

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 & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

RECEIVED
JUL 23 2012
Form C-102
Revised October 15, 2009
Submit a copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number 30-015-40513		2 Pool Code 55510		3 Pool Name Scanlon Draw; Bone Spring	
4 Property Code		5 Property Name EMERALD PWU "20"			6 Well Number 8H
7 OGRID No 6137		8 Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.			9 Elevation 3325.8

10 Surface Location

U.I. or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	21	19 S	29 E		180	SOUTH	50	WEST	EDDY

11 Bottom Hole Location If Different From Surface

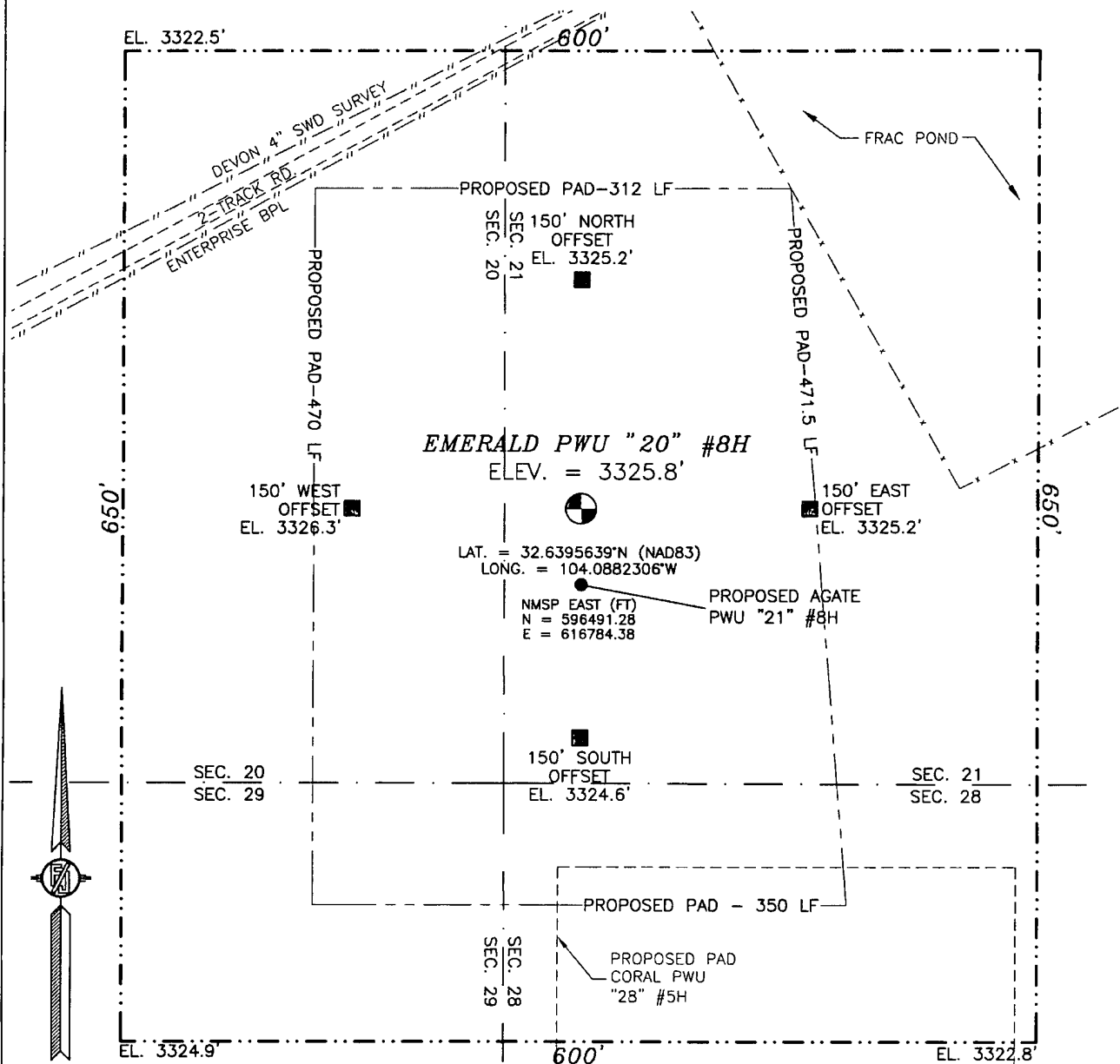
U.I. or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	20	19 S	29 E		330	SOUTH	330	WEST	EDDY

12 Dedicated Acres 160	13 Joint or Infill	14 Consolidation Code	15 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.

