MARATHON

SAFETY
Our Measurement
OF EXCELLENCE

Public Protection Plan
Marathon Oil Company – W. S. Marshall Lease – Eunice, NM

Table of Contents

Purpose:

This plan is intended to protect the health and safety of the public, contractors, and Marathon personnel should an unanticipated release of a potentially hazardous volume of Hydrogen Sulfide (H_2S) occur.

Scope:

This plan covers the W. S. Marshall B lease located in and near Eunice, NM. Detailed in this plan is a list of H2S calculations and Radius of Exposure (ROE) limits for the wells and facilities contained within the lease.

Definitions:

All Clear – Notification of effected personnel, by the response leader, that the incident has ended and the area is safe to re-enter.

A Potentially Hazardous Volume means a volume of hydrogen sulfide (H_2S) gas of such concentration that:

- The 100-ppm ROE includes any public area.
- The 500-ppm ROE includes any public road.
- The 100-ppm ROE exceeds 3,000 feet.

Facility – Equipment involved in producing, processing, or transporting natural gas and/or crude oil, including the property to the edge of the pad or fence.

Hydrogen Sulfide Gas (H_2S) – An extremely flammable, colorless, poisonous gas that may occur naturally as a component of production streams, such as crude oil, produced water and natural gas. At low concentrations it has a rotten egg odor, but at higher concentrations deadens the sense of smell. Its specific gravity is heavier than air giving it a tendency to collect in low-lying areas on still days. The permissible exposure limit is 10 ppm and the short term exposure limit is 15 ppm. It is considered to be immediately dangerous to life and health at 300 ppm. H_2S is readily dispersed in air and is water soluble.

ICS (Incident Command System) – A team based concept for emergency response in which roles and responsibilities are predetermined.

Incident Commander (IC) – Senior Marathon employee in charge of an emergency response.

Incipient Stage Fire – A fire in the beginning or very early stages of development which can be effectively extinguished by one or more persons with portable fire fighting equipment.

Muster site - A pre-defined staging or meeting area.

RMS Level I – An emergency that can be reasonably addressed by SBU Area Office in which the incident occurs and that can be resolved in approximately two days or less.

ROE (Radius of Exposure) – The radius constructed with the point of escape (of gas) as its starting point and its length calculated using the Pasquill-Gifford derived equation or computer modeling where the H_2S concentration is greater than 10%.

PPM – Parts per Million

Public Area – Any building or structure that is not associated with the well, facility or operation for which the ROE is being calculated and that is used as a dwelling, office, place of business, church,

school, hospital, or government building, or any portion of a park, city, town, village or designated school bus stop or other similar area where members of the public may reasonably be expected to be present.

Public Road – Any federal, state, municipal or county road or highway.

SBU – Southern Business Unit

Serious Incident – An event which results or has the potential to result in severe personal injury and/or significant equipment damage.

Sulfur Dioxide (SO_2) – A heavy colorless toxic gas that is formed when hydrogen sulfide is burned. It has a pungent odor and is a respiratory irritant. The permissible exposure limit is 2 ppm, the short term exposure limit is 5 ppm, It is considered to be immediately dangerous to life and health at 100 ppm. SO_2 is readily dispersed in air and is water soluble.

Total Personnel Evacuation – An evacuation of all person (Marathon employees, contract employees, or visitors) from the emergency area to a muster area.

Description:

The W. S. Marshall lease is located in and near Eunice, New Mexico, on the northeast side, in unit letters K, L, M and N of section 27, township 21 south, range 37 east. It consists of a tank battery, nine active wells, two heater treaters, two separators, associated piping, and equipment. The primary gas sources of concern are discussed in more detail below. These wells produce gas from the Blinebry Oil & Gas, Wantz Abo, Drindard, Tubb Oil & Gas, and the Paddock pools. The hydrogen sulfide content of the gas varies from well to well. All gas streams were sampled September 25, 2003 by Dennis Williams, HES Technician, using Sensidyne detector tubes (for H_2S). Wellhead gas samples were taken at the casing valve, the meter runs were sampled at the first fitting downstream of the orifice plate (if available) and the tanks were sampled at the hatch.
The tank battery has five tanks with a total combined storage capacity of 1,700 barrels. Total daily fluid production to the battery is approximately 480 barrels per day. The tanks have an earthen dike, with a capacity of 2300 barrels, to contain any spillage. As an additional safety feature, dike level alarms have been installed to provide to MOC personnel with early warning in the event of a spill. The tank fluid management procedure is attached. Any runoff from the battery would travel to the south into a drainage ditch that runs to the east.

