Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0137
Expires July 31, 2010

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.
14-20-604-62

6. If Indian, Allottee or Tribe Name
Ute Mountain Tribe

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

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

8. Well Name and No.
Ute Indians "A" #11

2. Name of Operator
XTO ENERGY INC.

9. API Well No.
30-045-22739

3a. Address
382 CR 3100 AZTEC, NM 87410

3b. Phone No. (*include area code*)
(505) 333-3100

10. Field and Pool, or Exploratory Area
Ute Dome Paradox

4. Location of Well (*Footage, Sec., T., R., M., or Survey Description*)
790' FSL & 1480' FEL SWSE SEC 26(O)-32N-14W

11. County or Parish, State
San Juan NM

12. CHECK 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
☒ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other UPDATED H2S CONTINGENCY PLAN
bf	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ 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 shall 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 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the final site is ready for final inspection.)

XTO Energy Inc. after reviewing the records for this well is submitting an updated H2S Contingency Plan. Please see the attached.

RCVD MAR 27'14
OIL CONS. DIV.
DIST. 3

ACCEPTED FOR RECORD

MAR 19 2014

By:
Tres Rios Field Office
Bureau of Land Management

RECEIVED

FEB 26 2014

Bureau of Land Management
Durango, Colorado

14. I hereby certify that the foregoing is true and correct
Name (*Printed/Typed*) SHERRY J. MORROW
Title LEAD REGULATORY ANALYST

Signature Sherry J. Morrow
Date 2/25/2014

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by	Title	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	

Title 18 U.S.C. Section 1001, and Title 43 U.S.C. Section 1212, makes 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.

H2S Contingency Plan
(Emergency Response and Public Protection Plan)
Drilling, Completion and Production Operations

XTO Energy Inc.
Ute Mountain A#11

San Juan Basin Operations

PREPARED BY:
Jeff Clement

Office: (505) 333-3175
Cell: (505) 215-0533

H2S Contingency Plan

Company Name:	XTO Energy, Inc.
Address:	382 RD 3100, Aztec, New Mexico 87410
Phone:	(505) 333-3100
Well Name:	Ute Indians A #11
TD:	Varied Geological Tops
Location:	Sec.26 (O) – T32N-R14W - SWSE 790'FSL&1480'FEL Lat.36.95382 / Lat.108.27376 NAD 27 Lat. 36.953819 / Lat. 108.274395 NAD 83
API #	30-045-22739
BIA	
Formation	Paradox (additional pay(s) to be determined)
Geological Tops	To be determined by data obtained during operations

Drilling Operations San Juan New Mexico Contact Personnel

XTO Energy Drilling Manager
Ross Lubers
Office: (303) 397-3600

XTO Energy Drilling Engineer
Justin Niederhofer
Office: (303) 397-3600
Cell (505) 320-6543

XTO Energy Drilling Superintendent
Bobby Jackson
Office (303) 397-3720
Cell (505) 486-4706

XTO Energy Drilling Health & Safety Coordinator
Jerry Lacy
Office (505) 333-3100
Cell (505) 320-6543

XTO Energy Drilling OIMS Coordinator/Drilling Foreman
Mark Nietzel/Ryan Rensink
Office: (505) 333-3100
Mark (Cell) 505/ 486-2609 Ryan (Cell) 505/947-6532

XTO Energy OIMS/Contractor Management - SR. EHS Coor.
Office: (505) 333-3100
Cell: (505) 215-0533

XTO Energy Senior EHS Manager/EHS District Supervisor
Martin Nee/James McDaniel
Martin Office: (303) 397-3600
Martin (Cell) 505/793-6694
James Office: (505) 333-3100
James Cell: (505) 787-0519

CONTRACT H2S / SITE SAFETY COMPANIES
McGuire Industries
Leroy Winters
Office: (505) 634-8629 Office: (505) 325- 6232

Drilling Rig – Work Over Rig TBD

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An ExxonMobil Subsidiary

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XTO ENERGY

1.00 PURPOSE

This Emergency Response, and Public Protection Plan (Plan), is a specific plan, that applies to the San Juan Basin Operations, of New Mexico, operated by XTO Energy Inc. (XTO). This document is designed to provide for the safety and welfare of XTO and contract personnel, the community, the environment, and property, under H2S situations.

