

Hydrogen Sulfide Drilling Operations Plan  
Crescent Hale 1 Federal Com No. 2  
Cimarex Energy Co. of Colorado  
Unit C, Section 1  
T19S-R30E, Eddy County, NM

30-015-38524

- 1 All Company and Contract personnel admitted on location must be trained by a qualified H<sub>2</sub>S safety instructor to the following:
  - A. Characteristics of H<sub>2</sub>S
  - B. Physical effects and hazards
  - C. Proper use of safety equipment and life support systems.
  - D. Principle and operation of H<sub>2</sub>S detectors, warning system and briefing areas.
  - E. Evacuation procedure, routes and first aid.
  - F. Proper use of 30 minute pressure demand air pack.
- 2 H<sub>2</sub>S Detection and Alarm Systems:
  - A. H<sub>2</sub>S detectors and audio alarm system to be located at bell nipple, end of flow line (mud pit) and on derrick floor or doghouse.
- 3 Windsock and/or wind streamers:
  - A. Windsock at mudpit area should be high enough to be visible.
  - B. Windsock at briefing area should be high enough to be visible.
- 4 Condition Flags and Signs:
  - A. Warning sign on access road to location.
  - B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H<sub>2</sub>S present in dangerous concentration). Only emergency personnel admitted to location.
- 5 Well control equipment:
  - A. See exhibit "E"
- 6 Communication:
  - A. While working under masks chalkboards will be used for communication.
  - B. Hand signals will be used where chalk board is inappropriate.
  - C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.
- 7 Drillstem Testing:

No DSTs or cores are planned at this time.
- 8 Drilling contractor supervisor will be required to be familiar with the effects H<sub>2</sub>S has on tubular goods and other mechanical equipment.
- 9 If H<sub>2</sub>S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H<sub>2</sub>S scavengers if necessary.

H<sub>2</sub>S Contingency Plan  
Crescent Hale 1 Federal Com No. 2  
Cimarex Energy Co. of Colorado  
Unit C, Section 1  
T19S-R30E, Eddy County, NM

**Emergency Procedures**

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:
  - ♦ Detection of H<sub>2</sub>S, 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 (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 there 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	2 ppm	N/A	1000 ppm

**Contacting Authorities**

Cimarex Energy Co. of Colorado's personnel must liaise 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. Cimarex Energy Co. of Colorado's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

H<sub>2</sub>S Contingency Plan Emergency Contacts  
**Crescent Hale 1 Federal Com No. 2**  
 Cimarex Energy Co. of Colorado  
 Unit C, Section 1  
 T19S-R30E, Eddy County, NM

**Company Office**

Cimarex Energy Co. of Colorado	800-969-4789
Co. Office and After-Hours Menu	

**Key Personnel**

Name	Title	Office	Mobile
Doug Park	Drilling Manager	432-620-1934	972-333-1407
Dee Smith	Drilling Super	432-620-1933	972-882-1010
Jim Evans	Drilling Super	432-620-1929	972-465-0564
Roy Shirley	Field Super		432-634-2136

**Artesia**

Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
Fire Department	575-746-2701
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283

**Carlsbad**

Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
Fire Department	575-887-3798
Local Emergency Planning Committee	575-887-6544
US Bureau of Land Management	575-887-6544

**Santa Fe**

New Mexico Emergency Response Commission (Santa Fe)	505-476-9600
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635

**National**

National Emergency Response Center (Washington, D.C.)	800-424-8802
---	--------------

**Medical**

Flight for Life - 4000 24th St.; Lubbock, TX	806-743-9911
Aerocare - R3, Box 49F; Lubbock, TX	806-747-8923
Med Flight Air Amb - 2301 Yale Blvd S.E., #D3; Albuquerque, NM	505-842-4433
SB Air Med Service - 2505 Clark Carr Loop S.E.; Albuquerque, NM	505-842-4949

**Other**

Boots & Coots IWC	800-256-9688	or	281-931-8884
Cudd Pressure Control	432-699-0139	or	432-563-3356
Halliburton	575-746-2757		
B.J. Services	575-746-3569		

Surface Use Plan  
Crescent Hale 1 Federal Com No. 2  
Cimarex Energy Co. of Colorado  
Unit C, Section 1  
T19S-R30E, Eddy County, NM

