ATS-07-228

OCD-ARTESIA

R-111-POTASH

Form 3160-3
(February 2005)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☑ DRILL ☐ REENTER	5. Lease Serial No. **NMNM 114356**
	6. If Indian, Allotee or Tribe Name **N/A**
	7. If Unit or CA Agreement, Name and No. **N/A**
1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone	8. Lease Name and Well No. **Sandy Federal #3** # 36454
2. Name of Operator **Bold Energy, LP** # 233545	9. API Well No. 30-015-35534
3a. Address **415 W. Wall, Suite 500 Midland, TX 79701**	3b. Phone No. *(include area code)* **432-686-1100**
	10. Field and Pool, or Exploratory **Forty Niner Ridge; Delaware** SE
4. Location of Well *(Report location clearly and in accordance with any State requirements.*)* At surface **Unit L, 2140' FSL, 330' FWL** At proposed prod. zone **CARLSBAD CONTROLLED WATER BASIN**	11. Sec., T. R. M. or Blk. and Survey or Area **Sec 24, T23S, R30E**
14. Distance in miles and direction from nearest town or post office* **Approximately 15 miles East of Loving, NM**	12. County or Parish **Eddy** / 13. State **NM**

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) **330'**	16. No. of acres in lease **640**	17. Spacing Unit dedicated to this well **40**
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. **Approx. 1150' (#1)**	19. Proposed Depth **8050'**	20. BLM/BIA Bond No. on file NMB **#000314**
21. Elevations (Show whether DF, KDB, RT, GL, etc.) **3260' GL**	22. Approximate date work will start* **02/15/2007**	23. Estimated duration **4/0 days**

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature Denise Menoud	Name *(Printed/Typed)* **Denise Menoud**	Date **12/21/2006**
Title **Regulatory Specialist, Agent for Bold Energy**		
Approved by *(Signature)* /s/ Linda S.C. Rundell	Name *(Printed/Typed)*	Date MAR 3 0 2007
Title STATE DIRECTOR	Office NM STATE OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

APPROVAL FOR 1 YEAR

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

If earthen pits are used in association with the drilling of this well, an OCD pit permit must be obtained prior to pit construction.

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

If earthen pits are used in association with the drilling of this well, an OCD pit permit must be obtained prior to pit construction.

OCD-ARTESIA

Form 3160-5
(February 2005)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: March 31, 2007

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE – Other instructions on page 2.

5. Lease Serial No.
NMNM 114356

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit of CA/Agreement, Name and/or No.
N/A

1. Type of Well
☑ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
Sandy Federal #3

2. Name of Operator
BOLD ENERGY, L.P.

9. API Well No.

3a. Address
415 W. Wall Street, Suite 500
Midland, TX 79701

3b. Phone No. *(include area code)*
432-686-1100

10. Field and Pool or Exploratory Area
Forty Niner Ridge; Delaware

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*
2140' FSL & 330' FWL, Unit L, Sec 24, T23S, R30E

11. Country or Parish, State
Eddy, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☑ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☑ Other Change TD
	☑ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
☐ Final Abandonment Notice	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Per the recommendation of the BLM Potash Department during the review of Bold's Application to Drill the above proposed well, Bold respectfully requests to change the proposed Total Depth from 8050' to a maximum of 7850' below Ground Level. This allows for 100' below the base of the Delaware formation to accomodate logging the lowermost zone.

If during the drilling process the formations are deeper than anticipated, Bold will submit another Sundry Notice adjusting these depths, also per the recommendation of the BLM.

14. I hereby certify that the foregoing is true and correct.
Name *(Printed/Typed)*
Denise Menoud

Title Agent for Bold Energy, L.P.

