

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

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



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

<sup>1</sup> Operator Name and Address Lime Rock Resources II-A, L.P. 1111 Bagby Street, Suite 4600 Houston, Texas 77042		<sup>2</sup> OGRID Number 255333 277558 <sup>3</sup> API Number 30-015-40489
<sup>4</sup> Property Code 39350	<sup>5</sup> Property Name McNatt-Vandergriff 14 P	<sup>6</sup> Well No #2

<sup>7</sup> Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
P	14	18S	26E		990	S	880	E	Eddy

<sup>8</sup> Pool Information

<del>Atoka</del> Red Lake, Gloneta-Yeso	3250 51120
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Additional Well Information

<sup>9</sup> Work Type N	<sup>10</sup> Well Type O	<sup>11</sup> Cable/Rotary R	<sup>12</sup> Lease Type P	<sup>13</sup> Ground Level Elevation 3308.7
<sup>14</sup> Multiple N	<sup>15</sup> Proposed Depth 4800	<sup>16</sup> Formation Yeso	<sup>17</sup> Contractor United Drilling, Inc	<sup>18</sup> Spud Date After 07/15/2012
Depth to Ground water 296 Feet		Distance from nearest fresh water well 0.178 Miles		Distance to nearest surface water 2.07 Miles

<sup>19</sup> 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	12-1/4"	8-5/8"	24	500	375	Surface
Production	7-7/8"	5-1/2"	17	4800	1000	Surface

Casing/Cement Program: Additional Comments

Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
XLT 11"	5000	2000	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.

Printed name: Sid Ashworth

Title: Operations Manager

E-mail Address: sashworth@limerockresources.com

Date: 7/11/12

Phone 713-292-9526

OIL CONSERVATION DIVISION

Approved By.

Title.

Approved Date

Expiration Date:

