

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised October 15, 2009

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-38524	Pool Code 5200	Pool Name Benson; Bone Spring
Property Code 38064	Property Name CRESCENT HALE "1" FEDERAL.COM	Well Number 2
GRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3515'

Surface Location

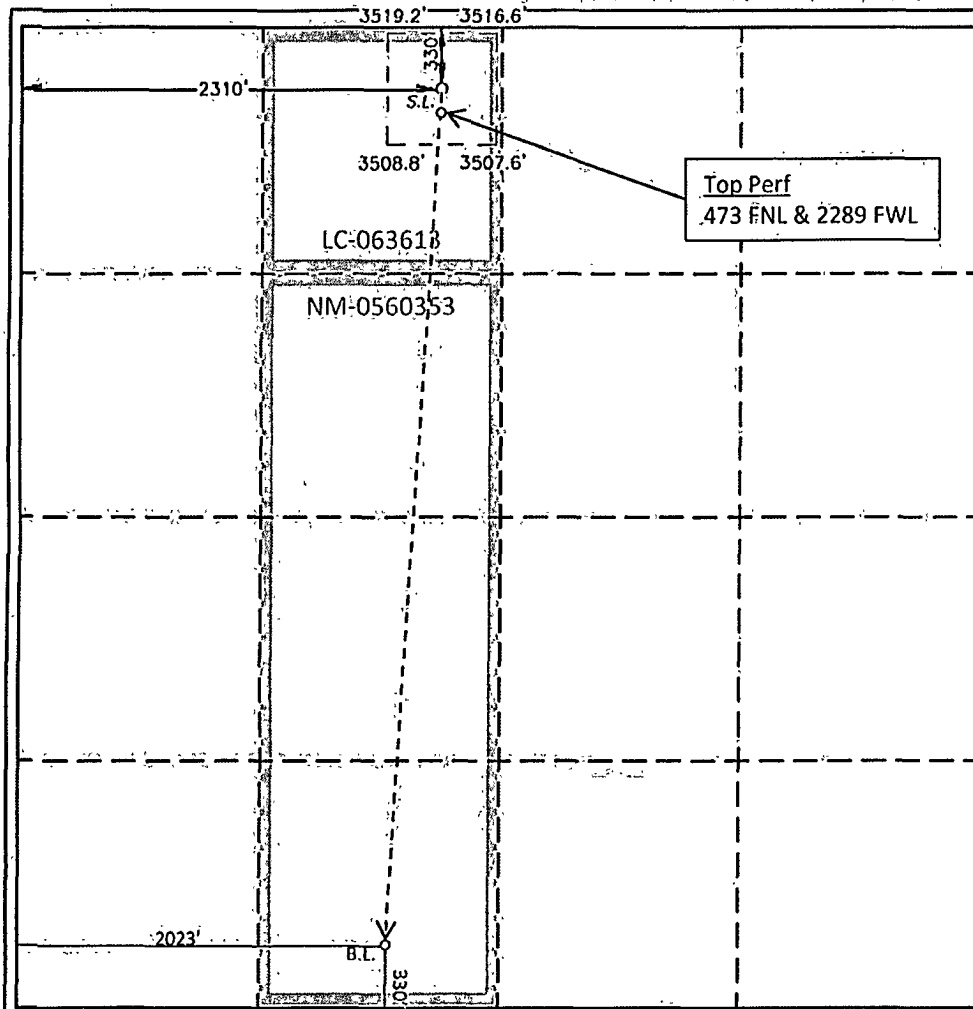
UL or lot No. C	Section 1	Township 19 S	Range 30 E	Lot Idn	Feet from the 330	North/South line NORTH	Feet from the 2310	East/West line WEST	County EDDY
--------------------	--------------	------------------	---------------	---------	----------------------	---------------------------	-----------------------	------------------------	----------------

Bottom Hole Location If Different From Surface

UL or lot No. N	Section 1	Township 19 S	Range 30 E	Lot Idn	Feet from the 330	North/South line SOUTH	Feet from the 2023	East/West line WEST	County EDDY
--------------------	--------------	------------------	---------------	---------	----------------------	---------------------------	-----------------------	------------------------	----------------

Dedicated Acres 160	Joint or Infill	Consolidation Code P	Order No.
------------------------	-----------------	-------------------------	-----------

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

	OPERATOR CERTIFICATION I hereby certify that the information contained 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <u>Natalie Krueger</u> 8/25/2011 Signature Date Natalie Krueger Printed Name 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. Date Surveyed Signature & Seal of Professional Surveyor 7977 Certificate No. Gary L. Jones 7977 BASIN SURVEYS
--	--



INTEQ

End of Well Report

Cimarex Energy Co.

Eddy County, NM

Crescent Hale 1 Fed No. 2H

Cactus 101

30 015 38524



CACTUS DRILLING COMPANY, L.L.C.

