District I
1625 N French Dr , Hobbs, NM 88240
Phone (575) 393-6161 Fax (575) 393-0720
District II
811 S First St , Artesia, NM 88210
Phone (575) 748-1283 Fax (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone (505) 334-6178 Fax (505) 334-6170
District IV
1220 S St Francis Dr , Santa Fe, NM 87505
Phone (505) 476-3460 Fax (505) 476-3462

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

RECEIVED
JUL 26 2012
NMOCD ARTESIA

Form C-101
Revised December 16, 2011

Permit

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

[1] Operator Name and Address	[2] OGRID Number
LRE Operating, LLC, 1111 Bagby Street, Suite 4600 Houston, Texas 77002	281994
	[3] API Number 30-015-40553

[4] Property Code	[5] Property Name	[6] Well No
39377	Eddy-Humble 4 State	#1 SWD

[7] Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
J	4	18S	28E		2310	S	1650	E	Eddy

[8] Pool Information

SWD; Abo / Wolfcamp / Cisco	97967

Additional Well Information

[9] Work Type	[10] Well Type	[11] Cable/Rotary	[12] Lease Type	[13] Ground Level Elevation
N	S	Rotary	State	3664 7'
[14] Multiple	**[15] Proposed Depth**	**[16] Formation**	**[17] Contractor**	**[18] Spud Date**
N	9000'	ABO / Wolfcamp / Cisco	United Drilling, Inc	After 06/15/2012

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water
50'	2 35 Miles	0 48 miles

[19] Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Conductor	26"	20"	91 5	40'	Ready Mix	Surface
Surface	17 5"	13 375"	48	250'	280	Surface
Intermediate	12 25"	9 625"	36	2800'	845	surface
Production	8 75"	7"	26	6805'	610	2600'
Liner	6"125"	4 5"	11 6	6580-9000'	340	6580'

Casing/Cement Program: Additional Comments

SWD-1345

Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
XLT 11"	5000 psi	5000 psi	National Varco

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 ☒.

Signature Jerry Smith

Printed name Jerry Smith

Title Assistant Production Supervisor

E-mail Address jsmith@limerockresources com

Date 7-25-12 Phone 575-748-9724

OIL CONSERVATION DIVISION

Approved By T. C. Shepard

Title Geologist

Approved Date 8/2/2012 Expiration Date. 8/2/2014

Conditions of Approval Attached

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

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised October 15,2009
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number		[3] Pool Name
30-015-40553	97967	SWD; Abo/Wolfcamp/Cisco

[4] Property Code	[5] Property Name	[6] Well Number
39377	EDDY-HUMBLE "4" STATE SWD	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
281994	LRE OPERATING, LLC	3664.7

[10] Surface Location

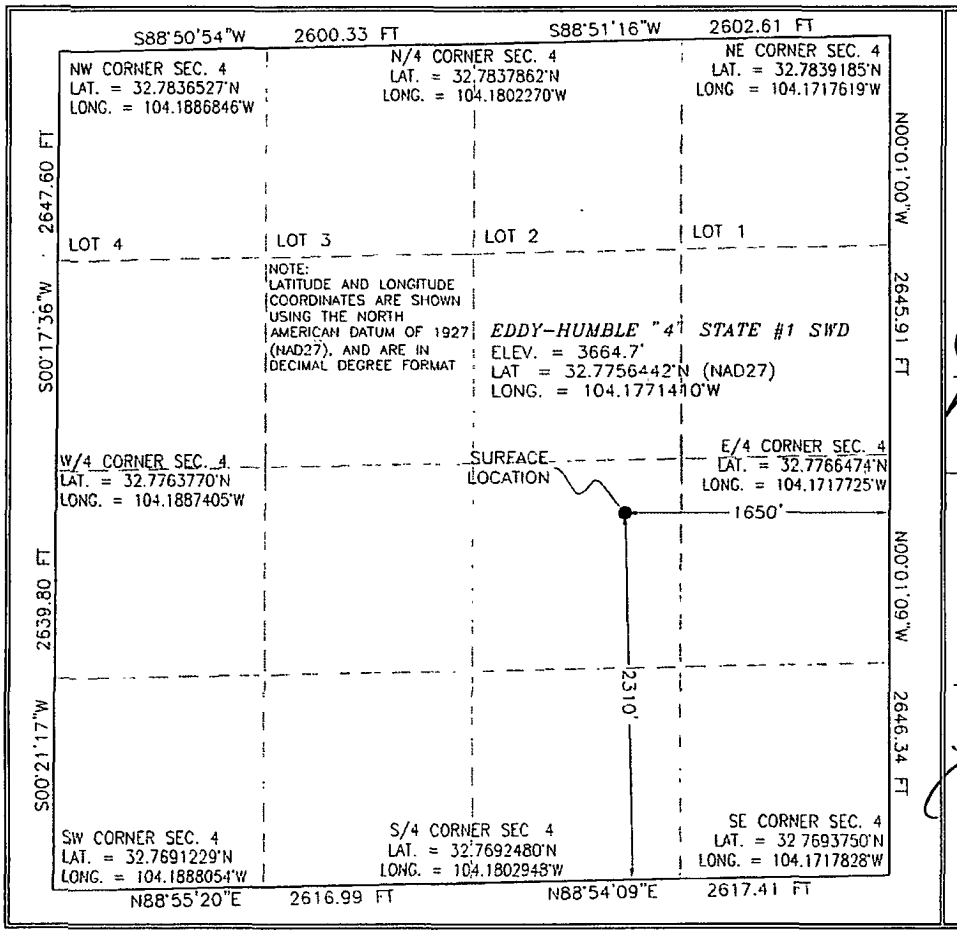
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	4	18 S	28 E		2310	SOUTH	1650	EAST	EDDY

