



**MEWBOURNE**  
**OIL COMPANY**

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

### **North Wilson Deep Unit Battery**

**Sec-S17 T-21E R-35E**  
**2360' FNL & 1511' FWL**  
**LAT. = 32.480688' N (NAD 83)**  
**LONG. = 103.39298' W**  
**Lea County, NM**

**Mewbourne Oil Company**  
**P.O. Box 5270**  
**Hobbs, New Mexico 88240**

## Battery Site Diagram



● H2S Warning Signs

● Wind Socks

● H2S Permanent Automated Sensor

● Air Pack & Rescue Equipment

## Battery Escape Routes



### Escape

Person(s) will escape upwind and crosswind of potential gas exposure in the event of an uncontrolled release of gas. Escape can be facilitated from the location entrance road indicated above. Once outside the ROE, Person(s) should enforce a blockade to discourage anyone from entering into the ROE. **Affected Roads include – NM 176**

ROE Determination here (4,595' @ 100ppm & 2,100' @ 500ppm)



## 100 PPM ROE



ROE Determination here 4,595' @ 100ppm

Affected Public Areas – None

**Affected Roads – NM 176**



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## 500 PPM ROE



ROE Determination here 2,100' @ 500ppm  
Affected Public Areas – None  
**Affected Roads – NM 176**



# Immediate Action Plan

**\*\*100 ppm H2S concentration shall trigger activation of this plan.\*\***

In the event 100 ppm H2S is released at this location, immediate activation of this plan will commence. The most probable scenario in which 100 ppm or greater concentration of H2S is released from this location would be due to equipment failure. In this scenario, equipment such as separators, heaters, or facility flowlines would fail to contain the Well Stream components. The sudden failure of the equipment and associated pressure and temperature drop of the Well Stream could rapidly release H2S entrapped in the Well Stream into the atmosphere. Immediate detection of such a failure would be captured by the permanent H2S sensors on location. These sensors would trigger an immediate facility ESD (Emergency Shut Down) and associated Well Head ESD for each Well entering the facility. These ESD's would limit the volume of H2S being released to the maximum extent possible. In the event an ESD device fails, prolonged concentration or increased concentration of H2S could exist until the ESD and failed equipment components have been repaired.

## Roles and Responsibilities

In the event of a release of gas containing H2S;

- **MOC employed first responder(s) must:**
  - Move away from the hydrogen sulfide source and get out of the affected area.
  - Don proper personal breathing equipment.
  - Isolate the area and prevent entry by other persons into the 100 ppm ROE.
    - **Close NM 176 East/West Traffic**
      - **Roadblock Locations are on Page 16 of this plan.**
  - Notify Supervisor(s) of the release and Roadblock Completion.
  - Alert MOC Team members and other 3<sup>rd</sup> Party affected personnel.
  - Assist personnel in distress, without putting themselves in distress.
  - Proceed to the designated emergency muster point.
- **MOC Supervisor(s) must:**
  - Account for all MOC personnel and 3<sup>rd</sup> Party personnel.
  - Identify any potential missing personnel in the area of exposure.
  - Notify MOC's H2S Plan Point of Contact.
    - **Brad Horton - (575) 393-5905**
  - Update MOC's H2S Plan Point of Contact regularly as new information is received.
- **MOC's H2S Plan Point of Contact**
  - Contact NM Local and State authorities for mass notification of the H2S release to the public and to shut down the affected roads.
  - Initiate evacuation operations as applicable.
  - Coordinate with Local and State authorities in addition to MOC personnel on how to effectively contain the release.
  - Monitor and supervise all aspects of the containment operation and H2S Contingency Plan until the area is deemed Safe for Re-entry.

### Emergency Procedures

Prior to attempting to contain the release, all responder(s) must:

- Coordinate with MOC's POC and obtain permission to enter the affected area.
- Be equipped with H2S monitors and air packs in order to control the release.
- Use the "buddy system" to ensure no injuries occur during the response.
- Have received training in:
  - Detection of H2S.
  - Measures for protection against the H2S Gas.
  - Equipment used for H2S protection and emergency response.

After successful repair or containment of the release. MOC will utilize the permanent H2S Sensors to monitor ambient air. Once Sensors indicate H2S levels have dropped below 10 ppm, MOC HSE representatives will use handheld Multi-Gas Detectors and perform a more detailed examination of the ambient air in the area of exposure. After 3 consecutive Multi-Gas examinations of 10 ppm or less the location will be determined safe for re-entry.

### Emergency Response Muster Point

Upon activation of this plan. MOC's Bell State 16 Com #1 Battery will be the primary muster point and on-site coordination headquarters for all personnel involved in containing the release.

