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FEB 11 2020

DISTRICT I
1025 N. FRENCH DR., HOBBS, NM 88240
Phone: (575) 393-6101 Fax: (575) 393-0720

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102

DISTRICT II
811 S. FIRST ST., ARTESIA, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

EMERALD-OCDA
Submit one copy to appropriate
District Office

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 478-3480 Fax: (505) 478-3482

☒ AMENDED REPORT

As Drilled

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-42453	Pool Code 30215	Pool Name Hay Hollow; Bone Spring
Property Code 308619	Property Name GRAHAM NASH STATE COM	Well Number 5H
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3057.5'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	33	26-S	28-E		280	SOUTH	760	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	28	26-S	28-E		203	NORTH	322	EAST	EDDY

Dedicated Acres 223.73	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

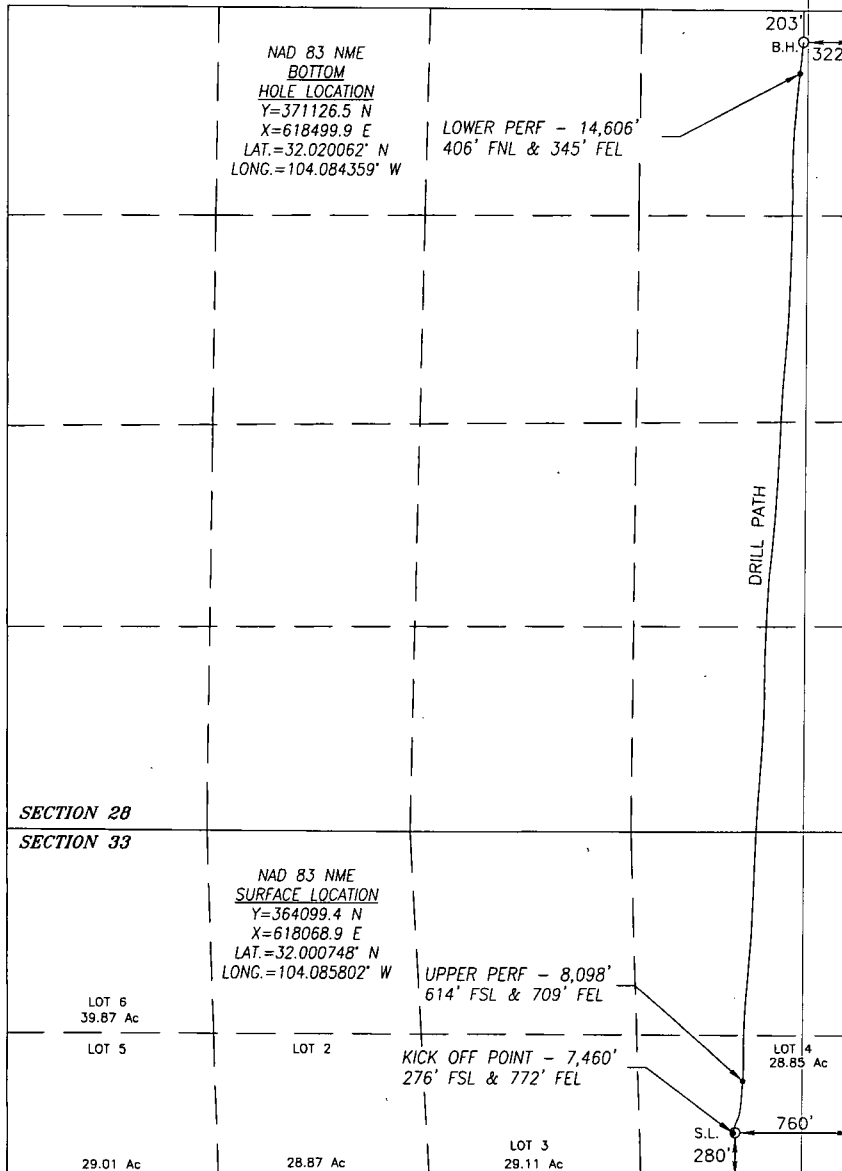
SEE PAGE 2

PAGE 1 OF 2

W.O. #19-1974

DRAWN BY: WN

Property Code 308619	Property Name GRAHAM NASH STATE COM	Well Number 5H
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3057.5'



SURFACE INFO AND BOREPATH SHOWN HEREON IS BASED ON C102 AND DIRECTIONAL SURVEY REPORT PROVIDED BY COG OPERATING, LLC FOR THE GRAHAM NASH STATE COM #5H SUPPLIED TO HARCROW SURVEYING, LLC ON OCTOBER 11, 2019

1200 0 1200
SCALE: 1"=1200'

OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Amanda Avery 11/5/19
Signature Date

Amanda Avery
Printed Name

aaavery@concho.com
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

MAR. 8, 2014/MAY 14, 2019
Date of Survey/Date of Geographic Survey

Signature & Seal of Professional Surveyor



Chad Harcrow 00/00/19
Certificate No. CHAD HARCROW 17777

RECEIVED

DEC 04 2019

DISTRICT/ARTESIAO.C.D.

Intent ☐ As Drilled ☒API #
30-015-42453Operator Name:
COG OPERATING, LLCProperty Name:
GRAHAM NASH STATE COMWell Number
5H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
4	33	26S	28E		276	SOUTH	772	EAST	EDDY
Latitude 32.000736					Longitude -104.085839			NAD 83	

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
4	33	26S	28E		614	SOUTH	709	EAST	EDDY
Latitude 32.001665					Longitude -104.085638			NAD 83	

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	28	26S	28E		406	NORTH	345	EAST	EDDY
Latitude 32.019505					Longitude -104.084435			NAD 83	

Is this well the defining well for the Horizontal Spacing Unit?

☒ Yes

Is this well an infill well?

☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

Operator Name:

Property Name:

Well Number

KZ 06/29/2018

1. The first part of the paper discusses the importance of the
 2. second part of the paper discusses the importance of the
 3. third part of the paper discusses the importance of the
 4. fourth part of the paper discusses the importance of the
 5. fifth part of the paper discusses the importance of the
 6. sixth part of the paper discusses the importance of the
 7. seventh part of the paper discusses the importance of the
 8. eighth part of the paper discusses the importance of the
 9. ninth part of the paper discusses the importance of the
 10. tenth part of the paper discusses the importance of the

[illegible]



I Joseph Proske, certify that I am employed by Scout Downhole Inc. (SDI). That I did on the day(s) of 04/21/19 thru 04/29/19 conduct or supervise the taking of a MWD Survey from a depth of 7361' to a depth of 14748'; that the data is true, correct, complete and within the limitations of the tool as set forth by Scout Downhole Inc. (SDI).; that I am authorized and qualified to make this report; that this survey was conducted at the request of COG Operating LLC. for the Graham Nash State Com 5H API No. 30-015-42453 in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Scout Downhole Inc. (SDI).

Joseph Proske

Joseph
Proske

Digitally signed by: Joseph
Proske
DN: CN = Joseph Proske
email =
jproske@scoutdrilltech.
com C = US O = Scout
Downhole OU = SDI
Date: 2020.02.12 15:46:49
'06'00'

1125 Beach Airport Rd, Conroe, Texas
77301
PH 936-756-3255 FAX 936-756-3229



Concho Resources

Eddy County, NM (NAD27)

Graham Nash State Com

Graham Nash State Com 5H

Wellbore #1

Survey: Scout MWD

Standard Survey Report

19 July, 2019



a business unit of Turbo Drill Industries, Inc.

