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District I - (575) 393-6161  
1625 N. French Dr., Hobbs, NM 88240  
District II - (575) 748-1283  
811 S. First St., Artesia, NM 88210  
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1000 Rio Brazos Rd., Aztec, NM 87410  
District IV - (505) 476-3460  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources

Form C-103  
Revised July 18, 2013

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

<b>SUNDRY NOTICES AND REPORTS ON WELLS</b> (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)		WELL API NO. 30-025-41343
1. Type of Well: Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> <b>HOBBS OCD</b>		5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
2. Name of Operator CHEVRON U.S.A. INC.		6. State Oil & Gas Lease No.
3. Address of Operator 15 SMITH ROAD, MIDLAND, TEXAS 79705		7. Lease Name or Unit Agreement Name CENTRAL VACUUM UNIT
4. Well Location Unit Letter: L 2490 feet from SOUTH line and 500 feet from the WEST line Section 36 Township 17S Range 34E NMPM County LEA		8. Well Number 170
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 4001' GL		9. OGRID Number 4323
		10. Pool name or Wildcat VACUUM; GRAYBURG SAN ANDRES

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐  
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐  
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐  
DOWNHOLE COMMINGLE ☐  
CLOSED-LOOP SYSTEM ☐  
OTHER:

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐  
COMMENCE DRILLING OPNS. ☐ P AND A ☐  
CASING/CEMENT JOB ☐

OTHER: DRILL NEW WELL

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

11/04/2013: SPUD WELL . DRILL 71-320,1140,1440,1506.  
11/06/2013: RAN 11.75" 42# H-40 SURF CSG - SET @ 1506. CMT @ 1035 SX. 185 BBLS CMT TO SURF.  
11/07/2013: DRILL 1506-2600,3210.  
11/09/2013: RAN 8 5/8" INTER CSG - SET @ 3204. CMT W/595 SX CMT. 21 BBLS CMT TO SURF.  
11/10/2013: DRILL 3210-4018,4816,4885,4966,5115. TD (11/11/2013)  
11/12/2013: RAN 5 1/2" 17# J-55 PROD CSG - SET @ 5105'. CMT W/875 SX CMT. 36 BBLS CMT TO SURF.  
RELEASE RIG.

Spud Date:

Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE

*Denise Pinkerton*

TITLE REGULATORY SPECIALIST

DATE 12/17/2013

Type or print name DENISE PINKERTON

E-mail address: [leakejd@chevron.com](mailto:leakejd@chevron.com)

PHONE: 432-687-7375

For State Use Only

APPROVED BY:

*Mark Whitaker*

TITLE

*Compliance Officer*

DATE 12-26-13

Conditions of Approval (if any):

WFX-917

DEC 30 2013



# Summary Report

Drill  
Drill and Suspend  
Job Start Date: 11/2/2013  
Job End Date: 11/13/2013

Well Name CENTRAL VACUUM UNIT 170		Lease Central Vacuum Unit	Field Name Vacuum	Business Unit Mid-Continent	
Ground Elevation (ft) 4,001.00	Original RKB (ft) 4,019.50	Current RKB Elevation 4,019.50, 9/24/2013		Mud Line Elevation (ft) 0.00	Water Depth (ft) 0.00

Report Start Date: 11/3/2013

Com.

R/D HP 356 from CVU 218 & prepare for move to CVU 170.

Hold PJSM with H&P, H&P Rig Movers. Review rig move check list. Move H&P 356 from CVU 218 to CVU 170wi. All loads on location at 17:00 hrs.

Spot loads and continue R/U and prep to spud, address all issues as necessary.

Report Start Date: 11/4/2013

Com.

Finish rigging up HP 356 on CVU 170wi. Complete pre spud checklist, address any issues.

Nipple up Conductor, kill line, install turnbuckles.

Strap and test BHA for leaks at surface.