This plan establishes evacuation procedures, assigns response duties to specific individuals, provides for notification of outside agencies, and provides details of actions to alert and protect the public. This Plan will be activated immediately upon the detection of the release of a potentially hazardous volume of hydrogen sulfide (H2S).

2.00 GENERAL INFORMATION ON AND PHYSIOLOGICAL RESPONSES TO HYDROGEN SULFIDE (H2S) AND SULFUR DIOXIDE (SO2).

2.10 HYDROGEN SULFIDE (H2S)

Hydrogen sulfide is a flammable, highly toxic, colorless gas that is heavier than air, with the odor of rotten eggs. It can be detected by smell at the concentration of only 0.002 parts per million (ppm). Above concentrations of 100 ppm, it will deaden the sense of smell in a few minutes, and at a concentration of 600 + ppm, a single breath can be fatal. If ignited, it burns with a blue flame. In still air, it tends to accumulate in low places in dangerous concentrations. However, if it is warmer than the surrounding air, it may tend to rise. The upper flammability in air is 4% (40,000 ppm).

Breathing low concentrations of H2S can cause headaches. Higher concentrations (0.01 percent by volume) cause irritation of the eyes, nose, throat, and lungs. Eyes become red and swollen, accompanied by sharp pain in more severe cases. Still higher concentrations (0.05 percent by volume) cause dizziness, unconsciousness, and failure of respiration.

The Threshold Limit Value (TLV) is 10 ppm (0.001%) in air. This is the limit for eight hours of continuous exposure as recommended by the American Conference of Governmental Industrial Hygienists. The health and safety reference values of various concentrations of H2S are listed in the toxicity chart below. A Manufacturers Safety Data Sheet (MSDS) for hydrogen sulfide is included in Appendix D.

2.20 SULFUR DIOXIDE (S02)

Sulfur dioxide is formed with the burning of hydrogen sulfide gas. Sulfur dioxide is a pungent, irritating, suffocating, colorless gas. This gas is normally heavier than air and concentrations above 400 ppm are considered dangerous for even brief exposures.

Under special circumstances, hydrogen sulfide gas may be ignited in order to dissipate a gas cloud and reduce impact on a local area. Often these burning temperatures are enough to raise and mix the SO2 with air in a ratio well below toxic levels. However, great care and proper monitoring should be used when this is attempted.

Due to the irritating effect of SO2 at low concentrations of less than 5 ppm, there is usually no doubt as to it's presence in an area, which provides better warning characteristics than H2S.

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2.30 TOXICITY CHART

NAME	SPECIFIC GRAVITY (1)	TLV (2) (ppm)	HAZARDOUS LIMIT (3)	LETHAL CONCENTRATION (4)
Hydrogen Sulfide	1.18	10	100 ppm/1hr.	600 + ppm
Sulfur Dioxide	2.21	2	50 ppm/1 hr.	400 ppm

Notes:

(1) Specific gravity of air = 1.00
(2) TLV – Threshold Limit Value
(3) Hazardous Limit – concentration that may cause death with short term exposure.
(4) Lethal concentration – concentration that may cause death with only a few breaths.

3.00 TREATMENT PROCEDURES FOR H2S AND SO2 EXPOSURE

A. Remove the patient to fresh air. Personnel should always use fresh air breathing equipment when entering an area to retrieve a person who has been overcome with H2S.

B. Call a physician and get patient under his care as soon as possible.

C. If breathing has ceased, begin artificial respiration immediately. Give cardiopulmonary resuscitation (CPR) only if there is no pulse and no breathing. Continue revival efforts until physician arrives or, if patient is mobile and it is determined that he should go to the hospital, continue oxygen inhalation under the physician's direction.

D. Administer oxygen to help eliminate toxic substances from blood stream.

E. Keep the patient at rest and protect from chilling.

4.00 INDIVIDUAL RESPONSIBILITIES

It is the responsibility of *all personnel* on the location to familiarize themselves with the procedures outlined in this contingency plan.

A. All Personnel
   1. Responsible for their assigned safety equipment.
   2. Responsible for familiarizing themselves with the location of all safety equipment.
   3. Responsible for reporting any indications of H2S to those in the area and to a supervisor.

