District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

HOBBS OCD
MAR 12 2014
RECEIVED

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-025-41715	31705	HOBBS CHANNEL; ~~HUMBLE CITY~~; BONE SPRING

[4] Property Code	[5] Property Name	[6] Well Number
40452	WEISSBEIR 23	1H

[7] OGRID No.	[8] Operator Name	[9] Elevation
6137	DEVON ENERGY PRODUCTION COMPANY, L.P.	3728.7

[10] Surface Location

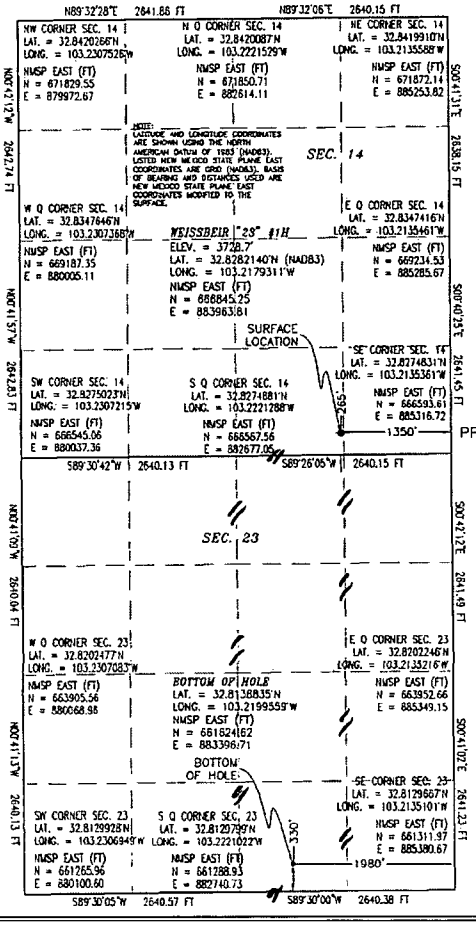
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	14	17 S	37 E		265	SOUTH	1350	EAST	LEA

[11] 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
O	23	17 S	37 E		330	SOUTH	1980	EAST	LEA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
160			

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.



[17] 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.

Signature — Date: 3/11/2014

David H. Cook
Printed Name

david.cook@dvn.com
E-mail Address

[18] 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.

FEBRUARY 17, 2014
Date of Survey

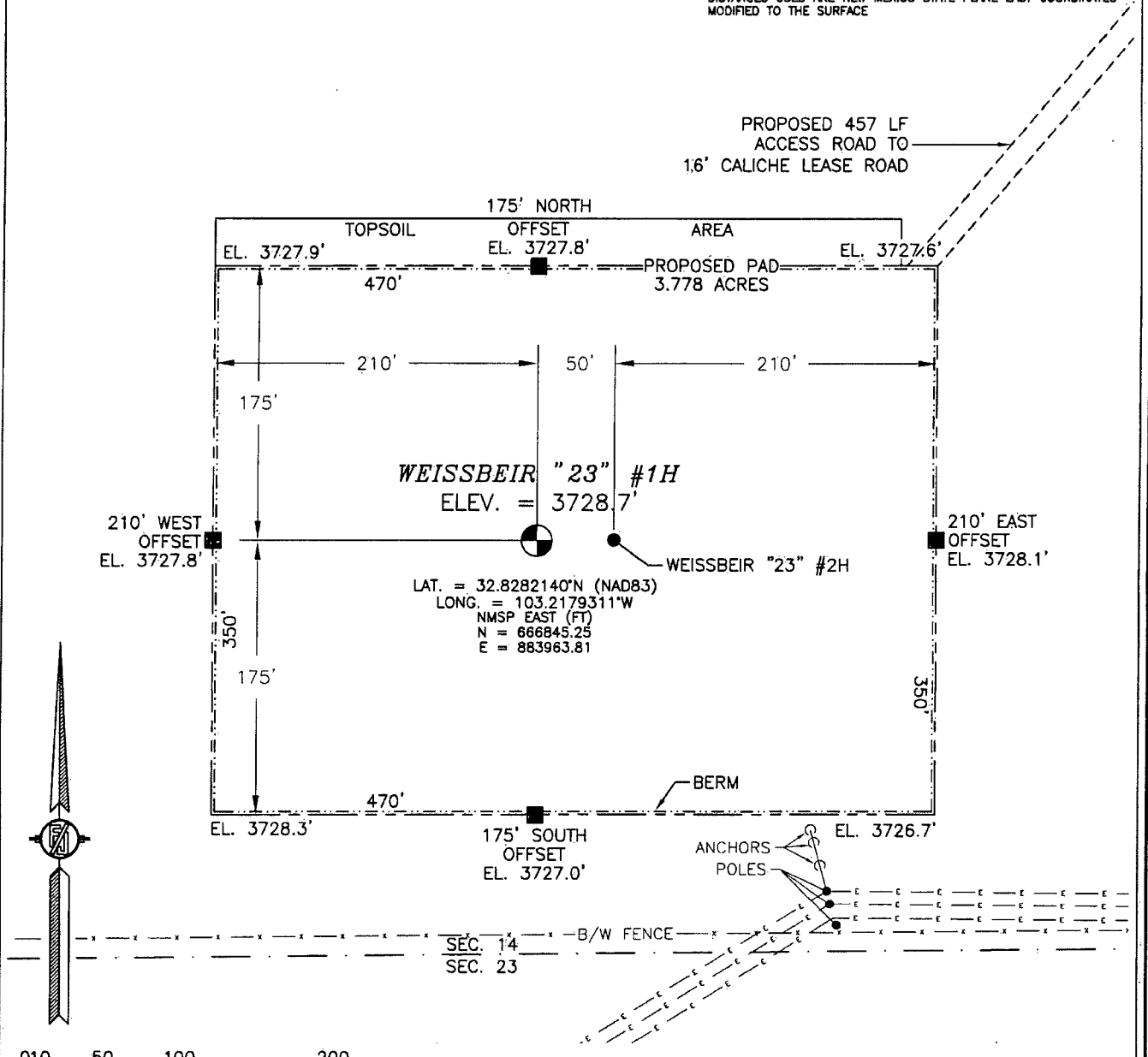
FILIMON F. JARAMILLO
NEW MEXICO
12797
REGISTERED PROFESSIONAL LAND SURVEYOR

Signature and Seal of Professional Surveyor:
Certificate Number: FILIMON F. JARAMILLO, PLS 12797
SURVEY NO. 2708

MAR 18 2014

SECTION 14, TOWNSHIP 17 SOUTH, RANGE 37 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF STATE HIGHWAY 18 AND CATCHINGS ROAD GO NORTH ON CATCHINGS ROAD APPROX. 1.0 MILE TO MALLARD ROAD ON RIGHT. TURN RIGHT GO 0.9 MILES TO CALICHE LEASE ROAD WITH CATTLE GUARD ON LEFT, GO NORTH ON CALICHE LEASE ROAD ABOUT 0.1 MILES, ROAD BENDS LEFT GO WEST ABOUT 0.1 MILES. PROPOSED ROAD IS ON LEFT, FOLLOW FLAGS ABOUT 457' TO NORTHEAST CORNER OF PROPOSED PAD.