The Plan:

Training:

All personnel (company, contractors and sub-contractors) working for Marathon Oil Company are required to complete hydrogen sulfide training before beginning work and annually thereafter.

Training on the contents of this plan shall be provided to all Marathon and appropriate contract personnel:

- initially when the plan is first implemented,
- whenever the employees' responsibilities or designated actions under the plan change,
- whenever the contents of the plan are changed/revised,
- whenever a new employee begins employment, and
- periodically as needed for all employees.

Marathon supervision is responsible for this training. Mock emergency drills involving facility evacuation and public protection measures shall be held periodically. Training and drills shall be critiqued, documented and kept on file for future reference.

H_2S Monitors:

All personnel are required to wear a personal H_2S monitor at all times. Monitors should have a vibrating alarm if used in high noise areas.

Provisions for Public Protection:

Eight-foot chain-link fencing topped with three strands of barbed wire surrounds the battery, heater treaters and well heads. All gates are locked.

Signs are posted at all facilities that warn of recognized hazards including;

H2S
No Smoking
Automatic Start
Authorized Personnel Only
Personal Protective Equipment Requirements
Emergency Contact Number

Windsocks are located at the tank battery, and wells locations near residential homes. (Wells 1, 2, 5, 6, 8 & 10)

Gas monitors are installed at wells 1, 5, 8, and 6. The monitors are calibrated regularly to ensure proper function. If a sensor goes into alarm, the system notifies our answering service and responsible lease operator by cell phone. The answering service will ensure the on-call Marathon person is contacted. The lease operator will investigate and respond according to the situation.

Above ground flow-lines run from each well to the battery. These lines are buried at road crossings. Safety devices that shut off flow in the event of a line part are installed on wells 1, 5, 6 and 8.

Activation:

Phase I - activated when:

1. Sustained H_2S concentration reaches 10 parts per million (ppm) in any work area and the source is not readily identified and/or controllable.
2. Continuous H_2S levels are detected at 10 ppm (or greater) at any public road, near an occupied residence or bus stop, and the source is not readily identified and/or immediately controlled.

Phase II – activated when:

1. A potentially hazardous volume of H_2S is detected.
2. When sustained H_2S concentrations exceed 50 ppm at any boundary.

Phase I:

Upon discovery on-site personnel should;

- ❑ Make others on-site aware of the presence of H_2S and leave the area upwind or crosswind to a safe location. (Pre-determined if a pre-job tailgate meeting was conducted).
- ❑ Prevent unauthorized persons from entering the area. Request assistance if needed.

- ❑ If a residence or other public area is in the vicinity, monitor for H_2S to ensure exposure is less than 10 ppm. Notify supervision if higher exposures are noted or if any other questions arise about steps necessary to protect these sensitive areas.
- ❑ If considering re-entering the area to assess the H_2S source, ensure you have been properly trained to respond. Use an H_2S monitor with digital display (preferably a multi-gas monitor) and have a supplied air respirator (SAR) and back up person with SAR readily available. Consider notification of supervisor if appropriate.
- ❑ Proceed with caution. If H_2S concentration reaches 10 ppm in your breathing zone, back out and use SAR to re-enter. **If H_2S concentration reaches 50 ppm at the facility boundary immediately notify supervision.**
- ❑ If source can be safely controlled, monitor area to ensure H_2S levels are below 10 ppm. End response here and sound all clear to allow others to re-enter the area. Report length of release and volume to supervisor.
- ❑ If the source of H_2S cannot be identified and/or controlled, or if you cannot do so with out exposing yourself to danger, leave the area to a safe distance.
- ❑ Notify supervision
- ❑ Continue to monitor for H_2S and maintain site security until instructed by supervision to do otherwise.

Supervision;

- ❑ Gather necessary information to determine the course of action and level of response.
- ❑ Mobilize any additional man power or equipment necessary.
- ❑ Ensure Phase II measures are implemented if appropriate.
- ❑ Continue to monitor situation until incident is over.
- ❑ Make notifications if required.
- ❑ Complete reports if required.
- ❑ Investigate as indicated.
  Reference: SBU Emergency Response Plan for reporting guidance.

Phase II

Upon discovery on-site personnel should;

- ❑ Make others on-site aware of the presence of H_2S and leave the area upwind or crosswind to a safe location. (Pre-determined if a pre-job tailgate meeting was conducted).
- ❑ Active the facility ESD if available and it can be safely done.
- ❑ Prevent unauthorized persons from entering the area.
- ❑ **Notify Supervisor**.

