
Appendix D
Cimarex Energy Emergency Contingency Plan

**Emergency Contingency Plan
Rands Butte Gas Development Project**

Sublette County, Wyoming

**Prepared by
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for

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Introduction

Cimarex Energy (Cimarex) is committed to protecting the health and safety of all who work, live, and recreate within the region. Cimarex has developed this Emergency Contingency Plan (Plan) to manage risk and mitigate emergency situations that may arise during the development and operation of the proposed Rands Butte project. The purpose of this Plan is to act as a guide for Cimarex personnel, contractors, and emergency response officials who may be in or near the project area in the event of an emergency situation occurring. For the Plan to be effective, all employees, contractors, and emergency response personnel must be familiar with and trained regarding all aspects of the Plan. The Plan will also be used in concurrence with the existing Cimarex Environmental, Safety, and Health Manual (ES&H) (Cimarex 2007).

It is the policy of Cimarex to provide a safe work environment to all employees, contractors, and local residents who work, live or recreate in or near the project area. The Plan describes how Cimarex will manage risk and emergency response associated with the project. Details of emergency response policies and procedures used for the assessment and response of the Cimarex operations will provide for a safe environment for the Rands Butte project. The Plan will ensure that Cimarex will:

- Make certain that all Cimarex employees and contractors understand working safely is necessary part of their employment and inherent risks of their jobs are managed continuously to achieve a desired level of safety.
- Provide all employees, contractors, and visitors to the project area the capabilities, knowledge, and resources necessary to respond correctly and efficiently to any emergency situation that may arise.
- Manage all aspects of the project during construction and production in a way that protects employees, contractors, the general public, and the environment with the utmost regard and accountability.
- Work with government agencies and the general public to provide an operation which performs in the highest standard and protects the environment in which it exists and will respond in a prudent manner to any emergency situation that could occur within the project area.

The Plan within this document will detail emergency responses to a hydrogen sulfide (H₂S), methane, or any hazardous substance release that may occur within the project area during the construction and operation of the project. All Cimarex personnel, including company contractors, will be trained in all aspects of the project operation, operator safety, and emergency response protocol before allowing admittance to the project area. The training will be given in conjunction with the ES&H training for all new employees, visitors, and contractors. All trained Cimarex personnel and contractors will complete an annual refresher course which will cover the Cimarex ES&H and the Plan.

Plan Distribution and Emergency Contact Information

This document will be supplied to emergency agencies and to personnel within all federal, state, and local emergency agencies responsible for response to emergency conditions. These conditions may arise from any accidental release of any hazardous substances from within the project area. All pertinent emergency response agencies are included within Table 1 below as well as emergency notification outlets.

The distribution of the Plan will provide all agencies and emergency organizations with the primary information necessary to respond to any type of emergency that could occur within the project area. **An electronic copy of this manual will also be posted on the Cimarex Energy website at www.cimarex.com.** Included within this Plan is a community notification and evacuation checklist to be used by emergency personnel for the determination of necessary evacuation procedures in the event of an urgent situation which would require evacuation (See Table 2).

Table 1. Emergency Management Contacts for Federal, State, and Local Agencies

Agency	Address	Phone Contact	Contact
Sublette County Emergency Management Agency	P.O. Box 701 Pinedale, WY 82941	307-367-4378 or 307-276-5448	Emergency Response Coordinator
Sublette County Sheriff's Department	P.O. Box 701 Pinedale, WY 82941	307-367-4378 or 307-276-5448	Sublette County Sheriff
Sublette County Tip Top Search and Rescue	P.O. Box 913 Big Piney, WY 83113	307-367-4378 or 307-276-5448	Search and Rescue Coordinator
United States Forest Service	P.O. Box 218 Big Piney, WY 83113	307-276-5800	District Ranger
BLM Pinedale Resource Area	P.O. Box 768 Pinedale, WY 82941	307-367-5300	Field Manager
Wyoming Highway Patrol	P.O. Box 1260 Rock Springs, WY 82901	(800) 442-9090 or 911	Emergency Response Coordinator
City of Big Piney	P.O. Box 70, Big Piney, WY 83113	307-276-3554	Town Clerk
City of Marbleton	10700 US 189 Marbleton, WY 83113	307-276-3815	Town Clerk
Marbleton/Big Piney Medical Clinic	17 W 3rd, Marbleton, WY 83113	307-276-3306	Emergency Room
Medical Helicopter	Air Med Salt Lake City, UT	(800) 453-0120	
Pinedale Fire Department	130 S Fremont PO Box 653, Pinedale, WY 82941	(307) 367-4550	Emergency Manager