DEVON ENERGY PRODUCTION COMPANY, L.P.

WEISSBEIR "23" #1H

LOCATED 265 FT. FROM THE SOUTH LINE AND 1350 FT. FROM THE EAST LINE OF SECTION 14, TOWNSHIP 17 SOUTH, RANGE 37 EAST, N.M.P.M. LEA COUNTY, STATE OF NEW MEXICO

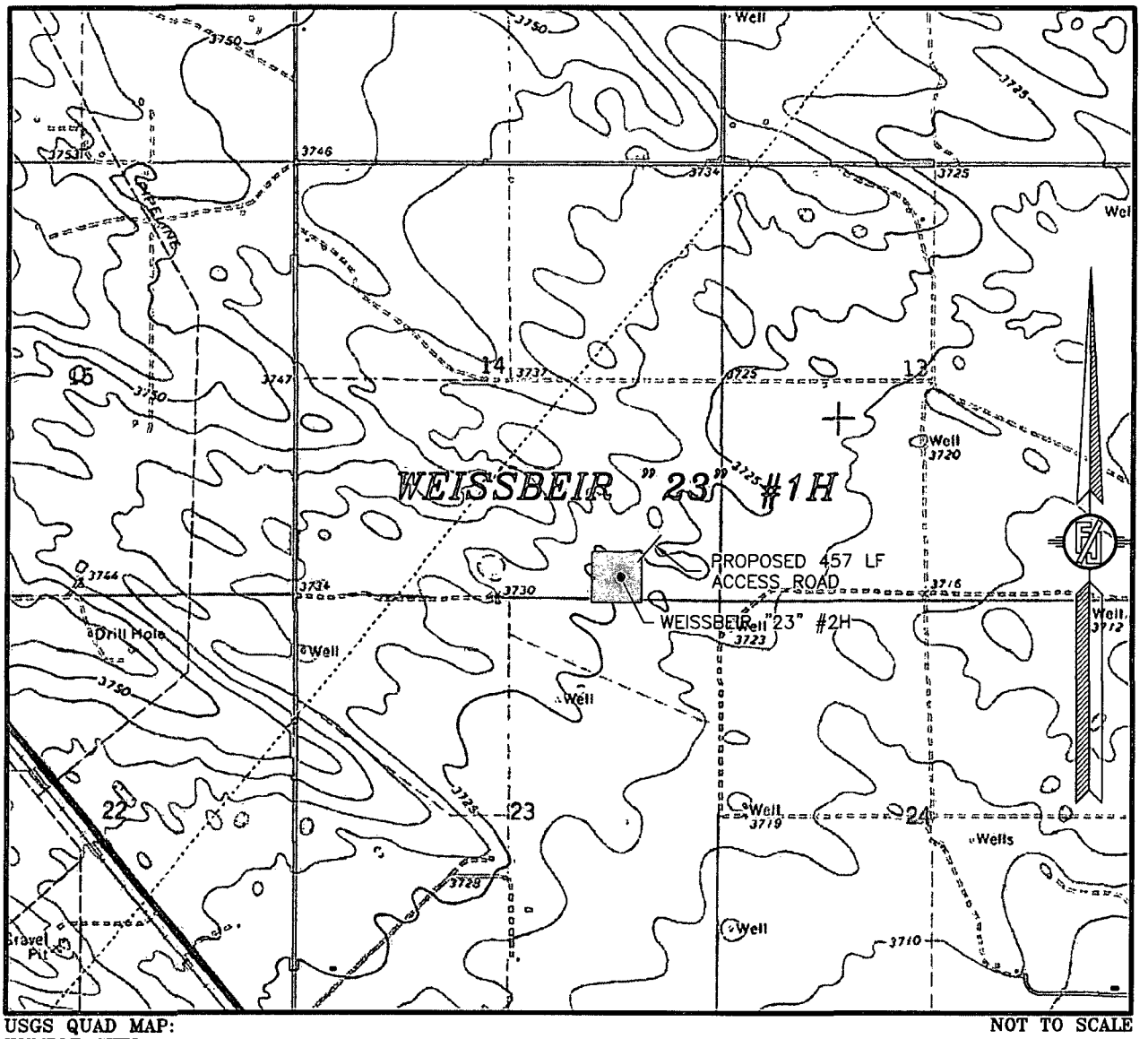
FEBRUARY 17, 2014

SURVEY NO. 2708

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 14, TOWNSHIP 17 SOUTH, RANGE 37 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

LOCATION VERIFICATION MAP



USGS QUAD MAP:
HUMBLE CITY

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

WEISSBEIR "23" #1H

LOCATED 265 FT. FROM THE SOUTH LINE
AND 1350 FT. FROM THE EAST LINE OF
SECTION 14, TOWNSHIP 17 SOUTH,
RANGE 37 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