[11] 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

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
40			SWD-1345

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division

Signature 7-25-12 Date

Printed Name
Jerry Smith

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

MARCH 30, 2012
Date of Survey

Signature and Seal of Professional Surveyor:
PIEMON F. JARAMILLO
NEW MEXICO
REGISTERED LAND SURVEYOR

Certificate Number: PIEMON F. JARAMILLO, PLS 12797
SURVEY NO. 955

LRE Operating, LLC
Drilling Plan

Eddy-Humble 4 State #1 SWD
2310' FSL 1650' FEL
J-S4-T18S-R28E
Eddy County, NM

1. The elevation of the unprepared ground is 3664.7' feet above sea level.
2. The geologic name of the surface formation is Permian with Quaternary Alluvium.
3. A rotary rig will be utilized to drill the well to 9000' and run four strings of casing to protect usable water, potential productive formations and injection equipment. The drilling rig will be rigged down and the well will be completed with a workover rig.
4. Proposed total depth is 9000'. Please refer to the well bore diagram attached to this drilling plan.
5. Estimated tops of geologic markers:

Quaternary – Alluvium	Surface	
Conductor Pipe	40'	Setting Depth of 20" Casing
Surface Casing	250'	Setting Depth of 13-3/8" Casing
Seven Rivers	851'	
Queen	1478'	
San Andres	2335'	
Intermediate Casing	2800'	Setting Depth of 9-5/8" Casing
Glorieta	3850'	
Yeso	4010'	
Abo	5750'	
Top of Liner	6580'	Top of 4-1/2", liner hanger/packer/PBR
Top of Injection Zone	6705'	
Production Casing	6805'	Setting Depth of 7" Casing
Wolfcamp	6805'	
Cisco	8180'	
TD	9000'	

6. Estimated depths at which anticipated oil, gas, or other mineral bearing formations are expected to be encountered:

Seven Rivers	851'
Queen	1478'
San Andres	2335'
Glorieta	3850'
Yeso	4010'
Abo	5750'
TD	9000'

7. Proposed Casing and Cement program is as follows:

Type	Hole Size, in	Casing Size	Wt.	Thread	Grade	Depth	Sx	Density	Yield	Components
Conductor	26	20	91.5	Weld	B	40				Ready Mix
Surface	17.5	13.375	48	ST&C	H-40	250	350	14.8	1.35	Cl C Cmt w/ 1/4 pps Cello Flake + 2% CaCl2
Intermediate	12.25	9.625	36	LT&C	J-55	2800	320	12.8	1.903	35/65/6 Poz/Cl C/Gel w/ 5% NaCl, 5 pps LCM-1, 0.3% R-3 and 1/4 pps Cello Flake
							525	14.8	1.33	Cl C w/ 1/4 pps Cello Flake and 0.6% R-3
Production	8.75	7	26	LT&C	L-80	6805	310	13.2	1.84	35:65 Poz/Cl H w/ 6% Gel, 0.125 lbs/sk Cello Flake, 5 pps LCM-1 and retarder
							300	15.2	1.18	Cl H w/ 0.6% R-3, 0.125% Cello Flake, 2% Gel
Liner	6.125	4.5	11.6	LT&C	L-80	6580-9000	340	13.8	1.32	Cl H/POZ Light Weight Cement w/ 2% gel