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

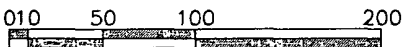
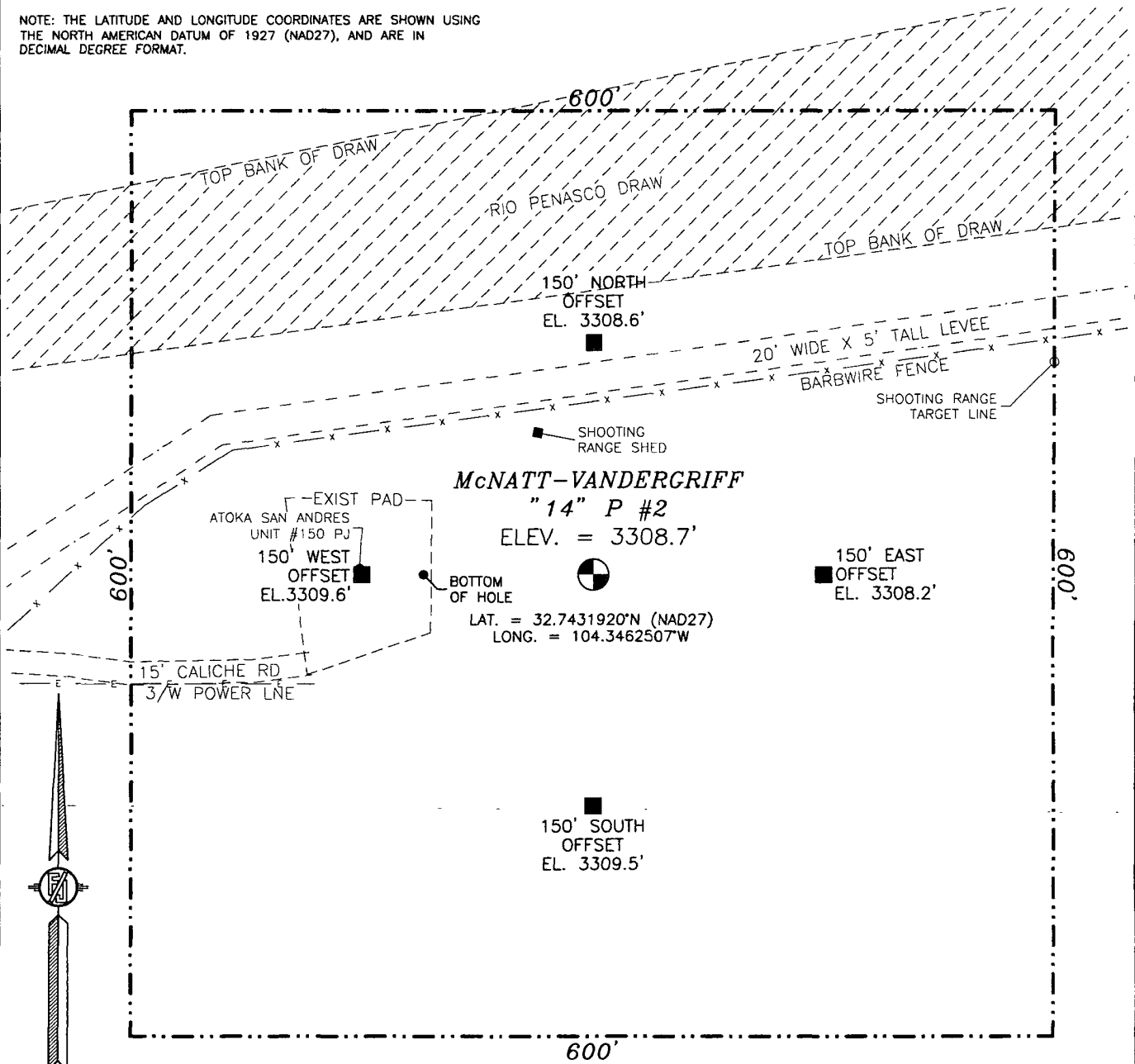
<sup>1</sup> API Number 30-015-40489		<sup>2</sup> Pool Code 5H203250		<sup>3</sup> Pool Name HOLKA RED LAKE J. GLORIE TA-YE SO					
<sup>4</sup> Property Code 39350		<sup>5</sup> Property Name McNATT-VANDERGRIF "14" P				<sup>6</sup> Well Number 2			
<sup>7</sup> OGRID No. 277558		<sup>8</sup> Operator Name LIME ROCK RESOURCES II-A, L.P.				<sup>9</sup> Elevation 3308.7			
<sup>10</sup> Surface Location									
UL or lot no. P	Section 14	Township 18 S	Range 26 E	Lot Idn	Feet from the 990	North/South line SOUTH	Feet from the 880	East/West line EAST	County EDDY
<sup>11</sup> Bottom Hole Location If Different From Surface									
UL or lot no. P	Section 14	Township 18 S	Range 26 E	Lot Idn	Feet from the 990	North/South line SOUTH	Feet from the 990	East/West line EAST	County EDDY
<sup>12</sup> Dedicated Acres 40		<sup>13</sup> Joint or Infill		<sup>14</sup> Consolidation Code		<sup>15</sup> Order No.			