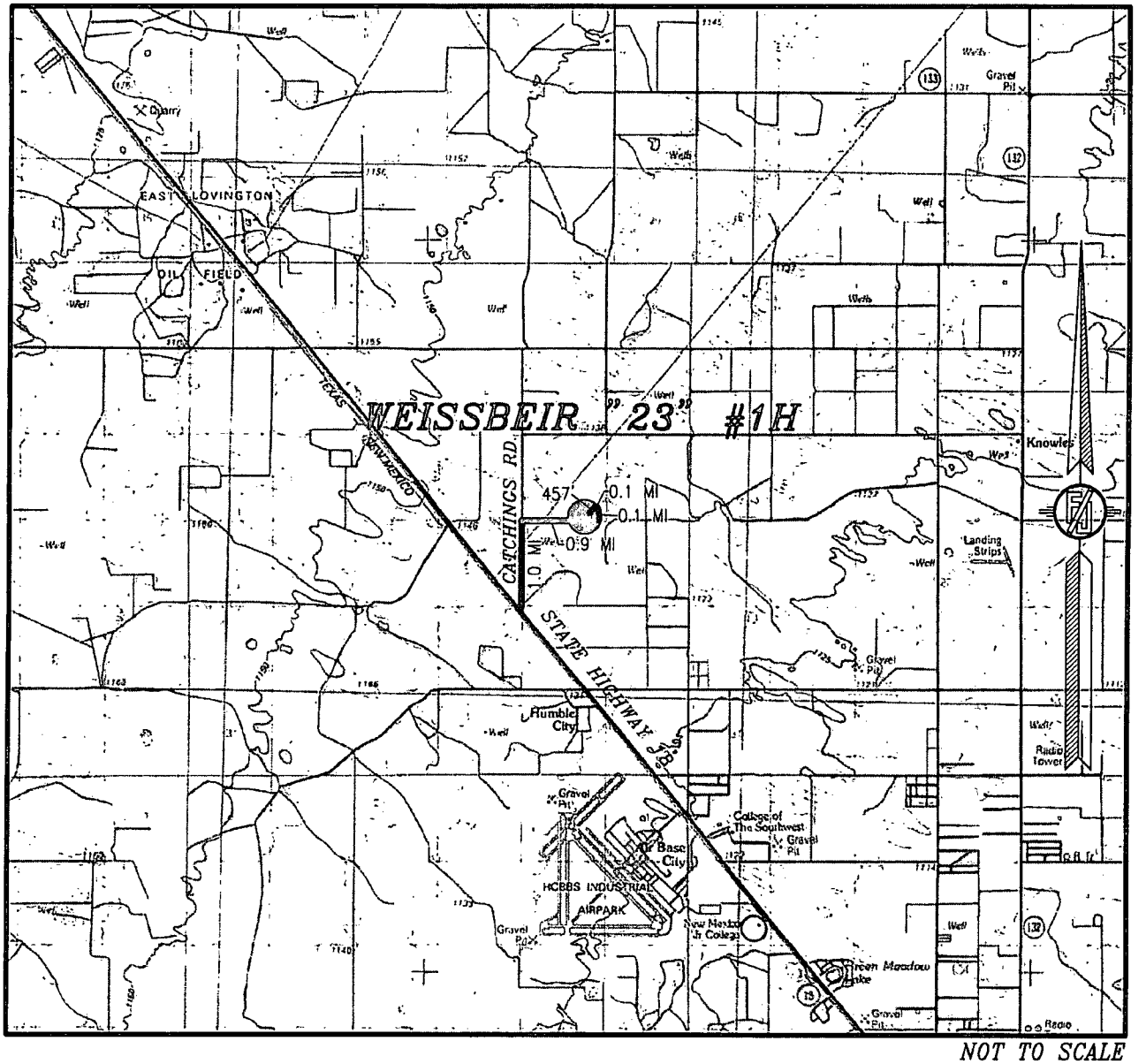
FEBRUARY 17, 2014

SURVEY NO. 2708

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 14, TOWNSHIP 17 SOUTH, RANGE 37 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

VICINITY MAP



NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

WEISSBEIR "23" #1H

LOCATED 265 FT. FROM THE SOUTH LINE
AND 1350 FT. FROM THE EAST LINE OF
SECTION 14, TOWNSHIP 17 SOUTH,
RANGE 37 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

FEBRUARY 17, 2014

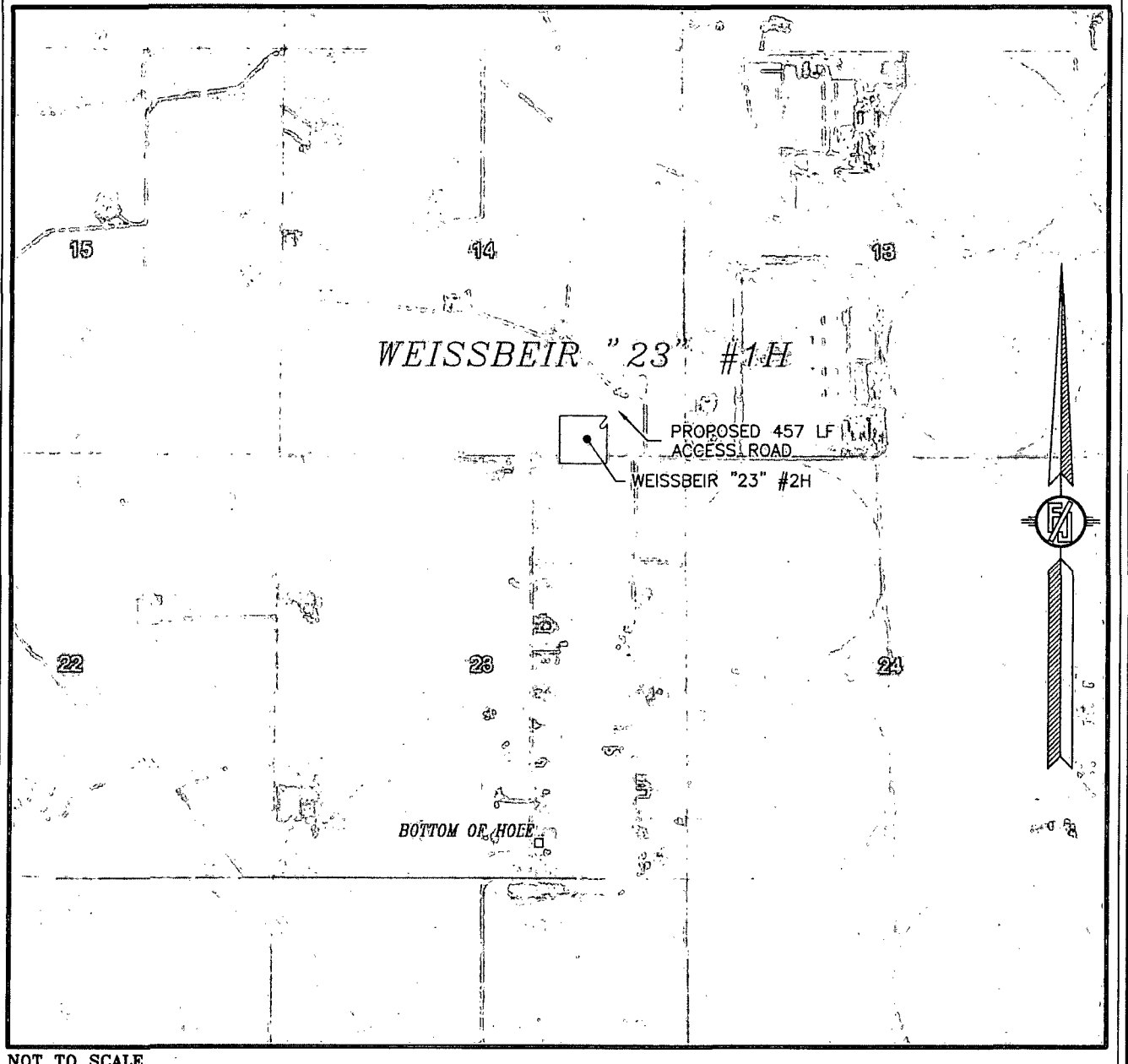
DIRECTIONS TO LOCATION
FROM THE INTERSECTION OF STATE HIGHWAY 18 AND CATCHINGS ROAD GO NORTH ON CATCHINGS ROAD APPROX. 1.0 MILE TO MALLARD ROAD ON RIGHT. TURN RIGHT GO 0.9 MILES TO CALICHE LEASE ROAD WITH CATTLE GUARD ON LEFT, GO NORTH ON CALICHE LEASE ROAD ABOUT 0.1 MILES, ROAD BENDS LEFT GO WEST ABOUT 0.1 MILES. PROPOSED ROAD IS ON LEFT, FOLLOW FLAGS ABOUT 457' TO NORTHEAST CORNER OF PROPOSED PAD.

