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READ & STEVENS, INC. HYDROGEN SULFIDE (H2S) CONTINGENCY PLAN FOR DRILLING/COMPLETING/WORKOVER/FACILITY WITH THE EXPECTATION OF H2S IN EXCESS OF 100 PPM

> Laurie D Federal #2 SECTION 15 T20S-34E LEA COUNTY, N.M.

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GENERAL H2S EMERGENCY ACTIONS:

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In the event of an H2S emergency, the following plan will be initiated.

- 1) All personnel will immediately evacuate to an up-wind and if possible up-hill "safe area".
- If for any reason a person must enter the hazardous area, they must wear a SCBA (Self contained breathing apparatus)
- 3) Always use the "buddy system"
- 4) Isolate the well/problem if possible.
- 5) Account for all personnel
- 6) Display the proper colors warning all unsuspecting personnel of the danger at hand.
- 7) Contact the Company personnel as soon as possible if not at the location. (use the enclosed call list as instructed)

At this point the company representative will evaluate the situation and co-ordinate the necessary duties to bring the situation under control, and if necessary, the notification of emergency response agencies and residents.

EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H2S

- 1) All personnel will don the self-contained breathing apparatus.
- 2) Remove all personnel to the "safe area" (always use the "buddy system")
- 3) Contact company personnel if not on location.
- 4) Set in motion the steps to protect and or remove the general public to an upwind "safe area". Maintain strict security & safety procedures while dealing with the source.
- 5) No entry to any unauthorized personnel.
- 6) Notify the appropriate agencies: City Police-City street(s) State Police-State Rd,

County Sheriff-County Rd.

(will assist in general public evacuation/safety while maintaining roadblocks)

7) Call the NMOCD

If at this time the supervising person determines the release of H2S cannot be contained to the site location and the general public is in harms way he will take necessary steps to contact the following:

EMERGENCY CALL LIST:	(Start and continue until ONE of these people have been reached)

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	<u>OFFICE</u>	MOBILE	HOME
Read & Stevens, Inc.	575-622-3770		
David Luna	575-622-3770 x 213	575-626-9395	575-625-0666
Bud Thorp	575-390-4676	575-691-8520	575-396-7282
John Maxey	575-622-3770 x224	575-626-7602	575-625-1354
Will Palmer	575-396-5391	575-390-2424	575-396-7560
EMERGENCY RESPO	DNSE NUMBERS: Lea	a County, New Mexico	
State Police		575-392-5588	
Lea County Sheriff		575-396-3611	
Emergency Medical S	ervice (Ambulance)	911 or 575-393-2677	
State Emergency Res	ponse Center (SERC)	575-476-9620	
Hobbs Police Departme Hobbs Fire Departme		575-397-9265 575-393-2677	
Lovington Police Dep Lovington Fire Depart		575-396-3144 575-396-2359	
Loco Hills Fire Depart Maljamar Fire Depart	ment ment	575-677-2349 575-676-4100	
(NMOCD) New Mexic District I (Lea, Roose District II (Eddy, Cha		on, 575-393-6161 575-748-1283	
American Safety Indian Fire & Safety Callaway Safety		575-746-1096 575-746-4660 575-746-2847	or 800-530-8693
BJ Services		575-746-3569	I



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PROTECTION OF THE GENERAL PUBLIC/ROE:

In the event greater than 100 ppm H2S is present, the ROE (Radius Of Exposure) calculations will be done to determine if the following is warranted:

- 100 ppm at any public area (any place not associated with this site)
- 500 ppm at any public road (any road which the general public may travel)
- 100 ppm radius of 3000' will be assumed if there is insufficient data to do the calculations, and there is a reasonable expectation that H2S could be present in concentrations greater than 100 ppm in the gas mixture.