REPORT OF PROOF OF APPARENT DEVIATION
NEW MEXICO

OPERATOR CIMAREX CO OF COLORADO
600 N. MARIENFELD ST
MIDLAND, TX 79701

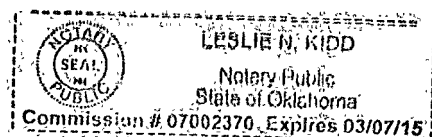
FIELD NAME _____

COUNTY/PARISH EDDY

WELL NAME & NO. CRESCENT HALE 1 FED.COM 2-

LEGAL SEC 1-19S-30E

MEASURED DEPTH (FT)	COURSE LENGTH (HUNDREDS OF FT)	ANGLE OF INCLINATION (DEGREES)	DISPLACEMENT PER HUNDRED FT (SINE OF ANGLE X 100)	COURSE DISPLACEMENT (FEET)	ACCUMULATIVE DISPLACEMENT (FEET)	REMARKS
687	6.87	1/2	0.8727	6.00	6.00	
987	3.00	1/2	0.8727	2.62	8.61	
1480	4.93	1/2	0.8727	4.30	12.92	
1880	4.00	1/2	0.8727	3.49	16.41	
2245	3.65	1/2	0.8727	3.19	19.59	
2713	4.68	1/2	0.8727	4.08	23.68	
2999	2.86	1/2	0.8727	2.50	26.17	
3488	4.89	1/2	0.8727	4.27	30.44	
3980	4.92	1/2	0.8727	4.29	34.73	
4270	2.90	1/2	0.8727	2.53	37.26	
4652	3.82	1/2	0.8727	3.33	40.60	
5045	3.93	1/2	0.8727	3.43	44.03	
5426	3.81	1/2	0.8727	3.32	47.35	
5809	3.83	1/2	0.8727	3.34	50.69	
6182	3.73	1/2	0.8727	3.25	53.95	
6565	3.83	1/2	0.8727	3.34	57.29	
6948	3.83	1/2	0.8727	3.34	60.63	
7341	3.93	1/2	0.8727	3.43	64.06	
7723	3.82	1/2	0.8727	3.33	67.40	
8106	3.83	1/2	0.8727	3.34	70.74	
8395	2.89	1/2	0.8727	2.52	73.26	



Leslie N. Kidd

P.O. Box 270848 • Oklahoma City, OK 73137-0848
(405) 577-5347 • Fax (405) 577-9306

8/25/2011

Well Specifications

Well Name: Crescent Hale 1 Fed No. 2H
Start Date: 4/2/2011
Client: Cimarex Energy Co.
Rig Name: Cactus 101
County: Eddy County, NM
Field: (Crescent) Sec 1, T19S, R30E

Well Location:

NAD83 / TM New Mexico State Planes, Eastern Zone (3001)

Grid Coordinates

Easting: 666473.20'
Northing: 617077.80'

Geographical Coordinates

Latitude: 32°41'44.628"N
Longitude: 103°55'35.595"W

RT: 3,533' above M.S.L.

Date TD Reached: 4/9/2011

Final Depth MD: 13,268'

Final Depth TVD: 8,701.89'



Cimarex Energy Co.

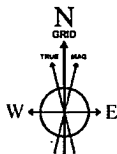
Location: Eddy County, NM
Field: (Crescent) Sec 1, T19S, R30E
Facility: Crescent Hale 1 No. 2H

Slot: No. 2H SHL
Well: No. 2H
Wellbore: No. 2H PWB



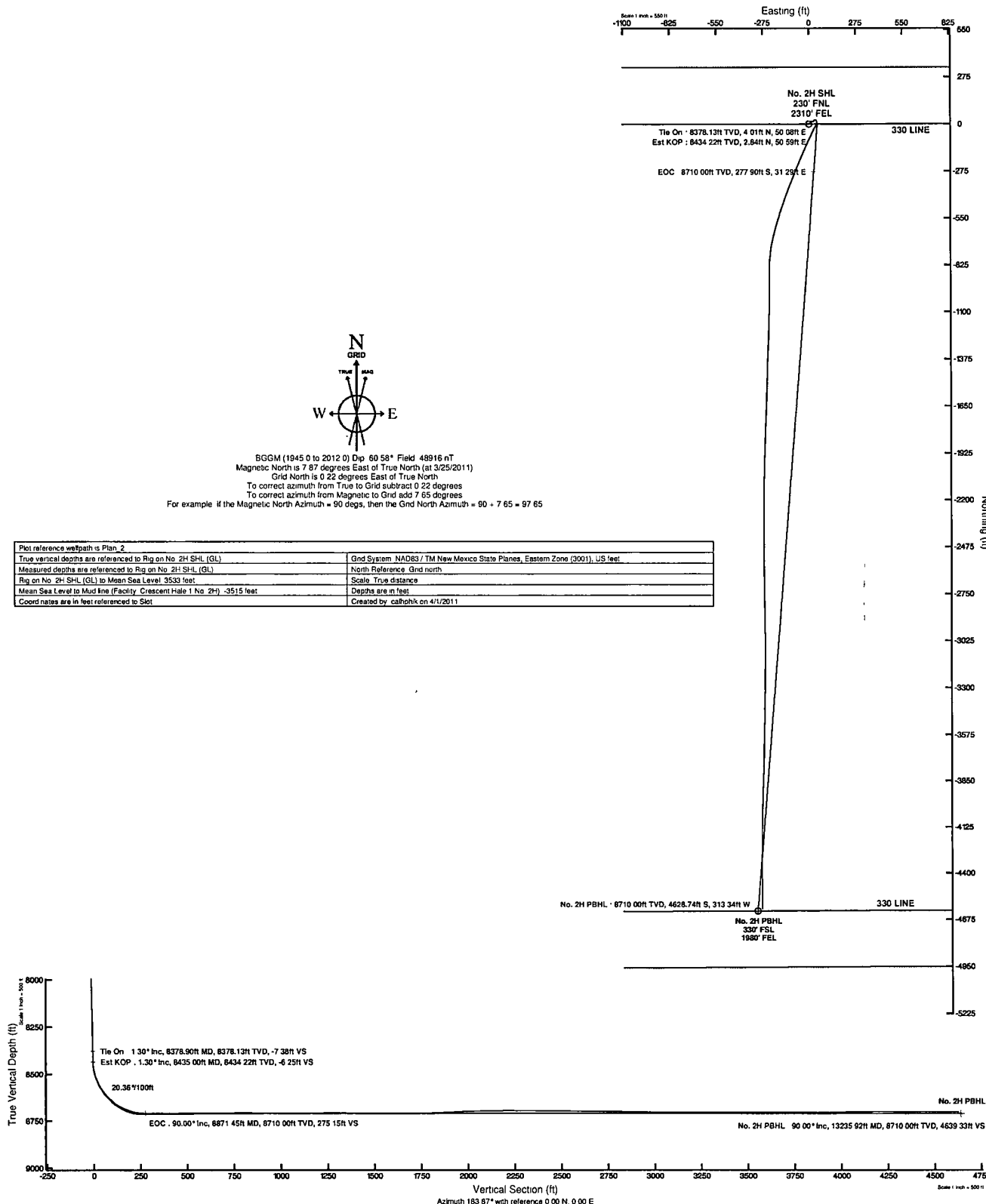
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	8378.90	1.300	156.570	8378.13	4.01	50.08	0.00	-7.38
Est KOP	8435.00	1.300	156.570	8434.22	2.84	50.59	0.00	-6.25
EOC	8871.45	90.000	184.529	8710.00	-277.90	31.29	20.36	275.15
No 2H PBHL	13235.92	90.000	184.529	8710.00	-4628.74	-313.34	0.00	4639.33