Review JSA for P/U BHA

P/U BHA and RIH to btm @ 71'

Drig f/ 71' to 320'

AROP = 125 fph

WOB = 5 - 7 kips

TD RPM = 65-95

Motor RPM = 121

GPM = 650

SPP = 1000psi

MW = 8.34 ppg

pH = 9

Report Start Date: 11/5/2013

Com.

Drig f/ 320' to 1140'

AROP = 173 fph

WOB = 5 - 7 kips

TD RPM = 140

Motor RPM = 165

GPM = 750

SPP = 2400psi

MW = 9.9 ppg

pH = 9

Lost Partial Returns @ 1140', mud was static at flowline, Pumped LCM pill and continue to drill

Drig f/ 1140' to 1440'

AROP = 67 fph

WOB = 5 - 7 kips

TD RPM = 140

Motor RPM = 154

GPM = 704

SPP = 2400psi

MW = 9.9 ppg

pH = 9

Note: Staged pumps back up to drilling rate

Circulate while changing out packing in #1 mud pump

Drig f/ 1440' to 1506'

AROP = 33 fph

WOB = 5 - 7 kips

TD RPM = 140

Motor RPM = 154

GPM = 704

SPP = 2400psi

MW = 9.9 ppg

pH = 9

Pump 2 High Vis Sweeps & Circulate Hole Clean

Monitor Well On Trip Tank (Well Static)

TOH With 14 3/4" Surface Drilling Assembly to surface, break bit & lay down, tight spots @ 1177' & 955'

Clean Rig Floor

Rig Service

PJSM with Chevron, Petro Safety & H&P on rigging up H&P CRT

R/U H&P CRT

PJSM with H&P and Frank's for running surface casing.

Run 11.75" 42# H-40 surface casing to 1025'

Report Start Date: 11/6/2013



# Summary Report

Drill  
Drill and Suspend  
Job Start Date: 11/2/2013  
Job End Date: 11/13/2013

Well Name CENTRAL VACUUM UNIT 170		Lease Central Vacuum Unit	Field Name Vacuum	Business Unit Mid-Continent	
Ground Elevation (ft) 4,001.00	Original RKB (ft) 4,019.50	Current RKB Elevation 4,019.50, 9/24/2013		Mud Line Elevation (ft) 0.00	Water Depth (ft) 0.00

