CHEVRON

Vacuum Grayburg San Andres
Lea County, NM
Central Vacuum Unit #276
VH - Job #32K11121385

Survey: Gyro

SDI Standard Survey Report

This survey is correct to the best of my knowledge and is supported by actual field data.

Notarized this date 5th of December, 2012.

Notary Signature
County of Midland
State of Texas

NOTARY PUBLIC STATE OF TEXAS
CARRIE REED
My Commission Expires
October 4, 2015

Scientific Drilling

Scientific Drilling International, Inc.

SDI Standard Survey Report

Scientific Drilling

Company:	CHEVRON	**Local Co-ordinate Reference:**	Well Central Vacuum Unit #276
Project:	Vacuum Grayburg San Andres	**TVD Reference:**	WELL @ 0.00usft (Original Well Elev)
Site:	Lea County, NM	**MD Reference:**	WELL @ 0.00usft (Original Well Elev)
Well:	Central Vacuum Unit #276	**North Reference:**	True
Wellbore:	VH - Job #32K11121385	**Survey Calculation Method:**	Minimum Curvature
Design:	VH - Job #32K11121385	**Database:**	EDM-Regulatory

Project Vacuum Grayburg San Andres

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Lea County, NM

Site Position:		**Northing:**	656,116.37 usft	**Latitude:**	32° 48' 3.600 N
From:	Lat/Long	**Easting:**	755,139.93 usft	**Longitude:**	103° 30' 10.800 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	0"	**Grid Convergence:**	0.45 °

Well Central Vacuum Unit #276, Directional

Well Position	**+N/-S**	0.00 usft	**Northing:**	651,501.25 usft	**Latitude:**	32° 47' 17.909 N
	+E/-W	0.00 usft	**Easting:**	755,489.96 usft	**Longitude:**	103° 30' 7.124 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	0.00 usft

Wellbore VH - Job #32K11121385

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/08/12	7.42	60.68	48,849

Design VH - Job #32K11121385

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	330.89

Survey Program **Date** 12/02/12

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	5,118.00	Gyro (VH - Job #32K11121385)	Keeper	Keeper Gyro

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.01	286.23	100.00	0.00	-0.01	286.23	0.01
200.00	0.08	270.88	200.00	0.01	-0.09	273.93	0.09
300.00	0.08	123.82	300.00	-0.03	-0.10	252.07	0.10
400.00	0.24	146.79	400.00	-0.25	0.07	163.18	0.26
500.00	0.50	129.19	500.00	-0.70	0.53	142.89	0.87
600.00	0.75	150.83	599.99	-1.54	1.18	142.51	1.95
700.00	0.60	174.18	699.98	-2.64	1.56	149.44	3.06
800.00	0.50	178.16	799.98	-3.59	1.62	155.69	3.94
900.00	0.40	171.52	899.98	-4.37	1.69	158.89	4.69
1,000.00	0.48	160.18	999.97	-5.11	1.88	159.79	5.45
1,100.00	0.51	165.42	1,099.97	-5.94	2.14	160.21	6.31

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Wellbore:	VH - Job #32K11121385	**Survey Calculation Method:**	Minimum Curvature
Design:	VH - Job #32K11121385	**Database:**	EDM-Regulatory