B. Operations Supervisor
   1. Responsible for thoroughly understanding and seeing that all aspects of this contingency plan are enforced.
   2. Responsible for implementing all phases of this contingency plan.
   3. Responsible for keeping a minimum of personnel on the location during expected hazardous operations.
   4. Responsible for coordinating all well site operations and communications in the event that an emergency condition develops.
   5. Responsible for ensuring that all visitors receive an H2S safety orientation. A visitors log will be maintained as well as a list of all personnel on location after drilling has progressed to the suspected H2S formation.

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4.10 LOCATION LAYOUT

The location should have at least two pre-determined safe areas to assemble at in the event of an emergency. These locations should be located 180 degrees to one another, and in the direction of the prevailing winds.

A. H2S rig monitor with at least three heads. One located at the bell nipple, one located at the shale shaker, and a third one on the rig floor.
The location and type of all air masks. Self-contained breathing apparatus for use by rig personnel for this well will be kept in the following location(s):

Type: 1-30 min. rescue unit	Location: Safety Contractor's Trailer
Type: 1-30 min. rescue unit	Location: All Trailers
Type: 2-30 min. rescue unit	Location: Briefing Area #1
Type: 2-30 min. rescue unit	Location: Briefing Area #2
Type: 5-Hoseline work unit	Location: Safety Trailer
Type: 3-5 min escape unit	Location: Rig Floor
Type: 1-5 min. escape unit	Location: Tubing board (derrick)

If a cascade system is utilized, indicate the location(s);

Type: 10 cylinder cascade — Location: Safety Trailer located by rig base of catwalk.

The location of windsocks or streamers. The wind directions indicators for this well will be located at:

Type: Windsock	Location: Briefing Area #1
Type: Windsock	Location: Briefing Area #2
Type: Windsock	Location: On floor & pits

The location of any other safety equipment used, such as flare guns or bug blowers.

Type: Flare gun — Location: Safety Trailer

The location of all telephones and/or means of communications are as follows:

Type: Cell phone — Location: Drilling Superintendent
Tool Pusher

Warning Signs:
"No Smoking" signs should be strategically located around the rig and rig location. The following locations are appropriate:

Rig Floor
Dog house
Substructure
Lower landing of all stairs to rig floor
Mud pits
Shale shaker

"Poison Gas" signs should also be strategically located around the rig and rig location.
The following locations are appropriate:

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All entrances leading to location
Lower landing of all stairs leading to rig floor
All areas around substructure, including mud pits and shale shaker
Various points along the perimeter of the radius of exposure

NOTE: *All warnings should be black and yellow in color and of readable size at a distance.*

4.20 OPERATING PROCEDURES

The following operating procedures will be utilized for drilling in areas with H2S.

A. Plan of operation for handling gas kicks and other problems. Any gas kick will be controlled by using approved well control techniques. Upon evidence that ambient H2S concentrations have reached 10 ppm, all non-essential personnel will be evacuated to pre-determined safe areas. Personnel remaining on the rig floor will continue to control the well until the situation indicates the area is safe to re-enter.

Special Operations:
Drill Stem Tests: All drill stem tests must be closed chamber and conducted during daylight hours only.
Coring: After a core has been cut, circulate bottoms up and monitor for H2S. If hole conditions (and/or detectors) indicate potentially hazardous conditions, put breathing equipment on (10) ten stands before core barrel reaches surface. Breathing equipment will be worn by all personnel while core barrel is pulled, broken out and opened, and until a safe atmosphere is indicated.
All equipment with potential for H2S shall be suitable for H2S service, i.e. Drill String, Casing, Well Head, Blowout Preventor equipment and trim, Rotating Head, Kill Lines, Choke Manifold and Lines.
A remote controlled choke will be installed prior to all H2S drilling.
Mud system pH will be maintained at or above 10.0 with sufficient materials on location to maintain the required pH.
A flare pit will be located a minimum of 150' from the wellhead and 30' from the reserve pit. Should H2S be encountered during drilling operations an *ignitable flaring system* will be used and burnable gas will then be vented to the atmosphere. Extreme caution will be noted for Sulfur Dioxide that is a by product of Hydrogen Sulfide when burned.

4.30 OPERATING CONDITIONS

Operating conditions are defined in three categories. A description of each of these conditions and the required action to take are given below.

A. Condition I – Normal Operating Conditions, Potential Danger

Characterized by: Normal Drilling Operations in zones which contain or may contain H2S.
Warning Flag: Yellow
Alarm: None
Probable Occurrence: No detectable gas present at surface
General Action:
Know location of safety equipment.
Check safety equipment for proper function. Keep it available.
Be alert for a condition change.
Follow instructions of supervisor.

