District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
May 27, 2004

Submit to appropriate District Office

☒ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

[1] Operator Name and Address	[2] OGRID Number
Devon Energy Production Co., L.P.	6137
	[3] API Number 30 – 015-34896

[5] Property Code	[6] Property Name	[7] Well No.
35691	Perfecto 2 State	1

[9] Proposed Pool 1	[10] Proposed Pool 2
Happy Valley; Morrow (Gas)	

[7] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	2	22S	26E	E	2070	North	675	West	Eddy

[8] Proposed 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
E	2	22S	26E	E	2070	North	675	West	Eddy

Additional Well Information

[11] Work Type Code	[12] Well Type Code	[13] Cable/Rotary	[14] Lease Type Code	[15] Ground Level Elevation
New Well	Gas		State	3236'
[16] Multiple	**[17] Proposed Depth**	**[18] Formation**	**[19] Contractor**	**[20] Spud Date**
N	11,650'	Morrow		7/15/06

Depth to Groundwater	Distance from nearest fresh water well	Distance from nearest surface water
50' or more, but less than 100'	> 1000'	> 1000'

Pit: Liner: Synthetic ☒ 12 mils thick Clay ☐ Pit Volume: _____ bbls Drilling Method:

Closed-Loop System ☐ Fresh Water ☒ Brine ☐ Diesel/Oil-based ☐ Gas/Air ☐

[21] Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
17 ½"	13 3/8"	48# H-40 ST&C	405'	543 CLC	0'
12 ¼"	9 5/8"	40# J-55 LT&C	~~2850'~~ 2500'	751 CLC	0'
8 ¾"	7"	26# HCP-110 LT&C	8750'	1311 CLC	Tie back to 9 5/8" csg 500'
6 1/8"	4 ½"	13.5# HCP-110 LT&C	11650'	296 CLC	8450-11650' (see drlg prog)

[22] Describe the proposed program. If this application is to DEEPEN or PLUG BACK, give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary.

Amending initial permit to comply with the City of Carlsbad Wellhead & Water Facilities Ordinance No. 2000-17; Section 34-64: If a well is to be drilled deeper than the Bone Springs formation, a pressure protection casing string shall be set and cemented into the top of the Wolfcamp or lower formation. See attached well bore schematic.

Non-Standard Location applied for, but not approved yet.

Depth to groundwater is 50' or more, but less than 100', distance to surface water is approximately 1000' or more, well is not in the wellhead protection area. Although, this location will require a City Permit. City of Carlsbad Oil & Gas Wells and Pipelines Application for Permit filed with Dave Hennard (RESPEC) & Richard Aguilar (City of Carlsbad). Copy of revised OCD form C-101 provided to both agencies.

See attachment denoting explicit changes from before and after (for ease of review) and drilling prognosis.

[23] I hereby certify that the information given above is true and complete to the best of my knowledge and belief. **I further certify that the drilling pit will be constructed according to NMOCD guidelines ☐, a general permit ☒, or an (attached) alternative OCD-approved plan ☐.**

Printed name: Stephanie A. Ysasaga

Title: Sr. Staff Engineering Technician

E-mail Address: Stephanie.Ysasaga@dvn.com

Date: 07/12/06 Phone: (405)-552-7802

OIL CONSERVATION DIVISION

Approved by:

Title: BRYAN G. ARRANT DISTRICT II GEOLOGIST

Approval Date: JUL 13 2006 Expiration Date: JUL 13 2007

Conditions of Approval ~~Attached~~ ☐ To follow by E-mail. BGA

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

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

July 14, 2006
Devon Energy Production Company, LP
20 North Broadway
Oklahoma City, OK 73102-8260

RE: Condition of Approval for Devon Energy Production Company, LP
Application to drill the Perfecto '2' State # 1, that is to be located in Unit E of Section 2, Township 22 South, Range 26 East, Eddy County, NM
API # 30-015-34896

Dear Sirs/Madams,

In regards to the above noted well, the New Mexico Oil Conservation Division (NMOCD) has approved said application to drill the above noted well. A condition of approval (in part) is for representatives with Devon Energy Production Company, LP (Devon) to verify levels of chlorides in the drilling mud (every 100') from the flow line. Chloride readings from the drilling mud are to taken after 13 3/8" casing is set and continue to the setting depth of the 9 5/8" casing which is to be @ 2500'. Results of these tests are to be submitted to the NMOCD office in Artesia before drilling to total depth of the well.
The NMOCD also notes your detailed mud program and only fresh water mud is to be used in drilling the Capitan Reef section of the well bore. In addition for any well, if Devon elects to follow option 2 of NMOCD Rule 19.15.3.107 (2), a bench test shall be conducted to determine the compressive strength of the slurry mix of cement at the contractor's cementing laboratory. Results of test(s) shall be submitted to the NMOCD District II office before determining wait on cement time.
Please call our office if there are any questions regarding this matter.

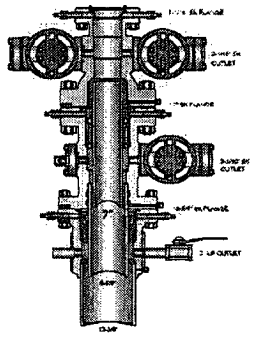
Respectfully yours,

Bryan G. Arrant
Petroleum Engineer Specialist/NMOCD-District II
505-748-1283 ext. 103
CC: Well file
EM: Tim Gum, District II Supervisor

devon

DRILLING PROGNOSIS

WELL:	**PERFECTO 2 STATE 1**	**BOP:**	**5000#**
FIELD:	**HAPPY VALLEY**		
CATEGORY:	**DEVELOPMENT WELL - (GAS)**		
SHL:	**2070' FNL & 675' FWL**		**Sec. 2-T22S-R26E**
BHL:	**2070' FNL & 675' FWL**		
COUNTY:	**EDDY**	**STATE:**	**NEW MEXICO**
ELEVATION:	**3236' GL**	**API NO.:**	**30-015-34896**
RIG: Patterson 5	**17' KB**		
ELEVATION:	**3253' KB**		