Survey

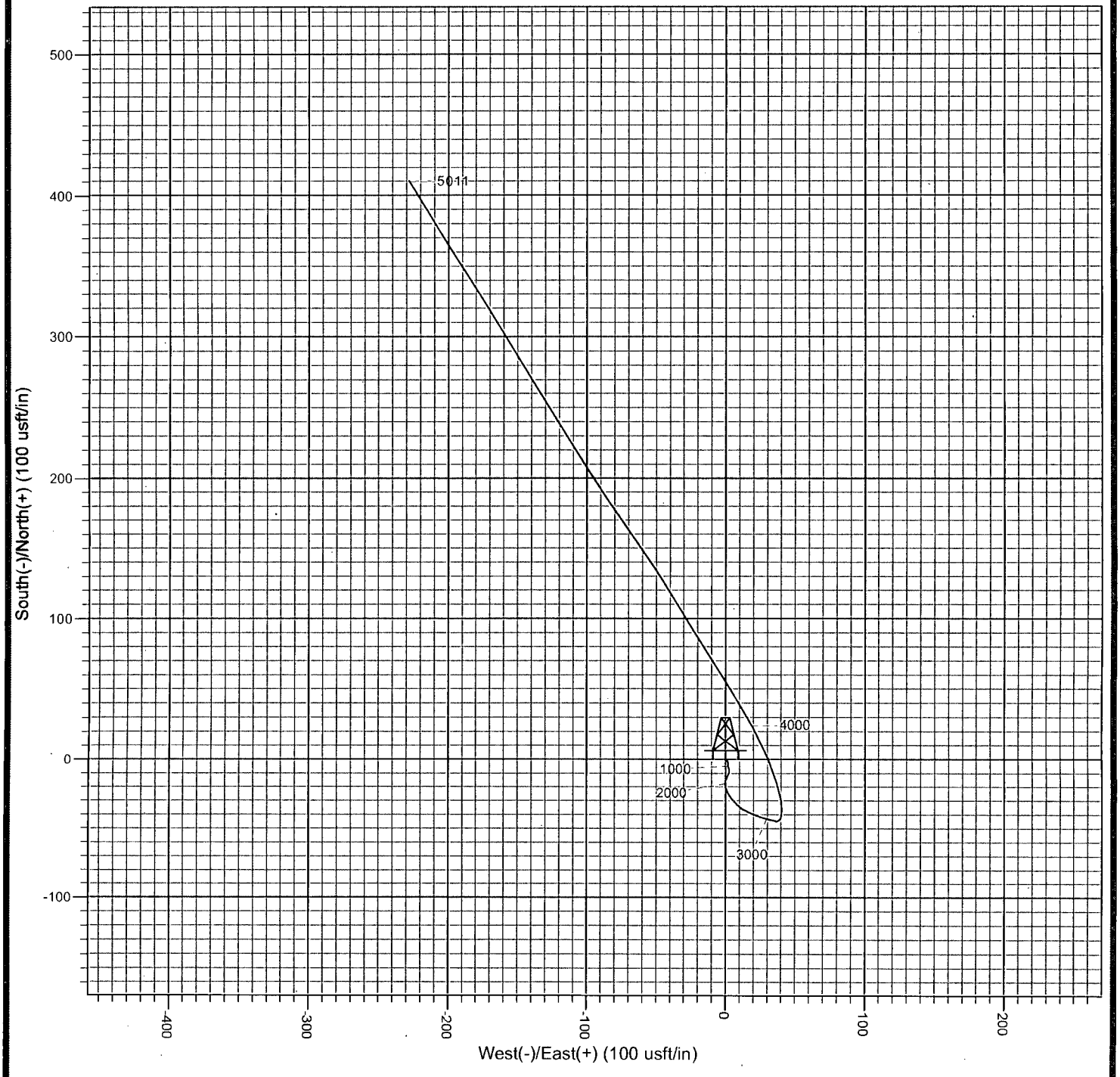
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,200.00	0.80	162.28	1,199.96	-7.03	2.46	160.72	7.45
1,300.00	0.92	179.65	1,299.95	-8.50	2.68	162.51	8.91
1,400.00	0.71	194.06	1,399.94	-9.91	2.53	165.66	10.22
1,500.00	0.60	208.20	1,499.94	-10.97	2.13	168.99	11.17
1,600.00	0.39	207.65	1,599.93	-11.73	1.73	171.61	11.86
1,700.00	0.55	186.87	1,699.93	-12.51	1.51	173.10	12.60
1,800.00	1.16	204.26	1,799.92	-13.91	1.04	175.72	13.95
1,900.00	1.27	211.45	1,899.90	-15.78	0.05	179.83	15.78
2,000.00	1.37	172.63	1,999.87	-17.91	-0.38	181.21	17.91
2,100.00	1.77	166.78	2,099.83	-20.60	0.13	179.64	20.60
2,200.00	1.53	155.46	2,199.79	-23.32	1.04	177.46	23.34
2,300.00	2.13	148.49	2,299.74	-26.11	2.56	174.40	26.24
2,400.00	2.42	137.99	2,399.66	-29.27	4.95	170.41	29.68
2,500.00	3.05	139.28	2,499.55	-32.85	8.09	166.16	33.83
2,600.00	2.78	119.13	2,599.42	-36.05	11.95	161.66	37.98
2,700.00	3.12	113.75	2,699.29	-38.33	16.56	156.63	41.75
2,800.00	2.66	113.07	2,799.16	-40.33	21.18	152.29	45.56
2,900.00	2.64	107.15	2,899.05	-41.92	25.52	148.67	49.08
3,000.00	2.00	107.66	2,998.97	-43.13	29.38	145.73	52.19
3,100.00	1.78	100.09	3,098.92	-43.93	32.57	143.44	54.69
3,200.00	1.17	110.49	3,198.88	-44.56	35.06	141.80	56.70
3,300.00	1.02	98.04	3,298.87	-45.04	36.90	140.68	58.22
3,400.00	1.02	44.93	3,398.85	-44.53	38.41	139.22	58.81
3,500.00	2.14	21.25	3,498.81	-42.16	39.71	136.71	57.92
3,600.00	3.59	0.05	3,598.69	-37.29	40.39	132.72	54.98
3,700.00	5.16	351.93	3,698.39	-29.71	39.76	126.77	49.64
3,800.00	9.23	341.95	3,797.59	-17.63	36.65	115.69	40.66
3,900.00	12.54	340.34	3,895.78	0.23	30.51	89.57	30.51
4,000.00	16.44	330.54	3,992.59	22.78	19.89	41.12	30.24
4,100.00	19.81	326.95	4,087.62	49.32	3.68	4.27	49.45
4,200.00	24.18	327.85	4,180.32	80.87	-16.47	348.49	82.53
4,300.00	24.00	327.85	4,271.61	115.43	-38.19	341.70	121.58
4,400.00	24.35	324.75	4,362.84	149.49	-60.91	337.83	161.42
4,500.00	24.17	325.98	4,454.01	183.29	-84.26	335.31	201.73
4,600.00	25.41	327.50	4,544.80	218.36	-107.24	333.84	243.27
4,700.00	25.90	327.76	4,634.94	254.92	-130.42	332.91	286.35
4,800.00	25.86	327.98	4,724.91	291.89	-153.64	332.24	329.85
4,900.00	25.90	327.57	4,814.88	328.81	-176.91	331.72	373.38
5,000.00	26.25	327.64	4,904.70	365.93	-200.46	331.29	417.24
5,100.00	26.13	327.79	4,994.44	403.24	-224.03	330.94	461.29
5,118.00	26.46	327.72	5,010.57	409.98	-228.29	330.89	469.26