SURVEY NO. 2708

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 14, TOWNSHIP 17 SOUTH, RANGE 37 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
MARCH 2012

DEVON ENERGY PRODUCTION COMPANY, L.P.

WEISSBEIR "23" #1H

LOCATED 265 FT. FROM THE SOUTH LINE
AND 1350 FT. FROM THE EAST LINE OF
SECTION 14, TOWNSHIP 17 SOUTH,
RANGE 37 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

FEBRUARY 17, 2014

SURVEY NO. 2708

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

devon

Project: Lea County (NAD83)
Site: Weissbeir 23
Well: Weissbeir "23" 1H
Original Hole
Design #1

G
T M

Azimuths to Grid North
True North: -0.60
Magnetic North: 6.63

Magnetic Field
Strength: 48698.9snT
Dip Angle: 60.70°
Date: 3/4/2014
Model: BGGM2012

US State Plane 1983
New Mexico Eastern Zone

PATHFINDER
A Schlumberger Company

WELL DETAILS: Weissbeir "23" 1H

WELL @ 3755.70usft (Original Well Elev) 3728.70

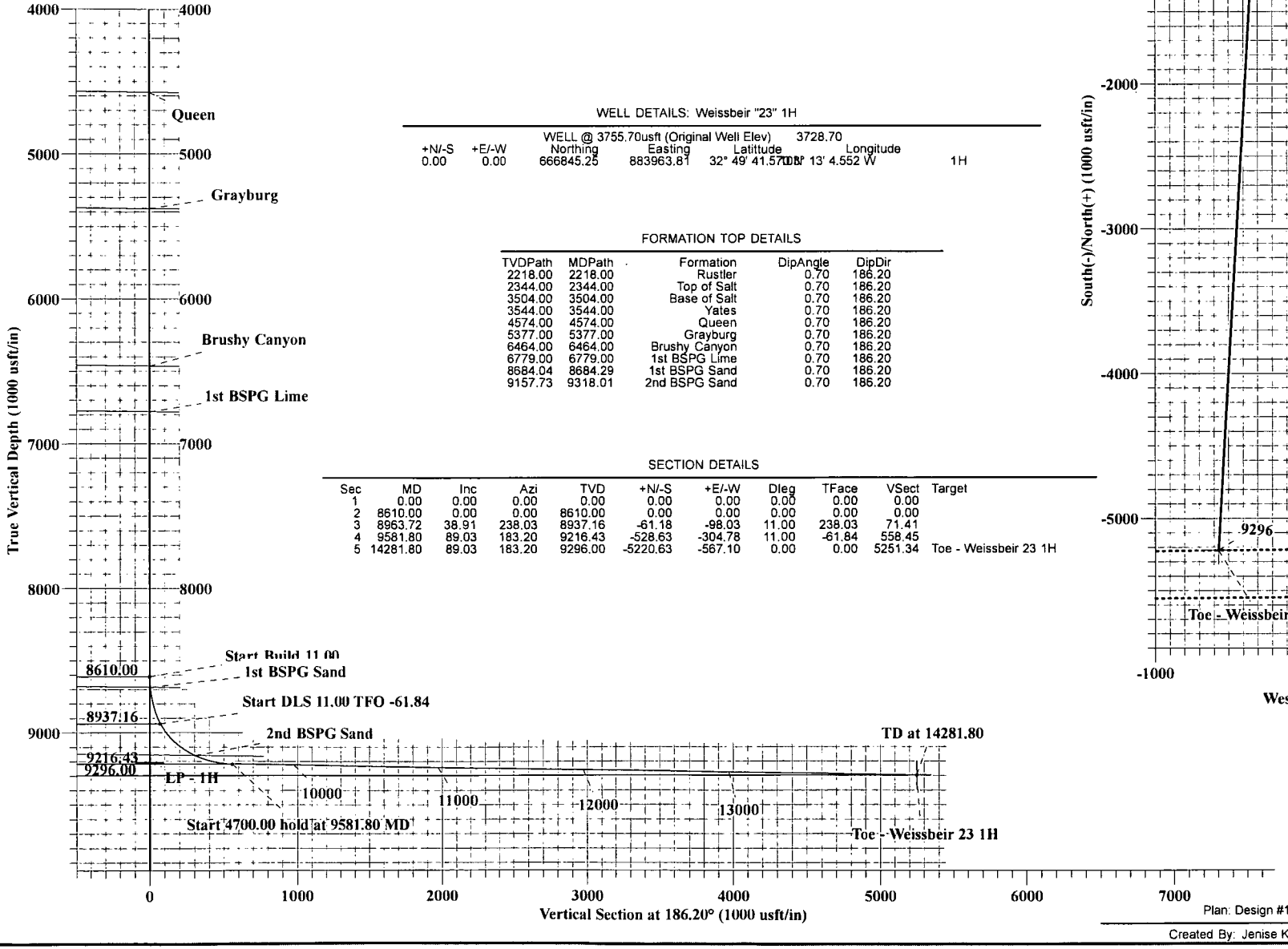
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	666845.25	883963.81	32° 49' 41.570 N	103° 13' 4.552 W	1H