BGGM (1945.0 to 2012.0) Dip: 60.58° Field: 48916 nT
Magnetic North is 7.87 degrees East of True North (at 3/25/2011)
Grid North is 0.22 degrees East of True North
To correct azimuth from True to Grid subtract 0.22 degrees
To correct azimuth from Magnetic to Grid add 7.65 degrees
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.65 = 97.65

Plot reference wellpath is Plan 2	
True vertical depths are referenced to Rig on No. 2H SHL (GL)	Grid System: NAD83 / TM New Mexico State Planes, Eastern Zone (3001), U.S. feet
Measured depths are referenced to Rig on No. 2H SHL (GL)	North Reference: Grid north
Rig on No. 2H SHL (GL) to Mean Sea Level: 3533 feet	Scale: True distance
Mean Sea Level to Mudline (Facility: Crescent Hale 1 No. 2H): -3515 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: calphsk on 4/1/2011





Actual Wellpath Report

No. 2 AWP

Page 1 of 5



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 1, T19S, R30E	Wellbore	No. 2 AWB
Facility	Crescent Hale 1 No. 2H		

REPORT SETUP INFORMATION			
Projection System	NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Calhphik
Scale	0.999927	Report Generated	4/11/2011 at 4:36:44 PM
Convergence at slot	0.22° East	Database/Source file	WA Midland/No. 2_AWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[USft]	Northing[USft]	Latitude	Longitude
Slot Location	0.00	0.00	666473.20	617077.80	32°41'44.628"N	103°55'35.595"W
Facility Reference Pt			666473.20	617077.80	32°41'44.628"N	103°55'35.595"W
Field Reference Pt			664708.10	613101.90	32°41'05.353"N	103°55'56.426"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 2H SHL (GL) to GL	18.00ft
Horizontal Reference Pt	Slot	Rig on No. 2H SHL (GL) to Mean Sea Level	3533.00ft
Vertical Reference Pt	Rig on No. 2H SHL (GL)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 2H SHL (GL)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	183.87°



Actual Wellpath Report

No. 2 AWP

Page 2 of 5



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 1, T19S, R30E	Wellbore	No. 2 AWB
Facility	Crescent Hale 1 No. 2H		