Com				
Continue to run 11.75" 42# H-40 surface casing from 1025' to 1320"				
Fill casing while changing out busted hose on pipe wrangler				
Continue running 11.75" 42# H-40 surface casing from 1320' to 1506' (Precautionary Washed Down Last 2 Joints As Well Procedure)				
Circulate 1 1/2 Casing Volume (While Circulating Held PJSM With Halliburton, Chevron & H&P Crew On Rigging Up & Pumping CMT Schdule				
R/U Halliburton CMT Head & Circulating Iron				
Test lines to 3000 psi, Cement per Halliburton pump schedule. Displace 175 bbls of FW. Bumped plug and held 1237 psi for 5 minutes (FCP=606 psi), test good. Checked floats, bled back 1 bbl. Full returns throughout the job. Returned 185 bbls of cement to surface.				
	bbls	sacks	bpm	wt. (ppg)
Spacer	20	n/a	3	8.4
Lead	199	610	5	12.9
Tail	101	425	5	14.8
Disp.	175	n/a	5	8.4
PJSM, R/D Halliburton Iron, R/D Franks Power Tongs, Set Casing String On Bottom				
Flush Lines, Remove Turnbuckles, Fill Up Line, Kill Line, Cut Conductor & 11 3/4" casing, L/D same, Dress Casing to weld on MB260 well head				
Held Pre-Spud Meeting With All Rig Crews & Vendors For Upcoming Glass Lease ( Tour Pusher Stayed @ Rig With Welder While Welding On Well Head.				
PJSM, R/D H&P 11 3/4" CRT				
PJSM, Install Space Spool, Stack & Choke Line, Torque Bolts With Mans Nipple Up Crew, Install Flowline, Fill Up Line, Accumulator Lines, Turn Buckles, Changed Out Saver Sub From NC 46 to XT-39				
PJSM, R/U BOP Testing Equipment, Install Test Plug, Fill Stack With Water				
Test Bottom Rams, Blind Rams,Choke Line, HCR, Kill Line, Floor Valves, Manuel IBOP, Hydraulic IBOP, Kelly Hose, Standpipe & choke manifold to 250psi low and 3000psi high, Test Hydrill 250psi low and 1500psi				
Report Start Date: 11/7/2013				
Com				
Test Bottom Rams, Blind Rams,Choke Line, HCR, Kill Line, Floor Valves, Manuel IBOP, Hydraulic IBOP, Kelly Hose, Standpipe & choke manifold to 250psi low and 3000psi high, Test Hydrill 250psi low and 1500psi				
R/D BOP Testers				
P/U Intermediate BHA.				
Make up 10.625" bit and TIH to1440' MD.				
Perform CHEvron Choke Drill.				
Displace hole with 10# brine water				
Drill out cement F/1463' to 1506'				
Rotate Drill Intermediate hole f/ 1506' to 2600'				
AROP =109 fph				
WOB = 7-12 kips				
TD RPM = 125				
Motor RPM = 143				
GPM = 650				
SPP = 2100 psi				
MW = 9.9 ppg in / 10.0 out				
pH = 9				
Report Start Date: 11/8/2013				
Com				
Rotate Drill Intermediate hole f/ 2,600' to 3,210'				
AROP =102 fph				
WOB = 10-12				
TD RPM = 125				
Motor RPM = 143				
GPM = 650				
SPP = 2100 psi				
MW = 9.9 ppg in / 10 out				
pH = 9				
Pump 3 40 bbl HI Vis sweeps and circulate hole clean.				
Check well for flow. Well static.				
POOH for csg. Lubricate and inspect rig and Pull wear bushing. Lay down BHA tools.				
Clean rig floor,				
PJSM for R/U HP's CRT tool.				
Rig up CRT tool, Calibrate and OD/ID csg collar/elevators.				
PJSM for Running Casing				
Run 8 5/8" csg to 3210'.				



# Summary Report

Drill  
Drill and Suspend  
Job Start Date: 11/2/2013  
Job End Date: 11/13/2013

Well Name CENTRAL VACUUM UNIT 170		Lease Central Vacuum Unit	Field Name Vacuum	Business Unit Mid-Continent	
Ground Elevation (ft) 4,001.00	Original RKB (ft) 4,019.50	Current RKB Elevation 4,019.50, 9/24/2013		Mud Line Elevation (ft) 0.00	Water Depth (ft) 0.00

Report Start Date: 11/9/2013

Com

Run 8 5/8 Intermediate casing, wash last two joints down as per well procedure, lay down tag joint & land hanger,

Circulate 1 1/2 casing volumes (Max Gas 400 Units)

Continue to circulate while having PJSM with Halliburton cementers,

*Inter csg*

Shut pumps down r/u Halliburton CMT head and Iron

Valve on Halliburton tanker truck for super flush was plug, cleaned out valve & resumed operation

Perform cmt job as follows:

Pressure test lines to 1500 psi

Pump 10 bbls of spacer at 8.34 ppg, followed by 24 bbls of superflush 101 at 10 ppg, then 10 bbl spacer #2 at 8.34 ppg.

Mix and pump 405.sxs (131.28 bbls) of type of cement lead at 12.9 ppg.

Mix and pump 190.sxs (45.68 bbls) of type of cement tail at 14.8 ppg.

Drop plug and displace cmt w/ 190.33 bbls of 10 ppg fluid.

Bump plug with 500 psi over final circulating pressure. 1700

Bleed off pressure – floats held.

