<u>District I</u> 1625 N French Dr., Hobbs, NM 88240 Phone (575) 393-6161 Fax (575) 393-0720

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

Form C-101

Revised December 16, 2011

Energy Minerals and Natural Resources Oil Conservation Division

> 1220 South St. Francis Dr. Santa Fe, NM 87505

Permit

AP	PLICA	TION I	FOR PERM	IT TO	DRILL,	RE-EN	TER, DEEI	PEN, PLUGB	ACK, O	R ADD A ZONI	E
			Operator Name 11 Bagby Stree						* OGRID Ni 281994		
-				_				30-0	O/SPINum	1ber 40230)
7 ^{Prope}	rty Code,				Topo Horses	erty Name shoe State				" Well No.	
	- -				⁷ Sur	face Lo	cation				
UL - Lot F	Section 30	Township 17S	Range 28E	Lo	t Idn I	Feet from 2310	N/S Line N	Feet From 1800	F/W Line W	County . Eddy	
		1 1/3	200	<u> </u>	8 Poo	l Inforn	<u> </u>	1000	<u> </u>	, Eddy	
Red Lake, Glorie	eta-Yeso NE	- 								96836	,— 2
							nformation				
9 Worl	к Туре 1		¹⁰ Well Type O		i	ble/Rotary Rotary		T2 Lease Type S	13	Ground Level Elevation 3576	
)4 Mu N	ltıple O		15 Proposed Depth 4800			Formation eta-Yeso NE	U	¹⁷ Contractor nited Drilling, Inc		¹⁸ Spud Date 5/9/2012	
Depth to Grou	nd water	 200	Dista	nce fron	n nearest fresh w	ater well.	8	Distance	to nearest surf	ace water 5 8	
			19	Prop	osed Cas	ing and	Cement Pro	gram			
Туре	Hol	le Size	Casing Size	1	asıng Weight/fl	ł	Setting Depth	Sacks of (Cement	Estimated TOC	
Conductor		20	14"	<u> </u>	В		40	Ready	Mix	Surface	
Surface Casing		2 25	8 625	<u> </u>	24		450	300		Surface	
Production	7	875	5 5	<u> </u>	17		4800	900	l DE	Surface	
	1		·	<u> </u>				-	HE	2EIVED 	
			Casi	ng/Ce	ment Pro	gram: A	dditional C	omments	MA	Y 0 1 2012	
				Pronc	sed Rlow	out Pres	ention Prog)ram	NMO	OD ARTESIA	
	Туре				Pressure		Test Pre			Manufacturer	
	XLT 11"			50	000		200) .		National Varco	
L											
of my knowled	ige and be	lief ie drilling p	given above is true oit will be construc permit □, or an (ted acco	ording to	t ,	OIL (CONSERVAT	YION DIV	ISION	
OCD-approv			ith	ацаспес	a) anternative	Appro	ved By	Manard	1		
Printed name	Jerry Smit					Title [.]	GANI	polst		1 -	
Title Assistar	nt Producti	on Supervis	or			Appro	ved Date 5/2	12017- E	xpiration Date	5/2/2014	<i>,</i>
E-mail Addres	s Jsmith@	@limerockre	esources.com				//	1		11	
Date.	Date. (-1-17) Phone: 575-748-9724						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