FMC 13-5/8" 3K x 11" 5K x 7-1/16" 5K

HOLE SIZE		FORMATION TOPS	LOGGING PROGRAM	CASING & CEMENT	MUD WT.
17-1/2"	290'	YATES/SEVEN RIVERS		**13-3/8" Surface Casing** **Lead:** 145 sxs 35:65 Poz: Class "C" + 2% CaCl + ¼ #/sx Cello Flake + 6% Bentonite Slurry: 12.8 ppg, 1.83 cf/sx, 9.76 gps **Tail:** 250 sxs Class "C" Cement + 2% CaCl + ¼ #/sx Cello Flake Slurry: 14.8 ppg, 1.35 cf/sx, 6.35 gps	FW Spud 8.6 - 9.4 ppg 32-34 Vis NC
		13-3/8", 48#, H-40, ST&C @ 405'			
	485'	CAPITAN/SALADO/DETRITAL			
12-1/4"				**9-5/8" 1st Intermediate Casing** **Lead:** 607 sxs 35:65 Poz: Class C + 5% NaCl + .25 #/sx Cello Flake + 5 #/sx LCM-1 + 6% Bentonite Slurry: 12.7 ppg, 1.95 cf/sx, 9.99 gps **Tail:** 250 sxs Class C + 1% CaCl + .25 #/sx Cello Flake Slurry: 14.8 ppg, 1.34 cf/sx, 6.33 gps	FW 8.4 - 8.5 ppg 28-29 Vis NC
		Calc. TOC @ 2050'			
	2500'	DELAWARE			
		9-5/8", 40#, J-55, LT&C @ 2550'			
	2775'	CHERRY CANYON			
	3425'	BRUSHY CANYON			
		DV tool @ 4500'			
	4625'	LOWER BRUSHY CANYON		**7" PRODUCTION/INTERMEDIATE 2 CASING** **Stage 1:** 816 sxs 60:40 Poz Class H + 1% NaCl + 0.75% BA-10 + 0.2% R-3 + 0.75% EC-1 + 0.25#/sx Cello Flake + 2 #/sx Kol Seal + 4%MPA-1 Slurry: 13.8 ppg, 1.36 cf/sx, 6.06 gps **Stage 2: Lead** - 226 sxs 35:65 Poz: Class C + 5% NaCl + .25 #/sx Cello Flake + 6% Bentonite Slurry: 12.5 ppg, 2.04 cf/sx, 11.24 gps **Tail** - 150 sxs 60:40 Poz: Class C + 5% NaCl + .25 #/sx Cello Flake + 0.4% Sodium Metasilicate + 4% MPA-1 Slurry: 13.8 ppg, 1.37 cf/sx, 6.36 gps	FW/MF-55 8.4 - 9.0 ppg 28 Vis NC
8-3/4"	4915'	BONE SPRING LIME			
	5255'	AVALON SANDY INTERVAL			
	6010'	1st BONE SPRING SD			
	6360'	2nd BONE SPRING LM			
	6740'	2nd BONE SPRING SD			
	7000'	3RD BONE SPRING LM			
	8185'	3RD BONE SPRING SD			
	8690'	WOLFCAMP LIME			
		7", 26#, HCP-110, LT&C @ 8750'			
	9240'	LOWER WOLFCAMP LM			Cut Brine/MF-55 9.2-9.6 ppg 31-34 Vis <12cc
	9445'	CISCO-CANYON LIME			
	10,000'	STRAWN			
					10,400'
	10,405'	ATOKA			Brine/XCD Poly 10,400' - 11000' 9.4-9.8 ppg 34-36 Vis <10 cc
	10,505'	ATOKA PAY			
6-1/8"	10,645'	ATOKA BANK		**4-1/2" PRODUCTION LINER** **LEAD:** 282 sxs 15:61:11 Poz Class "C" CSE-2 + 2% KCl + 0.5% BA-10 + 0.2% R-3 + 0.75% EC-1 + 0.25#/sx Cello Flake + 2 #/sx Kol Seal + 0.7% CD-32 + 0.6% FL-25 + 0.6% FL-52A Slurry: 13.4 ppg, 1.55 cf/sx, 7.42 gps	
	10,955'	MORROW			
	11,045'	MORROW CLASTICS			11,000' - TD 9.8 - 10.2 ppg 34-38 Vis <8 cc
	11,145'	M. MORROW LM			
	11,380'	LOWER MORROW			
	11,550'	BARNETT SHALE			
	11,650' TD	4-1/2", 13#, HCP-110, LT&C @ 8450' - 11,650'			

DEVON ENERGY
DRILLING PROGNOSIS

Perfecto 2 St #1

2070' FNL & 675' FWL, Sec 2, T22S, R26E
Eddy County, New Mexico

DISCUSSION
& POSSIBLE HOLE PROBLEMS

Notify OCD of intent to spud at least 24 hrs prior to commencing operations. Report the time, date and name of the person notified on the Dims morning report. Drill an 11,650' test of the Morrow on a daywork basis in a projected drilling time of 36 days. The surface hole will be 17 ½" to ±405' setting 13 3/8" casing. **THE SURFACE CASING MUST BE SET ABOVE THE SALADO FORMATION AS PER THE CONDITIONS OF APPROVAL.** Plan to **set 30" Conductor to 40'** if possible in order that a contingency string of 20" can be set if necessary due to shallow lost circulation and sand & gravel problems. Lost circulation is probable, need to run LCM sweeps 1st, if that fails, the hole will most likely need to be dry drilled if sand & gravel problems are manageable. Then drill a 12 1/4" intermediate hole to ±2550' setting 9 5/8" casing. Lost circulation can also be a problem here. First, attempt to regain with LCM sweeps and spotting LCM pills before dry drilling. The 2nd intermediate hole to 8,750' will be drilled with an 8 3/4" bit. There is a possibility of lost circulation in the Bone Springs in this area. A 7" casing string will be set at the top of the Wolfcamp @ 8750' and cemented to reach 500' into the 9 5/8" csg. The production hole to be drilled w/6 1/8" bit thru the Morrow. A 4 ½" liner will be set at TD w/an overlap of 300' in 7" & fully cemented. Call Pipeco at (800) 927-4732 or (281) 955-3500 for delivery of all casing. Give at least 48 hr. notice.

New Mexico Oil Conservation District; (505) 748-1283

NOTE: Ensure the rig, the cementing and testing procedures ALL comply with BLM Onshore Oil and Gas Order No. 2 requirements including the COA's and special waivers granted to Devon from the NMOCD.

EMERGENCY NUMBERS

Eddy County Sheriff; (505) 887-7551
New Mexico State Police; (505) 885-3137
Emergency Response; (800) 424-9300
Toxic Spills; (800) 424-8802
New Mexico Oil Conservation Division, Artesia: (505) 748-1283

GENERAL INFORMATION

OBJECTIVE: Morrow

ELEVATION: 3236' GL

PROJECTED TOTAL DEPTH: 11,650' TVD/MD

SURFACE LOCATION: 2070' FNL & 675' FWL
Section 2-T22S-R26E

COUNTY: Eddy

STATE: New Mexico

DIRECTIONS TO LOCATION: From the junction of US HWY 62-180 and US HWY 285 in Carlsbad, go south .2 mile to Happy Valley road, turn west & go 2.4 miles to West Texas, turn right & go east 0.4 mile, turn left & go 400' to location.

PROPOSED CASING PROGRAM:

Hole Size	Depth (MD)	Casing Size and Weight
17 ½"	405'	13-3/8" 48# H-40 ST&C
12 1/4"	2550' 2500'	9-5/8" 40# J-55 LT&C
8 3/4"	8750'	7" 26# HCP-110 LT&C
6 1/8"	11,650'	4-1/2" 13# HCP-110 LT&C

GEOLOGICAL INFORMATION:

Formation	Perfecto 2 #1
Yates/Seven Rivers	290'
Capitan	485'
Delaware	2500'
Bone Spring Lm	4915'
1st BS Sandstone	6010'
2nd BS Sandstone	6740'
3rd BS Sandstone	8185'
Upper Wolfcamp Lm	8690'
Lower Wolfcamp Lm	9240'
Cisco-Canyon Lmy Shale	9445'
Strawn	10,000'
Atoka	10,405'
Atoka Bank	10,645'
Morrow	10,955'
Morrow Clastics	11,045'
Middle Morrow Lime	11,145'
Lower Morrow Shale Mkr	11,380'
Barnet Shale	11,550'
Proposed Total Depth	**11,650'**

VENDORS LIST

Perfecto 2 St #1	Section 2, T22S, R26E		Eddy County, NM
Drilling Contractor	Patterson Rig 5	(505) 682-9401	Midland Office
Cementing	B.J. Services	(505) 746-3140	Mike Wiggins
Mud	Nova	(432) 570-6663	Dale Welch
Wellhead Equipment	FMC	(432) 563-0335	Dusty Allen
Mud Logger	Morco Mud Logging	(800) 748-2340	John Morris
Mud Logger	Morco Mud Logging	(505) 706-1921	Ronnie Read
Open Hole Logs	Schlumberger	(505) 622-9080	Ken Morgan (Roswell)
Open Hole Logs	Schlumberger	(505) 420-3225	Ken Morgan (Roswell)

TELEPHONE NUMBERS

Devon Energy Corporation – OKC	
DIMS	(866) 568-8723
Watts	(800) 583-3866
Office	(405) 235-3611
Emergency	(800) 361-3377
FAX	(405) 552-4261
Jim Blount – Sr. Well Engineering Advisor	
Office	(405) 228-4301
Home	(432) 348-0102
Mobile	(432) 834-9207
Bill Dougherty – Sr. Well Engineering Advisor	
Office	(405) 552-4590
Home	(405) 755-2800
Mobile	(405) 203-5616
Wyatt Abbitt – Operations Engineer	
Office	(405) 552-8137
Home	(405) 340-3879
Mobile	(405) 245-3471
Curt Mckinney – Geologist	
Office	(405) 552-4542
Mobile	(405) 833-9900
Don Mayberry – Superintendent	
Office	(505) 748-0164
Mobile	(505) 748-5235
Pager	(505) 370-6526
Joe Johnston – WO/Completion/Construction Superintendent	
Office	(505) 748-0171
Mobile	(505) 513-0630
Ronnie Carre – Field Foreman	
Office	(505) 748-0179
Mobile	(505) 748-5528
Ray Payne – Drilling Manager	
Office	(405) 228-8739
Mobile	(405) 323-4615
Russ Ginanni – Drilling Consultant	
Devon Mobile	(505) 748-5237
State Agency	
NMOCD-Artesia office	(505) 748-1283

SURFACE HOLE: 0' to 405'

Drill a 17½" hole to approximately 405' with fresh water (make hole to fit 13 3/8" casing). Consider dry drilling if loss circulation cannot be healed with ±20 ppb LCM. Run survey at 200' and at TD or as needed to ensure a straight hole. Lost circulation can be troublesome in this area and deviation may be severe. If lost circulation occurs and there are problems with sand & gravel, consider setting 20" prior to setting 13 3/8" surface string. Deviation is also a problem in the area.