16 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 undivided 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 Melanie Crawford 7/20/12 Signature _____ Date _____ Printed Name _____		17 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 MAILED JUL 23 2012 Date of Survey _____ Signature and Seal of Professional Surveyor _____ Certificate Number _____	
SECTION 20 SW CORNER SEC. 20 LAT. = 32.6391267°N LONG. = 104.1055996°W NWSP EAST (FT) N = 596721.06 E = 611439.23 SE CORNER SEC. 20 LAT. = 32.6390370°N LONG. = 104.0712463°W NWSP EAST (FT) N = 598312.05 E = 622012.01 SECTION 21 SW CORNER SEC. 21 LAT. = 32.6390370°N LONG. = 104.0712463°W NWSP EAST (FT) N = 598312.05 E = 622012.01 SE CORNER SEC. 21 LAT. = 32.6391267°N LONG. = 104.1055996°W NWSP EAST (FT) N = 596721.06 E = 611439.23 EMERALD PWU "20" 8H ELEV. = 3325.8' LAT. = 32.6395619°N (H-CH3) LONG. = 104.0882306°W NWSP EAST (FT) N = 598471.28 E = 615784.38		SURFACE SW CORNER SEC. 21 LAT. = 32.6395619°N LONG. = 104.0882306°W NWSP EAST (FT) N = 598471.28 E = 615784.38 SE CORNER SEC. 21 LAT. = 32.6391267°N LONG. = 104.1055996°W NWSP EAST (FT) N = 596721.06 E = 611439.23	

SECTION 21, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF CR 210 (OLD LOCO) AND CR 235 (CURRY COMB) GO SOUTHEAST ON CR 235 FOR APPROX. 0.2 OF A MILE. GO SOUTH-SOUTHEAST (AT DEVON PARKWAY SIGN) FOR APPROX. 1 MILE. GO WEST APPROX. 0.5 OF A MILE. VEER SOUTHWEST AND GO APPROX. 0.4 OF A MILE TO THE CORAL PWU "28" #5H WELL. LOCATION IS APPROX. 412 FT NORTHWEST OF WELL HEAD.

DEVON ENERGY PRODUCTION COMPANY, L.P.

EMERALD PWU "20" #8H

LOCATED 180 FT. FROM THE SOUTH LINE
AND 50 FT. FROM THE WEST LINE OF
SECTION 21, TOWNSHIP 19 SOUTH,
RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MAY 1, 2012

SURVEY NO. 971

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

[illegible]

