A GLOBAL RIG COMPANY ASA

Operator: XTO Energy

Well & Lease Number: Perla Verde 31 State 4H

County: Lea

30,025, 41863 HORRE DODE

State of New Mexico **Deviation Report**

<u>Footage</u>	<u>Degree</u>
497	1.0
946	0.75
1417	0.5
1882	1.0
2323	2.75
2701	1.75
2984	3.5
3078	2.0
3172	1.5
3362	3.0
3455	2.0
3739	1.25
3895	1.0
4066	1.3
4254	1.0
4470	0.5
4947	0.3
5387	0.3
5860	1.0

Completed By:

Will Luker, Safety Director NorAm Drilling Company

Appeared before me on: 3 16 2015

Notary Public: Dhylis L. Howe

8400 N. Sam Houston Parkway West • Suite 120 • Houston, TX 77064 USA • Phone: (281) 598-9200 • Fax (281) 598-9220

1804 Rotary Drive • Humble, TX 77338 USA • Phone: (281) 540-7070 • Fax (281) 540-7071

PHYLLIS L. HOWE Notary Public, State of Texas

My Commission Expires

May 27, 2017

HALLIBURTON

APR 0 6 2015

3950 Interwood South Pkwy Houston, TX 77032 Phone 281-986-4416 Fax 281-986-4499

RECEIVED

February 10, 2015

XTO ENERGY

Attn:

Stephanie Rabadue Well Na

500 W. Illinois Ste 100

Midland, TX 79701

Final Survey for:

Well Name: Perla Verde 31 State 4H

County: Lea County, NM

Rig Name: Noram 25

Sperry Job #: 901961759

Stephanie Rabadue

Enclosed you will find the following survey information on the above referenced well:

- 0 Survey Report(s)
- 0 MWD End of Well Report(s)
- 2 Certified Letters for New Mexico OCD

We appreciate the opportunity to serve you and welcome any comments or suggestions that you may have regarding our service. You may contact your local sales representative, **Don King @ 713-553-8649**

Should you have any questions or require additional information regarding the enclosed information, please do not hesitate to contact me at (281) 986-4416.

Once again, we thank you for your business.

Sincerely,

Rachell Ortiz

Sperry Drilling Services

APR 0 6 2015

HALLIBURTON

RECEIVED

3950 Interwood South Parkway • Houston, TX 77032
PHONE 281.986.4400 • FAX 281.986.4499

State of New Mexico, Lea County

I, JJ Peters, certify that I am employed by Halliburton Energy Services, Inc. (AKA Sperry Drilling) and that on the dates of January 28, 2015 through February 7, 2015 I did conduct or supervise the taking of MWD Directional surveys for the well Perla Verde 31 State 4H from 10447' MD to 15665' MD. This data is true, correct, complete and within the limitations of the tools as set forth by Halliburton Energy Services, Inc. (AKA Sperry Drilling). I am authorized and qualified to make this report and this survey was conducted at the request of XTO for the Perla Verde 31 State 4H well, API No. 30-025-41863-0000 in Lea County, New Mexico. I have reviewed this report and find that it conforms to the principles and procedures as set forth by Halliburton Energy Services, Inc. (AKA Sperry Drilling).

JJ Peters MWD Field Engineer

HOBBS OCD

APR 0 6 2015

RECEIVED

XTO Energy, INC Perla Verde 31 State 4H Lea County, NM Noram 25 API# 30-025-41863

January 28, 2015 – February 7, 2015 MO-XX-000901961759

Sperry Drilling Survey Report

Submitted by JJ Peters 3950 Interwood South Parkway Houston, TX 77032 Ph: 281.986.4400