1. Existing Roads: Area maps, Exhibit "A" shows the proposed well site as staked. Exhibit "B" is a reproduction of Eddy Co. General Highway Map. Exhibit "C" is a reproduction of a USGS Topographic Map, and Exhibit "C-1" is a well site layout map, showing proposed road to location and existing road.
  - A. The maximum width of the driving surface will be 15.' The road will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1' deep with 3:1 slopes. The driving surface will be made of 6" rolled and compacted caliche.
  - B. From the junction of Shugart and Grubbs, go West on Grubbs for 2.7 miles to lease road. On lease road, go South winding West 1.1 miles to proposed lease road.
2. Planned Access Roads: 327.6' of on-lease access road is proposed.
3. Location of Existing Wells in a One-Mile Radius - Exhibit A
  - A. Water wells - None known
  - B. Disposal wells - None known
  - C. Drilling wells - None known
  - D. Producing wells - As shown on Exhibits "A" and "A-1"
  - E. Abandoned wells - As shown on Exhibits "A" and "A-1"
4. Planned Flowlines

Lay surface oil/gas/water 4" SDR-7 poly pipe along lease road to existing Crescent Hale 1 Fed #1 tank battery as shown on attached POD topo.
5. Location of Proposed Production Facilities:

If on completion this well is a producer, a 4" surface flowline described above will be laid to the Crescent Hale 1 Fed #1 tank battery and oil, gas, and water allocated based on periodic wells tests. See production facilities layout diagram. Any changes to the facilities or off-site facilities will be accompanied by a Sundry Notice.
6. Location and Type of Water Supply:

Water will be purchased locally from a commercial source and trucked over the access roads.
7. Source of Construction Material:

If possible, native caliche will be obtained from the excavation of drill site. Topsoil will be pushed back from the drill site and existing caliche will be ripped and compacted. Then topsoil will be stockpiled on location as depicted on Exhibit "D" (rig layout). If additional material is needed, it will be purchased from a BLM-approved pit as near as possible to the well
8. Methods of Handling Waste Material:
  - A. Drill cuttings will be separated by a series of solids removal equipment and stored in steel containment pits and then hauled to a state-approved disposal facility.
  - B. All trash, junk and other waste material will be contained in trash cages or bins to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary land fill.
  - C. Salts remaining after completion of well will be picked up by supplier including broken sacks.
  - D. Sewage from living quarters will drain into holding tanks and be cleaned out periodically and hauled to a waste disposal facility. A Porta-John will be provided for the rig crews. This equipment will be properly maintained during the drilling operations and removed upon completion of the well.
  - E. Drilling fluids will be contained in steel pits in a closed circulating system. Fluids will be cleaned and reused. Water produced during testing will be contained in the steel pits and disposed of at a state approved disposal facility. Any oil or condensate produced will be stored in test tanks until sold and hauled from the site.

Surface Use Plan  
Crescent Hale 1 Federal Com No. 2  
Cimarex Energy Co. of Colorado  
Unit C, Section 1  
T19S-R30E, Eddy County, NM

9. Ancillary Facilities:

- A. No camps or airstrips to be constructed.

10. Well Site Layout:

- A. Exhibit "D" shows location and rig layout.
- C. Mud pits in the closed circulating system will be steel pits and the cuttings will be stored in steel containment pits.
- D. Cuttings will be stored in steel pits until they are hauled to a state-approved disposal facility.
- E. If the well is a producer, those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.

11. Plans for Restoration of Surface:

Rehabilitation of the location will start in a timely manner after all drilling operations cease. The type of reclamation will depend on whether the well is a producer or a dry hole.

Drainage systems, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be modified in certain circumstances to prevent inundation of the location's pad and surface facilities. After the area has been shaped and contoured, topsoil from the spoil pile will be placed over the disturbed area to the extent possible. Revegetation procedures will comply with BLM standards.

If the well is a dry hole, the pad and road area will be recountoured to match the existing terrain. Topsoil will be spread to the extent possible. Revegetation will comply with BLM standards.

Should the well be a producer, those areas of the location not essential to production facilities and operations will be reclaimed and seeded per BLM requirements. Please see Production Facilities Layout Diagram, exhibit D-1.

12. Other Information

- A. Topography consists of a sloping plane with loose tan sands. Vegetation is mainly yucca, mesquite and shin oak.
- B. The wellsite is on surface owned by Department of the Interior, Bureau of Land Management. The land is used mainly for farming, cattle ranching, recreational use, and oil and gas production.
- C. In lieu of an archaeological survey report, Cimarex will be submitting an MOA application for this well pad and access road since they are within the MOA boundary.
- D. There are no known dwellings within 1½ miles of this location.