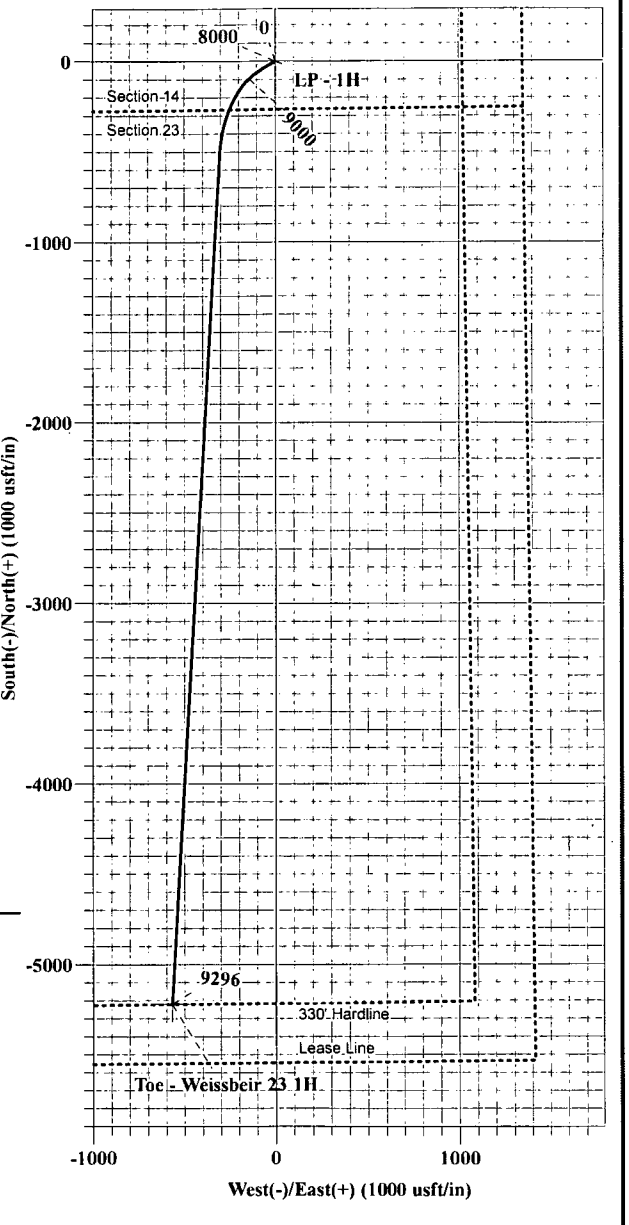
FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
2218.00	2218.00	Rustler	0.70	186.20
2344.00	2344.00	Top of Salt	0.70	186.20
3504.00	3504.00	Base of Salt	0.70	186.20
3544.00	3544.00	Yates	0.70	186.20
4574.00	4574.00	Queen	0.70	186.20
5377.00	5377.00	Grayburg	0.70	186.20
6464.00	6464.00	Brushy Canyon	0.70	186.20
6779.00	6779.00	1st BSPG Lime	0.70	186.20
8684.04	8684.29	1st BSPG Sand	0.70	186.20
9157.73	9318.01	2nd BSPG Sand	0.70	186.20

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	8610.00	0.00	0.00	8610.00	0.00	0.00	0.00	0.00	0.00	
3	8963.72	38.91	238.03	8937.16	-61.18	-98.03	11.00	238.03	71.41	
4	9581.80	89.03	183.20	9216.43	-528.63	-304.78	11.00	-61.84	558.45	
5	14281.80	89.03	183.20	9296.00	-5220.63	-567.10	0.00	0.00	5251.34	Toe - Weissbeir 23 1H





Plan: Design #1 (Weissbeir "23" 1H/Original Hole)

Created By: Jenise Kirkpatrick Date: 14:56, March 10 2014

Devon Energy, Inc.

Lea County (NAD83)
Weissbeir 23
Weissbeir "23" 1H - Slot 1H

Original Hole

Plan: Design #1

Standard Planning Report

10 March, 2014

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Weissbeir "23" 1H - Slot 1H
Company:	Devon Energy, Inc.	**TVD Reference:**	WELL @ 3755.70usft (Original Well Elev)
Project:	Lea County (NAD83)	**MD Reference:**	WELL @ 3755.70usft (Original Well Elev)
Site:	Weissbeir 23	**North Reference:**	Grid
Well:	Weissbeir "23" 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design #1		

Project	Lea County (NAD83)		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Weissbeir 23				
Site Position:		**Northing:**	666,845.25 usft	**Latitude:**	32° 49' 41.570 N
From:	Map	**Easting:**	883,963.81 usft	**Longitude:**	103° 13' 4.552 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.60 °

Well	Weissbeir "23" 1H - Slot 1H					
Well Position	**+N/-S**	0.00 usft	**Northing:**	666,845.25 usft	**Latitude:**	32° 49' 41.570 N
	+E/-W	0.00 usft	**Easting:**	883,963.81 usft	**Longitude:**	103° 13' 4.552 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	3,755.70 usft	**Ground Level:**	3,728.70 usft

Wellbore	Original Hole				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	BGGM2012	3/4/2014	7.24	60.70	48,699