#### GPS

Bell State 16 Com #1 – **32.4737410, -103.3750589**



**Ignition of Gas Source**

Should control of the source 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.

**ESD (Emergency Shutdown Procedures)**

ESD devices will be installed on each Well Head for each Well associated with this Battery. These ESD devices will be automated so that if H<sub>2</sub>S Concentration **exceeds 50 ppm** at any sensor at this location a Full Facility ESD and an ESD for each Well Head will occur. A Full Facility ESD will constitute powering down all equipment and setting automated valves to a "Closed" State to isolate the potential release to the maximum extent possible. In addition, Well Heads will have Master and Wing Valves located on the Christmas Tree manually shut as soon as MOC first responders arrive, and it is deemed safe to do so.

**Contacting Authorities**

Mewbourne 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 call list of essential and potential responders, on page 15 of this plan, has been prepared for use during a release.** MOC response must be in coordination with the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER). Additionally, pursuant to 19.15.11.16 NMAC, MOC will submit a full report of the incident to the NMOCD using Form C-141 no later than 15 days following the release.

**Plan Reviews & Amendments**

MOC will conduct testing monthly to determine the concentration of H<sub>2</sub>S present at this location. New ROEs will be calculated, and the H<sub>2</sub>S Contingency Plan will be amended as the ROE changes. Once ROEs decrease to the extent the H<sub>2</sub>S Contingency Plan is no longer required by 19.15.11 NMAC, MOC will conduct yearly testing to monitor H<sub>2</sub>S Concentration levels. During each testing period MOC will also review the subjects in this plan for material changes and make the appropriate amendments. Additionally, any new provisions added or amendments to the plan supplied by NMOCD will be made effective as they are received by MOC.

**Annual Communication with Local Authorities**

On an annual basis, MOC will prepare this H<sub>2</sub>S Contingency Plan and file it with the appropriate local authorities' emergency planning committee and the state emergency response commission. MOC will also review and provide/update, the name, address and telephone number of the MOC point of contact at this time.



## Hazards and Characteristics of H2S and SO2

Hydrogen Sulfide Gas (H2S) is a potentially lethal gas that can cause rapid unconsciousness, and death in high enough concentrations. H2S is a colorless gas and is only able to be smelt in low concentrations (often smelling like Rotten Eggs). At higher concentrations H2S paralyzes the olfactory nerve and an individual is no longer able to smell the gas. In addition, H2S is highly flammable and explosive, with an explosive range of 4.3 to 45 percent. The byproduct of burning H2S gas is Sulfur Dioxide (SO2) which is another gas with deadly characteristics.

SO2 is another potentially lethal gas that can cause death in high enough concentrations. Like H2S, SO2 is a colorless gas. It also targets the respiratory system and can cause nose, throat, and lung irritation. SO2 reacts violently with Oxidizing Agents and contact with oxidizing agents should be avoided. In the presence of moisture or water SO2 can turn into Sulfuric Acid. Caution should be used when attempting to extinguish SO2 with water.

**Both H2S and SO2 are considered Poisonous Gases!!!**

Characteristics of H2S and SO2					
Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H2S	1.189 (Air=1)	10 ppm	100 ppm/hr	500 ppm
Sulfur Dioxide	SO2	2.21 (Air=1)	2 ppm	100 ppm	1,000 ppm

H2S Concentration (ppm)	Symptoms/Effects
0.01-5	Odor threshold (when rotten egg smell is first noticeable to some).
5-10	Prolonged exposure may cause nausea, tearing of the eyes, headaches or loss of sleep.
10-100	Possible fatigue, loss of appetite, headache, irritability, poor memory, dizziness.
100-500	Coughing, eye irritation, Loss of smell (olfactory fatigue or paralysis). Death may occur after 48 hours.
500-1000	Staggering, collapse in 5 minutes. Death after 30-60 minutes.
1000-2000	Instant death

## H2S Drilling, Completion, Workover, and Well Service 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, completion, workover, or well service operations on any Well associated with this Tank Battery:

1. The hazards and characteristics of hydrogen sulfide (H2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H2S 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 H2S 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 H2S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. Training records will be retained for a minimum of 5 years after the date of completion and made available to NM OCD for inspection.

### II. HYDROGEN SULFIDE OPERATIONAL REQUIREMENTS

Note: All H2S 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 H2S.

- A. 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

- B. Protective equipment for essential personnel:  
30-minute SCBA units located at briefing areas, as indicated on well site diagram, with escape units available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.
- C. H2S detection and monitoring equipment:  
Portable H2S monitors positioned on location for best coverage and response. These units have warning lights which activate when H2S levels reach 10 ppm and audible sirens which activate at 15 ppm. Sensor locations:
- Bell nipple
  - Suction pit
  - Choke manifold
  - Shale shaker
  - Rig floor
  - Living Quarters (usually the company man's trailer stairs.)
  - Trip tank
  - Cellar

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.