Operator Certification Statement  
Crescent Hale 1 Federal Com No. 2  
Cimarex Energy Co. of Colorado  
Unit C, Section 1  
T19S-R30E, Eddy County, NM

Operator's Representative

Cimarex Energy Co. of Colorado  
600 N. Marienfeld St., Ste. 600  
Midland, TX 79701  
Office Phone: (432) 571-7800  
Zeno Farris

**CERTIFICATION:** I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 16th day of November, 2010

NAME: Zeno Farris  
Zeno Farris

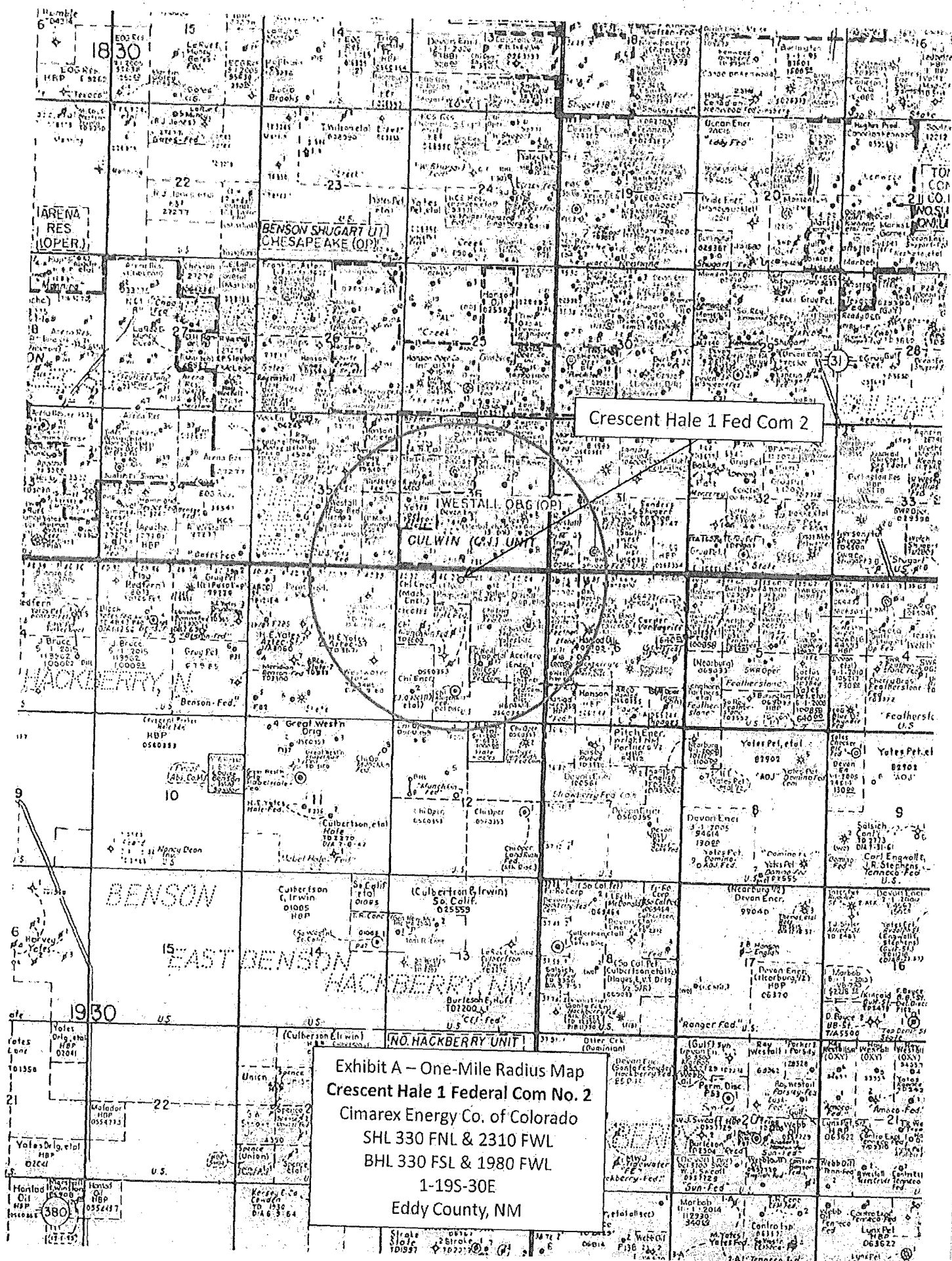
TITLE: Manager Operations Administration