8. Proposed Mud Program is as follows

Depth	300	2800	2800-6805	6805-8800	8800-9000
Mud Type	Fresh Water Mud	Brine	Brine, Salt Gel & Starch	Brine, Salt Gel & Starch	Brine, Salt Gel & Starch
Properties					
MW	8.5-9.3	9.8-10.1	9.9-10.0	9.3-9.7	9.3-9.7
pH	10	10-11.5	11-12	11-12	11-12
WL	NC	NC	20-30	NC	<50
Vis	28-34	29-32	32-35	32-34	34-35
MC	NC	NC	<2	NC	<2
Solids	NC	<1	<3	<3	<3
Pump Rate	300-350	375-425	400-450	400-450	400-450
Special		Use Polymers sticks and MF-55 Hi-Vis Sweeps as necessary	Hi Vis Sweeps, add acid and starch as req. Raise Vis to 35 for log	Hi Vis Sweeps, add acid and starch as req.	Hi Vis Sweeps, add acid and starch as req. Raise Vis to 35 for log

9. Pressure Control Equipment: See Attached Description and diagram of Pressure Control Equipment.

10. Testing, Logging and Coring Program

Testing Program:	No drill stem tests are anticipated
Mud Log Program:	Mud log (hot wire) from surface, and samples from Base intermediate casing to total depth.
Electric Logging Program:	SGR-DLL-CDL-CNL Quad Combo from 6805' to intermediate csg, then same log from 9300' up to production casing @ 6805'.
Coring Program:	No full or sidewall cores are anticipated.

11. Potential Hazards:

No abnormal temperatures or pressures are expected. There is no known presence of H2S in this area. If H2S is encountered the operator will comply with the provisions of state regulations and BLM Onshore Oil and Gas Order No. 6. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 3960 psi based on 0.44 x TD. The estimated BHT is 148 degrees F.

12. Duration of Operations:
Anticipated spud date will be soon after approval and as soon as a rig will be available. Move in operations and drilling is expected to take 15 days. An additional 30 days will be needed it complete the well and to construct surface facilities.

13. Completion Operations:

(a) Once a C-108 application to inject is approved, LRE intends to perforate the injection intervals in the ABO (6705 to 6805' or at depths found in the last 150' of the ABO open hole log), in the Wolfcamp from 6650' (or the top of the Wolfcamp found in the open hole log) to the top of the Cisco formation at approximately 7,685' (or as found on the open hole log), and the Cisco formation from the top to 9000' (as the depth of the Cisco top as found on the open hole log to 9000').

(b) Once the well is perforated, a work string will be used with a packer to acidize the ABO / WOLFCAMP / CISCO injection interval with 10,000 gallons of 15% HCL, then the packer will be pulled and the work string laid down,

(c) A string of 4-1/2", L-80, 11.6 ppf, LT&C tubing lined with Duoline (fiberglass) will be run with a seal assembly to sting into the liner top PBR at 6,580' MD. The annulus will be tested to 500 psig for 30 minutes,

(d) Before injection, personnel will schedule an MIT test with the NM OCD, perform the MIT and then injection will start into the ABO / WOLFCAMP / CISCO formation when approved by the NM OCD.