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.

<p>NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1927 (NAD27), AND ARE IN DECIMAL DEGREE FORMAT.</p>		<p>NE CORNER SEC. 14 LAT. = 32.7550409°N LONG. = 104.3434626°W</p>	
<p>McNATT-VANDERGRIF "14" P #2 ELEV. = 3308.7' LAT. = 32.7431920°N (NAD27) LONG. = 104.3462507°W</p>			
<p>SW CORNER SEC. 14 LAT. = 32.7405084°N LONG. = 104.3605385°W</p>		<p>S Q CORNER SEC. 14 LAT. = 32.7404662°N LONG. = 104.3520278°W</p>	<p>SE CORNER SEC. 14 LAT. = 32.7404766°N LONG. = 104.3433724°W</p>
<p>BOTTOM OF HOLE LAT. = 32.7431921°N LONG. = 104.3466091°W</p>			
<p>SURFACE LOCATION 880' 990'</p>			
<p>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.</p>			
<p>Signature: [Signature] Date: 7/11/12</p>			
<p>Printed Name: SID ASHWORTH</p>			
<p>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.</p>			
<p>OCTOBER 15, 2011 NEW MEXICO</p>			
<p>Date of Survey: 12/1/11</p>			
<p>Signature and Seal of Professional Surveyor: [Signature]</p>			
<p>Certificate Number: 12797 SURVEY NO 625</p>			