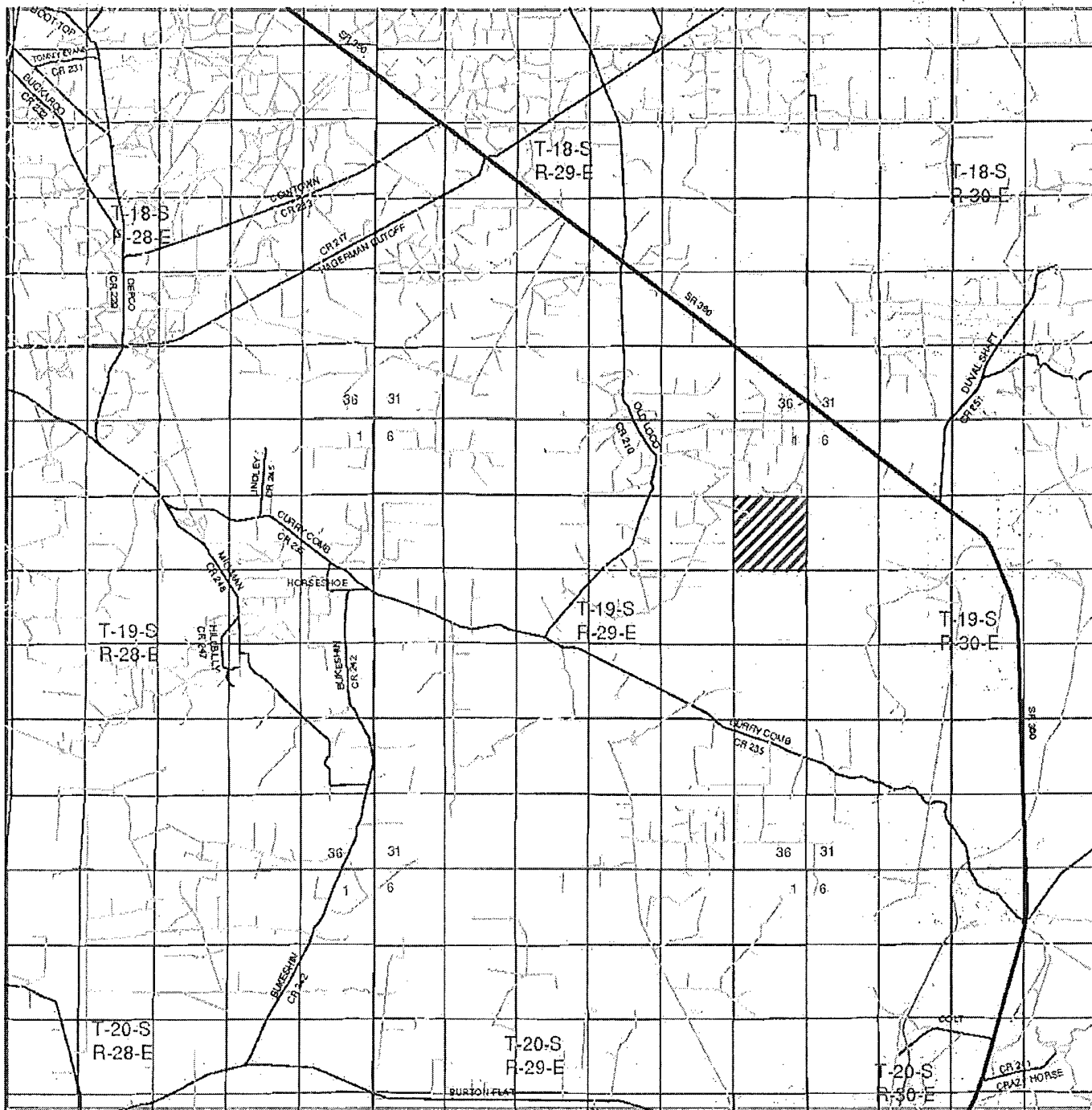
ADDRESS: 600 N. Marienfeld St., Ste. 600  
Midland, TX 79701

TELEPHONE: (432) 620-1938

EMAIL: zfarris@cimarex.com

Field Representative: Same as above





CRESCENT HALE "1" #2

Located 330' FNL and 2310' FWL

Section 1, Township 19 South, Range 30 East,  
N.M.P.M., Eddy County, New Mexico.



focused on excellence  
in the oilfield

P.O. Box 1786  
1120 N. West County Rd.  
Hobbs, New Mexico 88241  
(575) 393-7316 - Office  
(575) 392-2206 - Fax  
basinsurveys.com