BHA:
Bit, bit sub, shock sub, **3-9"DC's,** 8" drill collars as needed, crossover.
Run drill pipe float in BHA.

MUD PROGRAM FOR SURFACE HOLE

DEPTH	MUD WEIGHT	TYPE	VISC	pH	FLUID LOSS
0 - 600'	8.6 – 9.4	FW Gel/Lime	32-34	9	N/C

Drill surface with a fresh water spud mud. Maintain viscosity as needed to clean the large diameter hole. Add small amounts of Lime to flocculate the Bentonite for better carrying capacity and to reduce Gel usage. Periodically sweep the hole with Ground Paper to control seepage and aid in hole cleaning. If severe lost circulation is encountered, dry drill to TD, running periodic hole sweeps consisting of Bentonite for 40-50 vis with 10-20 ppb of various fibrous LCM's. Run fresh water as necessary to control weight and volume. Sweep the hole at TD with a viscous (50-60) FW gel pill prior to TOOH to run casing.

CASING PROGRAM FOR SURFACE HOLE

DEPTH	SIZE	LENGTH	WT	GRADE	THREAD	REMARKS
0 - 405'	13 3/8"	405'	48#	H-40	ST&C	

Casing Running Sequence:
Texas pattern notched guide shoe,
1 jt of 13 3/8" 48# H-40 ST&C
Insert float,
Balance of 13 3/8" 48# H-40 ST&C
5 – centralizers equally spaced.

Make-up Torque (using API modified lead free thread dope):

13 3/8" 48# H-40 ST&C	
Optimum	3220 ft-lb
Minimum	2420 ft-lbs
Maximum	4030 ft-lbs

RU BJ Services, hold safety meeting, test lines, cement 13-3/8" casing per attached recommendation. Displace with fresh water. ***Do not overdisplace cement.*** Calculate force required to pump casing out of the hole. Do not exceed this.

CEMENTING PROGRAM FOR SURFACE HOLE

Lead:			
	145 sx 35:65 Poz: Class C	Mixed at:	12.8 ppg
	2% Calcium Chloride	Yield:	1.83 ft^3/sx
	.25 lb/sx Cello Flake	Water:	9.76 gal/sx
	6% Bentonite		
Tail:			
	250 sx Class C	Mixed at:	14.8 ppg
	2% Calcium Chloride	Yield:	1.35 ft^3/sx
	.25 lb/sx Cello Flake	Water:	6.35 gal/sx

If circulation is lost during drilling, pump 150 sx Class H + 10% Gypsum + 1% $CaCl_2$ + 10 lb/sx Gilsonite + ¼ pps celloflake. Mix cement @ 14.6 ppg (6.16 gps water) and pump ahead of lead cement. Pilot test all slurries. See BJ cementing recommendation.

MUST CIRCULATE CEMENT TO SURFACE per NMOCD requirements. If the cement does **not** circulate to surface contact the NMOCD office at (505) 748-1283. They may require either a temperature survey or a cement bond log to be run, and then determine what remedial action will be taken before drilling out

WOC A TOTAL OF 8 HOURS :
Center casing in rotary table. Wait 4 hours then cut off conductor and 13-3/8" casing. Weld casing head and test with FMC to 50% of the collapse rating of 13-3/8" casing, NU BOPE and choke manifold as per drilling contract. NOTE: Cement must stand static until reaching a compressive strength of not less than 500 psi, but at the minimum time of 8 hrs provided that cement slurry properties are provided as per OCD Rulebook 19.15.3.107, Option 2, section H (attached). This information shall be reported on the Dims morning report to enable the Devon regulatory person to fill out Form C-103. If in a potash area then normal stipulations will be followed. Test BOPE to 1000 psi with rig pumps. Calculate pump out force of drill string and configure accordingly such that a test of 1000 psi can be achieved. Install H2S Equipment prior to drill-out of 13 3/8" casing.

INTERMEDIATE HOLE: 405' TO 2550'

Trip in the hole with a 12-1/4" bit. Test the casing to 1000 psi for 30 minutes and drill the intermediate hole from 406' to 2550' with fresh water circulating the outer reserve pit. Pump paper sweeps as needed for seepage control and to clean the hole. If severe lost circulation is encountered consider dry drilling to TD, sweeping hole with viscous (50-60) Bentonite Gel pills consisting of 3-10 ppb of fibrous LCM. Make hole to fit 9 5/8" casing. **Survey every 100-150' to a depth of 2550'** to ensure a straight hole. Deviation has been a significant problem in some wells in the area. If deviation of 3 degrees occurs notify the Drilling Superintendent immediately and consider picking up directional tools with MWD on low speed motor (0.16 rev/gal).

BHA:
Bit, Tri-collar, 3 pt roller reamer, **1- 9" DC**, IBS, **1-9 " DC**, IBS, **1-9"** SS, **1-9" DC**, XO, 12-8" Dc's, XO, 15- 6-1/4" DC's, Drilling Jars, 3- 6-1/4" DC's. Run drill pipe float in BHA

MUD PROGRAM FOR INTERMEDIATE HOLE

DEPTH	MUD WEIGHT	TYPE	VISC	pH	FLUID LOSS
405- 2550'	8.4-8.5	Fresh Water	28-29	9.5-10.5	N/C

Drill out with Fresh Water circulating the outer reserve pit. Use Lime for pH control. Periodically sweep the hole with Ground Paper to aid in seepage control and hole cleaning. Small amounts of MF-55 may be added to flocculate fine solids and keep the fluid clean. Should severe losses be encountered in the Capitan Reef consider dry drilling to the Delaware at 2550' sweeping the hole with viscous (50-60) Salt Water Gel pills consisting of 10-20 ppb of fibrous LCM. Use an air package to decrease the hydrostatic to around 7.0 ppg. Approximately 1400 cfm should be sufficient.

CASING PROGRAM FOR INTERMEDIATE HOLE

DEPTH	SIZE	LENGTH	WT	GRADE	THREAD	REMARKS
0 – 2500'	9 5/8"	2550'	40#	J-55	LT&C	Drift csg to 8.750"

Rig up casing tools and run 9-5/8" production casing as follows:
Float shoe
2 joint of 9 5/8" 40# J-55 LT&C casing
Float collar
Balance of 9 5/8" 40# J-55 LT&C casing.
Run centralizers in the middle of the shoe joint and every 4th joint to surface

Make-up Torque (using API thread dope):

9 5/8" 40# J-55 LT&C	
Optimum	5200 ft-lbs
Minimum	3900 ft-lbs
Maximum	6500 ft-lbs

BCI & drift all casing on location.

