	324.00	4079.93	99.87 N	138.09 W	14.86	138.09
4245.00	90.30	326.50	4079.93	108.09 N	143.79 W	25.71	143.79
4255.00	91.00	329.10	4079.81	116.55 N	149.12 W	26.92	149.12
4265.00	91.60	331.20	4079.59	125.22 N	154.09 W	21.84	154.09
4275.00	91.20	332.80	4079.34	134.04 N	158.79 W	16.49	158.79
4285.00	90.00	333.60	4079.24	142.97 N	163.30 W	14.42	163.30
4290.00	89.50	333.70	4079.26	147.45 N	165.51 W	10.20	165.51
4295.00	88.70	331.10	4079.34	151.88 N	167.83 W	54.40	167.83
4300.00	87.70	332.10	4079.49	156.28 N	170.21 W	28.28	170.21
4305.00	86.90	331.10	4079.73	160.67 N	172.58 W	25.60	172.58
4310.00	86.10	330.20	4080.04	165.02 N	175.03 W	24.06	175.03
4315.00	85.10	329.10	4080.42	169.32 N	177.55 W	29.68	177.55
4320.00	84.10	328.00	4080.89	173.57 N	180.14 W	29.66	180.14
4325.00	83.40	327.20	4081.43	177.76 N	182.81 W	21.19	182.81
4330.00	82.50	326.00	4082.05	181.91 N	185.54 W	29.85	185.54
4335.00	81.70	325.20	4082.73	185.99 N	188.34 W	22.52	188.34
4340.00	80.60	324.50	4083.50	190.03 N	191.18 W	25.99	191.18
4345.00	79.90	323.60	4084.35	194.02 N	194.07 W	22.60	194.07
4350.00	79.30	323.60	4085.25	197.98 N	196.99 W	12.00	196.99
4355.00	79.30	321.70	4086.18	201.88 N	199.97 W	37.34	199.97
4360.00	79.30	320.70	4087.11	205.71 N	203.05 W	19.65	203.05
4365.00	79.00	319.70	4088.05	209.49 N	206.20 W	20.54	206.20
4370.00	78.90	318.90	4089.01	213.21 N	209.40 W	15.83	209.40
4375.00	79.00	317.60	4089.97	216.87 N	212.66 W	25.60	212.66
4380.00	79.40	317.40	4090.90	220.49 N	215.98 W	8.91	215.98

All data is in feet unless otherwise stated
 Coordinates from structure and TVD from wellhead.
 Vertical section is from wellhead on azimuth 270.00 degrees.
 Declination is 0.00 degrees, Convergence is 0.00 degrees.
 Calculation uses the minimum curvature method.
 Presented by Eastman Teleco