Calculation for the 100 ppm ROE:

 $X = [(1.589) (concentration) (Q)]^{(0.6258)}$

Calculation for the 500 ppm ROE:

 $X = [(0.4546) (concentration) (Q)]^{(.06258)}$

EXAMPLE: If a well/facility has been determined to have 150 ppm H2S in the gas mixture and the well/facility is producing at a gas rate of 100 MCFPD then:

- 100 PPM X=[(1.589)(150/1,000,000)(100,000)]^{0.6258} X= 7'
- 500 PPM X=[(.4546)(150/1,000,000)(100,000)]^{0.6258} X= 3'

(These calculations will be forwarded to the appropriate District NMOCD office when applicable)

PUBLIC EVACUATION PLAN:

(When the supervisor has determined that the General Public will be involved, the following plan will be implemented)

- 1) Notification of the emergency response agencies of the hazardous condition and implement evacuation procedures.
- 2) A trained person in H2S safety, shall monitor with detection equipment the H2S concentration, wind and area of exposure (ROE). This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. (All monitoring equipment shall be UL approved, for use in class I groups A,B,C, & D, Division I, hazardous locations. All monitors will have a minimum capability of measuring H2S values.)
- 3) Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.
- 4) The company supervising personnel shall stay in communications with all agencies through out the duration of the situation and inform such agencies when the situation has been contained and the effected area(s) is safe to enter.

PROCEDURE FOR IGNITING AN UNCONTROLABLE CONDITION:

The decision to ignite a well should be a last resort and one if not both of the following pertain.

- 1) Human life and/or property are in danger.
- 2) There is no hope of bringing the situation under control with the prevailing conditions at the site.

INSTRUCTIONS FOR IGNITION:

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- Two people are required. They must be equipped with positive pressure; self contained breathing apparatus and a "D" –ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.
- One of the people will be a qualified safety person who will test the atmosphere for H2S, Oxygen, & LFL. The other person will be the company supervisor; he is responsible for igniting the well.
- 3) Ignite up-wind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25mm flare gun shall be used, with a <u>+</u>500' range to ignite the gas.
- 4) Prior to ignition, make a final check for combustible gases.
- 5) Following ignition, continue with the emergency actions & procedures as before.

REQUIRED EMERGENCY EQUIPMENT:

- 1) Breathing Apparatus:
 - Rescue Packs (SCBA) 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
 - Work/Escape Packs 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
 - Emergency Escape Packs 4 packs shall be stored in the doghouse for emergency evacuation.
- 2) Signage & Flagging:
 - One Color Code Condition Sign will be placed at the entrance to the site reflecting the possible conditions at the site.
 - A Colored Condition flag will be on display, reflecting the condition at the site at that time.
- 3) Briefing Area: Two, perpendicular areas will be designated by signs and readily accessible.

- Wind Socks: Two windsocks will be placed in strategic locations, visible from all angles.
- 5) H2S Detectors and Alarm: The stationary detector with three (3) sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible @ 15 ppm. Calibrate a minimum of every 30 days or as needed. The 3 sensors will be placed in the following places: (Gas sample tubes will be stored in the safety trailer)
 - Rig Floor
 - Bell Nipple
 - End of Flow line or where well bore fluid are being discharged.
- 6) Auxiliary Rescue Equipment:
 - Stretcher
 - Two OSHA full body harness
 - 100' of 5/8" OSHA approved rope
 - 1 20# Class ABC fire extinguisher
 - Communication via cell phones on location and vehicles on location.

USING SELF-CONTAINED BREATHING AIR EQUIPMENT (SCBA):

SCBA should be worn when any of the following are performed:

- Working near the top or on top of a tank.
- Disconnecting any line where H2S can reasonably be expected.
- Sampling air in the area to determine if toxic concentrations of H2S exist.
- Working in areas where over 10 ppm on H2S has been detected.
- At any time there is a doubt as the level of H2S in the area.

All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.

Facial hair and standard eyeglasses are not allowed with SCBA.

Contact lenses are never allowed with SCBA.

Air quality shall continuously be checked during the entire operation.

After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.

All SCBA shall be inspected monthly.

RESCUE & FIRST AID FOR VICTIMS OF HYDROGEN SULFIDE (H2S) POISONING

Do not panic.

