

Submit 3 Copies To Appropriate District
Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., 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

Form C-103
June 19, 2008

HOBBES OGD

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

JUN 18 2012

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PERMIT 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. 30-025-31244
1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐		5. Indicate Type of Lease STATE ☒ FEE ☐
2. Name of Operator LRE OPERATING, LLC		6. State Oil & Gas Lease No.
3. Address of Operator c/o Mike Pippin LLC, 3104 N. Sullivan, Farmington, NM 87401		7. Lease Name or Unit Agreement Name NOWATA AGR STATE
4. Well Location Unit Letter <u>P</u> : <u>860</u> feet from the <u>SOUTH</u> line and <u>990</u> feet from the <u>EAST</u> line Section <u>9</u> Township <u>18-S</u> Range <u>35-E</u> NMPM Leay County		8. Well Number <u>#1</u>
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3920' GL		9. OGRID Number <u>281994</u>
		10. Pool name or Wildcat Vacuum, Bone Spring, Mid (46195)

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 ☐

SUBSEQUENT REPORT OF:

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

OTHER: Sidetrack Around Fish ☒

OTHER: ☐

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 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

This well was directionally drilled through a window in the 7" csg @ 4184'-96' to MDTD8835' on 6/6/12. While running open hole logs, a dipmeter tool became stuck @ MD8381'.

LRE OPERATING, LLC would like to sidetrack around this fish as follows: Spot a balanced cmt plg consisting of 55 cf cmt 8380' to 8100'. From the top of this cmt plug, sidetrack & directionally drill to MDTD8839'. The new location will be about 1892' FSL 2374' FEL Sec 9 T18S R35E. 4-1/2" 11.6# WCP-110 & L-80 csg will then be run to surface & cmted back at least through the 7" window. The Bone Springs will then be evaluated for completion. See the attached detailed procedure, proposed deviation path, & WBDs

Spud Date: 2/2/93

Drilling Rig Release Date: 3/23/93

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

SIGNATURE Mike Pippin TITLE Petroleum Engineer - Agent DATE 6/15/12

Type or print name Mike Pippin E-mail address: mike@pippinllc.com PHONE: 505-327-4573

For State Use Only

APPROVED BY: [Signature] TITLE PETROLEUM ENGINEER DATE JUN 19 2012

Conditions of Approval (if any):

JUN 19 2012



LRE OPERATING, LLC

Sidetrack Procedure – S02

NOWATA AGR STATE #1

Procedure Date: 6/15/2012

API # 30-025-31244

OCD CLOSED LOOP PERMIT NUMBER P1-04418

Surface Location: 860' FSL & 990' FEL
Section 09-T18S-R35E (Unit P) Elev. 3,920'

Bottom Hole Location (Proposed): 1,877' FSL & 2,217' FEL
Section 09-T18S-R35E (Unit J)
Lea County, New Mexico

AFE No. D12067

Prepared by: _____
Jeffrey W. Patton, P.E. Date

Jeffrey Patton – Production Engineer
Voice..... 713-345-2138
Fax..... 713-345-2188
Cell..... 713-492-6503

Distribution (Approved copies):
Tim Miller
Gary Biesiadecki
Jerry Smith
File

Drilling Procedure
Nowata AGR State #1
Lea County, New Mexico

Objective of Proposed Work:

The well was directionally drilled to a TD of 8,836' MD (8,464' TVD). While running the open hole logs, the dipmeter logging tool got stuck at a depth of 8,381' MD. The plan going forward is to set a cement KO plug and directionally go around the tool.

Special Considerations:

Kick-off point on the cement plug will be around 8,150' MD. The same target is the 2nd Bone Spring Carbonate at 8,225' TVD (8,550' MD). The intersection with pay will be 952' north and 1,255' west of the wellhead with a displacement of 1,576'. TD of the well (8,839' MD) will be located 1,032' north and 1,384' west of the wellhead with a displacement of 1,726'. **Hard lines for the 40 acre unit are 330' from the edge of the unit. The wellbore cannot cross or be completed within the 330' setback line.**

Contact Information:

NMOCD - Artesia

Office: (575) 748-1283

Document all Notifications on Daily Report

Lime Rock Resources Personnel				
NAME	TITLE	OFFICE #	HOME #	CELL #
Tim Miller	Chief Operating Officer	713-292-9514	281-360-2795	281-467-0916
Jeff Patton, P.E.	Production Engineer	713-345-2138		713-492-6503
Gary Biesiadecki	Geologist	713-292-9547		832-331-2554
Elizabeth Burton, P.E.	Reservoir Engineer	713-292-9521		713-751-9844
Chuck Reagan	Landman	713-292-9548	281-493-6464	713-805-5780
Michael Barrett	Field Superintendant	575-623-8424	575-623-4707	505-353-2644
Jerry Smith	Assistant Production Supervisor	575-748-9724	575-746-2478	505-918-0556

Service Company Contact List				
PRODUCT / SERVICE	COMPANY	CONTACT	OFFICE #	CELL #
Cementing	Baker Hughes	Mike Sarabia Ivan Valenzuela	575-746-3140	575-513-2293 432-634-7361
Cementing	Par Five Energy	Kurt Crowe	575-748-1288	432-638-3751
Stimulation	Baker Hughes	Mike Sarabia Ivan Valenzuela	575-746-3140	575-513-2293 432-634-7361
OH Logging	Halliburton	Josh Mount	575-392-0762	575-631-6130
Mud Logging	Quality Logging	Chad Stephens	432-682-7168	432-894-2213
Tubulars	Crockett Trucking	Cutler Crockett	575-365-2200	575-703-5974
Casing Float Equipment	Davis Lynch	Owen Puckett – P&P Tools	505-365-8580	505-365-8580
Safety Equipment	J Cap Safety	Nick Hughes	575-748-5847	575-441-1370
Water	Stone Oilfield	Lance Hodge	575-396-1840	575-631-2984
3 rd Party BOP Testing & Choke System	Mann Welding	Cash Kirkpatrick	575-396-4540	575-631-0802
Mud	Artesia Lumber	Armando Garcia	575-748-1363	575-748-7695
Closed Loop Mud System	Closed Loop Specialties	Mike Harrington Curtis Davis	575-885-3996	432-296-0513 575-706-4605
Cuttings Disposal	Controlled Recovery, Inc. (NM-01-0006)	Les Elliot	575-393-1079	575-602-1752
Tank Rentals	Stone Oilfield	Lance Hodge	575-396-1840	575-631-2984
Casing Crew	Bull Rogers	Nathan Jernigan	575-397-3931	575-390-2008
Directional Tools, Motors, MWD, Drillers, LWD GR	Wellpath	Dwight McLellan Duane McMahon	505-514-8816 936-689-2269	505-514-8816 936-689-2269
Camp, Sewer, etc.	HB Rentals	Rusty Herrell	575-628-8391	432-270-8139
Intercom System	Chapman Services	Merle Chapman		432-368-9313
Drilling Consultant	Lee Consulting	Gene Lee (office)	LeeConInc@aol.com	575-626-4294
Drilling Consultant	Lee Consulting	Gary Fatheree	gfatheree@gmail.com	940-389-6044
Drilling Consultant	Lee Consulting	Herman Thomas	hltsot@aol.com	903-504-1953

Driving Directions: Go east of Artesia on 182 to junction 529. Turn right on 529 and go east to junction 238 (Buckeye cutoff). Turn left and go north 4 miles. Turn right and go 0.4 miles east. Turn left and go north 0.9 miles. Turn right for 0.1 miles to hourglass. Turn left and go 0.25 miles to location.