SECTION 14, TOWNSHIP 18 SOUTH, RANGE 26 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

NOTE: THE LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING  
THE NORTH AMERICAN DATUM OF 1927 (NAD27), AND ARE IN  
DECIMAL DEGREE FORMAT.



SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM PAVED CR. #43 (THISTLE) AND PAVED CR. #44 (FANNING) GO  
NORTH ON CR. #44 0.1 MILE, TURN RIGHT ON CALICHE ROAD AND  
GO EAST 260' TO EXIST. ATOKA SAN ANDRES UNIT #150 WELL AND  
FROM WELL LOCATION IS 150' EAST.

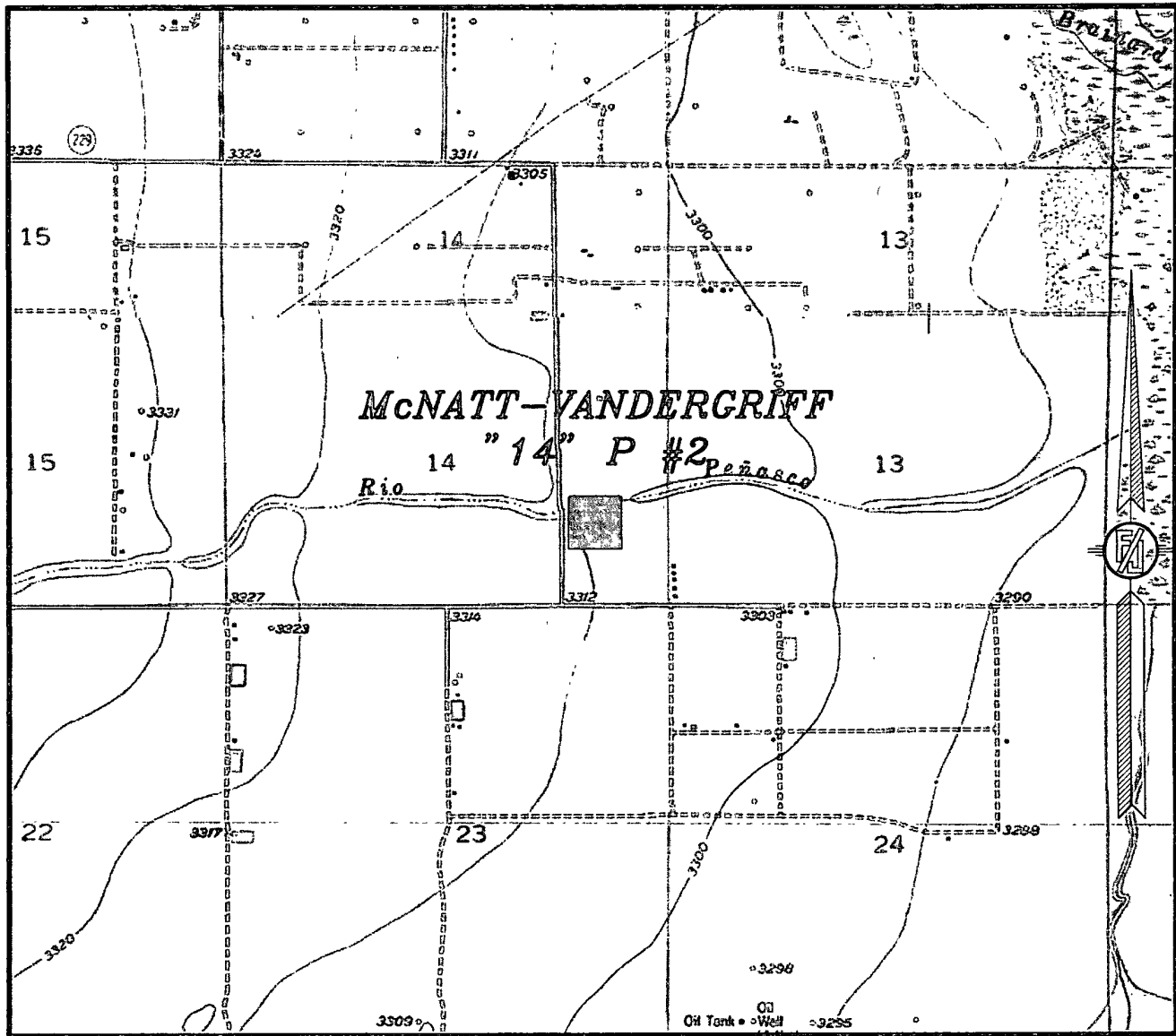
LIME ROCK RESOURCES A.L.P.  
**McNATT-VANDERGRIFF "14" P #2**  
LOCATED 990 FT. FROM THE SOUTH LINE  
AND 880 FT. FROM THE EAST LINE OF  
SECTION 14, TOWNSHIP 18 SOUTH,  
RANGE 26 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 15, 2011

