



Corporate Office
1775 Sherman Street, #3000
Denver, Colorado 80203
303.860.5800
www.pdce.com

July 17, 2017

Noble Energy, Inc.
1625 Broadway St., Suite 2200
Denver, CO 80202

RECEIVED
JUL 17 2017

Re: **Stimulation Setback Consent, Rule 317.s.**
Thistle Down 31G-402
NESW Section 31, T5N-R64W
Weld County, Colorado

To Whom It May Concern,

PDC Energy, Inc. ("PDC") hereby requests a GWA Minimum Interwell Distance waiver from Noble Energy, Inc., the offset operator of the following wells that are estimated to be closer than 150' to the subject well.

Thistle Down B31-32D (05-123-30077) located in the NWSW Section 31, T5N-R64W (50' away)
Thistle Down B31-20D (05-123-30792) located in the SENW Section 31, T5N-R64W (120' away)
Schmier B32-32 (05-123-29039) located in the SWNW Section 32, T5N-R64W (143' away)
Gemini UPRR B31-12 (05-123-13713) located in the NWSW Section 31, T5N-R64W (118' away)

Pursuant to the following Colorado Oil and Gas Conservation Commission ("COGCC") Rule 317.s.

Statewide Fracture Stimulation Setback: No portion of a proposed wellbore's treated interval shall be located within 150 feet of an existing (producing, shut-in, or temporarily abandoned) or permitted oil and gas wellbore's treated interval belonging to another operator without the signed and written consent of the operator of the encroached upon wellbore. The signed written consent shall be attached to the Application for Permit-to-Drill, Form 2 for the proposed wellbore.

The following BMP will be applied to the permit: Prior to drilling operations, Operator will perform an anti-collision scan of existing offset wells that have the potential of being within close proximity of the proposed well. This anti-collision scan will include definitive MWD or gyro surveys of the offset wells with included error of uncertainty per survey instrument, and compared against the proposed wellpath with its respective error of uncertainty. If current surveys do not exist for the offset wells, Operator may have gyro surveys conducted to verify bottomhole location. The proposed well will only be drilled if the anti-collision scan results indicate that there is not a risk for collision, or harm to people or the environment. For the proposed well, upon conclusion of drilling operations, an as-constructed gyro survey will be submitted to COGCC with the Form 5.



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Sincerely,

Venessa Chase

Venessa Chase
Wattenberg Permitting Supervisor
PDC Energy, Inc.

As the offset operator or a designated representative thereof, I understand that the subject well will be potentially drilled and stimulated within 150' of the offset well listed above. I hereby give my consent for the subject well.

OPERATOR: NOBLE ENERGY, INC.