Notifications: NM OCD – Artesia 575-748-1283
Starting to drill the sidetrack and before cementing of Production Casing.

Field Contact: Jerry Smith Lime Rock Resources
575-748-9724 ofc PO Box 1302
505-918-0556 cell 303 East Main
jsmith@limerockresources.com Artesia, NM 88210

Geological Data: Gary Biesiadecki - Lime Rock Resources
713-292-9547 ofc, 832-331-2554 cell
gbiesiadecki@limerockresources.com

**Regulatory
Consutant:** Mike Pippin P.E. Pippin, LLC 3104 N. Sullivan Ave. Farmington,
NM. Work (505) 327-4573 Cell (505) 330-0495

Mudlogger: RU @ 6,450' MD to catch the top of the Bone Springs Lime,
monitor and record gas in drilling mud. then collect 10' samples
f/7,000' – TD, describing sample attributes and hydrocarbon
shows.

Quality Logging: Chad Stephens, Permian Basin Operations Manager
432-682-7168 ofc 432-894-2213 cell
432-682-7199 fax chad@qualitylogging.com

Formation Tops	MD		
Queen	4,430'	Delaware	5,740'
Penrose	4,800'	Bone Spring	6,807'
Grayburg	4,870'	1 st Bone Spring	8,265'
San Andres	5,075'	2 nd Bone Spring	8,747'

Casing Program: Crockett Trucking
Cutler Crockett
575-365-2000 ofc
575-703-5974 cell
crocktruck@pytn.net
4-1/2", 11.6#, L-80 (~800') and P-110 (~8,200') casing is available
from Lime Rock Inventory.

United Drilling: Office Number – 575-623-7730

Angel Salazar, Owner
575-910-2003 cell
575-910-2002 truck cell
575-622-3407 home

Poncho Gonzales—Drilling Superintendant
575-910-2018 cell
Juan Aguilar, Tool Pusher
575-910-2007 cell

Logging Program: “TRIPLE COMBO with SPECTRAL GR” - Dual Lateral log, MicroSpherical Focused Log, PE & Spectral Density/Neutron Log f/TD to 4,200’.

Halliburton Wireline & Perforating Service - Hobbs, New Mexico District
800-844-8451 Main/24 hr. Dispatch 915-561-5936 Fax

Josh Mount, District Service Manager – 575-631-6130 Cell, 575-392-0762 ofc
(josh.mount@halliburton.com)

Carlos Mercado, OH Service Coordinator – 575-631-3057 Cell, 575-392-0784 ofc
(carlos.mercado@halliburton.com)

Mud Program: Artesia Lumber: 575-748-1363
Armondo Garcia, Artesia Lumber Mgr.: (575) 748-7695
Phil Bussell, Mud Engineer: 575-513-0786 Cell; 575-392-7380 Home
Michael Evans, Buckeye Inc. Off: 432-682-7422, Cell: 432-413-6483
Steve Spyres, Engineering Mgr.: (432) 634-0793

Morning Reports: Email all morning reports and other useful data or information to the following by 7:00 a.m.

Jeff Patton	jpattton@limerockresources.com
Tim Miller	tmiller@limerockresources.com
Sid Ashworth	sashworth@limerockresources.com
Mike Barrett	mbarrett@limerockresources.com
Jerry Smith	jsmith@limerockresources.com
Gary B.	gbiesiadecki@limerockresources.com
Mike Pippin	mike@pippinllc.com

PROCEDURE FOR SIDETRACK S-02

1. **Contact the NMOCD office as required 24 hrs prior to setting the cement KO plug and starting to drill the side track.**
2. **MI ~15 jts of 2-7/8", 6.5#, 8rd EUE tbg and a cross-over connection for the 8rd EUE and 4" FH drill pipe connection.**
3. **Call the cement service company and order a KO plug slurry to be set in 6-1/8" open hole from a depth of 8,381' MD (top of fish) to 8,100'. The cement slurry will use Class "H" cement with strength additives (including sand and silica flour) along with fluid loss and retarders. The actual borehole volume from 8,380' to 8,100' is 55 cu ft (as indicated in the BHV log). 20% will need to be added to this volume to obtain the amount of cement that needs to be on location. Density of the cement plug needs to be 16.4 ppg (minimum) to 17.5 ppg (maximum). Use of a spacer and or fresh water a head and behind will also be required. A top connection to the 4" FH drill pipe will also be needed. A load of fresh water will be required for mixing the cement and as a spacer.**
4. **PU and start TIH w/2-7/8" tbg open ended. MU the cross-over and continue in the hole with the 4" DP. TIH an tag top of fish. Verify tally with top of fish recorded at 8,381' MD. PU as needed to land a connection at the floor. Install circ swedge and break circ. Mud needs to be circ long enough that the density is consistent inside and outside the drill pipe.**
5. **MIRU cement pump truck and bulk cement transport. Verify cement load on bulk truck. Continue to circ well while cement equipment gets ready to go. The plan is to pump and balance a cement plug from the end of the tbg (just above top of fish) to 8,100' MD (or higher). Spacers and fresh water will need to be used ahead and behind the plug. Use balance plug calculations to obtain the volume (in bbls) of each needed to be pumped ahead and behind. Displace the cement plug with the same drilling mud used to load and circ the well. If done correctly, there should be 0 psi on the drill pipe and no (zero) flow from the annulus. The open hole size over this plug interval is very close to the bit diameter, it's recommended that a 6-1/4" hole size be used to account for some wash out.**
6. **Slowly start the TOH w/the drill pipe. Do not pull too fast. It's recommended that the drill pipe not be reversed out. Additional pressure on the hole may induce lost circ and cause the plug to go south. Keep hole full while TOH. Stand back DP and LD the cross-over and 2-7/8" tbg.**
7. **WOC for 24 hrs (minimum).**
8. **PU a regular drilling BHA (6-1/8" bit or cement mill, bit sub and DC's). TIH and tag up on cement plug. Note depth of cement plug in morning report. Set down gently and see if plug is hard. If the plug seems hard, dress off top of cement plug down to 8,150' MD. Top of plug can be higher if plug is hard and will dress off OK. Do not dress off the plug below 8,150'.**
9. **MIRU Wellpath Directional Drills and tools.**
10. **PU 6-1/8" PDC bit (HTC STX-44C or as recommended), mud motor, MWD (with GR) and directional drilling BHA. Wellpath Energy Services will assemble the directional BHA needed to make the KO and do the rest of the job. PU and TIH w/4-3/4" DC's and a 3-1/2" (or 4") drilling string (to ~4,200'). Test motor and MWD just above the window.**