Design	Design #1				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	186.20	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,610.00	0.00	0.00	8,610.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,963.72	38.91	238.03	8,937.16	-61.18	-98.03	11.00	11.00	0.00	238.03	
9,581.80	89.03	183.20	9,216.43	-528.63	-304.78	11.00	8.11	-8.87	-61.84	
14,281.80	89.03	183.20	9,296.00	-5,220.63	-567.10	0.00	0.00	0.00	0.00	Toe - Weissbeir 23 1H

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Weissbeir "23" 1H - Slot 1H
Company:	Devon Energy, Inc.	**TVD Reference:**	WELL @ 3755.70usft (Original Well Elev)
Project:	Lea County (NAD83)	**MD Reference:**	WELL @ 3755.70usft (Original Well Elev)
Site:	Weissbeir 23	**North Reference:**	Grid
Well:	Weissbeir "23" 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design #1		

Planned 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)
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,610.00	0.00	0.00	8,610.00	0.00	0.00	0.00	0.00	0.00	0.00
8,684.29	8.17	238.03	8,684.04	-2.80	-4.49	3.27	11.00	11.00	0.00
1st BSPG Sand									
8,700.00	9.90	238.03	8,699.55	-4.11	-6.58	4.79	11.00	11.00	0.00
8,800.00	20.90	238.03	8,795.82	-18.14	-29.07	21.18	11.00	11.00	0.00
8,900.00	31.90	238.03	8,885.25	-41.65	-66.73	48.61	11.00	11.00	0.00
8,963.72	38.91	238.03	8,937.16	-61.18	-98.03	71.41	11.00	11.00	0.00
9,000.00	40.92	232.66	8,964.99	-74.42	-117.14	86.64	11.00	5.54	-14.82
9,100.00	47.54	220.03	9,036.75	-122.69	-167.06	140.01	11.00	6.63	-12.63
9,200.00	55.28	209.99	9,099.17	-186.72	-211.47	208.47	11.00	7.73	-10.03
9,300.00	63.69	201.75	9,149.97	-264.18	-248.74	289.50	11.00	8.41	-8.24
9,318.01	65.25	200.40	9,157.73	-279.34	-254.58	305.20	11.00	8.68	-7.48
2nd BSPG Sand									
9,400.00	72.51	194.65	9,187.27	-352.22	-277.50	380.12	11.00	8.85	-7.01
9,500.00	81.55	188.22	9,209.72	-447.60	-296.69	477.02	11.00	9.05	-6.43
9,581.80	89.03	183.20	9,216.43	-528.63	-304.78	558.45	11.00	9.14	-6.14
9,600.00	89.03	183.20	9,216.74	-546.80	-305.79	576.63	0.00	0.00	0.00
9,700.00	89.03	183.20	9,218.44	-646.63	-311.37	676.48	0.00	0.00	0.00
9,800.00	89.03	183.20	9,220.13	-746.46	-316.96	776.32	0.00	0.00	0.00
9,900.00	89.03	183.20	9,221.82	-846.29	-322.54	876.17	0.00	0.00	0.00
10,000.00	89.03	183.20	9,223.51	-946.12	-328.12	976.02	0.00	0.00	0.00
10,100.00	89.03	183.20	9,225.21	-1,045.95	-333.70	1,075.87	0.00	0.00	0.00
10,200.00	89.03	183.20	9,226.90	-1,145.78	-339.28	1,175.72	0.00	0.00	0.00
10,300.00	89.03	183.20	9,228.59	-1,245.61	-344.86	1,275.57	0.00	0.00	0.00
10,400.00	89.03	183.20	9,230.29	-1,345.44	-350.44	1,375.42	0.00	0.00	0.00
10,500.00	89.03	183.20	9,231.98	-1,445.27	-356.02	1,475.27	0.00	0.00	0.00
10,600.00	89.03	183.20	9,233.67	-1,545.10	-361.61	1,575.11	0.00	0.00	0.00
10,700.00	89.03	183.20	9,235.36	-1,644.93	-367.19	1,674.96	0.00	0.00	0.00
10,800.00	89.03	183.20	9,237.06	-1,744.76	-372.77	1,774.81	0.00	0.00	0.00
10,900.00	89.03	183.20	9,238.75	-1,844.59	-378.35	1,874.66	0.00	0.00	0.00
11,000.00	89.03	183.20	9,240.44	-1,944.42	-383.93	1,974.51	0.00	0.00	0.00
11,100.00	89.03	183.20	9,242.14	-2,044.25	-389.51	2,074.36	0.00	0.00	0.00
11,200.00	89.03	183.20	9,243.83	-2,144.08	-395.09	2,174.21	0.00	0.00	0.00
11,300.00	89.03	183.20	9,245.52	-2,243.91	-400.68	2,274.05	0.00	0.00	0.00
11,400.00	89.03	183.20	9,247.21	-2,343.74	-406.26	2,373.90	0.00	0.00	0.00
11,500.00	89.03	183.20	9,248.91	-2,443.57	-411.84	2,473.75	0.00	0.00	0.00
11,600.00	89.03	183.20	9,250.60	-2,543.40	-417.42	2,573.60	0.00	0.00	0.00
11,700.00	89.03	183.20	9,252.29	-2,643.23	-423.00	2,673.45	0.00	0.00	0.00
11,800.00	89.03	183.20	9,253.99	-2,743.06	-428.58	2,773.30	0.00	0.00	0.00
11,900.00	89.03	183.20	9,255.68	-2,842.89	-434.16	2,873.15	0.00	0.00	0.00
12,000.00	89.03	183.20	9,257.37	-2,942.72	-439.74	2,973.00	0.00	0.00	0.00
12,100.00	89.03	183.20	9,259.06	-3,042.55	-445.33	3,072.84	0.00	0.00	0.00
12,200.00	89.03	183.20	9,260.76	-3,142.38	-450.91	3,172.69	0.00	0.00	0.00
12,300.00	89.03	183.20	9,262.45	-3,242.21	-456.49	3,272.54	0.00	0.00	0.00
12,400.00	89.03	183.20	9,264.14	-3,342.04	-462.07	3,372.39	0.00	0.00	0.00
12,500.00	89.03	183.20	9,265.84	-3,441.87	-467.65	3,472.24	0.00	0.00	0.00
12,600.00	89.03	183.20	9,267.53	-3,541.70	-473.23	3,572.09	0.00	0.00	0.00
12,700.00	89.03	183.20	9,269.22	-3,641.52	-478.81	3,671.94	0.00	0.00	0.00
12,800.00	89.03	183.20	9,270.92	-3,741.35	-484.40	3,771.79	0.00	0.00	0.00
12,900.00	89.03	183.20	9,272.61	-3,841.18	-489.98	3,871.63	0.00	0.00	0.00
13,000.00	89.03	183.20	9,274.30	-3,941.01	-495.56	3,971.48	0.00	0.00	0.00
13,100.00	89.03	183.20	9,275.99	-4,040.84	-501.14	4,071.33	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Weissbeir "23" 1H - Slot 1H
Company:	Devon Energy, Inc.	**TVD Reference:**	WELL @ 3755.70usft (Original Well Elev)
Project:	Lea County (NAD83)	**MD Reference:**	WELL @ 3755.70usft (Original Well Elev)
Site:	Weissbeir 23	**North Reference:**	Grid
Well:	Weissbeir "23" 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design #1		