*Cmt*

Details:

Full returns throughout job, returned 21 bbls cement to surface

Final circulation pressure prior to bumping plug 710 psi at 2 bpm

Cmt in place at 0630 hrs

R/D cementers

Flush surface equipment, back out and lay down landing joint

Review JSA & R/D CRT tool

Set packoff and test to 1500 psi. Test ok.

Install W/B

Test casing to 1500psi for 30 min, test good.

Perform choke drill and, and conducted Hazard hunt with rig crew, Chevron & Petro Safety, minor items found and documented, reviewed four points of TIF and how it works with every job that is performed

M/U 7 7/8 bit, bit would not clear wellhead.

While waiting on 7 3/4" bit, made up teledrift and stablizers & lay back down

Make up 7 3/4" Bit, BHA and TIH to 2800'

Install rotating head

Continue TIH from 2800' to top of float collar @ 3124'

Report Start Date: 11/10/2013

Com

Drill cement & float equipment from 3123' to 3210' (Float @ 3124', Shoe @ 3204')

AROP = 57 FPH

WOB = 8-10 Klbs

RPM = 25

Motor RPM = 104

GPM = 375

SPP = 900 psi

Torque = 2-3Kft\*lbs

Differential = 100 psi

Drill 7 3/4" production hole section from 3210' to 4018'

AROP = 70 FPH

WOB = 15-20 Klbs

RPM = 85

Motor RPM = 104

GPM = 650

SPP = 2600psi

Torque = 5-6 Kft\*lbs

Differential = 300 psi

Displace clear 10 ppg with 11 ppg brine mud



# Summary Report

Drill  
Drill and Suspend  
Job Start Date: 11/2/2013  
Job End Date: 11/13/2013

Well Name CENTRAL VACUUM UNIT 170		Lease Central Vacuum Unit	Field Name Vacuum	Business Unit Mid-Continent	
Ground Elevation (ft) 4,001.00	Original RKB (ft) 4,019.50	Current RKB Elevation 4,019.50, 9/24/2013		Mud Line Elevation (ft) 0.00	Water Depth (ft) 0.00

Com

Drill 7 3/4" production hole section from 4018' to 4816'

AROP = 94 FPH  
WOB = 15-20 Klbs  
RPM = 85  
Motor RPM = 104  
GPM = 650  
SPP = 3400psi  
Torque = 5-6 Kft\*lbs  
Differential = 300 psi

Service pump #1

Drill 7 3/4" production hole section from 4816' - 4885'

AROP = 138 FPH  
WOB = 15-20 Klbs  
RPM = 85  
Motor RPM = 104  
GPM = 650  
SPP = 3500psi  
Torque = 5-6 Kft\*lbs  
Differential = 300 psi

Report Start Date: 11/11/2013

Com

Drill 7 3/4" production hole section from 4885' - 4966'

AROP = 81 FPH  
WOB = 15-20 Klbs  
RPM = 85  
Motor RPM = 104  
GPM = 650  
SPP = 3500psi  
Torque = 5-6 Kft\*lbs  
Differential = 300 psi

Work on #1 pump

Drill 7 3/4"  
" production hole section from 4966' - 5115'

AROP = 59.5 FPH  
WOB = 15-20 Klbs  
RPM = 85  
Motor RPM = 104  
GPM = 650  
SPP = 3500psi  
Torque = 5-6 Kft\*lbs  
Differential = 300 psi

Pump 2, 40 bbl HI-VIS Sweeps to surface. Monitor return solids.

Flow check - No flow.

Work on ST-80.

POOH for production casing.

Clean up rig floor.