Signature Denise Menoud

Date 02/23/2007

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by /s/ Linda S.C. Rundell

Title STATE DIRECTOR

Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office NM STATE OFFICE

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

EXHIBIT "A"

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	96843	Forty Niner Ridge; Delaware, SE

Property Code	Property Name	Well Number
	SANDY FEDERAL	3

OGRID No.	Operator Name	Elevation
233545	BOLD ENERGY, LP	3260'

Surface Location

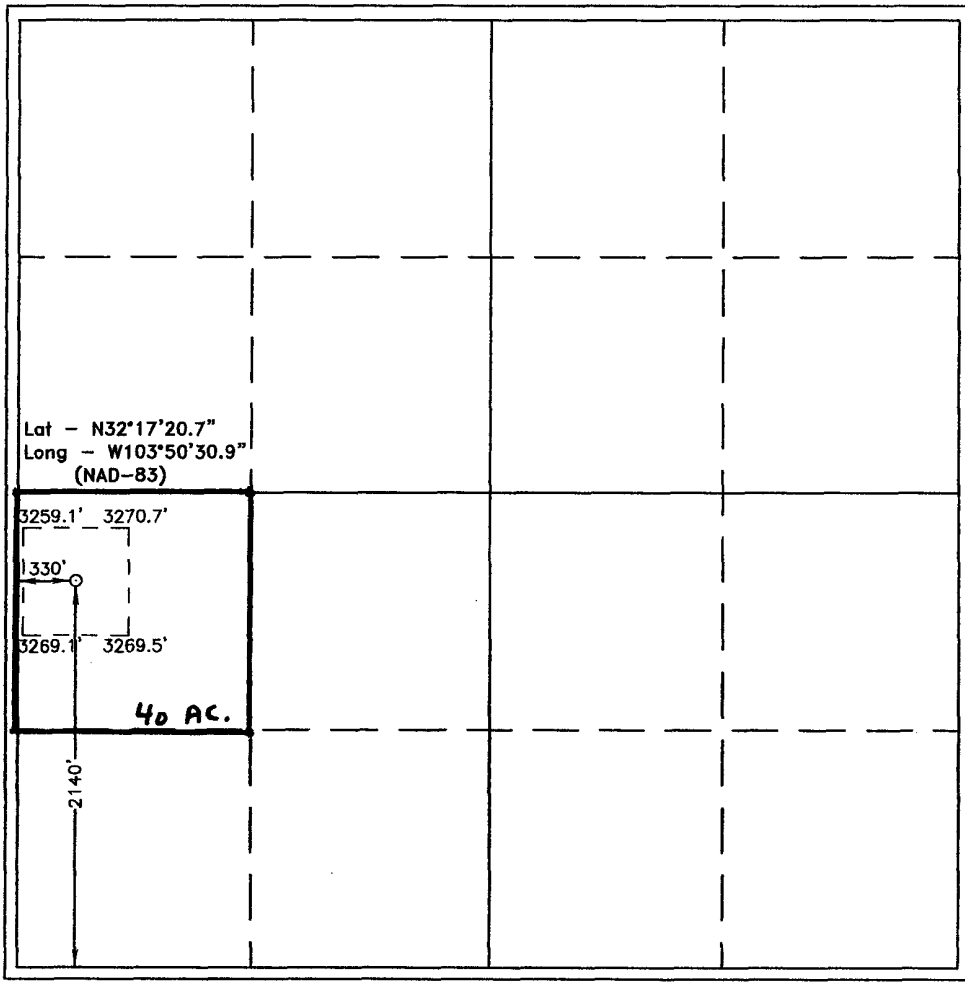
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	24	23 S	30 E		2140	SOUTH	330	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Denise Menoud
Signature Date

Denise Menoud, Agent for Bold Energy, LP
Printed Name

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief.

DECEMBER 07, 2006
Date Surveyed

Signature & Seal of Professional Surveyor

GARY L. JONES
NEW MEXICO
7977
REGISTERED PROFESSIONAL SURVEYOR

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

GRAY Surface Specialties

3106 N. Big Spring St. Ste. 100
Midland, TX 79705
Tel: (432) 685-9158

January 8, 2007

Bureau of Land Management
620 E. Greene Street
Carlsbad, New Mexico 88220
Attn: Cody Layton

Re: Sandy Federal #3
Unit L, Section 24, T23S, R30E
2140' FSL & 330' FWL
Eddy County, New Mexico
Bold Energy, L.P.

Dear Cody:

Please find enclosed a corrected Drilling Prognosis for the above referenced well. The Bone Spring Subsea depth changed from -3990' to -4490'.

If you have questions, please feel free to call me at (432) 685-9158.