11. Before drilling the directional drill "plan", contact Houston to ensure everyone has the new "S-02" directional plan and target shown on their paperwork. Do not make any new hole until everyone is on the same page. Hang a wall plot in the trailer and mark surveys as well is being drilled.
12. Start drilling along the "S-02" well plan. Check pick-up weights, pump rate, pump pressure, motor differentials, etc. Slide and rotate drill as necessary to get off the KO plug and drill to TD. Continue to drill and maintain the well path until reaching the new TD (at 8,839' MD & 8,465' TVD). If any problems arise with BHA, MWD, motor or bit, POOH and PU new tools and return to drilling operations. Report any unplanned trips on the morning reports.
13. Send in all drilling, surveys and GR reports in daily. Additional reports may be more often as the wellbore approaches the pay zone. See page 5 for email addresses.
14. Drill with the lightest mud weights possible. Run mud across shakers and thru de-sanders and de-silters. Pay close attention to pump rate/pressure and penetration rate. It may be possible that penetration rate may exceed hole cleaning rate (a function of pump rate) and the annulus will load-up with drill cuttings. It may be necessary to time drill certain areas of the hole when P rate exceeds hole cleaning. It is also possible that the well may lose circ as the wellbore reaches the pay interval (~8,550' MD). It's recommended that a LCM pill be mixed and ready if lost circ is encountered. It is recommended that pump rate and pressure be reduced to lower BHP along with keeping drill cuttings in the annulus to a minimum to help prevent lost circ. Smart drilling will prevent knocking the bottom out of the well.
15. Once geology agrees the well has reached TD (which should be around 8,839' MD), circ and condition hole. If any borehole conditions suggest other than a perfect borehole, short trip the drill string back to the window then back to bottom. Report any problems and be prepared to condition mud or perform other mitigating operations if hole conditions dictate. TOH LD directional tools and release. Stand DP back in derrick.
16. MI ~8,900' of 4-1/2" casing. Tally and rack the casing. Clean and inspect threads. Drift casing. The casing is in stock as Lime Rock inventory with Crockett Trucking. This job will require all 193 jts (8,219.85') of 4-1/2", 11.6#, WCP-110E, LT&C (on rack A-6) and ~20 jts (~800') of 4-1/2", 11.6#, L-80, LT&C (on rack C-5). Show a cost of \$15/ft for the casing on the morning report.
17. TIH and C&C mud. TOH and LD DP.

Length	Size	Weight	Grade	Conn.	Collapse (100%)	Burst (100%)	Tension (100%)	Jnt Strength (100%)
8,737'	4-1/2"	11.6#	L-80 & P-110	LT&C LT&C	6,350 7,580	7,780 10,690	267K 367K	212K 279K

18. Casing will be run with the L-80 joints on bottom and the P-110 joints on top.

19. Run the 4-1/2" casing with float shoe, 1 joint of casing and a float collar. Run 2 centralizers on the bottom joint then 1 centralizer on every joint for the first 30 joints from bottom. Run remaining centralizers every third joint from 7,400' to 6,000' MD (about 11 centralizers). Use a "API Modified Casing Thread compound" casing thread dope that meets API Spec 5A2. Use thread lock on the FS & FC. Correctly dope and torque casing to:

Minimum	Optimum	Maximum
For L-80 1,710 ft-lbs	2,280 ft-lbs	2,850 ft-lbs
For P-110 2,270 ft-lbs	3,020 ft-lbs	3,780 ft-lbs

20. Install cement head on the 4-1/2" casing. RU cementers and cement as follows:

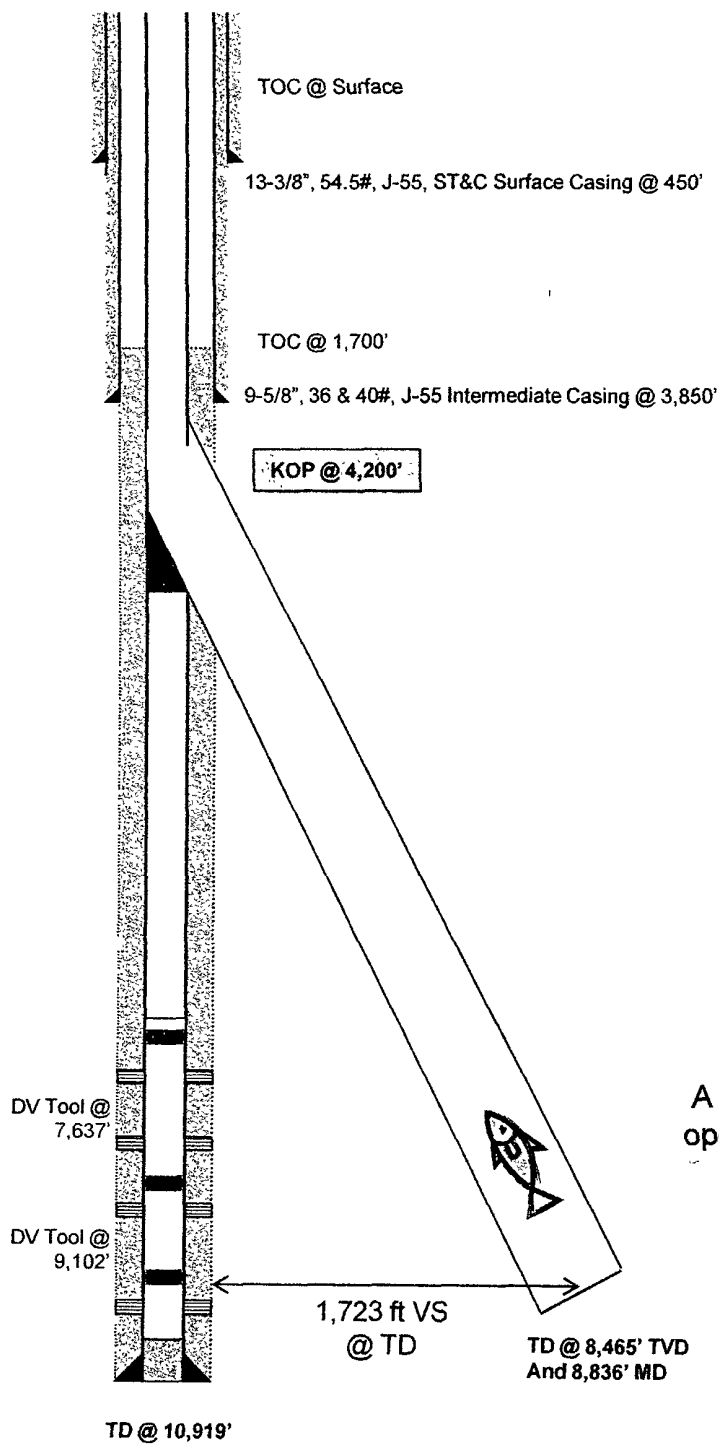
Slurry	Sacks	Slurry Description	Mix Water (gal/sk)	Yield (ft ³ /sk)	Excess	Calculated Fill (ft)	Weight (ppg)
Spacer 1		20 bbls Mud Flush					
Lead	150	50:50 (Poz:H) + 6% Gel + 5% Salt + 5 pps LCM-1 + 0.25% R-3 + 0.125 pps Cello Flake + 92.5% FW	16.46	2.83	30%	2,940'	11.5
Tail	200	Cl H cmt + 0.25% R-3 + ¼ pps cello flake + 55.98% FW	7.56	1.47	30%	2,000'	13.0