Pull wear bushing

PJSM R/U CRT tool

R/U HP CRT tool

Run 5 1/2" 17# j-55 production csg

Report Start Date: 11/12/2013



# Summary Report

Drill  
Drill and Suspend  
Job Start Date: 11/2/2013  
Job End Date: 11/13/2013

Well Name CENTRAL VACUUM UNIT 170		Lease Central Vacuum Unit	Field Name Vacuum	Business Unit Mid-Continent	
Ground Elevation (ft) 4,001.00	Original RKB (ft) 4,019.50	Current RKB Elevation 4,019.50, 9/24/2013		Mud Line Elevation (ft) 0.00	Water Depth (ft) 0.00

Com

Run 5 1/2" 17# J-55 LTC csg as follows:

Float Shoe  
2 Shoe Jts  
Float Collar  
39 Joints  
Marker Joint  
8 Joints  
ECP  
80 Joints

PROD csg

Centralizer place 10' above FS, 10' above FC. One every 4 jts to 3,484'. One per jt between marker jt and FC.

Tag bottom at 5,115'  
Casing shoe landed at 5,105'  
Top of FC at 5,027'

Circulate and condition mud 1.5 casing volume. L/D tag joint and land hanger.

PJSM with Halliburton Cementer and R/U cementing equipment.

Perform cmt job as follows:  
Pressure test lines to 4000 psi  
Pump 30 bbls of spacer at 12.3 ppg. Drop btm plug.  
Mix and pump 420 sxs (126 bbls) of Econcem Class C of cement lead at 13.2 ppg.  
Mix and pump 455 sxs (83 bbls) of Corrosacem Class H of cement tail at 15.8 ppg.  
Drop top plug and displace cmt w/ 116 bbls of FW fluid.  
Bump plug with 600 psi over final circulating pressure.  
Bled off pressure – floats held.

cmt

Details:  
Returns throughout job  
Final circulation pressure prior to bumping plug 2540 psi at 3 bpm  
36 bbls of cmt to surface  
Cmt in place at 1326 hrs.

R/D Halliburton cement equipment.

LD landing joint & RD H&P CRT

Clean pits, install BPV, packoff, and test to 5000psi

PJSM w/mann ND crew. Remove flow line, choke line, kill line, fill up line, trip nipple, accumulator lines, break bolts on BOP, spool, and LD.

Install tubing head & test to 4000 psi.

Clean pits. Begin R/D of H&P 356. Release Rig @ 0000 hrs.



# Casing Summary

Well Name CENTRAL VACUUM UNIT 170		Lease Central Vacuum Unit		Field Name Vacuum		Business Unit Mid-Continent	
Ground Elevation (ft) 4,001.00	Original RKB (ft) 4,019.50	Current RKB Elevation 4,019.50, 9/24/2013				Mud Line Elevation (ft) 0.00	Water Depth (ft) 0.00

## Surface, Planned?-N, 1,506ftKB

Set Depth (MD) (ftKB) 1,506		Set Tension (kips)		String Nominal OD (in) 11 3/4		String Min Drift (in)		Centralizers 10		Scratchers	
Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Thread	Top Depth (MD) (ftKB)	Btm Depth (MD) (ftKB)	Len (ft)	P Burst (psi)	P Collapse (psi)
37	Casing Joint	11 3/4	11.094	42.00	H-40	ST&C	-5	1,463	1,467.74		
1	Float Collar	11 3/4	11.094	42.00	H-40	ST&C	1,463	1,464	1.37		
1	Casing Joint	11 3/4	11.094	42.00	H-40	ST&C	1,464	1,504	40.33		
1	Guide Shoe	11 3/4	11.094	42.00	H-40	ST&C	1,504	1,506	1.76		