HALLIBURTON

Drilling and Formation Evaluation

Created On: Feb 07 2015

Survey Report for XTO

Rig : Noram 25

Well Name : Perla Verde 31 State 4H

Field Name : Bone Spring

Country : USA

Job Number : MO-XX-0901961759

Job Start Date : 27-Jan-15

API Number : 30-025-41863-0000

Job No. MO-XX-0901961759 Well Name Perla Verde 31 State 4H

Survey Report

Page

DIRECTIONAL SURVINO MOTO

Tie-in

0.00 0.00 0.00 0.00 E 0.00 0.00 N

Measured Depth	Inclination	Oredion	Vertical Depth	Lalitude	Departure	Vertical Section	Dogleg
(fi)	(deg)	(deg)	(#)	(1)	(f)	(ft)	(100)
100.00	0.47	277.22	100.00	0.05 N	0.41 W	0.02	0.47
200:00	0.51	267.45	200.00	0.08 N	1.26 W	0.00	0.09)
300.00	0.42	275.80	299.99	0.10 N	2.07 W	-0.03	0.11
400:00	0.50	280.72	399.99	0.22 N	2.86 W	0:03	0.09
500.00	0.29	285.47	499.99	0.37 N	3.53 W	0.14	0.21
600:00	0.20	297.70	599.99	0.52 N	3.93 W	0.26	0.10
700.00	0.24	336.53	699.98	0.79 N	4.17 W	0.52	0.15
800.00	0.36	15.85	799 98	1.28 N	4 17 W	1 01	0.23
900.00	0.48	19.56	899.98	1.98 N	3.94 W	1.72	0.12
1000:00	0.55	16.61	999.98	2.84 N	3:66 W	2.59	0.07
1100.00	0.41	20.80	1,099.97	3.63 N	3.40 W	3.40	0.14
1200.00	0.39	13:04	1,199.97	4.30 N	3 20 W	4.08	0.06
1300.00	0.20	347.14	1,299.97	4.80 N	3.16 W	4.58	0.23
1400.00	0.05	322:17	1,399.97	5.00 N	3.22 W	4.78	0.16
1500.00	0.08	254.75	1,499.97	5.02 N	3.32 W	4.79	0.08
1600:00	0:21	13.40	1,599.97	5.18 N	3:34 W	4 95	0.26
1700.00	0.42	355.47	1,699.97	5.72 N	3.33 W	5.49	0.23
1800:00	0.46	354.04	1,799.96	6.49 N	3.40 W	6.25	0.04
1900.00	0.48	346.44	1,899.96	7.29 N	3.54 W	7.05	0.07
2000:00	0.66	22.32	1,999.96	8.23 N	3:42 W	7.99	0.39
2100.00	1.16	54.10	2,099.94	9.36 N	2.38 W	9.18	0.69
2200.00	1.72	65/97	2,199.91	10.56 N	0.19 W	10.53	0.63
2300.00	1.92	65.30	2,299.86	11.87 N	2.70 E	12.03	0.20
2400.00	1.94	64.40	2,399.80	13.31 N	5.75 E	13.65	0.04
2500.00	1.75	63.54	2,499.75	14.72 N	8.64 E	15.25	0.19
2600.00	1.57	67.27	2,599.71	15.93 N	11.28 E	16.63	0.21
2700.00	1.61	73.40	2,699.67	16.86 N	13.88 E	17.73	0.17
2800.00	1.82	78.22	2,799.63	17.58 N	16 79 E	18.64	0.25
2900.00	2.48	77.16	2,899.56	18.39 N	20.45 E	19.68	0.66
3000.00	3.01	76.43	2,999.44	19.49 N	25 11 E	21 08	0.53
3100.00	2.93	78.12	3,099.31	20.63 N	30.16 E	22.55	0.12
3200.00	2.81	77.99	3,199.18	21.66 N	35.06 E	23.90	0.12
3300.00	2.66	78.79	3,299.07	22.63 N	39.74 E	25.17	0.15
3400:00	2.51	74.00	3,398.97	23.68 N	44 12 E	26.51	0.26
3500.00	2.12	67.58	3,498.88	24.99 N	47.93 E	28.06	0.47
3600.00	1 65	56.41	3,598 83	26 49 N	50.84 E	29.75	0.59
3700.00	1.49	50.60	3,698.79	28.11 N	53.05 E	31.51	0.23
3800.00	1 33	47.46	3,798 76	29.72 N	54.91 E	33.24	0.18
3900.00	1.34	49.55	3,898.74	31.27 N	56.65 E	34.89	0.05
4000.00	1.18	54.11	3,998.71	32 63 N	58.37 E	36.37	0.19
4100.00	1.14	72.15	4,098.69	33.54 N	60.16 E	37.39	0.37

