AT5-07-374

C/K 623

BOR

OCD-ARTESIA

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HIGH CAVEKARST

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

APPLICATION FOR PERMIT TO DRILL OR REENTER

Month - Year
MAY 1 2007
OCD - ARTESIA, NM

5. Lease Serial No.	NM-0375257-A
6. If Indian, Allotee or Tribe Name	
7. If Unit or CA Agreement, Name and No.	
8. Lease Name and Well No.	Avalon Hills 7 Fed Com 4 35311
9. API Well No.	30-015-35583
10. Field and Pool, or Exploratory	Burton Flat; Morrow
11. Sec., T. R. M. or Blk. and Survey or Area	Sec 7 T21S R27E Lot P
12. County or Parish	Eddy County
13. State	NM

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

2. Name of Operator: Devon Energy Production Company, LP 6137

3a. Address: 20 North Broadway, Oklahoma City, Oklahoma City 73102-8260

3b. Phone No. (include area code): 405-552-7802

4. Location of Well (Report location clearly and in accordance with any State requirements.*)
At surface: SESE 460' FSL & 360' FEL
At proposed prod. zone: SESE 960' FSL & 665' FEL CARLSBAD CONTROLLED WATER BASIN

14. Distance in miles and direction from nearest town or post office*: Approximately two miles north of Carlsbad.

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of acres in lease: 440	17. Spacing Unit dedicated to this well: 320
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth: 11,800'	20. BLM/BIA Bond No. on file: CO-1104
21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3211'	22. Approximate date work will start*: 03/15/2007	23. Estimated duration: 45 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature	Name (Printed/Typed): Stephanie A. Ysasaga	Date: 03/22/2007
Title: Sr. Staff Engineering Technician		
Approved by (Signature): /s/ James Stovall	Name (Printed/Typed): /s/ James Stovall	Date: APR 27 2007
Title: ACTING FIELD MANAGER	Office: CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR 1 YEAR

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*(Instructions on page 2)

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

Subject to Like Approval By State

If earthen pits are used in association with the drilling of this well, an OCD pit permit must be obtained prior to pit construction.

Additional Operator Remarks:

Devon Energy Production Company, LP proposes to drill a Morrow well to 11,800' for commercial quantities of oil and gas. If the well is deemed noncommercial, the wellbore will be plugged and abandoned per Federal regulations. Devon Energy Production Co., LP plans to drill the well per the attached Drilling and Surface Use Plan.

Directions To Location:

From the junction of Co. Rd. 600 (Rains) and Co. Rd. 206 (Illinois Camp), go east on Co. Rd. 600 for approximately 0.3 mile to a point on the proposed well pad.

Access Road:

Approximately 172' of access road will be required. Archeological survey's will be requested for the pad and existing access road.

H2S:

No H2S is anticipated to be encountered.

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Roswell Field Office
2909 West Second Street
Roswell, New Mexico 88201-1287

Statement Accepting Responsibility for Operations

Operator Name:	**Devon Energy Production Company, LP**
Street or Box:	**20 North Broadway, Suite 1500**
City, State:	**Oklahoma City, Oklahoma**
Zip Code:	**73102-8260**

The undersigned accepts all applicable terms, conditions, stipulations and restrictions concerning operations conducted on the leased land or portion thereof, as described below.

Lease Name:	**Avalon Hills 7 Fed Com 4**
Lease No.:	**NM-0375257-A**
Legal Description of Land:	**320 acres 7-T21S-R27E Lot P SESE 460' FSL & 360' FEL**
Formation(s):	**Morrow**
Bond Coverage:	**Nationwide**
BLM Bond File No.:	**CO-1104**
Authorized Signature:	**Stephanie A. Ysasaga**
Title:	**Sr. Staff Engineering Technician**
Date:	**03/22/07**

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

OIL CONSERVATION DIVISION

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

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease – 4 Copies
Fee Lease – 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	73280	BURTON FLAT; MORROW

Property Code	Property Name	Well Number
	AVALON HILLS "7" FED COM	4

OGRID No.	Operator Name	Elevation
6137	DEVON ENERGY PRODUCTION COMPANY LP	3211'

Surface Location

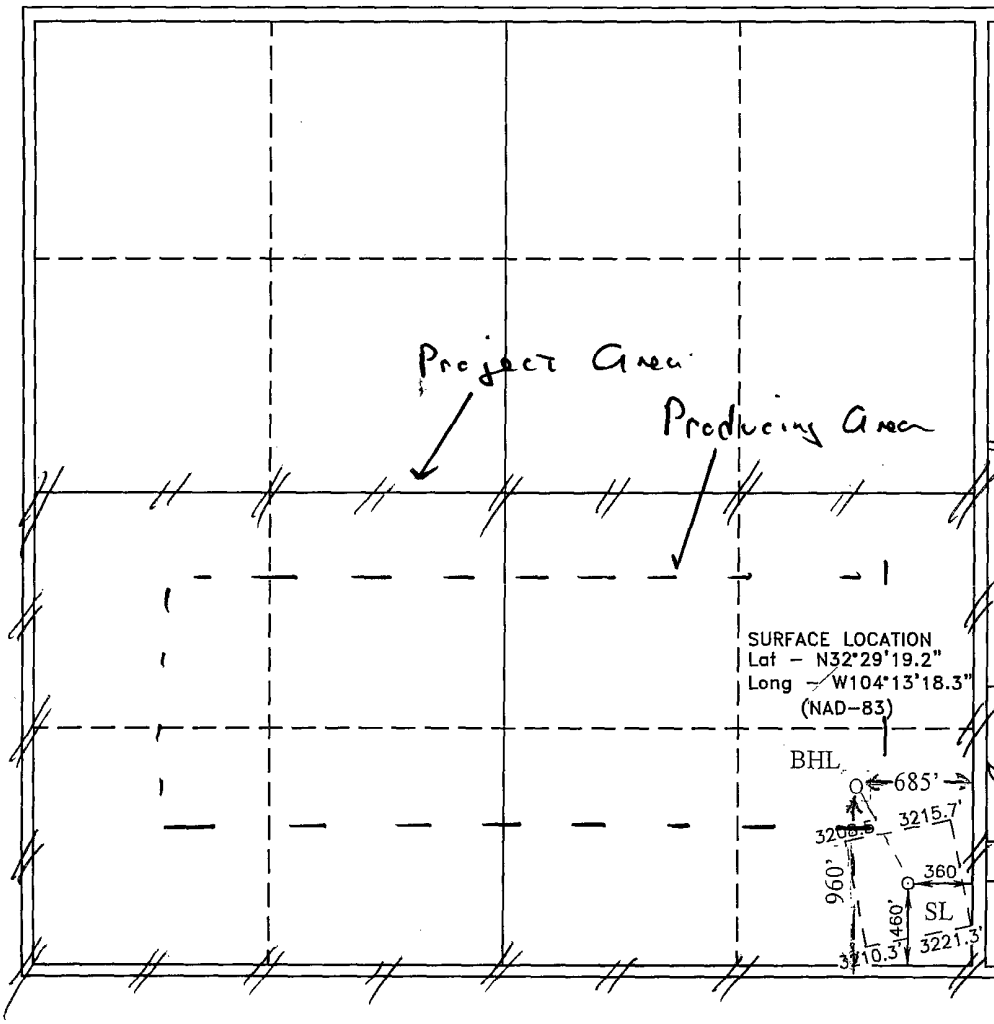
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	7	21 S	27 E		460	SOUTH	360	EAST	EDDY

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
P	7	21S	27E		960	SOUTH	685	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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 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.