Company:	Concho Resources	Local Co-ordinate Reference:	Well Graham Nash State Com 5H
Project:	Eddy County, NM (NAD27)	TVD Reference:	3057.5' GL + 26' KB @ 3083.50usft (Independence 205)
Site:	Graham Nash State Com	MD Reference:	3057.5' GL + 26' KB @ 3083.50usft (Independence 205)
Well:	Graham Nash State Com 5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.14 Single User Db

Project	Eddy County, NM (NAD27)	
Map System:	US State Plane 1927 (Exact solution)	System Datum:
Geo Datum:	NAD 1927 (NADCON CONUS)	Mean Sea Level
Map Zone:	New Mexico East 3001	

Site	Graham Nash State Com	
Site Position:		Northing:
From:	Map	Easting:
Position Uncertainty:	0.00 usft	Slot Radius:
		Latitude:
		Longitude:
		Grid Convergence:

Well	Graham Nash State Com 5H					
Well Position	+N/-S	0.00 usft	Northing:	364,042.40 usft	Latitude:	32° 0' 2.245 N
	+E/-W	0.00 usft	Easting:	576,883.80 usft	Longitude:	104° 5' 7.136 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,057.50 usft

Wellbore		Wellbore #1			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	04/10/19	6.93	59.60	47,781.80000000

Design		Surveys			
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	3.58	

Survey Program		Date	07/19/19		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
7,361.00	14,810.00	Scout MWD (Wellbore #1)	MWD+HRGM	OWSG MWD + HRGM	

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
7,276.70	0.30	199.37	7,275.42	-4.82	-11.30	-5.52	0.00	0.00	0.00
7,361.00	0.13	345.95	7,359.72	-4.94	-11.40	-5.64	0.49	-0.20	173.88
First Scout MWD Survey @ 7361.00' MD									
7,424.00	0.76	320.83	7,422.72	-4.54	-11.68	-5.26	1.02	1.00	-39.87
7,455.00	2.87	356.07	7,453.70	-3.61	-11.86	-4.34	7.39	6.81	113.68
7,487.00	5.24	5.57	7,485.62	-1.35	-11.78	-2.09	7.67	7.41	29.69
7,519.00	7.54	7.95	7,517.42	2.18	-11.34	1.47	7.23	7.19	7.44
7,550.00	10.63	11.16	7,548.02	7.00	-10.51	6.33	10.10	9.97	10.35
7,582.00	13.44	13.62	7,579.32	13.51	-9.06	12.92	8.92	8.78	7.69

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Well:	Graham Nash State Com 5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,613.00	15.80	16.65	7,609.31	21.06	-7.00	20.58	8.00	7.61	9.77
7,645.00	18.69	19.01	7,639.87	30.08	-4.09	29.77	9.29	9.03	7.38
7,676.00	22.56	20.99	7,668.88	40.33	-0.34	40.23	12.68	12.48	6.39
7,708.00	26.26	22.47	7,698.01	52.61	4.57	52.79	11.72	11.56	4.63
7,740.00	30.17	23.80	7,726.21	66.51	10.52	67.04	12.38	12.22	4.16
7,771.00	33.95	21.57	7,752.47	81.70	16.85	82.59	12.78	12.19	-7.19
7,803.00	37.18	17.36	7,778.51	99.24	23.02	100.49	12.66	10.09	-13.16
7,834.00	41.16	14.57	7,802.54	118.07	28.39	119.61	14.04	12.84	-9.00
7,866.00	43.86	10.55	7,826.13	139.17	33.07	140.96	11.97	8.44	-12.56
7,898.00	46.84	8.05	7,848.62	161.63	36.73	163.61	10.84	9.31	-7.81
7,929.00	51.75	5.43	7,868.83	184.96	39.47	187.06	17.08	15.84	-8.45
7,961.00	55.82	5.23	7,887.73	210.66	41.87	212.86	12.73	12.72	-0.63
7,993.00	59.28	3.81	7,904.90	237.57	43.99	239.86	11.44	10.81	-4.44
8,024.00	63.78	2.90	7,919.67	264.77	45.58	267.10	14.74	14.52	-2.94
8,056.00	67.57	3.89	7,932.85	293.87	47.31	296.25	12.17	11.84	3.09
8,088.00	71.96	3.79	7,943.92	323.82	49.32	326.27	13.72	13.72	-0.31
8,119.00	77.60	3.63	7,952.05	353.66	51.25	356.17	18.20	18.19	-0.52
8,151.00	82.19	3.70	7,957.66	385.09	53.27	387.67	14.35	14.34	0.22
8,183.00	85.24	1.08	7,961.17	416.86	54.59	419.46	12.53	9.53	-8.19
8,214.00	88.19	359.82	7,962.94	447.81	54.83	450.36	10.35	9.52	-4.06
8,253.00	88.98	359.12	7,963.91	486.79	54.47	489.25	2.71	2.03	-1.79
8,316.00	90.74	359.80	7,964.06	549.79	53.88	552.08	2.99	2.79	1.08
8,411.00	89.71	2.17	7,963.69	644.77	55.51	646.97	2.72	-1.08	2.49
8,506.00	89.01	3.82	7,964.75	739.63	60.47	741.96	1.89	-0.74	1.74
8,601.00	88.47	5.16	7,966.84	834.31	67.91	836.92	1.52	-0.57	1.41
8,696.00	87.24	4.70	7,970.39	928.89	76.07	931.83	1.38	-1.29	-0.48
8,791.00	86.17	4.29	7,975.85	1,023.44	83.50	1,026.66	1.21	-1.13	-0.43
8,885.00	86.62	4.37	7,981.76	1,116.98	90.58	1,120.46	0.49	0.48	0.09
8,980.00	89.06	4.74	7,985.35	1,211.61	98.12	1,215.37	2.60	2.57	0.39
9,075.00	85.58	3.17	7,989.79	1,306.26	104.67	1,310.25	4.02	-3.66	-1.65
9,170.00	87.71	3.35	7,995.35	1,400.94	110.06	1,405.08	2.25	2.24	0.19
9,265.00	88.58	3.23	7,998.42	1,495.73	115.51	1,500.03	0.92	0.92	-0.13
9,359.00	87.66	2.54	8,001.50	1,589.56	120.24	1,593.97	1.22	-0.98	-0.73
9,454.00	87.01	2.28	8,005.92	1,684.37	124.23	1,688.85	0.74	-0.68	-0.27
9,549.00	87.13	2.06	8,010.78	1,779.18	127.82	1,783.69	0.26	0.13	-0.23
9,644.00	89.31	2.70	8,013.73	1,874.05	131.77	1,878.62	2.39	2.29	0.67
9,739.00	89.17	3.14	8,014.99	1,968.92	136.60	1,973.60	0.49	-0.15	0.46
9,834.00	88.61	3.65	8,016.83	2,063.73	142.23	2,068.59	0.80	-0.59	0.54
9,929.00	90.80	4.33	8,017.32	2,158.49	148.84	2,163.58	2.41	2.31	0.72
10,023.00	89.48	3.97	8,017.09	2,252.24	155.64	2,257.57	1.46	-1.40	-0.38
10,118.00	89.00	4.37	8,018.35	2,346.98	162.55	2,352.55	0.66	-0.51	0.42
10,213.00	89.43	3.99	8,019.65	2,441.72	169.47	2,447.54	0.60	0.45	-0.40