DIRECTIONAL SURVEY DATA

DIMENING PARTIE	SALYNEA (BXVIA):			The state of the s			
Measured Depth (ft)	inclination (Geg)	Direction (deg)	Vertical Depth (ft)	Lafitude (ft)	Departure (f)	Vertical Section (ft)	Dogleg (7/100%
4200:00	1.12	60.51	4,198.67	34 32 N	61.95 E	38.29	0.23
4300.00	0.90	58 44	4 298 66	35.21 N	63.47.E	39.28	0.22
4400.00	0.41	80.50	4,398.65	35.68 N	64.50 E	39.82	0.54
4500.00	0 33	91.08	4,498.65	35 74 N	65.14 E	39.91	0.10
4600.00	0.38	103.83	4,598.65	35.65 N	65.75 E	39.87	0.09
4700.00	0.26	118.84	4,698.64	35.46 N	66.27 E	39.71	0.15
4800.00	0.10	131.36	4,798.64	35.30 N	66.53 E	39.56	0.16
4900.00	0.14	277.05	4,898.64	35.26 N	66.48 E	39.52	0.23
5000.00	0.20	228.22	4,998.64	35.15 N	66.22 E	39.40	0.15
5100.00	0.28	178.52	5,098.64	34.79 N	66 10 E	39.03	0.21
5200.00	0.16	100.49	5,198.64	34.52 N	66.24 E	38.77	0.29
5300 00	0.22	51.20	5 298 64	34.62 N	66 53 E	38.88	0.17
5400.00	0.21	336.76	5,398.64	34.91 N	66.61 E	39.18	0.26
5500 00	0.18	338.62	5,498.64	35.22 N	66.48 E	39 48	0.03
5600.00	0.60	11.23	5,598.64	35.88 N	66.52 E	40.14	0.46
5700.00	0.77	5.92	5,698.63	37.06 N	66 69 E	41.34	0.18
5800.00	1.05	346.96	5,798.62	38.62 N	66.56 E	42.88	0.41
5900.00	0.95	337.47	5 898 60	40.28 N	66 03 E	44.50	0.19
6000.00	1.10	338.84	5,998.59	41.94 N	65.37 E	46.12	0.15
6100:00	1.04	337.80	6,098.57	43.68 N	64.68 E	47.81	0.06
6200.00	0.90	336.64	6,198.56	45.24 N	64.02 E	49.32	0.14
6300.00	1 06	335.33	6,298.54	46.80 N	63 33 E	50.83	0.16
6400.00	1.07	317.67	6,398.52	48.33 N	62.31 E	52.29	0.33
6500 00	1.22	310:10	6,498.50	49.71 N	60.87 E	53:57	0.21
6600.00	1.28	306.04	6,598.48	51.05 N	59.15 E	54.80	0.11
6700 00	1 05	286.49	6,698.46	51 97 N	57.37 E	55.60	0.46
6800.00	0.89	285.40	6,798.45	52.44 N	55.74 E	55.96	0.16
6900.00	0 47	281 09	6,898,44	52.72 N	54:59 E	56 17	0.42
7000.00	0.20	291.87	6,998.44	52.86 N	54.03 E	56.28	0.28
7100 00	0.22	14.68	7,098.44	53.11 N	53.91 E	56.52	0.28
7200.00	0.22	24.68	7,198.44	53.48 N	54.04 E	56.89	0.04
7300.00	0 27	18.70	7,298.43	53.87.N	54 20 E	57.29	0.06
7400.00	0.26	356.11	7,398.43	54.32 N	54.26 E	57.75	0.10
7500.00	0.28	315.26	7;498.43	54.72 N	54 07 E	58.13	0.19
7600.00	0.26	231.29	7,598.43	54.75 N	53.72 E	58.14	0.36
7700 00	0 67	201.08	7,698.43	54.07 N	53.33 E	57.43	0.46
7800.00	1.13	213.36	7,798.42	52.70 N	52.58 E	56.01	0.50
7900.00	1 29	215.66	7,898.39	50.96 N	51.38 E	54.20	0.17
8000.00	0.96	226.97	7,998.37	49.47 N	50.11 E	52.64	0.40
8100 00	0:69	243 11	8,098,36	48.63 N	48.97 E	51.72	0.35
8200.00	1.09	297.34	8,198.35	48.79 N	47.58 E	51.79	0.89
8300.00	2.18	321.84	8,298.31	50 73 N	45:56 E	53.59	1.27
8400.00	2.59	324.02	8,398.22	54.05 N	43.06 E	56.74	0.42
8500.00	2.87	323.81	8,498.11	57.90 N	40.26 E	60.40	0.28
8600.00	2.96	321.32	8,597.98	61.93 N	37.16 E	64.23	0.16
L	L	L			<u> </u>		