SURVEY NO. 625

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 887-5830 CARLSBAD, NEW MEXICO

SECTION 14, TOWNSHIP 18 SOUTH, RANGE 26 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
LOCATION VERIFICATION MAP



CONTOUR INTERVAL:  
LAKE McMILLAN NORTH

NOT TO SCALE

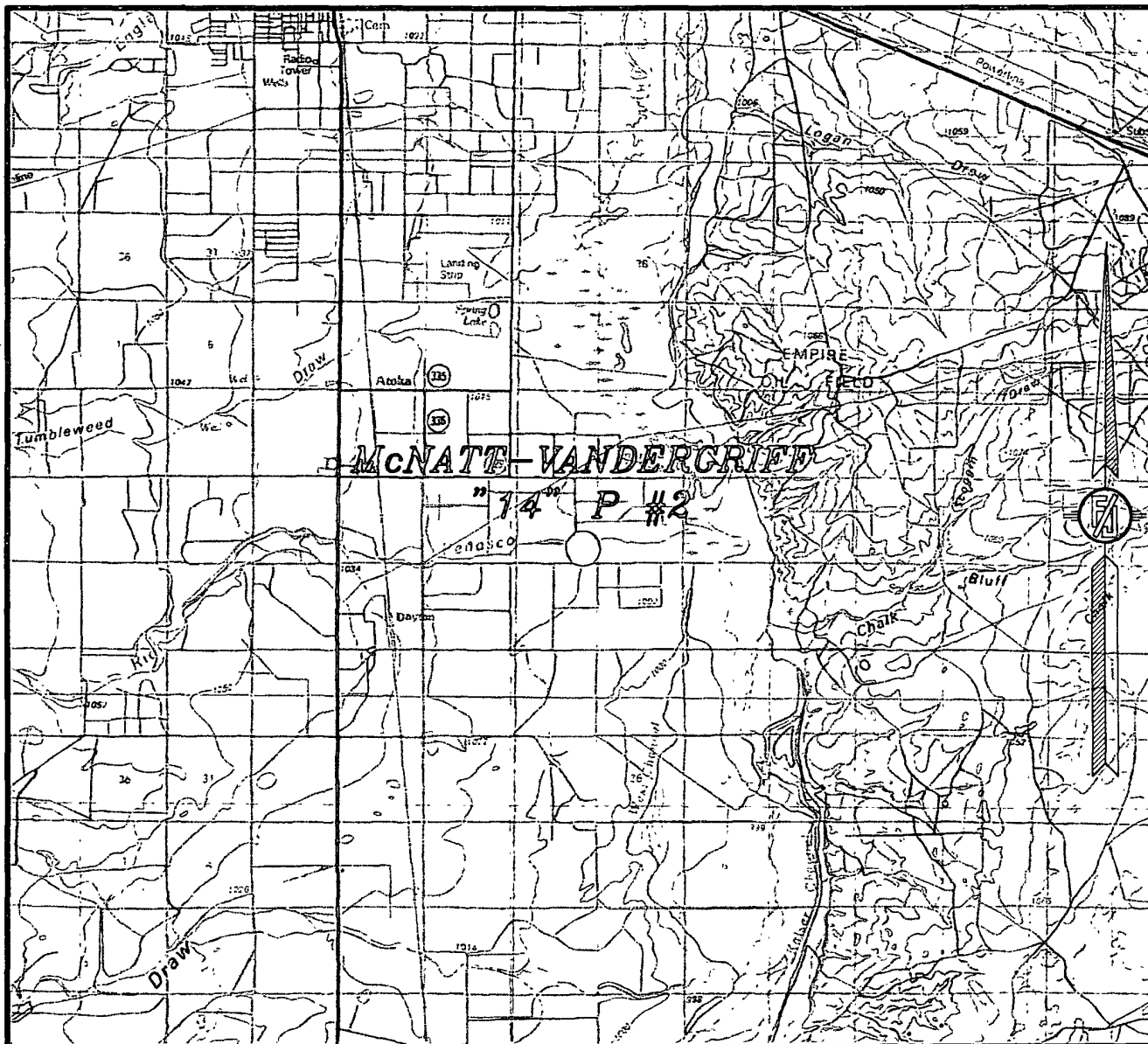
LIME ROCK RESOURCES A.L.P.  
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SECTION 14, TOWNSHIP 18 SOUTH,  
RANGE 26 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 15, 2011