03/20/07
Signature Date

STEPHANIE A. YSASAGA
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 supervison, and that the same is true and correct to the best of my belief.

MARCH 07, 2007
Date Surveyed
Signature & Seal of Professional Surveyor

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

Devon Energy

Eddy County (NM27E)
Sec 7-T21S-R27E
Avalon Hills 7 Federal #4
Wellbore #1

Plan: 03-07-07

Standard Planning Report

05 April, 2007

Quantum
Planning Report

Database:	EDM 2003.16 Single User Db	**Local Co-ordinate Reference:**	Well Avalon Hills 7 Federal #4
Company:	Devon Energy	**TVD Reference:**	WELL @ 0.00ft (Original Well Elev)
Project:	Eddy County (NM27E)	**MD Reference:**	WELL @ 0.00ft (Original Well Elev)
Site:	Sec 7-T21S-R27E	**North Reference:**	True
Well:	Avalon Hills 7 Federal #4	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	03-07-07		

Project	Eddy County (NM27E)		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Sec 7-T21S-R27E				
Site Position:		**Northing:**	540,370.989ft	**Latitude:**	32° 29' 8.010 N
From:	Lat/Long	**Easting:**	527,965.635ft	**Longitude:**	104° 14' 33.500 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	"	**Grid Convergence:**	0.05 °

Well	Avalon Hills 7 Federal #4					
Well Position	**+N/-S**	0.00 ft	**Northing:**	540,830.687 ft	**Latitude:**	32° 29' 12.562 N
	+E/-W	0.01 ft	**Easting:**	527,605.249 ft	**Longitude:**	104° 14' 37.703 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	0.00 ft

Wellbore	Wellbore #1			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	BGGM2006	3/7/2007	8.45	60.43	49,195

Design	03-07-07			
Audit Notes:				
Version:	**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.01	326.98

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	
4,950.00	0.00	0.00	4,950.00	0.00	0.01	0.00	0.00	0.00	0.00	
5,312.55	7.25	326.98	5,311.58	19.21	-12.48	2.00	2.00	0.00	326.98	
9,674.27	7.25	326.98	9,638.42	480.79	-312.51	0.00	0.00	0.00	0.00	
10,036.82	0.00	0.00	10,000.00	500.00	-325.00	2.00	-2.00	0.00	180.00	
11,621.82	0.00	0.00	11,585.00	500.00	-325.00	0.00	0.00	0.00	0.00	Avalon Hills 7 PBHl

Database:	EDM 2003.16 Single User Db	**Local Co-ordinate Reference:**	Well Avalon Hills 7 Federal #4
Company:	Devon Energy	**TVD Reference:**	WELL @ 0.00ft (Original Well Elev)
Project:	Eddy County (NM27E)	**MD Reference:**	WELL @ 0.00ft (Original Well Elev)
Site:	Sec 7-T21S-R27E	**North Reference:**	True
Well:	Avalon Hills 7 Federal #4	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	03-07-07		

Planned Survey

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)
0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.01	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.01	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.01	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.01	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.01	0.00	0.00	0.00	0.00
540.00	0.00	0.00	540.00	0.00	0.01	0.00	0.00	0.00	0.00
Yates									
600.00	0.00	0.00	600.00	0.00	0.01	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.01	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.01	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.01	0.00	0.00	0.00	0.00
910.00	0.00	0.00	910.00	0.00	0.01	0.00	0.00	0.00	0.00
Capitan									
1,000.00	0.00	0.00	1,000.00	0.00	0.01	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.01	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.01	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.01	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.01	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.01	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.01	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.01	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.01	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.01	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.01	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.01	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.01	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.01	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.01	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.01	0.00	0.00	0.00	0.00
2,570.00	0.00	0.00	2,570.00	0.00	0.01	0.00	0.00	0.00	0.00
Delaware Sd									
2,600.00	0.00	0.00	2,600.00	0.00	0.01	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.01	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.01	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.01	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.01	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.01	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.01	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.01	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.01	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.01	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.01	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.01	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.01	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.01	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.01	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.01	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.01	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.01	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.01	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.01	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.01	0.00	0.00	0.00	0.00

Database:	EDM 2003.16 Single User Db	**Local Co-ordinate Reference:**	Well Avalon Hills 7 Federal #4
Company:	Devon Energy	**TVD Reference:**	WELL @ 0.00ft (Original Well Elev)
Project:	Eddy County (NM27E)	**MD Reference:**	WELL @ 0.00ft (Original Well Elev)
Site:	Sec 7-T21S-R27E	**North Reference:**	True
Well:	Avalon Hills 7 Federal #4	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	03-07-07		

Planned Survey

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)
4,700.00	0.00	0.00	4,700.00	0.00	0.01	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.01	0.00	0.00	0.00	0.00
4,895.00	0.00	0.00	4,895.00	0.00	0.01	0.00	0.00	0.00	0.00
Bone Spring Lm									
4,900.00	0.00	0.00	4,900.00	0.00	0.01	0.00	0.00	0.00	0.00
4,950.00	0.00	0.00	4,950.00	0.00	0.01	0.00	0.00	0.00	0.00
KOP - 2/100 @ 324.49AZM									
5,000.00	1.00	326.98	5,000.00	0.37	-0.23	0.44	2.00	2.00	0.00
5,100.00	3.00	326.98	5,099.93	3.30	-2.13	3.93	2.00	2.00	0.00
5,200.00	5.00	326.98	5,199.68	9.14	-5.94	10.90	2.00	2.00	0.00
5,300.00	7.00	326.98	5,299.13	17.91	-11.63	21.35	2.00	2.00	0.00
5,312.55	7.25	326.98	5,311.58	19.21	-12.48	22.91	2.00	2.00	0.00
Begin Hold									
5,400.00	7.25	326.98	5,398.33	28.47	-18.50	33.95	0.00	0.00	0.00
5,500.00	7.25	326.98	5,497.53	39.05	-25.38	46.57	0.00	0.00	0.00
5,600.00	7.25	326.98	5,596.73	49.63	-32.25	59.19	0.00	0.00	0.00
5,700.00	7.25	326.98	5,695.93	60.21	-39.13	71.81	0.00	0.00	0.00
5,800.00	7.25	326.98	5,795.13	70.80	-46.01	84.43	0.00	0.00	0.00
5,900.00	7.25	326.98	5,894.33	81.38	-52.89	97.06	0.00	0.00	0.00
6,000.00	7.25	326.98	5,993.54	91.96	-59.77	109.68	0.00	0.00	0.00
6,100.00	7.25	326.98	6,092.74	102.54	-66.65	122.30	0.00	0.00	0.00
6,200.00	7.25	326.98	6,191.94	113.13	-73.53	134.92	0.00	0.00	0.00
6,300.00	7.25	326.98	6,291.14	123.71	-80.41	147.54	0.00	0.00	0.00
6,400.00	7.25	326.98	6,390.34	134.29	-87.28	160.16	0.00	0.00	0.00
6,404.70	7.25	326.98	6,395.00	134.79	-87.61	160.76	0.00	0.00	0.00
First Bone Spring Lm									
6,500.00	7.25	326.98	6,489.54	144.87	-94.16	172.79	0.00	0.00	0.00
6,600.00	7.25	326.98	6,588.74	155.46	-101.04	185.41	0.00	0.00	0.00
6,700.00	7.25	326.98	6,687.94	166.04	-107.92	198.03	0.00	0.00	0.00
6,800.00	7.25	326.98	6,787.14	176.62	-114.80	210.65	0.00	0.00	0.00
6,900.00	7.25	326.98	6,886.34	187.20	-121.68	223.27	0.00	0.00	0.00
7,000.00	7.25	326.98	6,985.54	197.79	-128.56	235.89	0.00	0.00	0.00
7,095.22	7.25	326.98	7,080.00	207.86	-135.11	247.91	0.00	0.00	0.00
Second Bone Spring Lm									
7,100.00	7.25	326.98	7,084.74	208.37	-135.44	248.52	0.00	0.00	0.00
7,200.00	7.25	326.98	7,183.94	218.95	-142.31	261.14	0.00	0.00	0.00
7,300.00	7.25	326.98	7,283.14	229.53	-149.19	273.76	0.00	0.00	0.00
7,400.00	7.25	326.98	7,382.34	240.12	-156.07	286.38	0.00	0.00	0.00
7,500.00	7.25	326.98	7,481.54	250.70	-162.95	299.00	0.00	0.00	0.00
7,600.00	7.25	326.98	7,580.74	261.28	-169.83	311.62	0.00	0.00	0.00
7,700.00	7.25	326.98	7,679.94	271.86	-176.71	324.25	0.00	0.00	0.00
7,800.00	7.25	326.98	7,779.14	282.45	-183.59	336.87	0.00	0.00	0.00
7,900.00	7.25	326.98	7,878.34	293.03	-190.47	349.49	0.00	0.00	0.00
8,000.00	7.25	326.98	7,977.54	303.61	-197.34	362.11	0.00	0.00	0.00
8,100.00	7.25	326.98	8,076.74	314.19	-204.22	374.73	0.00	0.00	0.00
8,200.00	7.25	326.98	8,175.94	324.78	-211.10	387.35	0.00	0.00	0.00
8,300.00	7.25	326.98	8,275.14	335.36	-217.98	399.98	0.00	0.00	0.00
8,400.00	7.25	326.98	8,374.34	345.94	-224.86	412.60	0.00	0.00	0.00
8,420.82	7.25	326.98	8,395.00	348.15	-226.29	415.23	0.00	0.00	0.00
Third Bone Spring Lm									
8,500.00	7.25	326.98	8,473.54	356.52	-231.74	425.22	0.00	0.00	0.00
8,600.00	7.25	326.98	8,572.74	367.11	-238.62	437.84	0.00	0.00	0.00
8,700.00	7.25	326.98	8,671.94	377.69	-245.50	450.46	0.00	0.00	0.00