Supervision;

- ❑ Initiate the Incident Command System as deemed appropriate.
- ❑ Mobilize the resources necessary to maintain site security and provide for the protection of personnel and the public.
- ❑ Issue warnings to all MOC personnel by radio and or phone to make them aware of the incident and its location. Have non-essential personnel leave the area. If deemed necessary, order total personnel evacuation of the area.
- ❑ Notify non-company personnel known to work or reside in the area. If necessary to ensure their safety, dispatch MOC personnel with the appropriate monitor, supplied air respirators and means of communication to these locations.
- ❑ Have MOC personnel set up road blocks to prevent unauthorized entry into impacted areas until relieved by law enforcement or other authorized personnel.
- ❑ Make all appropriate notifications to MOC, Federal, State and local authorities. *Reference: SBU Emergency Response Plan for reporting guidance* (section 9.0)
- ❑ When the release has been contained and monitoring indicates the area is safe to re-enter, terminate operations and sound the all clear.
- ❑ Complete reports if required.

- ❑ Investigate as indicated.
- ❑ For spills, well blowouts, fires, natural disasters and terrorist or bomb threats are found in the *SBU Emergency Response Plan* (Appendix B Response Guidance Documents).

All other personnel not involved in the immediate response;

- ❑ If a total evacuation is ordered, report to the Incident command center or nearest muster site to which you have safe access. (*See appendix A for muster site locations)*
- ❑ Ensure all contract personnel working for you (or in your area) are accounted for and have them report to a safe muster site.
- ❑ Senior employee at each muster site should make a roster of all personnel reporting to that muster site and be prepared to make it available to the incident commander (IC).
- ❑ Maintain communication with the IC and be prepared to offer assistance as it is requested.

Ignition of H_2S:

While no uncontrollable release of H_2S is anticipated, should ignition of gas be necessary for the protection of personnel or the public, the determination would be made by the Marathon Incident Commander. The method of ignition will maintain the safety of the person performing this task as the primary concern. The most likely method would be the use of a flare gun from a safe distance.

If this becomes necessary, monitoring will include sulfur dioxide (SO_2) in addition to H_2S.

ROE Calculations:

NOTE: Test Gas Rate is highest monthly test three (3) most recent tests as of 6/1/03
NOTE: Test Gas Rate is under assumption that well is vented to atmosphere with artificial lift still working.

	% over test buffer =10%				Pasquill - Gifford		Surface Hole Location			
API NUMBER	Well Name	H2S(ppm)	Gas Rate (MSCFD)	Gas Rate (MSCFD) w/Buffer	100 ppm	500 ppm	Sec.	Tsp	Rng	UL
30025099340000	W S MARSHALL B NO 1	0	200	220	0	0	27	21S	37E	N
30025068190000	W S MARSHALL B NO 2	1,000	116	128	28	13	27	21S	37E	M
30025068200000	W S MARSHALL B NO 3	6,000	42	46	45	21	27	21S	37E	K
30025068210000	W S MARSHALL B NO 4	6,000	70	77	62	28	27	21S	37E	L
30025068240000	W S MARSHALL B NO 6	6,000	75	83	65	30	27	21S	37E	M
30025068220000	W S MARSHALL B NO 7	0	179	197	0	0	27	21S	37E	L
30025068250000	W S MARSHALL B NO 8	10,000	150	165	138	63	27	21S	37E	L
30025068260000	W S MARSHALL B NO 9	1,000	120	132	28	13	27	21S	37E	K
30025297970000	W S MARSHALL B NO 10	1,000	146	161	32	15	27	21S	37E	M

*W. S. Marshall well #5, Shut-in

Hobbs ICS Structure:

Postion	Office Phone	Pager	Mobile/ Cellular	Home Phone
Incident Commander				
Sam Hakes	432-688-1408	N/A	432-238-0213	432-685-1055
Tony Hallum	432-688-1403	N/A	505-390-8871	505-392-8426
Operations Section				
Tony Hallum	432-688-1403	N/A	505-390-8871	505-392-8426
Terry Morehead	505-393-7106 ext 212	N/A	505-390-8872	505-392-1457
Planning Section				
Chris Chesser	505-393-7106 ext 203	N/A	505-390-8860	505-392-1389
Rodney Lathram	505-393-7106 ext 213	N/A	505-390-8865	505-392-3644
Logistics Section				
Jeff Mosley	505-393-7106 ext 216	N/A	505-390-8870	505-392-2078
Safety/Environmental				
Dennis Williams	505-393-7106 ext 201	N/A	505-390-8867	505-392-8077
Pat Reynolds	505 -457-2621 ext 139	866 499-7628	505-365-7514	505-748-1472
Public Affairs				
Tony Hallum	432-688-1403	N/A	505-390-8871	505-392-8426
Dennis Williams	505-393-7106 ext 201	N/A	505-390-8867	505-392-8077

