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

Form C-101
August 1, 2011

Permit 144687

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address MURCHISON OIL & GAS INC 1100 Mira Vista Blvd. Plano, TX 75093		2. OGRID Number 15363
		3. API Number 30-015-39993
4. Property Code 8132	5. Property Name OGDEN STATE	6. Well No 005H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
O	2	25S	26E	O	152	S	1750	E	EDDY

8. Pool Information

BLACK RIVER; DELAWARE, SOUTH	96451
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Additional Well Information

9. Work Type New Well	10. Well Type OIL	11. Cable/Rotary	12. Lease Type State	13. Ground Level Elevation 3378
14. Multiple N	15. Proposed Depth 6750	16. Formation Delaware	17. Contractor	18. Spud Date 3/15/2012
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

19. Proposed Casing and Cement Program

Type	Hole Size	Casing Type	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	12.25	9.625	36	312	160	0
Prod	8.75	7	26	2187	475	0

Casing/Cement Program: Additional Comments

Surface casing 100% excess, circulate to surface. Production casing 100% excess, circulate to surface.

Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	3000	3000	Shaffer

I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

I further certify that the drilling pit will be constructed according to NMOCD guidelines ☐ a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

Printed Name:

Title:

Email Address:

Date:

Phone:

OIL CONSERVATION DIVISION

Approved By:

Title:

Approved Date:

Expiration Date:

Conditions of Approval Attached

Permit Conditions of Approval

Operator: MURCHISON OIL & GAS INC , 15363

Well: OGDEN STATE #005H

API: 30-015-39993

OCD Reviewer	Condition
CSHAPARD	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string

Permit Comments

Operator: MURCHISON OIL & GAS INC , 15363

Well: OGDEN STATE #005H

API:

Created By	Comment	Comment Date
ccottrell	Murchison hereby requests confidentiality of all information pertaining to this well for a period of 1 year.	2/27/2012
CSHAPARD	Land s/S	3/1/2012
RDADE	NMOCD will only honor your confidentiality for 90 days only.	3/8/2012
RDADE	This APD will be rejected and worked in as a hard copy due to spacing overlap	3/8/2012

MURCHISON OIL & GAS, INC.

HYDROGEN SULFIDE (H₂S) CONTINGENCY PLAN FOR DRILLING / COMPLETING / WORKOVER / FACILITY WITH THE EXPECTATION OF H₂S IN EXCESS OF 100 PPM

Murchison Oil & Gas, Inc.
NEW DRILL WELL
Ogden State #5~~X~~H
SL: 152' FSL & 1750' FEL, Lot 15
BHL: 408' FNL & 788' FEL, Lot 1
Sec 2, T25S, R26E
Eddy County, New Mexico
30-015-39993

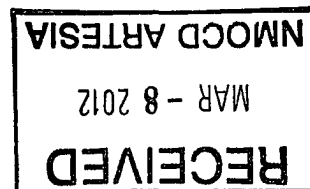


TABLE OF CONTENTS

I.	General Emergency Plan	Page 3
II.	Emergency Procedures for Uncontrolled Release of H ₂ S	Page 3
III.	Emergency Call List	Page 3
IV.	Emergency Response Numbers	Page 4
V.	Protection of the General (ROE) Radius of Exposure	Page 4
Vi.	Public Evacuation Plan	Page 5
VII.	Procedure for Igniting an Uncontrollable Condition	Page 5
VIII.	Required Emergency Equipment	Page 6
IX.	Using Self-Contained Breathing Air Equipment (SCBA)	Page 7
X.	Rescue & First Aid for Victims of H ₂ S Poisoning	Page 7
XI.	H ₂ S Toxic Effects	Pages 8
XII.	H ₂ S Physical Properties	Pages 9
XIII.	Location Map	Page 10
XIV.	Vicinity Map	Page 11

GENERAL H2S EMERGENCY ACTIONS

In the event of any evidence of H2S emergency, the following plan will be initiated:

1. All personnel will immediately evacuate to an upwind and if possible uphill "safe area."
2. 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 representative 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 coordinate 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 representative if not on location.
4. Set in motion the steps to protect and/or remove the general public to any upwind "safe area." Maintain strict security and safety procedures while dealing with the source.
5. No entry to any unauthorized personnel.
6. Notify the appropriate agencies:
City Police - City streets
State Police - State Roads
County Sheriff - County Roads
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 harm's way, he will immediately notify public safety personnel.