Job No. MO-XX-0901961759 Well-Name: Perla/Verde 31 State 4H: Survey/Reports

Page 3

OURECTIONAL SURVEY DAMA

Anvia a him tire	and mainti.	The second of th		in the state of th	48.4		
Measured Depth	inclination	Direction	Vertical Depth	Lafitude	Departure	Vertical Section	Dogleg
(f)	(deg)	(deg)	(f)	(11)	(ff)	(f)	(100)
8700:00	2.92	314.20	8,697.85	65.73 N	33.72.E	67.79	0.37
8800.00	3.30	315:17	8,797.70	69.54 N	29.87 E	71.34	0.38
8900.00	3.41	287.78	8,897.54	72.49 N	25.01 E	73.97	1.59
	<u> </u>						
9000.00	2.23	286.77	8,997.42	73.96 N	20.31 E	75.13	1.18
9100.00	1.75	276.43	9,097.35	74.69 N	16.93 E	75.64	0.60
9200.00	1 69	282:69	9,197,31	75 19 N	13.98 E	75.94	0.20
9300.00	1.87	274.63	9,297.26	75.64 N	10.91 E	76.20	0.31
9400.00	1.72	264.73	9,397.21	75.64 N	7.79 E	75.99	0:34
9500.00	2.00	269.48	9,497.16	75.49 N	4.55 E	75.62	0.32
9600.00	1 99	273.54	9,597 10	75 58 N	1 07 E	75.49	0.14
9700.00	2.19	276.72	9,697.03	75.91 N	2.56 W	75.58	0.23
9800 00	2.33	272.22	9 796 96	76.21 N	6 49 W	75.62	0.23
9900.00	2.68	257.41	9,896.86	75.78 N	10.80 W	74.91	0.73
10000.00	2.92	249 32	9 996 74	74.37 N	15.46 W	73.20	0.46
10100.00	2.97	260.04	10,096.61	73.02 N	20.40 W	71.54	0.55
10200.00	2.35	259.32	10,196.50	72.19 N	24.96 W	70.41	0.62
10300.00	1.87	246.30	10,296.43	71.16 N	28.47 W	69.15	0.68
10400.00	1.73	247.13	10,396:38	69.92 N	31.36 W	67:72	0.00
Contractions in strange and the free front pro-	askeritein alfaskalteistein asker	organ Communication and a communication of	10,443.37	69.37 N	Andrew Control and a firm for a few firm.	anticological attendance describe	artining frankritering training frankritering
10447.00	1.48	243.24			32.55 W	67.10	0.58
10510.00	2.60	347.02	10,506.34	70.39 N	33.60 W	68.05	5.22
10542.00	6.34	346.44	10,538.24	72.82 N	34.18 W	70.44	11.69
10573.00	9.58	349.98	10,568.93	77 03 N	35.03 W	74.58	10.56
10605.00	12.73	349.93	10,600.33	83.12 N	36.11 W	80.59	9.85
10637.00	15.91	353 32	10,631.33	90.95 N	37.24 VV	88.33	10.26
10669.00	18.90	356.30	10,661.86	100.48 N	38.09 W	97.78	9.74
10700.00	19.68	354:00	10,691.12	110.68 N	38.95 W	107.91	3.52
10732.00	21.19	355.28	10,721.11	121.80 N	39.99 W	118.94	4.92
10764.00	23.91	357 01	10,750.66	134.05 N	40.81 W	131 10	8.74
10795.00	25.98	357.66	10,778.77	147.10 N	41.41 W	144.09	6.73
10827.00	28.04	356.65	10,807.28	161.61 N	42.14 W	158.52	6.60
10859.00	30.94	357.18	10,835.13	177.34 N	42.98 W	174.16	9.10
10891.00	33.92	0.07	10,862.14	194.49 N	43.38 W	191.25	10.49
10922.00	39.46	0.70	10,886.99	213.00 N	43.25 W	209.73	17.94
10954.00	44.91	0.87	10,910.69	234.48 N	42.95 W	231.18	17.03
10985.00	49.75	2.68	10,931.69	257.26 N	42.23 W	253.95	16.18
11017.00	51.77	6.67	10,951.94	281 95 N	40.20 W	278.72	11.54
11048.00	53.88	10.37	10,970.68	306.36 N	36.53 W	303.33	11.67
11080.00	56.29	10.61	10.988.99	332.16 N	31.75 W	329.38	7.57
11111.00	58.18	10.72	11,005.77	357.78 N	26.93 W	355.26	6.11
11143.00		10.72		337.76 N 384.94 N	26.93 W	333.20	9.45
<u> Antonio massamante pessona</u>	61.17		11,021.92	Contraction - Contraction Contraction Contraction	Contraction of the Contraction of the Contraction	entrantition of the state of th	Andrew State
11174.00	66.79	9.67	11,035.52	412.37 N	17.12 W	410.37	18.17
11206:00	71.72	9.49	11,046.85	441 87 N	1214W	440.13	15.42
11237.00	75.32	8.96	11,055.64	471.20 N	7.38 W	469.72	11.74
11269.00	79.83	7.83	11,062.52	502 11 N	2.82 W	500.86	14.51
11332.00	84.61	7.58	11,071.05	563.95 N	5.55 E	563.11	7.59
						·····	