Company:	Concho Resources	Local Co-ordinate Reference:	Well Graham Nash State Com 5H
Project:	Eddy County, NM (NAD27)	TVD Reference:	3057.5' GL + 26' KB @ 3083.50usft (Independence 205)
Site:	Graham Nash State Com	MD Reference:	3057.5' GL + 26' KB @ 3083.50usft (Independence 205)
Well:	Graham Nash State Com 5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,307.00	90.35	3.46	8,019.83	2,535.52	175.58	2,541.54	1.13	0.98	-0.56
10,402.00	90.24	2.55	8,019.34	2,630.39	180.56	2,636.53	0.96	-0.12	-0.96
10,497.00	88.50	1.26	8,020.39	2,725.33	183.72	2,731.48	2.28	-1.83	-1.36
10,592.00	87.18	0.62	8,023.97	2,820.24	185.28	2,826.31	1.54	-1.39	-0.67
10,687.00	89.17	1.39	8,026.99	2,915.17	186.94	2,921.16	2.25	2.09	0.81
10,782.00	87.35	1.96	8,029.88	3,010.09	189.72	3,016.06	2.01	-1.92	0.60
10,877.00	87.10	2.13	8,034.48	3,104.91	193.10	3,110.91	0.32	-0.26	0.18
10,972.00	88.44	2.16	8,038.17	3,199.77	196.66	3,205.81	1.41	1.41	0.03
11,067.00	90.01	2.47	8,039.46	3,294.68	200.49	3,300.77	1.68	1.65	0.33
11,162.00	91.16	2.64	8,038.49	3,389.58	204.73	3,395.75	1.22	1.21	0.18
11,257.00	93.32	3.02	8,034.77	3,484.39	209.41	3,490.67	2.31	2.27	0.40
11,352.00	93.52	4.97	8,029.11	3,578.98	216.02	3,585.49	2.06	0.21	2.05
11,447.00	91.92	6.39	8,024.60	3,673.41	225.41	3,680.31	2.25	-1.68	1.49
11,542.00	91.08	6.53	8,022.11	3,767.77	236.10	3,775.16	0.90	-0.88	0.15
11,636.00	89.71	5.33	8,021.46	3,861.26	245.81	3,869.07	1.94	-1.46	-1.28
11,731.00	88.25	4.61	8,023.15	3,955.88	254.04	3,964.03	1.71	-1.54	-0.76
11,826.00	87.83	4.24	8,026.40	4,050.55	261.36	4,058.96	0.59	-0.44	-0.39
11,921.00	86.59	4.03	8,031.03	4,145.18	268.20	4,153.84	1.32	-1.31	-0.22
12,015.00	87.29	4.02	8,036.05	4,238.82	274.79	4,247.71	0.74	0.74	-0.01
12,110.00	86.90	2.14	8,040.86	4,333.55	279.89	4,342.57	2.02	-0.41	-1.98
12,205.00	88.81	3.19	8,044.42	4,428.38	284.30	4,437.49	2.29	2.01	1.11
12,300.00	88.81	2.27	8,046.39	4,523.25	288.83	4,532.46	0.97	0.00	-0.97
12,395.00	89.62	2.20	8,047.69	4,618.17	292.53	4,627.42	0.86	0.85	-0.07
12,490.00	90.91	3.42	8,047.25	4,713.05	297.19	4,722.41	1.87	1.36	1.28
12,584.00	91.75	4.48	8,045.07	4,806.80	303.66	4,816.38	1.44	0.89	1.13
12,679.00	90.74	4.46	8,043.01	4,901.49	311.06	4,911.34	1.06	-1.06	-0.02
12,774.00	90.71	4.70	8,041.80	4,996.17	318.65	5,006.32	0.25	-0.03	0.25
12,869.00	91.30	5.19	8,040.14	5,090.81	326.84	5,101.28	0.81	0.62	0.52
12,964.00	90.83	4.48	8,038.37	5,185.45	334.84	5,196.24	0.90	-0.49	-0.75
13,059.00	90.88	3.96	8,036.95	5,280.18	341.83	5,291.22	0.55	0.05	-0.55
13,154.00	88.44	2.14	8,037.52	5,375.03	346.89	5,386.21	3.20	-2.57	-1.92
13,249.00	87.07	1.28	8,041.24	5,469.92	349.72	5,481.08	1.70	-1.44	-0.91
13,343.00	87.41	2.33	8,045.77	5,563.76	352.68	5,574.92	1.17	0.36	1.12
13,438.00	87.18	2.64	8,050.25	5,658.56	356.79	5,669.80	0.41	-0.24	0.33
13,533.00	86.76	0.73	8,055.27	5,753.39	359.58	5,764.61	2.06	-0.44	-2.01
13,628.00	89.48	0.22	8,058.39	5,848.32	360.37	5,859.41	2.91	2.86	-0.54
13,723.00	91.33	0.87	8,057.72	5,943.31	361.27	5,954.27	2.06	1.95	0.68
13,818.00	91.56	0.68	8,055.32	6,038.27	362.56	6,049.13	0.31	0.24	-0.20
13,913.00	92.09	0.45	8,052.29	6,133.22	363.49	6,143.95	0.61	0.56	-0.24
14,008.00	92.37	0.68	8,048.60	6,228.14	364.43	6,238.74	0.38	0.29	0.24
14,102.00	90.60	2.23	8,046.16	6,322.07	366.82	6,332.64	2.50	-1.88	1.65
14,197.00	90.35	3.24	8,045.37	6,416.96	371.35	6,427.63	1.10	-0.26	1.06

Company:	Concho Resources	Local Co-ordinate Reference:	Well Graham Nash State Com 5H
Project:	Eddy County, NM (NAD27)	TVD Reference:	3057.5' GL + 26' KB @ 3083.50usft (Independence 205)
Site:	Graham Nash State Com	MD Reference:	3057.5' GL + 26' KB @ 3083.50usft (Independence 205)
Well:	Graham Nash State Com 5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,292.00	89.96	4.96	8,045.12	6,511.71	378.14	6,522.62	1.86	-0.41	1.81
14,387.00	89.31	5.00	8,045.72	6,606.35	386.39	6,617.59	0.69	-0.68	0.04
14,482.00	89.09	5.42	8,047.05	6,700.95	395.01	6,712.54	0.50	-0.23	0.44
14,577.00	89.26	6.25	8,048.42	6,795.45	404.67	6,807.46	0.89	0.18	0.87
14,672.00	89.03	6.53	8,049.83	6,889.85	415.24	6,902.33	0.38	-0.24	0.29
14,748.00	88.84	6.64	8,051.25	6,965.33	423.96	6,978.21	0.29	-0.25	0.14
Last Scout MWD Survey @ 14748.00' MD									
14,810.00	88.84	6.64	8,052.50	7,026.90	431.12	7,040.11	0.00	0.00	0.00
Projection to Bit @ 14810.00' MD									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,361.00	7,359.72	-4.94	-11.40	First Scout MWD Survey @ 7361.00' MD
14,748.00	8,051.25	6,965.33	423.96	Last Scout MWD Survey @ 14748.00' MD
14,810.00	8,052.50	7,026.90	431.12	Projection to Bit @ 14810.00' MD

