

Devon Energy Center 333 West Sheridan Avenue Oklahoma City, Oklahoma 73102-5015

# Hydrogen Sulfide (H<sub>2</sub>S) Contingency Plan

For

Fighting Okra 18-19 Fed 41H

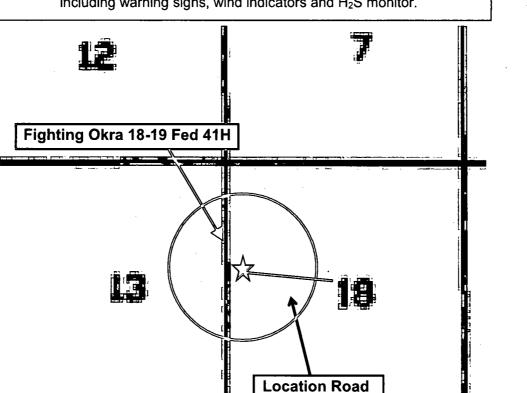
Sec-18 T-26S R-34E 2280 FNL & 330' FWL LAT. = 32.0444267' N (NAD83) LONG = 103.5164711' W

**Lea County NM** 

HOBBS OCD NOV 27 2017 RECEIVED

# Fighting Okra 18-19 Fed 41H

This is an open drilling site. H<sub>2</sub>S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H<sub>2</sub>S, including warning signs, wind indicators and H<sub>2</sub>S monitor.



Assumed 100 ppm № 25 = 3000' (ഉപ്പോട ച് ഉട്ടപ്പാട) 100 ppm H2S concentration shall trigger activation of this plan.

#### **Escape**

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road. Crews should then block the entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. There are no homes or buildings in or near the ROE.

# **Assumed 100 ppm ROE = 3000'**

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

# **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
  - o Detection of H<sub>2</sub>S, and
  - o Measures for protection against the gas,
  - o 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**

Devon Energy Corp. 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. The following call list of essential and potential responders has been prepared for use during a release. Devon Energy Corp. Company response must be in coordination with

the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER)

# **Hydrogen Sulfide Drilling Operation Plan**

# I. HYDROGEN SULFIDE (H2S) TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

- 1. The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S)
- 2. The proper use and maintenance of personal protective equipment and life support systems.
- 3. The proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
- 4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

- 1. The effects of H<sub>2</sub>S metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
- 2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
- 3. The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H<sub>2</sub>S zone (within 3 days or 500 feet) and weekly H<sub>2</sub>S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan.

#### II. HYDROGEN SULFIDE TRAINING

Note: All  $H_2S$  safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain  $H_2S$ .

## 1. Well Control Equipment

- A. Flare line
- B. Choke manifold Remotely Operated
- C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit
- D. Auxiliary equipment may include if applicable: annular preventer and rotating head.
- E. Mud/Gas Separator

# 2. Protective equipment for essential personnel:

30-minute SCBA units located at briefing areas, as indicated on well site diagram, with one escape unit available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.

# 3. H<sub>2</sub>S detection and monitoring equipment:

Portable H<sub>2</sub>S monitors positioned on location for best coverage and response. These units have warning lights which activate when H<sub>2</sub>S levels reach 10 ppm and audible sirens which activate at 10 ppm. Sensor locations:

- Bell nipple
- Shale shaker
- Trip tank

- Suction pit
- Rig floor
- Cellar

- Choke manifold
- Living Quarters (usually the company man's trailer stairs.)

# Visual warning systems:

- A. Wind direction indicators as shown on well site diagram
- B. Caution/ Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

# 4. Mud program:

The mud program has been designed to minimize the volume of H<sub>2</sub>S circulated to surface. Proper mud weight, safe drilling practices and the use of H<sub>2</sub>S scavengers will minimize hazards when penetrating H<sub>2</sub>S bearing zones.

# 5. Metallurgy:

- A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H<sub>2</sub>S trim.
- B. All elastomers used for packing and seals shall be H<sub>2</sub>S trim.

#### 6. Communication:

- A. Company personnel have/use cellular telephones in the field.
- B. Land line (telephone) communications at Office

# 7. Well testing:

A. There will be no drill stem testing.

Drilling Su	pervisor – Basin – Mark Kramer	405-823-4796				
	ry Matthews - Day: 575-748-0161 Cell:	575-748-5234				
EHS Profe	405-541-284					
	0.11111					
Agency	Call List					
<u>Lea</u>	Hobbs					
County	Lea County Communication Authority	393-398 <sup>-</sup>				
<u>(575)</u>	State Police	392-5588				
	City Police	397-926				
	Sheriff's Office	393-251				
	Ambulance		91			
	Fire Department	397-9308				
	LEPC (Local Emergency Planning Com	393-2870				
	NMOCD	393-616 <sup>2</sup>				
	US Bureau of Land Management	393-3612				
	Dureau of Earla Mariagement	333-3017				
Eddy	Carlsbad					
County	State Police	885-313				
(575) Give	City Police	885-211				
	Sheriff's Office	887-755				
	Ambulance	91				
	Fire Department	885-312				
	LEPC (Local Emergency Planning Com	887-379				
	US Bureau of Land Management	887-654				
	NM Emergency Response Commission	(505) 476-960				
	24 HR	(505) 827-9120				
	National Emergency Response Center	(800) 424-880				
	National Pollution Control Center: Direct	(703) 872-600				
	For Oil Spills	(800) 280-7118				
	Emergency Services					
	Wild Well Control		(281) 784-470			
	Cudd Pressure Control	(915) 699-	(915) 563-3350			
	Halliburton	0139	(575) 746-275			
	B. J. Services	(575) 746-356				
	Native Air – Emergency Helicopter – Ho	(575) 392-642				
GPS position:	Flight For Life - Lubbock, TX	(806) 743-991				
	Aerocare - Lubbock, TX	(806) 743-991				
	Med Flight Air Amb - Albuquerque, NM					
		(575) 842-443				
	Lifeguard Air Med Svc. Albuquerque, N	(800) 222-122				
	Poison Control (24/7)	(575) 272-311				
	Oil & Gas Pipeline 24 Hour Service  NOAA – Website - www.nhc.noaa.gov	(800) 364-4366				

Prepared in conjunction with Dave Small