KPIN Radio	219 E Pine St, Ste 112, PO Box 2000, Pinedale, WY 82941	307-367-2000	
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Emergency Organization of Cimarex Energy

Cimarex has an existing internal organization of trained personnel to handle emergency situations at the companies Project Area. The Cimarex emergency response team is comprised of trained employees who have the knowledge and skills for handling emergency situations under varying conditions. The following emergency organizational chart (Figure 1) provides information about Cimarex's emergency organization chain-of-command which would be present during any emergency operational situations. Included within the chart are the construction, drilling, and the plant operations organizational chains with appropriate contact information.

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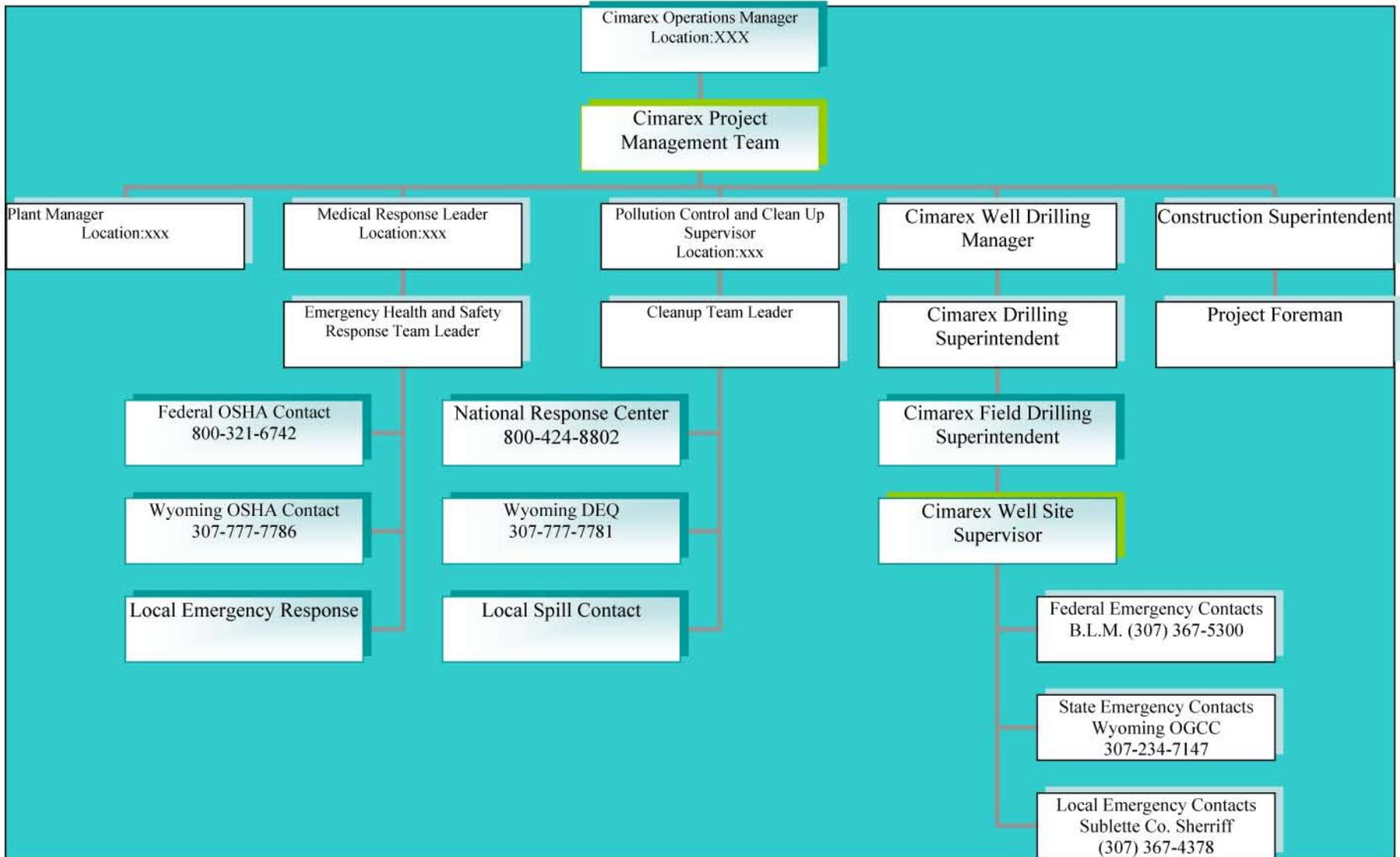