Job No. MO-XX-0901961759 Well Name: Perla Verde 31 State 4H

Survey Report

Page 4

DIRECTIONAL SURVEY DATA

CONSCIONA	SAMORIA DESIGNA						<u> </u>
Measured Death	Inclination	Direction	Vertical Depth	Latitude	Departure	Vertical Section	Dogleg
(0)	(deg)	(deg)	(6)	(0)	(f)	(f)	(9/1(8)9)
11363.00	84.91	6.89	11,073.88	594.57 N	9.44 E	593.92	2.43
11395.00	85.45	7.34	11,076.57	626.22 N	13.39 E	625.76	2:21
11426.00	85.45	7.46	11,079.03	656.86 N	17.37 E	656.60	0.37
11457:00	85.80	7.21	11,081,39	687.52 N	21.31 E	687.44	1.38
11489.00	86.20	7.14	11,083.62	719.19 N	25.30 E	719.31	1.27
11520.00	86.91	7.38	11 085 49	749 89 N	29 21 E	750 19	2.43
11552.00	87.63	7.54	11,087.01	781.58 N	33.36 E	782.09	2.30
11583:00	87.89	7.55	11,088.22	812.29 N	37.43 E	813.00	0.84
11603.00	88.64	7.59	11,088.82	832.10 N	40.06 E	832.94	3.77
11646.00	89.35	7.52	11,089.58	874.72 N	45.71 E	875.84	1 66
11677.00	specials, need partie of needs need	7.42	of detail as section from a consequency	905.46 N	49.74 E	906.78	2.21
	90,03		11,089.74		Contains and No. 1 and an area of		
11740.00	90.71	6.49	11,089,34	967.99 N	57.37 E	969.67	1.82
11835.00	91.57	4.69	11,087.44	1,062.52 N	66.62 E	1064.60	2.10
11929 00	90.99	3.24	11,085.34	1,156.27 N	73:12 E	1158.57	1.67
12023.00	92.04	3.16	11,082.86	1,250.09 N	78.37 E	1252.54	1.12
12117.00	91.60	3.17	11,079.88	1,343.90 N	83.56 E	1346.48	0.46
12212.00	90.34	2.79	11,078.27	1,438.75 N	88.50 E	1441.46	1.39
12306.00	89.88	5.00	11,078.09	1,532.53 N	94.88 E	1535.45	2 40
12401.00	91.05	4.39	11,077.32	1,627.20 N	102.65 E	1630.43	1,40
12495.00	91.32	3.37	11,075.37	1.720.97 N	109.01 E	1724.41	1.12
12590.00	89.97	3.76	11,074.30	1,815.77 N	114.93 E	1819.40	1.48
12684.00	88.74	3.16	11,075.36	1,909.59 N	120.60 E	1913.39	1 46
12778.00	90.06	2.81	11,076.34	2,003.46 N	125.49 E	2007.38	1.45
12873.00	92.40	2.81	11,074.30	2,098.32 N	130 14 E	2102.34	2.47
12967.00	92.22	2.15	11,070.50	2,192.15 N	134.21 E	2196.24	0.73
13061.00	93 29	0.97	11,065.98	2,286.01 N	136.76 E	2290.06	1.69
13155.00	96.04	0.99	11,058.33	2,379.67 N	138.37 E	2383.63	2.92
13250.00	96.72	1 29	11;047.78	2,474.06 N	140.25 E	2477.94	0.78
13344.00	95.28	1.85	11,037.96	2,567.51 N	142.81 E	2571.36	1.64
13438.00	93 16	3.16	11,031.04	2,661:16 N	146.91 E	2665.07	2.64
13532.00	92.53	3.37	11,026.37	2,754.89 N	152.25 E	2758.95	0.71
13627.00	91.20	3.16	11,023.27	2,849 68 N	157.66 E	2853.90	1.42
13721.00	91.08	3.29	11,021.40	2,943.52 N	162.94 E	2947.88	0.19
13815.00	89.32	3.11	11,021.07	3,037.37 N	168 18 E	3041.87	1.88
13910.00	90.62	2.27	11,021.12	3,132.26 N	172.64 E	3136.85	1.62
14004.00	91.02	1.87	11,019.78	3,226 19 N	176.04 E	3230.80	0.60
14099.00	92.65	1.85	11,016.74	3,321.08 N	179.13 E	3325.70	1.72
14193.00	92.90	3.07	11,012.19	3,414.89 N	183 16 E	3419.56	1.32
14287.00	91.57	3.47	11,008.52	3,508.66 N	188.51 E	3513.48	1.47
14381.00	93.37	3.26	11,004,47	3,602.41 N	194.03 E	3607:39	1.92
14444.00	91.85	4.39	11,001.61	3,665.20 N	198.22 E	3670.32	3.01
14476.00	92.13	4.90	11,000.50	3,697.07 N	200.81 E	3702:30	1.83
14570.00	92.15	4.42	10,996.99	3,790.70 N	208.45 E	3796.22	0.51
14664.00	91.05	4 39	10,994,36	3,884.38 N	215.67 E	3890.18	1.17
14759.00	92.34	4.35	10,991.54	3,979.06 N	222.90 E	3985.13	1.36
177.00.00	32.34	7.33	10,001.04	3,373.00 14		1 5555.15	1.50