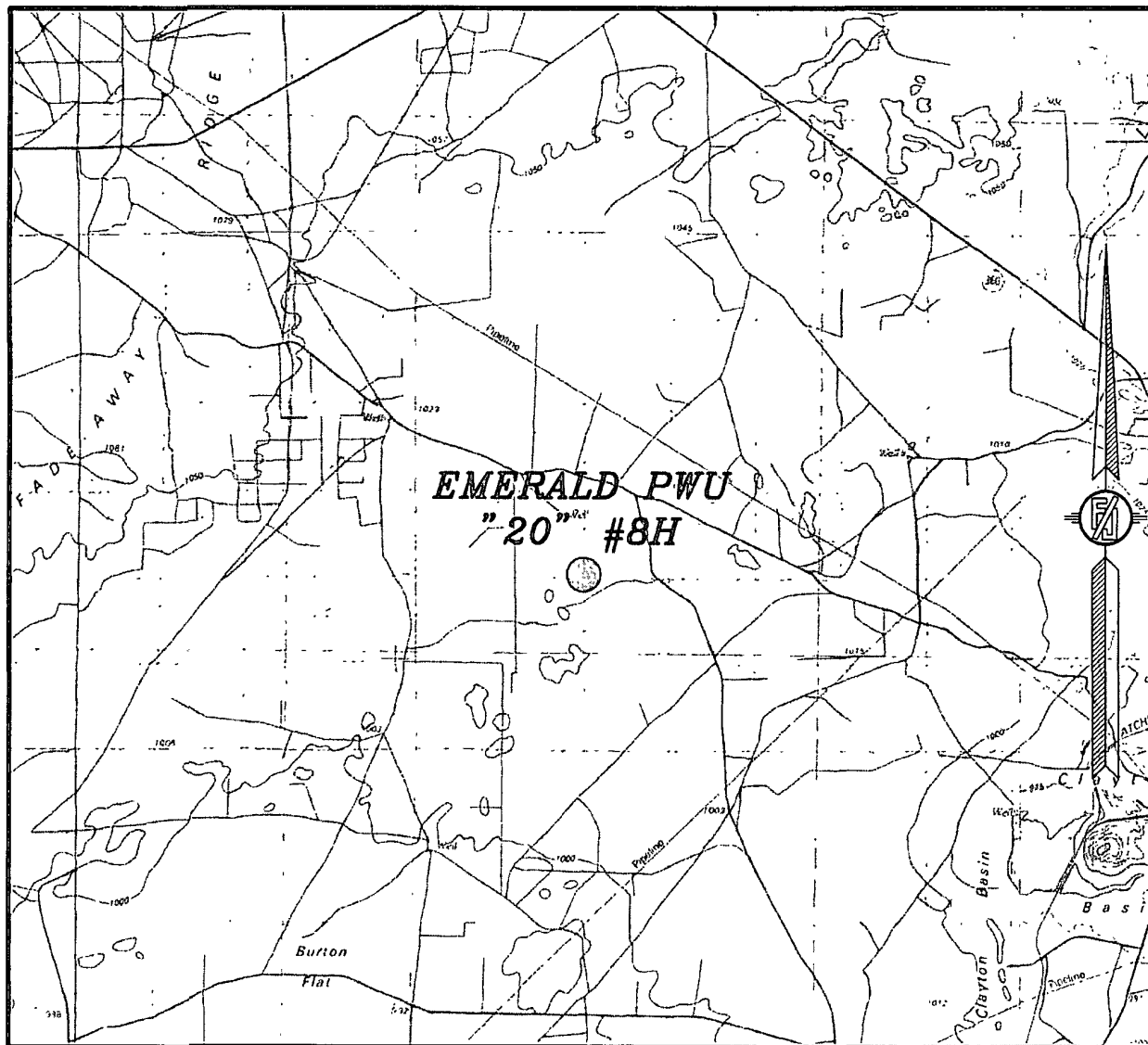
NOT TO SCALE

MAY 1, 2012

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

301 SOUTH CANAL
(575) 234-3341

SECTION 21, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

EMERALD PWU "20" #8H

LOCATED 180 FT. FROM THE SOUTH LINE
AND 50 FT. FROM THE WEST LINE OF
SECTION 21, TOWNSHIP 19 SOUTH,
RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MAY 1, 2012

SURVEY NO. 971

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

RECEIVED

Devon Energy Corporation

HALLIBURTON | Sperry Drilling

JUL 23 2012

NMOCD ARTESIA
devon

Project: Eddy County, NM (NAD 83)
Site: Emerald PWU 20
Well: Emerald PWU 20 8H
Wellbore: Wellbore #1
Plan: Plan #1
Rig: Cactus 126

SURFACE LOCATION

US State Plane 1983
New Mexico Eastern Zone
Elevation: GL 3325.8' + 25'KB @ 3350.80ft (Cactus 126)
Northing Easting Latitude Longitude
596491.28 616784.38 32° 38' 22.430 N 104° 5' 17.630 W

SECTION DETAILS

CASING DETAILS

TVD	MD	Name
300.00	300.00	Surface Csg
3200.00	3200.00	Intermediate Csg
6832.00	11729.31	Production Csg