EMERGENCY CALL LIST

	<u>Office</u>	<u>Cell</u>	<u>Home</u>
Jack Rankin	972-931-0700	713-582-3859	281-894-7065
Greg Boans	575-628-3932	575-706-0667	575-887-9181

EMERGENCY RESPONSE NUMBERS

Eddy County, New Mexico

State Police	888-442-6677
Eddy County Sheriff - Carlsbad	575-396-3611
Eddy County Emergency Management - Carlsbad	575-887-7551
State Emergency Response Center (SERC)	575-476-9620
Artesia Police / Fire / Ambulance Department	575-746-5000
New Mexico Oil Conservation Division - Artesia	575-748-1283
Callaway Safety Equipment, Inc.	575-392-2973

PROTECTION OF THE GENERAL (ROE) RADIUS OF EXPOSURE

In the event greater than 100 ppm H₂S is present, the ROE calculations will be done to determine if the following conditions exist and whether the Plan must be activated:

- * 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: (H₂S concentrations in decimal form)

$$\text{ROE} = [(1.589)(\text{H}_2\text{S concentration})(Q)]^{(.6258)}$$

10,000 ppm + = .01
1,000 ppm + = .001

Calculation for the 500 ppm ROE: 100 ppm + = .0001
10 ppm + = .00001

$$\text{ROE} = [(0.4546)(\text{H}_2\text{S concentration})(Q)]^{(.6258)}$$

EXAMPLE: If a well/facility has been determined to have 650 ppm H₂S in the gas mixture and the well/facility is producing at a gas rate of 200 MCFD then:

ROE for 100 ppm	ROE=[(1.589)(.00065)(200,000)] ^0.6258
	ROE=28.1'
ROE for 500 ppm	ROE=[(.4546)(.00065)(200,000)] ^0.6258
	ROE=12.8'

These calculations will be forwarded to the appropriate NMOCD district 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. 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, oxygen, and flammable 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 representative shall stay in communication with all agencies throughout the duration of the situation and inform such agencies when the situation has been contained and the affected area is safe to enter.

PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION

The decision to ignite a well should be a last resort with one, if not both, of the following conditions:

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

Instructions for Igniting the Well:

1. Two people are required. They must be equipped with positive pressure, self-contained breathing apparatus and "D"-ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.
2. One of the people will be a qualified safety person who will test the atmosphere for H₂S, oxygen and LFL. The other person will be the designated company representative.
3. Ignite upwind from a distance no closer than necessary. Make sure that the ignition site has the maximum escape avenue available. A 25mm flare gun with a range of approximately +/- 500 feet shall be used to ignite the gas.
4. Before igniting, check for the presence of combustible gases.
5. After igniting, continue emergency actions and 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 and 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.

4. Windsocks

- Two windsocks will be placed in strategic locations, visible from all angles.

5. H2S Detectors and Alarms

- 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 alarm @ 15 ppm. Calibrate a minimum of every 30 days or as needed. The three 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 is being discharged

6. Auxiliary Rescue Equipment

- Stretcher
- Two OSHA full body harnesses
- 100' of 5/8" OSHA approved rope
- One 20 lb. Class ABC fire extinguisher
- Communication via cell phones on location and vehicles on location

USING SELF-CONTAINED BREATHING AIR EQUIPMENT (SCBA)

1. 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 of H₂S has been detected.
 - At any time there is a doubt of the level of H₂S in the area.
2. All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.
3. Facial hair and standard eyeglasses are not allowed with SCBA.
4. Contact lenses are never allowed with SCBA.
5. When breaking out any line where H₂S can reasonably be expected.
6. After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.
7. All SCBA shall be inspected monthly.