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Remain calm & think.

Get on the breathing apparatus.

Remove the victim to the safe breathing area as quickly as possible. Upwind an uphill from source of cross wind to achieve upwind.

Notify emergency response personnel.

Provide artificial respiration and/or CPR, as necessary.

Remove all contaminated clothing to avoid further exposure.

A minimum of two (2) personnel on location shall be trained in CPR and First Aid.

H2S TOXIC EFFECTS:

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H2S is extremely toxic. The acceptable ceiling for eight hours of exposure is 10 ppm, which is .001% by volume. H2S is approximately 20% heavier than air (Sp.Gr=1.19 / Air=1) and colorless. It forms an explosive mixture with air between 4.3% and 46.0%. By volume hydrogen sulfide (H2S) is almost as toxic as hydrogen cyanide and is 5-6 times more toxic than carbon monoxide.

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Common	Chemical	Sp. Gr.	Threshold	Hazardous	Lethal
Name	Abbrev.		Limits	Limits	Concentration
Hydrogen Sulfide	H2S	1.19	10 ppm 15 ppm	100 ppm/hr	600 ppm
Hydrogen Cyanide	HCN	0.94	10 ppm	150 ppm/hr	300 ppm
Sulfur Dioxide	SO2	2.21	2 ppm	N/A	1000 ppm
Chlorine	CL2	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	СО	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	CO2	1.52	5000 ppm	5%	10%
Methane	CH4	0.55	90,000	Combustible @ 5%	N/A

1. Threshold limit - Concentrations at which it is believed that all workers may be repeatedly exposed, day after day without adverse effects.

2. Hazardous limit - Concentration that may cause death.

3. Lethal concentration - Concentration that will cause death with short-term exposure.

4 Threshold limit – 10 ppm – NIOSH guide to chemical hazards.

5 Short-term threshold limit.

PHYSICAL EFFECTS OF HYDROGEN SULFIDE:

CON	NCENTRATIONS	PHYSICAL EFFECTS
.001%	10 ppm	Obvious and unpleasant odor. Safe for 8 hr. exposure
.005%	50 ppm	Can cause some flu-like symptoms and can cause pneumonia.
.01%	100 ppm	Kills the sense of smell in 3-15 minutes. May irritate eyes and throat.
.02%	200 ppm	Kills the sense of smell rapidly. Severely irritates eyes and throat. Severe flu-like symptoms after 4 or more hours. May cause lung damage and/or death.
.06%	600 ppm	Loss of consciousness quickly, death will result if not rescued promptly.

SURFACE USE PLAN OF OPERATIONS

READ & STEVENS, INC. Laurie D Federal #2 Section 15, T20S-R34E 754' FNL & 873' FEL Lea County, New Mexico Lease No. NM 06570 (New Drill)

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to describe the location of the proposed well, the proposed construction activities and operations plan to be following in rehabilitating the surface and environmental effects associated with the operations.

1. EXHISTING ROADS:

- A. Exhibit "B" is a portion of a BLM map showing the location of the proposed well as staked. The well site location is 25 air miles SW of Hobbs, NM. All roads are on existing Read & Stevens lease roads.
- B. Directions: From Hobbs go west on Hwy 62/180 for about 25 miles. At MM 78, turn South at Read & Stevens sign. Follow highlighted road on attached map (Exhibit K).

2. PLANNED ACCESS ROAD:

- A. Length and Width: There is currently an existing road going to the location. No new roads are needed for this well. The existing roads are coded on Exhibit "A".
- B. Construction: N/A
- C. Turnouts: None required.
- D. Culverts: None.
- E. Cuts and Fills: None required.
- F. Gates, Cattle guards: None will be required.
- G. Off lease right of way: None required.

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3. LOCATION OF EXISTING WELLS:

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A. Existing wells within a 1 mile radius are shown on Exhibit "C".