Database:	EDM 2003.16 Single User Db	**Local Co-ordinate Reference:**	Well Avalon Hills 7 Federal #4
Company:	Devon Energy	**TVD Reference:**	WELL @ 0.00ft (Original Well Elev)
Project:	Eddy County (NM27E)	**MD Reference:**	WELL @ 0.00ft (Original Well Elev)
Site:	Sec 7-T21S-R27E	**North Reference:**	True
Well:	Avalon Hills 7 Federal #4	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	03-07-07		

Planned Survey

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)
8,800.00	7.25	326.98	8,771.14	388.27	-252.38	463.08	0.00	0.00	0.00
8,900.00	7.25	326.98	8,870.34	398.85	-259.25	475.71	0.00	0.00	0.00
8,950.06	7.25	326.98	8,920.00	404.15	-262.70	482.02	0.00	0.00	0.00
Wolfcamp									
9,000.00	7.25	326.98	8,969.54	409.44	-266.13	488.33	0.00	0.00	0.00
9,100.00	7.25	326.98	9,068.74	420.02	-273.01	500.95	0.00	0.00	0.00
9,200.00	7.25	326.98	9,167.94	430.60	-279.89	513.57	0.00	0.00	0.00
9,300.00	7.25	326.98	9,267.14	441.18	-286.77	526.19	0.00	0.00	0.00
9,400.00	7.25	326.98	9,366.34	451.77	-293.65	538.82	0.00	0.00	0.00
9,500.00	7.25	326.98	9,465.54	462.35	-300.53	551.44	0.00	0.00	0.00
9,600.00	7.25	326.98	9,564.74	472.93	-307.41	564.06	0.00	0.00	0.00
9,674.27	7.25	326.98	9,638.42	480.79	-312.51	573.43	0.00	0.00	0.00
Begin Drop 2/100									
9,700.00	6.74	326.98	9,663.96	483.42	-314.22	576.57	2.00	-2.00	0.00
9,800.00	4.74	326.98	9,763.45	491.80	-319.67	586.56	2.00	-2.00	0.00
9,806.57	4.60	326.98	9,770.00	492.25	-319.96	587.09	2.00	-2.00	0.00
Penn									
9,900.00	2.74	326.98	9,863.24	497.26	-323.22	593.08	2.00	-2.00	0.00
10,000.00	0.74	326.98	9,963.19	499.80	-324.87	596.11	2.00	-2.00	0.00
10,036.82	0.00	326.98	10,000.00	500.00	-325.00	596.34	2.00	-2.00	0.00
Begin Hold to TD - Avalon Hills 7 Target #1									
10,100.00	0.00	0.00	10,063.18	500.00	-325.00	596.34	0.00	0.00	0.00
10,116.82	0.00	0.00	10,080.00	500.00	-325.00	596.34	0.00	0.00	0.00
Strawn									
10,200.00	0.00	0.00	10,163.18	500.00	-325.00	596.34	0.00	0.00	0.00
10,300.00	0.00	0.00	10,263.18	500.00	-325.00	596.34	0.00	0.00	0.00
10,400.00	0.00	0.00	10,363.18	500.00	-325.00	596.34	0.00	0.00	0.00
10,436.82	0.00	0.00	10,400.00	500.00	-325.00	596.34	0.00	0.00	0.00
Atoka									
10,500.00	0.00	0.00	10,463.18	500.00	-325.00	596.34	0.00	0.00	0.00
10,600.00	0.00	0.00	10,563.18	500.00	-325.00	596.34	0.00	0.00	0.00
10,700.00	0.00	0.00	10,663.18	500.00	-325.00	596.34	0.00	0.00	0.00
10,800.00	0.00	0.00	10,763.18	500.00	-325.00	596.34	0.00	0.00	0.00
10,900.00	0.00	0.00	10,863.18	500.00	-325.00	596.34	0.00	0.00	0.00
11,000.00	0.00	0.00	10,963.18	500.00	-325.00	596.34	0.00	0.00	0.00
11,051.82	0.00	0.00	11,015.00	500.00	-325.00	596.34	0.00	0.00	0.00
Morrow Clastics									
11,100.00	0.00	0.00	11,063.18	500.00	-325.00	596.34	0.00	0.00	0.00
11,200.00	0.00	0.00	11,163.18	500.00	-325.00	596.34	0.00	0.00	0.00
11,300.00	0.00	0.00	11,263.18	500.00	-325.00	596.34	0.00	0.00	0.00
11,336.82	0.00	0.00	11,300.00	500.00	-325.00	596.34	0.00	0.00	0.00
Lower Morrow									
11,400.00	0.00	0.00	11,363.18	500.00	-325.00	596.34	0.00	0.00	0.00
11,500.00	0.00	0.00	11,463.18	500.00	-325.00	596.34	0.00	0.00	0.00
11,521.82	0.00	0.00	11,485.00	500.00	-325.00	596.34	0.00	0.00	0.00
Barnett									
11,600.00	0.00	0.00	11,563.18	500.00	-325.00	596.34	0.00	0.00	0.00
11,621.82	0.00	0.00	11,585.00	500.00	-325.00	596.34	0.00	0.00	0.00
Avalon Hills 7 PBHL									