Mari Gillman JMB

Signature

7/26/17

Date

Mari Gillman Attorney-in-Fact

Name, Title

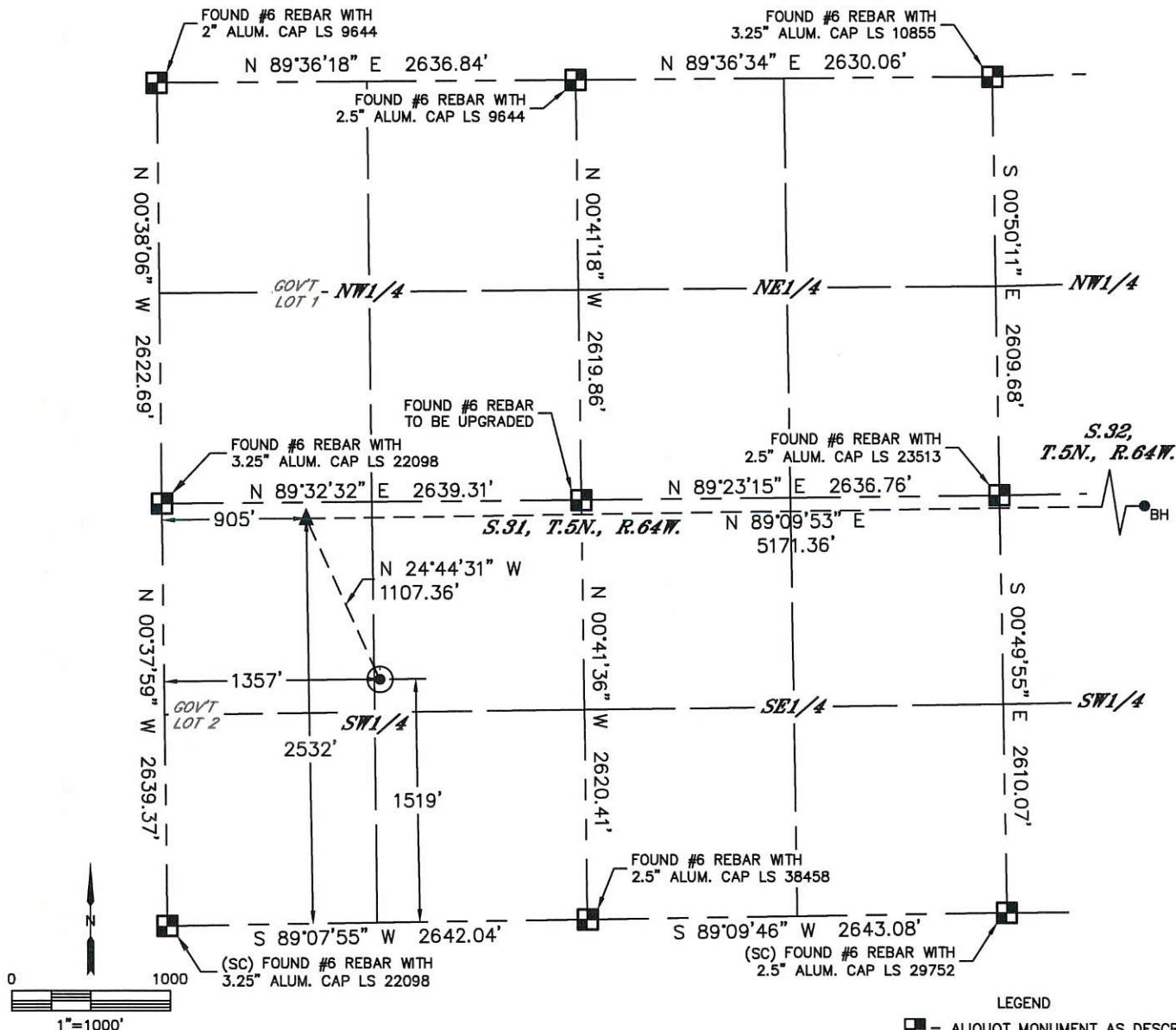


Lat40°, Inc. 6250 W. 10th Street, Unit 2, Greeley, CO 970-515-5294

WELL LOCATION CERTIFICATE

THISTLE DOWN 31G-402

SECTION: 31
TOWNSHIP: 5N
RANGE: 64W
6TH. P.M.
WELD COUNTY, CO



CLIENT: PDC ENERGY, INC.				LANDMAN: JEFF HINDMARSH			
INSTRUMENT OPERATOR: DAVID BRANDON				SURVEY DATE: 5/23/2017		SURFACE USE: RANGELAND	
SHL FOOTAGE	SHL LAT°	SHL LONG°	SHL PDOP	SHL ELEV (FT.)	SHL 1/4/1/4	SHL S-T-R	
1519 FSL 1357 FWL	40.35260	-104.59717	2.6	4805	NESW	31-5-64	

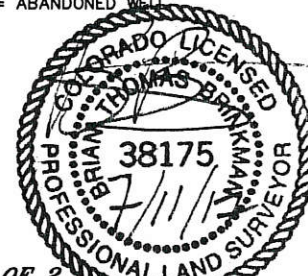
BHL FOOTAGE	BHL LAT°	BHL LONG°	BHL S-T-R	EP LAT°	EP LONG°	EP S-T-R
2532 FSL 800 FWL	40.35544	-104.58024	32-5-64	40.35537	-104.59879	31-5-64

NOTE:

- 1) Bearings shown are Grid Bearings of the Colorado State Plane Coordinate System, North Zone, North American Datum 1983. The lineal dimensions as contained herein are based upon the "U.S. Survey Foot."
- 2) Distances to section lines measured at 90 degrees from said section lines.
- 3) Ground elevations are based on an observed GPS elevation (NAVD 1988 DATUM).
- 4) Latitude and Longitude shown are (NAD 83 DATUM).
- 5) IMPROVEMENTS: See LOCATION DRAWING for all visible improvements within 500' of oil and gas location.
- 6) This map does not represent a boundary survey.