1220 S., St. Francis Dr., Santa, Fe, NM 87505

281994

District IV

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 Number

1

⁹ Elevation

3576.0

WELL LOCATION AND ACREAGE DEDICATION PLAT

Property-Name
HORSESHOE STATE

Operator Names

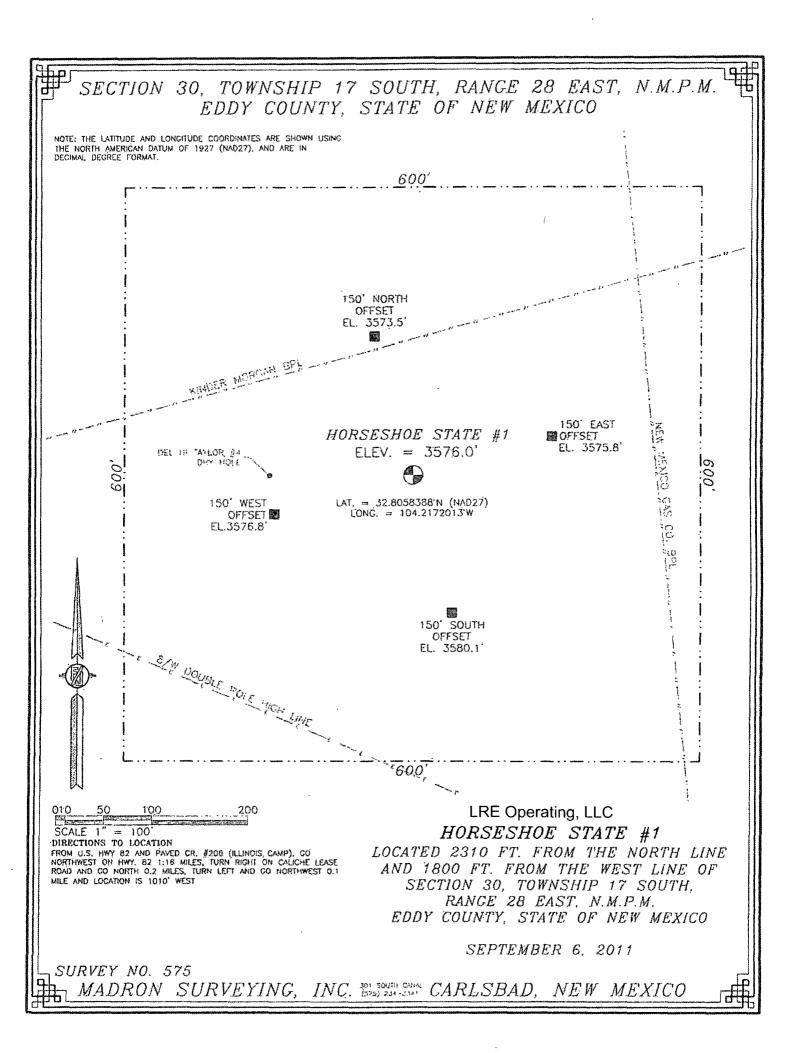
LRE Operating, LLC

Red Lake; Glorieta-Yeso NE

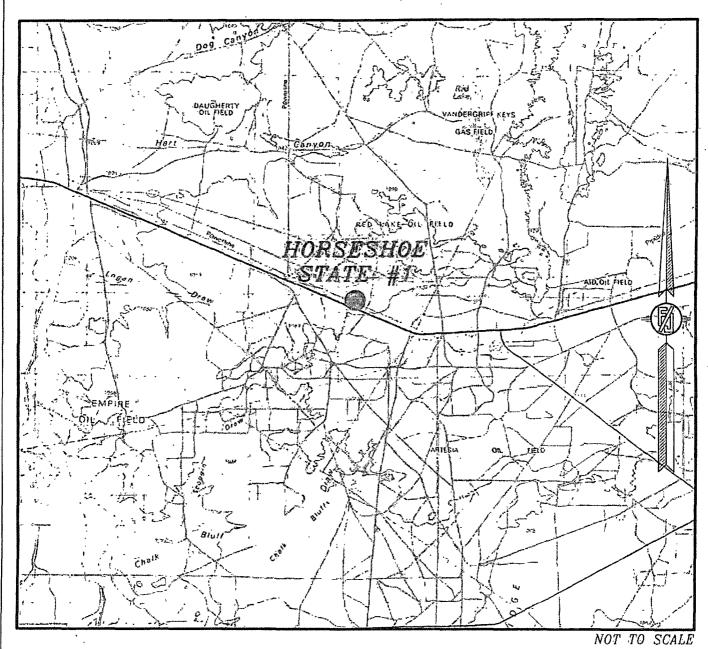
Pool Code

96836

					* Surface	Location .			
UL or lot no.	Section	Townsh		Lot Id		North/South line	Feet from th	'	County
F	30	17 S	28 E		2310	NORTH	1800	WEST	EDDY
			n Be	ttom I	Hole Location	If Different From	n Surface		
UL or lot no.	Section	Townsh	p Range	Lot Id	n Feet-from the	North/South line	Feet from th	e Enst/West line	County
12 Dedicated Acres	13 Joint o	· Infili	14 Consolidation	Code	S.Order No.				
40						,			
No allowable v	vill be ass	igned to	this complet		il all interests hav		<u> </u>	ndard unit has been a	
NW CORNER S LAT: = 32.81; LONG: = 104.2	21534′N		0102	COORD USING 'AMERIC (NAD2' DECIMA	DE AND LONGITUDE DINATES ARE SHOWN THE NORTH CAN DATUM OF 1927 7). AND ARE IN. L DEGREE FORMAT.	NE CORNER SEC. LAT. = 32:8122566 LONG. = 104.2057065	N Phereby to the be from a the prop tocation universal	certify that the infinement centains of my knowledge and behief, and sorting however or unleased mineral code bettom bole location or has a prinsition to a contract with an away or, to a voluntary peoling agreement centered by the division.	