## Intermediate Casing 1, Planned?-N, 3,204ftKB

Set Depth (MD) (ftKB) 3,204		Set Tension (kips)		String Nominal OD (in) 8 5/8		String Min Drift (in)		Centralizers 27		Scratchers	
Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Thread	Top Depth (MD) (ftKB)	Btm Depth (MD) (ftKB)	Len (ft)	P Burst (psi)	P Collapse (psi)
1	Casing Hanger	8 5/8				LT&C	18	19	1.00		
1	Pup Joint	8 5/8				LT&C	19	21	2.15		
36	Casing Joint	8 5/8	7.921	32.00	J-55	LT&C	21	1,435	1,414.21		
1	External Casing Packer	8 5/8	7.921	32.00	J-55	LT&C	1,435	1,460	24.75		
43	Casing Joint	8 5/8	7.921	32.00	J-55	LT&C	1,460	3,124	1,664.34		
1	Float Collar	8 5/8	7.921	32.00	J-55	LT&C	3,124	3,125	1.20		
2	Casing Joint	8 5/8	7.921	32.00	J-55	LT&C	3,125	3,202	77.12		
1	Float Shoe	8 5/8	7.921	32.00	J-55	LT&C	3,202	3,204	1.52		

## Production Casing, Planned?-N, 5,105ftKB

Set Depth (MD) (ftKB) 5,105		Set Tension (kips)		String Nominal OD (in) 5 1/2		String Min Drift (in)		Centralizers 49		Scratchers	
Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Thread	Top Depth (MD) (ftKB)	Btm Depth (MD) (ftKB)	Len (ft)	P Burst (psi)	P Collapse (psi)
1	Hanger	5 1/2	4.892	17.00	J-55	LT&C	18	19	1.00		
1	Pup Joint	5 1/2	4.892	17.00	J-55	LT&C	19	21	2.65		
78	Casing Joint	5 1/2	4.892	17.00	J-55	LT&C	21	3,121	3,100.02		
1	External Casing Packer	5 1/2	4.892	17.00	J-55	LT&C	3,121	3,146	24.70		
8	Casing Joint	5 1/2	4.892	17.00	J-55	LT&C	3,146	3,471	325.55		
1	Marker	5 1/2	4.892	17.00	J-55	LT&C	3,471	3,484	12.10		
39	Casing Joint	5 1/2	4.892	17.00	J-55	LT&C	3,484	5,027	1,543.14		
1	Float Collar	5 1/2	4.892	17.00	J-55	LT&C	5,027	5,028	1.10		
2	Casing Joint	5 1/2	4.892	17.00	J-55	LT&C	5,028	5,104	75.79		
1	Float Shoe	5 1/2	4.892	17.00	J-55	LT&C	5,104	5,105	1.38		



# Cement Summary

## Production Casing Cement

Well Name CENTRAL VACUUM UNIT 170	Lease Central Vacuum Unit	Field Name Vacuum	Business Unit Mid-Continent
Ground Elevation (ft) 4,001.00	Original RKB (ft) 4,019.50	Current RKB Elevation 4,019.50, 9/24/2013	Mud Line Elevation (ft) 0.00
			Water Depth (ft) 0.00

<b>Original Hole</b>			
Wellbore Name Original Hole	Directional Type Vertical	Kick Off Depth (ftKB)	Vertical Section Direction (*) 0.00
Hole Size (in)	Act Top (ftKB)	Act Btm (ftKB)	
14 3/4	18.5	1,506.0	
10 5/8	1,506.0	3,204.0	
7 3/4	3,204.0	5,115.0	

<b>MB-260, Vetco Grey on 11/3/2013 11:30</b>					
Type MB-260	Install Date 11/3/2013				
Des	Make	Model	WP (psi)	Service	SN

Surface, Planned?-N, 1,506ftKB											
Casing Description Surface		Wellbore Original Hole		Run Date 11/5/2013		Set Depth (MD) (ftKB) 1,506		Stick Up (ftKB) 5.2		Set Tension (kips)	
Centralizers 10						Scratchers					
Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Conn Sz (in)	Top Thread	Len (ft)	Top Depth (MD) (ftKB)	Btm Depth (MD) (ftKB)	
37	Casing Joint	11 3/4	11.094	42.00	H-40		ST&C	1,467.74	-5	1,463	
1	Float Collar	11 3/4	11.094	42.00	H-40		ST&C	1.37	1,463	1,464	
1	Casing Joint	11 3/4	11.094	42.00	H-40		ST&C	40.33	1,464	1,504	
1	Guide Shoe	11 3/4	11.094	42.00	H-40		ST&C	1.76	1,504	1,506	