WELLPATH DATA (155 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	19.260	0.00	0.00	0.00	0.00	666473.20	617077.80	32°41'44.628"N	103°55'35.595"W	0.00	
97.10	0.320	19.260	97.10	-0.26	0.26	0.09	666473.29	617078.06	32°41'44.631"N	103°55'35.594"W	0.33	
184.20	0.320	22.210	184.20	-0.73	0.71	0.26	666473.46	617078.51	32°41'44.635"N	103°55'35.592"W	0.02	
273.40	0.270	16.430	273.40	-1.17	1.14	0.42	666473.62	617078.94	32°41'44.639"N	103°55'35.590"W	0.07	
363.70	0.180	307.710	363.70	-1.46	1.43	0.36	666473.56	617079.23	32°41'44.642"N	103°55'35.591"W	0.29	
452.60	0.600	264.490	452.59	-1.46	1.47	-0.21	666472.99	617079.27	32°41'44.643"N	103°55'35.597"W	0.55	
542.50	0.710	268.920	542.49	-1.33	1.42	-1.24	666471.96	617079.22	32°41'44.642"N	103°55'35.609"W	0.13	
632.80	0.720	268.500	632.78	-1.23	1.39	-2.36	666470.84	617079.19	32°41'44.642"N	103°55'35.622"W	0.01	
728.50	0.700	263.020	728.47	-1.06	1.31	-3.54	666469.66	617079.11	32°41'44.641"N	103°55'35.636"W	0.07	
824.10	0.580	257.440	824.07	-0.82	1.13	-4.60	666468.60	617078.93	32°41'44.639"N	103°55'35.649"W	0.14	
919.70	0.450	248.530	919.66	-0.52	0.89	-5.42	666467.78	617078.69	32°41'44.637"N	103°55'35.658"W	0.16	
1015.30	0.450	244.890	1015.26	-0.18	0.59	-6.11	666467.09	617078.39	32°41'44.634"N	103°55'35.666"W	0.03	
1111.00	0.280	243.340	1110.96	0.12	0.33	-6.66	666466.54	617078.13	32°41'44.632"N	103°55'35.673"W	0.18	
1206.60	0.060	210.750	1206.56	0.29	0.18	-6.89	666466.31	617077.98	32°41'44.630"N	103°55'35.675"W	0.24	
1302.20	0.190	178.360	1302.16	-0.29	0.17	-6.76	666466.44	617077.97	32°41'44.630"N	103°55'35.674"W	0.25	
1397.90	0.490	73.580	1397.86	0.10	0.32	-6.21	666466.99	617078.12	32°41'44.631"N	103°55'35.668"W	0.31	
1493.50	0.650	72.170	1493.45	-0.24	0.60	-5.30	666467.90	617078.40	32°41'44.634"N	103°55'35.657"W	0.17	
1589.10	0.800	68.500	1589.04	-0.72	1.01	-4.17	666469.03	617078.81	32°41'44.638"N	103°55'35.644"W	0.16	
1684.80	1.070	66.210	1684.73	-1.43	1.61	-2.73	666470.47	617079.41	32°41'44.644"N	103°55'35.627"W	0.28	
1780.40	1.620	71.860	1780.30	-2.35	2.39	-0.63	666472.57	617080.19	32°41'44.652"N	103°55'35.602"W	0.59	
1876.00	1.970	74.710	1875.86	-3.39	3.25	2.24	666475.44	617081.05	32°41'44.660"N	103°55'35.568"W	0.38	
1971.60	1.980	73.530	1971.40	-4.51	4.15	5.41	666478.61	617081.95	32°41'44.669"N	103°55'35.531"W	0.04	
2067.30	1.660	70.350	2067.05	-5.63	5.08	8.30	666481.50	617082.88	32°41'44.678"N	103°55'35.497"W	0.35	
2162.90	1.310	62.690	2162.62	-6.75	6.05	10.58	666483.78	617083.85	32°41'44.688"N	103°55'35.471"W	0.42	
2258.50	1.160	60.790	2258.20	-7.85	7.02	12.39	666485.59	617084.82	32°41'44.697"N	103°55'35.450"W	0.16	
2354.20	0.670	55.560	2353.89	-8.72	7.81	13.70	666486.90	617085.61	32°41'44.705"N	103°55'35.434"W	0.52	
2449.80	0.420	59.280	2449.48	-9.27	8.31	14.46	666487.66	617086.11	32°41'44.710"N	103°55'35.425"W	0.26	
2545.40	0.200	34.410	2545.08	-9.61	8.63	14.86	666488.06	617086.43	32°41'44.713"N	103°55'35.421"W	0.26	
2641.10	0.110	10.350	2640.78	-9.84	8.85	14.97	666488.17	617086.65	32°41'44.715"N	103°55'35.419"W	0.11	
2736.70	0.130	352.040	2736.38	-10.04	9.05	14.97	666488.17	617086.85	32°41'44.717"N	103°55'35.419"W	0.04	
2832.30	0.050	24.140	2831.98	-10.19	9.20	14.97	666488.17	617087.00	32°41'44.719"N	103°55'35.419"W	0.10	
2927.90	0.060	159.600	2927.58	-10.18	9.19	15.01	666488.20	617086.99	32°41'44.718"N	103°55'35.419"W	0.11	
3023.60	0.060	115.580	3023.28	-10.12	9.12	15.07	666488.27	617086.92	32°41'44.718"N	103°55'35.418"W	0.05	
3119.20	0.040	90.460	3118.88	-10.10	9.10	15.15	666488.35	617086.90	32°41'44.718"N	103°55'35.417"W	0.03	
3214.80	0.100	307.560	3214.48	-10.15	9.15	15.11	666488.31	617086.95	32°41'44.718"N	103°55'35.418"W	0.14	
3310.50	0.110	328.570	3310.18	-10.27	9.28	15.00	666488.20	617087.08	32°41'44.719"N	103°55'35.419"W	0.04	
3406.10	0.170	329.670	3405.78	-10.46	9.48	14.88	666488.08	617087.28	32°41'44.721"N	103°55'35.420"W	0.06	
3501.70	0.280	332.570	3501.38	-10.78	9.81	14.70	666487.90	617087.61	32°41'44.725"N	103°55'35.422"W	0.12	
3597.30	0.200	355.290	3596.98	-11.14	10.18	14.58	666487.78	617087.98	32°41'44.728"N	103°55'35.424"W	0.13	
3693.00	0.190	19.310	3692.68	-11.46	10.50	14.62	666487.82	617088.30	32°41'44.731"N	103°55'35.423"W	0.09	
3788.60	0.090	57.060	3788.28	-11.66	10.69	14.73	666487.93	617088.49	32°41'44.733"N	103°55'35.422"W	0.14	
3884.20	0.180	31.960	3883.88	-11.84	10.86	14.88	666488.08	617088.66	32°41'44.735"N	103°55'35.420"W	0.11	
3979.90	0.180	30.810	3979.58	-12.10	11.11	15.03	666488.23	617088.91	32°41'44.737"N	103°55'35.418"W	0.00	
4075.50	0.370	64.510	4075.17	-12.39	11.38	15.39	666488.59	617089.17	32°41'44.740"N	103°55'35.414"W	0.25	
4171.10	0.430	68.480	4170.77	-12.69	11.64	16.00	666489.20	617089.44	32°41'44.743"N	103°55'35.407"W	0.07	