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B. Condition II – Potential to Moderate Danger to Life

Characterized by: H2S gas present. Concentration less than 10 ppm.

Warning Flag:	Orange
Alarm:	Flashing light at 10 ppm H2S. Intermittent blasts on horn at 10 ppm H2S.
Probable Occurrence:	As drill gas.
	As trip gas when circulating bottoms up
	When a core barrel is pulled
	When a well kick is circulated out
	Surface pressure, well flow or lost operations
	Equipment failure during testing operations

General Action:
Follow instructions of supervisor.
Put on breathing equipment if directed, or is conditions warrant it.
Stay in "SAFE BRIEFING AREA" if instructed and not working to correct the problem.
The Drilling Superintendent will initiate action to reduce the H2S concentration to zero.

C. Condition III – Moderate to Extreme Danger to Life

Characterized by: H2S present in concentrations at or above 10 ppm. Critical well operations or well control problems. In the extreme, loss of well control.

Warning Flag:	Red
Alarm:	Flashing light and continuous blast on horn at 10 ppm H2S
Probable Occurrence:	As drill gas
	As trip gas when circulating bottoms up
	When a core barrel is pulled
	When a well kick is circulated out
	Surface pressure, well flow or lost return problems
	Equipment failure during testing operations

General Action:
Put on breathing equipment. Move to "SAFE BRIEFING AREA" and remain there is not working to correct or control problem.
Follow instructions of Drilling Superintendent or other supervisor.
The Drilling Superintendent will initiate emergency action as provided in the contingency plan and as appropriate to the actual conditions. If testing operations are in progress, the well will be shut in. The Drilling Superintendent will conduct any necessary operations with an absolute minimum of personnel. All persons in the immediate area will wear a breathing apparatus. All other personnel will restrict their movements to those directed by the Superintendent.

If gas containing hydrogen sulfide (H2S) is ignited, the burning hydrogen sulfide will be converted to sulfur dioxide, which is poisonous.

5.00 HYDROGEN SULFIDE EMERGENCY PROCEDURES

The procedures listed below apply to drilling and testing operations:

A. If at any time during Condition I, the mud logger, mud engineer, or any other person detects H2S, he will notify the Drilling Superintendent. All personnel should keep alert to the Drilling Superintendent's orders. He will:

1. Immediately begin to ascertain the cause or the source of the H2S and take steps to reduce the H2S concentration to zero. This should include having the mud engineer run a sulfide and pH determination on the flowline mud if water-base mud is in use. If an oil-base mud is in use, the mud engineer should check the lime content of the mud.

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2. Order non-essential personnel out of the potential danger area.
3. Order all personnel to check their safety equipment to see that it is working properly and in the proper location. Persons without breathing equipment will not be allowed to work in a hazard area.
4. Notify the Contract Supervisor of condition and action taken.
5. Continue gas monitoring activities and continue with caution.
6. Display the orange warning flag.

B. If the H2S concentration exceeds 10 ppm, the following steps will be taken:
1. Put on breathing equipment
2. Display red flag
3. Driller – prepare to shut the well in
   a. Pick up pipe to get Kelly out of BOP's
   b. Close BOP's if necessary
4. If testing operations are in progress, the well will be shut-in
5. Help anyone who may be affected by the gas
6. Evacuate quickly to the "SAFE BRIEFING AREA" if instructed or conditions warrant

C. In the event a potentially hazardous volume of H2S is released into the atmosphere, the following steps must be taken to alert the public:
1. Remove all rig personnel from the danger area and assembly at a pre-determined safe area, preferable upwind from the well site.
2. Alert the drilling office, public safety personnel, regulatory agencies, and the general public of the existence and location of an H2S release. See List of Emergency Telephone Numbers.
3. Assign personnel to block any public road (and access road to location) at the boundary of the area of exposure. Any unauthorized people within the area should be informed that an emergency exists and be ordered to leave immediately.
4. Request assistance from public safety personnel to control traffic and/or evacuate people from the threatened area.

