Hydrogen Sulfide Drilling Operations Plan
San Jacinto 4 Federal Com #4H
Cimarex Energy Co.
UL: M, Sec. 4-15S-31E
Chavez Co., NM

1 All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:
   A. Characteristics of H_2S
   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 H_2S 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.
   B. 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 (H_2S 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 Drillstem Testing:
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_2S 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_2S scavengers if necessary.

Hydrogen Sulfide Drilling Operations Plan
San Jacinto 4 Federal Com 4
Cimarex Energy Co. of Colorado
UL M - Sec 4-15S-31E
Chaves County, NM

1 All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:
   A. Characteristics of H_2S
   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 H_2S 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.
   B. 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 (H_2S 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 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_2S has on tubular goods and other mechanical equipment.

9 If H_2S 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_2S scavengers if necessary.

H_2S Contingency Plan
San Jacinto 4 Federal Com #4H
Cimarex Energy Co.
UL: M, Sec. 4-15S-31E
Chavez Co., NM

Emergency Procedures

In the event of a release of gas containing H_2S, 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_2S 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_2S, 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_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 there is an ignition of the gas.

Characteristics of H_2S and SO_2

Please see attached International Chemical Safety Cards.

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_2S Contingency Plan
San Jacinto 4 Federal Com 4
Cimarex Energy Co. of Colorado
UL M - Sec 4-15S-31E
Chaves County, NM

Emergency Procedures

In the event of a release of gas containing H_2S, 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_2S 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_2S, 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_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 there is an ignition of the gas.

Characteristics of H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air=1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	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_2S Contingency Plan Emergency Contacts

San Jacinto 4 Federal Com #4H

Cimarex Energy Co.

UL: M, Sec. 4-15S-31E

Chavez Co., NM

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

Key Personnel			
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

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		

H_2S Contingency Plan Emergency Contacts

San Jacinto 4 Federal Com 4

Cimarex Energy Co. of Colorado

UL M - Sec 4-15S-31E

Chaves County, NM

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

Key Personnel

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

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	

San Jacinto 4 Federal Com 4
Cimarex Energy Co. of Colorado
4-15S-31E
SHL 330' FSL & 330' FWL
BHL 330' FSL & 375' FEL
Chaves County, NM

International Chemical Safety Cards

HYDROGEN SULFIDE

ICSC: 016

UNEP

National Institute for Occupational Safety and Health NIOSH

Sulfur hydride
H_2S
Molecular mass: 34.1
(cylinder)
ICSC # 0165
CAS # 7783-06-4
RTECS # MX1225000
UN # 1053
EC # 016-001-00-4
April 10, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Extremely flammable.	NO open flames, NO sparks, and NO smoking.	Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out; in other cases extinguish with water spray, powder, carbon dioxide.
EXPLOSION	Gas/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding) if in liquid state. Do NOT use compressed air for filling, discharging, or handling.	In case of fire: keep cylinder cool by spraying with water.
EXPOSURE		AVOID ALL CONTACT!	IN ALL CASES CONSULT A DOCTOR!
•INHALATION	Headache. Dizziness. Cough. Sore throat. Nausea. Laboured breathing. Unconsciousness. Symptoms may be delayed (see Notes).	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Half-upright position. Artificial respiration may be needed. No mouth-to-mouth artificial respiration. Refer for medical attention.
•SKIN	ON CONTACT WITH LIQUID: FROSTBITE.	Cold-insulating gloves.	ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention.
•EYES	Redness. Pain. Severe deep burns.	Safety goggles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible) then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Remove all ignition sources. Ventilation. Remove gas with fine water spray. Personal protection: gas-tight chemical protection suit including self-contained breathing apparatus.	Fireproof. Separated from strong oxidants. Cool. Keep in a well-ventilated room. Install continous monitoring system with alarm.	F+ symbol T+ symbol N symbol R: 12-26-50 S: 1/2-9-16-36-38-45-61 UN Hazard Class: 2.3 UN Subsidiary Risks: 2.1

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

HYDROGEN SULFIDE

ICSC: 0165

IMPORTANT DATA	**PHYSICAL STATE; APPEARANCE:** COLOURLESS COMPRESSED LIQUEFIED GAS , WITH CHARACTERISTIC ODOUR OF ROTTEN EGGS. **PHYSICAL DANGERS:** The gas is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated. **CHEMICAL DANGERS:** Heating may cause violent combustion or explosion. The substance decomposes on burning producing toxic gases (sulfur oxides). Reacts violently with strong oxidants, causing fire and explosion hazard. Attacks many metals and some plastics. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: 10 ppm as TWA; 15 ppm as STEL; (ACGIH 2004). MAK: 5 ppm, 7.1 mg/m³; Peak limitation category: I(2); Pregnancy risk group: C; (DFG 2006). OSHA PEL†: C 20 ppm 50 ppm 10-minute maximum peak NIOSH REL: C 10 ppm (15 mg/m³) 10-minute NIOSH IDLH: 100 ppm See: 7783064	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation. **INHALATION RISK:** A harmful concentration of this gas in the air will be reached very quickly on loss of containment. **EFFECTS OF SHORT-TERM EXPOSURE:** The substance is irritating to the eyes and the respiratory tract . The substance may cause effects on the central nervous system . Exposure may result in unconsciousness. Exposure may result in death. Inhalation of gas may cause lung oedema (see Notes). The effects may be delayed. Medical observation is indicated. Rapid evaporation of the liquid may cause frostbite. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:**
PHYSICAL PROPERTIES	Boiling point: -60°C Melting point: -85°C Solubility in water, g/100 ml at 20°C: 0.5 Relative vapour density (air = 1): 1.19	Flash point: Flammable Gas Auto-ignition temperature: 260°C Explosive limits, vol% in air: 4.3-46
ENVIRONMENTAL DATA	The substance is very toxic to aquatic organisms.	