Sincerely,

Denise Menoud

Denise Menoud,
Agent for Bold Energies, LP
Gray Surface Specialties
denise@graysurfacespecialties.com

encls

Drilling Prognosis

January 3, 2007

Operator: Bold Energy, LP **Field:** Undes. Forty Niner Ridge; Delaware

Well: Sandy Federal #3 **API:** 30 - 025 - Pending

Drilling Permit BLM Approval - Pending **AFE:** Pending

General Information

Location: 2140' FSL & 330' FWL, Section 24 - T23S - R30E Eddy County, New Mexico

Elevation: 3260' **TD:** 8050' **RKB:** 18'

Objective: Delaware / Bone Springs **Contractor:** Nabors #142

Contractor Office: 432 / 550-7808 **Superintendent:** Don Nelson (664-9990)

Toolpushers: Roy Brumfield / William Lewis **Cell:** 432 / 664-9942

Sierra Supervisor: Frank Dowdy / Tony Vickery **Cell:** 432 / 557-1223

Drilling Program

Hole Size	Depth	Casing	Weight	Grade	Connect	Cement	TOC
17½"	450'	13 3/8"	48	H-40	STC	500 sx	Circulate
11"	3800'	8 5/8"	32	K-55	STC	1100 sx	Circulate
7 7/8"	8050'	5½"	17	P-110	LTC	1100 sx	Circulate

Wellhead / BOPE

Wellhead	13 5/8" - 3K SOW	13 5/8" - 3K x 11" - 5K	11" - 5K x 7 1/16" - 10K
BOPE	13 5/8" - 5K Stack SRRAG	13 5/8" - 5K Stack SRRAG	

Mud Program

Interval	Type	MW	VIS	FL
0' – 450'	FW - Spud	8.4 - 9.2	32 - 34	NC
450' – 3800'	Brine / Sweeps	10.0	28 - 30	NC
3800' – 8050'	FW / Cut Brine / Sweeps	8.4 - 9.0	28 - 30	NC

Company: NOVA Drilling Fluids **Office:** _____

Engineer: TBA **Warehouse:** _____

Geological Data

Geologist: John Worrall 505 / 622-5893 office 432 / 230-9431 cell 505 / 622-2768 home

Estimated Formation Tops: (GL = 3260')

Formation	Subsea	MD	Formation	Subsea	MD
Triassic	0'	0'	Manzanita Mkr	-1745'	5005'
Rustler	2790'	470'	L Sand Objective	-4390'	7650'
B/ 1st Salt	1000'	2260'	Bone Spring	-4490'	7750'
T/ 2nd Salt	380'	2880'	Bone Spring, Upper	-4570'	7830'
B/ Salt	-370'	3630'	TD	-4790'	8050'
Delaware	-605'	3865'			

Evaluation Program

Mud Logs: 3800' to TD **Mud Logger:** TBD

DST / Coring Intervals: None Anticipated

E-Log Suite: Triple Combo (GR - DSN, SDL, DLL/MSFL) w/ CSNG @ TD. Pull GR-N to surface. SWC's may be taken in zones of interest.

Logging Company: Halliburton **Contact:** Richard Kelley

Location: Hobbs, New Mexico **Phone:** 505 / 914-0324 cell 505 / 392-0776 office

Completion

Single Delaware / Bone Spring oil well; multi-stage completion - selectively perfed & stimulated down 5½" casing. Well will be equipped to be rod pumped.

Emergency Contacts / Notifications

Sierra Engineering	Drilling Superintendent	Russ Ginanni	432 / 425-7450 cell 432 / 683-8000 off
Sierra Engineering	HSE Manager	Montie Low	432 / 559-8950 cell 432 / 683-8000 off
Bold Energy, LP	Operations Engineering Manager	Shannon Klier	432 / 296-8602 cell 432 / 686-1100 off
Bold Energy, LP	President	Joe Castillo	432 / 230-0202 cell 432 / 686-1100 off
Bold Energy, LP	Production Supt.	Donny Money	432 / 661-8803 cell
BLM	Carlsbad	Notifications After Hours	505 / 234-5972 505 / 361-2822

Directions

From the junction of New Mexico State Highway 128 & County Road 795 (Mobley Ranch), **(1)** go south ½ mile on CR 795 to "Y",; **(2)** take left fork and go 2½ miles to lease road on left; **(3)** turn east for 1.0 mile to new lease road and follow into location.