Database:	EDM 2003.16 Single User Db	**Local Co-ordinate Reference:**	Well Avalon Hills 7 Federal #4
Company:	Devon Energy	**TVD Reference:**	WELL @ 0.00ft (Original Well Elev)
Project:	Eddy County (NM27E)	**MD Reference:**	WELL @ 0.00ft (Original Well Elev)
Site:	Sec 7-T21S-R27E	**North Reference:**	True
Well:	Avalon Hills 7 Federal #4	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	03-07-07		

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Avalon Hills 7 PBHL - plan hits target - Point	0.00	0.00	11,585.00	500.00	-325.00	541,330.410	527,279.825	32° 29' 17.510 N	104° 14' 41.498 W
Avalon Hills 7 Target - plan hits target - Point	0.00	0.00	10,000.00	500.00	-325.00	541,330.410	527,279.825	32° 29' 17.510 N	104° 14' 41.498 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,895.00	4,895.00	Bone Spring Lm	OIL	0.00	
910.00	910.00	Capitan	Water	0.00	
11,521.82	11,485.00	Barnett		0.00	
8,950.06	8,920.00	Wolfcamp	GAS	0.00	
6,404.70	6,395.00	First Bone Spring Lm	OIL	0.00	
11,051.82	11,015.00	Morrow Clastics	GAS	0.00	
540.00	540.00	Yates	Water	0.00	
2,570.00	2,570.00	Delaware Sd	OIL	0.00	
11,336.82	11,300.00	Lower Morrow	GAS	0.00	
9,806.57	9,770.00	Penn	GAS	0.00	
7,095.22	7,080.00	Second Bone Spring Lm	GAS	0.00	
10,116.82	10,080.00	Strawn	GAS	0.00	
8,420.82	8,395.00	Third Bone Spring Lm	GAS	0.00	
10,436.82	10,400.00	Atoka	GAS	0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
4,950.00	4,950.00	0.00	0.01	KOP - 2/100 @ 324.49AZM
5,312.55	5,311.58	19.21	-12.48	Begin Hold
9,674.27	9,638.42	480.79	-312.51	Begin Drop 2/100
10,036.82	10,000.00	500.00	-325.00	Begin Hold to TD

Devon Energy

Project: Eddy County (NM27E)
Site: Sec 7-T21S-R27E
Well: Avalon Hills 7 Federal #4
Wellbore: Wellbore #1
Design: 03-07-07

QUANTUM DRILLING MOTORS & DIRECTIONAL SERVICES

Azimuths to True North
Magnetic North: 8.45°

Magnetic Field
Strength: 49194.8snT
Dip Angle: 60.43°
Date: 3/7/2007
Model: BGGM2006

WELL DETAILS: Avalon Hills 7 Federal #4

Ground Level: 0.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.01	540830.687	527605.249	32° 29' 12.562 N	104° 14' 37.703 W	

SHL 460' FSL 360' FEL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
540.00	540.00	Yates
910.00	910.00	Capitan
2570.00	2570.00	Delaware Sd
4895.00	4895.00	Bone Spring Lm
6395.00	6404.70	First Bone Spring Lm
7080.00	7095.22	Second Bone Spring Lm
8395.00	8420.82	Third Bone Spring Lm
8920.00	8950.06	Wolfcamp
9770.00	9806.57	Penn
10080.00	10116.82	Strawn
10400.00	10436.82	Atoka
11015.00	11051.82	Morrow Clastics
11300.00	11336.82	Lower Morrow
11485.00	11521.82	Barnett

ANNOTATIONS

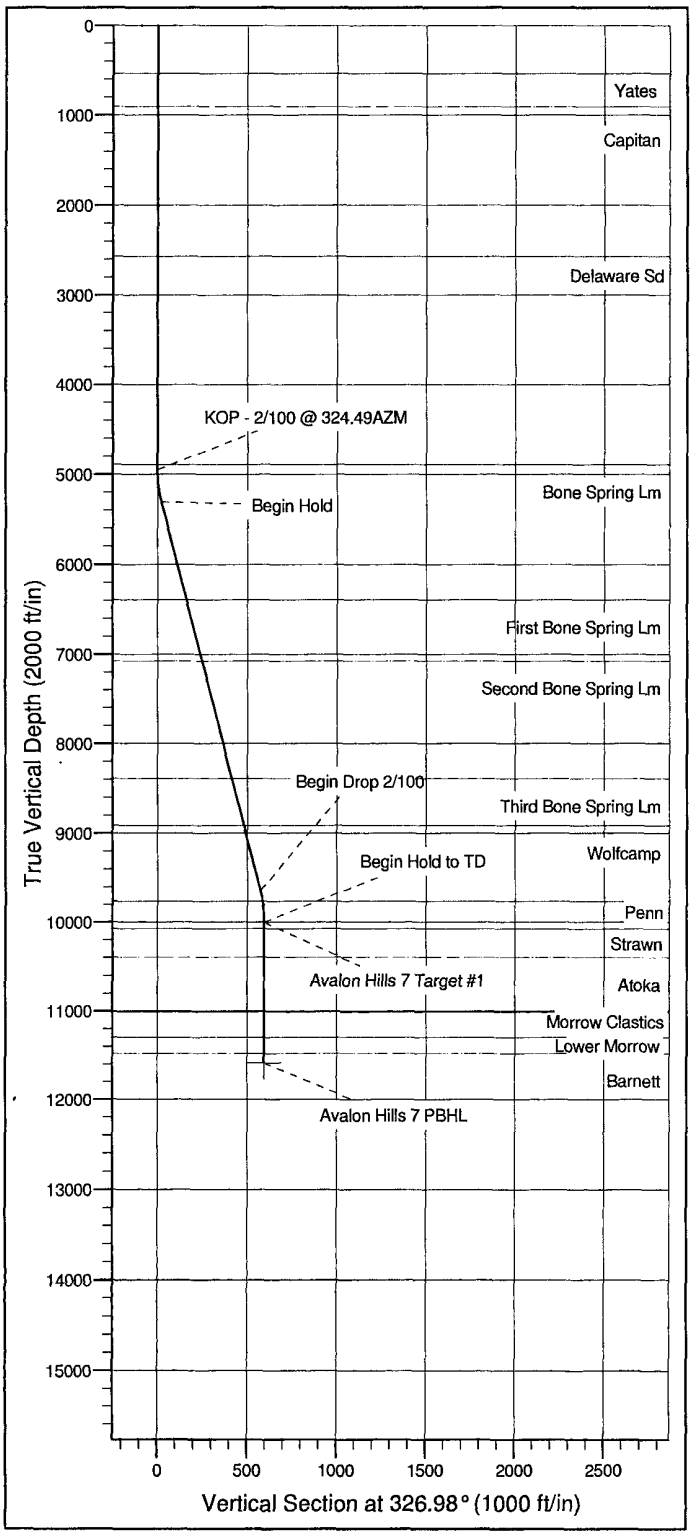
TVD	MD	Annotation
4950.00	4950.00	KOP - 2/100 @ 324.49AZM
5311.58	5312.55	Begin Hold
9638.42	9674.27	Begin Drop 2/100
10000.00	10036.82	Begin Hold to TD