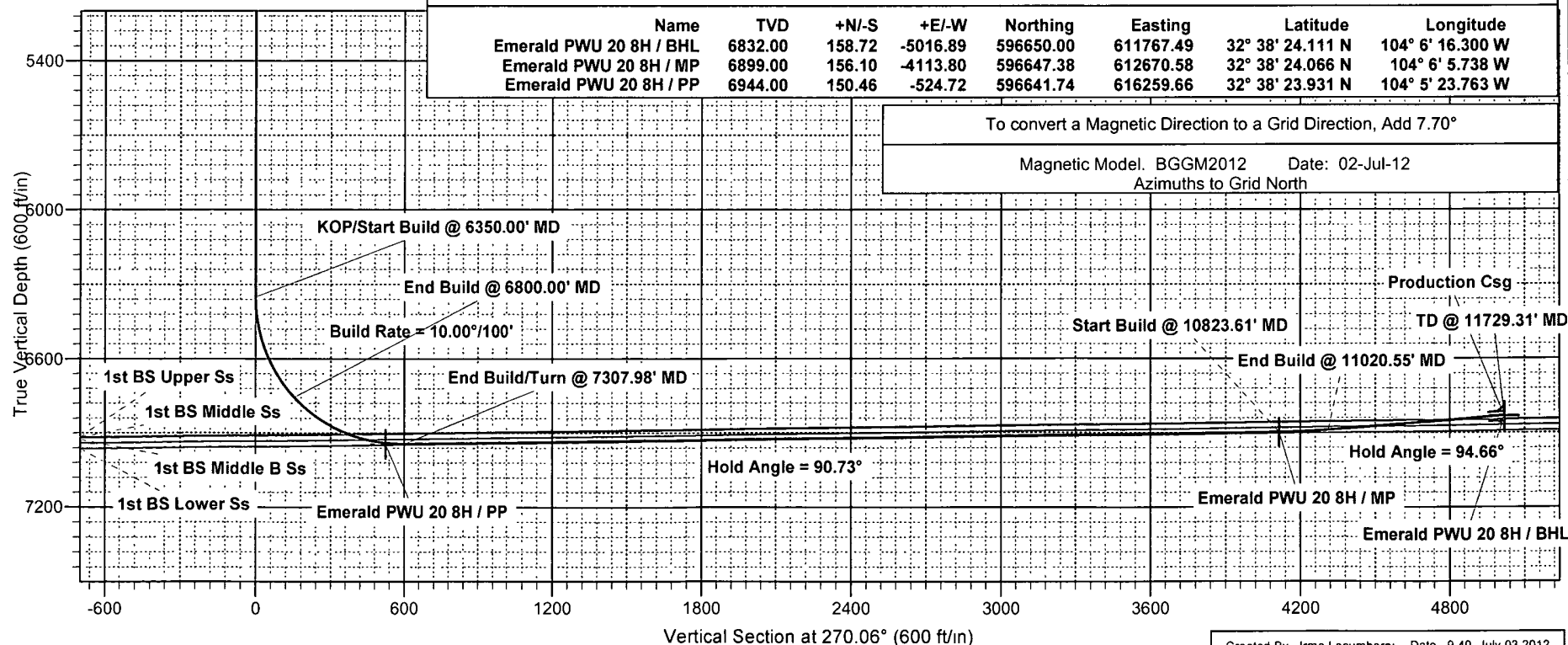
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6350.00	0.00	0.00	6350.00	0.00	0.00	0.00	0.00	0.00	KOP/Start Build
6800.00	45.00	295.00	6755.14	70.92	-152.09	10.00	295.00	152.17	End Build
7307.98	90.73	270.06	6944.03	152.50	-598.46	10.00	-32.96	598.62	End Build/Turn
10823.61	90.73	270.06	6899.00	156.10	-4113.80	0.00	0.00	4113.96	Start Build
11020.55	94.67	270.18	6889.72	156.51	-4310.49	2.00	1.75	4310.65	End Build
11729.31	94.67	270.18	6832.00	158.72	-5016.89	0.00	0.00	5017.05	TD

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Emerald PWU 20 8H / BHL	6832.00	158.72	-5016.89	596650.00	611767.49	32° 38' 24.111 N	104° 6' 16.300 W
Emerald PWU 20 8H / MP	6899.00	156.10	-4113.80	596647.38	612670.58	32° 38' 24.066 N	104° 6' 5.738 W
Emerald PWU 20 8H / PP	6944.00	150.46	-524.72	596641.74	616259.66	32° 38' 23.931 N	104° 5' 23.763 W