RU BJ Services, hold safety meeting, test lines.
Cement casing per attached BJ Services recommendation at maximum mix and displacement rates. ***Do not overdisplace cement.***

CEMENT PROGRAM FOR INTERMEDIATE CASING

Note: Use single stage option if no losses occur while drilling

Lead:	607 sx (35:65) Poz: Class C Cement	Weight:	12.7 ppg
	5% Sodium Chloride	Yield:	1.95 ft^3/sx
	.25 lb/sx Cello Flake	Water:	9.99 gal/sx
	6% Bentonite		
	5 pps LCM-1		
Tail:	250 sx Class C	Weight:	14.8 ppg
	1% Calcium Chloride	Yield:	1.34 ft^3/sx
	.25 lb/sx Celloflake	Water:	6.33 gal/sx

(*)Adjust volume to fluid caliper + 30% excess, calculate cement volume to circulate cement to surface.

MUST CIRCULATE CEMENT TO SURFACE per NMOCD requirements. If the cement does not circulate to surface contact the NMOCD office at (505) 748-1283. They may require either a temperature survey or a cement bond log to be run, then determine what remedial action will be taken before drilling out

WOC A TOTAL OF 8 HOURS BEFORE DRILLING OUT
After waiting 4 hours, cut off casing, NU FMC Wellhead. Test to 50% of collapse rating of 9 5/8" casing. N/U 11" 5000 BOP's, Test BOP's, kill line, choke manifold 250 psi low & 5000 psi high. Test annular to 250 low & 2500 psi high.

NOTE: Cement must stand static until reaching a compressive strength of not less than 500 psi, but at the minimum time of 8 hrs provided that cement slurry properties are provided as per OCD Rulebook 19.15.3.107, Option 2, section H (attached). This information shall be reported on the Dims morning report to enable the Devon regulatory person to fill out Form C-103. If in a potash area then normal stipulations will be followed.

2nd INTERMEDIATE HOLE: ~~2850~~ 2500' TO 8750'

Trip in the hole with an 8-3/4" bit. Test casing to 1000 psi for 30 min. Drill the production hole from 2550' to a TD of 8750' with F/W circulating to the outer reserve pit and adding the Brine from the inner reserve to raise mud weights. Lost circulation may be a problem in this section of the hole. Survey every 500' w/ maximum deviation of 5° & 1½°/100' change.

BHA;
Bit, Tri-collar, 3 pt roller reamer, 1- 6-1/4" DC, IBS, 1- 6-1/4" DC, IBS, 27- 6-1/4" DC's, Drilling Jars, 3-4 6-1/4" DC's. Run drill pipe float in BHA.

MUD PROGRAM FOR 2nd INTERMEDIATE HOLE

DEPTH	MUD WT.	TYPE	VISC	Ph	FL	Chlorides
~~2,850~~ 2500 – 8,750'	8.4 – 9.0	FW/MF-55	28	9.5-10.5	N/C	3–40K

~~2850~~ 2500 – 8750' Drill out from under the intermediate casing with fresh water circulating the outer reserve. Continue to use Lime for pH control down. Ground Paper additions periodically will control seepage and aid in hole cleaning. MF-55 may be added periodically to flocculate fine solids and keep the fluid clean. Should hole conditions dictate sweep the hole with viscous (50-60) Bentonite pills mixed in fresh water to aid in hole cleaning. Should losses be encountered in the Lower Bone Spring add 10-20 ppb of various grades of LCM to the pills. Heavy seepage to loss of circulation is possible in this interval.

EVALUATION PROGRAM FOR 2nd INTERMEDIATE HOLE

At TD, circulate and condition hole clean for logs. Short trip to the last bit trip depth monitoring well closely for flow. Spot High Vis, Low water loss "Slick" Pill prior to TOH for logs. Strap drill string on TOH and report any correction on Dims report.

Mudlogger: Two-man unit from 200' above the top of Delaware (≈ 2500') to TD.

Electric Logs: See Geologic Prognosis.

TYPE Run #1	INTERVAL
Platform Express	TD to base of intermediate casing

Note: Logs probable prior to setting intermediate casing. See Geological Prognosis.

Coring/DST: None anticipated

CASING PROGRAM FOR 2nd INTERMEDIATE HOLE

DEPTH	SIZE	LENGTH	WT	GRADE	THREAD	REMARKS
0' – 8750'	7"	8,750'	26.0#	HCP-110	LT&C	DV @ 4500'

Rig up casing tools and run 7" casing as follows:
Float shoe
2 joints of 7" 26.0# HCP-110 LT&C casing
Float collar
Centralize middle shoe joint and run centralizers every other joint through productive zones
Run balance of 7" 26.0# HCP-110.
DV tool @ 4500'
Utilize torque recorder on casing:
Make-up Torque (using API thread dope): **6930 ft-lbs**

CEMENT PROGRAM FOR 2nd INTERMEDIATE CASING

Tie Back into 9-5/8" casing 500'

1st Stage:

816 sx (60:40) Poz: Class H	Weight:	13.8 ppg
1% Sodium Chloride	Yield:	1.36 ft^3/sx
0.75% BA-10 + 0.75% EC-1	Water:	6.06 gal/sx
.25 lb/sx Cello Flake		
2 lbs/sx Kol Seal + 0.2% R-3		
4% MPA-1		

2nd Stage thru DV @ 4500':

Lead:

226 sx (35:65) Poz:Class C	Weight:	12.5 ppg
5% Sodium Chloride	Yield:	2.04 ft^3/sx
.25 lb/sx Cello Flake	Water:	11.24 gal/sx
6% Bentonite		

Tail:

150 sx (60:40) Poz:Class C	Weight:	13.8 ppg
5% Sodium Chloride	Yield:	1.37 ft^3/sx
0.4% Sodium Metasilicate	Water:	6.36 gal/sx
.25 lb/sx Cello Flake		
4% MPA-1		

Use additives per B. J. cementing recommendation.

Actual cement volumes based on log caliper + **20%**.

ND BOP's, set slips, cut off, NU & test wellhead with FMC to 50% of collapse rating of 5.5" casing. Set tbg hanger and BPV in wellhead. Secure lock down pins on tubing spool. Nipple up a 5-K full opening valve with tapped bull plug in the top of the valve. Ensure all well head valves are closed and report on Dims report. Clean pits and release rig.

PRODUCTION HOLE: 8750' TO 11,650'

Trip in the hole with an 6-1/8" bit. Test casing to 1000 psi for 30 min. Drill the production hole from 8750' to a TD of 11,650' with cut brine & brine circulating to the outer reserve pit and adding the Brine from the inner reserve to raise mud weights. Survey every 500' w/ maximum deviation of 5° & 1½°/100' change.

BHA;
Bit, Tri-collar, 3 pt roller reamer, 1- 6-1/4" DC, IBS, 1- 6-1/4" DC, IBS, 27- 6-1/4" DC's, Drilling Jars, 3-4 6-1/4" DC's. Run drill pipe float in BHA.

MUD PROGRAM FOR PRODUCTION HOLE

DEPTH	MUD WT.	TYPE	VISC	Ph	FL	Chlorides
8,750' – 10,400'	9.2 – 9.8	Cut Brine/XCD	31-34	9.5-10.5	<12cc	+100K
10,400' – 11,000'	9.4 - 9.8	Brine XCD/Starch/PAC	34-36	9.5-10.5	<10cc	+130K
11,000' – 11,650'	9.8 – 10.2	Brine XCD/Starch/PAC	34-38	9.5-10.5	<8cc	+170K

8750 – 10,400' Drill out from under the intermediate casing with cut brine 9.2 – 9.8 ppg. This is to control possible gases encountered in the Wolfcamp. By mud up point have the mud weight at 10.0 ppg by displacing the hole if necessary. Use Caustic Soda for pH control to prevent scaling. Use small amounts of MF-55 to flocculate fine solids and keep the fluid clear. Should hole conditions dictate sweep the hole with viscous (50-60) Bentonite pills mixed in fresh water to aid in hole cleaning.