BOP EQUIPMENT

Bold Energy, LP

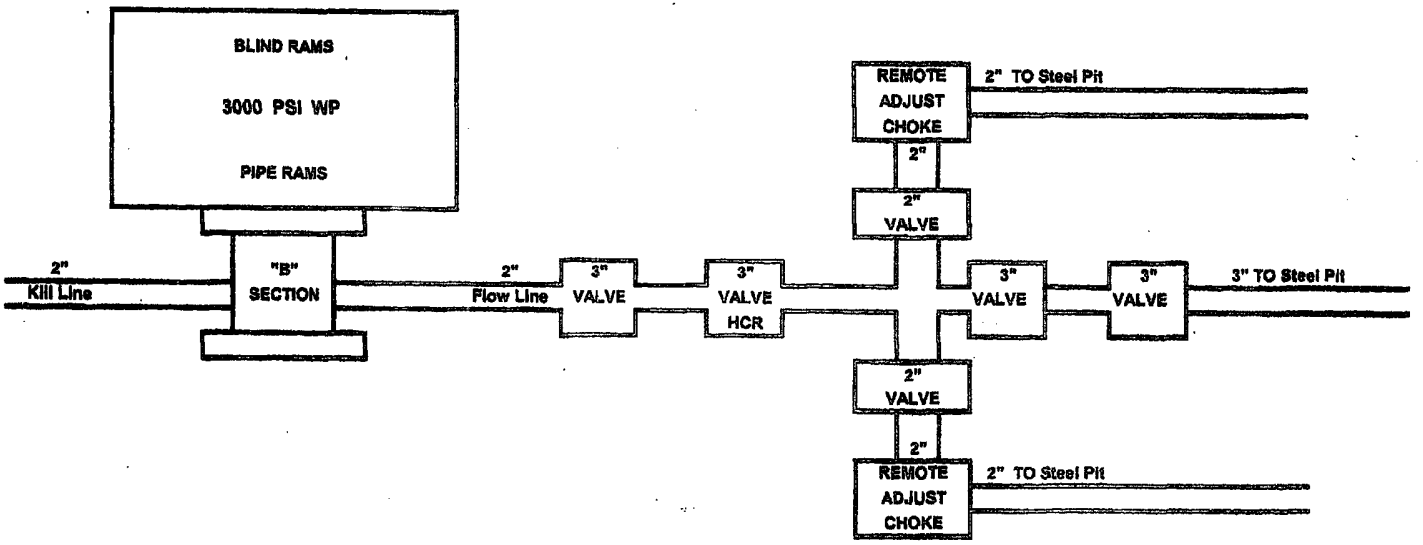


EXHIBIT F

SURFACE USE AND OPERATIONS PLAN FOR
DRILLING, COMPLETION, AND PRODUCING

Bold Energy, LP
Sandy Federal #3
2140' FSL, 330' FWL, Unit L, Section 24, T23S, R30E
Eddy County, New Mexico

LOCATED
Approximately 15 miles East of Loving, NM

OIL & GAS LEASE
NMNM 114356

ACRES IN BLM LEASE
640.0 – the entire Section 24

OIL & GAS LESSEES
Bold Energy, LP; 415 W. Wall, Suite 500, Midland, TX 79701
COG Operating, LLC; 550 W. Texas, Suite 1300, Midland, TX 79701
Providence Oil Co, LLC; 1505 N. Commerce, Suite 201, Ardmore, OK 73401

BOND COVERAGE
$25,000 statewide bond of Bold Energy, LP

SURFACE OWNER
Bureau of Land Management

MINERAL OWNER
Bureau of Land Management

GRAZING TENANT:
Stacy Mills, P.O. Box 1358, Loving, NM 88256

POOL
Forty Niner Ridge; Delaware (#24750)