Figure 1. Cimarex Energy Emergency Response Organization Chart

Leak Detection and Alarm System

Cimarex has established systems for the detection of gas escape, determination of the exact location and magnitude of any leak, and verification of real problems vs false alarms. Leak detection systems include the following:

- All production and processing facilities will have electronic sensors installed to continuously monitor production levels and pressure.
- Sensors will be continuously monitored at control centers located in the Methane and Helium Recovery Facility (M&HRF) and Cimarex project office located within the town of Big Piney.
- Air sensors with alarms (both visual and audible) will be located throughout the project area to detect and alert personnel of possible H₂S leaks within the production and processing areas.
- Determination of leak magnitude will be made by air sensors and will be automatic.
- Audible and electronic alarms will be automatic and continuous until disengaged by the Emergency Response Facilities.
- Determination of climatic conditions affecting gas movement will be automatic based on real-time data communication from Ambient Air Quality and Air Monitoring Station.
- Data communication between air sensors and air monitoring station and the Emergency Response Centers will be instantaneous and continuous via buried fiber optic lines.
- Determination of the exact location of detected leaks will be electronic and linked to the location of the sensor.

Emergency Response Facilities

In the event that a leak is detected and verified, Cimarex has two local operational emergency response locations, each location having process shutdown and emergency response capabilities. The first emergency response site is located within the project area and would be situated in the Methane and Helium Recovery Facility (M&HRF) at Township 29 North, Range 114 West, Section 17. A second remote monitoring and emergency shutdown location would be located at the Cimarex project office located within the town of Big Piney approximately 17 miles east of the production and injection well sites and the M&HRF.

Both operation locations would continuously monitor all aspects of recovery, production, injection, and transport of raw and processed gases and by-products. All operations and current conditions will be monitored real-time and a response to any emergency situation may occur directly from an operation center upon receiving information from any sensors. All wells, including the injection well, the M&HRF, as well as an installed meteorological station located within the project area would be connected to the operation center by a buried fiber optic cable. The communication cable would provide

constant data transmissions to the control rooms. In the event of any power failure, a diesel generator, located at the M&HRF location, would supply backup power to the project area and still provide remote shutoff capabilities in the event of any emergency situation.

All Cimarex employees have the authority to shutdown any operation if they believe there are possible risks to the health or safety of personnel or the environment. Any emergency incident report or response will be directed to the Cimarex project office at the company emergency notification number. This is the same number that is posted on all Cimarex project signs positioned throughout the project area. Other contacts may include the Sublette County Sheriff's office or the Pinedale Fire Department.

ALL NUMBERS TO BE DETERMINED IN FINAL PLAN

Cimarex 24-Hour Emergency Number	(800) XXX-XXXX
Cimarex Project Office – Pinedale	(XXX) XXX-XXXX
Methane & Helium Recovery Facility	(XXX) XXX-XXXX
Cimarex Operations Manager	(XXX) XXX-XXXX (office) (XXX) XXX-XXXX (cell)
Cimarex Plant Manager	(XXX) XXX-XXXX (office) (XXX) XXX-XXXX (cell)
Drilling Superintendent	(XXX) XXX-XXXX (office) (XXX) XXX-XXXX (cell)

Cimarex Notification of Emergency Agencies

In any case of an emergency situation, Cimarex will enact the company emergency contingency response. The Cimarex Operations Manager or his designated alternate will contact the Sublette County Sheriff's Office. The Operation Manager will inform the Sheriff office the nature and extent of emergency as well as the existing site conditions. The Cimarex Operations Manager will also advise the Sheriff's office personnel as to the extent of the emergency response required and possible evacuation and project area closures necessary to protect the general public.

