



## **Conoco Phillips**

**Crockett County  
Block 6, University Land Survey  
University NG #6211H**

**Wellbore #1**

**Survey: MWD**

## **DDC Survey Report**

**10 September, 2012**





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Date: 1/03/13

Railroad Commission of Texas  
Oil and Gas Division  
1701 North Congress Avenue  
Austin, Texas 78711

Attention: Pam Johns

Re: Conoco Phillips Company  
University NG 6211H  
RRC Lease / ID No.  
UL  
Abstract # UL  
Crockett County, Texas  
API No. 42-105-41543

Enclosed, please find the original and one copy of the survey performed on the referenced well by The Directional Drilling Company (DDC). (P5#851499). Other information required by your office is as follows:

<u>Name &amp; Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Adam Lee	Original Hole	6538' – 12691'	8/30/12-9/12/12	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Larry Wright

Enclosures

Cc: Conoco Phillips Company

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• 11390 FM 830 • Willis, Texas 77318 •  
• PH 936-856-4332 • FAX 936-856-8678 •

<b>Company:</b>	Conoco Phillips	<b>Local Co-ordinate Reference:</b>	Well University NG #6211H
<b>Project:</b>	Crockett County	<b>TVD Reference:</b>	WELL @ 2673.0usft (H&P #486)
<b>Site:</b>	Block 6, University Land Survey	<b>MD Reference:</b>	WELL @ 2673.0usft (H&P #486)
<b>Well:</b>	University NG #6211H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

Project	Crockett County		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Texas Central 4203		

Site						Block 6, University Land Survey											
Site Position:			Northing:			512,711.90 usft			Latitude:			31° 4' 8.606 N					
From:			Map			Easting:			1,567,565.40 usft			Longitude:			101° 42' 52.589 W		
Position Uncertainty:			0.0 usft			Slot Radius:			13-3/16 "			Grid Convergence:			-0.71 °		

Well	University NG #6211H					
Well Position	+N-S	0.0 usft	Northing:	512,711.90 usft	Latitude:	31° 4' 8.606 N
	+E-W	0.0 usft	Easting:	1,567,565.40 usft	Longitude:	101° 42' 52.589 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	2,648.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/17/2012	6.49	59.38	47,992

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	1.05	

Survey Program		Date	9/10/2012	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	6,538.0	GYRO (Wellbore #1)	Good_gyro	Good Gyro
6,640.0	12,691.0	MWD (Wellbore #1)	MWD default	MWD - Standard

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)
TIE IN @ 6538' MD / 6538' TVD									
6,538.0	1.16	140.94	6,537.8	-14.7	-4.2	-14.8	0.00	0.00	0.00
6,640.0	4.20	6.90	6,639.7	-11.8	-3.1	-11.9	4.98	2.98	-131.41
6,672.0	8.10	3.00	6,671.5	-8.4	-2.8	-8.5	12.25	12.19	-12.19
6,703.0	11.80	2.00	6,702.0	-3.1	-2.6	-3.1	11.95	11.94	-3.23
6,735.0	14.20	2.00	6,733.2	4.1	-2.4	4.1	7.50	7.50	0.00
6,766.0	16.20	1.60	6,763.1	12.2	-2.1	12.2	6.46	6.45	-1.29
6,798.0	18.50	2.30	6,793.7	21.8	-1.8	21.7	7.22	7.19	2.19
6,830.0	21.10	3.20	6,823.8	32.6	-1.3	32.6	8.18	8.13	2.81
6,861.0	23.10	3.00	6,852.5	44.3	-0.6	44.2	6.46	6.45	-0.65