Checked By: _____	Approved By: _____	Date: _____
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COG

SURVEY REPORT

GRAHAM NASH STATE COM #5H

ICD 205

4/20/2019

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

JAKE ELGER

Notarized this date 13TH of MAY

Sherry Stewart

Notary Signature

County of Midland

State of Texas



The Ultimate Partner In Wellbore Placement

SURVEY REPORT

GRAHAM NASH STATE COM #5H

KEEPER GYRO SURVEY

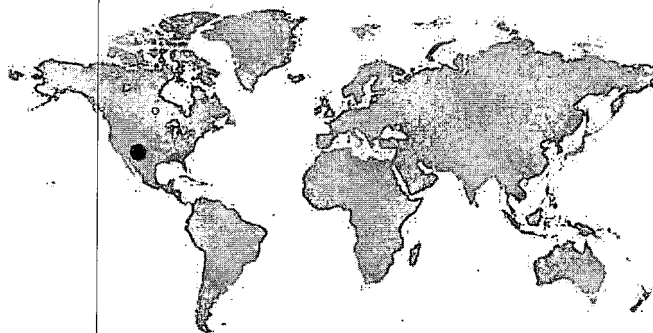
CUSTOMER	COG	SDI JOB NO.	OP:018076
PROJECT	Graham Nash State Com #5H Keeper Gyro	SDI DISTRICT	Midland
	Survey	SDI KIT/UNIT	
FIELD	N/A		
DEFINITIVE SURVEY	None		

SITE INFORMATION

Site Name	Eddy County, New Mexico	Section
Lat/Long	32.0006236° N, 104.0853156° W	Township
Northing	364,042.4 ft	Range
Easting	576,883.8 ft	

MAP INFORMATION

North Reference	Grid North
Grid Correction	-0.13 deg
System	US State Plane 1927
Datum	North American Datum 1927 (Clarke 1866)
Map Zone	New Mexico East: 3001

**WELL INFORMATION**

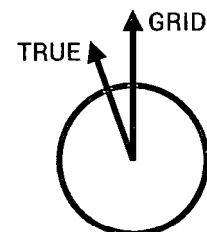
Lat/Long	32.0006236° N, 104.0853156° W
Northing	364,042.4 ft
Easting	576,883.8 ft
UWI	30-015-42453

DEPTH AND ELEVATION REFERENCE

Ground Level	3057.5 ft above Mean Sea
Level	
Reference Datum	RKB
Reference Height	26 ft above G.L.
Reference Elevation	3083.5 ft

VERTICAL SECTION REFERENCE

+N/-S	0 ft
+E/-W	0 ft
Proposal Direction	3.44°
Calculation Method	Minimum Curvature

**LOCAL GRAVITY REFERENCE INFORMATION**

Local Gravity	998.515 mG [computed]
True to Grid	subtract 0.13°

WELL NOTES

Graham Nash State Com #5H Keeper Gyro Survey

OPERATORS

Jeffrey Loyd

SDI Operator Name (Printed)

SIGNATURE

DATE

SURVEY REPORT

GRAHAM NASH STATE COM #5H

KEEPER GYRO SURVEY

MD	INC	AZIM	TVD	VS	INCL	HEAW	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
100.00	0.79	300.05	100.00	0.31	0.35	-0.60	0.79	0.69	300.05
125.00	0.98	296.74	124.99	0.47	0.53	-0.94	0.80	1.08	299.39
150.00	1.11	300.11	149.99	0.66	0.75	-1.34	0.56	1.53	299.13
175.00	1.10	300.90	174.99	0.88	0.99	-1.75	0.07	2.01	299.46
200.00	1.11	301.86	199.98	1.11	1.24	-2.17	0.10	2.50	299.83
225.00	1.19	296.14	224.98	1.33	1.48	-2.61	0.56	3.00	299.68
250.00	1.15	299.29	249.97	1.54	1.72	-3.06	0.30	3.51	299.39
275.00	1.10	298.24	274.97	1.75	1.96	-3.49	0.24	4.00	299.31
300.00	1.19	300.61	299.96	1.96	2.20	-3.92	0.43	4.50	299.33
325.00	1.27	300.57	324.95	2.21	2.48	-4.39	0.31	5.04	299.47
350.00	1.26	298.69	349.95	2.45	2.75	-4.86	0.18	5.59	299.48
375.00	1.26	297.00	374.94	2.68	3.01	-5.35	0.15	6.14	299.34
400.00	1.31	293.77	399.94	2.89	3.25	-5.86	0.36	6.70	299.00
425.00	1.25	301.97	424.93	3.12	3.51	-6.35	0.78	7.25	298.91
450.00	1.32	299.00	449.92	3.37	3.79	-6.83	0.38	7.81	299.02
475.00	1.28	298.46	474.92	3.61	4.06	-7.33	0.15	8.38	299.00
500.00	1.32	298.05	499.91	3.85	4.33	-7.83	0.16	8.95	298.95
525.00	1.37	295.36	524.90	4.08	4.59	-8.35	0.32	9.53	298.81
550.00	1.26	294.35	549.90	4.29	4.83	-8.87	0.45	10.10	298.59
575.00	1.26	298.66	574.89	4.51	5.08	-9.36	0.38	10.65	298.48
600.00	1.21	298.45	599.89	4.74	5.34	-9.83	0.21	11.19	298.49
625.00	1.19	298.13	624.88	4.96	5.58	-10.29	0.07	11.71	298.48
650.00	1.22	302.48	649.87	5.19	5.85	-10.75	0.38	12.24	298.56
675.00	1.32	297.62	674.87	5.44	6.13	-11.23	0.60	12.79	298.62
700.00	1.22	298.74	699.86	5.67	6.39	-11.72	0.44	13.34	298.60
725.00	1.21	301.03	724.86	5.91	6.65	-12.18	0.20	13.87	298.65
750.00	1.30	305.38	749.85	6.18	6.95	-12.63	0.54	14.42	298.82
775.00	1.25	302.92	774.84	6.47	7.27	-13.10	0.31	14.98	299.02
800.00	1.31	304.13	799.84	6.75	7.57	-13.56	0.26	15.53	299.18
825.00	1.34	303.46	824.83	7.04	7.90	-14.04	0.13	16.11	299.35
850.00	1.39	308.32	849.82	7.36	8.24	-14.52	0.51	16.70	299.58