W.O. Number: JMS 22838

Survey Date: 05-20-2010

Scale: 1" = 2 Miles

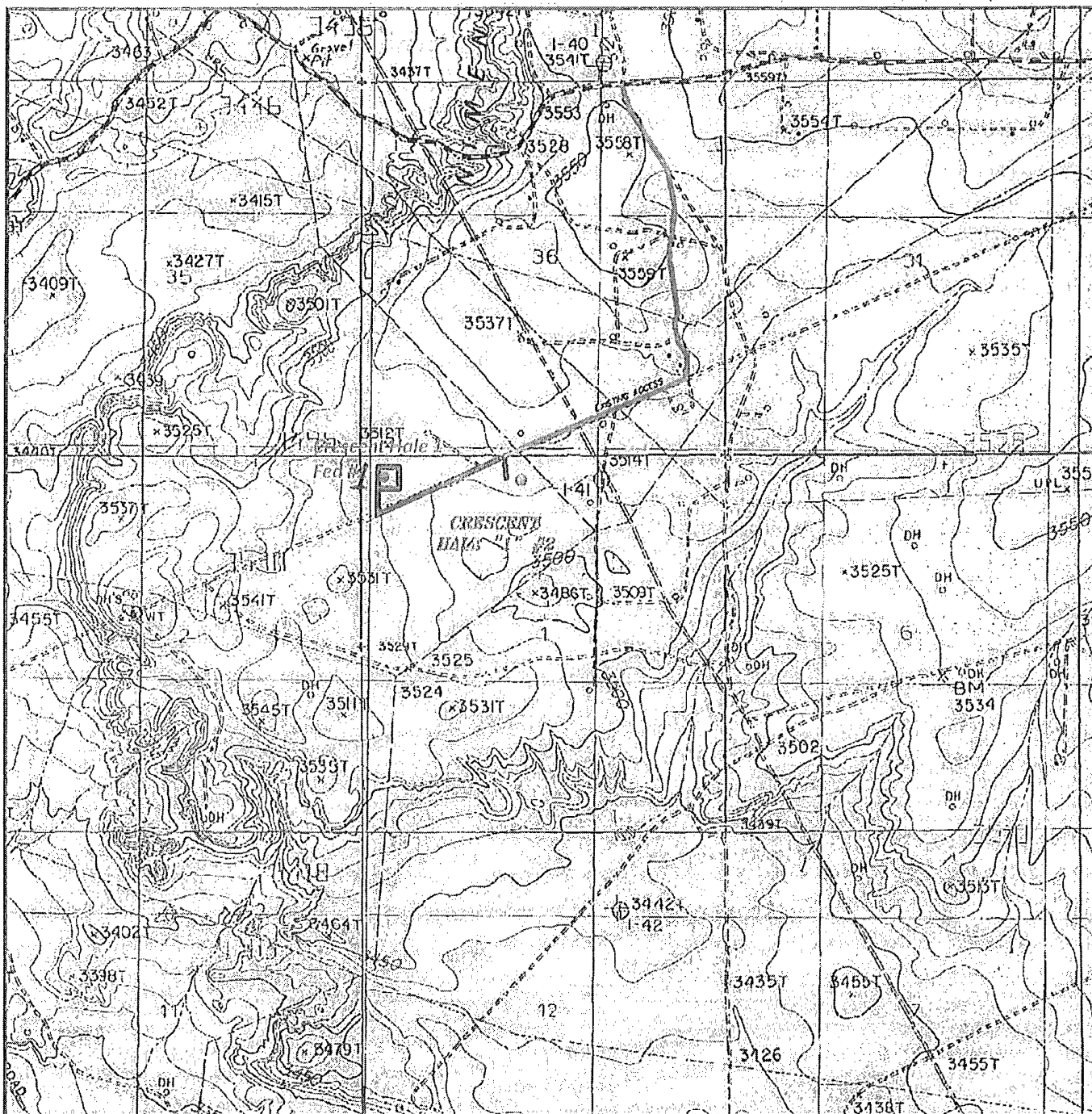
Date: 05-26-2010

CIMAREX  
ENERGY CO.  
OF COLORADO

Exhibit B



corrected 12-2-10



CRESCENT HALE #1 #2

Located 330' FNL and 2310' FWL

Section 1, Township 19 South, Range 30 East,  
N.M.P.M., Eddy County, New Mexico.