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<b>Site:</b>	Block 6, University Land Survey	<b>MD Reference:</b>	WELL @ 2673.0usft (H&P #486)
<b>Well:</b>	University NG #6211H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 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)
6,893.0	24.90	2.00	6,881.7	57.3	-0.1	57.2	5.77	5.63	-3.13
6,924.0	26.60	358.80	6,909.7	70.7	0.0	70.7	7.08	5.48	-10.32
6,956.0	28.30	355.10	6,938.1	85.4	-0.8	85.4	7.52	5.31	-11.56
6,987.0	30.20	353.70	6,965.1	100.5	-2.3	100.5	6.51	6.13	-4.52
7,019.0	32.90	354.10	6,992.4	117.2	-4.0	117.1	8.46	8.44	1.25
7,050.0	36.00	356.70	7,017.9	134.6	-5.4	134.5	11.07	10.00	8.39
7,082.0	39.00	358.10	7,043.3	154.1	-6.3	154.0	9.75	9.38	4.38
7,114.0	41.80	359.50	7,067.7	174.8	-6.7	174.7	9.20	8.75	4.38
7,145.0	43.70	359.50	7,090.4	195.9	-6.9	195.7	6.13	6.13	0.00
7,177.0	45.90	359.30	7,113.1	218.4	-7.2	218.2	6.89	6.88	-0.63
7,272.0	49.70	359.30	7,176.9	288.8	-8.0	288.6	4.00	4.00	0.00
7,304.0	52.00	359.70	7,197.2	313.6	-8.2	313.4	7.25	7.19	1.25
7,335.0	54.70	359.90	7,215.7	338.5	-8.3	338.2	8.73	8.71	0.65
7,367.0	57.80	0.20	7,233.4	365.1	-8.3	364.8	9.72	9.69	0.94
7,398.0	60.90	0.60	7,249.2	391.7	-8.1	391.5	10.06	10.00	1.29
7,430.0	63.40	2.20	7,264.2	420.0	-7.4	419.8	8.98	7.81	5.00
7,462.0	66.10	3.20	7,277.8	448.9	-6.0	448.7	8.90	8.44	3.13
7,493.0	67.70	3.40	7,290.0	477.4	-4.4	477.2	5.20	5.16	0.65
7,556.0	73.20	2.70	7,311.1	536.6	-1.3	536.5	8.79	8.73	-1.11
7,588.0	76.80	2.20	7,319.3	567.5	0.1	567.4	11.35	11.25	-1.56
7,619.0	80.20	2.00	7,325.5	597.9	1.2	597.8	10.99	10.97	-0.65
7,683.0	86.40	2.00	7,333.0	661.4	3.4	661.3	9.69	9.69	0.00
7,714.0	87.70	2.70	7,334.6	692.3	4.7	692.3	4.76	4.19	2.26
7,777.0	88.20	2.30	7,336.8	755.2	7.4	755.2	1.02	0.79	-0.63
7,872.0	89.00	2.70	7,339.2	850.1	11.6	850.1	0.94	0.84	0.42
7,967.0	87.40	2.50	7,342.1	944.9	15.9	945.1	1.70	-1.68	-0.21
8,062.0	87.20	3.00	7,346.6	1,039.7	20.4	1,039.9	0.57	-0.21	0.53
8,156.0	87.80	2.70	7,350.7	1,133.5	25.1	1,133.8	0.71	0.64	-0.32
8,251.0	88.20	2.70	7,354.0	1,228.3	29.6	1,228.7	0.42	0.42	0.00
8,346.0	88.60	2.50	7,356.7	1,323.2	33.9	1,323.6	0.47	0.42	-0.21
8,441.0	88.50	2.50	7,359.1	1,418.1	38.0	1,418.5	0.11	-0.11	0.00
8,535.0	88.50	1.30	7,361.6	1,512.0	41.1	1,512.5	1.28	0.00	-1.28
8,630.0	89.30	1.50	7,363.4	1,606.9	43.4	1,607.5	0.87	0.84	0.21
8,725.0	87.30	0.40	7,366.2	1,701.9	45.0	1,702.4	2.40	-2.11	-1.16
8,819.0	87.00	359.70	7,370.9	1,795.8	45.1	1,796.3	0.81	-0.32	-0.74
8,914.0	86.70	359.20	7,376.1	1,890.6	44.2	1,891.1	0.61	-0.32	-0.53
9,009.0	88.20	359.20	7,380.3	1,985.5	42.9	1,986.0	1.58	1.58	0.00
9,104.0	90.30	359.70	7,381.6	2,080.5	42.0	2,080.9	2.27	2.21	0.53
9,198.0	91.00	0.40	7,380.5	2,174.5	42.0	2,174.9	1.05	0.74	0.74
9,293.0	91.90	0.80	7,378.1	2,269.5	43.0	2,269.9	1.04	0.95	0.42
9,388.0	92.40	0.90	7,374.5	2,364.4	44.4	2,364.8	0.54	0.53	0.11
9,483.0	90.90	0.80	7,371.8	2,459.3	45.8	2,459.8	1.58	-1.58	-0.11
9,577.0	90.00	358.50	7,371.0	2,553.3	45.3	2,553.7	2.63	-0.96	-2.45