SURVEY REPORT

GRAHAM NASH STATE COM #5H

KEEPER GYRO SURVEY

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/S ft	HEAW ft	DLS %/100ft	CLOSURE DIST ft	CLOSURE DIR deg
875.00	1.36	300.87	874.82	7.67	8.58	-15.01	0.72	17.30	299.76
900.00	1.41	305.22	899.81	7.97	8.91	-15.52	0.47	17.90	299.87
925.00	1.43	304.35	924.80	8.29	9.27	-16.03	0.10	18.52	300.04
950.00	1.43	304.86	949.79	8.61	9.62	-16.54	0.05	19.14	300.18
975.00	1.50	303.76	974.79	8.94	9.98	-17.07	0.31	19.78	300.32
1000.00	1.58	304.63	999.78	9.29	10.36	-17.63	0.33	20.45	300.45
1025.00	1.69	308.72	1024.77	9.68	10.79	-18.20	0.64	21.16	300.66
1050.00	1.73	307.05	1049.76	10.10	11.25	-18.79	0.25	21.90	300.90
1075.00	1.67	308.10	1074.74	10.52	11.70	-19.38	0.27	22.64	301.12
1100.00	1.96	308.55	1099.73	10.97	12.19	-20.00	1.14	23.42	301.36
1125.00	1.93	309.85	1124.72	11.47	12.73	-20.66	0.20	24.27	301.64
1150.00	2.02	304.80	1149.70	11.95	13.25	-21.35	0.78	25.12	301.83
1175.00	1.64	300.70	1174.69	12.34	13.69	-22.02	1.62	25.92	301.87
1200.00	0.94	291.72	1199.68	12.57	13.94	-22.51	2.92	26.48	301.77
1225.00	0.92	162.21	1224.68	12.45	13.83	-22.64	6.72	26.53	301.41
1250.00	2.70	142.92	1249.67	11.81	13.17	-22.23	7.44	25.83	300.64
1275.00	3.37	142.74	1274.63	10.80	12.11	-21.43	2.69	24.61	299.48
1300.00	3.56	142.24	1299.59	9.66	10.91	-20.51	0.74	23.23	298.02
1325.00	3.56	142.91	1324.54	8.49	9.68	-19.56	0.17	21.83	296.33
1350.00	3.43	144.94	1349.49	7.32	8.45	-18.67	0.72	20.49	294.36
1375.00	3.21	145.57	1374.45	6.18	7.26	-17.84	0.87	19.26	292.15
1400.00	2.45	155.67	1399.42	5.15	6.19	-17.22	3.63	18.30	289.78
1425.00	1.67	173.77	1424.40	4.32	5.35	-16.96	4.05	17.78	287.49
1450.00	1.05	209.66	1449.40	3.75	4.78	-17.04	4.09	17.70	285.69
1475.00	1.04	226.14	1474.39	3.38	4.43	-17.31	1.20	17.87	284.35
1500.00	1.06	240.20	1499.39	3.09	4.16	-17.68	1.03	18.16	283.23
1525.00	0.99	235.79	1524.39	2.83	3.92	-18.05	0.42	18.48	282.25
1550.00	1.18	233.80	1549.38	2.54	3.65	-18.44	0.77	18.80	281.19
1575.00	1.21	230.74	1574.38	2.19	3.33	-18.85	0.30	19.14	280.02
1600.00	1.05	231.87	1599.37	1.86	3.02	-19.24	0.66	19.47	278.92
1625.00	1.15	231.26	1624.37	1.54	2.72	-19.61	0.39	19.80	277.90
1650.00	1.15	233.92	1649.36	1.21	2.42	-20.01	0.22	20.16	276.88

MD	INC	AZIM	TVD	VS	+N/S	HE/W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
1675.00	1.32	236.05	1674.36	0.88	2.11	-20.45	0.67	20.56	275.88
1700.00	1.27	243.70	1699.35	0.56	1.82	-20.94	0.72	21.02	274.98
1725.00	1.34	244.34	1724.34	0.29	1.58	-21.45	0.31	21.51	274.20
1750.00	1.27	240.96	1749.34	-0.01	1.31	-21.96	0.43	22.00	273.42
1775.00	0.82	245.47	1774.33	-0.24	1.11	-22.36	1.81	22.39	272.83
1800.00	0.42	301.66	1799.33	-0.28	1.08	-22.60	2.74	22.63	272.73
1825.00	0.87	47.63	1824.33	-0.10	1.25	-22.54	4.24	22.58	273.18
1850.00	1.40	48.71	1849.32	0.25	1.58	-22.17	2.12	22.23	274.08
1875.00	1.83	52.80	1874.31	0.72	2.02	-21.63	1.81	21.72	275.35
1900.00	2.02	50.46	1899.30	1.28	2.55	-20.97	0.82	21.12	276.93
1925.00	2.28	55.47	1924.28	1.89	3.11	-20.22	1.26	20.45	278.74
1950.00	2.30	53.96	1949.26	2.52	3.69	-19.40	0.25	19.75	280.76
1975.00	2.14	57.87	1974.24	3.10	4.23	-18.60	0.88	19.08	282.81
2000.00	2.32	57.71	1999.23	3.67	4.75	-17.78	0.72	18.40	284.95
2025.00	2.34	60.00	2024.20	4.25	5.27	-16.91	0.39	17.71	287.31
2050.00	2.71	59.67	2049.18	4.86	5.83	-15.96	1.47	16.99	290.05
2075.00	2.62	60.35	2074.15	5.50	6.41	-14.95	0.40	16.27	293.19
2100.00	2.49	61.91	2099.13	6.09	6.94	-13.98	0.59	15.61	296.42
2125.00	2.41	63.94	2124.11	6.64	7.43	-13.03	0.45	15.00	299.70
2150.00	2.64	68.93	2149.08	7.13	7.87	-12.02	1.25	14.36	303.22
2175.00	2.42	75.00	2174.06	7.54	8.21	-10.97	1.38	13.70	306.81
2200.00	2.33	76.11	2199.04	7.86	8.47	-9.97	0.40	13.08	310.36
2225.00	2.29	82.25	2224.01	8.11	8.66	-8.98	1.00	12.47	313.97
2250.00	2.38	84.42	2248.99	8.28	8.78	-7.97	0.48	11.85	317.77
2275.00	2.39	87.30	2273.97	8.42	8.85	-6.93	0.48	11.24	321.95
2300.00	2.62	84.50	2298.95	8.57	8.93	-5.84	1.05	10.67	326.82
2325.00	2.17	99.81	2323.93	8.60	8.91	-4.81	3.13	10.12	331.65
2350.00	1.72	120.22	2348.91	8.38	8.64	-4.02	3.26	9.53	335.06
2375.00	1.52	145.84	2373.90	7.95	8.17	-3.51	2.98	8.89	336.79
2400.00	1.66	166.83	2398.89	7.34	7.55	-3.24	2.38	8.21	336.79
2425.00	1.67	167.06	2423.88	6.64	6.84	-3.07	0.05	7.50	335.81
2450.00	1.70	168.97	2448.87	5.94	6.12	-2.92	0.25	6.78	334.49