Intermediate Casing 1, Planned?-N, 3,204ftKB										
Casing Description Intermediate Casing 1		Wellbore Original Hole	Run Date 11/8/2013		Set Depth (MD) (ftKB) 3,204		Stick Up (ftKB) -17.7		Set Tension (kips)	
Centralizers 27					Scratchers					
Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Conn Sz (in)	Top Thread	Len (ft)	Top Depth (MD) (ftKB)	Btm Depth (MD) (ftKB)
1	Casing Hanger	8 5/8					LT&C	1.00	18	19
1	Pup Joint	8 5/8					LT&C	2.15	19	21
36	Casing Joint	8 5/8	7.921	32.00	J-55		LT&C	1,414.21	21	1,435
1	External Casing Packer	8 5/8	7.921	32.00	J-55		LT&C	24.75	1,435	1,460
43	Casing Joint	8 5/8	7.921	32.00	J-55		LT&C	1,664.34	1,460	3,124
1	Float Collar	8 5/8	7.921	32.00	J-55		LT&C	1.20	3,124	3,125
2	Casing Joint	8 5/8	7.921	32.00	J-55		LT&C	77.12	3,125	3,202
1	Float Shoe	8 5/8	7.921	32.00	J-55		LT&C	1.52	3,202	3,204

Production Casing, Planned?-N, 5,105ftKB											
Casing Description		Wellbore		Run Date		Set Depth (MD) (ftKB)		Stick Up (ftKB)		Set Tension (kips)	
Production Casing		Original Hole		11/12/2013		5,105		-17.6			
Centralizers						Scratchers					
49											
Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Conn Sz (in)	Top Thread	Len (ft)	Top Depth (MD) (ftKB)	Btm Depth (MD) (ftKB)	
1	Hanger	5 1/2	4.892	17.00	J-55		LT&C	1.00	18	19	
1	Pup Joint	5 1/2	4.892	17.00	J-55		LT&C	2.65	19	21	
78	Casing Joint	5 1/2	4.892	17.00	J-55		LT&C	3,100.02	21	3,121	
1	External Casing Packer	5 1/2	4.892	17.00	J-55		LT&C	24.70	3,121	3,146	
8	Casing Joint	5 1/2	4.892	17.00	J-55		LT&C	325.55	3,146	3,471	
1	Marker	5 1/2	4.892	17.00	J-55		LT&C	12.10	3,471	3,484	
39	Casing Joint	5 1/2	4.892	17.00	J-55		LT&C	1,543.14	3,484	5,027	
1	Float Collar	5 1/2	4.892	17.00	J-55		LT&C	1.10	5,027	5,028	
2	Casing Joint	5 1/2	4.892	17.00	J-55		LT&C	75.79	5,028	5,104	
1	Float Shoe	5 1/2	4.892	17.00	J-55		LT&C	1.38	5,104	5,105	





# Cement Summary

Production Casing Cement

Well Name CENTRAL VACUUM UNIT 170		Lease Central Vacuum Unit		Field Name Vacuum		Business Unit Mid-Continent	
Ground Elevation (ft) 4,001.00	Original RKB (ft) 4,019.50	Current RKB Elevation 4,019.50, 9/24/2013				Mud Line Elevation (ft) 0.00	Water Depth (ft) 0.00

## Production Casing Cement, Casing, 11/12/2013 11:10

Cementing Start Date 11/12/2013		Cementing End Date 11/12/2013		Wellbore Original Hole
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Evaluation Method Returns to Surface	Cement Evaluation Results 36 bbls cement returned to surface
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Comment  
Perform cmt job as follows:  
Pressure test lines to 4000 psi  
Pump 30 bbls of spacer at 12.3 ppg. Drop btm plug.  
Mix and pump 420 sxs (126 bbls) of Econcem Class C of cement lead at 13.2 ppg.  
Mix and pump 455 sxs (83 bbls) of Corrosacem Class H of cement tail at 15.8 ppg.  
Drop top plug and displace cmt w/ 116 bbls of FW fluid.  
Bump plug with 600 psi over final circulating pressure.  
Bled off pressure – floats held.