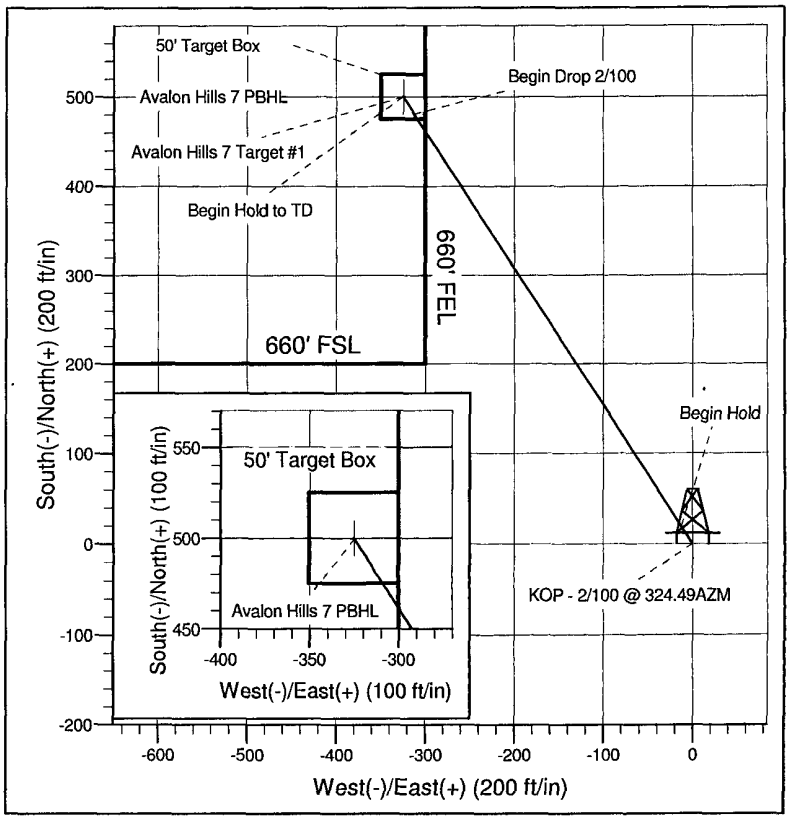
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	
2	4950.00	0.00	0.00	4950.00	0.00	0.01	0.00	0.00	0.00	
3	5312.55	7.25	326.98	5311.58	19.21	-12.48	2.00	326.98	22.91	
4	9674.27	7.25	326.98	9638.42	480.79	-312.51	0.00	0.00	573.43	
5	10036.82	0.00	0.00	10000.00	500.00	-325.00	2.00	180.00	596.34	
6	11621.82	0.00	0.00	11585.00	500.00	-325.00	0.00	0.00	596.34	Avalon Hills 7 PBHL

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Avalon Hills 7 Target #1	10000.00	500.00	-325.00	541330.410	527279.825	32° 29' 17.510 N	104° 14' 41.498 W	Point
Avalon Hills 7 PBHL	11585.00	500.00	-325.00	541330.410	527279.825	32° 29' 17.510 N	104° 14' 41.498 W	Point

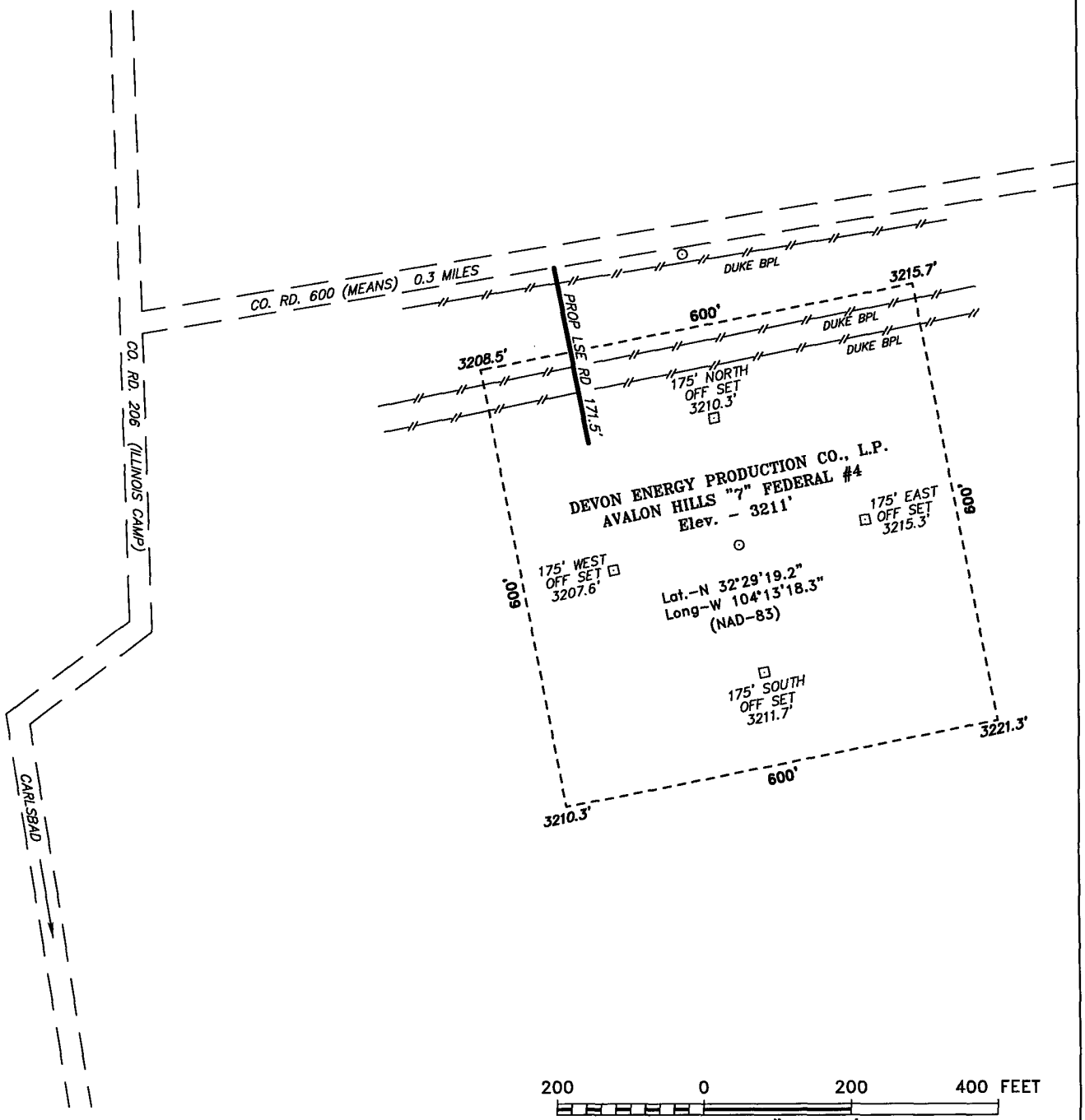




Magnetic Calculator Results:Avalon Hills 7 Fed #4

Geomagnetic Model	:	BGGM2006
Latitude	:	32° 29' 12.562 N
Longitude	:	104° 14' 37.703 W
Sample Date	:	3/7/2007
Vertical Depth	:	0.00
Azimuth of Magnetic North:		8.452° True
Magnetic Declination	:	8.452°E from True North
Dip Angle from Horizontal:		60.433°
Magnetic Field Strength	:	49195 nT
Magnetic Field X value	:	24011 nT
Magnetic Field Y value	:	3568 nT
Magnetic Field Z value	:	42789 nT
Magnetic Field Horizontal:		24275 nT
Magnetic Azimuth Apply	:	8.45 to convert to True North
Gyroscope Azimuth Apply	:	0.00 to convert to True North

SECTION 7, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, **NEW MEXICO.**



200 0 200 400 FEET

SCALE: 1" = 200'

Directions to Location:

FROM THE JUNCTION OF CO. RD. 600 (RAINS) AND CO. RD. 206 (ILLINOIS CAMP), GO EAST ON CO. RD. 600 FOR APPROX. 0.3 MILE TO A POINT ON THE PROPOSED WELL PAD.