SURVEY REPORT

GRAHAM NASH STATE COM #5H

KEEPER GYRO SURVEY

MD	INC	AZIM	TVD	VS	+N/-S	E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
2475.00	1.72	168.40	2473.86	5.22	5.39	-2.77	0.11	6.06	332.77
2500.00	1.62	167.53	2498.85	4.51	4.68	-2.62	0.41	5.37	330.73
2525.00	1.19	160.56	2523.84	3.94	4.09	-2.46	1.86	4.77	328.98
2550.00	1.01	155.89	2548.84	3.50	3.65	-2.28	0.78	4.30	327.93
2575.00	0.95	150.89	2573.84	3.13	3.26	-2.09	0.42	3.88	327.32
2600.00	0.83	135.37	2598.83	2.84	2.95	-1.87	1.08	3.49	327.72
2625.00	0.68	139.07	2623.83	2.61	2.71	-1.64	0.62	3.17	328.82
2650.00	0.55	107.05	2648.83	2.47	2.56	-1.43	1.45	2.94	330.87
2675.00	0.54	109.56	2673.83	2.41	2.49	-1.20	0.10	2.77	334.19
2700.00	0.44	95.46	2698.83	2.38	2.44	-1.00	0.61	2.64	337.78
2725.00	0.45	85.31	2723.83	2.39	2.44	-0.80	0.32	2.57	341.79
2750.00	0.42	55.06	2748.83	2.46	2.50	-0.63	0.92	2.58	345.87
2775.00	0.42	39.68	2773.82	2.59	2.62	-0.50	0.45	2.67	349.30
2800.00	0.31	29.45	2798.82	2.73	2.75	-0.40	0.50	2.78	351.66
2825.00	0.29	36.80	2823.82	2.84	2.86	-0.33	0.18	2.88	353.38
2850.00	0.21	17.82	2848.82	2.94	2.96	-0.28	0.45	2.97	354.59
2875.00	0.19	29.03	2873.82	3.02	3.04	-0.25	0.19	3.05	355.38
2900.00	0.22	346.63	2898.82	3.10	3.12	-0.24	0.61	3.13	355.66
2925.00	0.27	358.37	2923.82	3.21	3.23	-0.25	0.27	3.24	355.58
2950.00	0.26	5.47	2948.82	3.32	3.34	-0.25	0.14	3.35	355.79
2975.00	0.19	340.03	2973.82	3.42	3.44	-0.25	0.47	3.45	355.76
3000.00	0.19	323.45	2998.82	3.48	3.51	-0.29	0.22	3.52	355.22
3025.00	0.18	337.23	3023.82	3.55	3.58	-0.33	0.18	3.59	354.69
3050.00	0.13	323.64	3048.82	3.61	3.64	-0.37	0.23	3.66	354.27
3075.00	0.07	316.17	3073.82	3.64	3.67	-0.39	0.26	3.69	353.89
3100.00	0.08	324.16	3098.82	3.67	3.70	-0.41	0.06	3.72	353.61
3125.00	0.10	285.95	3123.82	3.68	3.72	-0.45	0.25	3.74	353.17
3150.00	0.06	228.87	3148.82	3.68	3.71	-0.48	0.34	3.74	352.69
3175.00	0.10	234.74	3173.82	3.66	3.69	-0.50	0.13	3.73	352.22
3200.00	0.15	259.56	3198.82	3.63	3.67	-0.55	0.31	3.72	351.42
3225.00	0.14	236.87	3223.82	3.61	3.65	-0.61	0.24	3.70	350.48
3250.00	0.06	263.46	3248.82	3.59	3.63	-0.65	0.36	3.69	349.86

SURVEY REPORT

GRAHAM NASH STATE COM #5H

KEEPER GYRO SURVEY

MD	INC	AZIM	TVD	VS	IN/S	HE/W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
3275.00	0.11	252.27	3273.82	3.58	3.63	-0.68	0.20	3.69	349.31
3300.00	0.05	283.41	3298.82	3.57	3.62	-0.72	0.27	3.69	348.80
3325.00	0.16	245.56	3323.82	3.56	3.61	-0.76	0.49	3.69	348.12
3350.00	0.15	265.41	3348.82	3.54	3.59	-0.82	0.22	3.69	347.09
3375.00	0.18	254.14	3373.82	3.52	3.58	-0.89	0.16	3.69	345.98
3400.00	0.14	247.71	3398.82	3.49	3.56	-0.96	0.15	3.68	344.91
3425.00	0.17	213.92	3423.82	3.45	3.52	-1.01	0.37	3.66	344.00
3450.00	0.25	255.23	3448.82	3.40	3.47	-1.08	0.68	3.64	342.68
3475.00	0.11	225.53	3473.82	3.36	3.44	-1.15	0.68	3.63	341.48
3500.00	0.18	245.18	3498.82	3.33	3.41	-1.20	0.34	3.61	340.52
3525.00	0.22	239.38	3523.82	3.28	3.37	-1.28	0.17	3.60	339.17
3550.00	0.35	227.92	3548.82	3.20	3.29	-1.38	0.60	3.57	337.27
3575.00	0.44	233.21	3573.82	3.09	3.18	-1.51	0.36	3.52	334.57
3600.00	0.40	238.03	3598.82	2.97	3.08	-1.66	0.20	3.50	331.62
3625.00	0.30	225.18	3623.82	2.87	2.99	-1.78	0.51	3.48	329.15
3650.00	0.10	171.13	3648.82	2.80	2.92	-1.83	1.02	3.44	327.97
3675.00	0.23	217.13	3673.82	2.74	2.86	-1.85	0.70	3.41	327.05
3700.00	0.19	198.57	3698.82	2.66	2.78	-1.90	0.30	3.37	325.69
3725.00	0.20	196.81	3723.82	2.58	2.70	-1.92	0.03	3.31	324.53
3750.00	0.13	188.30	3748.82	2.51	2.63	-1.94	0.27	3.27	323.58
3775.00	0.13	187.77	3773.82	2.45	2.57	-1.95	0.03	3.23	322.87
3800.00	0.17	215.07	3798.82	2.39	2.52	-1.97	0.32	3.20	321.90
3825.00	0.12	189.33	3823.82	2.34	2.46	-2.00	0.32	3.17	320.93
3850.00	0.14	195.62	3848.82	2.28	2.41	-2.01	0.10	3.13	320.13
3875.00	0.15	206.67	3873.82	2.22	2.35	-2.03	0.12	3.10	319.11
3900.00	0.11	183.04	3898.82	2.17	2.29	-2.05	0.27	3.08	318.24
3925.00	0.23	176.40	3923.82	2.09	2.22	-2.05	0.50	3.02	317.34
3950.00	0.11	211.21	3948.82	2.02	2.15	-2.06	0.61	2.97	316.26
3975.00	0.19	216.28	3973.82	1.96	2.09	-2.09	0.32	2.96	314.99
4000.00	0.14	218.50	3998.82	1.90	2.03	-2.14	0.20	2.95	313.57
4025.00	0.23	196.34	4023.82	1.83	1.96	-2.17	0.43	2.93	312.09
4050.00	0.16	212.00	4048.82	1.75	1.88	-2.20	0.34	2.90	310.53