Actual Wellpath Report

No. 2 AWP

Page 3 of 5



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 1, T19S, R30E	Wellbore	No. 2 AWB
Facility	Crescent Hale 1 No. 2H		

WELLPATH DATA (155 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4266.80	0.460	73.250	4266.47	-12.98	11.88	16.70	666489.90	617089.68	32°41'44.745"N	103°55'35.399"W	0.05	
4362.40	0.500	72.940	4362.07	-13.27	12.12	17.47	666490.67	617089.91	32°41'44.747"N	103°55'35.390"W	0.04	
4458.00	0.530	75.510	4457.66	-13.56	12.35	18.30	666491.50	617090.15	32°41'44.750"N	103°55'35.380"W	0.04	
4553.60	0.560	77.980	4553.26	-13.82	12.56	19.18	666492.38	617090.36	32°41'44.752"N	103°55'35.370"W	0.04	
4649.30	0.600	76.790	4648.95	-14.10	12.77	20.13	666493.33	617090.57	32°41'44.754"N	103°55'35.359"W	0.04	
4744.90	0.730	87.190	4744.55	-14.32	12.91	21.22	666494.42	617090.71	32°41'44.755"N	103°55'35.346"W	0.19	
4840.50	0.930	86.100	4840.14	-14.49	12.99	22.60	666495.80	617090.79	32°41'44.756"N	103°55'35.330"W	0.21	
4936.20	0.990	85.250	4935.82	-14.72	13.12	24.20	666497.40	617090.92	32°41'44.757"N	103°55'35.311"W	0.06	
5031.80	0.910	94.600	5031.41	-14.83	13.12	25.78	666498.98	617090.92	32°41'44.757"N	103°55'35.293"W	0.18	
5127.40	0.740	83.820	5127.00	-14.93	13.13	27.15	666500.35	617090.93	32°41'44.757"N	103°55'35.276"W	0.24	
5223.10	0.780	88.490	5222.69	-15.10	13.21	28.42	666501.62	617091.01	32°41'44.758"N	103°55'35.262"W	0.08	
5318.70	0.660	119.440	5318.28	-14.93	12.96	29.55	666502.75	617090.76	32°41'44.755"N	103°55'35.248"W	0.42	
5414.30	0.830	133.600	5413.88	-14.25	12.21	30.53	666503.73	617090.01	32°41'44.748"N	103°55'35.237"W	0.26	
5509.90	0.380	142.750	5509.47	-13.56	11.48	31.22	666504.42	617089.28	32°41'44.740"N	103°55'35.229"W	0.48	
5605.60	0.060	213.540	5605.17	-13.28	11.19	31.39	666504.59	617088.99	32°41'44.738"N	103°55'35.227"W	0.38	
5701.20	0.220	301.820	5700.77	-13.32	11.24	31.20	666504.40	617089.04	32°41'44.738"N	103°55'35.229"W	0.24	
5796.80	0.390	311.460	5796.37	-13.61	11.55	30.80	666504.00	617089.35	32°41'44.741"N	103°55'35.234"W	0.19	
5892.50	0.520	326.060	5892.07	-14.15	12.13	30.32	666503.52	617089.93	32°41'44.747"N	103°55'35.240"W	0.18	
5988.10	0.540	340.330	5987.66	-14.91	12.91	29.92	666503.12	617090.71	32°41'44.755"N	103°55'35.244"W	0.14	
6083.70	0.620	355.680	6083.26	-15.83	13.85	29.73	666502.93	617091.65	32°41'44.764"N	103°55'35.246"W	0.18	
6179.40	0.680	6.050	6178.95	-16.91	14.94	29.75	666502.95	617092.73	32°41'44.775"N	103°55'35.246"W	0.14	
6275.00	0.800	10.260	6274.54	-18.14	16.16	29.93	666503.13	617093.95	32°41'44.787"N	103°55'35.244"W	0.14	
6370.60	0.770	22.660	6370.13	-19.41	17.41	30.30	666503.50	617095.20	32°41'44.799"N	103°55'35.239"W	0.18	
6466.30	0.760	34.610	6465.82	-20.57	18.52	30.91	666504.11	617096.32	32°41'44.810"N	103°55'35.232"W	0.17	
6561.90	0.670	45.190	6561.42	-21.53	19.44	31.66	666504.86	617097.24	32°41'44.819"N	103°55'35.223"W	0.17	
6657.50	0.890	65.370	6657.01	-22.31	20.14	32.74	666505.93	617097.94	32°41'44.826"N	103°55'35.211"W	0.36	
6753.10	0.990	76.600	6752.60	-22.90	20.64	34.21	666507.41	617098.44	32°41'44.831"N	103°55'35.194"W	0.22	
6848.80	0.960	75.270	6848.28	-23.41	21.04	35.79	666508.99	617098.84	32°41'44.835"N	103°55'35.175"W	0.04	
6944.40	0.830	70.810	6943.87	-23.93	21.47	37.22	666510.42	617099.27	32°41'44.839"N	103°55'35.158"W	0.15	
7040.00	1.030	67.650	7039.46	-24.58	22.02	38.67	666511.87	617099.82	32°41'44.845"N	103°55'35.141"W	0.22	
7135.70	1.160	88.150	7135.14	-25.06	22.38	40.43	666513.63	617100.18	32°41'44.848"N	103°55'35.121"W	0.43	
7231.30	1.030	97.490	7230.72	-25.10	22.30	42.25	666515.45	617100.10	32°41'44.847"N	103°55'35.099"W	0.23	
7326.90	0.760	120.250	7326.31	-24.77	21.87	43.65	666516.85	617099.67	32°41'44.843"N	103°55'35.083"W	0.46	
7422.60	0.630	143.940	7422.00	-24.08	21.12	44.51	666517.71	617098.92	32°41'44.835"N	103°55'35.073"W	0.33	
7518.20	0.930	147.620	7517.60	-23.05	20.04	45.24	666518.43	617097.84	32°41'44.825"N	103°55'35.065"W	0.32	
7613.80	1.190	157.080	7613.18	-21.54	18.47	46.04	666519.23	617096.27	32°41'44.809"N	103°55'35.055"W	0.33	
7709.40	1.170	161.960	7708.76	-19.75	16.63	46.73	666519.92	617094.43	32°41'44.791"N	103°55'35.047"W	0.11	
7805.10	1.090	165.150	7804.44	-17.98	14.82	47.26	666520.46	617092.62	32°41'44.773"N	103°55'35.041"W	0.11	
7900.70	1.000	173.940	7900.02	-16.30	13.11	47.58	666520.78	617090.91	32°41'44.756"N	103°55'35.037"W	0.19	
7996.30	1.120	164.250	7995.61	-14.60	11.39	47.93	666521.12	617089.18	32°41'44.739"N	103°55'35.034"W	0.23	
8092.00	1.240	172.690	8091.29	-12.70	9.46	48.31	666521.51	617087.26	32°41'44.720"N	103°55'35.029"W	0.22	
8187.60	0.930	167.870	8186.87	-10.94	7.67	48.61	666521.80	617085.47	32°41'44.702"N	103°55'35.026"W	0.34	
8283.20	1.260	155.280	8282.45	-9.27	5.96	49.21	666522.40	617083.76	32°41'44.685"N	103°55'35.019"W	0.43	
8378.90	1.300	156.570	8378.13	-7.38	4.01	50.08	666523.28	617081.81	32°41'44.666"N	103°55'35.009"W	0.05	
8384.00	1.700	221.000	8383.23	-7.27	3.90	50.05	666523.25	617081.70	32°41'44.665"N	103°55'35.009"W	32.05	