Scientific Drilling

Project: Vacuum Grayburg San Andres
Lea County, NM
Well: Central Vacuum Unit #276
Wellbore: VH - Job #32K11121385
Design: VH - Job #32K11121385

WELL DETAILS: Central Vacuum Unit #276
WELL @ 0.00usft (Original Well Elev)
Ground Level: 0.00

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.00	0.00	651501.25	755489.96	32° 47' 17.909 N	103° 30' 7.124 W	



PROJECT DETAILS: Vacuum Grayburg San Andres
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

SITE DETAILS: Lea County, NM
Site Centre Latitude: 32° 48' 3.600 N
Longitude: 103° 30' 10.800 W
Positional Uncertainity: 0.00
Convergence: 0.45
Local North: True

CHEVRON

Vacuum Grayburg San Andres
Lea County, NM
Central Vacuum Unit #276
VH - Job #32K09121220

Survey: Gyro

SDI Standard Survey Report

This survey is correct to the best of my knowledge and is supported by actual field data.

K Wharton

Notarized this date 8th of October, 2012.

Carrie Reed

Notary Signature
County of Midland
State of Texas

NOTARY PUBLIC STATE OF TEXAS
CARRIE REED
My Commission Expires
October 4, 2015

Scientific Drilling

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SDI Standard Survey Report

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Company:	CHEVRON	**Local Co-ordinate Reference:**	Well Central Vacuum Unit #276
Project:	Vacuum Grayburg San Andres	**TVD Reference:**	WELL @ 0.00usft (Original Well Elev)
Site:	Lea County, NM	**MD Reference:**	WELL @ 0.00usft (Original Well Elev)
Well:	Central Vacuum Unit #276	**North Reference:**	True
Wellbore:	VH - Job #32K09121220	**Survey Calculation Method:**	Minimum Curvature
Design:	VH - Job #32K09121220	**Database:**	EDM-Regulatory