6.00 TRAINING PROGRAM

All personnel associated with the drilling operations will receive training to ensure efficient and correct action in all situations. This training will be in the general areas of:
(A) Personnel Safety (B) Rig Operations (C) Well Control Procedures

A. Personnel Safety Training – All Personnel shall have received H2S training in the following areas:

1. Hazards and characteristics of H2S.
2. Effect on mental components of the system.
3. Safety precautions.
4. Operation of safety equipment and life support systems.
5. Corrective action and shutdown procedures.

B. Rig Operations – All rig personnel shall have received training in the following areas:
1. Well control procedures.
2. Layout and operations of the well control equipment.

NOTE: *Proficiency will be developed through BOP drills which will be documented by the Drilling Superintendent.*

7. Service Company Personnel – All service personnel shall be trained by their employers in the hazards and characteristics of H2S, and the operation of safety equipment, and life support systems.

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Visitors – All first time visitors to the location will be required to attend a safety orientation. The Drilling Superintendent shall be responsible for this orientation and he shall see that every visitor is logged correctly.

Public - The public within the area of exposure shall be given an advance briefing by the Drilling Superintendent. This briefing must include the following elements:

1. Hazards and characteristics of hydrogen sulfide. It is an extremely dangerous gas. It is normally detectable by its "rotten egg" odor, but odor is not a reliable means of detections because the sense of smell may be dulled or lost due to intake of the gas. It is colorless, transparent and flammable. It is heavier than air and may accumulate in low places.
2. The necessity of an emergency action plan. Due to the danger of persons exposed to hydrogen sulfide and the need for expeditious action should an emergency occur, this action plan will be put into effect if and when a leak occurs.
3. The location of hydrogen sulfide within the area of exposure at the drilling location.
4. The manner in which the public will be notified of an emergency.
5. Steps to be taken in case of an emergency.
6. Abandon danger area.
7. Notify necessary agencies and request assistance for controlling traffic and evacuating people.

7.00 PROTECTION OF THE GENERAL PUBLIC

7.10 NOTIFICATION OF POTENTIAL DANGER

- Warning signs will be prominently displayed at the well site and at all access points.

7.20 EMERGENCY EVACUATION AND ISOLATION OF DANGER AREA

In the event that toxic gases are released in such quantities as to be a possible hazard to the public, the following steps (in addition to the procedure outlines in Section 5.00) will be taken by the person in charge.

- Choose a command post site in a safe area
- Alert by telephone the Incident Commander or the Safety Manager and notify the person of the situation and your choice of command posts.

- Notify local Law Enforcement Officials of the need to restrict entry to the area and the location of your command post. Request their assistance in restricting entry into the danger area by placing roadblocks or barriers in safe areas.

NOTE: *Alternate command posts and roadblocks may be required; the Incident Commander may make changes in the locations listed above. Care should be taken to notify all responders of the changes.*

- If evacuation cannot be accomplished in a timely manner and the H2S release is posing an immediate threat to human life, the Incident Commander may choose to ignite the gas, Because of the increased risks igniting the gas can pose for response personnel, only the Incident Commander can give this order.

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APPENDIX A
AREA MAP

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APPENDIX B
LOCATION LAYOUT

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APPENDIX C
EMERGENCY CONTACT LIST

EPA 24-Hour Spill Notification Number	303-293-1788
Department of Transportation National Response Center	800-424-8802
Medical Personnel:	
Ambulance	911
Hospitals	
San Juan Regional Medical Center	505-325-5011
Lifeguard Air Emergency Services (life flight) (911)	800-345-7737
Firefighting & Public Safety Personnel:	
Fire Department	505-334-6622
Police Department	505-334-6622
County Sheriff	505-334-6622
State Patrol	505-325-7547
Government Agencies:	
County Health Department	505-334-9481
BLM Office (Farmington, NM)	505-599-8900
BLM Office (Durango, Colorado)	970-247-4874
NMOCD	505-334-6178
XTO Energy Drilling Personnel:	
Ross Lubers, Drilling Manager	303-397-3600
Bobby Jackson, Drilling Superintendent	505-333-3100
Ryan Rensink, XTO Energy Drilling Foreman.	505-486-6460
Justin Niederhofer, Drilling Engineer	505-330-6902
Mark Nietzel, OIMS Drilling Coordinator	505-486-2609
Service Companies:	
Pump Trucks: Halliburton Farmington, N.M.	505-324-3500
Dirt Contractor: TBD	
H2S Safety Company: McGuire Industries (Leroy Winters)	505-325-6232

Emergency calls should dial 911.