Actual Wellpath Report

No. 2 AWP

Page 4 of 5



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 1, T19S, R30E	Wellbore	No. 2 AWB
Facility	Crescent Hale 1 No. 2H		

WELLPATH DATA (155 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8416.00	1.700	241.400	8415.21	-6.64	3.31	49.33	666522.52	617081.11	32°41'44.659"N	103°55'35.017"W	1.88	
8448.00	4.600	209.700	8447.16	-5.23	1.97	48.27	666521.47	617079.77	32°41'44.646"N	103°55'35.030"W	10.24	
8480.00	11.200	201.300	8478.84	-1.10	-2.04	46.51	666519.70	617075.76	32°41'44.606"N	103°55'35.051"W	20.88	
8512.00	17.100	210.000	8509.86	6.09	-9.02	43.02	666516.22	617068.78	32°41'44.537"N	103°55'35.092"W	19.55	
8544.00	23.300	207.900	8539.88	16.11	-18.70	37.70	666510.90	617059.10	32°41'44.442"N	103°55'35.154"W	19.50	
8576.00	30.200	208.600	8568.44	29.22	-31.37	30.88	666504.08	617046.43	32°41'44.316"N	103°55'35.235"W	21.58	
8608.00	36.800	205.200	8595.11	45.47	-47.13	22.94	666496.14	617030.67	32°41'44.161"N	103°55'35.329"W	21.44	
8640.00	43.100	203.900	8619.63	64.69	-65.82	14.42	666487.62	617011.99	32°41'43.976"N	103°55'35.429"W	19.86	
8672.00	47.300	207.900	8642.18	85.72	-86.22	4.48	666477.68	616991.59	32°41'43.775"N	103°55'35.546"W	15.84	
8704.00	53.500	204.100	8662.57	108.55	-108.38	-6.29	666466.91	616969.43	32°41'43.556"N	103°55'35.673"W	21.42	
8734.00	60.000	203.200	8679.01	132.15	-131.35	-16.34	666456.86	616946.46	32°41'43.329"N	103°55'35.792"W	21.81	
8766.00	66.600	204.000	8693.38	159.04	-157.53	-27.78	666445.42	616920.28	32°41'43.071"N	103°55'35.927"W	20.75	
8797.00	73.100	203.400	8704.05	186.41	-184.16	-39.47	666433.73	616893.65	32°41'42.807"N	103°55'36.065"W	21.05	
8821.00	78.300	203.400	8709.98	208.32	-205.50	-48.70	666424.50	616872.32	32°41'42.597"N	103°55'36.174"W	21.67	
8829.00	80.100	203.100	8711.48	215.73	-212.72	-51.81	666421.40	616865.10	32°41'42.525"N	103°55'36.211"W	22.80	
8861.00	88.400	203.000	8714.68	245.78	-241.99	-64.26	666408.94	616835.83	32°41'42.236"N	103°55'36.358"W	25.94	
8893.00	89.400	202.000	8715.30	276.09	-271.55	-76.50	666396.70	616806.27	32°41'41.944"N	103°55'36.502"W	4.42	
8956.00	89.600	201.900	8715.85	335.98	-329.98	-100.05	666373.15	616747.85	32°41'41.367"N	103°55'36.780"W	0.35	
9052.00	90.700	200.500	8715.59	427.62	-419.48	-134.77	666338.44	616658.35	32°41'40.483"N	103°55'37.191"W	1.85	
9148.00	91.300	198.600	8713.92	520.03	-509.92	-166.89	666306.33	616567.91	32°41'39.589"N	103°55'37.570"W	2.08	
9244.00	91.900	196.500	8711.24	613.27	-601.42	-195.82	666277.39	616476.43	32°41'38.685"N	103°55'37.913"W	2.27	
9339.00	90.800	191.100	8709.00	706.78	-693.61	-218.46	666254.75	616384.24	32°41'37.774"N	103°55'38.182"W	5.80	
9435.00	89.900	185.400	8708.41	802.46	-788.58	-232.23	666240.98	616289.28	32°41'36.834"N	103°55'38.348"W	6.01	