Planned 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)
13,200.00	89.03	183.20	9,277.69	-4,140.67	-506.72	4,171.18	0.00	0.00	0.00
13,300.00	89.03	183.20	9,279.38	-4,240.50	-512.30	4,271.03	0.00	0.00	0.00
13,400.00	89.03	183.20	9,281.07	-4,340.33	-517.88	4,370.88	0.00	0.00	0.00
13,500.00	89.03	183.20	9,282.77	-4,440.16	-523.47	4,470.73	0.00	0.00	0.00
13,600.00	89.03	183.20	9,284.46	-4,539.99	-529.05	4,570.57	0.00	0.00	0.00
13,700.00	89.03	183.20	9,286.15	-4,639.82	-534.63	4,670.42	0.00	0.00	0.00
13,800.00	89.03	183.20	9,287.84	-4,739.65	-540.21	4,770.27	0.00	0.00	0.00
13,900.00	89.03	183.20	9,289.54	-4,839.48	-545.79	4,870.12	0.00	0.00	0.00
14,000.00	89.03	183.20	9,291.23	-4,939.31	-551.37	4,969.97	0.00	0.00	0.00
14,100.00	89.03	183.20	9,292.92	-5,039.14	-556.95	5,069.82	0.00	0.00	0.00
14,200.00	89.03	183.20	9,294.62	-5,138.97	-562.53	5,169.67	0.00	0.00	0.00
14,281.80	89.03	183.20	9,296.00	-5,220.63	-567.10	5,251.34	0.00	0.00	0.00

Design Targets

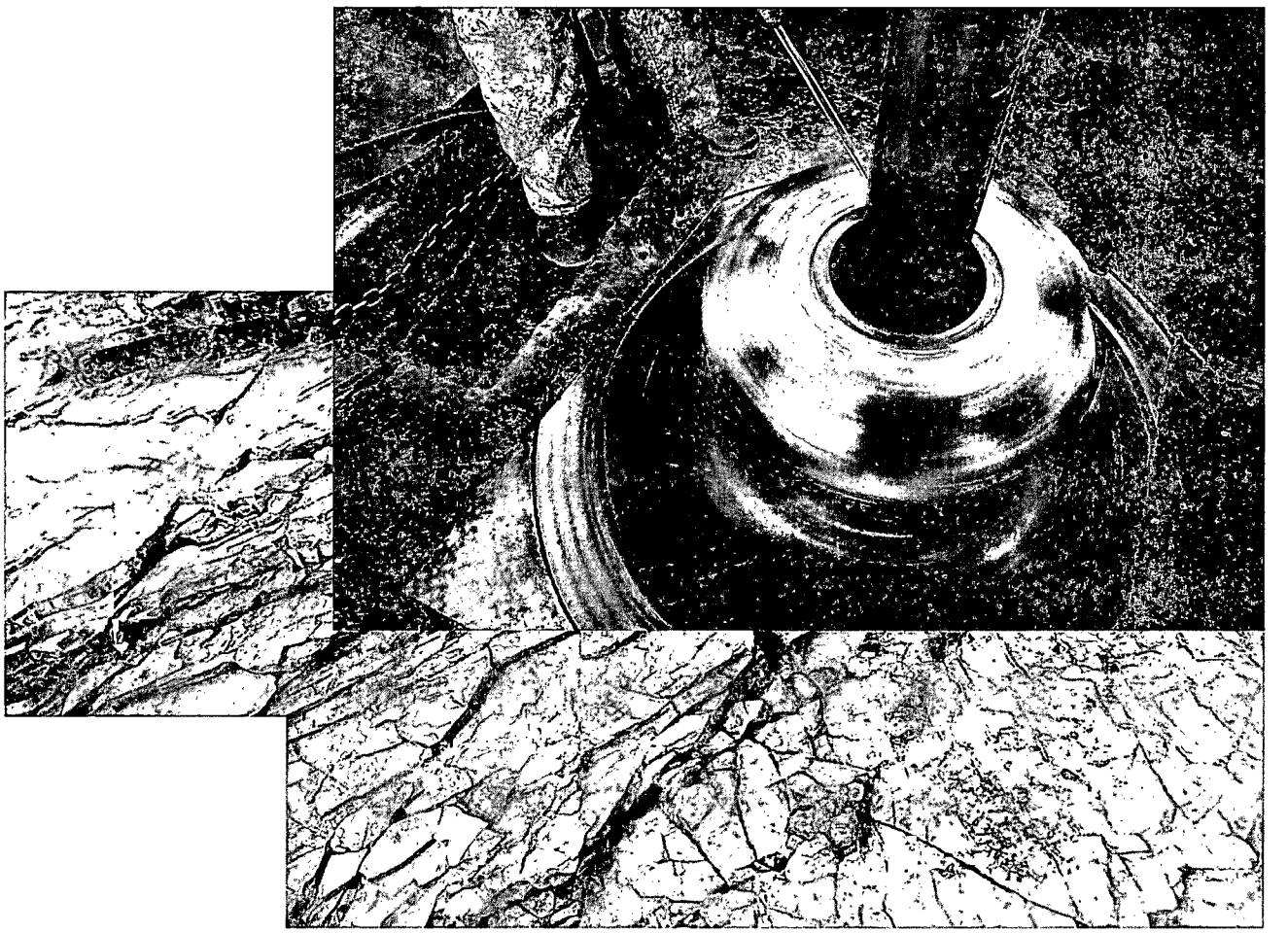
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LP - 1H - plan misses target center by 266.64usft at 9079.51usft MD (9022.72 TVD, -111.44 N, -157.22 E) - Point	0.00	0.01	9,207.00	0.00	0.00	666,845.25	883,963.81	32° 49' 41.570 N	103° 13' 4.552 W
Toe - Weissbeir 23 1H - plan hits target center - Point	0.00	0.00	9,296.00	-5,220.63	-567.10	661,624.62	883,396.71	32° 48' 49.981 N	103° 13' 11.841 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,218.00	2,218.00	Rustler		0.70	186.20
2,344.00	2,344.00	Top of Salt		0.70	186.20
3,504.00	3,504.00	Base of Salt		0.70	186.20
3,544.00	3,544.00	Yates		0.70	186.20
4,574.00	4,574.00	Queen		0.70	186.20
5,377.00	5,377.00	Grayburg		0.70	186.20
6,464.00	6,464.00	Brushy Canyon		0.70	186.20
6,779.00	6,779.00	1st BSPG Lime		0.70	186.20
8,684.29	8,684.04	1st BSPG Sand		0.70	186.20
9,318.01	9,157.73	2nd BSPG Sand		0.70	186.20