SURVEY NO. 625

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO  
(575) 887-5830

SECTION 14, TOWNSHIP 18 SOUTH, RANGE 26 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
VICINITY MAP



NOT TO SCALE

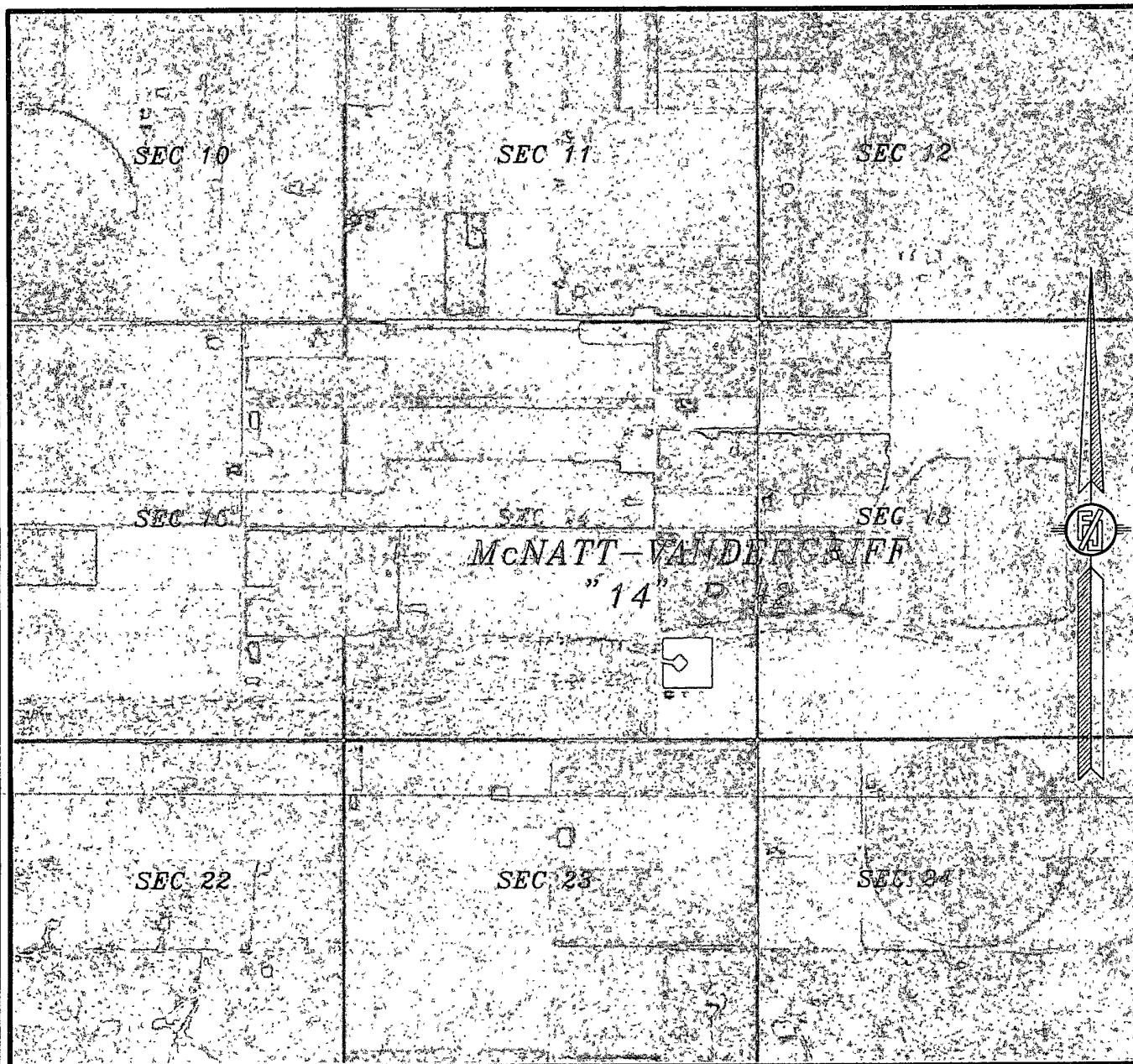
LIME ROCK RESOURCES A.L.P.  
**McNATT-VANDERGRIFF "14" P #2**  
LOCATED 990 FT. FROM THE SOUTH LINE  
AND 880 FT. FROM THE EAST LINE OF  
SECTION 14, TOWNSHIP 18 SOUTH,  
RANGE 26 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 15, 2011

SURVEY NO. 625

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 887-5830 CARLSBAD, NEW MEXICO

SECTION 14, TOWNSHIP 18 SOUTH, RANGE 26 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
*AERIAL PHOTO*



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
JUNE, 2011

LIME ROCK RESOURCES A.L.P.  
**McNATT-VANDERGRIFF "14" P #2**  
LOCATED 990 FT. FROM THE SOUTH LINE  
AND 880 FT. FROM THE EAST LINE OF  
SECTION 14, TOWNSHIP 18 SOUTH,  
RANGE 26 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

SURVEY NO. 625

OCTOBER 15, 2011

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 887-5830 CARLSBAD, NEW MEXICO

**Lime Rock Resources II-A, L.P.  
Drilling Plan**

**McNatt-Vandergriff 14 P #2  
990' FSL 880' FEL  
P-S14-T18S-R26E  
Eddy County, NM**

1. The elevation of the unprepared ground is 3308.7' feet above sea level.
2. The geologic name of the surface formation is Quaternary – Alluvium.
3. A rotary rig will be utilized to 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	Surface
7 Rivers	20
Queen	357
Grayburg	688
San Andres	1048
Glorieta	2477
Yeso	2618
Tubb	4080
TD	4800'