NEAREST CULTURAL ITEMS	
BUILDING	±1310' SW
BUILDING UNIT	±1310' SW
HIGH OCCUPANCY BUILDING UNIT	5280'+
DESIGNATED OUTSIDE ACTIVITY AREA	5280'+
PUBLIC ROAD (COUNTY ROAD 49)	±1338' W
ABOVE GROUND UTILITY	±1078' N
RAILROAD	5280'+
PROPERTY LINE	±454' N

- LEGEND
- = ALIQUOT MONUMENT AS DESCRIBED
 - = CALCULATED POSITION
 - = SURFACE HOLE LOCATION (SHL)
 - ▲ = ENTRY POINT LOCATION (EP)
 - BH = BOTTOM HOLE LOCATION (BHL)
 - ⊙ = EXISTING WELL
 - ⊙ = ABANDONED WELL



SHEET 1 OF 2

Brian T. Brinkman—On behalf of Lat40°, Inc.
Colorado Licensed Professional Land Surveyor No. 38175
DATE: 7/11/2017
PROJECT#: 2016074

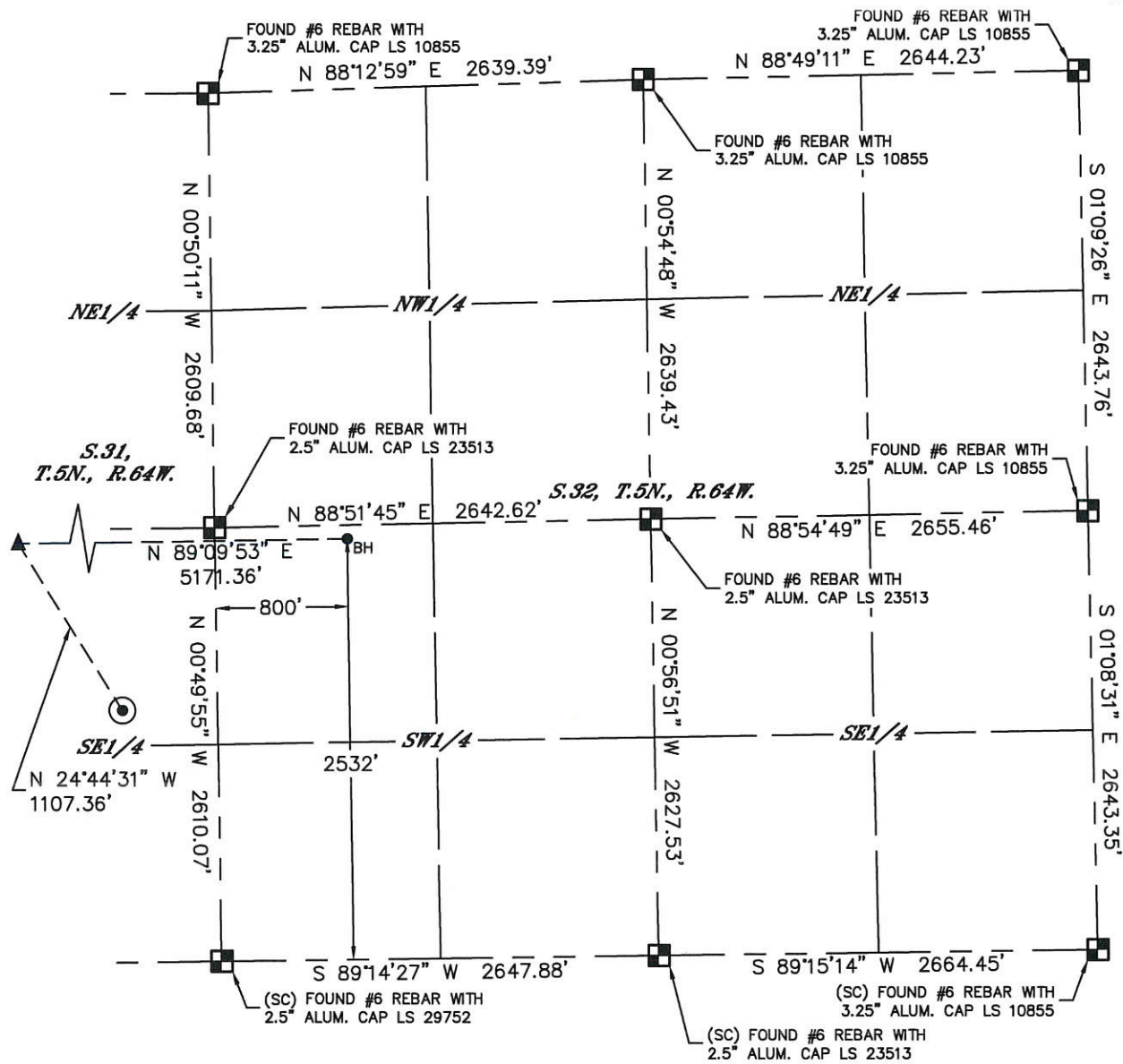


Lat40°, Inc. 6250 W. 10th Street, Unit 2, Greeley, CO 970-515-5294

WELL LOCATION CERTIFICATE

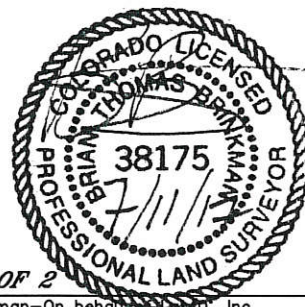
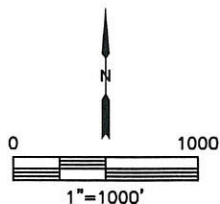
THISTLE DOWN 31G-402

SECTION: 31
TOWNSHIP: 5N
RANGE: 64W
6TH. P.M.
WELD COUNTY, CO



LEGEND

- = ALIQUOT MONUMENT AS DESCRIBED
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SHEET 2 OF 2

Brian T. Brinkman—On behalf of Lat40°, Inc.