RESCUE & FIRST AID FOR VICTIMS OF H₂S POISONING

- Do not panic.
- Remain calm and think.
- Put on the breathing apparatus.
- Remove the victim to the safe breathing area as quickly as possible, upwind and uphill from source or crosswind 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.

TOXIC EFFECTS OF H2S POISONING

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity-1.192) and is colorless and transparent. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic than Carbon Monoxide. Occupational exposure limits for Hydrogen sulfide and other gasses are compared below in Table 1. Toxicity table for H2S and physical effects are shown in Table II.

Table 1

Permissible Exposure Limits of Various Gasses

Common Name	Symbol	Sp. Gravity	TLV	STEL	IDLH
Hydrogen Cyanide	HCN	.94	4.7 ppm	C	
Hydrogen Sulfide	H2S	1.192	10 ppm	15 ppm	100 ppm
Sulfide Dioxide	SO2	2.21	2 ppm	5 ppm	
Chlorine	CL	2.45	.5 ppm	1 ppm	
Carbon Monoxide	CO	.97	25 ppm	200 ppm	
Carbon Dioxide	CO2	1.52	5000 ppm	30,000 ppm	
Methane	CH4	.55	4.7% LEL	14% UEL	

Definitions

- A. TLV – Threshold Limit Value is the concentration employees may be exposed to based on a TWA (time weighted average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Governmental Hygienists and regulated by OSHA.
- B. STEL – Short Term Exposure Limit is the 15 minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL (Occupational Exposure Limit). The OEL for H2S is 19 PPM.
- C. IDLH – Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H2S is 100 PPM.
- D. TWA – Time Weighted Average is the average concentration of any chemical or gas for an eight (8) hour period. This is the concentration that any employee may be exposed to based on an TWA.

TABLE II

Toxicity Table of H2S

Percent %	PPM	Physical Effects
.0001	1	Can smell less than 1 ppm.
.001	10	TLV for 8 hours of exposure
.0015	15	STEL for 15 minutes of exposure
.01	100	Immediately Dangerous to Life & Health. Kills sense of smell in 3 to 5 minutes.
.02	200	Kills sense of smell quickly, may burn eyes and throat.
.05	500	Dizziness, cessation of breathing begins in a few minutes.
.07	700	Unconscious quickly, death will result if not rescued promptly.
.10	1000	Death will result unless rescued promptly. Artificial resuscitation may be necessary.

PHYSICAL PROPERTIES OF H₂S

The properties of all gases are usually described in the context of seven major categories:

COLOR
ODOR
VAPOR DENSITY
EXPLOSIVE LIMITS
FLAMMABILITY
SOLUBILITY (IN WATER)
BOILING POINT

Hydrogen Sulfide is no exception. Information from these categories should be considered in order to provide a fairly complete picture of the properties of the gas.

COLOR – TRANSPARENT

Hydrogen Sulfide is colorless so it is invisible. This fact simply means that you can't rely on your eyes to detect its presence, a fact that makes the gas extremely dangerous to be around.

ODOR – ROTTEN EGGS

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs." For this reason it earned its common name "sour gas." However, H₂S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192

Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H₂S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

EXPLOSIVE LIMITS – 4.3% TO 46%

Mixed with the right proportion of air or oxygen, H₂S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

FLAMMABILITY

Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO₂), another hazardous gas that irritates the eyes and lungs.