9530.00	89.200	179.800	8709.16	897.40	-883.44	-236.54	666236.68	616194.43	32°41'35.896"N	103°55'38.402"W	5.94	
9626.00	89.200	179.600	8710.50	993.13	-979.43	-236.04	666237.18	616098.45	32°41'34.946"N	103°55'38.401"W	0.21	
9687.00	90.300	180.300	8710.77	1053.99	-1040.42	-235.99	666237.23	616037.45	32°41'34.343"N	103°55'38.403"W	2.14	
9722.00	90.700	181.100	8710.46	1088.93	-1075.42	-236.41	666236.80	616002.46	32°41'33.996"N	103°55'38.409"W	2.56	
9817.00	90.900	181.900	8709.13	1183.84	-1170.38	-238.90	666234.32	615907.51	32°41'33.057"N	103°55'38.443"W	0.87	
9913.00	90.100	181.900	8708.30	1279.78	-1266.32	-242.08	666231.14	615811.57	32°41'32.108"N	103°55'38.484"W	0.83	
10009.00	89.000	182.600	8709.05	1375.74	-1362.24	-245.85	666227.37	615715.66	32°41'31.159"N	103°55'38.533"W	1.36	
10105.00	88.600	181.700	8711.06	1471.67	-1458.15	-249.45	666223.77	615619.76	32°41'30.210"N	103°55'38.579"W	1.03	
10201.00	89.300	181.700	8712.82	1567.58	-1554.09	-252.30	666220.92	615523.82	32°41'29.261"N	103°55'38.617"W	0.73	
10297.00	91.200	181.700	8712.40	1663.51	-1650.05	-255.15	666218.07	615427.88	32°41'28.312"N	103°55'38.654"W	1.98	
10390.00	91.800	182.600	8709.97	1756.43	-1742.95	-258.63	666214.58	615334.98	32°41'27.393"N	103°55'38.699"W	1.16	
10485.00	92.400	181.600	8706.48	1851.32	-1837.82	-262.11	666211.11	615240.12	32°41'26.454"N	103°55'38.744"W	1.23	
10581.00	92.200	181.900	8702.63	1947.18	-1933.70	-265.04	666208.18	615144.25	32°41'25.505"N	103°55'38.783"W	0.38	
10677.00	91.300	181.300	8699.70	2043.06	-2029.61	-267.72	666205.50	615048.34	32°41'24.557"N	103°55'38.818"W	1.13	
10772.00	91.300	181.500	8697.54	2137.95	-2124.56	-270.04	666203.18	614953.40	32°41'23.617"N	103°55'38.850"W	0.21	
10868.00	89.600	179.800	8696.79	2233.78	-2220.54	-271.13	666202.09	614857.42	32°41'22.668"N	103°55'38.867"W	2.50	
10963.00	89.600	180.400	8697.45	2328.58	-2315.54	-271.30	666201.92	614762.43	32°41'21.728"N	103°55'38.873"W	0.63	
11059.00	89.700	179.900	8698.04	2424.37	-2411.54	-271.55	666201.67	614666.44	32°41'20.778"N	103°55'38.880"W	0.53	
11155.00	89.300	180.000	8698.88	2520.14	-2507.53	-271.46	666201.76	614570.45	32°41'19.828"N	103°55'38.884"W	0.43	
11250.00	89.100	179.500	8700.20	2614.89	-2602.52	-271.05	666202.17	614475.47	32°41'18.888"N	103°55'38.883"W	0.57	
11346.00	89.800	179.300	8701.13	2710.59	-2698.51	-270.04	666203.18	614379.49	32°41'17.938"N	103°55'38.876"W	0.76	
11442.00	89.500	179.200	8701.71	2806.27	-2794.50	-268.79	666204.43	614283.51	32°41'16.989"N	103°55'38.865"W	0.33	



Actual Wellpath Report

No. 2 AWP

Page 5 of 5



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 1, T19S, R30E	Wellbore	No. 2 AWB
Facility	Crescent Hale 1 No. 2H		

