## Hydrogen Sulfide Drilling Operations Plan

### Perry 22 Federal Com #3H

Cimarex Energy Co. UL: C, Sec. 22, 20S, 34E Lea Co., NM HOBBS OCD

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# 1 All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:

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- A. Characteristics of H₂S
- B. Physical effects and hazards
- C. Principal and operation of H2S detectors, warning system and briefing areas.
- D. Evacuation procedure, routes and first aid.
- E. Proper use of safety equipment & life support systems
- F. Essential personnel meeting Medical Evaluation criteria will receive additional training on the proper use of 30 minute pressure demand air packs.

#### 2 H₂S Detection and Alarm Systems:

- A. H2S sensors/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud pits in the shale shaker area. Additional H2S detectors may play placed as deemed necessary.
- An audio alarm system will be installed on the derrick floor and in the top doghouse.

### 3 Windsock and/or wind streamers:

- A. Windsock at mudpit area should be high enough to be visible.
- B.
  Windsock on the rig floor and / or top doghouse 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 (H₂S present in dangerous concentration). Only H2S trained and certified personnel admitted to location.

### 5 Well control equipment:

A. See exhibit "E-1"

### 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 <u>Drillstem Testing:</u>

No DSTs r cores are planned at this time.

- 8 Drilling contractor supervisor will be required to be familiar with the effects  $H_2S$  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 seperator will be brought into service along with H<sub>2</sub>S scavengers if necessary.

# H<sub>2</sub>S Contingency Plan

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Cimarex Energy Co.
UL: C, Sec. 22, 20S, 34E
Lea Co., 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	Chemical	Specific	Threshold	Hazardous	Lethal
Name	Formula	Gravity	Limit	Limit	Concentration
Hydrogen Sulfide	H₂S	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).

### H₂S Contingency Plan Emergency Contacts

### Perry 22 Federal Com #3H

Cimarex Energy Co. UL: C, Sec. 22, 20S, 34E Lea Co., NM

Cimarex Energy Co. of Colora	ado	800-969-4789			
Co. Office and After-Hours M	1enu				
Key Personnel	T'al -	Office.	84 a bila		
Name	Title	Office	Mobile		
Larry Seigrist	Drilling Manager	432-620-1934	580-243-8485		
Doug McQuitty	Drilling Superintendent	432-620-1933	806-640-2605		
Scott Lucas	Drilling Superintendent	432-620-1989	432-894-5572		
Conner Cromeens	Construction Foreman		432-270-0313		
Roy Shirley	Construction Superintendent		432-634-2136		
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Ambulance		911	· · · ·		
State Police		575-746-2703			
City Police	A. W.	575-746-2703			
Sheriff's Office		575-746-9888			
Fire Department		575-746-2701	•		
Local Emergency Planning	Committee	575-746-2122			
New Mexico Oil Conservat		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		575-887-6544			
US Bureau of Land Manag	ement	575-887-6544			
Santa Fe					
New Mexico Emergency R	esponse Commission (Santa Fe)	505-476-9600			
New Mexico Emergency R	esponse Commission (Santa Fe) 24 Hrs	505-827-9126			
New Mexico State Emerge	ency Operations Center	505-476-9635			
National					
National Emergency Respo	onse Center (Washington, D.C.)	800-424-8802			
<u>Medical</u>					
Flight for Life - 4000 24th	St.; Lubbock, TX	806-743-9911			
Aerocare - R3, Box 49F; Lu		806-747-8923			
	L Yale Blvd S.E., #D3; Albuquerque, NM	505-842-4433			
	Clark Carr Loop S.E.; Albuquerque, NM	505-842-4949			
<u>Other</u>					
Boots & Coots IWC	•	800-256-9688	or 281-931-8884		
Cudd Pressure Control		432-699-0139	or 432-563-3356		
Halliburton		575-746-2757			
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