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

7 Rivers	20
Queen	357
Grayburg	688
San Andres	1048
Glorieta	2477
Yeso	2618
Tubb	4080
TD	4800'

7. Proposed Casing and Cement program is as follows:

Type	Hole Size	Casing Size	Wt	Grade	Thread	Depth	Sx	Density	Yield	Components
Conductor	26	20	91.5	B	Welded	40				Ready Mix
Surface	12-1/4"	8-5/8"	24	J-55	ST&C	500	375	14.8	1.35	Cl C Cmt + 0.25 lbs/sk Cello Flake + 2% CaCl <sub>2</sub>
Production	7-7/8"	5-1/2"	17	J-55	LT&C	4800	250	12.8	1.903	(35:65) Poz/Cl C Cmt + 5% NaCl + 0.125 lbs/sk Cello Flake + 5 lbs/sk LCM-1 +0.2% R-3 + 6% Gel
							750	14.8	1.33	Class C w/ 0.6% R-3 and 1/4 pps cello flake

**8. Proposed Mud Program is as follows**

Depth	0-40	40-4500	4500-4800
Mud Type	Fresh Water Mud	Brine	Brine, Salt Gel, & Starch
Properties			
MW	8.5-9.2	9.8-10-1	9.9-10.2
pH	10	10-11.5	11/12/2012
WL	NC	NC	20-30
Vis	28-34	29-32	32-35
MC	NC	NC	<2
Solids	NC	<1	<3
Pump Rate	300-350	375-425	400-450
Special		Use Pymers sticks and MF-55 Hi-Vis Sweeps as necessary	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

**Electric Logging Program:** SGR-DLL-CDL-CNL Quad Combo from 4800 to surf. Csg. SGR-CNL to Surf.

**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 H<sub>2</sub>S in this area. If H<sub>2</sub>S is encountered the operator will comply with the provisions of 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.

**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 14 days will be needed to complete the well and to construct surface facilities.



## **Pressure Control Equipment**

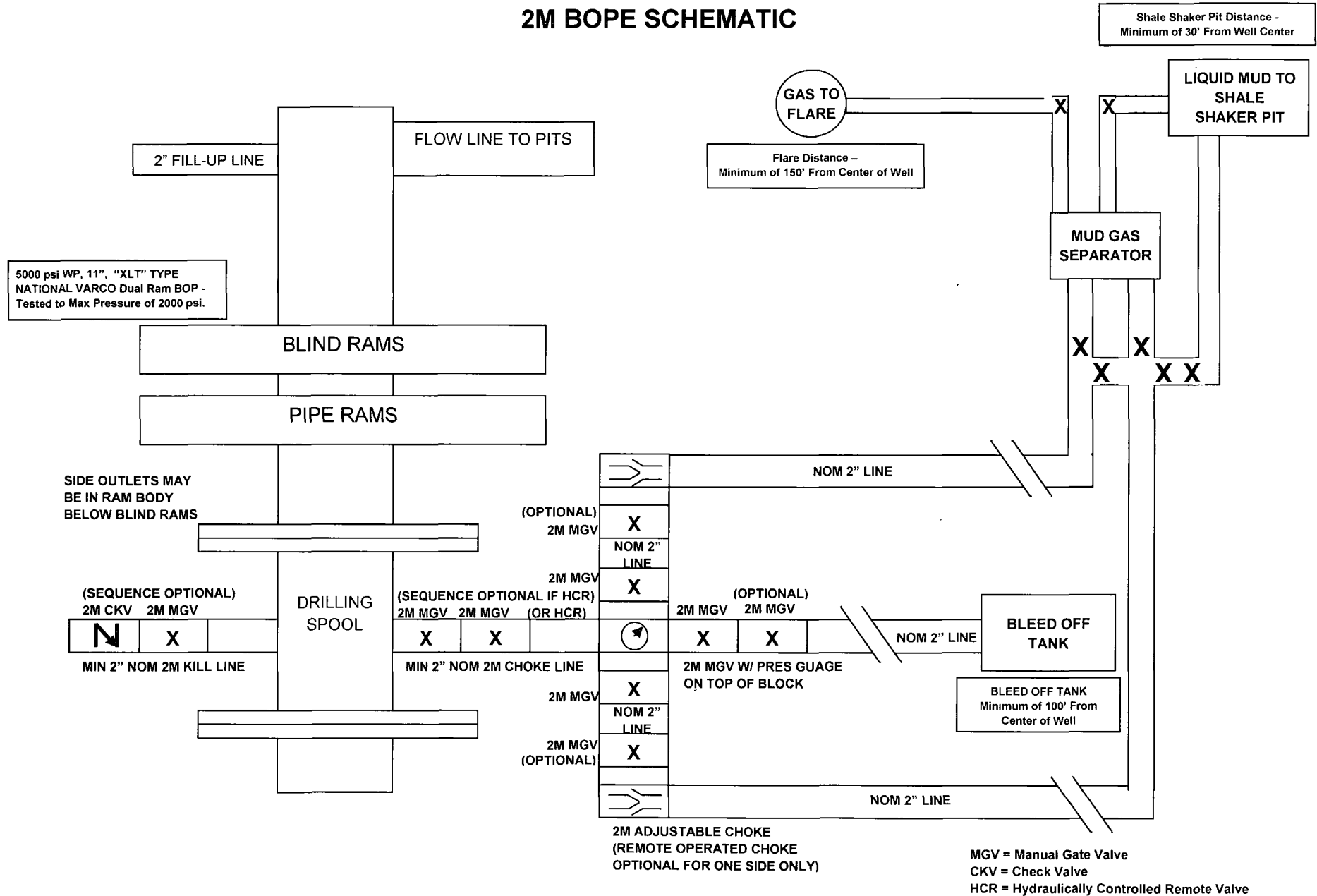
The blowout preventer equipment (BOP) will consist of a 5000 psi rated, 11", "XLT" type, National VARCO double ram preventer that will be tested to a maximum pressure of 2000 psi. The unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and drill pipe rams on bottom. The 2M BOP will be installed on the 8 5/8" surface casing and utilized continuously until total depth is reached. All casing strings will be tested as per Onshore Order #2. This also includes a thirty day (30) test, should the rig still be operating on the same well in thirty days.