WELLPATH DATA (155 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11538.00	89.000	178.900	8702.97	2901.93	-2890.48	-267.20	666206.02	614187.54	32°41'16.039"N	103°55'38.851"W	0.61	
11633.00	89.800	179.700	8703.96	2996.62	-2985.47	-266.04	666207.18	614092.56	32°41'15.099"N	103°55'38.841"W	1.19	
11729.00	89.500	179.700	8704.55	3092.36	-3081.46	-265.53	666207.69	613996.57	32°41'14.149"N	103°55'38.840"W	0.31	
11825.00	90.000	180.700	8704.97	3188.16	-3177.46	-265.87	666207.35	613900.58	32°41'13.199"N	103°55'38.848"W	1.16	
11921.00	89.900	180.700	8705.05	3284.01	-3273.45	-267.04	666206.18	613804.59	32°41'12.250"N	103°55'38.866"W	0.10	
12017.00	89.900	180.600	8705.22	3379.86	-3369.45	-268.13	666205.09	613708.61	32°41'11.300"N	103°55'38.883"W	0.10	
12113.00	90.100	181.100	8705.22	3475.73	-3465.44	-269.55	666203.67	613612.62	32°41'10.350"N	103°55'38.904"W	0.56	
12209.00	89.900	181.100	8705.22	3571.62	-3561.42	-271.40	666201.82	613516.65	32°41'09.400"N	103°55'38.930"W	0.21	
12305.00	90.000	181.500	8705.30	3667.52	-3657.39	-273.58	666199.64	613420.68	32°41'08.451"N	103°55'38.960"W	0.43	
12400.00	90.000	181.600	8705.30	3762.44	-3752.36	-276.15	666197.08	613325.72	32°41'07.511"N	103°55'38.994"W	0.11	
12496.00	90.300	182.000	8705.05	3858.38	-3848.31	-279.16	666194.06	613229.78	32°41'06.562"N	103°55'39.034"W	0.52	
12592.00	90.600	181.500	8704.30	3954.31	-3944.26	-282.09	666191.13	613133.83	32°41'05.613"N	103°55'39.072"W	0.61	
12688.00	90.700	181.200	8703.21	4050.21	-4040.23	-284.35	666188.87	613037.87	32°41'04.663"N	103°55'39.103"W	0.33	
12783.00	90.600	181.000	8702.13	4145.09	-4135.21	-286.18	666187.04	612942.90	32°41'03.724"N	103°55'39.129"W	0.24	
12879.00	90.500	180.600	8701.21	4240.95	-4231.19	-287.52	666185.70	612846.93	32°41'02.774"N	103°55'39.149"W	0.43	
12975.00	90.300	180.200	8700.54	4336.77	-4327.19	-288.19	666185.03	612750.94	32°41'01.824"N	103°55'39.161"W	0.47	
13070.00	89.900	180.100	8700.37	4431.57	-4422.19	-288.44	666184.78	612655.95	32°41'00.884"N	103°55'39.168"W	0.43	
13166.00	89.400	179.500	8700.96	4527.32	-4518.18	-288.10	666185.12	612559.96	32°40'59.935"N	103°55'39.168"W	0.81	
13212.00	89.500	179.200	8701.40	4573.18	-4564.18	-287.58	666185.64	612513.96	32°40'59.479"N	103°55'39.164"W	0.69	
13268.00	89.500	179.200	8701.89	4628.99	-4620.17	-286.80	666186.42	612457.98	32°40'58.925"N	103°55'39.158"W	0.00	Project to Bit

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 2H PBHL		8710.00	-4628.74	-313.32	666159.90	612449.41	32°40'58.842"N	103°55'39.468"W	point

WELLPATH COMPOSITION					Ref Wellbore: No. 2 AWB	Ref Wellpath: No. 2 AWP
Start MD [ft]	End MD [ft]	Positional Uncertainty Model			Log Name/Comment	Wellbore
0.00	8378.90	Generic gyro - northseeking (Standard)			Gyro	No. 2 AWB
8378.90	13268.00	NaviTrak (Standard)			MWD	No. 2 AWB



KB - 19' above GL

Cimarex Energy Co. of Colorado

Crescent Hale 1 Fed Com 2H

SHL - 330' FNL & 2310' FWL

BHL - 330' FSL & 1980' FWL

Sec 1, T-19-S, R-30-E, Eddy Co., NM

M. Ketter

05/3/2011

13-3/8 48# H40 csg @ 520'
cmtd w/ 520 sx, cmt circ

TOC 5 1/2" csg @ 2464' (TS)

9-5/8" 40# J55 csg @ 4020'
cmtd w/ 1400 sx, cmt circ

Quantity	Description	Length	Setting Depth
	KB	18	18
1	Submersible Hanger	0.50	18.50
1	2-7/8" x 4' L80 Tbg Sub	4.10	22.60
257	2-7/8" 6.5# L-80 8rd EUE Tbg	8140.57	8163.17
1	2-7/8" x 4' L80 Tbg Sub	4.10	8167.27
1	SLB Pump	80.00	8247.27
1	SLB Intake	6.30	8253.57
1	SLB Protector	3.50	8257.07
1	SLB Motor	26.90	8283.97
1	SLB Phoenix	3.00	8286.97
1	Cavins Desander	4.80	8291.77
2	2-7/8" 6.5# L-80 8rd EUE Tbg w/Bull Plug	63.58	8355.35
	Total String Length	8337.35	

Centralift ESP Assy @ 8163'

2nd Bone Spring Perfs 8,749'-13,213' MD

KOP @ 8435'

PBTD @ 13,220' (MD)
TD @ 13,268' (MD); 8,702' (TVD)
5-1/2" 17# P119 @ 13268'
cmtd w/ ? sxs, TOC @ 2464' (TS)