10,400' – 11,650' Return to working pits with 10.0 ppg Brine water. Be sure that bar bins and gas control equipment is in place and operational. Discontinue the use of MF-55. Add Soda Ash to lower the total hardness to below 600 ppm. Use Caustic to control pH. Pre-treat the system with STC (biocide) additions to prevent bacteria growth. Add White Starch and Drispac to lower the filtrate to below 8cc. Lower the filtrate to below 6cc prior to entering the Morrow at 10,955'. Drispac may be used in conjunction with the White Starch to stabilize filtrate and act as a secondary viscosifier. Defoamer should be used while mixing mud to prevent foaming and aeration of the pumps. Use XCD polymer to adjust the viscosity as needed to control hole cleaning and to support any Barite that may be needed to control gas. Maintain mud weight as necessary (10.0 – 10.7 ppg) to prevent kicks and allow safe trips. Pills consisting of XCD polymer and 6-15 ppb of fine grades of LCM may be needed to control any seepage that may occur. Desco should be used to toughen filter cake and aid in foam prevention should excess pressures be encountered.

EVALUATION PROGRAM FOR PRODUCTION HOLE

At TD, circulate and condition hole clean for logs. Short trip to the last bit trip depth monitoring well closely for flow. Spot High Vis, Low water loss "Slick" Pill prior to TOH for logs. Strap drill string on TOH and report any correction on Dims report.

Electric Logs: See Geologic Prognosis.

TYPE Run #1	INTERVAL
Platform Express	TD to base of 2nd intermediate casing

Coring/DST: None anticipated

CASING PROGRAM FOR PRODUCTION HOLE

DEPTH	SIZE	LENGTH	WT	GRADE	THREAD	REMARKS
8450' – 11,650'	4 ½	3,200'	13.5#	HCP-110	LT&C	

Rig up casing tools and run 4 ½" production casing as follows:
Float shoe
2 joints of 4 ½" 13.0# HCP-110 LT&C casing
Float collar
Centralize middle shoe joint and run centralizers every other joint through productive zones
Run balance of 4 ½" 13.0# HCP-110.
Utilize torque recorder on casing:
Make-up Torque (using API thread dope): **3660 ft-lbs**

CEMENT PROGRAM FOR PRODUCTION CASING

Lead:

282 sx (15:61:11) Poz: Class C CSE-2
2 % Potassium Chloride
0.75 % EC-1 + 0.2% R-3
.25 lb/sx Cello Flake + 2 pps LCM-1
0.7% CD-32 + 0.6 % FL-25 + 0.6% FL-52A
0.5% BA-10

Weight: 13.4 ppg
Yield: 1.55 ft^3/sx
Water: 7.42 gal/sx

Use additives per B. J. cementing recommendation.

Actual cement volumes based on log caliper + **20%.**

ND BOP's, NU wellhead. Set tbg hanger and BPV in wellhead. Nipple up a 5-K full opening valve with tapped bull plug in the top of the valve. Ensure all well head valves are closed and report on Dims report. Clean pits and release rig.

ADMINISTRATIVE REQUIREMENTS

1. Maintain daily estimates of actual costs.
2. Delivery tickets and field invoices are to be signed by the on-site supervisor.
3. All suppliers of on-site goods and services are required to have a term agreement with Devon Energy Corporation. Complete vendor evaluation forms for all services at end of well.
4. Casing and cementing reports should be filled out and copies sent to the office along with the pipe tally **(Use Devon forms.)**
5. Furnish operator with material transfer on all excess casing and tangible equipment whether left on location or transferred to another location.
6. An inventory of all bits on location will be maintained at the well site.
7. IADC reports will be checked daily for accuracy and signed by the company representative. Report everything like it happened and when it happened. Write any comments on these sheets when required.
8. A register of all rental items on location will be maintained to facilitate keeping track of proper rental charges.

SPECIAL INSTRUCTIONS

1. Maintain an accurate drill string measurement.
2. Caliper, measure and record all downhole tools while picking up.
3. Deviation surveys will be run every 500' or each bit trip, whichever occurs first, except in surface hole, where surveys are to be run every 200', unless actual drilling contract is different. Contract takes precedence on this point. Additional surveys are to be run as deemed necessary by the company representative.
4. On all trips, the wellbore will be filled when each 5 stands of drill pipe are pulled and when each stand of drill collars is pulled. Fill hole periodically if drill string is to be on the bank for an extended period of time.
5. Close blind rams while changing bit or lower part of BHA. Inform rig crew before opening rams.
6. All trips should be made at **VERY** moderate speeds to prevent excessive surge and swab pressures.
7. Mud pits will be marked and monitored, upon any gain in pit volume due to a kick, stop drilling, raise kelly slowly with mud pump running, kick out pump and check for flow.

8. On drilling breaks, drill 1'- 3' of break and check for flow.

9. Record slow pump rates on both pumps daily, and record on IADC sheet.

10. BOP and choke manifold will be mechanically checked on each trip and pressure tested every two weeks.

11. BOP drills will be held weekly on each tour.

12. A wear bushing of same manufacture as wellhead will be used during drilling operations. Be sure to pull wear bushing prior to running casing.

13. One man will be on the shale shaker watching for flow at all times during logging operations.

14. Optimize bit hydraulics, rotary speed and WOB as well conditions allow.

SPECIAL EQUIPMENT

1. Mud logging unit will be in operation at **2300' (200' above top of Delaware).**

2. Keep inside BOP and full-open TIW safety valve on the rig floor at all times. Test when pressure testing BOP's.

3. Test plug of same manufacture as wellhead will be kept on location with spare O-rings.

DRILLING BREAK PROCEDURE

1. Drill 1' - 3' of break.

2. Raise kelly with pump running.

3. Shut down pump, let wellbore stabilize.

4. Check for flow, if none, continue to drill, or circulate bottoms up per geologist's orders.

5. If well is flowing, shut-in as detailed below.

SHUT-IN PROCEDURES

WHILE DRILLING

1. Raise kelly with pump running.

2. Shut down pump.

3. Close BOP's

4. Open HCR and gate valves. **Chokes should be closed (HARD SHUT IN)**

5. Bleed for trapped pressure. Allow no more than 1 bbl to be bled. Close choke.

6. Record pit gain.

7. Record drill pipe and casing pressure every 5 minutes until pressure stabilizes.

WHILE TRIPPING

1. Set tool joint on slips.

2. Install full opening safety valve.
3. Close Hydril.

4. Install inside BOP.

5. Strip in hole to TD.

6. Bleed back to trip tank capacity and displacement of each stand of drill pipe and drill collars run in the hole.

7. Read and record pressure and volume on each stand of drill pipe and drill collars run in the wellbore.

8. At TD, pick up kelly and record wellbore pressure on casing side.

BRINGING WELL ON CHOKE

1. All valves open from choke to gas buster, shale shaker, degasser, pits, etc.

2. Open choke slightly; after casing pressure drops 100-200 psi below SICP, bring pump up slowly to slow pump rate.

3. Close choke and let pump pressure increase back to SICP, then hold drill pipe pressure constant.

4. With pump at slow pump rate, hold drill pipe pressure to drill pipe pressure schedule on kill sheet.

5. When drill pipe is completely filled with kill weight mud, hold final drill pipe pressure constant throughout remainder of kill procedure.

6. After kill weight mud is circulated completely around, shut down pump and check for flow. Drill pipe and casing pressure should be zero.