Note:

- Verify all cement/displacement volumes and rates with engineer and cementer prior to pumping. Adjust cement volumes according to BHV Logs.
 - Actual cement design may change based on drilling performance and results. The service company will provide the cement details. If lost circ is encountered, a DV Tool (from Davis-Lynch) may be required.
 - Mix and pump all cement at the highest possible rate, but not less than 3.5 BPM.
 - Displace the cement with FSW at 3.5 BPM or higher.
 - Mix the cement with good, clean fresh water. (Do not mix cement with rig water unless tested for compatibility).
 - Slow down the pump 10 bbls short of displacement to the float collar and bump the top plug 1,000 psi over final lift pressure keeping max pressure under 3,500 psig.
 - Check floats. If floats do not hold, re-pump the volume that flowed back and maintain pressure while WOC.
 - RD cementing equipment.
21. Once the cement is displaced, drop a set of FC-22 type casing slips thru the BOP's (or lift the BOP's to set slips). Set slips with an additional 10K over casing weight.
22. ND BOP's. Make final cut on casing and install original 11" x 5K by 7-1/16" x 5K tbghed.
NOTE: Change out secondary seals to fit 4-1/2" casing.
23. Release the rig and clean up the location for completion.

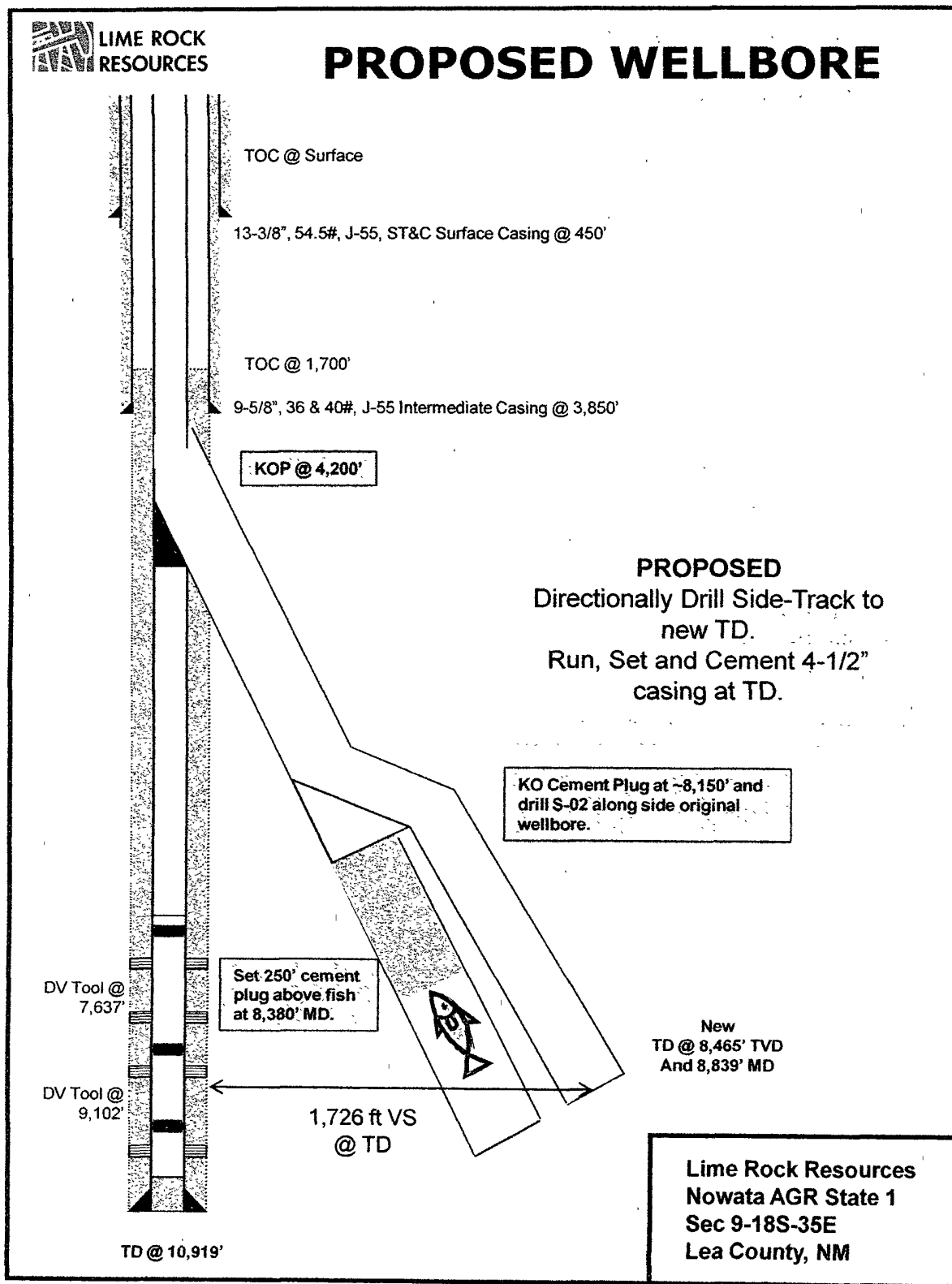


CURRENT WELLBORE



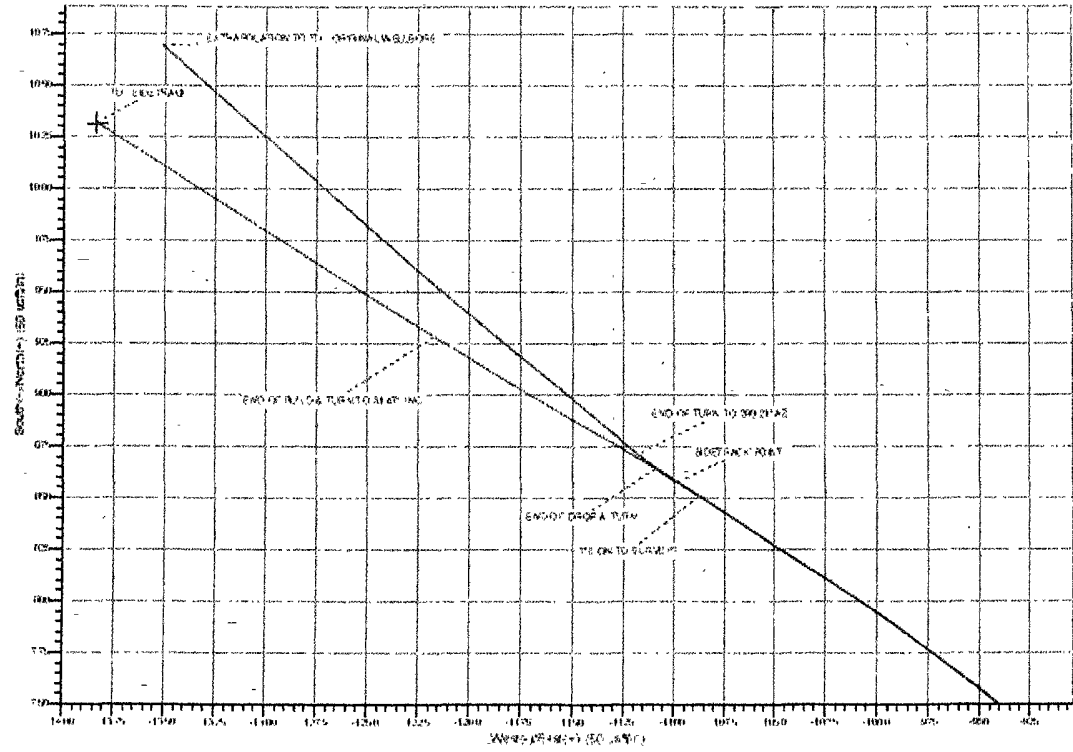
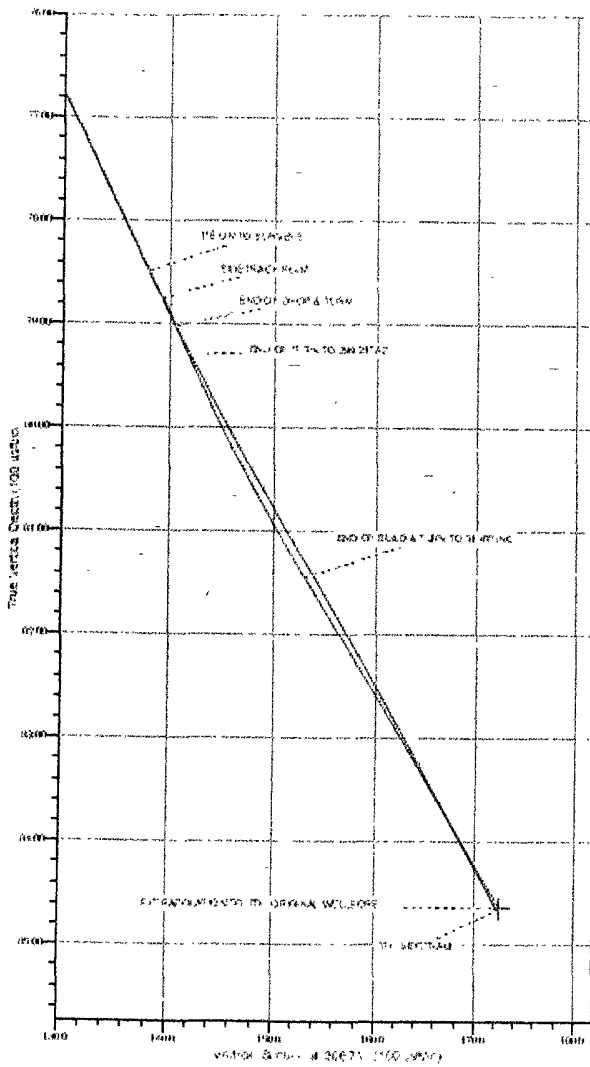
CURRENT
A Fish is located in the
open hole at 8,380' MD.

**Lime Rock Resources
Nowata AGR State 1
Sec 9-18S-35E
Lea County, NM**





Project: LEA COUNTY, NM (NAD 83)
 Site: SEC. 9 TWP. 18S RGE. 35E
 Well: NOWATA AGR STATE #1
 Wellbore: JOB # 201204 RD - SIDETRACK
 Design: PROPOSAL #3 - SIDETRACK



	Approx. by True North		ANNOTATIONS						Automatic		
	Magnetic North 7.45°		TWO	MD	PC	AB	+NAB	+EW	VSec	TIE ON TO SURVEY	
			7840.5	8.121.0	25.50	302.40	851.7	-0.087.7	5360.7	B-DTRACK ON "N"	
			7835.0	8.100.0	2.01.0	202.40	857.7	-0.058.7	5360.0	END OF DROP & TURN	
	Magnetic Field		7902.3	8.190.0	14.20	30.40	860.4	+0.037.7	5403.8	END OF TURN TO 26.71.42	
	Strength 40.12 Gauss		7829.7	8.210.0	24.27	199.27	870.0	+0.115.4	5410.8	END OF BUILD & TURN TO 33.42.45	
	Dip Angle 60.05°		8464.0	8.407.3	3.45	30.77	926.4	-0.213.6	5362.0	-	
	Date 14/06/2012		8464.5	8.559.7	3.47	30.77	1031.7	-0.263.6	5376.0	T3 - B-DTRACK	
	Model GR2010										