Colorado Licensed Professional Land Surveyor No. 38175
DATE: 7/11/2017
PROJECT#: 2016074

PDC Energy Inc. DJ Basin

Well Name: Thistle Down 31G-402

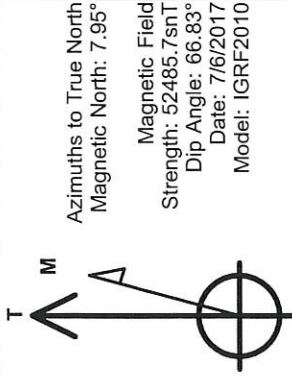
Surface Location: Thistle Down 5N64W31H Pad Sec.31-T5N-R64W
North American Datum 1983, US State Plane 1983, Colorado Northern Zone

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1372573.72	3251618.97	40.352600	-104.597170	
Ground Elevation: 4805.0						
Original Well Elev WELL @ 4828.0ft (Original Well Elev)						

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 1519'FSL, 1357'FWL, SEC.31	1.0	0.0	0.0	Point
BHL 2532'FSL, 800'FWL, SEC.32	7026.0	1035.1	4718.5	Point
LPL 2532'FSL, 905'FWL, SEC.31	7076.0	1009.1	-451.7	Point

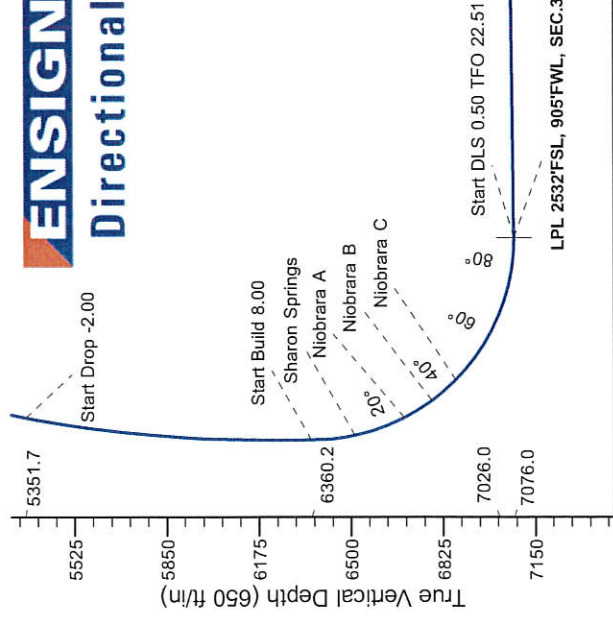
Thistle Down 5N64W31H Pad Sec.31-T5N-R64W
Thistle Down 31G-402
Plan #1 (6-30-17)
8:57, July 06 2017



ANNOTATIONS

TVD	MD	Annotation
200.0	2000	KOP - Start Build 1.50
5351.8	5557.7	Start Drop -2.00
6360.2	6579.1	Start Build 8.00
7076.0	7710.5	Start DLS 0.50 TFO 22.51
7076.0	7711.4	Start 5169.6 hold at 7711.4 MD
7026.0	12881.0	TD at 12881.0