Community Notification and Evacuation

Any emergency situation to occur within the project area should be reported directly to Cimarex at the operations centers which are manned 24 hours per day, 7 days a week. Both the M&HRF plant and the project office located within Big Piney have emergency response and operations shutdown capabilities. The emergency contact phone numbers for each facility is listed below:

- Methane and Helium Recovery Facility Plant – (XXX)XXX-XXXX
- Cimarex Project Office, Big Piney, Wyoming – (XXX)XXX-XXXX

The Operations Manager or designate has the authority upon the report of emergency conditions to activate the emergency contingency response. The Operations Manager will notify the designated emergency response agencies to report the emergency situation and define the affected areas where public warning and evacuation may be necessary. The Operations Manager or designate will be the direct point-of-contact for Cimarex with the emergency response agency manager during existing emergency conditions.

In consultation with the emergency response agency, if an area is determined to require emergency evacuation, the area prescribed for evacuation will be defined by the Operations Manager based upon known conditions within the Project Area upon consultation with the Sublette County Sheriff's office. Evacuation information will be relayed directly to the Sublette County emergency response manager or official. The emergency response agency will use available personnel from listed agencies within Table 1 necessary to complete the evacuation order within the most prudent time frame possible. Agencies included within Table 1 include Federal, State, and Local emergency managers and personnel.

Emergency Response Evacuation

Hydrogen Sulfide (H₂S) Release

Any release of H₂S with a concentration present within the ambient atmospheric media greater than the specified 10 part per million (ppm) health threshold pose a threat to Cimarex personnel, contractors, and the general public who may be present within the

project area. At H₂S atmospheric concentrations which may greater than 100 ppm, a rapid response and evacuation of possible receptors is necessary to protect human life. Procedures for an emergency area evacuation are designed to reduce the risk of exposure to all people who may be within the specified 100 and 500 ppm radius-of-exposure (ROE). The ROE for the 100 and 500 ppm concentration levels within the atmosphere may be calculated by the method outlined within the BLM Onshore Oil and Gas Order No. 6 (1990) or other applicable methods. This publication is considered the agencies standard of performance for operators, employees, and contractors completing work within areas known to produce hydrogen sulfide (H₂S) or sulfur dioxide (SO₂) during potential flaring operations. These ROE levels of concentrations produce areas where possible injury or death of receptors may occur if protective measures or evacuations are not employed when the emergency conditions occur.

The ROE calculated for 100 and 500 ppm H₂S concentration levels is Figure 2. The concentration values are applicable to the specified equations when H₂S concentrations are less than 10% of the total gas stream volume. The equations for the specified concentrations are for a:

- 100 ppm ROE, where loss of smell occurs within minutes and death occurs within 48 hours,

$$\text{ROE} = [(1.589)(\text{H}_2\text{S concentration})(Q)]^{0.6258}$$

or,

- 500 ppm ROE, where dizziness occurs and breathing may cease in minutes,

$$\text{ROE} = [(0.4546)(\text{H}_2\text{S concentration})(Q)]^{0.6258}$$

Where:

H₂S concentration = decimal equivalent of mole or volume fractions of H₂S in gaseous mixture.

Q = maximum volume of gas available for escape in cubic feet per day at 14.73 psia and 60°F.

The ROE will define the specific areal extent where evacuation and limited or restricted access may be required. Climatic conditions will require that evacuation occur in downwind corridors of ROE first. Ongoing assessment of climatic conditions within the project area will assure that evacuations activity occurs in areas that are impacted if climatic conditions change within the project area. Based upon Cimarex (2008) calculation for specified gas escape rates and H₂S concentrations, the ROE parameters calculated are included within Table 2.