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:

- Double ram with blind rams (top) and pipe rams (bottom),
- Drilling spool, or blowout preventer with 2 side outlets (choke side shall be a 2" 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),
- 2 inch diameter choke line,
- 2 kill valves, one of which will be a check valve (2 inch minimum),
- 2 chokes, one of which will be capable of remote operation,
- 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.
- A Fill-up line above the uppermost preventer.

# 2M BOPE SCHEMATIC



# **Lime Rock Resources II-A, L.P.**

**McNatt-Vandergriff 14 P #2**

## **HYDROGEN SULFIDE (H<sub>2</sub>S) CONTINGENCY DRILLING PLAN**

**Assumed 100 ppm ROE = 3000'**

**100 ppm H<sub>2</sub>S concentration shall trigger activation of this plan.**

**This is an open drilling site. H<sub>2</sub>S monitoring equipment and emergency response equipment will be rigged up and in use when the company drills out from under surface casing. H<sub>2</sub>S monitors, warning signs, wind indicators and flags will be in use.**

### **EMERGENCY PROCEDURES**

#### **Escape**

Crews shall escape upwind of escaping gas in the event of an emergency release of gas, or if monitors indicate H<sub>2</sub>S 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 H<sub>2</sub>S, 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 H<sub>2</sub>S 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
  - o Detection of H<sub>2</sub>S, and
  - o Measures for protection against the gas,
  - o Equipment used for protection and emergency response.

## H2S CONTINGENCY DRILLING PLAN EMERGENCY CONTACTS

### Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). 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 H<sub>2</sub>S and SO<sub>2</sub>

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H <sub>2</sub> S	1.189 Air= 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21 Air= 1	2ppm	N/A	1000 ppm

### 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.

### H<sub>2</sub>S Operations

Though no H<sub>2</sub>S 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<sub>2</sub>S 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 H<sub>2</sub>S level below 10 ppm, 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

<b><u>Company Offices</u></b> -	Lime Rock Houston Office Answering Service(After Hours) Artesia, NM Office Roswell, NM	713-292-9510 713-292-9555 575-748-9724 575-623-8424
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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 MCCCELLAND	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