Job No: MO-XX-0901961759 Well Name: Perla Verde 31: State 4H

Survey Report Page:5

DIRECTIONAL CURVEY DATA

Medeured Death	indiaction	Direction	Verlical Depth	Lennole	Departure	Vertical Section	Dooleg
(6)	(deg)	(deg)	(0)	60	(f)	(f)	(*(100)
14853.00	89.74	4:57	10,989.84	4,072.75 N	230 20 E	4079.10	2.78
14947.00	90 12	5 14	10,989.95	4,166 42 N	238.16 E	4173.08	0.74
15042.00	92.10	3.61	10,988.11	4,261.11 N	245.41 E	4268.05	2.63
15136.00	91.26	3:96	10,985.36	4,354.87 N	251.61 E	4362.01	0.97
15231.00	89.78	4.44	10,984.49	4,449.60 N	258.57 E	4457.00	1.63
15325.00	91:39	4.01	10,983.53	4,543 34 N	265:50 E	4550.98	1.76
15419.00	94.06	3.59	10,979.07	4,637.02 N	271.73 E	4644.87	2.88
15513.00	93.76	4.43	10.972.65	4,730.57 N	278.29 E	4738.65	0.94
15608.00	96.34	4.00	10,964.29	4,824.94 N	285.24 E	4833.27	2.74
15665:00	97.54	3.89	10,957.41	4,881.38 N	289 14 E	4889.85	2.13
15722.00	97.54	3.89	10,949.92	4,937.76 N	292.97 E	4946.36	0.00

SURVEY FOODER

SURVEYS CALCULATED USING SHORT COLLAR METHOD

TIE-ON SURVEY ASSUMED VERTICAL AT SURFACE

SURVEYS FROM 100' MD TO 10400' MD PROVIDED BY MULTISHOT DIRECTIONAL SERVICES

SURVEYS FROM 10447' MD TO 15665' MD PROVIDED BY SPERRY DRILLING SERVICES

SURVEY AT 15665' MD HAS BEEN PROJECTED TO TD AT 15722' MD

SPERRY ENGINEERS: JJ PETERS, ROBERT SHINE

DIRECTIONAL SURVEY DATA NOTES

- Calculation based on minimum curvature method.
- Survey coordinates relative to well system reference point.
- TVD values given relative to drilling measurement point.
- Vertical section relative to well head
- Vertical section is computed along a direction of 3.74 degrees (Grid)
- A total correction of 6.85 deg from Magnetic north to Grid north has been applied
- Horizontal displacement is relative to the well head.
- Horizontal displacement (closure) at 15,722.00 feet is 4,946.44 feet along 3.40 degrees (Grid)

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PHONE: 281.986.4400 FAX: 281.986.4499