PETROLEUM DEVELOPMENT CORPORATION
STRANGE FEDERAL #4, slot #1
TOM TOM, CHAVES COUNTY, NEW MEXICO

SURVEY LISTING Page 3
Your ref :
Last revised : 21-Jun-93

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert. Depth	R E C T A N G U L A R C O O R D I N A T E S		Dogleg Deg/100Ft	Vert Sect
4385.00	79.70	316.80	4091.81	224.09 N	219.33 W	13.24	219.33
4390.00	80.40	315.80	4092.68	227.65 N	222.73 W	24.17	222.73
4395.00	81.10	314.60	4093.48	231.15 N	226.21 W	27.52	226.21
4400.00	81.70	313.60	4094.23	234.59 N	229.76 W	23.13	229.76
4405.00	82.30	312.80	4094.92	237.98 N	233.37 W	19.88	233.37
4410.00	83.20	312.20	4095.55	241.33 N	237.02 W	21.58	237.02
4415.00	84.20	311.16	4096.10	244.64 N	240.74 W	28.76	240.74
4420.00	85.50	310.70	4096.55	247.90 N	244.50 W	27.57	244.50
4425.00	86.40	309.70	4096.90	251.12 N	248.31 W	26.87	248.31
4430.00	87.30	309.00	4097.18	254.28 N	252.17 W	22.79	252.17
4435.00	88.70	308.20	4097.35	257.40 N	256.07 W	32.24	256.07
4440.00	90.20	307.90	4097.40	260.48 N	260.01 W	30.59	260.01
4445.00	91.60	307.50	4097.32	263.54 N	263.96 W	29.12	263.96
4450.00	92.50	306.80	4097.14	266.56 N	267.95 W	22.80	267.95
4455.00	92.70	305.40	4096.92	269.50 N	271.98 W	28.26	271.98
4460.00	92.00	303.70	4096.71	272.33 N	276.10 W	36.74	276.10
4465.00	91.60	302.10	4096.56	275.05 N	280.29 W	32.97	280.29
4470.00	91.00	306.00	4096.44	277.85 N	284.44 W	78.90	284.44
4475.00	90.30	299.10	4096.38	280.54 N	288.65 W	138.70	288.65
4480.00	89.80	297.80	4096.38	282.92 N	293.04 W	27.86	293.04
4485.00	89.60	296.80	4096.41	285.21 N	297.49 W	20.40	297.49
4490.00	89.60	295.80	4096.44	287.43 N	301.97 W	20.00	301.97
4495.00	89.60	294.70	4096.48	289.56 N	306.49 W	22.00	306.49
4500.00	89.40	293.50	4096.52	291.60 N	311.05 W	24.33	311.05
4505.00	89.40	292.30	4096.57	293.55 N	315.66 W	24.00	315.66
4510.00	90.00	291.70	4096.60	295.42 N	320.30 W	16.97	320.30
4515.00	90.50	290.70	4096.58	297.23 N	324.96 W	22.36	324.96
4520.00	91.00	289.70	4096.51	298.95 N	329.65 W	22.36	329.65
4525.00	91.50	288.70	4096.40	300.60 N	334.37 W	22.36	334.37
4530.00	91.20	287.40	4096.28	302.15 N	339.12 W	26.68	339.12
4535.00	90.30	286.50	4096.22	303.60 N	343.90 W	25.45	343.90
4540.00	89.80	284.80	4096.22	304.95 N	348.72 W	35.44	348.72
4545.00	89.50	284.10	4096.24	306.20 N	353.56 W	15.23	353.56
4550.00	89.20	283.60	4096.30	307.40 N	358.42 W	11.66	358.42
4555.00	89.20	284.50	4096.37	308.61 N	363.26 W	18.00	363.26
4560.00	89.60	284.90	4096.42	309.88 N	368.10 W	11.31	368.10
4565.00	90.30	285.30	4096.43	311.18 N	372.93 W	16.12	372.93
4570.00	91.20	285.00	4096.36	312.49 N	377.75 W	18.97	377.75
4575.00	92.10	284.90	4096.22	313.78 N	382.58 W	18.11	382.58
4580.00	92.90	286.50	4096.00	315.13 N	387.39 W	35.75	387.39
4585.00	93.70	286.20	4095.71	316.53 N	392.18 W	17.08	392.18
4590.00	94.70	286.20	4095.35	317.92 N	396.97 W	20.00	396.97
4595.00	95.60	286.10	4094.90	319.31 N	401.75 W	18.11	401.75
4600.00	96.50	286.20	4094.37	320.69 N	406.53 W	18.11	406.53
4605.00	97.40	286.50	4093.77	322.09 N	411.29 W	18.96	411.29
4610.00	98.00	286.70	4093.10	323.51 N	416.04 W	12.64	416.04
4615.00	98.60	287.30	4092.37	324.95 N	420.77 W	16.88	420.77
4620.00	98.50	286.30	4091.63	326.38 N	425.50 W	19.88	425.50
4625.00	98.50	289.20	4090.89	327.89 N	430.21 W	57.36	430.21
4630.00	98.50	290.50	4090.15	329.57 N	434.86 W	25.71	434.86

All data is in feet unless otherwise stated
Coordinates from structure and TVD from wellhead.
Vertical section is from wellhead on azimuth 270.00 degrees.
Declination is 0.00 degrees, Convergence is 0.00 degrees.
Calculation uses the minimum curvature method.
Presented by Eastman Teleco