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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)
9,672.0	90.40	358.30	7,370.7	2,648.3	42.6	2,648.6	0.47	0.42	-0.21
9,767.0	91.80	359.00	7,368.9	2,743.2	40.4	2,743.5	1.65	1.47	0.74
9,862.0	92.90	359.20	7,365.0	2,838.1	38.9	2,838.4	1.18	1.16	0.21
9,956.0	94.10	359.90	7,359.3	2,932.0	38.2	2,932.2	1.48	1.28	0.74
10,051.0	93.70	0.60	7,352.8	3,026.7	38.6	3,026.9	0.85	-0.42	0.74
10,169.0	92.30	0.60	7,346.6	3,144.6	39.8	3,144.8	1.19	-1.19	0.00
10,264.0	90.00	1.80	7,344.7	3,239.5	41.8	3,239.7	2.73	-2.42	1.26
10,359.0	88.50	2.30	7,346.0	3,334.4	45.2	3,334.7	1.66	-1.58	0.53
10,454.0	89.30	2.00	7,347.8	3,429.4	48.8	3,429.7	0.90	0.84	-0.32
10,548.0	90.40	2.50	7,348.0	3,523.3	52.4	3,523.7	1.29	1.17	0.53
10,643.0	91.50	2.20	7,346.5	3,618.2	56.3	3,618.6	1.20	1.16	-0.32
10,738.0	90.50	2.00	7,344.8	3,713.1	59.8	3,713.6	1.07	-1.05	-0.21
10,833.0	88.10	0.90	7,346.0	3,808.1	62.2	3,808.6	2.78	-2.53	-1.16
10,927.0	88.80	0.80	7,348.5	3,902.0	63.6	3,902.5	0.75	0.74	-0.11
11,022.0	90.00	0.90	7,349.5	3,997.0	65.0	3,997.5	1.27	1.26	0.11
11,117.0	88.60	1.30	7,350.7	4,092.0	66.9	4,092.5	1.53	-1.47	0.42
11,212.0	89.40	1.10	7,352.3	4,186.9	68.8	4,187.5	0.87	0.84	-0.21
11,306.0	90.30	0.90	7,352.6	4,280.9	70.5	4,281.5	0.98	0.96	-0.21
11,401.0	88.30	1.60	7,353.7	4,375.9	72.6	4,376.5	2.23	-2.11	0.74
11,496.0	88.90	1.10	7,356.0	4,470.8	74.8	4,471.4	0.82	0.63	-0.53
11,591.0	87.30	2.00	7,359.2	4,565.7	77.4	4,566.4	1.93	-1.68	0.95
11,685.0	87.90	2.20	7,363.1	4,659.6	80.8	4,660.3	0.67	0.64	0.21
11,780.0	88.60	2.00	7,366.0	4,754.5	84.3	4,755.2	0.77	0.74	-0.21
11,875.0	89.30	2.50	7,367.8	4,849.4	88.0	4,850.2	0.91	0.74	0.53
11,970.0	89.00	1.60	7,369.2	4,944.3	91.4	4,945.2	1.00	-0.32	-0.95
12,065.0	87.40	2.00	7,372.2	5,039.2	94.4	5,040.1	1.74	-1.68	0.42
12,159.0	89.20	2.20	7,375.0	5,133.1	97.8	5,134.0	1.93	1.91	0.21
12,254.0	87.10	2.50	7,378.0	5,228.0	101.7	5,229.0	2.23	-2.21	0.32
12,349.0	87.40	1.80	7,382.6	5,322.8	105.3	5,323.8	0.80	0.32	-0.74
12,444.0	88.10	2.70	7,386.3	5,417.7	109.0	5,418.7	1.20	0.74	0.95
12,538.0	86.30	2.50	7,390.9	5,511.4	113.3	5,512.6	1.93	-1.91	-0.21
12,633.0	86.90	1.60	7,396.5	5,606.2	116.7	5,607.4	1.14	0.63	-0.95
<b>TD @ 12691' MD / 7400' TVD</b>									
12,691.0	86.90	1.60	7,399.7	5,664.1	118.3	5,665.3	0.00	0.00	0.00