To convert a Magnetic Direction to a Grid Direction, Add 7.70°

Magnetic Model: BGGM2012 Date: 02-Jul-12
Azimuths to Grid North



Created By Irma Lecumberry Date 9 40, July 03 2012



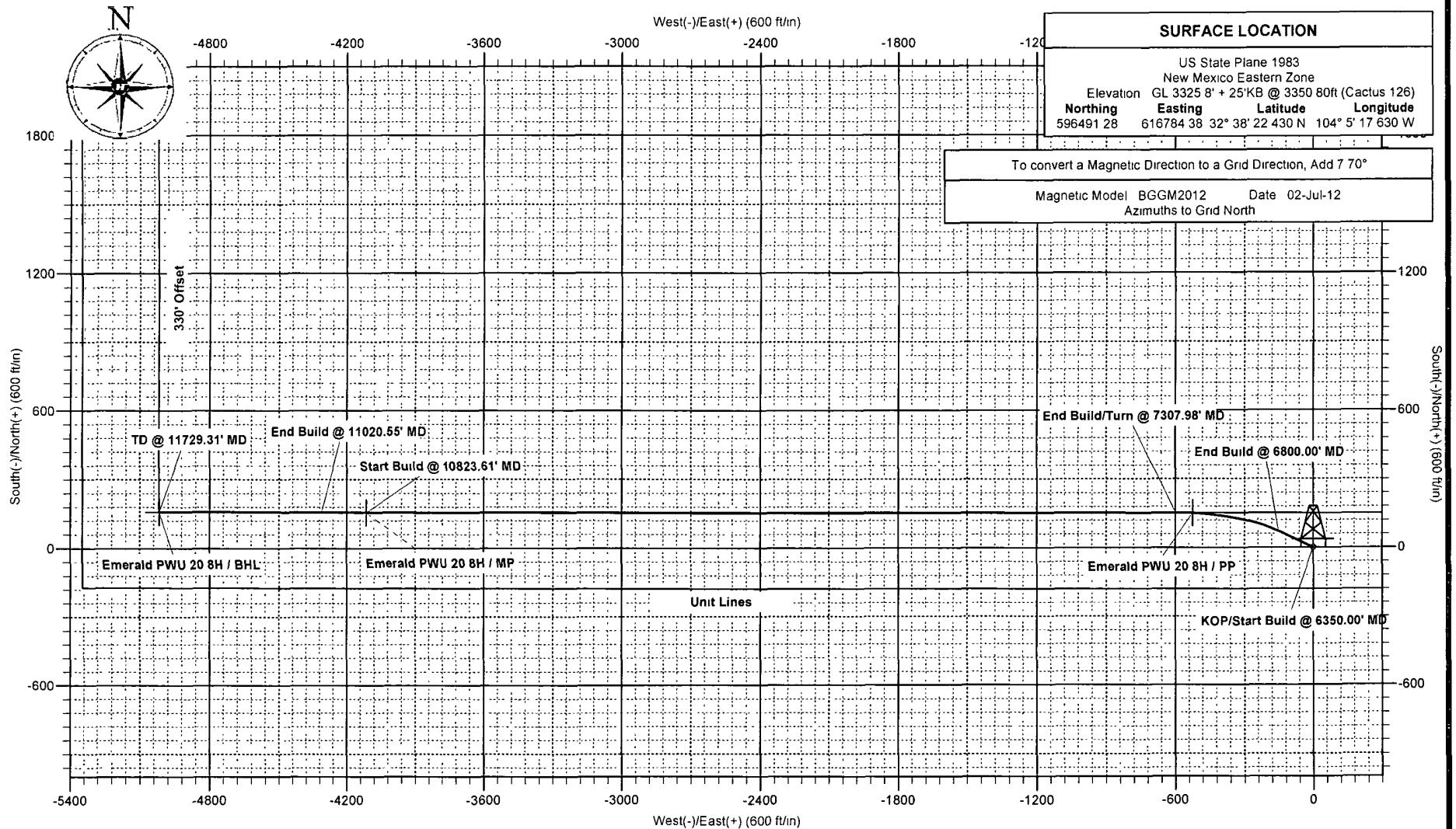
Project: Eddy County, NM (NAD 83)
 Site: Emerald PWU 20
 Well: Emerald PWU 20 8H
 Wellbore: Wellbore #1
 Plan: Plan #1
 Rig: Cactus 126

SURFACE LOCATION

US State Plane 1983
 New Mexico Eastern Zone
 Elevation GL 3325 8' + 25' KB @ 3350 80ft (Cactus 126)
 Northing 596491 28 Easting 616784 38 Latitude 32° 38' 22 430 N Longitude 104° 5' 17 630 W

To convert a Magnetic Direction to a Grid Direction, Add 7 70°

Magnetic Model BGGM2012 Date 02-Jul-12
 Azimuths to Grid North



Devon Energy Corporation

Eddy County, NM (NAD 83)

Emerald PWU 20

Emerald PWU 20 8H

Wellbore #1

Plan: Plan #1

Sperry Drilling Services Proposal Report

03 July, 2012

Well Coordinates 596,491 28 N, 616,784 38 E (32° 38' 22 43" N, 104° 05' 17 63" W)

Ground Level 3,325 80 ft

Local Coordinate Origin

Centered on Well Emerald PWU 20 8H

Viewing Datum

GL 3325 8' + 25'KB @ 3350 80ft (Cactus 126)