Emergency Equipment:

Located in Hobbs	
ITEM	**QUANTITY**
5' x 8' enclosed trailer	1
5' x 28" safety supply cabinet	1
30# fire extinguisher with bracket	1
24 unit first aid kid- windsocks, frames, and poles	1
72' x 60" water gel blanket	1
First aid stretcher	1
Briefing area signs	2
Well condition signs with flags	2
Biohazard bags	Various
Absorbent pad	Various
Barrier tape	Various
ICS note pads	Various
Lockout box and material	1
NIOSH pocket guide to chemical hazards	1
Emergency Response Guidebook	1
Bullhorn	1
Explosion proof flashlight	2

Emergency Numbers:

AGENCY/INSTITUTION	LOCATION	PHONE NUMBER
POLICE	HOBBS	911 OR 505-397-9265
	EUNICE	911 OR 505-394-2112
	CARLSBAD	911 OR 505-885-2111
	ARTESIA	911 OR 505-746-2703
FIRE	HOBBS	911 OR 505-397-9308
	EUNICE	911 OR 515-394-3258
	CARLSBAD	911 OR 505-885-2111
	ARTESIA	911 OR 505-746-2701
AMBULANCE	HOBBS	911 OR 505-397-9308
	EUNICE	911 OR 505-394-3258
	CARLSBAD	911 OR 505-885-2111
	ARTESIA	911 OR 505-746-2701
HOSPITALS	HOBBS	505-492-5000
	HOBBS	505-392-5571
	CARLSBAD	505-887-4100
	ARTESIA	505-748-3333
STATE POLICE	HOBBS	505-392-5588 OR 505-392-5580
	EUNICE	505-392-5588 OR 505-392-5580
	CARLSBAD	505-885-3138
	ARTESIA	505-885-3138

State Agencies:

Oil Conservation Division (OCD)
2040 South Pacheco
Santa Fe, New Mexico 87505
Phone: (505) 827- 7132
Fax (915) 827-8177

OCD District 1 Office (Hobbs)
1625 N. French Dr,
Hobbs, NM 88240
Phone: (505) 393-6161
Fax: (505) 393-0720

Mailing Address
P. O. Box 1980
Hobbs, NM 88241

OCD District 2 (Artesia)
811 S. 1st Street
Artesia, NM 88210
Phone: (505) 748-1283
Fax: (505) 748-9720

OCD District 3 (Aztec)
1000 Rio Brazos Road
Aztec, NM 87410
Phone: (505) 334-6178
Fax: (505) 334-6170

New Mexico Environmental Department (NMED)
Harold S. Runnels Building
1190 St. Francis Drive
Santa Fe, NM 87505-4182
Phone: (800) 219-6157 or (505) 827-2855

NMED Air Quality Bureau
Harold S. Runnels Building
1190 St. Francis Drive
Santa Fe, NM 87505-4182
Phone: (505)827-0031

NMED Ground Water Bureau
Harold S. Runnels Building
1190 St. Francis Drive
Santa Fe, NM 87505-4182
Phone: (505) 827-2919

NMED Surface Water Bureau
Harold S. Runnels Building
1190 St. Francis Drive
Santa Fe, NM 87505-4182
(505) 827-0187

NMED Hazardous and Radioactive Materials Bureau
Harold S. Runnels Building
1190 St. Francis Drive
Santa Fe, NM 87505-4182
Phone: (505) 827-1557

NMED Solid Waste Bureau
Harold S. Runnels Building
1190 St. Francis Drive
Santa Fe, NM 87505-4182
Phone: (505) 827-2775

NMED Occupational Health and Safety Bureau
Harold S. Runnels Building
1190 St. Francis Drive
Santa Fe, NM 87505-4182
Phone: (505) 827-4230

New Mexico State Police
Hazardous Materials Response (Santa Fe)
Phone (505) 827-9301
24 hour (505) 827-9126

New Mexico State Police District Offices

Roswell
24 hour (505) 622-7200

Farmington
24 hour (505) 325-7547

Gallup
24 hour (505) 863-9353

Map:

Marathon Oil Co.
W.S. Marshall
Eunice, NM