EXHIBITS

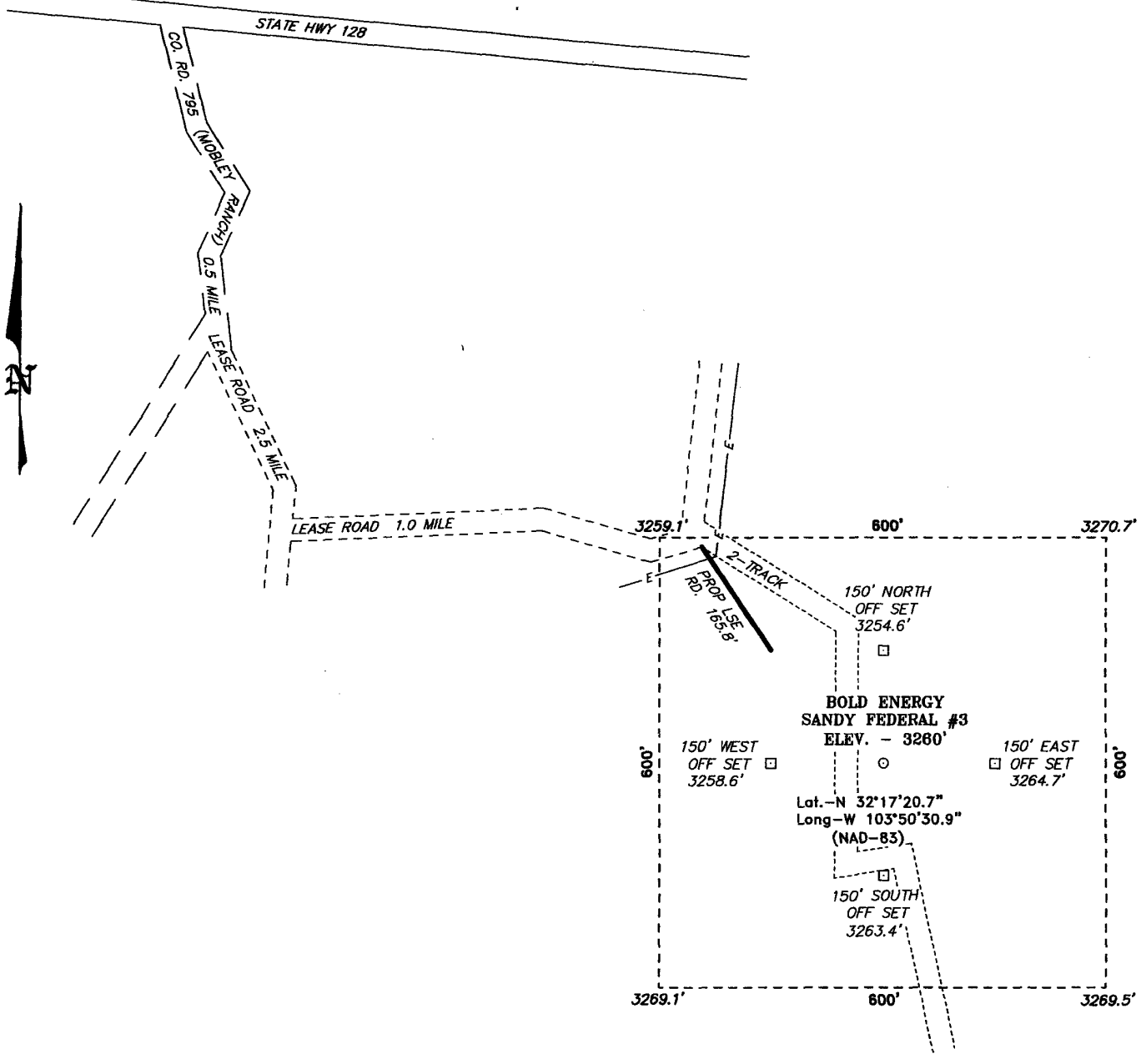
A. & A-1.	Well Location & Acreage Dedication Maps
B.	Area Road Map
C. & C-1.	Vicinity Oil & Gas Map
D.	Topographic & Location Verification Map
E.	Drilling Rig Layout
F.	BOPE Schematic & Choke Manifold Schematic

This well will be drilled to a depth of approximately 8050'.

EXHIBIT "A 1"

SECTION 24, TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M.,

EDDY COUNTY, **NEW MEXICO.**



Directions to Location:

FROM THE JUNCTION OF STATE HWY 128 AND CO. RD. 795 (MOBLEY RANCH), PROCEED SOUTH 0.5 MILE ON CO. RD. 795 TO A "Y", TAKE LEFT FORK AND PROCEED 2.5 MILE TO LEASE ROAD EAST, PROCEED EAST 1.0 MILE TO THE PROPOSED LEASE ROAD.

BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 17525	Drawn By: J. M. SMALL
Date: 12-12-2006	Disk: JMS 17525W

BOLD ENERGY, LP

REF: SANDY FEDERAL #3 / WELL PAD TOPO

THE SANDY FEDERAL No. 3 LOCATED 2140' FROM THE SOUTH LINE AND 330' FROM THE WEST LINE OF SECTION 24, TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 12-07-2006 | Sheet 1 of 1 Sheets

Bold Energy, LP

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

I Hydrogen Sulfide Training

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis will show proof of training from a qualified instructor in the following areas before commencing any work on the above named well.

1. **The hazards and characteristics of hydrogen sulfide (H_2S).**
2. **The proper use and maintenance of personal protective equipment and life support systems.**
3. **The proper use of H_2S detectors, alarms, warning signs, briefing areas, and evacuation procedures.**
4. **The proper technique for first aid and rescues.**

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

1. **The effects of H_2S on metal components. If high tensile tubulars are 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 reequirements of the H_2S Drilling Operations Plan.**

The well site is not within 3000' of any public roadway or dwelling; therefore an H_2S Contingency Plan is not necessary.

There will be an initial safety meeting just prior to commencing operations on the well, which shall include a review of the site-specific H_2S Drilling Operations Plan. This plan will shall be available at the well site. All personnel will be required to carry documentation that they have received the proper H_2S training.

II H_2S Safety Equipment and Systems

All H_2S safety equipment and systems will be installed upon setting 8 5/8" casing at 1800'.

1. **Well Control Equipment**

   A. **Choke manifold with a minimum of two adjustable chokes, one remotely operated.**
   B. **Blind and pipe rams to accommodate all pipe in use.**
   C. **Auxiliary equipment to include annular preventer and rotating head.**

2. **Protective Equipment for Essential Personnel**

   A. **Four - 5 minute escape units in top dog house.**
   B. **One - 30 minute SCBA at each briefing area.**

II H_2S Safety Equipment and Systems - cont'd

3. H_2S Detection and Monitoring Equipment

   A. Three-channel monitor located on floor, with detectors located on floor, on flow nipple and on flow line on mud pit.
   B. The mud logging unit shall have H_2S monitoring equipment.

4. Visual Warning Systems

   A. Windsock located on floor and mud pits.
   B. Briefing area signs located on NE & SW corners of pad.
   C. H_2S Condition sign located at entrance to location.

5. Mud Program

The mud program has been designed to minimize the volume of possible H_2S circulated to surface. Proper weight, safe drilling practices, and the use of H_2S scavengers will minimize hazards when penetrating possible H_2S bearing zones.

6. Metallurgy

All drill strings, casing, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifolds, and associated lines and valves shall be suitable for an H_2S environment.

7. Communications

Drilling rig and company vehicles will be equipped with two way radios or cellular telephones.

8. Well Testing

At least One Drill Stem Test is planned for this well.

CONDITIONS OF APPROVAL - DRILLING

Well Name & No. Sandy Federal # 3
Operator's Name: Bold Energy LP
Location: 2140'FSL, 330'FWL, SEC24, T23S, R30E, Eddy County, NM
Lease: NM-114356

I. DRILLING OPERATIONS REQUIREMENTS:

1. The Bureau of Land Management (BLM) is to be notified at the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (505) 361-2822 for wells in Eddy County; and the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (505) 393-3612 for wells in Lea County, in sufficient time for a representative to witness:

A. Spudding

B. Cementing casing: 13.375 inch, 8.625 inch, 5.5 inch

C. BOP tests

2. A Hydrogen Sulfide (H2S) Drilling Plan should be activated prior to drilling into the N/A Formation. A copy of the plan shall be posted at the drilling site.

3 Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

4. Submit a Sundry Notice (Form 3160-5, one original and five copies) for each casing string, describing the casing and cementing operations. Include pertinent information such as; spud date, hole size, casing (size, weight, grade and thread type), cement (type, quantity and top), water zones and problems or hazards encountered. The Sundry shall be submitted within 15 days of completion of each casing string. The reports may be combined into the same Sundry if they fall within the same 15 day time frame.

5. The API No. assigned to the well by NMOCD shall be included on the subsequent report of setting the first casing string.