TVDs to System

N

North Reference

Grid

Unit System

API - US Survey Feet

Version: 2003 16 Build 431

HALLIBURTON

Plan Report for Emerald PWU 20 8H - Plan #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0.00	0 00
25 00	0 00	0 00	25 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
Rustler										
300 00	0 00	0 00	300 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
13 3/8"										
444 00	0 00	0 00	444 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
Salado										
1,066 00	0 00	0 00	1,066 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
Base of Salt										
1,149 00	0 00	0 00	1,149 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
Tansil Dolomite										
2,024 00	0 00	0 00	2,024 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
Queen										
2,749.00	0 00	0 00	2,749 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
San Andres										
3,200 00	0 00	0 00	3,200 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
9 5/8"										
3,287 00	0 00	0 00	3,287 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
Delaware										
4,829 00	0 00	0 00	4,829 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
Cutoff Fm										
4,989 00	0 00	0 00	4,989 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
Bone Spring Lm										
6,350 00	0 00	0 00	6,350 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
KOP/Start Build @ 6350.00' MD - Build Rate = 10.00°/100'										
6,400 00	5 00	295 00	6,399 94	0.92	-1 98	1 98	10 00	10 00	0 00	295 00
6,500.00	15 00	295 00	6,498 29	8 25	-17 69	17 70	10 00	10 00	0 00	0 00
6,600 00	25 00	295 00	6,592 14	22 69	-48 65	48 68	10 00	10 00	0 00	0 00
6,700 00	35 00	295 00	6,678 64	43 79	-93 91	93 96	10 00	10 00	0 00	0 00
6,800 00	45 00	295 00	6,755 14	70.92	-152 09	152 17	10 00	10 00	0 00	0 00
End Build @ 6800.00' MD										
6,900 00	53 61	288 26	6,820 33	98 54	-222 54	222 64	10 00	8 61	-6 74	-32 96
7,000 00	62 51	282 89	6,873 21	121 11	-304 20	304 33	10 00	8 91	-5 37	-28 55
7,073 52	69 18	279 49	6,903 28	134 06	-369 97	370 11	10 00	9 07	-4 63	-25 70
1st BS Upper Ss										
7,079.03	69 68	279 24	6,905 22	134.90	-375 06	375 20	10 00	9 12	-4 39	-24 31
1st BS Middle Ss										
7,100 00	71 59	278 34	6,912 17	137 92	-394 61	394 75	10 00	9 13	-4 32	-24 22
7,151 25	76 29	276 20	6,926 35	144.14	-443 45	443 60	10 00	9 16	-4 17	-23 92
1st BS Middle B Ss										
7,200 00	80 77	274 25	6,936 04	148 49	-491 01	491 17	10 00	9 20	-4 01	-23 33
7,300.00	90 00	270 37	6,944 08	152 47	-590 48	590 64	10 00	9 22	-3 88	-22 94
7,307 98	90 73	270 06	6,944 03	152 50	-598 46	598 62	10 00	9 23	-3 85	-22 63
End Build/Turn @ 7307.98' MD - Hold Angle = 90.73°										
7,400 00	90 73	270 06	6,942 85	152 59	-690 47	690 63	0 00	0 00	0 00	-22 63
7,500 00	90 73	270 06	6,941 57	152 70	-790 47	790 63	0 00	0 00	0 00	0 00
7,600 00	90 73	270 06	6,940 29	152 80	-890 46	890 62	0 00	0 00	0 00	0 00
7,700.00	90 73	270 06	6,939 01	152 90	-990 45	990 61	0 00	0 00	0 00	0 00
7,800 00	90 73	270 06	6,937 72	153 00	-1,090 44	1,090 60	0 00	0 00	0 00	0 00
7,900 00	90 73	270 06	6,936 44	153 11	-1,190 43	1,190 59	0 00	0 00	0 00	0 00
8,000 00	90 73	270 06	6,935 16	153 21	-1,290 42	1,290 58	0 00	0 00	0 00	0 00
8,100 00	90 73	270 06	6,933.88	153 31	-1,390 42	1,390 58	0 00	0 00	0 00	0 00
8,200 00	90 73	270 06	6,932 60	153 41	-1,490 41	1,490 57	0 00	0 00	0 00	0 00
8,300 00	90 73	270 06	6,931 32	153 52	-1,590 40	1,590 56	0 00	0 00	0 00	0 00
8,400 00	90 73	270 06	6,930 04	153 62	-1,690 39	1,690 55	0 00	0 00	0 00	0 00
8,500 00	90 73	270 06	6,928 76	153 72	-1,790 38	1,790 54	0 00	0 00	0 00	0 00
8,600 00	90 73	270 06	6,927 48	153 82	-1,890 38	1,890 54	0 00	0 00	0 00	0 00