Flowline

Battery

**basin**  
**surveys**

focused on excellence  
in the oilfield

P.O. Box 1786  
1120 N. West County Rd.  
Hobbs, New Mexico 88241  
(575) 393-7316 - Office  
(575) 392-2206 - Fax  
basinsurveys.com

W.O. Number: JMS-22838

Survey Date: 05-20-2010

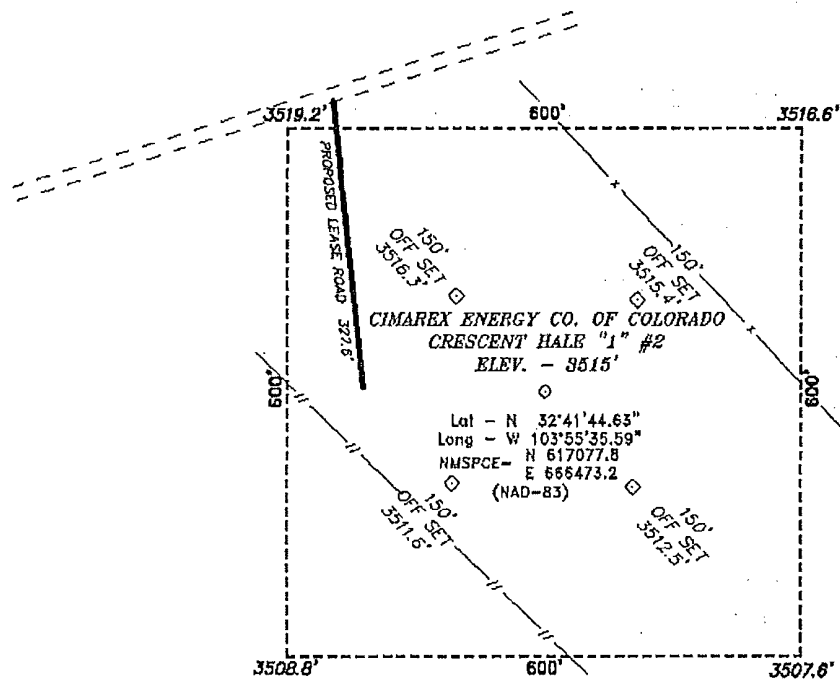
Scale: 1" = 2000'

Date: 05-26-2010

**CIMAREX**  
**ENERGY CO.**  
**OF COLORADO**

Exhibit C

SECTION 1, TOWNSHIP 19 SOUTH, RANGE 30 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM THE JUNCTION OF SHUGART AND GRUBBS, GO  
WEST ON GRUBBS FOR 2.7 MILES TO LEASE ROAD,  
ON LEASE ROAD GO SOUTH WINDING WEST 1.1 MILES  
TO PROPOSED LEASE ROAD.

**CIMAREX ENERGY CO. OF COLORADO**

REF: CRESCENT HALE "1" #2 / WELL PAD TOPO

THE CRESCENT HALE "1" #2 LOCATED 330'

FROM THE NORTH LINE AND 2310' FROM THE WEST LINE OF

SECTION 1, TOWNSHIP 19 SOUTH, RANGE 30 EAST,

N.M.P.M., EDDY COUNTY, NEW MEXICO.

**BASIN SURVEYS** P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 22838

Drawn By: J. SMALL

Date: 05-20-2010

Disk: JMS 22838

Survey Date: 05-20-2010

Sheet 1 of 1 Sheets

Exhibit C-1

**M I D W E S T**  
**HOSE AND SPECIALTY INC.**

<b>INTERNAL HYDROSTATIC TEST REPORT</b>		
Customer: CACTUS		P.O. Number: Rig#101 Asset#M5358
<b>HOSE SPECIFICATIONS</b>		
Type: <b>CHOKE LINE</b>		Length: <b>35'</b>
I.D. <b>4"        INCHES</b>		O.D. <b>8"        INCHES</b>
WORKING PRESSURE  <b>10,000        PSI</b>	TEST PRESSURE  <b>15,000        PSI</b>	BURST PRESSURE  <b>PSI</b>
<b>COUPLINGS</b>		
Type of End Fitting <b>4 1/16 10K FLANGE</b>		
Type of Coupling: <b>SWEDGED</b>		MANUFACTURED BY <b>MIDWEST HOSE &amp; SPECIALTY</b>
<b>PROCEDURE</b>		
<i>Hose assembly pressure tested with water at ambient temperature.</i>		
TIME HELD AT TEST PRESSURE  <b>15            MIN.</b>		ACTUAL BURST PRESSURE:  <b>0        PSI</b>
<b>COMMENTS:</b> s/n#59473    Asset#M5358 Hose is covered with stainless steel armour cover and wrapped with fire resistant vermiculite coated fiberglass insulation rated for 1500 degrees complete with lifting eyes		
Date:  <b>5/19/2010</b>	Tested By:  <b>BOBBY FINK</b>	Approved:  <b>MENDI JACKSON</b>