PETROLEUM DEVELOPMENT CORPORATION
 STRANGE FEDERAL #4, slot #1
 TCM TCM, CHAVES COUNTY, NEW MEXICO

SURVEY LISTING Page 4
 Your ref :
 Last revised : 21-Jun-93

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert. Depth	R E C T A N G U L A R C O O R D I N A T E S		Dogleg Deg/100Ft	Vert Sect
4635.00	98.30	291.90	4089.42	331.36 N	439.48 W	27.99	439.48
4640.00	98.00	293.20	4088.71	333.26 N	444.05 W	26.43	444.05
4645.00	97.60	294.00	4088.04	335.24 N	448.59 W	17.76	448.59
4650.00	97.70	295.20	4087.37	337.30 N	453.09 W	23.87	453.09
4655.00	97.60	296.20	4086.70	339.45 N	457.56 W	19.92	457.56
4660.00	97.00	296.90	4086.07	341.67 N	461.99 W	18.35	461.99
4665.00	96.50	297.80	4085.48	343.95 N	466.40 W	20.48	466.40
4670.00	96.00	298.60	4084.94	346.30 N	470.78 W	18.79	470.78
4675.00	95.70	299.30	4084.43	348.70 N	475.14 W	15.16	475.14
4680.00	95.20	300.30	4083.95	351.18 N	479.46 W	22.28	479.46
4685.00	94.70	301.30	4083.52	353.73 N	483.74 W	22.29	483.74
4690.00	94.60	302.20	4083.12	356.35 N	487.97 W	18.05	487.97
4695.00	95.00	303.60	4082.70	359.06 N	492.16 W	29.02	492.16
4700.00	95.00	304.30	4082.26	361.84 N	496.29 W	13.95	496.29
4705.00	94.80	305.20	4081.83	364.68 N	500.38 W	18.37	500.38
4710.00	94.50	305.70	4081.43	367.57 N	504.44 W	11.63	504.44
4715.00	94.10	306.50	4081.05	370.51 N	508.47 W	17.85	508.47
4720.00	94.10	307.40	4080.70	373.50 N	512.45 W	17.95	512.45
4725.00	94.70	308.50	4080.31	376.57 N	516.38 W	25.00	516.38
4730.00	95.60	310.00	4079.86	379.72 N	520.24 W	34.88	520.24
4735.00	95.70	311.20	4079.37	382.96 N	524.02 W	23.97	524.02
4740.00	95.50	311.80	4078.88	386.26 N	527.75 W	12.59	527.75
4745.00	95.30	313.40	4078.41	389.62 N	531.41 W	32.11	531.41
4750.00	95.20	314.30	4077.96	393.08 N	535.00 W	18.04	535.00
4754.00	95.10	314.60	4077.60	395.86 N	537.84 W	7.88	537.84
4770.00	94.70	315.80	4076.23	407.18 N	549.08 W	7.88	549.08 PROJECTED F/ PREVIOUS SURVEY

All data is in feet unless otherwise stated
 Coordinates from structure and TVD from wellhead.
 Vertical section is from wellhead on azimuth 270.00 degrees.
 Declination is 0.00 degrees, Convergence is 0.00 degrees.
 Calculation uses the minimum curvature method.
 Presented by Eastman Teleco

PETROLEUM DEVELOPMENT CORPORATION
STRANGE FEDERAL #4, slot #1
TOM TOM, CHAVES COUNTY, NEW MEXICO

SURVEY LISTING Page 5
Your ref :
Last revised : 21-Jun-93

				Comments in wellpath =====
MD	TVD	Rectangular Coords.		Comment
3984.00	3983.89	18.02 S	1.50 E	GYRO SURVEY F/ SURFACE
4007.00	4006.89	17.94 S	1.47 E	KOP W/ SRAB ASSEMBLY
4770.00	4076.23	407.18 N	549.08 W	PROJECTED F/ PREVIOUS SURVEY

All data is in feet unless otherwise stated
Coordinates from structure and TVD from wellhead.
Bottom hole distance is 683.58 on azimuth 306.56 degrees from wellhead.
Vertical section is from wellhead on azimuth 270.00 degrees.
Declination is 0.00 degrees, Convergence is 0.00 degrees.
Calculation uses the minimum curvature method.
Presented by Eastman Teleco



2105 Market Street Midland, Texas 79703
915-694-9517 Fax 915-694-5648

SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

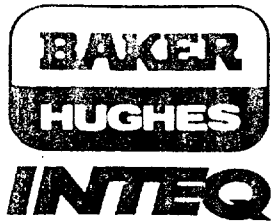
I, Bart Welch, in the employ of Baker Hughes INTEQ did on the days of May 21,, 19 93 thru May 21,, 19 93 conduct or supervise the taking of a Gyroscopic survey by the method of magnetic orientation from a depth of 0 feet to 4007 feet, with recordings of inclination and direction being obtained at approximate intervals of 100 feet.

This survey was conducted at the request of Petroleum Development Corporation for their Strange Federal # 4, Chaves County, State of New Mexico.

The data for this survey and the calculation were obtained and performed by me according to standards and procedures as set forth by Baker Hughes INTEQ and is true and correct to the best of my knowledge.

Bart Welch

Directional Supervisor/Surveyor



2105 Market Street Midland, Texas 79703
915-694-9517 Fax 915-694-5648

SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, Ron Collins, in the employ of Baker Hughes INTEQ did on the days of May 21,, 1993 thru May 28,, 1993 conduct or supervise the taking of a Steering Tool survey by the method of magnetic orientation from a depth of 4007 feet to 4770 feet, with recordings of inclination and direction being obtained at approximate intervals of 5 feet.

This survey was conducted at the request of Petroleum Development Corporation for their Strange Federal # 4, Chaves County, State of New Mexico.

The data for this survey and the calculation were obtained and performed by me according to standards and procedures as set forth by Baker Hughes INTEQ and is true and correct to the best of my knowledge.

A handwritten signature in cursive script that reads "Ron Collins".

Directional Supervisor/Surveyor