Plan Report for Emerald PWU 20 8H - Plan #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
8,700.00	90.73	270.06	6,926.20	153.93	-1,990.37	1,990.53	0.00	0.00	0.00	0.00
8,800.00	90.73	270.06	6,924.92	154.03	-2,090.36	2,090.52	0.00	0.00	0.00	0.00
8,900.00	90.73	270.06	6,923.64	154.13	-2,190.35	2,190.51	0.00	0.00	0.00	0.00
9,000.00	90.73	270.06	6,922.36	154.23	-2,290.34	2,290.50	0.00	0.00	0.00	0.00
9,100.00	90.73	270.06	6,921.07	154.34	-2,390.33	2,390.49	0.00	0.00	0.00	0.00
9,200.00	90.73	270.06	6,919.79	154.44	-2,490.33	2,490.49	0.00	0.00	0.00	0.00
9,300.00	90.73	270.06	6,918.51	154.54	-2,590.32	2,590.48	0.00	0.00	0.00	0.00
9,400.00	90.73	270.06	6,917.23	154.64	-2,690.31	2,690.47	0.00	0.00	0.00	0.00
9,500.00	90.73	270.06	6,915.95	154.75	-2,790.30	2,790.46	0.00	0.00	0.00	0.00
9,600.00	90.73	270.06	6,914.67	154.85	-2,890.29	2,890.45	0.00	0.00	0.00	0.00
9,700.00	90.73	270.06	6,913.39	154.95	-2,990.28	2,990.45	0.00	0.00	0.00	0.00
9,800.00	90.73	270.06	6,912.11	155.05	-3,090.28	3,090.44	0.00	0.00	0.00	0.00
9,900.00	90.73	270.06	6,910.83	155.16	-3,190.27	3,190.43	0.00	0.00	0.00	0.00
10,000.00	90.73	270.06	6,909.55	155.26	-3,290.26	3,290.42	0.00	0.00	0.00	0.00
10,100.00	90.73	270.06	6,908.27	155.36	-3,390.25	3,390.41	0.00	0.00	0.00	0.00
10,200.00	90.73	270.06	6,906.99	155.46	-3,490.24	3,490.40	0.00	0.00	0.00	0.00
10,300.00	90.73	270.06	6,905.71	155.57	-3,590.23	3,590.40	0.00	0.00	0.00	0.00
10,400.00	90.73	270.06	6,904.43	155.67	-3,690.23	3,690.39	0.00	0.00	0.00	0.00
10,500.00	90.73	270.06	6,903.14	155.77	-3,790.22	3,790.38	0.00	0.00	0.00	0.00
10,600.00	90.73	270.06	6,901.86	155.87	-3,890.21	3,890.37	0.00	0.00	0.00	0.00
10,700.00	90.73	270.06	6,900.58	155.98	-3,990.20	3,990.36	0.00	0.00	0.00	0.00
10,800.00	90.73	270.06	6,899.30	156.08	-4,090.19	4,090.35	0.00	0.00	0.00	0.00
10,823.61	90.73	270.06	6,899.00	156.10	-4,113.80	4,113.96	0.00	0.00	0.00	0.00
Start Build @ 10823.61' MD - Emerald PWU 20 8H / MP										
10,900.00	92.26	270.11	6,897.00	156.21	-4,190.16	4,190.32	2.00	2.00	0.06	1.75
11,000.00	94.26	270.17	6,891.32	156.45	-4,290.00	4,290.16	2.00	2.00	0.06	1.75
11,020.00	94.66	270.18	6,889.76	156.51	-4,309.94	4,310.10	2.00	2.00	0.06	1.75
Hold Angle = 94.66°										
11,020.55	94.67	270.18	6,889.72	156.51	-4,310.48	4,310.65	2.00	2.00	0.06	1.75
End Build @ 11020.55' MD										
11,100.00	94.67	270.18	6,883.25	156.76	-4,389.67	4,389.83	0.00	0.00	0.00	1.75
11,200.00	94.67	270.18	6,875.10	157.07	-4,489.34	4,489.50	0.00	0.00	0.00	0.00
11,300.00	94.67	270.18	6,866.96	157.38	-4,589.00	4,589.17	0.00	0.00	0.00	0.00
11,400.00	94.67	270.18	6,858.82	157.69	-4,688.67	4,688.83	0.00	0.00	0.00	0.00
11,500.00	94.67	270.18	6,850.67	158.01	-4,788.34	4,788.50	0.00	0.00	0.00	0.00
11,600.00	94.67	270.18	6,842.53	158.32	-4,888.01	4,888.17	0.00	0.00	0.00	0.00
11,700.00	94.67	270.18	6,834.39	158.63	-4,987.67	4,987.84	0.00	0.00	0.00	0.00
11,729.31	94.67	270.18	6,832.00	158.72	-5,016.89	5,017.05	0.00	0.00	0.00	0.00
TD @ 11729.31' MD - 5 1/2" - Emerald PWU 20 8H / BHL										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,350.00	6,350.00	0.00	0.00	KOP/Start Build @ 6350.00' MD
6,350.00	6,350.00	0.00	0.00	Build Rate = 10.00°/100'
6,800.00	6,755.14	70.92	-152.09	End Build @ 6800.00' MD
7,307.98	6,944.03	152.50	-598.46	End Build/Turn @ 7307.98' MD
7,307.98	6,944.03	152.50	-598.46	Hold Angle = 90.73°
10,823.61	6,899.00	156.10	-4,113.80	Start Build @ 10823.61' MD
11,020.00	6,889.76	156.51	-4,309.94	Hold Angle = 94.66°
11,020.55	6,889.72	156.51	-4,310.48	End Build @ 11020.55' MD
11,729.31	6,832.00	158.72	-5,016.89	TD @ 11729.31' MD