Project Vacuum Grayburg San Andres

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Lea County, NM

Site Position:		**Northing:**	656,116.37 usft	**Latitude:**	32° 48' 3.600 N
From:	Lat/Long	**Easting:**	755,139.93 usft	**Longitude:**	103° 30' 10.800 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	0"	**Grid Convergence:**	0.45 °

Well Central Vacuum Unit #276, Directional

Well Position	**+N/-S**	0.00 usft	**Northing:**	651,501.25 usft	**Latitude:**	32° 47' 17.909 N
	+E/-W	0.00 usft	**Easting:**	755,489.96 usft	**Longitude:**	103° 30' 7.124 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	0.00 usft

Wellbore VH - Job #32K09121220

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	09/29/12	7.44	60.69	48,860

Design VH - Job #32K09121220

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	141.52

Survey Program **Date** 10/21/12

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
138.69	3,126.00	Gyro (VH - Job #32K09121220)	Keeper	Keeper Gyro

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
138.69	0.22	180.52	138.69	-0.27	0.00	180.52	0.27
233.14	0.29	157.69	233.14	-0.67	0.09	172.61	0.67
327.59	0.44	161.66	327.59	-1.23	0.29	166.71	1.27
422.04	0.56	165.01	422.03	-2.02	0.53	165.46	2.09
516.49	0.79	131.92	516.48	-2.91	1.13	158.76	3.12
608.50	0.60	146.29	608.48	-3.73	1.87	153.39	4.17
700.51	0.55	145.67	700.49	-4.50	2.38	152.05	5.09
792.52	0.74	150.17	792.49	-5.38	2.93	151.41	6.12
884.21	0.90	160.06	884.17	-6.57	3.47	152.15	7.43
959.89	0.67	159.95	959.84	-7.54	3.82	153.11	8.45
1,050.15	0.70	162.53	1,050.10	-8.56	4.17	154.03	9.52

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SDI Standard Survey Report

Scientific Drilling

Company:	CHEVRON	**Local Co-ordinate Reference:**	Well Central Vacuum Unit #276
Project:	Vacuum Grayburg San Andres	**TVD Reference:**	WELL @ 0.00usft (Original Well Elev)
Site:	Lea County, NM	**MD Reference:**	WELL @ 0.00usft (Original Well Elev)
Well:	Central Vacuum Unit #276	**North Reference:**	True
Wellbore:	VH - Job #32K09121220	**Survey Calculation Method:**	Minimum Curvature
Design:	VH - Job #32K09121220	**Database:**	EDM-Regulatory

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,140.41	0.88	172.96	1,140.35	-9.78	4.42	155.67	10.73
1,230.67	0.81	173.66	1,230.60	-11.10	4.58	157.59	12.00
1,320.93	0.75	173.81	1,320.85	-12.32	4.71	159.08	13.19
1,411.19	0.57	185.46	1,411.10	-13.35	4.73	160.49	14.17
1,501.45	0.54	182.19	1,501.36	-14.23	4.67	161.82	14.97
1,591.71	0.59	171.73	1,591.62	-15.11	4.72	162.64	15.83
1,681.97	0.88	183.46	1,681.87	-16.26	4.75	163.72	16.94
1,772.23	0.88	199.79	1,772.12	-17.61	4.47	165.75	18.16
1,862.49	1.35	198.85	1,862.36	-19.26	3.89	168.57	19.65
1,952.75	1.54	177.59	1,952.59	-21.48	3.60	170.49	21.78
2,043.01	1.55	166.09	2,042.82	-23.88	3.95	170.62	24.20
2,133.27	1.65	158.92	2,133.04	-26.28	4.71	169.85	26.69
2,223.53	1.88	147.38	2,223.26	-28.74	5.97	168.26	29.35
2,313.79	2.09	143.41	2,313.47	-31.30	7.75	166.09	32.25
2,404.05	2.85	138.95	2,403.64	-34.32	10.21	163.44	35.80
2,494.31	3.00	135.76	2,493.79	-37.70	13.33	160.53	39.99
2,584.57	3.10	121.69	2,583.92	-40.68	17.05	157.26	44.11
2,674.83	2.95	119.23	2,674.05	-43.09	21.15	153.85	48.01
2,765.22	2.98	110.03	2,764.32	-45.03	25.39	150.58	51.70
2,855.44	2.79	110.83	2,854.43	-46.62	29.65	147.54	55.25
2,945.66	2.49	107.55	2,944.55	-47.99	33.57	145.03	58.56
3,036.03	1.98	106.26	3,034.85	-49.02	36.94	143.00	61.38
3,126.00	1.54	106.87	3,124.78	-49.80	39.59	141.52	63.62