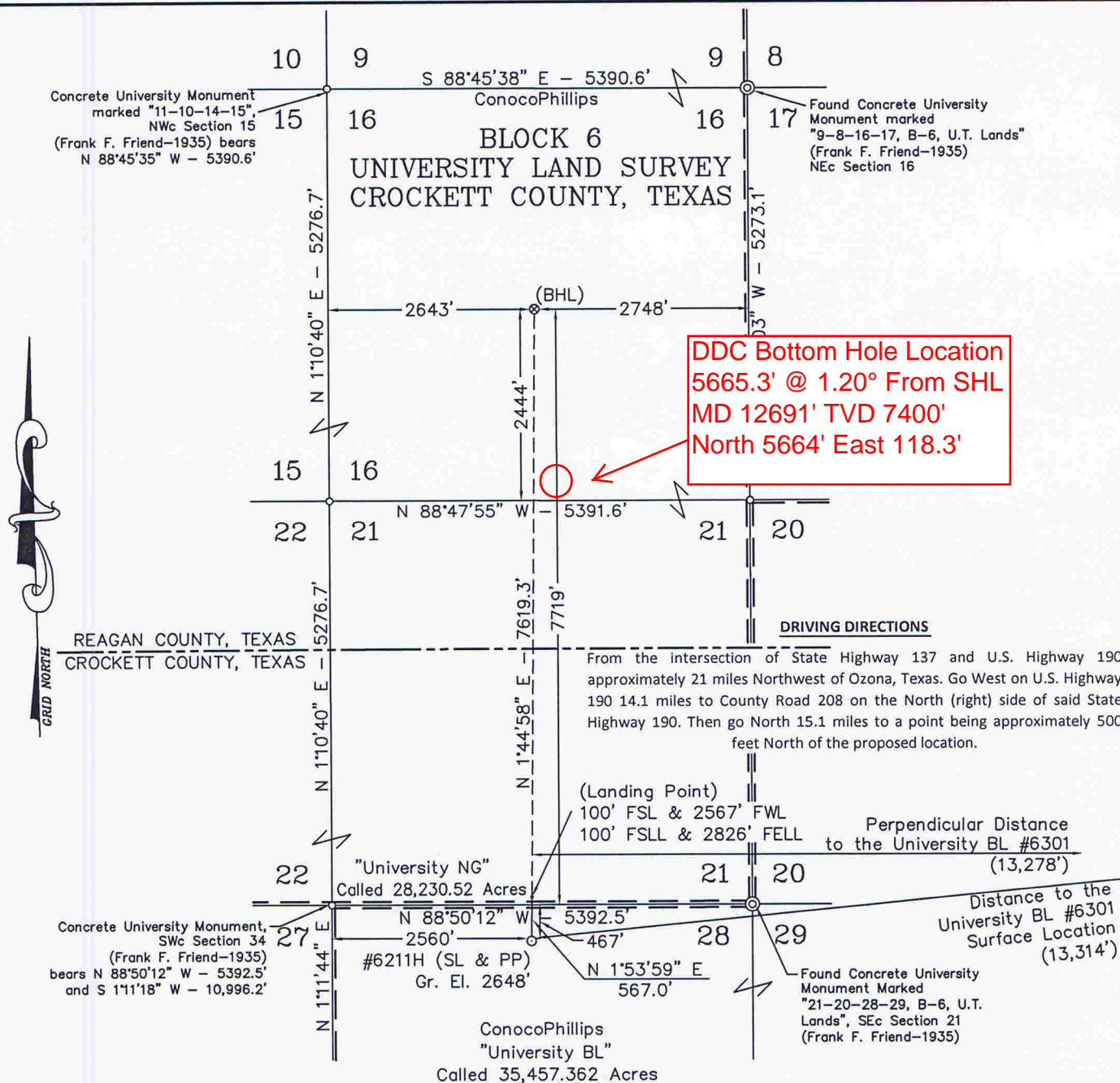
Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,538.0	6,537.8	-14.7	-4.2	TIE IN @ 6538' MD / 6538' TVD
12,691.0	7,399.7	5,664.1	118.3	TD @ 12691' MD / 7400' TVD