TELEPHONE NUMBERS - EMERGENCY

Emergency Incident Crisis Team:

Don DeCarlo – VP Operations & Exploration
Greg Jacob – Operations Manager
Ray Payne- Drilling Manager
Jim Blount – Sr. Well Engineering Advisor
Bill Dougherty – Sr. Well Engineering Advisor
Wyatt Abbitt – District Engineer
Russ Ginanni – Wellsite Supervisor
Todd Tipton – Exploration Manager
Cici Leonard – Reservoir Manager
David Frank – Land Manager
Marian Moon – Public Relations

Emergency Telephone Numbers:

Ron Truelove	Office:	(405) 552-4516
Manager, Environmental & Safety	Home:	(405) 691-4957
	Mobile:	(405) 203-3557
Mike Myers	Office:	(505) 748-0187
Environmental & Safety Spec.	Mobile:	(505) 513-0782
	Pager:	(505) 370-6679
Tom Cunningham	Office:	(505) 748-0166
DIMS Support	Mobile:	(505) 748-5508

Manpower and Equipment:

COMPANY

Devon Energy Corporation
20 North Broadway, Suite 1500
Oklahoma City, Oklahoma 73102

(405) 235-3611
(800) 361-3377

FIRE

Carlsbad, Fire Department
Carlsbad, NM

911
(505) 885-2111

AMBULANCE

Carlsbad

911

Recommended Drilling Fluids Program
and
Cost Estimate

For:

Devon Energy Corporation
20 N. Broadway
Oklahoma City, OK 73102-8260

The

Perfecto "2" State # 1

Located in:

Sec-2, T-22-S, R-26-E,
Eddy Co., NM

Prepared especially for:

Mr. Bill Dougherty

Drilling Supervisor

"The Nova Difference"

A Commitment to Service and Quality

Devon Energy Corporation * Perfecto "2" State # 1 * Sec-2, T-22-S, R-26-E, Eddy, NM

INTERVAL: 0 - 405	17.5" hole	3 days	13.375" csg		1 drill bits	
Product	**Function**	**Treatment**	**Unit Size**	**Usage**	**Unit Price**	**Total Price**
Bentonite	Viscosifier	12-14 ppb	100 #	80	$7.35	$588.00
Cedar Fiber/Fiber Plug	LCM, sealant	3-10 ppb in pills	40 #	40	$5.98	$239.20
Ground Paper	Seepage and sweeps	1-3 sacks per 100 feet	40 #	60	$8.80	$528.00
Lime	pH additive, flocculant	1 sack per 15 sacks of bentonite	50 #	10	$5.35	$53.50
Maxi-Seal/Fiber Seal/Chem Seal	LCM, sealant	3-10 ppb in pills	40 #	40	$9.77	$390.80
MF-55/VisPlus(non-ionic)	Hole sweep	2-3 gal sweeps	5 gal.	5	$82.08	$410.40
Plastic	Storage aid	Cover mud	1 roll	1	$26.25	$26.25
					Interval Total:	$2,236.15

Projected Mud Properties

Depth	Mud Wt. - ppg	Viscosity	Filtrate	pH	Solids - % by vol.
0' - 405'	8.6-9.4	32-34	N/C	7-9	5-8

General Geological Data

Tops/Bases	Formation	Lithology	Notes/Challenges
250' - 405'	Yates/Seven Rivers	Conglomerates	Lost circulation

Interval Notes for 0 - 405

Drill surface with Fresh Water spud mud. Maintain the viscosity as needed to clean the large diameter hole. Add small amounts of Lime to control the pH and to flocculate the Gel for added carrying capacity. Ground Paper additions may be used periodically to aid in hole cleaning and control seepage. Should severe losses occur we suggest dry drilling to total depth sweeping the hole regularly with viscous (40-50) Bentonite pills containing 3-10 ppb of various fibrous LCM's. Vis Plus sweeps should be made as needed on connections to aid in hole cleaning.

NOTE 1: it is highly possible that loss of circulation will be encountered in this interval. We suggest that consideration be given to placing an air package on this project to maintain returns.

NOTE 2: it may be possible to use Red Stripe in this interval to introduce aphrons into the system for lower equivalent mud weights.

NOTE 3: We suggest a complete corrosion program be utilized on this project. Nova Mud, Inc. carries a complete line of chemicals and can provide service and coupons.

Devon Energy Corporation * Perfecto "2" State # 1 * Sec-2, T-22-S, R-26-E, Eddy, NM

INTERVAL: 405 - 2,550	12.25" hole	7 days	9.625" csg		2 drill bits	
Product	**Function**	**Treatment**	**Unit Size**	**Usage**	**Unit Price**	**Total Price**
Bentonite	Hole sweep	12-14 ppb in sweeps	100 #	90	$7.35	$661.50
Cedar Fiber/Fiber Plug	LCM, sealant	3-10 ppb in pills	40 #	50	$5.98	$299.00
Ground Paper	Seepage and sweeps	1-3 sacks per 200 feet	40 #	70	$8.80	$616.00
Lime	pH additive	.5-.75 ppb	50 #	70	$5.35	$374.50
Maxi-Seal/Fiber Seal/Chem Seal	LCM, sealant	3-10 ppb in pills	40 #	50	$9.77	$488.50
MF-55/VisPlus(non-ionic)	Hole sweep	2-3 gal sweeps	5 gal.	4	$82.08	$328.32
					Interval Total:	$2,767.82

Projected Mud Properties

Depth	Mud Wt. - ppg	Viscosity	Filtrate	pH	Chlorides - ppm
405' - 2,550'	8.4-8.5	28-29	N/C	9.5-10.5	3-12K

General Geological Data

Tops/Bases	Formation	Lithology	Notes/Challenges
405' - 485'	Yates/Seven Rivers	Limestone, w/dolomite stringers	
485' - 2,500'	Capitan Reef	Fractured Limestone	Lost circulation, air drilling, sloughing
2,500' - 2,550'	Delaware	Limestone	Casing seat

Interval Notes for 405 - 2,550

Drill out from under the surface casing with Fresh Water. Circulate a controlled portion of the reserve. Adjust the pH to 10.0 with Lime additions. Use an air package to decrease the hydrostatic to around 7.0 ppg. Approximately 1400 cfm should be sufficient. Continue to sweep the hole periodically with Ground Paper to control seepage and enhance hole cleaning. Use Bentonite pills only as necessary to control torque and/or drag. Small amounts of MF-55 may be added to aid in fine solids removal. Should severe losses occur we suggest dry drilling to total depth sweeping the hole as necessary with viscous (40-50) Bentonite pills containing 3-10 ppb of fibrous LCM. Vis Plus pills should be used on connections to aid in hole cleaning and to slick up the hole.

NOTE: Loss of circulation is highly likely through this interval at approximately 1,500'. Should losses occur dry drilling should be attempted. Sweep the hole as needed to keep the well bore clean.

Devon Energy Corporation * Perfecto "2" State # 1 * Sec-2, T-22-S, R-26-E, Eddy, NM

INTERVAL: 2,550 - 8,750	8.75" hole	15 days	7" csg		3 drill bits	
Product	**Function**	**Treatment**	**Unit Size**	**Usage**	**Unit Price**	**Total Price**
Bentonite	Hole sweep	12-14 ppb in sweeps	100 #	170	$7.35	$1,249.50
Caustic Soda	pH additive	.25 ppb below 8,000'	50 #	30	$25.52	$765.60
Cedar Fiber/Fiber Plug	LCM, sealant	3-10 ppb in pills	40 #	170	$5.98	$1,016.60
Ground Paper	Seepage and sweeps	1-3 sacks per 200 feet	40 #	80	$8.80	$704.00
Lime	pH additive	.5-.75 ppb	50 #	120	$5.35	$642.00
Maxi-Seal/Fiber Seal/Chem Seal	LCM, sealant	3-10 ppb in pills	40 #	150	$9.77	$1,465.50
MF-55/VisPlus(non-ionic)	Flocculant	1 qt in 50 gal water as needed	5 gal.	4	$82.08	$328.32
Mica	LCM, sealant	3-10 ppb in pills	50 #	120	$10.35	$1,242.00
M-I-X II/Delta P	LCM, sealant	3-10 ppb in pills	25 #	170	$25.50	$4,335.00
Salt Gel	Hole sweep	14-16 ppb in sweeps	50 #	60	$8.08	$484.80
					Interval Total:	$12,233.32

Projected Mud Properties

Depth	Mud Wt. - ppg	Viscosity	Filtrate	pH	Chlorides - ppm
2,550' - 3,400'	8.4-8.5	28	N/C	9.5-10.5	3-12K
3,400' - 8,750'	8.9-9.0	28	N/C	9.5-10.5	+40K