Scientific Drilling

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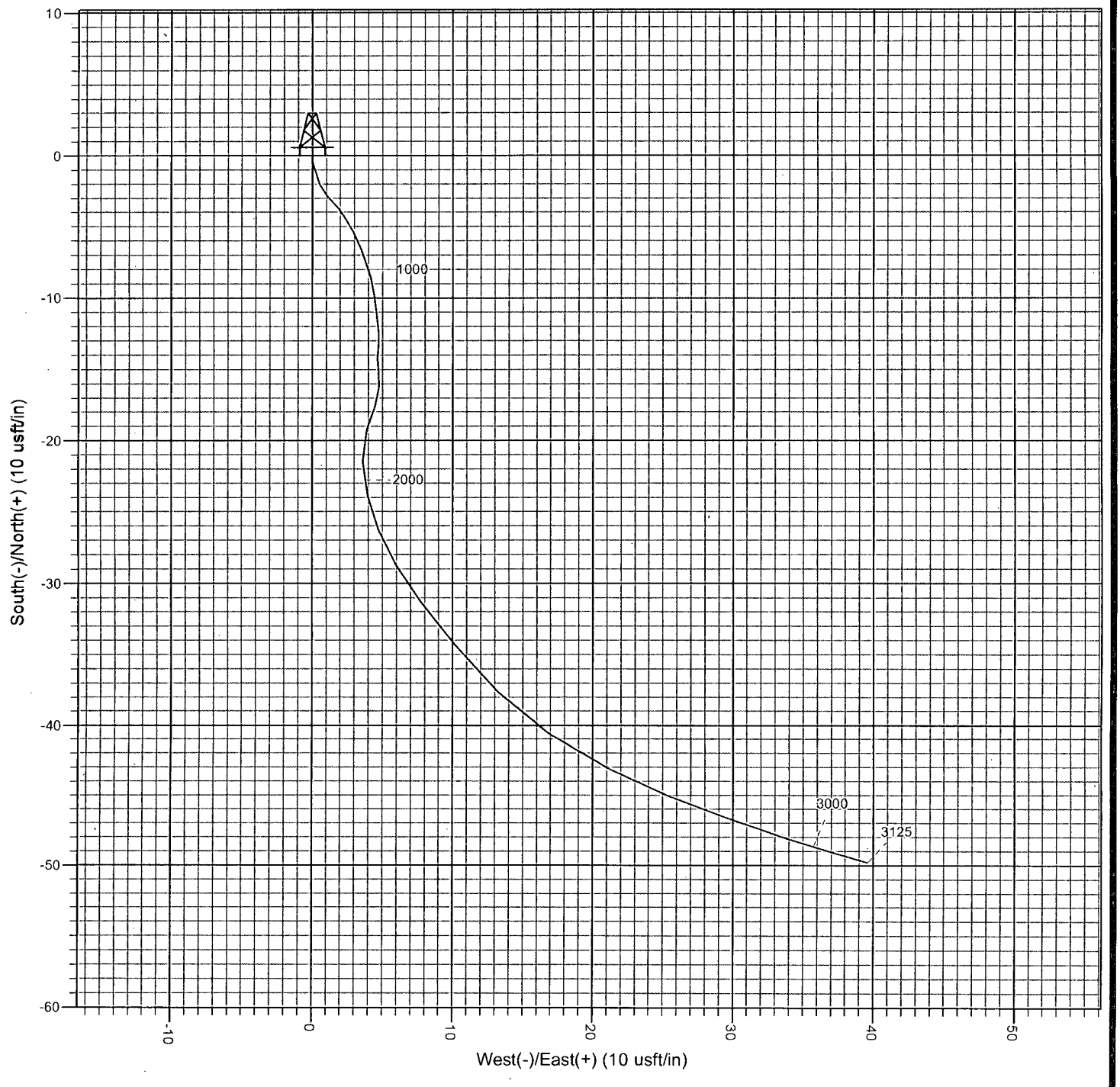

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