Plan Report for Emerald PWU 20 8H - Plan #1

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
User	No Target (Freehand)	270 06	Slot	0 00	0 00	0 00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0 00	11,729 31	Plan #1	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
300 00	300 00	13 3/8"	13-3/8	17-1/2
3,200 00	3,200 00	9 5/8"	9-5/8	12-1/4
11,729 31	6,832 00	5 1/2"	5-1/2	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	6,954 00	1st BS Lower Ss		-0 73	270 06
25 00	25 00	Rustler		-0 73	270 06
444.00	444 00	Salado		-0 73	270 06
1,066.00	1,066 00	Base of Salt		-0 73	270 06
1,149 00	1,149 00	Tansil Dolomite		-0 73	270 06
2,024 00	2,024 00	Queen		-0 73	270 06
2,749 00	2,749 00	San Andres		-0 73	270 06
3,287 00	3,287 00	Delaware		-0 73	270 06
4,829 00	4,829 00	Cutoff Fm		-0 73	270 06
4,989.00	4,989.00	Bone Spring Lm		-0 73	270 06
7,073 52	6,908 00	1st BS Upper Ss		-0 73	270 06
7,079.03	6,910 00	1st BS Middle Ss		-0 73	270 06
7,151 25	6,932 00	1st BS Middle B Ss		-0 73	270 06

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Emerald PWU 20 8H / MP	6,899 00	156 10	-4,113 80	Point
Emerald PWU 20 8H / PP	6,944 00	150.46	-524 72	Point
Emerald PWU 20 8H / BHL	6,832 00	158 72	-5,016.89	Point

North Reference Sheet for Emerald PWU 20 - Emerald PWU 20 8H - Wellbore #1

All data is in US Feet unless otherwise stated Directions and Coordinates are relative to Grd North Reference

Vertical Depths are relative to GL 3325 8' + 25'KB @ 3350 80ft (Cactus 126) Northing and Easting are relative to Emerald PWU 20 8H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -104 33°, Longitude Origin 0° 0' 0 000 E°, Latitude Origin 0° 0' 0 000 N°

False Easting 541,337 50ft, False Northing 0 00ft, Scale Reduction 0 99991561

Grid Coordinates of Well 596,491 28 ft N, 616,784 38 ft E

Geographical Coordinates of Well 32° 38' 22 43" N, 104° 05' 17 63" W

Grd Convergence at Surface is 0 13°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,729 31ft

the Bottom Hole Displacement is 5,019 40ft in the Direction of 271 81° (Grid)

Magnetic Convergence at surface is -7 70° (2 July 2012, , BGGM2012)

