H2S DRILLING OPERATIONS PLAN

NORTH HOBBS UNIT
GRAYBURG/SAN ANDRES

Lea County, New Mexico

12 Well Package

INTRODUCTION

Oxy Permian LTD. plans to drill and complete 12 San Andres wells in the North Hobbs Unit in Lea County, New Mexico in close proximity to Hobbs. Oxy Permian operates offset wells producing out of the San Andres formation, and a concentration of 45,000 to 65,000-ppm H_2S is typical for production wells. The amounts of H_2S and gas encountered during drilling operations are expected to be significantly lower.

TRAINING

All personnel shall receive proper training in H_2S drilling and contingency procedures in accordance with the general training requirements outlined in the American Petroleum Institute's (API) Recommended Practice (RP) 49 (April 15, 1987 or subsequent editions) for Safe Drilling of Wells Containing Hydrogen Sulfide, Section 2. All training will be completed before any drilling operations commence. In addition to the requirements of API RP-49, a minimum of an initial training session and weekly H_2S and well control drills for all personnel in each working crew shall be conducted. The initial training session for each well shall include a review of the site specific H_2S Drilling Operations Plan. All service company personnel will be required to have proper H_2S training and be briefed on the site-specific plan before commencing operations. All training and drills will be recorded on the driller's log. One job title will be identified to all on-site personnel as the person primarily responsible for on-site safety training.

WELL SITE DIAGRAMS — posted at the start of each well

Each well site diagram will contain the following information:

- Drill rig orientation
- Prevailing wind direction
- Location of all briefing areas
- Location of access road(s)
- Location of flare line(s) and pit(s)
- Location of caution and/or danger signs
- Location of wind direction indicators

WELL CONTROL EQUIPMENT

Due to the shallow depth of the wells and that no abnormal pressures are expected during drilling operations, a 3M (3000 PSI) BOPE system will be installed and tested prior to drilling out from under surface casing. The BOPE will be tested only to 1100 psi, since this is approximately the maximum pressure that the surface casing shoe can tolerate without fracturing the formation. The BOPE system will include a hydraulic accumulator along with the following equipment:

- Two sets of rams (blind and pipe rams, blind rams on top)
- Kill line(2-inch minimum)
- 1 kill line valve (2 inch minimum)
- 1 choke line valve
- 1 remote-activated choke
- Upper kelly cock valve with handle available
- Safety valve and subs to fit all drill strings in use
- Pressure gauge on choke manifold
- 2 inch minimum choke line
- Annular
- Flare line and means of ignition
- Rotating head
- Mud-gas separator

Pipe rams, blind rams, and annular will be functionally tested before drilling the production hole.

PROTECTIVE EQUIPMENT FOR ESSENTIAL PERSONNEL

There shall be a safety trailer, located on location, with 300-cubic-foot cylinders located inside and approximately 8 hours worth of grade "D" breathing air available. Hoses shall be plumbed to the rig floor to allow for emergency control of the well.

Stored inside the trailer shall be 4 (SAR) workline units with egress capability to be used under IDLH conditions.

There shall be 2-SCBA, designed to last approximately 30 minutes duration for use in rescue or emergency conditions located at briefing areas that are at 90° opposing sides of location.

These will be stored in hard plastic cases and sealed against weather conditions. Also 2- SCBA designated as backup shall be stored in the safety trailer making a total of four (4).

There will be 5 emergency escape units with approximately 5 minutes duration stored on the rig floor in the top dog house ready for emergency evacuation purposes. One unit will be placed with the derrick man during pipe tripping operations.

- All units shall be maintained and inspected monthly and after each use. Periodic rig checks shall include visual inspection of all breathing apparatus to insure emergency readiness.
- Communication while wearing breathing apparatus can be performed by normal speech through the speaking diaphragm, but if the noise level succeeds in "drowning out" speech, then communication shall alternately be performed through hand signals agreed upon.

H_2S DETECTION AND MONITORING EQUIPMENT

A stationary H_2S monitor shall be stationed in the top dog house (the recognized communications center) with remote audible and visual alarm located on the rig floor high enough up so as not to obscure being seen or heard readily. There shall be three H_2S detecting sensors (1) located on the rig floor, (2) located at the bell nipple and (3) located at the flow line/steel pits (where applicable) that are calibrated with the monitor prior to assembly at the rig and calibrated/checked weekly.

Sensors for the stationary monitor shall be either electro-chemical (EC) cell and/or Metal oxide (MOS). Sensors will be capable of sensing a minimum concentration of 10 ppm H2S in ambient air.

A portable tri-range monitor (H_2S, O_2, LEL) (EC) and a portable SO2 (BC) monitor shall be located in the safety trailer.

The detection system will be tested in accordance with manufacturer's instructions. All tests will be recorded on the driller's log.

VISUAL WARNING SYSTEMS

Wind direction indicators will be visible at all times, a windsock will be attached to the rig floor, high enough to be seen from anyplace on location. In addition streamers will be attached to all guide wires at eye level.

Warning sign(s) will be placed at each entrance to the location at a minimum of 200' and a maximum of 500' from the well site. Each sign will read DANGER — POISON GAS — HYDROGEN SULFIDE, and employ a three flag (green = safe, yellow = caution, red = danger) warning system to alert personnel to the hazard level on location. A red flag will be displayed when H_2S in excess of 10 ppm is detected at any sensing point. Signs will be either red/black/white or yellow with black lettering.

MUD PROGRAM

The mud system will utilize a conventional pit system, solids control will be maintained by circulating the reserve pits. The mud system will be fresh water/brine water with additions of Lime and Caustic soda to maintain a pH level of 10 or greater. A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH. A sufficient quantity of Zinc Lignosulfonate H_2S scavenger will be maintained on location to neutralize any H_2S that may be encountered. Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the wellsite at all times.