SURVEY REPORT

GRAHAM NASH STATE COM #5H

KEEPER GYRO SURVEY

MD	INC	AZIM	TVD	VS	HN/S	HE/W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
4075.00	0.21	195.40	4073.82	1.67	1.81	-2.24	0.29	2.88	309.01
4100.00	0.21	211.15	4098.82	1.59	1.73	-2.27	0.23	2.85	307.26
4125.00	0.14	207.21	4123.82	1.52	1.66	-2.31	0.30	2.84	305.76
4150.00	0.14	203.72	4148.82	1.47	1.61	-2.33	0.04	2.83	304.58
4175.00	0.11	194.80	4173.82	1.41	1.56	-2.35	0.14	2.82	303.52
4200.00	0.19	210.65	4198.82	1.35	1.50	-2.38	0.34	2.81	302.23
4225.00	0.16	196.18	4223.82	1.28	1.43	-2.41	0.21	2.80	300.73
4250.00	0.16	192.11	4248.82	1.22	1.36	-2.43	0.05	2.78	299.36
4275.00	0.18	180.67	4273.82	1.14	1.29	-2.43	0.16	2.75	297.93
4300.00	0.15	184.08	4298.82	1.07	1.22	-2.44	0.12	2.72	296.54
4325.00	0.19	206.92	4323.82	1.00	1.15	-2.46	0.30	2.71	295.01
4350.00	0.14	190.27	4348.82	0.93	1.08	-2.48	0.26	2.71	293.51
4375.00	0.17	191.07	4373.82	0.86	1.01	-2.49	0.12	2.69	292.09
4400.00	0.23	197.93	4398.82	0.77	0.93	-2.52	0.26	2.68	290.21
4425.00	0.17	152.28	4423.82	0.69	0.85	-2.52	0.67	2.65	288.58
4450.00	0.25	121.74	4448.81	0.64	0.78	-2.45	0.55	2.57	287.73
4475.00	0.15	176.04	4473.81	0.58	0.72	-2.40	0.82	2.51	286.72
4500.00	0.20	167.78	4498.81	0.50	0.65	-2.39	0.21	2.48	285.12
4525.00	0.20	159.46	4523.81	0.42	0.56	-2.37	0.12	2.43	283.38
4550.00	0.20	157.12	4548.81	0.34	0.48	-2.33	0.04	2.38	281.67
4575.00	0.21	163.58	4573.81	0.26	0.40	-2.30	0.10	2.34	279.79
4600.00	0.30	164.58	4598.81	0.15	0.29	-2.27	0.35	2.29	277.31
4625.00	0.20	170.92	4623.81	0.05	0.19	-2.25	0.42	2.26	274.75
4650.00	0.19	160.48	4648.81	-0.03	0.11	-2.23	0.14	2.23	272.74
4675.00	0.27	156.77	4673.81	-0.12	0.01	-2.19	0.36	2.19	270.37
4700.00	0.24	154.55	4698.81	-0.22	-0.09	-2.15	0.15	2.15	267.67
4725.00	0.14	156.25	4723.81	-0.29	-0.16	-2.11	0.39	2.12	265.61
4750.00	0.14	192.91	4748.81	-0.35	-0.22	-2.11	0.35	2.12	264.06
4775.00	0.28	153.13	4773.81	-0.43	-0.30	-2.09	0.78	2.11	261.75
4800.00	0.18	149.70	4798.81	-0.51	-0.39	-2.04	0.39	2.08	259.14
4825.00	0.21	159.43	4823.81	-0.59	-0.47	-2.00	0.18	2.06	256.81
4850.00	0.15	160.42	4848.81	-0.66	-0.54	-1.98	0.24	2.05	254.59

SURVEY REPORT

GRAHAM NASH STATE COM #5H

KEEPER GYRO SURVEY

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
-ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
4875.00	0.02	163.54	4873.81	-0.70	-0.58	-1.96	0.54	2.05	253.52
4900.00	0.33	158.77	4898.81	-0.77	-0.65	-1.94	1.25	2.04	251.38
4925.00	0.23	154.97	4923.81	-0.88	-0.76	-1.89	0.43	2.04	247.96
4950.00	0.21	144.95	4948.81	-0.96	-0.85	-1.84	0.17	2.03	245.32
4975.00	0.17	139.71	4973.81	-1.02	-0.91	-1.79	0.15	2.01	243.02
5000.00	0.12	124.79	4998.81	-1.06	-0.96	-1.75	0.27	1.99	241.31
5025.00	0.11	157.60	5023.81	-1.09	-0.99	-1.72	0.26	1.98	239.98
5050.00	0.16	157.45	5048.81	-1.14	-1.04	-1.69	0.20	1.99	238.33
5075.00	0.23	145.26	5073.81	-1.21	-1.12	-1.65	0.32	1.99	235.95
5100.00	0.23	144.31	5098.81	-1.29	-1.20	-1.60	0.01	1.99	233.13
5125.00	0.18	140.29	5123.81	-1.36	-1.27	-1.54	0.17	2.00	230.57
5150.00	0.15	118.64	5148.81	-1.40	-1.31	-1.49	0.29	1.98	228.54
5175.00	0.18	128.12	5173.81	-1.44	-1.35	-1.43	0.16	1.97	226.54
5200.00	0.19	108.86	5198.81	-1.47	-1.39	-1.36	0.25	1.94	224.34
5225.00	0.25	63.06	5223.81	-1.45	-1.38	-1.27	0.73	1.88	222.66
5250.00	0.31	68.71	5248.81	-1.40	-1.33	-1.16	0.26	1.76	221.06
5275.00	0.26	70.33	5273.81	-1.34	-1.28	-1.04	0.21	1.65	218.99
5300.00	0.30	56.56	5298.81	-1.28	-1.23	-0.93	0.31	1.54	217.14
5325.00	0.45	38.23	5323.81	-1.16	-1.12	-0.82	0.74	1.38	216.16
5350.00	0.38	36.81	5348.81	-1.02	-0.97	-0.71	0.28	1.20	215.95
5375.00	0.42	42.93	5373.81	-0.88	-0.84	-0.60	0.25	1.03	215.26
5400.00	0.36	26.14	5398.81	-0.73	-0.70	-0.50	0.52	0.86	215.27
5425.00	0.28	16.17	5423.81	-0.60	-0.57	-0.45	0.38	0.73	217.85
5450.00	0.15	0.38	5448.81	-0.51	-0.48	-0.43	0.60	0.65	221.59
5475.00	0.23	357.16	5473.81	-0.43	-0.40	-0.43	0.33	0.59	227.03
5500.00	0.14	342.84	5498.81	-0.35	-0.32	-0.44	0.41	0.55	233.82
5525.00	0.07	325.66	5523.81	-0.31	-0.28	-0.46	0.30	0.54	238.36
5550.00	0.09	319.75	5548.81	-0.28	-0.26	-0.48	0.08	0.54	241.89
5575.00	0.12	329.01	5573.81	-0.25	-0.22	-0.51	0.14	0.55	246.51
5600.00	0.10	301.81	5598.81	-0.22	-0.19	-0.54	0.22	0.57	250.89
5625.00	0.08	323.30	5623.81	-0.19	-0.16	-0.57	0.15	0.59	254.22
5650.00	0.03	285.03	5648.81	-0.18	-0.14	-0.58	0.25	0.60	256.19