Cactus Rig 101  
Serial # 59473

# Cactus Rig 101

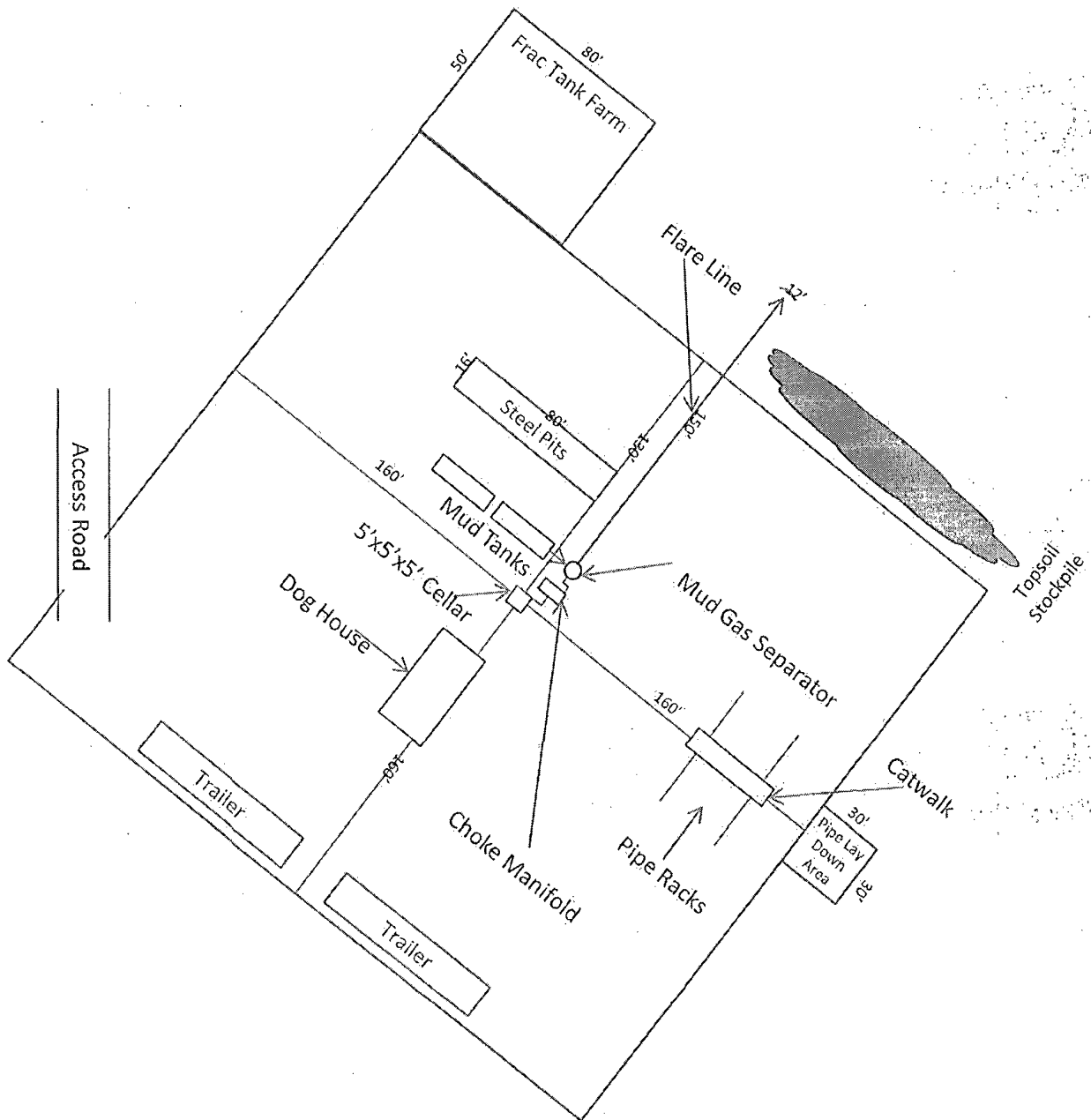


Exhibit D – Rig Diagram  
**Crescent Hale 1 Federal Com No. 2**  
 Cimarex Energy Co. of Colorado  
 SHL 330 FNL & 2310 FWL  
 BHL 330 FSL & 1980 FWL  
 1-19S-30E  
 Eddy County, NM