General Geological Data

Tops/Bases	Formation	Lithology	Notes/Challenges
2,550' - 2,775'	Delaware		Seepage
2,775' - 3,425'	Cherry Canyon	Sand	
3,425' - 4,625'	Brushy Canyon		
4,625' - 4,915'	Lower Brushy Canyon		
4,915' - 6,010'	Bone Spring Lime	Limestone	
6,010' - 6,740'	1st Bone Spring Sand	Sand	Seepage
6,740' - 8,185'	2nd Bone Spring Sand	Sand	Seepage, lost circ
8,185' - 8,690'	3rd Bone Spring Sand	Sand	Seepage
8,690' - 8,750'	Wolfcamp Lime	Shaly limestone	Poss. gas kick, sloughing

Interval Notes for 2,550 - 8,750

Drill out with Fresh Water circulating the outer reserve pit for solids control. Sweep hole periodically with Ground Paper sweeps to control seepage and to aid in hole cleaning. Continue to use Lime to control the pH down to 8,000' then switch to Caustic Soda to prevent scaling. MF-55 may be added periodically to flocculate fine solids and keep the fluid clean. Viscous (40-50) Bentonite pills may be used as needed to clean cuttings from the well bore and reduce torque and drag. Begin adjusting the weight and chlorides to 8.9-9.0 ppg and +40,000 ppm respectively below 3,500' to prepare for drilling the Wolfcamp and Cisco formations. Should any severe losses occur, add 3-20 ppb of various LCM's to viscous pills to regain returns. **Sweep and spot viscous (50-60) Salt Gel pills at total depth to ensure a clean hole for logging and casing operations.**

Devon Energy Corporation * Perfecto "2" State # 1 * Sec-2, T-22-S, R-26-E, Eddy, NM

INTERVAL: 8,750 - 11,650	6.125" hole	18 days	4.5" csg		4 drill bits	
Product	**Function**	**Treatment**	**Unit Size**	**Usage**	**Unit Price**	**Total Price**
Biocide (STC)	Biocide	1 gal./100 bbls.	5 gal.	40	$72.24	$2,889.60
Caustic Soda	pH additive	.25 ppb	50 #	30	$25.52	$765.60
Drispac/Poly Pac/StaFlo/Aquapac	Filtrate control, secondary viscosifier	.5 ppb	50 #	30	$148.20	$4,446.00
Maxi-Seal/Fiber Seal/Chem Seal	LCM, sealant	1-4 ppb in sweeps	40 #	40	$9.77	$390.80
Mica	LCM, sealant	3-10 ppb in sweeps	50 #	60	$10.35	$621.00
M-I-X II/Delta P	LCM, sealant	3-10 ppb in pills	25 #	60	$25.50	$1,530.00
Salt	Weighting agent	As needed	50 #	500	$4.76	$2,380.00
Silicone Defoamer	Defoamer	As needed	5 gal.	20	$77.40	$1,548.00
Soda Ash	Calcium remover	.5-.75 ppb	50 #	80	$9.75	$780.00
White Starch	Filtrate control	2-3 ppb	50 #	100	$21.77	$2,177.00
XCD Polymer/Flozan	Viscosifier, invasion control	.25-.5 ppb	25 #	40	$152.88	$6,115.20
					Interval Total:	$23,643.20

Projected Mud Properties

Depth	Mud Wt. - ppg	Viscosity	Filtrate	pH	Chlorides - ppm
8,750' - 10,400'	9.2-9.6	31-34	<12 cc	9.5-10.5	+100K
10,400' - 11,000'	9.4-9.8	34-36	<10 cc	9.5-10.5	+130K
11,000' - 11,650'	9.8-10.2	34-38	<8cc	9.5-10.5	+170K

General Geological Data

Tops/Bases	Formation	Lithology	Notes/Challenges
8,750' - 9,240'	Wolfcamp Lime	Limestone	
9,240' - 9,445'	Lower Wolfcamp Lime	Limestone	
9,445' - 10,000'	Cisco/Canyon Lime	Limestone	
10,000' - 10,405'	Strawn	Shaly limestone	
10,405' - 11,045'	Atoka	Sandy shale, mostly shale	Poss. gas kick
11,045' - 11,145'	Morrow Clastics	Shaly calcareous sand	Water sensitive
11,145' - 11,380'	Middle Morrow Lime	Limestone	
11,380' - 11,550'	Lower Morrow	Shaly calcareous sand	
11,550' - 11,650'	Barnett	Shale	TD

Interval Notes for 8,750 - 11,650

Return to the working pits with a cut Brine. Discontinue the use of MF-55. Adjust the pH to no more than 10.0 with Caustic Soda. Pre-treat the system with Soda Ash to lower the total hardness to below 600 ppm and add STC (biocide) to prevent bacteria growth. Add amounts of Drispac and White Starch to lower the filtrate to 12cc. Use XCD Polymer to adjust the viscosity as necessary. Small amounts of Silicone Defoamer may be needed while mixing mud to prevent the aeration of the pumps. Sweep the hole as only as necessary with viscous (40-45) XCD Polymer pills that may be left in the system should added viscosity be needed. Adjust the weight with Brine or sack salt to 10.0 ppg. Should weights above the 10.0 ppg range be needed use Barite additions. Use M-I-X II or Delta P for seepage control while using viscous (40-45) XCD Polymer pills containing 3-10 ppb of various LCM's for more severe losses.

NOTE 1: if 7" has been set mud up after drilling the shoe. We would recommend mudding up with a 10.0 ppg Brine if the casing has been set and a 9.3-9.5 ppg cut brine if it has not.

NOTE 2: our estimate is based on mud weights not exceeding 10.2 ppg. we would estimate an additional $8,000.00-$10,000.00 would be needed to raise the weight to 11.4 ppg without additional losses.

Recommended Drilling Fluids Program

Devon Energy Corporation * Perfecto "2" State # 1 * Sec-2, T-22-S, R-26-E, Eddy, NM

INTERVAL: 0 - 405	17.5" hole	3 days	13.375" csg		1 drill bits	
Product	**Function**	**Treatment**	**Unit Size**	**Usage**	**Unit Price**	**Total Price**
Bentonite	Viscosifier	12-14 ppb	100 #	80	$7.35	$588.00
Cedar Fiber/Fiber Plug	LCM, sealant	3-10 ppb in pills	40 #	40	$5.98	$239.20
Ground Paper	Seepage and sweeps	1-3 sacks per 100 feet	40 #	60	$8.80	$528.00
Lime	pH additive, flocculant	1 sack per 15 sacks of bentonite	50 #	10	$5.35	$53.50
Maxi-Seal/Fiber Seal/Chem Seal	LCM, sealant	3-10 ppb in pills	40 #	40	$9.77	$390.80
MF-55/VisPlus(non-ionic)	Hole sweep	2-3 gal sweeps	5 gal.	5	$82.08	$410.40
Plastic	Storage aid	Cover mud	1 roll	1	$26.25	$26.25
					Interval Total:	**$2,236.15**

INTERVAL: 405 - 2,550	12.25" hole	7 days	9.625" csg		2 drill bits	
Product	**Function**	**Treatment**	**Unit Size**	**Usage**	**Unit Price**	**Total Price**
Bentonite	Hole sweep	12-14 ppb in sweeps	100 #	90	$7.35	$661.50
Cedar Fiber/Fiber Plug	LCM, sealant	3-10 ppb in pills	40 #	50	$5.98	$299.00
Ground Paper	Seepage and sweeps	1-3 sacks per 200 feet	40 #	70	$8.80	$616.00
Lime	pH additive	.5-.75 ppb	50 #	70	$5.35	$374.50
Maxi-Seal/Fiber Seal/Chem Seal	LCM, sealant	3-10 ppb in pills	40 #	50	$9.77	$488.50
MF-55/VisPlus(non-ionic)	Hole sweep	2-3 gal sweeps	5 gal.	4	$82.08	$328.32
					Interval Total:	**$2,767.82**