SURVEY REPORT

GRAHAM NASH STATE COM #5H

KEEPER GYRO SURVEY

MD	INC	AZIM	TVD	VS	+N/S	HE/W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
5675.00	0.04	273.72	5673.81	-0.18	-0.14	-0.60	0.04	0.62	256.75
5700.00	0.06	268.08	5698.81	-0.18	-0.14	-0.62	0.09	0.64	257.21
5725.00	0.06	271.35	5723.81	-0.18	-0.14	-0.65	0.02	0.66	257.70
5750.00	0.07	216.36	5748.81	-0.19	-0.15	-0.67	0.24	0.69	257.10
5775.00	0.07	187.14	5773.81	-0.22	-0.18	-0.68	0.15	0.70	255.06
5800.00	0.06	218.99	5798.81	-0.25	-0.21	-0.69	0.15	0.72	253.27
5825.00	0.07	172.17	5823.81	-0.28	-0.23	-0.70	0.22	0.74	251.47
5850.00	0.11	164.29	5848.81	-0.31	-0.27	-0.69	0.14	0.74	248.50
5875.00	0.14	161.32	5873.81	-0.36	-0.32	-0.67	0.15	0.75	244.36
5900.00	0.18	152.63	5898.81	-0.43	-0.39	-0.65	0.18	0.75	238.99
5925.00	0.18	162.87	5923.81	-0.50	-0.46	-0.62	0.13	0.77	233.28
5950.00	0.08	128.99	5948.81	-0.54	-0.51	-0.59	0.48	0.78	229.46
5975.00	0.08	138.50	5973.81	-0.56	-0.53	-0.57	0.06	0.78	226.93
6000.00	0.06	97.30	5998.81	-0.58	-0.55	-0.54	0.22	0.77	224.76
6025.00	0.10	116.32	6023.81	-0.59	-0.56	-0.51	0.17	0.75	222.34
6050.00	0.08	116.15	6048.81	-0.60	-0.57	-0.47	0.09	0.74	219.51
6075.00	0.09	180.98	6073.81	-0.63	-0.60	-0.46	0.36	0.76	217.35
6100.00	0.10	211.02	6098.81	-0.67	-0.64	-0.47	0.20	0.79	216.32
6125.00	0.13	248.41	6123.81	-0.70	-0.67	-0.51	0.32	0.84	217.22
6150.00	0.14	190.28	6148.81	-0.74	-0.71	-0.54	0.53	0.89	217.28
6175.00	0.14	214.72	6173.81	-0.80	-0.76	-0.56	0.24	0.95	216.36
6200.00	0.13	279.85	6198.81	-0.82	-0.78	-0.61	0.59	0.99	217.80
6225.00	0.34	321.95	6223.80	-0.76	-0.72	-0.68	1.02	0.99	223.41
6250.00	0.48	324.41	6248.80	-0.63	-0.58	-0.79	0.57	0.98	233.73
6275.00	0.30	302.18	6273.80	-0.51	-0.46	-0.90	0.93	1.01	243.08
6300.00	0.36	304.36	6298.80	-0.44	-0.38	-1.02	0.27	1.09	249.65
6325.00	0.39	275.97	6323.80	-0.40	-0.33	-1.17	0.75	1.22	254.46
6350.00	0.42	244.83	6348.80	-0.44	-0.36	-1.34	0.88	1.39	255.11
6375.00	0.55	223.78	6373.80	-0.57	-0.48	-1.51	0.88	1.59	252.25
6400.00	0.53	216.23	6398.80	-0.76	-0.66	-1.66	0.30	1.79	248.23
6425.00	0.42	215.90	6423.80	-0.94	-0.83	-1.78	0.42	1.97	245.02
6450.00	0.53	214.58	6448.80	-1.11	-1.00	-1.90	0.42	2.15	242.27

MD ft	INC deg	AZIM deg	TVD ft	VS ft	IN/S ft	HEAW ft	DLS %/100ft	CLOSURE DIST ft	CLOSURE DIR deg
6475.00	0.61	202.36	6473.80	-1.34	-1.22	-2.02	0.59	2.36	238.88
6500.00	0.48	212.89	6498.80	-1.56	-1.43	-2.13	0.66	2.56	236.08
6525.00	0.54	209.00	6523.80	-1.75	-1.62	-2.24	0.27	2.77	234.11
6550.00	0.59	200.91	6548.79	-1.98	-1.85	-2.34	0.38	2.98	231.79
6575.00	0.69	224.64	6573.79	-2.22	-2.07	-2.50	1.12	3.25	230.29
6600.00	0.64	235.16	6598.79	-2.42	-2.26	-2.72	0.52	3.53	230.24
6625.00	0.55	232.52	6623.79	-2.58	-2.41	-2.93	0.40	3.79	230.49
6650.00	0.52	220.60	6648.79	-2.75	-2.57	-3.10	0.46	4.02	230.28
6675.00	0.84	229.73	6673.79	-2.97	-2.78	-3.31	1.35	4.32	230.00
6700.00	0.56	254.56	6698.78	-3.14	-2.93	-3.57	1.62	4.61	230.63
6725.00	0.66	244.44	6723.78	-3.25	-3.02	-3.82	0.58	4.87	231.62
6750.00	0.79	238.54	6748.78	-3.41	-3.17	-4.09	0.59	5.18	232.20
6775.00	0.77	237.24	6773.78	-3.61	-3.35	-4.38	0.11	5.52	232.55
6800.00	0.73	248.87	6798.78	-3.78	-3.50	-4.67	0.62	5.84	233.13
6825.00	0.82	242.11	6823.77	-3.94	-3.64	-4.98	0.52	6.17	233.79
6850.00	0.95	256.15	6848.77	-4.09	-3.78	-5.34	1.00	6.54	234.71
6875.00	1.12	259.93	6873.77	-4.21	-3.87	-5.78	0.74	6.96	236.19
6900.00	1.24	263.76	6898.76	-4.31	-3.94	-6.29	0.57	7.42	237.92
6925.00	1.36	265.50	6923.76	-4.40	-4.00	-6.86	0.52	7.93	239.77
6950.00	1.34	264.12	6948.75	-4.49	-4.05	-7.44	0.17	8.47	241.45
6975.00	1.25	270.01	6973.74	-4.55	-4.08	-8.01	0.64	8.98	243.00
7000.00	1.04	269.13	6998.74	-4.58	-4.08	-8.51	0.83	9.44	244.37
7025.00	0.97	266.92	7023.73	-4.63	-4.10	-8.95	0.32	9.84	245.40
7050.00	0.91	268.24	7048.73	-4.67	-4.11	-9.36	0.27	10.22	246.27
7075.00	0.82	269.44	7073.73	-4.70	-4.12	-9.74	0.37	10.57	247.05
7100.00	0.76	260.21	7098.72	-4.75	-4.15	-10.08	0.57	10.90	247.61
7125.00	0.75	286.56	7123.72	-4.75	-4.13	-10.40	1.38	11.19	248.32
7150.00	0.51	241.68	7148.72	-4.77	-4.14	-10.66	2.13	11.43	248.77
7175.00	0.49	233.05	7173.72	-4.90	-4.26	-10.84	0.32	11.64	248.56
7200.00	0.50	234.28	7198.72	-5.04	-4.38	-11.01	0.07	11.85	248.29
7225.00	0.40	211.96	7223.72	-5.18	-4.52	-11.15	0.80	12.03	247.92
7250.00	0.41	215.50	7248.72	-5.34	-4.67	-11.25	0.10	12.18	247.45

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
7275.00	0.30	200.85	7273.72	-5.47	-4.80	-11.32	0.54	12.30	247.01
7276.70	0.30	199.37	7275.42	-5.48	-4.81	-11.32	0.59	12.30	246.98