Table 2. Calculated Parameters for Radius of Exposures of Designated H₂S Releases¹

H ₂ S Concentration	Gas Escape Rate (scfd ₂)	ROE Concentration (ppm)	
		100	500
		Distance, feet (miles)	Distance, feet (miles)
0.04617	4 x 10 ⁷	11,153 (2.1)	5,096 (1.0)
0.04617	6 x 10 ⁷	17,210 (3.3)	7,864 (1.5)
0.04617	8 x 10 ⁷	22,181 (4.2)	10,136 (1.9)

¹ At 14.73 psia and 60°F

² Standard Cubic Feet per Day

Entry into the evacuation area will be restricted to personnel and emergency response officials who have training and safety equipment sufficient to protect them from existing environmental conditions. The access into the Project Area will be limited with the implementation of security road blocks located at the project ingress/egress sites. Because of the remoteness of the Rands Butte project site, the access to the M&HRF as well as the H₂S production wells and H₂S and CO₂ pipeline and injection well area may be limited by closing project gates. If the calculated ROE defines the evacuation area to extend beyond the limits of the Project Area gates, additional road blocks will be required to restrict access into impacted areas. See Figure 2 for H₂S radius of exposure (ROE) limits for the 100 and 500 ppm concentration of a potential release from within the Methane & Helium Recovery Facility (M&HRF) area.

All persons leaving the project area from an existing road block will be logged into an emergency response log book (Table 3). Any road block security personnel will require constant radio contact with the emergency management agency to record all persons (project personnel, contractors, and general public) leaving the restricted area. The security officer at each roadblock site should also have available to them a portable air monitoring and a breathing apparatus for personal safety. The security personnel will be under direct supervision of the emergency response agency and will restrict access based upon communication from the emergency manager.

Leak Monitoring and Response

Cimarex will design the M&HRF plant and all associated facilities with the highest standards available within the industry. All facilities will have production and processing monitors to survey production levels and detect any possible leaks or losses within the gas stream. Air sensors with alarms (both visual and audible) will be located throughout the project area to detect and alert personnel of possible H₂S leaks within the production and processing areas. These sensors will be stationed to take into account the prevailing climatic conditions as well as the layout of the production facilities. This will provide monitoring coverage and detection capabilities throughout the production area.

The plant operation will be under continuous monitoring at both the M&HRF and the project office. Any operation or production deviation determined to be an emergency condition may require immediate remote shutdown of the operation of the plant. This shutdown may be completed from either Cimarex operation location.

Well drilling rigs that drill within a known area of H₂S must take special precautions to protect the personnel who operate the equipment or are near the drill site. Personnel who are working within close proximity of the drill rig must have a portable sensor available to them to check for possible H₂S levels. If the ambient H₂S concentration is above the 10 ppm threshold, all personnel near the drill rigs must have personnel air support systems available nearby at all times. Other personnel protection devices for well drilling crews should include:

- A reliable 24-hour communication connection to project office for rapid contact with Operations Manager
- Each drill rig will be equipped with a continuous electronic H₂S detection system that will activate an audible and visual alarm system. The sensors will be located in areas where H₂S will be detected at the surface.
- A flagging system, which is in compliance with the BLM Onshore Order #6 will be implemented at all drill rigs in operation and will be used to notify nearby personnel according to flag color displayed.

Green Flag – Potential Danger

Yellow Flag – Moderate Danger

Red Flag – Extreme Danger – Do not Approach

- An evacuation plan, route, and safe area will always be prepared and available to all personnel working on the drill rig. Respiratory protective equipment which meets NIOSH/MSHA standards will be available to all personnel at the designated safe area.
- The area near the drill rig will be marked with warning signage which declares the H₂S dangers and that the area is designated as a “No Smoking Area”.
- All personnel who enter the project area will be trained in emergency conditions, safety, and response to protect themselves as well as others who may need assistance.

All drill rig operation and safety procedures will be under the authority of the Cimarex Well Field supervisor. The supervisor will report directly to the Cimarex Well Drilling Manager. The well field supervisor will be responsible for notifying and maintaining contact with the well drilling manager during all drilling setup and operations.

Methane Release

Because of the explosive potential of the methane product being transported within the product pipeline, constant monitoring of the pipeline and all associated equipment will occur throughout the length of the pipeline. The pipeline will be instrumented and monitored continuously for potential leaks. If a leak is determined or reported during operation, the transmission line will be shutdown and the source of the leak shall be determined.