devon

Commitment Runs Deep



Design Plan
Operation and Maintenance Plan
Closure Plan

SENM - Closed Loop Systems
February 2014

I. Design Plan

Devon uses MI SWACO closed loop system (CLS). The MI SWACO CLS is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This insures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

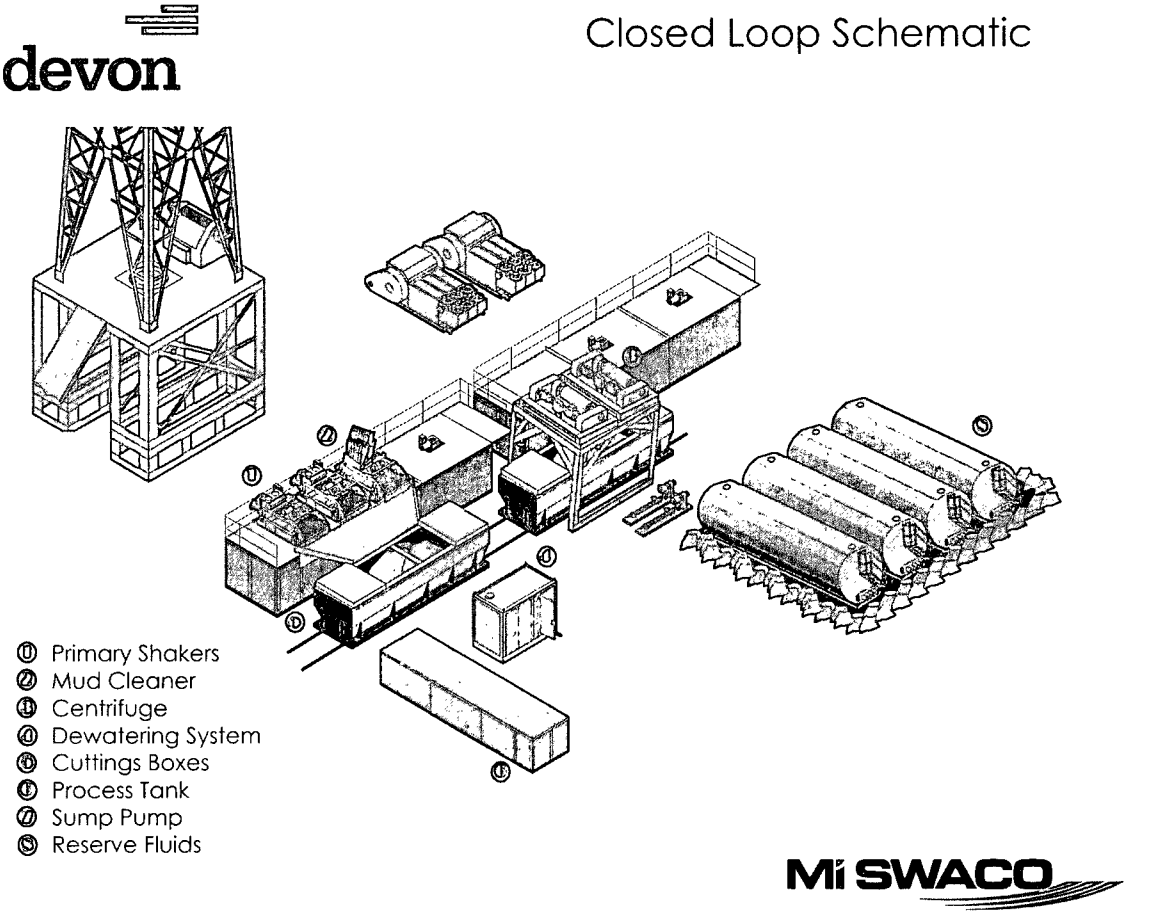
Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

Signs will be posted on the fence surrounding the closed-loop system unless the closed-loop system is located on a site where there is an existing well, that is operated by Devon.

II. Operations and Maintenance Plan

Primary Shakers: The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

Mud Cleaner: The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydrocyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.



Centrifuges: The centrifuges can be one or two in number depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependant on well factors.

Dewatering System: The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. Not commonly used in shallow wells. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds ultra fine solids into a mass that is within the centrifuge operating design. The

dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

Cuttings Boxes: Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

Process Tank: (Optional) The process tank allows for the holding and process of fluids that are being transferred into the mud system. Additionally, during times of lost circulation the process tank may hold active fluids that are removed for additional treatment. It can further be used as a mixing tank during well control conditions.

Sump and Sump Pump: The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

Reserve Fluids (Tank Farm): A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

If a leak develops, the appropriate division district office will be notified within 48 hours of the discovery and the leak will be addressed. Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and testing will be performed to determine if a release has occurred.

All trash is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe

dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

These operations are monitored by Mi Swaco service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

A MI SWACO field supervisor manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of MI SWACO safety and operational policy.

III. Closure Plan

A maximum 340' X 340' caliche pad is built per well. All of the trucks and steel tanks fit on this pad. All fluid cuttings go to the steel tanks to be hauled by various trucking companies to an agency approved disposal.