NOTES

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. The substance blocks the sense of smell. The odour warning when the exposure limit value is exceeded is insufficient. Card has been partly updated in October 2004: see sections Occupational Exposure Limits, EU classification, Emergency Response. Card has been partly updated in October 2006: see sections Occupational Exposure Limits.

Transport Emergency Card: TEC (R)-20G2TF or 20S1053

NFPA Code: H4; F4; R0;

ADDITIONAL INFORMATION

ICSC: 0165 HYDROGEN SULFIDE

International Chemical Safety Cards

ICSC: 0074

SULPHUR DIOXIDE

UNEP

NIOSH National Institute for Occupational Safety and Health

Sulfurous oxide
Sulfurous anhydride
Sulfur oxide
SO_2
Molecular mass: 64.1
(cylinder)

ICSC # 0074
CAS # 7446-09-5
RTECS # WS4550000
UN # 1079
EC # 016-011-00-9
October 10, 2006 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Heating will cause rise in pressure with risk of bursting.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			In case of fire: cool cylinder by spraying with water but avoid contact of the substance with water. Combat fire from a sheltered position.
EXPOSURE		STRICT HYGIENE!	IN ALL CASES CONSULT A DOCTOR!
INHALATION	Cough. Shortness of breath. Sore throat. Laboured breathing.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
SKIN	ON CONTACT WITH LIQUID: FROSTBITE.	Cold-insulating gloves.	ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention.
EYES	Redness. Pain.	Safety goggles face shield or eye protection in combination with breathing protection.	First rinse with plenty of water (remove contact lenses if easily possible). Refer for medical attention.
INGESTION			

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Personal protection: complete protective clothing including self-contained breathing apparatus. Consult an expert! Ventilation. NEVER direct water jet on liquid.	Ventilation along the floor. Dry.	Note: 5 T symbol R: 23-34 S: 1/2-9-26-36/37/39-45 UN Hazard Class: 2.3 UN Subsidiary Risks: 8 Signal: Warning Cylinder-Skull-Excl mark-Enviro Contains refrigerated gas; may cause cryogenic burns or injury Toxic if inhaled Causes eye irritation Causes damage to respiratory tract if inhaled Causes damage to respiratory tract through prolonged or repeated exposure if inhaled Harmful to aquatic life

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

SULPHUR DIOXIDE

ICSC: 0074

TYPE DATA	PHYSICAL STATE; APPEARANCE: COLOURLESS GAS OR COMPRESSED LIQUEFIED GAS , WITH PUNGENT ODOUR. PHYSICAL DANGERS: The gas is heavier than air. CHEMICAL DANGERS: The solution in water is a medium strong acid. Reacts violently with sodium hydride. Attacks plastic . OCCUPATIONAL EXPOSURE LIMITS: TLV: 2 ppm as TWA, 5 ppm as STEL; A4 (not classifiable as a human carcinogen); (ACGIH 2006). MAK: 0.5 ppm, 1.3 mg/m³; Peak limitation category: I(1); Pregnancy risk group: C; (DFG 2006). OSHA PEL†: TWA 5 ppm (13 mg/m³) NIOSH REL: TWA 2 ppm (5 mg/m³) ST 5 ppm (13 mg/m³) NIOSH IDLH: 100 ppm See: 7446095	ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation. INHALATION RISK: A harmful concentration of this gas in the air will be reached very quickly on loss of containment. EFFECTS OF SHORT-TERM EXPOSURE: Rapid evaporation of the liquid may cause frostbite. The substance is irritating to the eyes and the respiratory tract . Inhalation may cause asthma-like reactions. EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: Repeated or prolonged inhalation exposure may cause asthma.
PHYSICAL PROPERTIES	Boiling point: -10°C Melting point: -75.5°C Relative density (water = 1): 1.4 at -10°C (liquid)	Solubility in water, ml/100 ml at 25°C: 8.5 Vapour pressure, kPa at 20°C: 330 Relative vapour density (air = 1): 2.25
ENVIRONMENTAL DATA	The substance is harmful to aquatic organisms.	

NOTES

Depending on the degree of exposure, periodic medical examination is suggested. The symptoms of asthma often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Anyone who has shown symptoms of asthma due to this substance should avoid all further contact. Do NOT spray water on leaking cylinder (to prevent corrosion of cylinder). Turn leaking cylinder with the leak up to prevent escape of gas in liquid state.

Transport Emergency Card: TEC (R)-20S1079 or 20G2TC
NFPA Code: H 3; F 0; R 0

ADDITIONAL INFORMATION

ICSC: 0074 SULPHUR DIOXIDE