ed hérein is true and complete that this organization either l'interest in the land including éght no drill this well ar this er of such a mineral in working
	-1800'		HORSESH ELEV. = 3 LAT. = 32 LONG. = 1 SURFA LOCAT	576.0' .805838 .04.217 ACE	BN (NAD27)		Sloristu Printed Jerry S	Isne	5-1-12 Date
				 - - MA	CEIVED AY 0 1 2012		I-herel wäs pl me or and.co SEPTE	RVEYOR CERT by certify that the well loca outed from field notes of ac under my supervision, and rreculo line best of in the lin sparse of the state of the line Sparsey	tion shown on this plat tual surveys made by
SW CORNER SE LAT. = 32:7976 LONG. = 104:22	322'N					SE CORNER SEC. 3 LAT. = 32.7977087 FONG = 104.2058501	00 100	e and Seal M. Professional Sup (Number: PILIMON F. P.A.	Veyor . William Pes 12797 Wurvey no 575



SECTION 30, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO VICINITY MAP



LRE Operating, LLC

HORSESHOE STATE #1

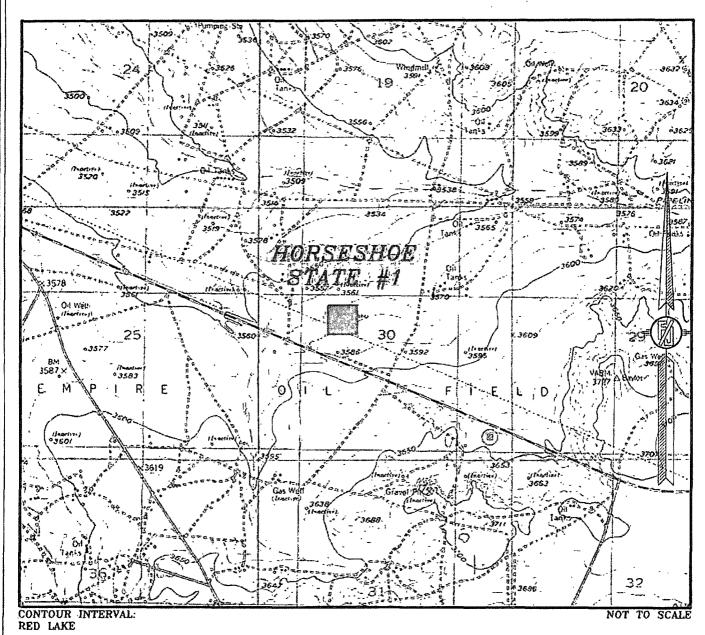
LOCATED 2310 FT. FROM THE NORTH LINE AND 1800 FT. FROM THE WEST LINE OF SECTION 30, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M. EDDY GOUNTY, STATE OF NEW MEXICO

SEPTEMBER 6, 2011

SURVEY NO. 575

MADRON SURVEYING, INC. 301 SOUTH CARLSBAD, NEW MEXICO

SECTION 30, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO LOCATION VERIFICATION MAP