D. Mud program:

The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

E. Metallurgy:

- a. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H2S trim.
- b. All elastomers used for packing and seals shall be H2S trim.

F. Communication:

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

G. Well Testing:



- a. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H<sub>2</sub>S environment will use the closed chamber method of testing.
- b. There will be no drill stem testing.

## H2S Production Operation Plan

### 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 production operations on any Well associated with this Tank Battery and the Tank Battery itself:

1. The hazards and characteristics of hydrogen sulfide (H2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H2S 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:

5. The effects of H2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
6. Corrective action and shut-in procedures when producing a well and blowout prevention and well control procedures.
7. The contents and requirements of the H2S Production Operation Plan and Public Protection Plan.

There will be an initial training session prior to any field work to be completed during Employee Onboarding. Initial training will also be required for any current employees currently working in for transferred into a known H2S Area prior to field work in that Area. The initial training session shall include a review of the site specific H2S Production Operation Plan and the Public Protection Plan.

There will be annual training to refresh all personnel, whether regularly assigned, contracted, or employed on an unscheduled basis. Personnel will receive training from a qualified instructor in the areas listed above and complete a written H2S worksheet. Attendance will be tracked via worksheet completion.

Semiannually, on-site drills and release simulations will be conducted for all personnel, whether regularly assigned, contracted, or employed on an unscheduled basis at this location. Drills and simulations will include training in the responsibilities and duties of essential personnel. Attendance will be tracked via a sign in sheet.

Training records will be retained for a minimum of 5 years after the date of completion and made available to NM OCD for inspection.

## HYDROGEN SULFIDE OPERATIONAL REQUIREMENTS

Note: All H2S safety equipment and systems will be installed, tested, and operational before initial well production.

- A. Well Control Equipment
  - a. ESD Valve (Automated)
  - b. Manual Valves
- B. Protective equipment for essential personnel:
  - Battery will be supplied with rescue packs, supplied air vessels, and escape packs.
  - 30-minute SCBA units located at briefing areas, as indicated on well site diagram.
    - As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.
  - MOC personnel that regularly visit this location will have supplied air vessels, rescue packs, and escape packs on their MOC provided company vehicle.
- C. H2S detection and monitoring equipment:

Permanent H2S monitors positioned on location for best coverage and response. These units have warning lights which activate when H2S levels reach 10 ppm and audible sirens which activate at 15 ppm. Sensor locations:

  - Tanks
  - Heaters
  - Separators
  - Wellhead

Additionally, personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will wear personal H2S monitors while on location.
- D. 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. Signs shall contain the words "Poison Gas". Bilingual signs will be used when appropriate.
- E. Inspection/Calibration of Safety Equipment
  - a. Monthly
    - i. Personal H2S monitor
    - ii. SCBA (& before each use)
    - iii. Rescue Packs/Escape Packs
    - iv. Supplied Air Vessels
  - b. Every 3 Months
    - i. Permanent H2S Sensors on location



# Mewbourne Oil Company Contact List

## Hobbs

Superintendent- Robin Terrell

HSE Coordinator- Brad Horton (MOC POC)

## Cellular

(575) 390-4816

(575) 393-5905

## Agency Call List

### Hobbs (Lea County)

State Police

(575) 392-5588

City Police

(575) 397-9265

Sherriff's Office

(575) 393-2515

Ambulance / Fire Department

(575) 397-9308

LEPC (Local Emergency Planning Committee)

(575) 393-2870

Lea Regional Hospital

(575) 392-6581

### Carlsbad (Eddy County)

State Police

(575) 885-3137

City Police

(575) 885-2111

Sherriff's Office

(575) 887-7551

Ambulance / Fire Department

(575) 885-2111

LEPC (Local Emergency Planning Committee)

(575) 887-3798

Carlsbad Medical Center

(575) 887-4100

### Government Agencies

New Mexico Oil Conservation Division (Santa Fe)

(575) 476-3441

New Mexico Oil Conservation Division (Hobbs)

(575) 241-7063

US Bureau of Land Management (BLM)

(575) 887-6544

Air Quality Bureau, Santa Fe, NM

(575) 827-1494

NM Emergency Response Commission (Santa Fe)

(505) 476-9600

24HR #

(505) 827-9126

National Emergency Response Center (DC)