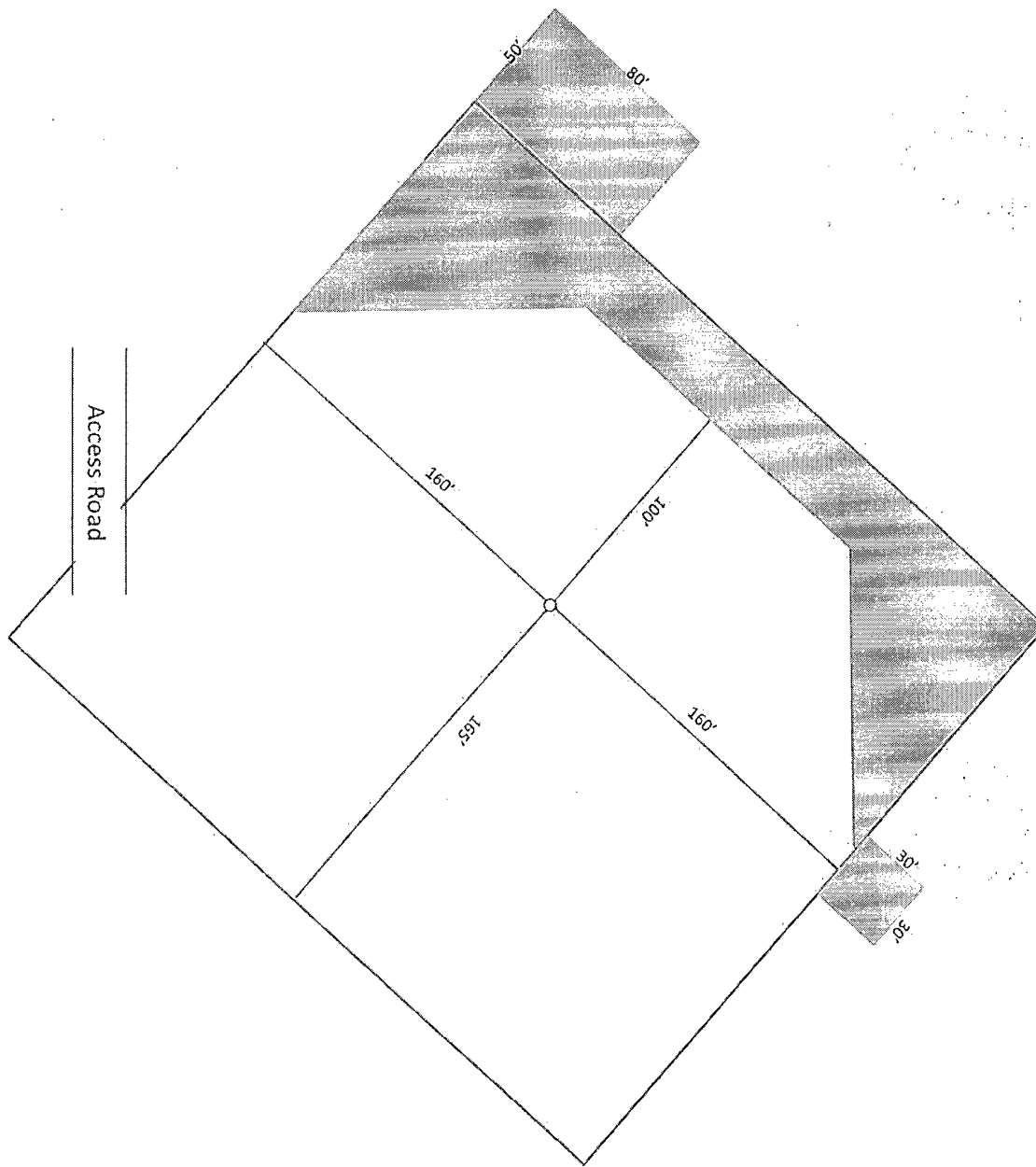
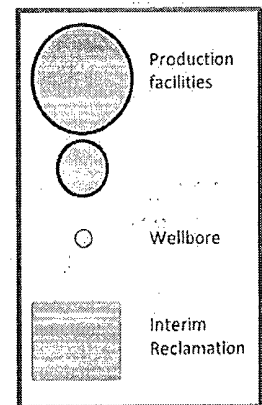


Exhibit D-1  
 Production Facilities Layout Diagram  
**Crescent Hale 1 Federal Com No. 2**  
 Cimarex Energy Co. of Colorado  
 SHL 330 FNL & 2310 FWL  
 BHL 330 FSL & 1980 FWL  
 1-19S-30E  
 Eddy County, NM



1"=50'