LRE Operating, LLC

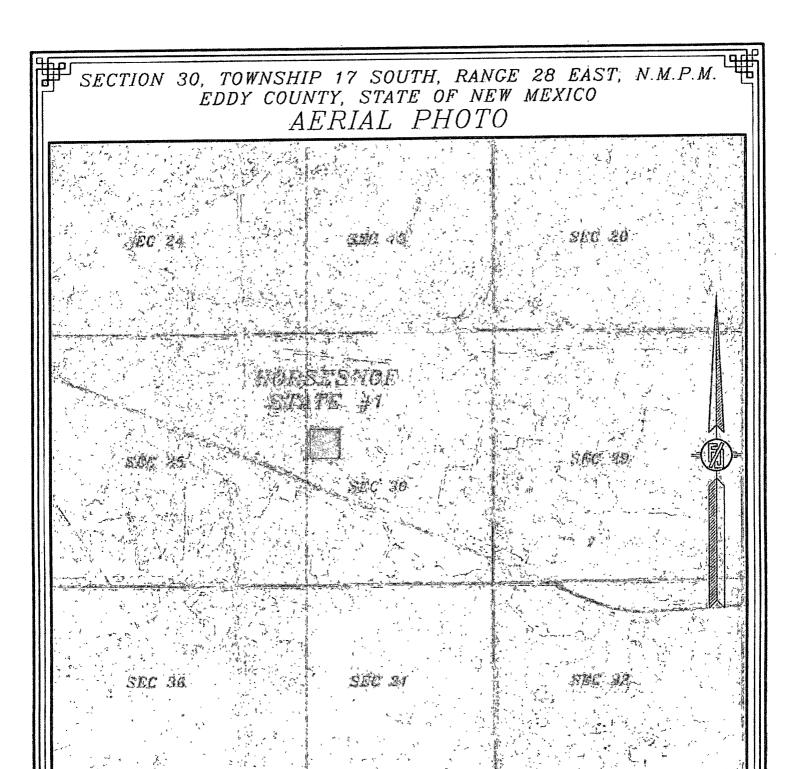
HORSESHOE STATE #1

LOCATED 2310 FT. FROM THE NORTH LINE AND 1800 FT. FROM THE WEST LINE OF SECTION 30, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO

SEPTEMBER 6, 2011

SURVEY NO. 575

MADRON SURVEYING, INC. (575) 234-3341 CARLSBAD, NEW MEXICO



NOT TO SCALE AERIAL PHOTO: GOOGLE EARTH JUNE 2011

LRE Operating, LLC HORSESHOE STATE #1

LOCATED 2310 FT. FROM THE NORTH LINE AND 1800 FT. FROM THE WEST LINE OF SECTION 30, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO

SEPTEMBER 6, 2011

SURVEY NO. 575

MADRON SURVEYING, INC. 301 SOUTH CARRESBAD, NEW MEXICO

LRE Operating, LLC Drilling Plan

Horseshoe State #1 2310' FNL 1800' FWL F-S30-T17S-R28E Eddy County, NM

- 1. The elevation of the unprepared ground is 3576' feet above sea level.
- 2. The geologic name of the surface formation is Permian and Quaternary Alluvium.
- 3. A rotary rig will be utilized to drill the well to 4800' and run casing. This equipment will be rigged down and the well will be completed with a workover rig.
- 4. Proposed total depth is 4800'.
- 5. Estimated tops of geologic markers:

Quaternary – Alluvium	Surfac
Seven Rivers	500
Queen	1030
Grayburg	1436
Premier	1719
San Andres	1764
Glorieta	3157
Yeso	3289
Tubb	4643
TD	4800

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

1030
1436
1719
1764
3157
3289

7. Proposed Casing and Cement program is as follows:

Type	Hole Size	Casing (Wt	Grade	Thread	Depth	Sx.	Density	Yield	Components
Conductor	20	14"	В	Weld	В	40				
Surface Casing	12.25	8.625	24	ST&C	J-55	450	300	14.8	1.35	Cl C Cmt + 0.25 pps Cello Flake + 2% CaCl2
Production	7.875	5.5	17	LT&C	J-55	4800	300	12.8	1.903	(35:65) Poz/Ci C Cmt + 5% NaCl + 0.125 lbs/sk Cello Flake + 5 lbs/sk LCM-1 +0.6% R-3 + 6% Gel
							600	14.8	1.331	Class C w/ 0.6% R-3 and 1/4 pps cello flake

8. Proposed Mud Program is as follows

Depth	0-450'	450'-4550'	4550'-4800'
Mud Type	Fresh Water Mud	Brine Water	Brine, Salt Gel and Starch
	Properties	Properties	Properties
MW	8.5-9.2	9.9-10.1	9.9-10.2
рН	10	10-11.5	10-11.5
WL	NC	NC	20-30
Vis	28-34	30-32	32-35
MC	NC	NC	<2/32
Solids	<1%	<2%	<3%
Pump Rate	300-350	350-400	375-450
Special	LCM Required	Salt gel, MF as required. Pmp Hi Vis Sweeps to control solids.	Startch with solids controlled to less than 3%. Add salt gel, acid & MF as required with a 35 vis to log. Pmp Hi Vis sweeps to control solids.