METALLURGY

Metallurgical Equipment. All equipment that has the potential to be exposed to H_2S shall be suitable for H_2S service. Equipment which shall meet these metallurgical standards include the drill string, casing, wellhead, blowout preventer assembly, casing head and spool, rotating head, kill lines, choke, choke manifold and lines, valves, mud-gas separators, drill-stem test tools, test units, tubing, flanges, and other related equipment. To minimize stress corrosion cracking and/or H_2S embrittlement, the equipment shall be constructed of material whose metallurgical properties are chosen with consideration for both an H_2S working environment and the anticipated stress. The metallurgical properties of the materials used shall conform to the current National Association of Corrosion Engineers (NACE) Standard MR 0175-90, Material Requirement, Sulfide Stress Cracking Resistant Metallic Material for Oil Field Equipment.

A drill fluid treatment and corrosion inhibitor program as per API's RP-49,§ 6.2.2. will be in use.

MEANS OF COMMUNICATION FROM THE WELL SITE.

A telephone will be on location at all times, this will be either cellular, radio, or satellite connection. Key Rig #11 (806) 891-6361.

PLANS FOR WELL TESTING

Testing shall be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately operate the test equipment. No drill stem testing will be conducted on any of these wells. The well test will be conducted at a later date through the completed surface facilities.

EMERGENCY PROCEDURES

In the event of detection of H_2S the following procedures will be in use. (Excerpt from the Oxy DHS Reaction Plan)

Emergency Procedures

Emergency Reaction Steps

	Drilling	Tripping
All Personnel	1. On alarm don escape unit and report to upwind briefing area.	Same
	2. Check status of personnel (buddy system)	Same
	3. Secure breathing equipment and shut well in.	Same
	4. Await orders from Supervisor	Same
Oxy Representative	1. Report to upwind briefing area.	Same
	2. Don breathing equipment and return to point of release with Pusher or Driller (buddy system)	Same
	3. Determine H_2S concentration.	Same
	4. Assess situation and take control measures.	Same
Tool Pusher	1. Report to upwind briefing area.	Same
	2. Don breathing equipment and return to point of release with Oxy Rep or driller. (buddy system)	Same
	3. Determine H_2S concentration	Same
	4. Assess situation and take control measures.	Same

Driller	1. Don escape unit.	Same
	2. Check monitor for point of release.	Same
	3. Report to briefing area.	Same
	4. Check status of personnel: (in an attempted rescue use buddy system)	Same
	5. Assign least essential person to notify Oxy Rep and Tool Pusher by quickest means in the case of their absence.	Same
	6. Assume the responsibilities of the Oxy Rep and Tool Pusher until they arrive should they be absent.	Same

Emergency Reaction Steps

	Drilling	Tripping
Derrick Man Floor Man #1 Floor Man #2	1. Remain in briefing area until instructed by supervisor.	Same
Mud Engineer	1. Report to briefing area.	Same
	2. When instructed, begin check of mud for Ph and H_2S levels. (Garnett Gas Train)	Same
Safety Personnel	1. Mask up and check status of same for all personnel and secure operations as instructed by Oxy Rep.	Same

Taking A Kick

When taking a kick during an H_2S emergency, all personnel will follow standard BOP Procedures after reporting to briefing area and masking up.

Open Hole Logging

All unnecessary personnel will leave the drilling floor. Oxy Representative and Safety Personnel should monitor condition, advise status, and determine the need for use of emergency equipment.

Running Casing or Plugging

Follow the same procedures as above. Oxy Representative and Safety Personnel should determine if all personnel have access to protective equipment.

Notes:

- Warning System Response. When H_2S is detected in excess of 10 ppm at any detection point, all non-essential personnel shall be moved to a safe area and essential personnel (i.e., those necessary to maintain control of the well) shall wear pressure-demand type protective breathing apparatus. Once accomplished, operations may proceed.
- Anytime a SCBA is used, a minimum of two people shall don equipment and a "buddy system" will be used, under no circumstances should any rescue or emergency operations be undertaken without backup personnel.

EMERGENCY PHONE NUMBERS

	FIRE	AMBULANCE	POLICE	SHERIFF	STATE POLICE	HOSPITAL
	911	911	911	911	911	
Hobbs	505-397-9308	505-397-9308	505-397-9265	505-393-2515	505-392-5588	505-492-5000

NMOCD Hobbs - OFFICE: (505) 393-6161 FAX: (505) 393-0720

Downhole Services Team Leader	Randy Pennington	281-552-1215
Team Leader – Hobbs	Gary Bullock	505-397-8203

(A complete list of all emergency contacts will be posted on the rig board)

Request for Variance – Second Egress
Drilling/Completion/Workover Requirements (III.C.2.a.)
Onshore Oil and Gas Order No. 6, Hydrogen Sulfide Operations

Request: Permit each drilling pad to be built with only one ingress/egress road.

Logic: In the event of an H2S release or other similar incident, a second-egress road or foot-path would be unlikely to provide additional routes of egress from the drilling pad. The area surrounding the drilling pad is relatively flat, and contains few obstructions (the perimeter of the drilling pad is not fenced, and essentially the only obstructions are scattered brush with significant clear areas between plants). In the event of an H2S release or other similar incident, personnel on the drill pad would most likely exit the drill pad at the nearest point, regardless of whether the surrounding area at that point was cleared or uncleared. In the event of an H2S-release or other similar incident, personnel on the drill pad would not be expected to travel back through some portion of the drill pad and exit the drill pad via one of the two cleared egress routes.

Further, a second egress route would disturb additional areas of the native environment.