INTERVAL: 2,550 - 8,750	8.75" hole	15 days	7" csg		3 drill bits	
Product	**Function**	**Treatment**	**Unit Size**	**Usage**	**Unit Price**	**Total Price**
Bentonite	Hole sweep	12-14 ppb in sweeps	100 #	170	$7.35	$1,249.50
Caustic Soda	pH additive	.25 ppb below 8,000'	50 #	30	$25.52	$765.60
Cedar Fiber/Fiber Plug	LCM, sealant	3-10 ppb in pills	40 #	170	$5.98	$1,016.60
Ground Paper	Seepage and sweeps	1-3 sacks per 200 feet	40 #	80	$8.80	$704.00
Lime	pH additive	.5-.75 ppb	50 #	120	$5.35	$642.00
Maxi-Seal/Fiber Seal/Chem Seal	LCM, sealant	3-10 ppb in pills	40 #	150	$9.77	$1,465.50
MF-55/VisPlus(non-ionic)	Flocculant	1 qt in 50 gal water as needed	5 gal.	4	$82.08	$328.32
Mica	LCM, sealant	3-10 ppb in pills	50 #	120	$10.35	$1,242.00
M-I-X II/Delta P	LCM, sealant	3-10 ppb in pills	25 #	170	$25.50	$4,335.00
Salt Gel	Hole sweep	14-16 ppb in sweeps	50 #	60	$8.08	$484.80
					Interval Total:	**$12,233.32**

INTERVAL: 8,750 - 11,650	6.125" hole	18 days	4.5" csg		4 drill bits	
Product	**Function**	**Treatment**	**Unit Size**	**Usage**	**Unit Price**	**Total Price**
Biocide (STC)	Biocide	1 gal./100 bbls.	5 gal.	40	$72.24	$2,889.60
Caustic Soda	pH additive	.25 ppb	50 #	30	$25.52	$765.60
Drispac/Poly Pac/StaFlo/Aquapac	Filtrate control, secondary viscosifier	.5 ppb	50 #	30	$148.20	$4,446.00
Maxi-Seal/Fiber Seal/Chem Seal	LCM, sealant	1-4 ppb in sweeps	40 #	40	$9.77	$390.80
Mica	LCM, sealant	3-10 ppb in sweeps	50 #	60	$10.35	$621.00
M-I-X II/Delta P	LCM, sealant	3-10 ppb in pills	25 #	60	$25.50	$1,530.00
Salt	Weighting agent	As needed	50 #	500	$4.76	$2,380.00
Silicone Defoamer	Defoamer	As needed	5 gal.	20	$77.40	$1,548.00
Soda Ash	Calcium remover	.5-.75 ppb	50 #	80	$9.75	$780.00
White Starch	Filtrate control	2-3 ppb	50 #	100	$21.77	$2,177.00
XCD Polymer/Flozan	Viscosifier, invasion control	.25-.5 ppb	25 #	40	$152.88	$6,115.20
					Interval Total:	**$23,643.20**

Recommended Drilling Fluids Program

Devon Energy Corporation * Perfecto "2" State # 1 * Sec-2, T-22-S, R-26-E, Eddy, NM

Totals	
Bits	10
Days	43
Mud	$56,318

Materials Cost:	$40,880
Trucking Cost:	$12,000
Sales Tax/Product @ 6.50%	$2,657
Sales Tax/Trucking @ 6.50%	$780
Estimated Total Mud	**$56,318**

19.15.3.107 CASING AND TUBING REQUIREMENTS: OCD Rulebook

F. All casing strings shall be tested and proved satisfactory as provided in Subsection I. below.

G. After cementing, but before commencing tests required in Subsection I. below, all casing strings shall stand cemented in accordance with Option 1 or 2 below. Regardless of which option is taken, the casing shall remain stationary and under pressure for at least eight hours after the cement has been placed. Casing shall be "under pressure" if some acceptable means of holding pressure is used or if one or more float valves are employed to hold the cement in place.

(1) Option 1 Allow all casing strings to stand cemented a minimum of eighteen (18) hours prior to commencing tests. Operators using this option shall report on Form C-103 the actual time the cement was in place before initiating tests.

(2) Option 2 (May be used in the counties of San Juan, Rio Arriba, McKinley, Sandoval, Lea, Eddy, Chaves, and Roosevelt only.) Allow all casing strings to stand cemented until the cement has reached a compressive strength of at least 500 pounds per square inch in the "zone of interest" before commencing tests, provided however, that no tests shall be commenced until the cement has been in place for at least eight (8) hours.

(a) The "zone of interest" for surface and intermediate casing strings shall be the bottom 20 percent of the casing string, but shall be no more than 1000 feet nor less than 300 feet of the bottom-part of the casing unless the casing is set at less than 300 feet. The "zone of interest" for production casing strings shall include the interval or intervals where immediate completion is contemplated.

(b) To determine that a minimum compressive strength of 500 pounds per square inch has been attained, operators shall use the typical performance data for the particular cement mix used in the well, at the minimum temperature indicated for the zone of interest by Figure 107-A, Temperature Gradient Curves. Typical performance data used shall be that data furnished by the cement manufacturer or by a competent materials testing agency, as determined in accordance with the latest edition of API Code RP 10 B "Recommended Practice for Testing Oil-Well Cements."

(See Temperature Gradient - Page 17A)

H. Operators using the compressive strength criterion (Option 2) shall report the following information on Form C-103:

(1) Volume of cement slurry (cubic feet) and brand name of cement and additives, percent additives used, and sequence of placement if more than one type cement slurry is used.

(2) Approximate temperature of cement slurry when mixed.

(3) Estimated minimum formation temperature in zone of interest.

(4) Estimate of cement strength at time of casing test.

(5) Actual time cement in place prior to starting test.

I. All casing strings except conductor pipe shall be tested after cementing and before commencing any other operations on the well. Form C-103 shall be filed for each casing string reporting the grade and weight of pipe used. In the case of combination strings utilizing pipe of varied grades or weights, the footage of each grade and weight used shall be reported. The results of the casing test, including actual pressure held on pipe and the pressure drop observed shall also be reported on the same Form C-103.

(1) Casing strings in wells drilled with rotary tools shall be pressure tested. Minimum casing test pressure shall be approximately one-third of the manufacturer's rated internal yield pressure except that the test pressure shall not be less than 600 pounds per square inch and need not be greater than 1500 pounds per square inch. In cases where combination strings are involved, the above test pressure shall apply to the lowest pressure rated casing used. Test pressures shall be applied for a period of 30 minutes. If a drop of more than 10 percent of the test pressure should occur, the casing shall be considered defective and corrective measures shall be applied.

Form C-101 Amendments to Initial Permit - Perfecto 2 State 1:

Proprosed Casing and Cement Program:

Initial Permit:

Type	Hole Size	Casing Type	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17 1/2"	13 3/8"	48#	600'	295	0'
Int	12 1/4"	9 5/8"	36#	2300'	950	0'
Prod	8 3/4"	5 1/2"	17#	11525'	2476	2500'

Change to:

Type	Hole Size	Casing Type	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17 1/2"	13 3/8"	48#	405'	395'	0'
Int	12 1/4"	9 5/8"	40#	2550'	857'	0'
Int	8 3/4"	7"	26#	8750'	1192'	Tie back into 9 5/8" 500'
Liner	6 1/8"	4 1/2"	13.5#	11650'	282'	8450-11650' (see drillg prog)

Mud Information:

Initial Permit:

Depth:	Mud Weight	Visc	Fluid Loss	Type System
0-260'	8.4-9.4	32-34	NC	Fresh Water
260-2800'	8.5-9.6	28-35	NC	Fresh Water
2800-10000	8.4-9.4	28-32	NC	Fresh Water / Cut Brine
10000-11525'	9.8-10.5	36-42	8.6	Brine

Change to:

Depth:	Mud Weight	Visc	Fluid Loss	Type System
0-600'	8.4-9.4	32-34	NC	Fresh Water Gel / Lime
405-2550'	8.4-8.5	28-29	NC	Fresh Water
2550-8750'	8.4-9.0	28	NC	Fresh Water / MF-55
8750-10400'	9.2-9.8	31-34	<12cc	Cut Brine / XCD
10400-11000	9.4-9.8	34-36	<10cc	Brine XCD / Starch / PAC
11000-11650'	9.8-10.2	36-42	<8cc	Brine XCD / Starch / PAC