6. A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

7. Gamma-Ray/Neutron logs shall be run from the base of the Salado Formation to the surface; cable speed not to exceed 30 feet per minute.

II. CASING:

1. The 13.375 inch surface casing shall be set **ABOVE THE SALT, AT LEAST 25 feet INTO THE RUSTLER ANHYDRITE @ APPROXIMATELY 450 FEET** , below usable water and cement circulated to the surface. If cement does not circulate to the surface the appropriate BLM office shall be notified and a temperature survey or cement bond log shall be run to verify the top of the cement. Remedial cementing shall be completed prior to drilling out that string. The High Cave/ Karst potential requires that BLM be notified of any simultaneous bit drops of four feet or more with 75 percent lost circulation.

2. The minimum required fill of cement behind the 8 5/8 inch salt protection casing is **CIRCULATE CEMENT TO THE SURFACE. This casing string must be set at least 100 feet below the base of the salt and no more than 600 feet below the salt, but above any hydrocarbon bearing formations.**

3. The minimum required fill of cement behind the **5-1/2** inch production casing is **cement shall CIRCULATE TO THE SURFACE.**

4. Whenever a casing string is cemented in the R-111-P Potash Area, cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

III. PRESSURE CONTROL:

1. All BOP systems and related equipment shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2. The BOP and related equipment shall be installed and operational before drilling below the **13.375** inch casing shoe and shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.

2. Minimum working pressure of the blowout preventer and related equipment (BOPE) is 2000 psi.

3. The appropriate BLM office shall be notified in sufficient time for a representative to witness the tests.
- A variance to test the _____ to the reduced pressure of ____psi with the rig pumps is approved.
- The tests shall be done by an independent service company.
- The results of the test shall be reported to the appropriate BLM office.
- Testing fluid must be water or an appropriate clear liquid suitable for sub-freezing temperatures. Use of drilling mud for testing is not permitted since it can mask small leaks.
- Testing must be done in a safe workman-like manner. Hard line connections shall be required.

Engineers can be reached at 505-706-2779 for any variances that might be necessary.

F Wright 2/6/07

BOLD ENERGY, LP

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

SANDY FEDERAL #3
NEW DRILL WELL
2140' FSL & 330' FWL, UNIT L
SECTION 24, T23S, R30E
EDDY COUNTY, NEW MEXICO

This well / facility is not expected to have H2S, but the following is submitted as requested.

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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 up-wind and if possible up-hill "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 are". 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 harms way, he will immediately notify public safety personnel.

EMERGENCY CALL LIST

Contact	Office	Cell	Home
Shannon Klier (drilling / completions)	432-686-1100	432-296-8602	432-669-6341
Donny Money (production)	432-686-1100	432-661-8803	
Joseph Castillo	432-686-1100	432-230-0202	

EMERGENCY RESPONSE NUMBERS
Eddy County, New Mexico

State Police	**505-748-9718**
Eddy County Sheriff	**505-746-2701**
Emergency Medical Services (Ambulance)	**911 or 505-746-2701**
Eddy County Emergency Management (Harry Burgess)	**505-887-9511**
State Emergency Response Center (SERC)	**505-476-9620**
Carlsbad Police Department	**505-885-2111**
Carlsbad Fire Department	**505-885-3125**
New Mexico Oil Conservation Division - Artesia	**505-748-1283**
Callaway Safety Equipment, Inc.	**505-392-2973**

PROTECTION OF THE GENERAL (ROE) RADIUS OF EXPOSURE

In the event greater than 100 ppg H2S is present, the ROE 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)

(H2S concentrations in decimal form)

10,000 ppm + = .01
1,000 ppm + = .001
100 ppm + = .0001
10 ppm + = .00001

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 200 MCFD then:

ROE for 100 ppm X=[(1.589)(.00010)(200,000)] (0.6258)
X=8.8'
ROE for 500 ppm X=[(.4546)(.00050)(200,000)] (0.6258)
X=10.9'

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 effected area is safe to enter.

PROCEDURE FOR IGNITING AN UNCONTROLLABLE 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 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 company representative.

3. Ignite upwind from a distance no closer than necessary. Make sure that where you ignite from 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.

* Get 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 that 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 gasses 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.