ENSIGN Directional



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.0	
3	1348.2	17.22	310.57	1331.0	111.4	-130.1	1.50	310.57	-103.2	
4	5557.7	17.22	310.57	5351.8	922.0	-1076.9	0.00	0.00	-854.4	
5	6418.9	0.00	0.00	6200.0	1005.5	-1174.5	2.00	180.00	-931.8	
6	6579.1	0.00	0.00	6360.2	1005.5	-1174.5	0.00	0.00	-931.8	
7	7710.4	90.55	89.71	7076.0	1009.1	-451.8	8.00	89.71	-225.1	
8	7710.5	90.55	89.71	7076.0	1009.1	-451.7	0.00	0.00	-225.0	LPL 2532'FSL, 905'FWL, SEC.31
9	7711.4	90.55	89.71	7076.0	1009.2	-450.8	0.50	22.51	-224.1	
10	12881.0	90.55	89.71	7026.0	1035.1	4718.5	0.00	0.00	4830.7	BHL 2532'FSL, 800'FWL, SEC.32

BHL 2532'FSL, 800'FWL, SEC.32

91°

TD at 12881.0

Vertical Section at 77.63° (650 ft/in)



PDC Energy Inc. DJ Basin

SEC.31-T5N-R64W

Thistle Down 5N64W31H Pad Sec.31-T5N-R64W

Thistle Down 31G-402

Wellbore #1

Plan #1 (6-30-17)

Anticollision Summary Report

06 July, 2017

Company: PDC Energy Inc. DJ Basin
Project: SEC.31-T5N-R64W
Reference Site: Thistle Down 5N64W31H Pad
 Sec.31-T5N-R64W
Site Error: 0.0 ft
Reference Well: Thistle Down 31G-402
Well Error: 0.0 ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1 (6-30-17)

Local Co-ordinate Reference: Well Thistle Down 31G-402
TVD Reference: WELL @ 4828.0ft (Original Well Elev)
MD Reference: WELL @ 4828.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.45 sigma
Database: US_EDM
Offset TVD Reference: Offset Datum