LIME ROCK RESOURCES

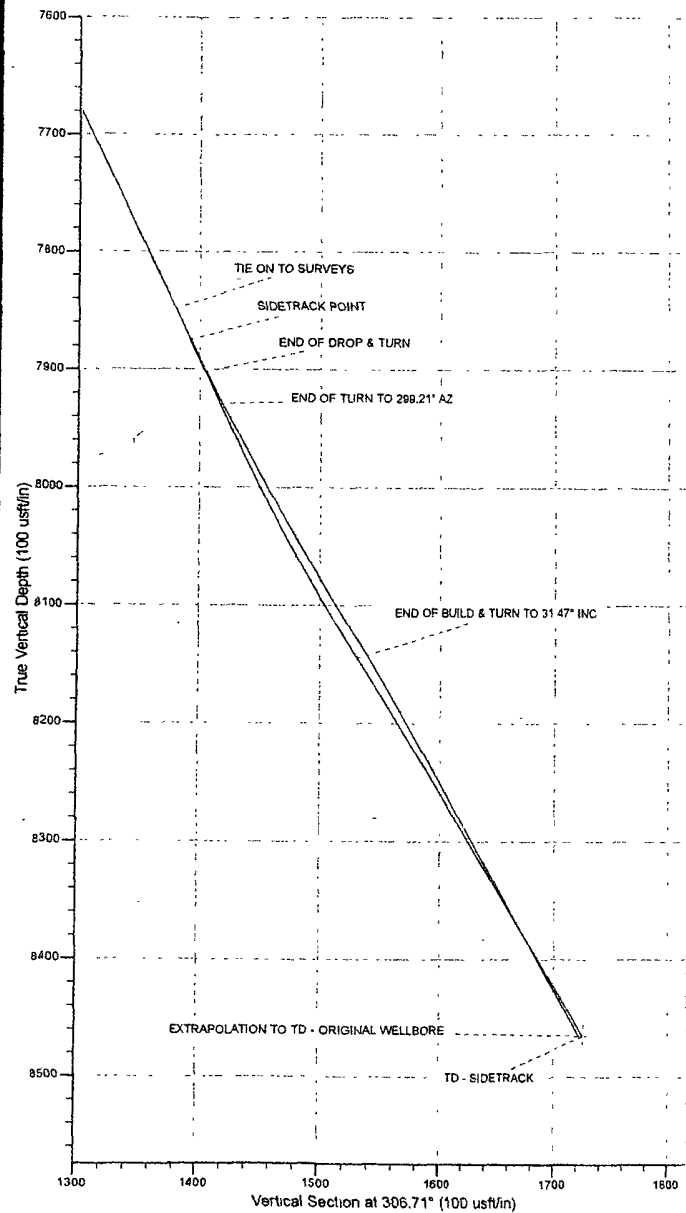
LEA COUNTY, NM (NAD 83)
SEC. 9 TWP. 18S RGE, 35E
NOWATA AGR STATE #1

JOB # 201204 RD - SIDETRACK

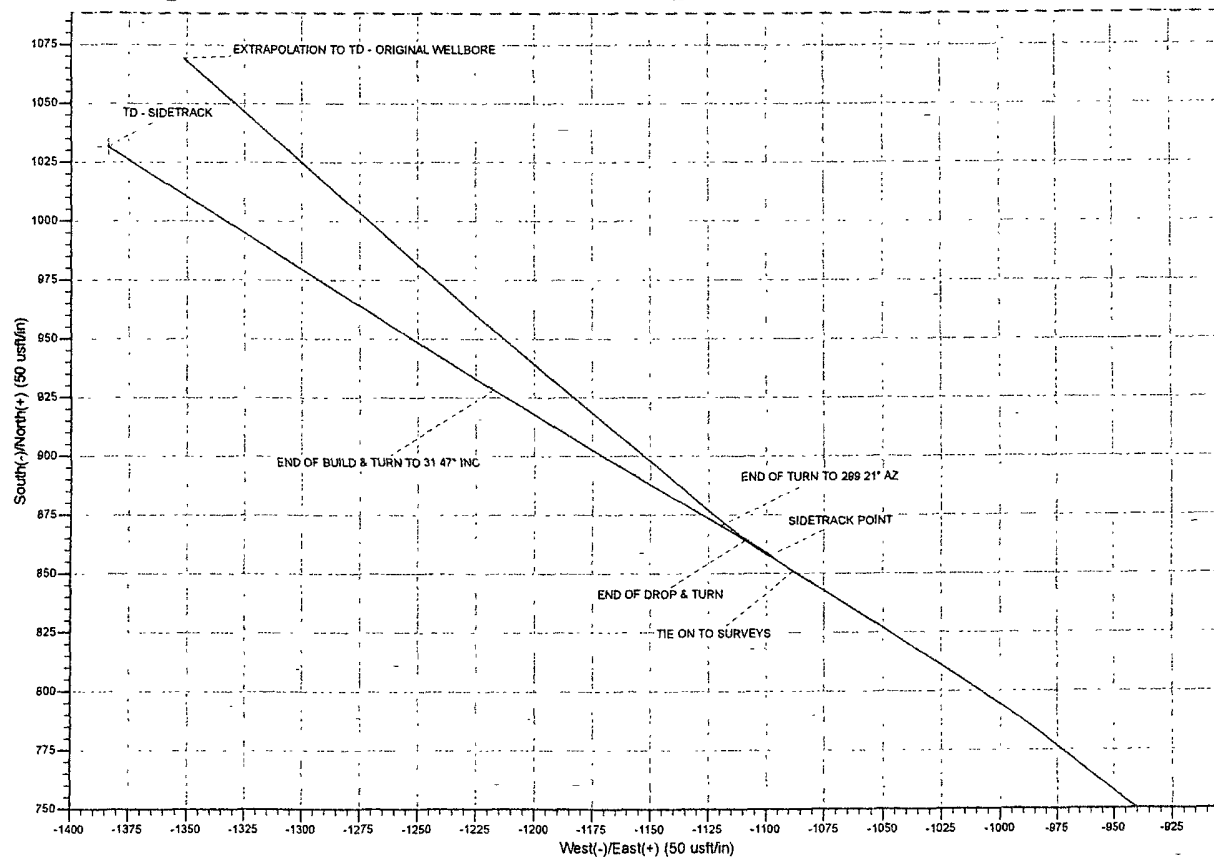
14 June, 2012

Plan: PROPOSAL #3 - SIDETRACK





Project: LEA COUNTY, NM (NAD 83)
 Site: SEC. 9 TWP. 18S RGE, 35E
 Well: NOWATA AGR STATE #1
 Wellbore: JOB # 201204 RD - SIDETRACK
 Design: PROPOSAL #3 - SIDETRACK



Azimuths to True North
 Magnetic North 7.45°
 Magnetic Field
 Strength 48818.6snT
 Dip Angle: 60.67°
 Date 14/06/2012
 Model IGRF2010

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Annotation
7848.8	8131.0	25.50	302.40	851.1	-1087.7	1380.7	TIE ON TO SURVEYS
7875.0	8160.0	25.03	302.49	857.7	-1098.1	1393.0	SIDETRACK POINT
7902.3	8190.0	24.26	301.40	864.4	-1108.7	1405.5	END OF DROP & TURN
7929.7	8220.0	24.27	299.21	870.6	-1119.4	1417.8	END OF TURN TO 299.21° AZ
8144.6	8463.3	31.47	301.77	928.5	-1217.1	1530.8	END OF BUILD & TURN TO 31.47° INC
8464.8	8838.7	31.47	301.77	1031.7	-1383.8	1726.1	TD - SIDETRACK

Planning Report



Database: EDM_5000_1_7
Company: LIME ROCK RESOURCES
Project: LEA COUNTY, NM (NAD 83)
Site: SEC. 9 TWP. 18S RGE, 35E
Well: NOWATA AGR STATE #1
Wellbore: JOB # 201204 RD - SIDETRACK
Design: PROPOSAL #3 - SIDETRACK

Local Co-ordinate Reference: Well NOWATA AGR STATE #1
TVD Reference: KB-EST @ 7670.0usft (Original Well Elev)
MD Reference: KB-EST @ 7670.0usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project: LEA COUNTY, NM (NAD 83)