Methane gas, though not an asphyxiant in open areas, may cause loss of consciousness in confined areas. Because methane is generally heavier than air, the leaking product may stay close to ground level as it moves down wind, away from the source. All confined areas require the use of portable measuring devices to detect the presence of natural gas. An emergency response to a potential methane release from the transmission pipeline to nearby areas requires significant knowledge in emergency response procedures but the area of concern is limited to a much smaller zone where injury or death may occur from thermal explosion developing in response to methane ignition and combustion. Figure 3 and 4 shows a thermal buffer zone that is associated with the buried methane pipeline where atmospheric concentration of methane could persist after a release and pose a thermal explosion potential. Thermal and concussion damage to structures or biological receptors from an explosion may occur at significant distance from the point of ignition of the methane source. Because of this threat, if any personnel or general public are within a close proximity to the pipeline and within the 1-mile buffer will be notified by the emergency management agency to evacuate the area. The evacuation area will be secured until the gas leak source has been located and repaired.

Hazardous Substance Release

All chemicals stored within the project area during construction and operations must be handled according to label directions for each chemical. All chemicals present within the project area must also have a Material Safety Data Sheet (MSDS) located in a specified central location where access to during an emergency situation would be possible. These MSDS must be kept up to date and any new chemical added to the project area must have an MSDS added to the existing catalogue. All lists of hazardous substances stored within the project area must be updated at a minimum of once per month unless chemicals are added more often. If that is occurring then the chemical list must be updated more frequently.

All hazardous chemicals, as defined by the EPA Hazardous Substances Reportable Quantities and the Emergency Planning and Community Right to Know Act (EPCRA) list within 40 CFR Part 302-312 (USEPA 2001), stored at quantities greater than the reportable quantities must be reported as required by the EPCRA regulations. Any release of a hazardous substance above a specified reportable quantity for the hazardous substance must be reported to the EPA. Any spill must be cleaned up immediately based upon information that is available in the MSDS. If any spill is of a sufficient quantity to require notification and possible emergency response, the emergency response agency within Sublette County must be notified immediately upon discovery of the release. All

hazardous substances that are recovered during the cleanup must be handled and disposed of in accordance with available information. Any emergency response necessary will be based upon information available regarding the specific hazardous substance and after consultation of Cimarex Operations Manager and the Sublette County Emergency Response official.

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References

Bureau of Land Management, November 23, 1990. Onshore Oil and Gas Order No. 6, Hydrogen Sulfide Operations, 43 CFR 3160. Federal Register, Volume 55, Number 226.

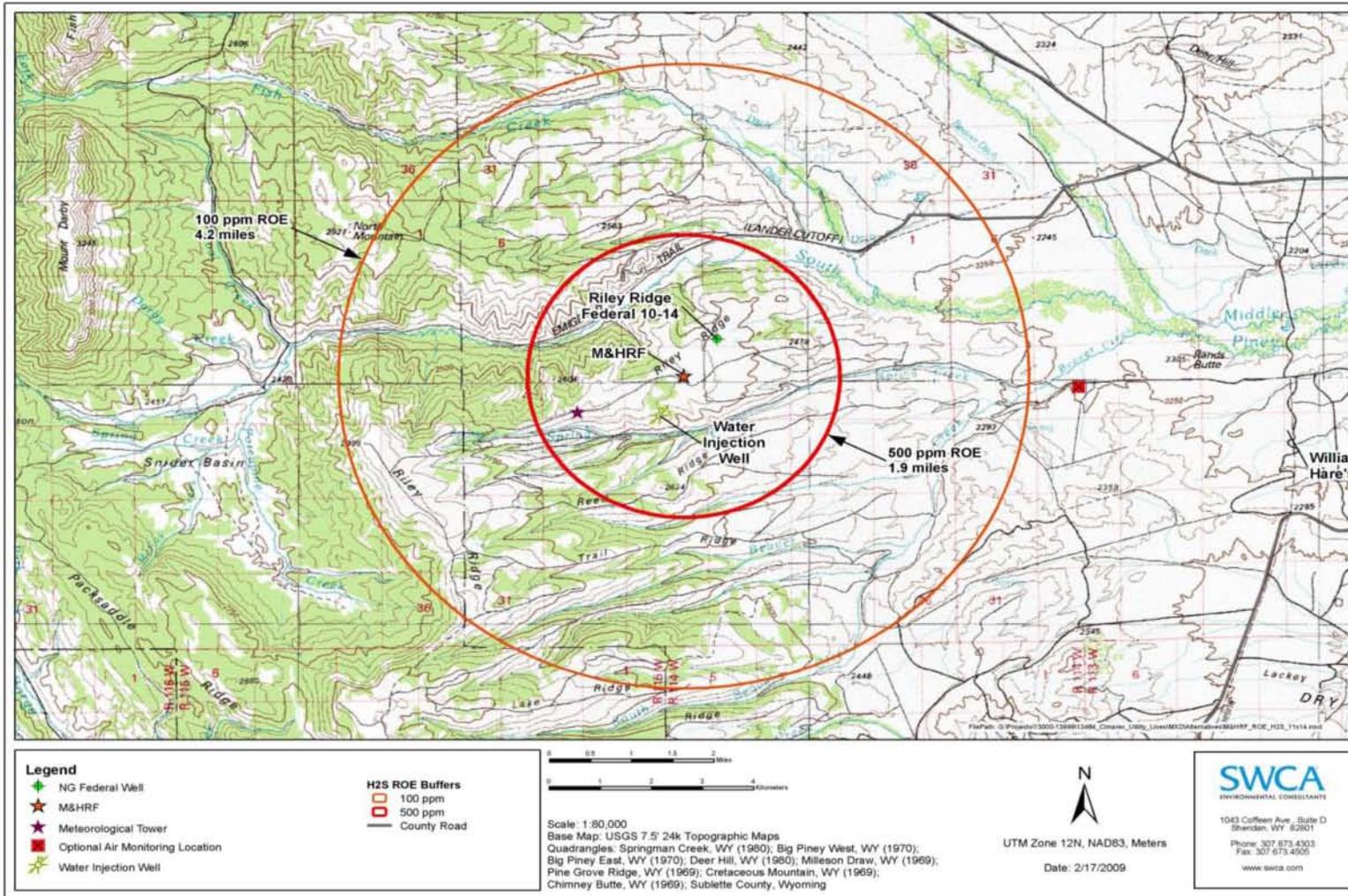
Cimarex Energy, October 2007. Environmental, Safety and Health Manual, Attachment #6, Application for Permit to Drill (APD RR 20-14).