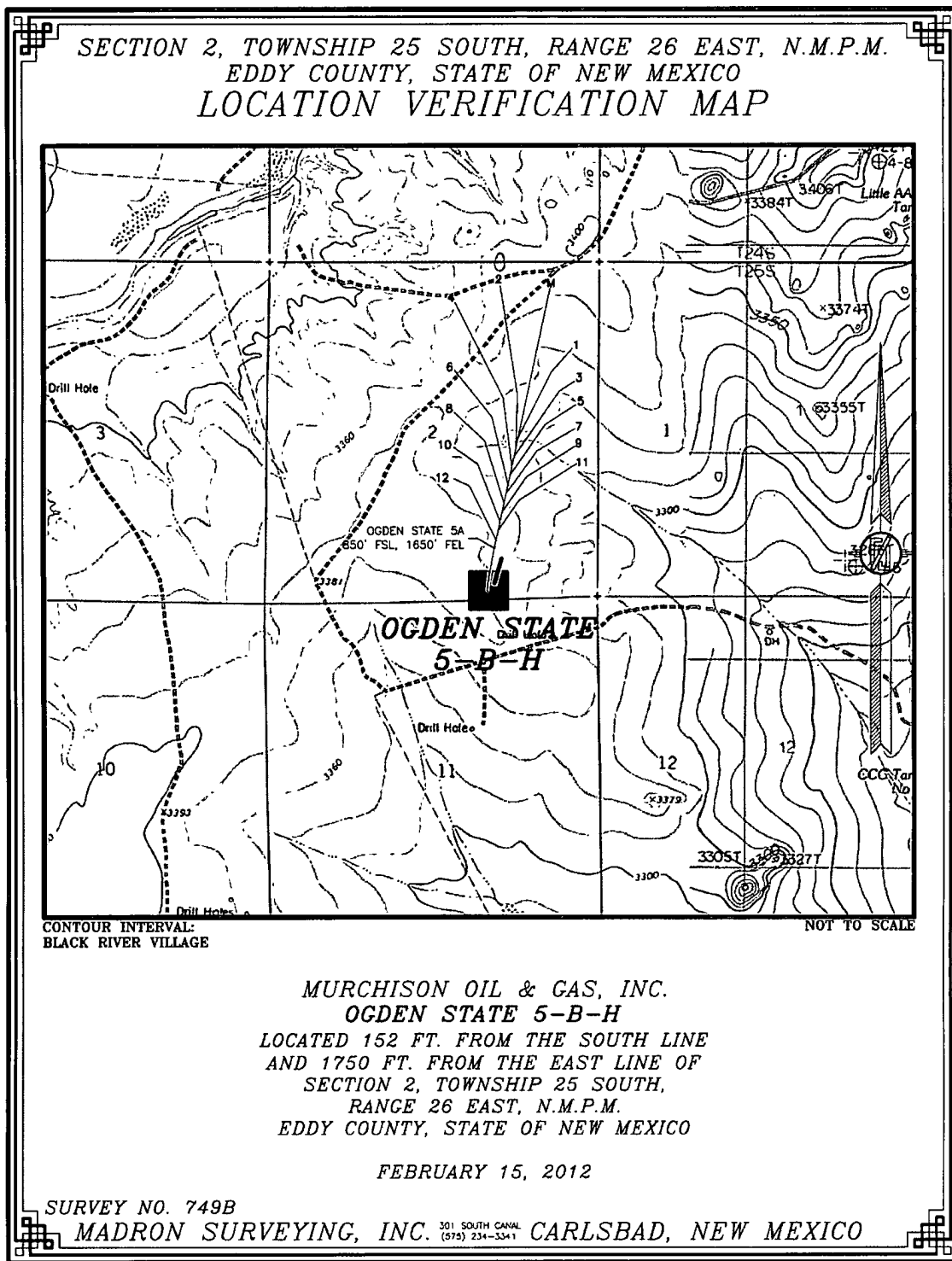
SOLUBILITY – 4 TO 1 RATIO WITH WATER

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H₂S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H₂S may release the gas into the air.