Range Bearing  
5665.3' 1.20°

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



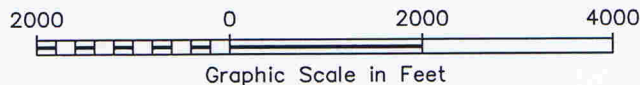


Coordinate Table			
Description	Plane Coordinate	Geodetic Coordinate	Geodetic Coordinate (NAD 83)
University NG #6211H Surface Location	X = 1,567,565.4 Y = 512,711.9	Longitude = 101°42'52.59\" W Latitude = 31°04'08.61\" N	Longitude = 101°42'54.03\" W Latitude = 31°04'09.17\" N
University NG #6211H Landing Point	X = 1,567,584.2 Y = 513,278.5	Longitude = 101°42'52.45\" W Latitude = 31°04'14.22\" N	Longitude = 101°42'53.90\" W Latitude = 31°04'14.78\" N
University NG #6211H Bottom Hole Location	X = 1,567,816.7 Y = 520,892.3	Longitude = 101°42'50.87\" W Latitude = 31°05'29.60\" N	Longitude = 101°42'52.31\" W Latitude = 31°05'30.17\" N

## LEGEND

- - Denotes Proposed Surface Well Location and Penetration Point
- ⊗ - Denotes Proposed Bottom Hole Location
- ⊙ - Denotes Found Monument (As Described)
- - Denotes Calculated Corner this Survey
- — — — — Denotes Lease Line
- — — — — Denotes County Line (Approx.)

The University NG #6211H is located approximately 39 miles Northwest of Ozone, Texas.



## NOTE:

- Plane Coordinates and Bearings shown hereon are Lambert Grid and Conform to the "Texas Coordinate System", Texas Central Zone, North American Datum of 1927. Distances shown hereon are mean horizontal surface values.
- Geodetic Coordinate unless otherwise shown hereon references the North American Datum of 1927, (Clarke Spheroid of 1866). Reference Stations - "MCCAMEY" - CORS (DM4163), "SAN ANGELO RRP" - CORS (DF7477) and "ODESSA" - CORS (DL2764)
- See information filed in the office of this Surveyor which describes the reconstruction of this Section.

I HEREBY CERTIFY THAT THIS PLAN WAS MADE FROM NOTES TAKEN IN THE FIELD IN A BONA FIDE SURVEY MADE UNDER MY SUPERVISION.

J. FRANK NEWMAN TEXAS R.P.L.S. No. 5011  
MACON McDONALD TEXAS R.P.L.S. No. 4398  
R. CRAIG ALDERMAN TEXAS R.P.L.S. No. 5285

**WEST COMPANY**  
of Midland, Inc.

110 W. LOUISIANA, STE. 110  
MIDLAND TEXAS, 79701  
(432) 687-0865 - (432) 687-0868 FAX

**ConocoPhillips**

Location of the  
**UNIVERSITY NG #6211H**

Surface Location: 467' FNL & 2560' FWL, Section 28  
Penetration Point: 467' FNL & 2560' FWL, Section 28  
Bottom Hole Location: 2444' FSL & 2643' FWL, Section 16  
Block 6, University Land Survey  
Crockett and Reagan Counties, Texas

Drawn By: SJA	Date: July 3, 2012
Scale: 1" = 2000'	Field Book: 499 / 62-63
Revision Date: 7-9-12	Quadrangle: Lone Mountain
W.O. No: 2012-1168	Dwg. No.: L-2012-1168