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level
 Using geodetic scale factor

Site: SEC. 9 TWP. 18S RGE, 35E

Site Position: Northing: 640,451.62 usft Latitude: 32° 45' 27.270 N
From: Lat/Long Easting: 810,633.27 usft Longitude: 103° 27' 26.420 W
Position Uncertainty: 0.0 usft Slot Radius: 13-3/16" Grid Convergence: 0.47 °

Well: NOWATA AGR STATE #1

Well Position: +N/-S 0.0 usft Northing: 640,451.62 usft Latitude: 32° 45' 27.270 N
 +E/-W 0.0 usft Easting: 810,633.27 usft Longitude: 103° 27' 26.420 W
Position Uncertainty: 0.0 usft Wellhead Elevation: usft Ground Level: 7,653.0 usft

Wellbore: JOB # 201204 RD - SIDETRACK

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	14/06/2012	7.45	60.67	48,819

Design: PROPOSAL #3 - SIDETRACK

Audit Notes:

Version: Phase: PROTOTYPE Tie On Depth: 8,131.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	306.71

Plan Sections

MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
8,131.0	25.50	302.40	7,848.8	178.8	851.1	-1,087.7	0.00	0.00	0.00	0.00	
8,160.0	25.03	302.49	7,875.0	205.0	857.7	-1,098.1	1.62	-1.61	0.32	175.17	
8,190.0	24.26	301.40	7,902.3	232.3	864.4	-1,108.7	3.00	-2.59	-3.65	210.00	
8,220.0	24.27	299.21	7,929.7	259.7	870.6	-1,119.4	3.00	0.05	-7.30	270.00	
8,463.3	31.47	301.77	8,144.6	474.6	928.5	-1,217.1	3.00	2.96	1.05	10.57	
8,838.7	31.47	301.77	8,464.8	794.8	1,031.7	-1,383.8	0.00	0.00	0.00	0.00	TD - SIDETRACK

Planning Report



Database: EDM_5000_1_7
 Company: LIME ROCK RESOURCES
 Project: LEA COUNTY, NM (NAD 83)
 Site: SEC. 9 TWP. 18S RGE, 35E
 Well: NOWATA AGR STATE #1
 Wellbore: JOB # 201204 RD - SIDETRACK
 Design: PROPOSAL #3 - SIDETRACK

Local Co-ordinate Reference: Well NOWATA AGR STATE #1
 TVD Reference: KB-EST @ 7670.0usft (Original Well Elev)
 MD Reference: KB-EST @ 7670.0usft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
TIE ON TO SURVEYS										
8,131.0	25.50	302.40	7,848.8	-178.81	851.1	-1,087.7	1,380.7	0.41	0.31	0.62
8,140.0	25.35	302.43	7,856.9	-186.94	853.2	-1,090.9	1,384.6	1.62	-1.61	0.32
8,150.0	25.19	302.46	7,866.0	-195.98	855.5	-1,094.5	1,388.8	1.62	-1.61	0.32
SIDETRACK POINT										
8,160.0	25.03	302.49	7,875.0	-205.03	857.7	-1,098.1	1,393.0	1.62	-1.61	0.33
8,170.0	24.77	302.14	7,884.1	-214.10	860.0	-1,101.7	1,397.2	3.00	-2.59	-3.58
8,180.0	24.51	301.77	7,893.2	-223.19	862.2	-1,105.2	1,401.4	3.00	-2.59	-3.65
END OF DROP & TURN										
8,190.0	24.26	301.40	7,902.3	-232.30	864.4	-1,108.7	1,405.5	3.00	-2.58	-3.72
8,200.0	24.26	300.67	7,911.4	-241.42	866.5	-1,112.2	1,409.6	3.00	0.02	-7.30
8,210.0	24.26	299.94	7,920.5	-250.54	868.6	-1,115.8	1,413.7	3.00	0.05	-7.30
END OF TURN TO 299.21° AZ										
8,220.0	24.27	299.21	7,929.7	-259.65	870.6	-1,119.4	1,417.8	3.00	0.09	-7.30
8,230.0	24.57	299.34	7,938.8	-268.76	872.6	-1,123.0	1,421.9	3.00	2.95	1.32
8,240.0	24.86	299.47	7,947.8	-277.84	874.7	-1,126.6	1,426.0	3.00	2.95	1.29
8,250.0	25.16	299.60	7,956.9	-286.90	876.7	-1,130.3	1,430.2	3.00	2.95	1.27
8,260.0	25.45	299.72	7,965.9	-295.94	878.9	-1,134.0	1,434.4	3.00	2.95	1.24
8,270.0	25.75	299.84	7,975.0	-304.96	881.0	-1,137.7	1,438.7	3.00	2.95	1.21
8,280.0	26.04	299.96	7,984.0	-313.96	883.2	-1,141.5	1,443.1	3.00	2.95	1.19
8,290.0	26.34	300.08	7,992.9	-322.93	885.4	-1,145.4	1,447.4	3.00	2.96	1.16
8,300.0	26.63	300.19	8,001.9	-331.88	887.6	-1,149.2	1,451.9	3.00	2.96	1.14
8,310.0	26.93	300.30	8,010.8	-340.81	889.9	-1,153.1	1,456.4	3.00	2.96	1.11
8,320.0	27.23	300.41	8,019.7	-349.71	892.2	-1,157.0	1,460.9	3.00	2.96	1.09
8,330.0	27.52	300.52	8,028.6	-358.59	894.5	-1,161.0	1,465.5	3.00	2.96	1.07
8,340.0	27.82	300.62	8,037.4	-367.45	896.9	-1,165.0	1,470.1	3.00	2.96	1.05
8,350.0	28.11	300.72	8,046.3	-376.28	899.3	-1,169.0	1,474.7	3.00	2.96	1.03
8,360.0	28.41	300.83	8,055.1	-385.09	901.7	-1,173.1	1,479.4	3.00	2.96	1.01
8,370.0	28.71	300.92	8,063.9	-393.87	904.2	-1,177.2	1,484.2	3.00	2.96	0.99
8,380.0	29.00	301.02	8,072.6	-402.63	906.6	-1,181.3	1,489.0	3.00	2.96	0.97
8,390.0	29.30	301.12	8,081.4	-411.36	909.2	-1,185.5	1,493.8	3.00	2.96	0.95
8,400.0	29.60	301.21	8,090.1	-420.07	911.7	-1,189.7	1,498.7	3.00	2.96	0.94
8,410.0	29.89	301.30	8,098.8	-428.75	914.3	-1,194.0	1,503.7	3.00	2.97	0.92
8,420.0	30.19	301.39	8,107.4	-437.41	916.9	-1,198.2	1,508.7	3.00	2.97	0.90
8,430.0	30.49	301.48	8,116.0	-446.04	919.5	-1,202.5	1,513.7	3.00	2.97	0.89
8,440.0	30.78	301.57	8,124.6	-454.65	922.2	-1,206.9	1,518.8	3.00	2.97	0.87
8,450.0	31.08	301.65	8,133.2	-463.22	924.9	-1,211.3	1,523.9	3.00	2.97	0.86
8,460.0	31.38	301.74	8,141.8	-471.78	927.6	-1,215.7	1,529.1	3.00	2.97	0.84
END OF BUILD & TURN TO 31.47° INC										
8,463.3	31.47	301.77	8,144.6	-474.61	928.5	-1,217.1	1,530.8	3.00	2.97	0.83
8,470.0	31.47	301.77	8,150.3	-480.31	930.3	-1,220.1	1,534.3	0.00	0.00	0.00
8,480.0	31.47	301.77	8,158.8	-488.83	933.1	-1,224.5	1,539.5	0.00	0.00	0.00
8,490.0	31.47	301.77	8,167.4	-497.36	935.8	-1,229.0	1,544.7	0.00	0.00	0.00
8,500.0	31.47	301.77	8,175.9	-505.89	938.6	-1,233.4	1,549.9	0.00	0.00	0.00
8,510.0	31.47	301.77	8,184.4	-514.42	941.3	-1,237.9	1,555.1	0.00	0.00	0.00
8,520.0	31.47	301.77	8,192.9	-522.95	944.1	-1,242.3	1,560.3	0.00	0.00	0.00
8,530.0	31.47	301.77	8,201.5	-531.48	946.8	-1,246.7	1,565.5	0.00	0.00	0.00
8,540.0	31.47	301.77	8,210.0	-540.01	949.6	-1,251.2	1,570.7	0.00	0.00	0.00
8,550.0	31.47	301.77	8,218.5	-548.54	952.3	-1,255.6	1,575.9	0.00	0.00	0.00
8,560.0	31.47	301.77	8,227.1	-557.06	955.1	-1,260.1	1,581.1	0.00	0.00	0.00
8,570.0	31.47	301.77	8,235.6	-565.59	957.8	-1,264.5	1,586.3	0.00	0.00	0.00
8,580.0	31.47	301.77	8,244.1	-574.12	960.6	-1,268.9	1,591.5	0.00	0.00	0.00
8,590.0	31.47	301.77	8,252.7	-582.65	963.3	-1,273.4	1,596.7	0.00	0.00	0.00