BOILING POINT – (-76 degrees Fahrenheit)

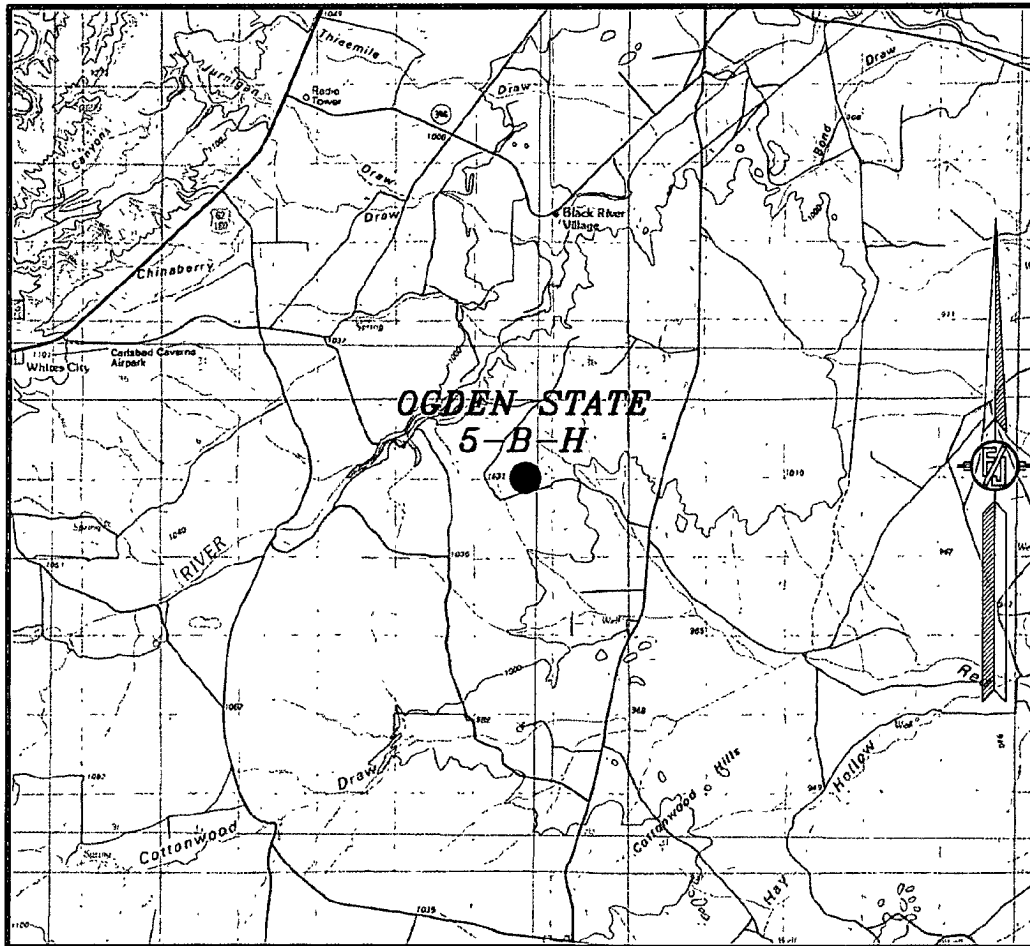
Liquefied Hydrogen Sulfide boils at a very low temperature, so it is usually found as a gas.

LOCATION MAP



VICINITY MAP

SECTION 2, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



NOT TO SCALE

MURCHISON OIL & GAS, INC.
OGDEN STATE 5-B-H
LOCATED 152 FT. FROM THE SOUTH LINE
AND 1750 FT. FROM THE EAST LINE OF
SECTION 2, TOWNSHIP 25 SOUTH,
RANGE 26 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

FEBRUARY 15, 2012

SURVEY NO 479B

MADRON SURVEYING, INC. 201 SOUTH CANAL (575) 234-3341 **CARLSBAD, NEW MEXICO**