Cimarex Energy, April 2008. H₂S Drilling Operation Plan, Riley Ridge Project, As Attached to Application for Permit to Drill (APD RR 20-14).

U.S. Environmental Protection Agency, October 2001. List of Lists, Consolidated List of Chemicals Subject to the Emergency Planning and Community Right to Know Act (EPCRA) and Section 112(r) of the Clean Air Act, EPA 550-B-01-003. Office of Solid Waste and Emergency Response, Washington DC.

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Figure 2. ROE for 100 and 500 PPM for M&HRF Area



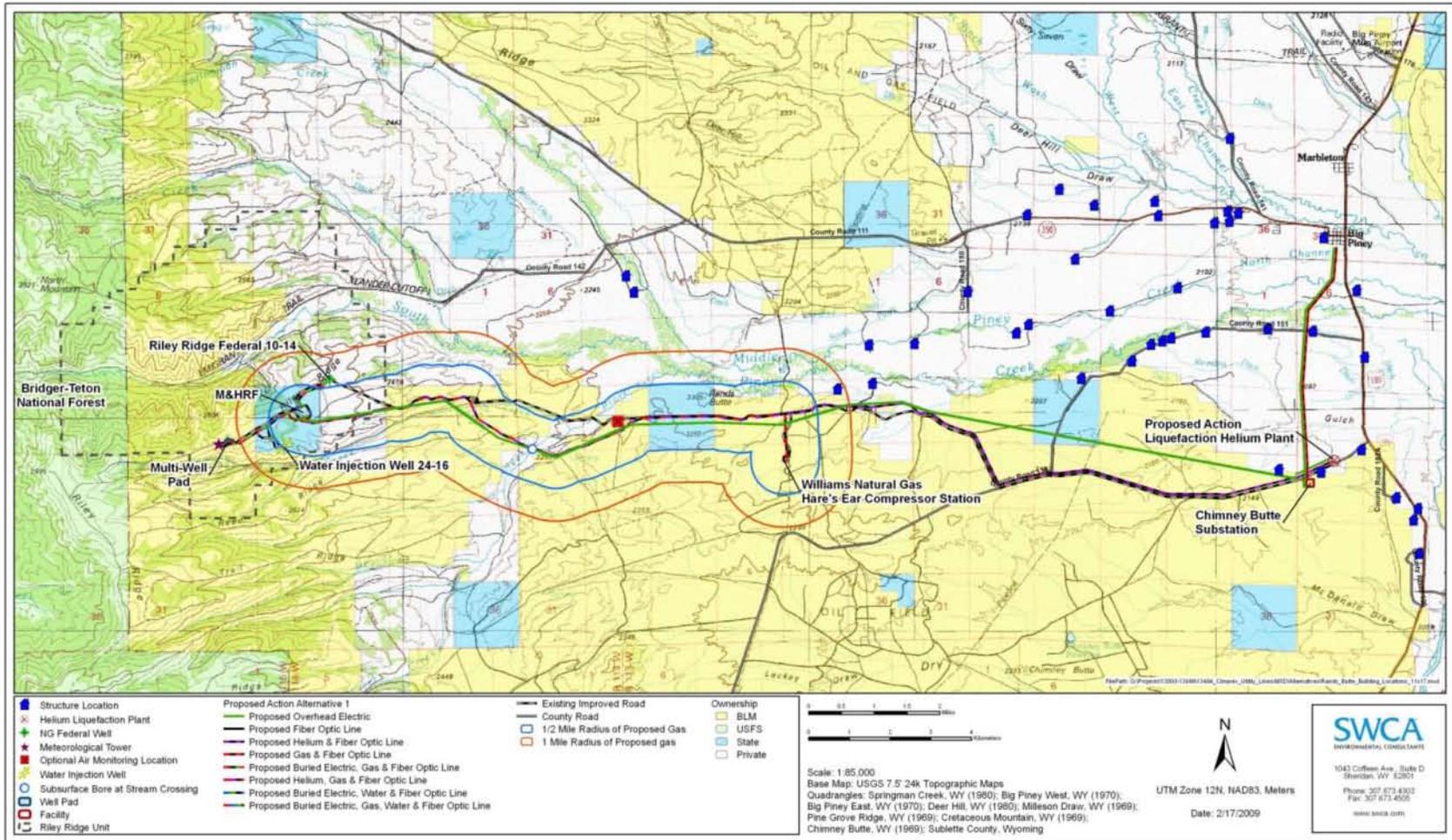
Map 4-7. H2S Radius of Exposure.

Table 3. Notification Table for Residents and Business within Cimarex M&HRF Area

Name	Address	Contact Information	Type	Location	Status *			Comments
					<input type="checkbox"/> N	<input type="checkbox"/> E	<input type="checkbox"/> C	
Pamela Hamilton	414 S Piney Fish Creek Road, Big Piney, WY	(307) 276-5424	Residence/Part-Time	4.2 Miles northeast of M&HRF	<input type="checkbox"/> N	<input type="checkbox"/> E	<input type="checkbox"/> C	Located on northeast edge of 100 ppm H ₂ S ROE
Exxon Plant	1482 County Road 23 134 LaBarge, WY	(307) 386-2266 (307) 386-9283	Business		<input type="checkbox"/> N	<input type="checkbox"/> E	<input type="checkbox"/> C	
Exxon Plant	911 Hogsback Ridge, LaBarge, WY	(307) 386-2262 (307) 386-2263	Business		<input type="checkbox"/> N	<input type="checkbox"/> E	<input type="checkbox"/> C	
Exxon Plant	US Highway 189, LaBarge, WY	(307) 386-9285	Business		<input type="checkbox"/> N	<input type="checkbox"/> E	<input type="checkbox"/> C	
					<input type="checkbox"/> N	<input type="checkbox"/> E	<input type="checkbox"/> C	
					<input type="checkbox"/> N	<input type="checkbox"/> E	<input type="checkbox"/> C	
					<input type="checkbox"/> N	<input type="checkbox"/> E	<input type="checkbox"/> C	
					<input type="checkbox"/> N	<input type="checkbox"/> E	<input type="checkbox"/> C	
					<input type="checkbox"/> N	<input type="checkbox"/> E	<input type="checkbox"/> C	
					<input type="checkbox"/> N	<input type="checkbox"/> E	<input type="checkbox"/> C	

* N = Notified E = Evacuated C = Cleared to Return

Figure 3. Methane Pipeline with 1/2 and 1-Mile Exposure Buffers and Nearby Structures



Rands Butte Area Structure Locations