BASIN SURVEYS P.O. BOX 1786 – HOBBS, NEW MEXICO

W.O. Number: 17845	Drawn By: J. M. SMALL		
Date: 03-12-2007	Disk: 17845W JMS	Survey Date: 03-07-2007	Sheet 1 of 1 Sheets

DEVON ENERGY PROD. CO., L.P.

REF: AVALON HILLS "7" FEDERAL #4 / WELL PAD TOPO

THE AVALON HILLS "7" FEDERAL No. 4 LOCATED 460' FROM THE SOUTH LINE AND 360' FROM THE EAST LINE OF SECTION 7, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

DRILLING PROGRAM

Devon Energy Production Company, LP
Avalon Hills 7 Fed Com 4
Surface Location: 460' FSL & 660' FEL, Unit P, Sec 7 T21S R27E, Eddy, NM
Bottom hole Location: 960' FSL & 685' FEL, Unit P, Sec 7 T21S R27E, Eddy, NM

1. Geologic Name of Surface Formation

a. Permian

2. Estimated tops of geological markers:

a.	Yates	540'
b.	Capitan	910'
c.	Delaware	2570'
d.	Bone Spring	4895'
e.	First Bone Spring Sand	6395'
f.	Second Bone Spring Sand	7080'
g.	Third Bone Spring Sand	8395'
h.	Wolfcamp	8920'
i.	Penn	9770'
j.	Strawn	10080'
k.	Atoka	10400'
l.	Morrow Clastics	11015'
m.	Lower Morrow	11300'
n.	Barnett	11485'
o.	Total Depth	11800'

3. Estimated Depths of Anticipated Fresh Water, Oil or Gas

a.	Yates & Capitan	0-910'	Fresh Water
b.	Delaware - Bone Spring	2400-8300'	Oil
c.	Wolfcamp - Morrow	8825-11400'	Gas

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13 3/8" casing at 600' and circulating cement back to surface. Fresh water sands will be protected by setting 9 5/8" casing at 2600' and circulating cement to surface. The Morrow intervals will be isolated by setting a second intermediate 7" casing string to 10,000' and circulating cement above the base of the 9 5/8" casing.

4. Casing Program:

Hole Size	Interval	OD Csg	Weight	Collar	Grade
17 1/2"	0 –600'	13 3/8"	54.5#	ST&C	J-55
12 1/4"	0–2600'	9 5/8"	40#	LT&C	J-55
8 ¾"	0-10,000'	7"	26#	LT&C	P-110
6 1/8"	9,700-11,800'	4 ½"	17#	LT&C	HCP-110

GK
Babyak
4/2/07

5. Cement Program:

a.	13 3/8"	Surface	Cement to surface with 405 sacks (35:65) Poz (Fly Ash): Class C Cement + 2% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 6% bwoc Bentonite. Tail with 250 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake.
b.	9 5/8"	1st Intermediate	Cement to surface with Lead Slurry: 555 sacks (35:65) Poz (Fly Ash): Class C Cement + 5% bwow Sodium Chloride + 0.25 lbs/sack Cello Flake + 5 lbs/sack LCM-1 + 6% bwoc Bentonite . Tail Slurry: 300 sacks (60:40) Poz (Fly Ash): Class C Cement + 5% bwoc Sodium Chloride + 0.25 lbs/sack Cello Flake + 0.5% Sodium Metasilicate + 4% MPA-1.
c.	7"	2nd Intermediate	2 Stage with DV tool @ 6,000' STAGE 1 Lead Slurry: 665 sacks (60:40) Poz (Fly Ash): Class H Cement + 1% bwow Sodium Chloride + 0.75% bwoc BA-10 + 0.25% bwoc R-3 + 0.25 lbs/sack Cello Flake + 0.75% EC-1 + 3 lbs/sack Kol Seal + 4% bwoc MPA-1 STAGE 2 Lead Slurry: 385 sacks (35:65) Poz (Fly Ash): Class C Cement + 3% bwow Sodium Chloride + 0.25 lbs/sack Cello Flake + 6% bwoc Bentonite. Tail Slurry: 200 sacks (60:40) Poz (Fly Ash): Class C Cement + 2% bwow Sodium Chloride + 0.25 lbs/sack Cello Flake + 4% bwoc MPA-1. TOC @ 2400'.
d.	4 ½"	Production Liner	Liner f/ 9,700'-11,800' Cmt with slurry: 225 sacks (15:61:11) Poz (Fly Ash): Class C Cement: CSE-2 + 0.15% bwoc R-3 + 1% bwow Potassium Chloride + 0.75% bwoc EC-1 + 0.25 lbs/sack Cello Flake + 0.4% bwoc CD-32 + 3 lbs/sack LCM-1 + 0.6% bwoc FL-25 + 0.6% bwoc FL-52A .

The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach approximately 500' above the 7" casing shoe.

6. Pressure Control Equipment:

The blowout preventor equipment (BOP) shown in Exhibit #1 will consist of a (5M system) double ram type (5000 psi WP) preventor and a bag-type (Hydril) preventor (5000 psi WP) and rotating head. Both units will be hydraulically operated and the ram type preventor will be equipped with blind rams on top and 4 ½" drill pipe rams on bottom. The drilling head will be installed on the 13 3/8" surface casing and utilized continuously until total depth is reached. All BOP's and associated equipment will be tested to **1200 psi with the rig pump before drilling out the 13 3/8" casing shoe**

(70% of 48#, H-40 casing). Prior to drilling out the 9 5/8" casing shoe, the BOP's and Hydril will be tested as per BLM Drilling Operations Order #2.

Pipe rams will be operated and checked each 24-hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily drillers log. A 2" kill line and 3" choke line will be incorporated in the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines and choke manifold having 5000 psi WP rating.

7. **Proposed Mud Circulation System**

Depth	Mud Wt.	Visc	Fluid Loss	Type System
0' – 600'	8.6-9.4	32-34	NC	Fresh Water/ Gel/Lime
600'– 2600'	8.4-8.7	28-29	NC	Fresh Water
2600'–10000'	8.3–10.0	28	NC	Cut Brine
10000'-11800'	9.5-11.2	31-38	8-10cc	Brine/Polymer

The necessary mud products for weight addition and fluid loss control will be on location at all times.

8. **Auxiliary Well Control and Monitoring Equipment:**
   a. A Kelly cock will be in the drill string at all times.
   b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
   c. Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 7" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

9. **Logging, Coring, and Testing Program:**
   a. Drill stem tests will be based on geological sample shows.
   b. The open hole electrical logging program will be:
      i. Total Depth to Intermediate Casing — Dual Laterolog-Micro Laterolog with SP and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
      ii. Total Depth to Surface — Compensated Neutron with Gamma Ray
      iii. No coring program is planned
      iv. Additional testing will be initiated subsequent to setting the 5 ½" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

10. **Potential Hazards:**
   a. No abnormal pressures or temperatures are expected. There is no known presence of H2S in this area. If H2S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6 No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 4700 psi and Estimated BHT 180°. No H2S is anticipated to be encountered.

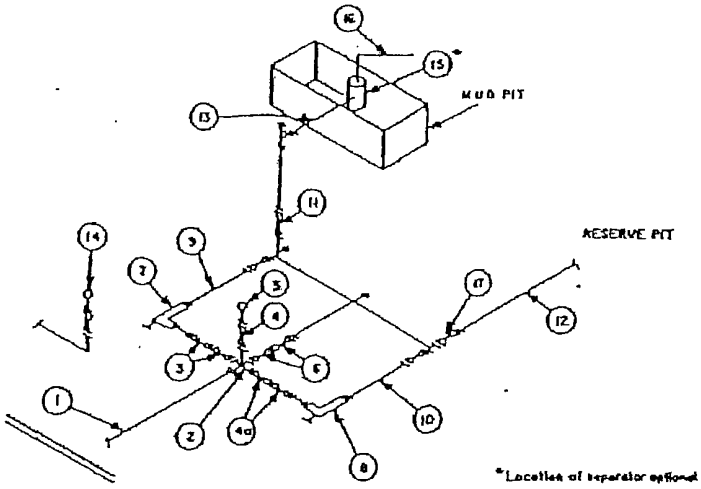
11. Anticipated Starting Date and Duration of Operations:

a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 32 days. If production casing is run then an additional 30 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.