(800) 424-8802

### Emergency Services

Wild Well Control

(281) 784-4700

Cudd Pressure Control

(915) 563-3356

Halliburton

(575) 746-2757

Native Air – Emergency Helicopter – Hobbs

(575) 392-6429

Flight For Life – Lubbock, TX

(806) 743-9911

Aerocare – Lubbock, TX

(575) 842-4433

## Roadblock Locations



**NM 176 Road Block East** – Set up road block 6,150' East of North Wilson Battery Lease Road Entrance near the Goodnight Midstream Llano Facility Entrance to prevent travel of West Bound Traffic on NM 176. **GPS 32.4747307, -103.3754173**

**NM 176 Road Block East** - Set up road block 5,000' West of the North Wilson Battery Lease Road Entrance near Sims Road to prevent travel of East Bound Traffic on NM 176. **GPS 32.4827529, -103.4103091**

## Amendment Record

Revision Date	Authority	Custodian	Revision Details
09/29/2022	HSE	Environmental Specialist	<ul style="list-style-type: none"><li>• Updates and revisions to NM standards</li></ul>
10/30/2024	HSE	Engineer	<ul style="list-style-type: none"><li>• Updates and revisions per NMOCD recommendations after failed submission</li></ul>





**Appendix****ROE Calculation****Parameters and Equations:**

100ppm ROE calculation (as per 19 NMAC 15.11.7.K.1):

$$X_{100\text{ppm}} = (1.589 * C_{\text{H}_2\text{S}} * Q)^{0.6258}$$

500ppm ROE calculation (as per 19 NMAC 15.11.7.K.2):

$$X_{500\text{ppm}} = (0.4546 * C_{\text{H}_2\text{S}} * Q)^{0.6258}$$

X = radius of exposure (ft)

 $C_{\text{H}_2\text{S}}$  = decimal equivalent of the mole or volume fraction of  $\text{H}_2\text{S}$  present

Q = Daily Facility throughput (SCFD)

**Calculation Date: 10/1/2024**

100ppm Calculation:

$$X_{100\text{ppm}} = (1.589 * .05055 * 8857000)^{0.6258}$$

$$X = 4,595 \text{ feet}$$

500ppm Calculation:

$$X_{500\text{ppm}} = (0.4546 * .05055 * 8857000)^{0.6258}$$

$$X = 2,100 \text{ feet}$$

State of New Mexico  
Energy, Minerals and Natural Resources Department

**Michelle Lujan-Grisham**  
Governor

**Melanie A. Kenderdine**  
Cabinet Secretary-Designate

**Benjamin Shelton**  
Deputy Secretary (Acting)

**Gerasimos Razatos**, Division Director (Acting)  
Oil Conservation Division



**BY ELECTRONIC MAIL**

November 21, 2024

Mr. Kyle Bolyard  
Mewbourne Oil Company  
PO Box 5270  
Hobbs, NM 88240  
[kbolyard@mewbourne.com](mailto:kbolyard@mewbourne.com)

**Re: Mewbourne Oil Company - Notice of an Administratively Complete Hydrogen Sulfide Contingency Plan, North Wilson Deep Unit Battery, Lea County, New Mexico**

Dear Mr. Bolyard:

The New Mexico Energy, Minerals and Natural Resource Department's Oil Conservation Division (OCD) has reviewed the amended Hydrogen Sulfide (H<sub>2</sub>S) Contingency Plan submitted to the OCD on November 13, 2024, by Mewbourne Oil Company (Mewbourne) for the North Wilson Deep Unit Battery located in Lea County, New Mexico. The submitted revised H<sub>2</sub>S Contingency Plan included all content components as required by 19.15.11 NMAC; therefore, the OCD has determined that the H<sub>2</sub>S Contingency Plan is complete.

Please be advised that OCD's acceptance of this plan does not relieve Mewbourne of responsibility should its operations fail to adequately detect, investigate, and/or undertake corrective actions to prevent or stop a hydrogen sulfide release. In addition, OCD's acceptance does not relieve Mewbourne of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Please do not hesitate to contact me at (505) 709-5149 or via email should you have any questions.

Respectfully,

Joel Stone  
Environmental Scientist and Specialist  
[joel.stone@emnrd.nm.gov](mailto:joel.stone@emnrd.nm.gov)

Sante Fe Main Office  
Phone: (505) 476-3441

General Information  
Phone: (505) 629-6116

Online Phone Directory  
<https://www.emnrd.nm.gov/ocd/contact-us>

State of New Mexico  
Energy, Minerals and Natural Resources  
Oil Conservation Division  
1220 S. St Francis Dr.  
Santa Fe, NM 87505

CONDITIONS

Action 402859

CONDITIONS

Operator: MEWBOURNE OIL CO P.O. Box 5270 Hobbs, NM 88241	OGRID: 14744
	Action Number: 402859
	Action Type: [UF-H2S] H2S Contingency Plan (H2S Plan)

CONDITIONS

Created By	Condition	Condition Date
joel.stone	None	11/21/2024