Planning Report



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Company: LIME ROCK RESOURCES
Project: LEA COUNTY, NM (NAD 83)
Site: SEC. 9 TWP. 18S RGE, 35E
Well: NOWATA AGR STATE #1
Wellbore: JOB # 201204 RD - SIDETRACK
Design: PROPOSAL #3 - SIDETRACK

Local Co-ordinate Reference: Well NOWATA AGR STATE #1
TVD Reference: KB-EST @ 7670.0usft (Original Well Elev)
MD Reference: KB-EST @ 7670.0usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,600.0	31.47	301.77	8,261.2	-591.18	966.1	-1,277.8	1,601.9	0.00	0.00	0.00
8,610.0	31.47	301.77	8,269.7	-599.71	968.8	-1,282.3	1,607.1	0.00	0.00	0.00
8,620.0	31.47	301.77	8,278.2	-608.24	971.6	-1,286.7	1,612.3	0.00	0.00	0.00
8,630.0	31.47	301.77	8,286.8	-616.77	974.3	-1,291.1	1,617.5	0.00	0.00	0.00
8,640.0	31.47	301.77	8,295.3	-625.29	977.1	-1,295.6	1,622.7	0.00	0.00	0.00
8,650.0	31.47	301.77	8,303.8	-633.82	979.8	-1,300.0	1,627.9	0.00	0.00	0.00
8,660.0	31.47	301.77	8,312.4	-642.35	982.6	-1,304.5	1,633.1	0.00	0.00	0.00
8,670.0	31.47	301.77	8,320.9	-650.88	985.3	-1,308.9	1,638.3	0.00	0.00	0.00
8,680.0	31.47	301.77	8,329.4	-659.41	988.1	-1,313.3	1,643.5	0.00	0.00	0.00
8,690.0	31.47	301.77	8,337.9	-667.94	990.8	-1,317.8	1,648.7	0.00	0.00	0.00
8,700.0	31.47	301.77	8,346.5	-676.47	993.6	-1,322.2	1,653.9	0.00	0.00	0.00
8,710.0	31.47	301.77	8,355.0	-684.99	996.3	-1,326.6	1,659.1	0.00	0.00	0.00
8,720.0	31.47	301.77	8,363.5	-693.52	999.1	-1,331.1	1,664.3	0.00	0.00	0.00
8,730.0	31.47	301.77	8,372.1	-702.05	1,001.8	-1,335.5	1,669.5	0.00	0.00	0.00
8,740.0	31.47	301.77	8,380.6	-710.58	1,004.6	-1,340.0	1,674.7	0.00	0.00	0.00
8,750.0	31.47	301.77	8,389.1	-719.11	1,007.3	-1,344.4	1,679.9	0.00	0.00	0.00
8,760.0	31.47	301.77	8,397.6	-727.64	1,010.1	-1,348.8	1,685.1	0.00	0.00	0.00
8,770.0	31.47	301.77	8,406.2	-736.17	1,012.8	-1,353.3	1,690.3	0.00	0.00	0.00
8,780.0	31.47	301.77	8,414.7	-744.70	1,015.6	-1,357.7	1,695.5	0.00	0.00	0.00
8,790.0	31.47	301.77	8,423.2	-753.22	1,018.3	-1,362.2	1,700.7	0.00	0.00	0.00
8,800.0	31.47	301.77	8,431.8	-761.75	1,021.0	-1,366.6	1,705.9	0.00	0.00	0.00
8,810.0	31.47	301.77	8,440.3	-770.28	1,023.8	-1,371.0	1,711.1	0.00	0.00	0.00
8,820.0	31.47	301.77	8,448.8	-778.81	1,026.5	-1,375.5	1,716.3	0.00	0.00	0.00
8,830.0	31.47	301.77	8,457.3	-787.34	1,029.3	-1,379.9	1,721.5	0.00	0.00	0.00
TD - SIDETRACK										
8,838.7	31.47	301.77	8,464.8	-794.80	1,031.7	-1,383.8	1,726.1	0.00	0.00	0.00

Plan Annotations

MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,131.0	7,848.8	851.1	-1,087.7	TIE ON TO SURVEYS
8,160.0	7,875.0	857.7	-1,098.1	SIDETRACK POINT
8,190.0	7,902.3	864.4	-1,108.7	END OF DROP & TURN
8,220.0	7,929.7	870.6	-1,119.4	END OF TURN TO 299.21° AZ
8,463.3	8,144.6	928.5	-1,217.1	END OF BUILD & TURN TO 31.47° INC
8,838.7	8,464.8	1,031.7	-1,383.8	TD - SIDETRACK