Details:  
Returns throughout job  
Final circulation pressure prior to bumping plug 2540 psi at 3 bpm  
36 bbls of cmt to surface  
Cmt in place at 1326 hrs.

<b>1, 18.5-5,105.0ftKB</b>					
Top Depth (ftKB) 18.5	Bottom Depth (ftKB) 5,105.0	Full Return? Y	Vol Cement Ret (bbl) 36.0	Top Plug? Y	Bottom Plug? N
Initial Pump Rate (bbl/min) 7	Final Pump Rate (bbl/min) 3	Avg Pump Rate (bbl/min) 2		Final Pump Pressure (psi) 2,540.0	Plug Bump Pressure (psi) 3,140.0
Pipe Reciprocated? N	Reciprocation Stroke Length (ft)	Reciprocation Rate (spm)		Pipe Rotated? N	Pipe RPM (rpm)
Depth Tagged (MD) (ftKB)	Tag Method	Depth Plug Drilled Out To (ftKB)		Drill Out Diameter (in)	Drill Out Date

<b>Spacer</b>				
Fluid Type Spacer	Fluid Description Tuned Spacer III	Quantity (sacks)	Class	Volume Pumped (bbl)
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft <sup>3</sup> /sack)	Fluid Mix Ratio (gal/sack)
Free Water (%)	Density (lb/gal)	Zero Gel Time (lb/100ft <sup>2</sup> )	Thickening Time (hr)	1st Compressive Strength (psi)

<b>Cement Fluid Additives</b>		
Add	Type	Conc

<b>Lead</b>				
Fluid Type Lead	Fluid Description	Quantity (sacks) 420	Class C	Volume Pumped (bbl) 125.6
Estimated Top (ftKB) 18.5	Estimated Bottom Depth (ftKB) 3,100.0	Percent Excess Pumped (%) 30.0	Yield (ft <sup>3</sup> /sack) 1.68	Fluid Mix Ratio (gal/sack) 8.43
Free Water (%)	Density (lb/gal) 13.20	Zero Gel Time (lb/100ft <sup>2</sup> )	Thickening Time (hr)	1st Compressive Strength (psi)

<b>Cement Fluid Additives</b>		
Add	Type	Conc

<b>Tail</b>				
Fluid Type Tail	Fluid Description	Quantity (sacks) 455	Class H	Volume Pumped (bbl) 83.0
Estimated Top (ftKB) 3,100.0	Estimated Bottom Depth (ftKB) 5,105.0	Percent Excess Pumped (%) 30.0	Yield (ft <sup>3</sup> /sack) 1.00	Fluid Mix Ratio (gal/sack) 3.46
Free Water (%)	Density (lb/gal) 15.80	Zero Gel Time (lb/100ft <sup>2</sup> )	Thickening Time (hr)	1st Compressive Strength (psi)

<b>Cement Fluid Additives</b>		
Add	Type	Conc

<b>Displacement</b>				
Fluid Type Displacement	Fluid Description Fresh Water	Quantity (sacks)	Class	Volume Pumped (bbl) 116.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft <sup>3</sup> /sack)	Fluid Mix Ratio (gal/sack)
Free Water (%)	Density (lb/gal)	Zero Gel Time (lb/100ft <sup>2</sup> )	Thickening Time (hr)	1st Compressive Strength (psi)

<b>Cement Fluid Additives</b>		
Add	Type	Conc