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

Electric Logging Program: TD - Surface casing: GR-DLL, GR-CND. 450' to surface: GR-CNL

Coring Program: No cores anticipated

11. Potential Hazards:

No abnormal temperatures or pressures are expected. There is known H2S in this area. The mud system will be used to prevent reservoir fluids from entering the wellbore. If H2S is encountered the operator will comply with the provisions of NM state law 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 2112 psi based on 0.44 x TD. The estimated BHT is 125 degrees F. An H2S contingency drilling plan is attached.

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 10 days. An additional 10 days will be needed it complete the well and to construct surface facilities.

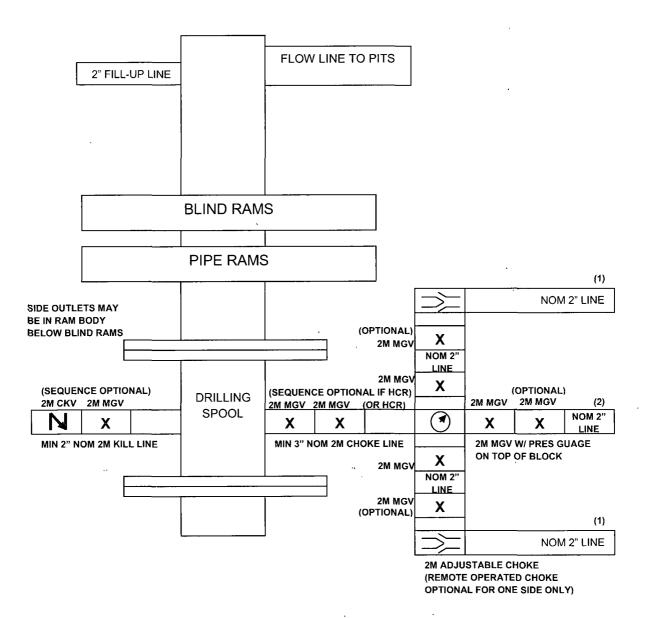
Pressure Control Equipment

The blowout preventer equipment (BOP) will consist of a 2000 psi double 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 blind rams on top and drill pipe rams on bottom. A 2M 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 ram's 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 preventers
- -Double ram with blind rams and pipe rams.
- -Drilling spool, or blowout preventer with 2 side outlets (choke side shall be a 3 inch minimum diameter, kill side will be at least 2 inch diameter)
- -Kill line (2 inch minimum)
- -A minimum of 2 choke line valves (2 inch minimum)
- -3 inch diameter choke line
- -2 kill valves, one of which will be a check valve (2 inch minimum).
- -2 chokes
- -pressure gauge on choke manifold
- -Upper Kelly cock valve with handle available
- -Safety valve and subs to fit all drill string connections in use
- -All BOPE connections subjected to well pressure will be flanged, welded, or clamped.
- -Fill-up line above the uppermost preventer.



- (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

LRE Operating, LLC

Horseshoe State #1 Well HYDROGEN SULFIDE (H₂S) CONTINGENCY DRILLING PLAN

Assumed 100 ppm ROE = 3000'
100 ppm H₂S concentration shall trigger activation of this plan.

This is an open drilling site. H_2S monitoring equipment, along with a choke manifold, mud/gas separator, and flare will be rigged up and in use when the company drills out from under surface casing. H_2S monitors, warning signs, wind indicators and flags will be in use.

SUMMARY PLAN

- 1. All personnel shall receive proper H₂S training in accordance with Onshore Oil and Gas Order No. 6.III.C.3.a. A minimum of an initial training session and weekly H₂S and well control drills for all personnel in each working crew shall be conducted. The initial training session for each well shall include a review of the this Drilling Operations Plan and site specific measures and areas set up when the rig is moved onto location.
- 2. The company has caused the drilling contractor and other vendors to install 2000 psi well control systems including:

A. A choke manifold with:

- i. One remotely operated choke,
- ii. a flare line and flare that is 150' from the wellhead to be ignited, in the event the plan is put into effect, with an electronic ignition system or a back up flare gun,
- iii. a mud/gas separator downstream of the of the choke and upstream of the flare.
- iv. All BOP equipment required for a 2000 psi well control system will be in place and tested by a third party to 250 psi low pressure and 2000 psi high pressure. This test will include testing all lines and equipment associated with the choke manifold and kill line. Weekly BOP function and control drills will be performed with all applicable crews and personnel on location.
- 3. At rig move in, two perpendicular briefing areas readily accessible will be designated and marked with signage. A clear foot path for escape will be designated and marked.
- 4. The following protective equipment for essential personnel will be located on location at rig move in:

A. Breathing apparatus:

- i. Rescue Packs (1 at each briefing area and 2 stored in the designated safety equipment storage area), shall be on location,
- ii. 4 work/escape packs shall be stored on the rig floor with sufficient hose to allow work activity,
- iii. 4 Emergency escape packs shall be stored in the rig doghouse for emergency evacuation,

H2S CONTINGENCY DRILLING PLAN

- B. Auxiliary Rescue Equipment will be available in the designated safety equipment storage area and will include:
 - i. Stretcher,
 - ii. Two OSHA approved full body harnesses,
 - iii. 100 feet of 5/8 inch OSHA approved rope,
 - iv. 2-20# Class ABC fire extinguishers.
- 5. H₂S detection and monitoring equipment shall be in place before drilling out surface casing. There will be a stationary detector in the rig dog house and another with the mud log equipment on the end of the flow line. Three sensors will be placed on the rig floor, the wellhead/cellar, and on the closed loop equipment. The detection level for H₂S will be set at 10 ppm and the alarm will sound if any level of the gas is detected over 10 ppm.
- 6. Visual warning systems will be in place at rig move in and before the surface casing is drilled out. Color coded signage will be placed at the entrance to location indicating H₂S is possible, and furthermore, the color will be changed should the site condition dictate. If H₂S is detected, then a color coded condition flag will be displayed to indicate levels of detection. Wind socks will be placed at the location entrance and one other fully visible site to allow personnel to determine wind direction and safe escape/briefing routes.
- 7. The mud program utilized on this well is intended to provide sufficient density to exclude H₂S from the wellbore. Furthermore, Loss Circulation Material will be added before any known loss circulation (low pressure) zones are encountered. Corrosion inhibitors are included in the mud system to prevent failures in the event H₂S does enter the wellbore, and seal rings are used to prevent the use of elastomers on the wellhead equipment. In the event a rotating head is necessary, elastomers will be designed to operate in H₂S conditions. Drill collars and other bottom hole assembly components are to be inspected after each well, and in the event H₂S is encountered in the wellbore, drill pipe shall be inspected as well.
- 8. The location shall be equipped with one cell telephone in the rig doghouse, one cell telephone with the well site supervisor, two way communication devices to communicate between mud system personnel, rig floor personnel, mud log personnel, and safety personnel on location. In the event H₂S is detected, a company vehicle with two way radios shall be moved into a safe briefing area and manned for communication with all vendors, company personnel or agency personnel as required.

H2S CONTINGENCY DRILLING PLAN

EMERGENCY PROCEDURES

Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas, or if monitors indicate H₂S is present. Escape will take place via the entry road away from the flare stack, or a foot path marked and designated before the well is spud by on site personnel. Once crews and other personnel are a safe distance, the crews will move to evacuate any persons in the Radius of Exposure, followed by blocking access to the Radius of Exposure.

There are no homes or buildings within the Radius of Exposure ("ROE"), so efforts will be concentrated on evacuating any third parties within the ROE. Immediate response will include evacuation of any persons potentially affected by toxic or flammable gasses. Once evacuation is under way, perimeter monitoring and control of access will be executed to ensure safe areas and stage areas.

In the event of a release of gas containing H₂S, the first responder(s) must

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H₂S monitors and air packs in order to control the release.
- Use the "buddy system" to ensure no injuries occur during the response
- Take precautions to avoid personal injury during this operation.
- Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- · Have received training in the
 - Detection of H₂S, and
 - · Measures for protection against the gas,
 - Equipment used for protection and emergency response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide $(S0_2)$. Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any

major release. Take care to protect downwind whenever this is an ignition of the gas.

Characteristics of H₂S and S0₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H₂S	1.189 Air= 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	S0 ₂	2.21 Air= 1	2ppm	N/A	1000 ppm

H2S CONTINGENCY DRILLING PLAN

Contacting Authorities

Lime Rock Resources personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Lime Rock Resources response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER) and BLM Onshore Order #6.