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

- A. Read & Stevens, Inc. has production facilities on the lease for the Laurie D #1 well. This well is producing from another zone, Morrow, that cannot be commingled with our proposed well.
- B. If the well proves to be commercial, the necessary production facilities, gas separation-process equipment and tank battery, if required, will be installed on the current location per exhibit "H".

5. LOCATION AND TYPE OF WATER SUPPLY:

A. It is planned to drill the proposed well with brine water that will be obtained from private or commercial sources and will be transported over the existing access roads.

6. SOURCE OF CONSTRUCTION MATERIALS:

A. No construction material is needed for this site. If needed, caliche for surfacing the access road and well site pad will be obtained from the location, if available, or from an approved BLM pit. No surface materials will be disturbed except those necessary for actual grading and leveling of the drill site and access road.

7. METHODS OF HANDLING WASTE DISPOSAL:

- A. Drill cutting will be disposed of as outlined in the C-144 EZ (attached).
- B. Drilling fluids will be disposed of as outline in the C-144 EZ (attached).
- C. All pits will be above ground.
- D. Water produced during operations will be collected in tanks until hauled to an approved disposal system, or a separate disposal application will be submitted to the BLM for approval.

- E. Oil produced during operations will be stored in tanks until sold
- F. Current laws and regulations pertaining to the disposal of human waste will be complied with.
- G. Trash, waste paper, garbage and junk will be contained in trash bins to prevent scattering by the wind and will be removed for deposit in an approved sanitary landfill within 30 days after finishing drilling/or completion operations.

8. ANCILLARY FACILITIES:

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A. None required.

9. WELL SITE LAYOUT:

- A. Exhibit "D" shows the relative location and dimensions of the well pad, reserve tanks, closed loop, and major rig components. These components will be placed so that they will fit on the existing location. No surface outside of the existing location will be disturbed.
- B. Mat Size: Staked with existing location.
- C. Cut & Fill: N/A
- D. The surface will be re-topped with minimum of compacted caliche.

10. PLANS FOR RESTORATION OF THE SURFACE:

- A. After completion of drilling and/or completion operations, all equipment and other material not required for operations will be removed, the location cleaned of all trash and junk to leave the well site in an aesthetically pleasing condition as possible.
- B. If the proposed well is non-productive, then all material and equipment will be removed. The caliche will not be removed because it used for operations of the other well (Laurie D #1) on this location.

11. OTHER INFORMATION:

- A. Topography:
- B. Soil:

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- C. Ponds and Streams: None in area.
- D. Residences and Other Structures: None in the immediate vicinity.
- E. Land Use: Cattle grazing.
- F. Surface Ownership: The proposed well site is on Federal surface and minerals. Mr. Kenneth Smith (276 Smith Ranch Road, Hobbs 88240) is the surface lessee of "Federal Grazing rights" in the N/2 of Section 15. He has been notified, via phone (887-3374), by David Luna on Feb. 22nd of the staking and intent to drill. An agreement, in accordance with the Surface Use Agreement between Mr. Smith and Read & Stevens, was established at this time.

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Additional Operator Remarks:

Read & Stevens, Inc. proposes to drill the Laurie D Fed #2.

Please see attached:

- Drilling Plan
 C-102
 Surface Use Plan of Operations;
 Exhibit "A" Location w/Existing and Proposed roads;
 Exhibit "B" Area Map;
 Exhibit "C" One Mile Radius Map;
 Exhibit "C" One Mile Radius Map;
 Exhibit "D" Location of Proposed Facilities;
 Exhibit "E" BOP and Manifold Schematic;
 Exhibit "F" Depth to Water
 Exhibit "G" Drilling and Completion Procedure;
 Exhibit "H" Production Equipment Layout;
 Lease Map
 Map through N. Lea Field
 CL Plan

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13. OPERATOR CERTIFICATION:

I hereby certify that I have inspected the proposed drill site and access route; that I am plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by Read & familiar with the conditions which presently exist; that the statements made in the Stevens, Inc. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 101 for the filing of a false statement.

DATE: March 5th, 2010

David Luna, Petroleum Engineer Read & Stevens, Inc.



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