NOTE: ***If 911 are unavailable, call the applicable County Sheriff Dispatch number.***

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APPENDIX D
H2S RADIUS OF EXPOSURE

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APPENDIX E
H2S RADIUS OF EXPOSURE MAP

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APPENDIX F
HYDROGEN SULFIDE MSDS

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MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: HYDROGEN SULFIDE

TRADE NAMES/SYNONYMS:
MTG MSDS 54; HYDROGEN SULFIDE (H2S); DIHYDROGEN MONOSULFIDE; DIHYDROGEN SULFIDE; HYDROSULFURIC ACID; SULFUR DIHYDRIDE; SULFURETED HYDROGEN; SULFUR HYDRIDE; STINK DAMP; SEWER GAS; RCRA U135; UN 1053; H2S; MAT11210; RTECS MX1225000

CHEMICAL FAMILY: inorganic, gas

CREATION DATE: Jan 24 1989
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: HYDROGEN SULFIDE
CAS NUMBER: 7783-06-4
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=4 FIRE=4 REACTIVITY=0

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: gas
ODOR: rotten egg odor
MAJOR HEALTH HAZARDS: harmful if inhaled, respiratory tract irritation, skin irritation, eye irritation, blood damage
PHYSICAL HAZARDS: Flammable gas. May cause flash fire. Flash back hazard. Electrostatic charges may be generated by flow, agitation, etc.

POTENTIAL HEALTH EFFECTS:

INHALATION:
SHORT TERM EXPOSURE: irritation, cough, lack of sense of smell, sensitivity to light, changes in blood pressure, nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, disorientation, hallucinations, pain in extremities, tremors, visual disturbances, suffocation, lung congestion, internal bleeding, heart disorders, nerve damage, brain damage, convulsions, coma, death
LONG TERM EXPOSURE: loss of appetite, weight loss, irregular heartbeat, headache, sleep disturbances, lung congestion, nerve damage, paralysis, effects on the brain
SKIN CONTACT:
SHORT TERM EXPOSURE: irritation
LONG TERM EXPOSURE: skin disorders
EYE CONTACT:
SHORT TERM EXPOSURE: irritation, sensitivity to light, tearing, blurred vision, visual disturbances
LONG TERM EXPOSURE: irritation, sensitivity to light, tearing, blurred vision, eye damage
INGESTION:
SHORT TERM EXPOSURE: ingestion of a gas is unlikely
LONG TERM EXPOSURE: ingestion of a gas is unlikely

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If a large amount is swallowed, get medical attention.

ANTIDOTE: amyl nitrite, inhalation; sodium nitrite, intravenous; pyridoxine, intravenous; urea, intravenous. CAUTION! Get medical attention immediately.

NOTE TO PHYSICIAN: For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Pressurized containers may rupture or explode if exposed to sufficient heat. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

EXTINGUISHING MEDIA: Let burn unless leak can be stopped immediately. Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Cool containers with water spray until well after the fire is out. Keep unnecessary people away, isolate hazard area and deny entry. For tank, rail car or tank truck, evacuation radius: Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Stop flow of gas.

LOWER FLAMMABLE LIMIT: 4.0-4.3%
UPPER FLAMMABLE LIMIT: 44-46%
AUTOIGNITION: 500 F (260 C)

6. ACCIDENTAL RELEASE MEASURES

AIR RELEASE:
Reduce vapors with water spray. Collect runoff for disposal as potential hazardous waste.

SOIL RELEASE:
Dike for later disposal. Absorb with sand or other non-combustible material. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).

WATER RELEASE:
Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).

OCCUPATIONAL RELEASE:
Do not touch spilled material. Stop leak if possible without personal risk. Avoid heat, flames, sparks and other sources of ignition. Remove sources of ignition. Reduce vapors with water spray. Do not get water directly on material. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. For tank, rail car or tank truck: 800 meters (1/2 mile). Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store outside or in a detached building. Store in a cool, dry place. Store in a well-ventilated area. Avoid contact with light. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Notify State Emergency Response Commission for storage or use at amounts greater than

or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355 Part B). Keep separated from incompatible substances.