Exhibit E

MINIMUM CHOKE MANIFOLD
3,000, 5,000 and 10,000 PSI Working Pressure

3 MWP - 5 MWP - 10 MWP



MINIMUM REQUIREMENTS										
		3,000 MWP			5,000 MWP			10,000 MWP		
No.		I.D.	NOMINAL	RATING	I.D.	NOMINAL	RATING	I.D.	NOMINAL	RATING
1	Line from drilling spool		3"	3,000		3"	5,000		3"	10,000
2	Cross 3"x3"x3"x2"			3,000			5,000			
	Cross 3"x3"x3"x3"									10,000
3	Valves(1) Gate ☐ Plug ☐(2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000
4	Valve Gate ☐ Plug ☐(2)	1-13/16"		3,000	1-13/16"		5,000	1-13/16"		10,000
4a	Valves(1)	2-1/16"		3,000	2-1/16"		5,000	3-1/8"		10,000
5	Pressure Gauge			3,000			5,000			10,000
6	Valves Gate ☐ Plug ☐(2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000
7	Adjustable Choke(3)	2"		3,000	2"		5,000	2"		10,000
8	Adjustable Choke	1"		3,000	1"		5,000	2"		10,000
9	Line		3"	3,000		3"	5,000		3"	10,000
10	Line		2"	3,000		2"	5,000		3"	10,000
11	Valves Gate ☐ Plug ☐(2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000
12	Lines		3"	1,000		3"	1,000		3"	2,000
13	Lines		3"	1,000		3"	1,000		3"	2,000
14	Remote reading compound standpipe pressure gauge			3,000			5,000			10,000
15	Gas Separator		2'x5'			2'x5'			2'x5'	
16	Line		4"	1,000		4"	1,000		4"	2,000
17	Valves Gate ☐ Plug ☐(2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000

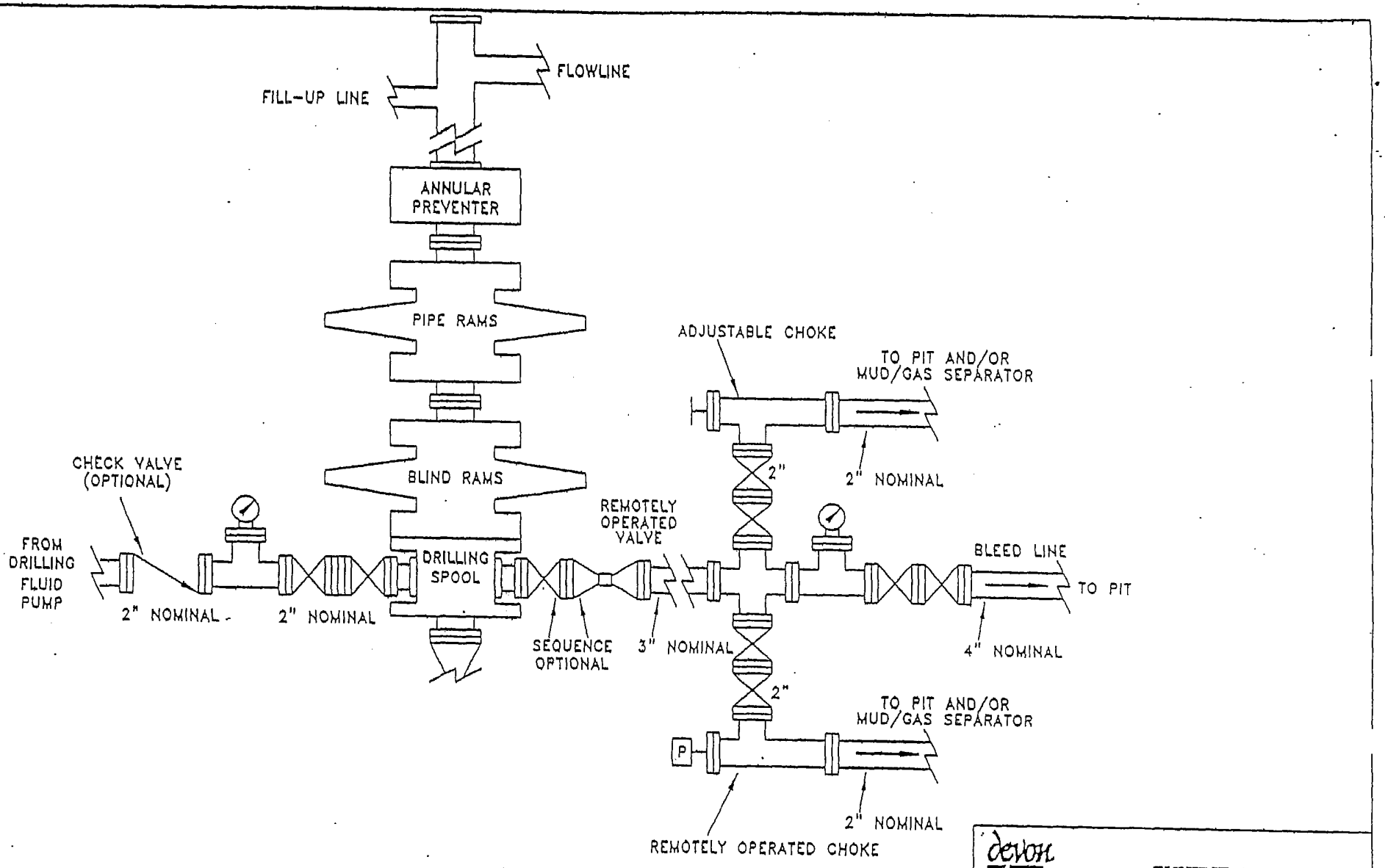
(1) Only one required in Class 3M.

(2) Gate valves only shall be used for Class 10M.

(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTIONS

1. All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating.
2. All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
3. All lines shall be securely anchored.
4. Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
5. Choke manifold pressure and standpipe pressure gauges shall be available at the choke manifold to assist in regulating chokes. As an alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge.
6. Line from drilling spool to choke manifold should be as straight as possible. Lines downstream from chokes shall make turns by large bends or 90° bends using bull plugged tees.
7. Discharge lines from chokes, choke bypass and from top of gas separator should vent as far as practical from the well.



devon

EXHIBIT 1

PROPOSED 5-M BOPE AND CHOKE ARRANGEMENT

s:\..\nm\plots
5mbope.dwg

sc

Attachment to Exhibit #1
NOTES REGARDING BLOWOUT PREVENTERS
Devon Energy Production Company, LP
Avalon Hills 7 Fed Com 4
Surface Location: 460' FSL & 960' FEL, Unit P, Sec 7 T21S R27E, Eddy, NM
Bottom hole Location: 960' FSL & 685' FEL, Unit P, Sec 7 T21S R27E, Eddy, NM

1. Drilling nipple will be constructed so it can be removed mechanically without the aid of a welder. The minimum internal diameter will equal BOP bore.