Reference	Plan #1 (6-30-17)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 800.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.45 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 7/6/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,881.0	Plan #1 (6-30-17) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells Sec.31-T5N-R64W (GRID)						
Gemini B 31-12 (Noble-Exist) - Wellbore #1 - Wellbore #	3,683.5	3,520.1	118.8	85.8	3.596	CC
Gemini B 31-12 (Noble-Exist) - Wellbore #1 - Wellbore #	3,700.0	3,535.9	118.9	85.7	3.585	ES, SF
Gemini B 31-25 (Noble-Exist) - Wellbore #1 - Wellbore #	1,389.6	1,336.6	186.9	177.2	19.219	CC
Gemini B 31-25 (Noble-Exist) - Wellbore #1 - Wellbore #	1,400.0	1,346.6	186.9	177.1	19.008	ES
Gemini B 31-25 (Noble-Exist) - Wellbore #1 - Wellbore #	1,700.0	1,634.1	206.8	194.2	16.400	SF
Thistle Down B 31-21 (Noble-Exist) - Wellbore #1 - Wellb	9,395.7	7,023.4	264.0	172.2	2.876	CC
Thistle Down B 31-21 (Noble-Exist) - Wellbore #1 - Wellb	9,400.0	7,023.5	264.0	172.1	2.872	ES, SF
Existing Wells Sec.32-T5N-R64W (GRID)						
Schmier B 32-32 (Noble-Exist) - Wellbore #1 - Wellbore #	12,171.1	6,977.0	143.4	-42.0	0.773	Level 1, CC, ES, SF
Thistle Down 5N64W31H Pad Sec.31-T5N-R64W						
Thistle Down 31G-232 - Wellbore #1 - Plan #1 (2-28-17)	200.0	200.0	29.1	28.3	35.284	CC, ES
Thistle Down 31G-232 - Wellbore #1 - Plan #1 (2-28-17)	12,881.0	12,860.6	496.3	129.2	1.352	Level 3, SF
Thistle Down 31G-332 - Wellbore #1 - Plan #1 (2-28-17)	200.0	200.0	14.6	13.8	17.657	CC
Thistle Down 31G-332 - Wellbore #1 - Plan #1 (2-28-17)	12,881.0	12,955.9	223.9	-126.4	0.639	Level 1, ES, SF
Thistle Down 31H-202 - Wellbore #1 - Plan #1 (2-28-17)	200.0	199.0	58.3	57.5	70.803	CC, ES
Thistle Down 31H-202 - Wellbore #1 - Plan #1 (2-28-17)	4,700.0	4,650.5	789.2	734.4	14.395	SF
Thistle Down 31H-232 - Wellbore #1 - Plan #1 (2-28-17)	200.0	199.0	91.1	90.3	110.630	CC, ES
Thistle Down 31H-232 - Wellbore #1 - Plan #1 (2-28-17)	3,400.0	3,301.8	786.3	752.3	23.115	SF
Thistle Down 31H-302 - Wellbore #1 - Plan #1 (2-28-17)	200.0	199.0	72.9	72.0	88.504	CC, ES
Thistle Down 31H-302 - Wellbore #1 - Plan #1 (2-28-17)	3,900.0	3,834.6	781.4	740.8	19.245	SF
Thistle Down 31H-312 - Wellbore #1 - Plan #1 (2-28-17)	200.0	199.0	43.7	42.9	53.102	CC, ES
Thistle Down 31H-312 - Wellbore #1 - Plan #1 (2-28-17)	12,881.0	12,913.0	749.7	362.9	1.938	SF
Thistle Down 31H-332 - Wellbore #1 - Plan #1 (2-28-17)	200.0	198.0	105.6	104.8	128.761	CC, ES
Thistle Down 31H-332 - Wellbore #1 - Plan #1 (2-28-17)	3,000.0	2,871.9	784.2	755.6	27.435	SF
Thistle Down 31I-212 - Wellbore #1 - Plan #1 (2-28-17)	200.0	198.0	120.2	119.4	148.526	CC, ES
Thistle Down 31I-212 - Wellbore #1 - Plan #1 (2-28-17)	2,600.0	2,439.4	767.4	743.7	32.382	SF
Thistle Down 31I-302 - Wellbore #1 - Plan #1 (2-28-17)	200.0	198.0	134.8	134.0	164.282	CC, ES
Thistle Down 31I-302 - Wellbore #1 - Plan #1 (2-28-17)	2,400.0	2,206.8	795.9	774.6	37.331	SF
Thistle Down B31-22D Pad Sec.31-T5N-R64W						
Thistle Down B31-20D (Noble-Exist) - Wellbore #1 - Well	8,132.4	7,227.4	120.1	44.0	1.577	CC, ES, SF
Thistle Down B31-22D (Noble-Exist) - Wellbore #1 - Well	10,786.5	7,203.5	161.1	4.6	1.029	Level 2, CC, ES, SF

Company: PDC Energy Inc. DJ Basin
Project: SEC.31-T5N-R64W
Reference Site: Thistle Down 5N64W31H Pad
Sec.31-T5N-R64W
Site Error: 0.0 ft
Reference Well: Thistle Down 31G-402
Well Error: 0.0 ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1 (6-30-17)

Local Co-ordinate Reference: Well Thistle Down 31G-402
TVD Reference: WELL @ 4828.0ft (Original Well Elev)
MD Reference: WELL @ 4828.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.45 sigma
Database: US_EDM
Offset TVD Reference: Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Thistle Down PC F36-63HN Pad Sec.36-T5N-R65W						
Thistle Down State PC F36-63HN (Noble-Exist) - Wellbo	5,236.6	5,047.7	484.2	430.1	8.948	CC
Thistle Down State PC F36-63HN (Noble-Exist) - Wellbo	5,300.0	5,106.0	485.0	429.9	8.800	ES
Thistle Down State PC F36-63HN (Noble-Exist) - Wellbo	5,500.0	5,288.2	497.1	439.6	8.646	SF
Thistle Down State PC F36-65HN (Noble-Exist) - Wellbo	6,403.2	6,158.5	364.5	328.3	10.069	CC
Thistle Down State PC F36-65HN (Noble-Exist) - Wellbo	6,418.9	6,170.1	364.6	308.9	6.536	ES, SF
Thistle Down Wells (Noble) Sec.31-T5N-R64W						
Thistle Down B 31-32D (Noble-Exist) - Thistle Down B 31	6,583.9	6,407.4	50.1	-6.2	0.890	Level 1, CC, ES, SF