HANDLING: Subject to handling regulations: U.S. OSHA 29 CFR 1910.119.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
HYDROGEN SULFIDE:
20 ppm OSHA ceiling
50 ppm OSHA peak 10 minute(s) (once if no other measurable exposure occurs)
10 ppm (14 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993)
15 ppm (21 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)
10 ppm ACGIH TWA
15 ppm ACGIH STEL
10 ppm (15 mg/m3) NIOSH recommended ceiling 10 minute(s)

VENTILATION: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

PROTECTIVE MATERIAL TYPES: butyl rubber, polyvinyl chloride (PVC), neoprene

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
100 ppm
Any powered, air-purifying respirator with cartridge(s) providing protection against this substance.
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern.
Any supplied-air respirator.
Any self-contained breathing apparatus with a full facepiece.
Emergency or planned entry into unknown concentrations or IDLH conditions -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape -

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern.
Any appropriate escape-type, self-contained breathing apparatus.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas
COLOR: colorless
ODOR: rotten egg odor
TASTE: sweet taste
MOLECULAR WEIGHT: 34.08
MOLECULAR FORMULA: H2-S
BOILING POINT: -78 to -77 F (-61 to -60.3 C)
FREEZING POINT: -123 F (-86 C)
TRIPLE POINT: -122 F (-85.6 C)
VAPOR PRESSURE: 15200 mmHg @ 25 C
VAPOR DENSITY (air=1): 1.2
SPECIFIC GRAVITY (water=1): 1.192
DENSITY: 1.539 g/L @ 0 C
WATER SOLUBILITY: 2.58-2.9% @ 20 C
PH: 4.5-<7 (saturated solution)
VOLATILITY: Not applicable
ODOR THRESHOLD: 0.13 ppm
EVAPORATION RATE: Not applicable
VISCOSITY: 0.0128 cP @ 25 C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable
SOLVENT SOLUBILITY:
Soluble: carbon disulfide, alcohol, ether, glycerol, gasolines, kerosene, crude oil, alkali solutions

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers.

INCOMPATIBILITIES: combustible materials, metals, oxidizing materials, halogens, metal oxides, metal salts, bases

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: oxides of sulfur

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

HYDROGEN SULFIDE:
IRRITATION DATA: 0.000125 ppm/5 hour(s) eyes-human
TOXICITY DATA: 444 ppm inhalation-rat LC50
LOCAL EFFECTS:
Irritant: inhalation, skin, eye
ACUTE TOXICITY LEVEL:
Toxic: inhalation
TARGET ORGANS: blood
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: eye disorders, respiratory disorders, nervous system disorders
REPRODUCTIVE EFFECTS DATA: Available.
ADDITIONAL DATA: Alcohol may enhance the toxic effects.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
FISH TOXICITY: 14.9 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (Pimephales promelas)

INVERTEBRATE TOXICITY: 9730 ug/L 1.5 hour(s) (Mortality) Mediterranean mussel (Mytilus galloprovincialis)

ENVIRONMENTAL SUMMARY: Highly toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U135.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Hydrogen sulfide
ID NUMBER: UN1053
HAZARD CLASS OR DIVISION: 2.3
LABELING REQUIREMENTS: 2.3; 2.1
QUANTITY LIMITATIONS:
PASSENGER AIRCRAFT OR RAILCAR: Forbidden
CARGO AIRCRAFT ONLY: Forbidden
ADDITIONAL SHIPPING DESCRIPTION: Toxic-Inhalation Hazard Zone B

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Hydrogen sulphide
UN NUMBER: UN1053
CLASS: 2.3; 2.1

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
HYDROGEN SULFIDE: 100 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B):
HYDROGEN SULFIDE: 500 LBS TPQ

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):
HYDROGEN SULFIDE: 100 LBS RQ

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: Yes
FIRE: Yes
REACTIVE: No
SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65):
HYDROGEN SULFIDE: Administrative stay issued Aug. 22, 1994

OSHA PROCESS SAFETY (29 CFR 1910.119):
HYDROGEN SULFIDE: 1500 LBS TQ

STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: A, B1, D1A, D2B.

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Listed on inventory.

16. OTHER INFORMATION

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XTO ENERGY

APPENDIX G
EMPLOYEE SIGNOFF SHEET

I have read the XTO Energy Inc. EMERGENCY RESPONSE PLAN/PUBLIC PROTECTION PLAN and understand its contents. I understand my personal responsibilities under this policy and will make use of this information to contribute to safety of the public and for my own personal safety while an employee of XTO Energy Inc.

Signed **Date**

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An ExxonMobil Subsidiary

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