Pressure Control Equipment

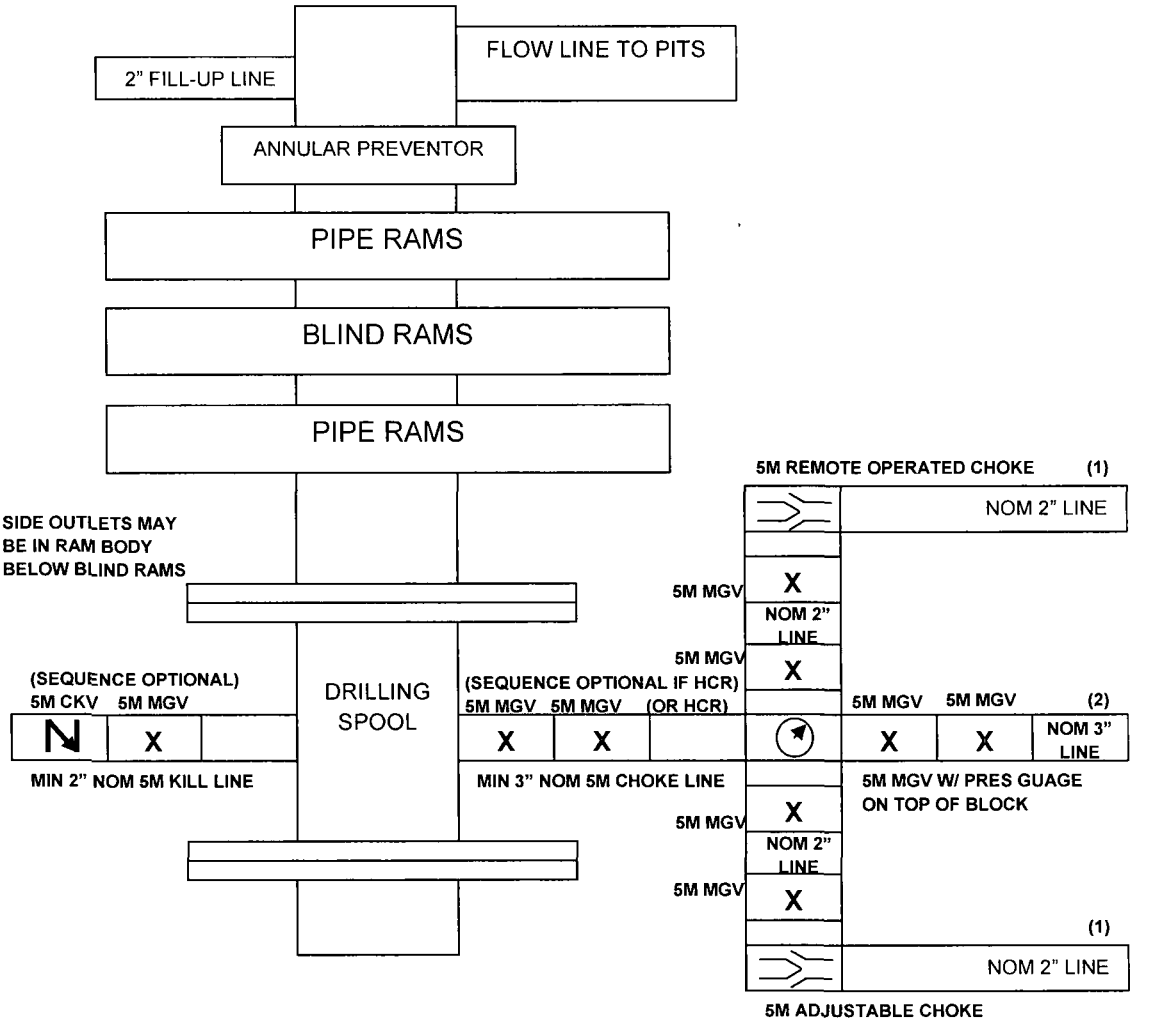
The blowout preventer equipment (BOP) will consist of a 5000 psi Triple ram type preventer, a bag-type (Hydril) preventer and rotating head. Both units will be hydraulically operated and the ram type preventer will be equipped with Drill Pipe Rams on top, Blind Rams in the middle and drill pipe rams on bottom. A 5M BOP will be installed on the 8 5/8" surface casing and utilized continuously until the depth is reached. All casing strings will be tested as per Onshore Order #2.

Pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily drilling logs.

The BOP equipment will consist of the following:
-Annular preventer*
-Pipe ram, blind ram, and, if conditions warrant, as specified by the authorized officer, another pipe ram shall also be required*
-A second pipe ram preventer shall be used with a tapered drill string
-Drilling spool, or blowout preventer with 2 side outlets (choke side shall be a 3-inch minimum diameter, kill side shall be at least 2-inch diameter)*
-3 inch diameter choke line
-2 choke line valves (3 inch minimum)*
-Kill line (2 inch minimum)
-2 chokes with 1 remotely controlled from rig floor (refer to diagram in Attachment 1)
-2 kill line valves and a check valve (2 inch minimum)*

-Upper kelly cock valve with handle available
-When the expected pressures approach working pressure of the system, 1 remote kill line tested to stack pressure (which shall run to the outer edge of the substructure and be unobstructed)
-Lower kelly cock valve with handle available
-Safety valve(s) and subs to fit all drill string connections in use
-Inside BOP or float sub available -Pressure gauge on choke manifold
-All BOPE connections subjected to well pressure shall be flanged, welded, orclamped*
-Fill-up line above the uppermost preventer.

5M BOP SCHEMATIC



(1) Line to mud gas separator and/or pit
(2) Bleed line to pit

MGV = Manual Gate Valve
CKV = Check Valve
HCR = Hydraulically Controlled Remote Valve