H₂S OPERATIONS

Though no H_2S is anticipated during the drilling operation, this contingency plan will provide for methods to ensure the well is kept under control in the event an H_2S reading of 100 ppm or more are encountered.

Once personnel are safe and the proper protective gear is in place and on personnel, the operator and rig crew essential personnel will ensure the well is under control, suspend drilling operations and shut-in the well (unless pressure build up or other operational situations dictate suspending operations will prevent well control), increase the mud weight and circulate all gas from the hole utilizing the mud/gas separator downstream of the choke, the choke manifold and the emergency flare system located 150' from the well. Bring the mud system into compliance and the H₂S level below 10 ppm, and then notify all emergency officers that drilling ahead is practical and safe.

Proceed with drilling ahead only after all provisions of Onshore Order 6, Section III.C. have been satisfied.

H2S CONTINGENCY DRILLING PLAN EMERGENCY CONTACTS

713-292-9510

713·292-9555 575-748-9724

575-623-8424

Company Offices -

Lime Rock Houston Office Answering Service (After Hours) Artesia, NM Office Roswell, NM

KEY PERSONNEL								
Name	Title	Location	Office #	Cell #	Home #			
SID ASHWORTH	PRODUCTION ENGINEER	HOUSTON	713-292-9526	713-906-7750	713-783-1959			
JERRY SMITH	ASSISTANT PRODUCTION SUPERVISOR	ARTESIA	575-748-9724	505-918-0556	575-746-2478			
MICHAEL BARRETT	PRODUCTION SUPERVISOR	ROSWELL	575-623-8424	505-353-2644	575-623-4707			
GARY FATHEREE	WELL SITE SUPERVISOR	ROTATES ON SITE	NA	940-389-6044	NA			
GARY MCCELLAND	WELL SITE SUPERVISOR	ROTATES ON SITE	NA	903-503-8997	NA			

Agency Call List						
City	Agency or Office	Telephone Number				
Artesia	Ambulance	911				
Artesia	State Police	575-746-2703				
Artesia	Sheriff's Office	575-746-9888				
Artesia	City Police	575-746-2703				
Artesia	Fire Department	575-746-2701				
Artesia	Local Emergency Planning Committee	575-746-2122				
Artesia	New Mexico OCD District II	575-748-1283				
Carlsbad	Ambulance	911				
Carlsbad	State Police	575-885-3137				
Carlsbad	Sheriff's Office	575-887-7551				
Carlsbad	City Police	575-885-2111				
Carlsbad	Fire Department	575-885-2111				
Carlsbad	Local Emergency Planning Committee	575-887-3798				
Carlsbad	US DOI Bureau of Land Management	575-887-6544				
State Wide	New Mexico Emergency Response Commission ("NMERC")	505-476-9600				
State Wide	NMERC 24 hour Number	505-827-9126				
State Wide	New Mexico State Emergency Operations Center	505-476-9635				
National	National Emergency Response Center (Washington, D.C.)	800-424-8802				

H2S CONTINGENCY DRILLING PLAN EMERGENCY CONTACTS

Emergency Services								
Name	Service	Location	Telephone Number	Alternate Number				
Boots & Coots International Well Control	Well Control	Houston / Odessa	1-800-256-9688	281-931-8884				
Cudd Pressure Control	Well Control & Pumping	Odessa	915-699-0139	915-563-3356				
Baker Hughes Inc.	Pumping Service	Artesia, Hobbs and Odessa	575-746-2757	SAME				
Total Safety	Safety Equipment and Personnel	Artesia	575-746-2847	SAME				
Cutter Oilfield Services	Drilling Systems Equipment	Midland	432-488-6707	SAME				
Assurance Fire & Safety	Safety Equipment and Personnel	Artesia	575-396-9702	575-441-2224				
Flight for Life	Emergency Helicopter Evacuation	Lubbock	806-743-9911	SAME				
Aerocare	Emergency Helicopter Evacuation	Lubbock	806-747-8923	SAME				
Med Flight Air Ambulance	Emergency Helicopter Evacuation	Albuquerque	505-842-4433	SAME				
Artesia General Hospital	Emergency Medical Care	Artesia	575-748-3333	702 North 13 Street				