2. Wear ring will be properly installed in head.

3. Blowout preventer and all associated fittings will be in operable condition to withstand a minimum 5000 psi working pressure.

4. All fittings will be flanged.

5. A full bore safety valve tested to a minimum 5000 psi WP with proper thread connections will be available on the rotary rig floor at all times.

6. All choke lines will be anchored to prevent movement.

7. All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string.

8. Will maintain a kelly cock attached to the kelly.

9. Hand wheels and wrenches will be properly installed and tested for safe operation.

10. Hydraulic floor control for blowout preventer will be located as near in proximity to driller's controls as possible.

11. All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:
   a. Characteristics of H2S
   b. Physical effects and hazards
   c. Proper use of safety equipment and life support systems.
   d. Principle and operation of H2S detectors, warning system and briefing areas
   e. Evacuation procedures, routes and first aid.
   f. Proper use of 30-minute pressure demand air pack.

2. H2S Detection and Alarm System
   a. H2S detectors and audio alarm system to be located at bell nipple, end of blooie line (mud pit) and on derrick floor or doghouse.

3. Windsock and/or wind streamers
   a. Windsock at mud pit area should be high enough to be visible
   b. Windsock at briefing area should be high enough to be visible
   c. There should be a windsock at entrance to location

4. Condition Flags and Signs
   a. Warning Sign on access road to location
   b. Flags to be displayed on sign at entrance to location. Green flag, normal safe condition. Yellow flag indicates potential pressure and danger. Red flag, danger, H2S present in dangerous concentration. Only emergency personnel admitted to location.

5. Well Control Equipment
   a. See Exhibit "E" & "E-1"

6. Communication
   a. While working under masks chalkboards will be used for communication.
   b. Hand signals will be used where chalk board is inappropriate
   c. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.

7. Drill stem Testing
   a. Exhausts will be watered
   b. Flare line will be equipped with an electric igniter or a propane pilot light in case gas reaches the surface.
   c. If the location is near to a dwelling a closed DST will be performed.

8. Drilling contractor supervisor will be required to be familiar with the effects H2S has on tubular goods and other mechanical equipment.
   If H2S is encountered, mud system will be altered if necessary to maintain control or formation. A mud gas separator will be brought into service along with H2S scavengers if necessary.

Conditions of Approval
Cave and Karst

EA#: NM-080-07-0623
Lease #: NM-0375257A
Devon Energy Production Company, L.P.
Avalon Hills 7 Fed. Com. #4

Cave/Karst Surface Mitigation
The following stipulations will be applied to minimize impacts during construction, drilling and production.

Berming:
Any tank batteries will be constructed and bermed large enough to contain any spills that may occur.

Bermed areas will be lined with rip-stop padding to prevent tears or punctures in liners and lined with a permanent 20 mil plastic liner.

Cave/Karst Subsurface Mitigation
The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:
Rotary drilling techniques in cave or karst areas will include the use of fresh water as a circulating medium in zones where caves or karst features are expected. Use depth to the deepest expected fresh water as listed in the geologist report.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone as identified in the geologic report.

Casing:
All casing will meet or exceed National Association of Corrosion Engineers specifications pertaining to the geology of the location and be run to American Petroleum Institute and BLM standards.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported.

Regardless of the type of drilling machinery used, if a bit drops of four feet or more and circulation losses greater then 75 percent occur simultaneously while drilling in any cave-bearing zone, drilling operations will immediately stop and the BLM will

be notified by the operator. The BLM will assess the consequences of the situation and work with operator on corrective actions to resolve the problem.

Delayed Blasting:
Any blasting will be a phased and time delayed.

Abandonment Cementing:
Upon well abandonment the well bore will be cemented completely from 100 feet below the bottom of the cave bearing zone to the surface.

Pressure Tests:
Annual pressure tests will be performed by the Operator on all casing annuli. If the test results indicated a casing failure, remedial actions approved by the BLM will be undertaken to correct the problem.

Differential Shut-off Systems:
A leak detection system and differential shut off systems will be installed for pipelines and tanks used in production or drilling.

Record Keeping:
The Operator will track customary drilling activities, including the rate of penetration, pump pressure, weight on bit, bit drops, percent of mud returns, and presence of absence of cuttings returning to the surface. As part of customary record keeping, each detectable void or sudden increase in the rate of penetration not attributable to a change in the formation type should be documented and evaluated as it is encountered.

CONDITIONS OF APPROVAL - DRILLING

Operator's Name:	**DEVON ENERGY PRODUCTION COMPANY, LP**
Well Name & No.	**4 – AVALON HILLS 7 FEDERAL COM**
Location:	**460' FSL & 360' FEL – SEC 7 – T21S – R27E – EDDY – SHL**
	960' FSL & 685' FEL – SEC 7 – T21S – R27E – EDDY – BHL
Lease:	**NM-0375257-A**

I. DRILLING OPERATIONS REQUIREMENTS:

A. The Bureau of Land Management (BLM) is to be notified a minimum of 4 hours in advance for a representative to witness:

1. Spudding well
2. Setting and/or Cementing of all casing strings
3. BOPE tests

- Chaves and Roosevelt Counties call the Roswell Field Office, 2909 West Second St., Roswell NM 88201. During office hours call (505) 627-0258. After office hours call (505) 200-7902
- Eddy County call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (505) 361-2822
- Lea County call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (505) 393-3612
- Engineers can be reached at (505) 706-2779 for any variances that might be necessary

B. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

C. If floor controls are required, (3M or Greater) controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

II. CASING:

A. The **13-3/8** inch surface casing shall be set at **600** **feet** and cemented to the surface.

1. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
2. Wait on cement (WOC) time for a primary cement job will be a minimum of 12 hours for a non-water basin, 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compression strength, whichever is greater. (This is to include the lead cement)
3. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compression strength, whichever is greater.
4. If cement falls back, remedial action will be done prior to drilling out that string.

B. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is **circulate cement to the surface.** If cement does not circulate see A.1 thru 4.

C. The minimum required fill of cement behind the __7__ inch production casing is **cement shall tie back 200 feet into the 9-5/8 inch intermediate casing.**

D. The minimum required fill of cement behind the **4-1/2** inch production liner is cement shall extend to the top of the liner at approximately **10000** feet.

E. If hardband drill pipe is rotated inside casing; returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool I joints of the drill pipe will be installed prior to continuing drilling operations.

III. PRESSURE CONTROL:

A. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53.

B. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** PSIA.

C. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **5000 (5M)** PSI.

D. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

1. The tests shall be done by an independent service company.
2. The results of the test shall be reported to the appropriate BLM office.
3. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
4. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi in accordance with API RP 53. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.
5. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp.** This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.
6. A variance to test the surface casing and BOP/BOPE to the reduced pressure of **1200** psi is approved.

IV. DRILLING MUD:

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

LBabyak 3/29/07

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

May 2, 2007

Devon Energy Production Company
20 North Broadway
Oklahoma City, OK 73102-8260
Attn: Stephanie Ysasaga or To Whom It May Concern:

Dear Stephanie or To Whom It May Concern:

RE: **Devon Energy Production Company's Application to drill (APD) the Avalon Hills 7 Federal Com. # 4 Surface location to be in Unit P, of Section 7, Township 21 South, Range 27 East, Eddy County, New Mexico. API # 30-015-35583**

In reference to the above noted APD, the New Mexico Oil Conservation Division (NMOCD) will require (in part) that chloride reading is measure every 100' from the drilling mud during the drilling of the Capitan Reef section of the well bore.

Respectfully yours,

Bryan G. Arrant
NMOCD's District II Geologist
Artesia, New Mexico
505-748-1283 ext. 103

CC: Well file