GW - __22__

H2S CONTINGENCY PLAN

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, August 11, 2011 7:01 AM
To: Prentiss, John
Cc: Dade, Randy, EMNRD
Subject: Frontier Services, LLC Empire ABO Gas Plant- Eddy County (GW-022) H2S CP (July 27, 2011)

Mr. Prentiss:

The OCD has completed its review of your H2S Contingency Plan re-submittal dated July 27, 2011 and find that it appears to meet the intent of the OCD "Hydrogen Sulfide" Regulations (§ 19.14.11 NMAC).

Please note that OCD reserves the right to modify and change it in cooperation with Frontier Field Services, LLC.

Please contact me if you have questions. Thank you for your cooperation.

Please be advised that OCD approval of this plan does not relieve Frontier Field Services, LLC of responsibility should their operations fail to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD approval does not relieve Frontier Field Services, LLC of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
"Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at:
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

FRONTIER field services, llc
southern ute indian tribe

July 27, 2011
Mr. Daniel Sanchez
Acting Division Director
NM Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

VIA EMAIL AND FIRST CLASS MAIL
RETURN RECEIPT REQUESTED

RE: SUBMITTAL OF FRONTIER FIELD SERVICES, LLC EMPIRE ABO GAS PLANT H_2S CONTINGENCY PLAN PURSUANT TO §19.15.11 et seq. NMAC

Dear Mr. Sanchez:

Pursuant to your letter of March 17, 2011 regarding the requirements under current OCD rules pertaining to H_2S under §19.15.11 et seq. NMAC we submitted our existing Rule 118 plan on March 29th and at that time we informed you that we were already in process of revising our plan to be consistent with Rule 11 and our intent to submit it prior to your August 11, 2011 deadline.

As mentioned in our letter of March 29, 2011 and in keeping with Frontier's commitment to safety and to operating in compliance with all applicable state, federal and local regulations, attached you will find the plan revised to conform to all requirements of NMOCD's Rule 11 (§19.15.11 et seq. NMAC). I trust that this submission brings Frontier Field Services, LLC up to date with all of NMOCD's rules relative to H_2S contingency planning.

If you have any questions or require additional information, please contact me at 575-706-6983 or David Feather at 575-706-5287.

RECEIVED OCD
2011 AUG -1 A 11:55

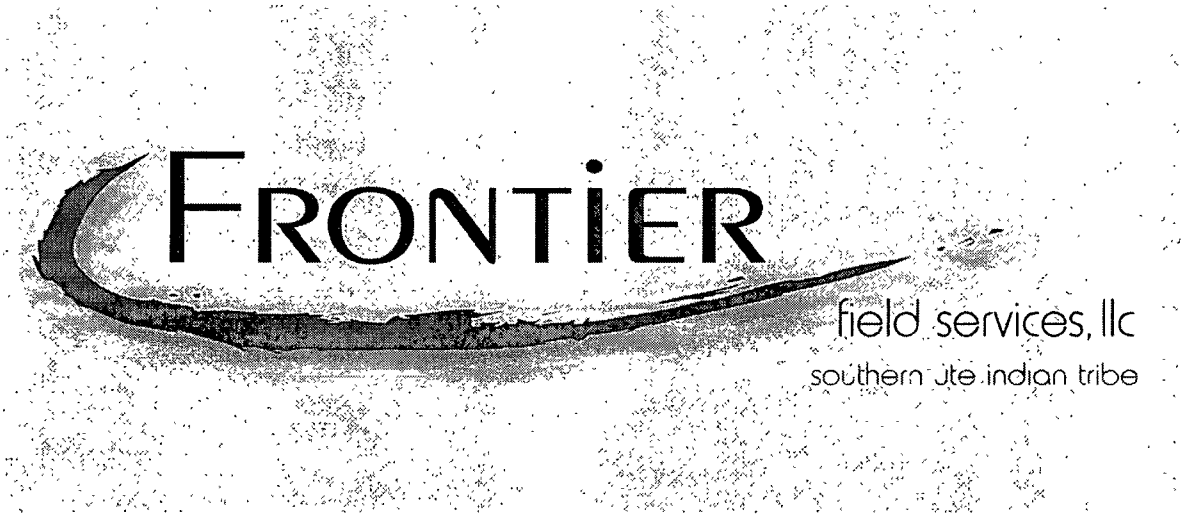
Sincerely,
Frontier Field Services, LLC.

John Prentiss,
Area Manager

Enclosure

cc: Carl Chavez, NMOCD Environmental Bureau
Richard Goodyear, NMED-AQB
OCD District Office Artesia

4200 E. Skelly Drive, Suite 700, Tulsa, OK 74135
Phone (918) 493-4450 ~ Fax (918) 492-4701



H_2S Contingency Plan

Frontier Field Services LLC
Empire Abo Gas Plant
257 Empire Road
Drawer 70
Artesia, NM 88210
(575-677-5124)

July 27, 2011

TABLE OF CONTENTS

Page

I. Introduction
[API RP-55 7.1] 1

II. Scope
[API RP-55 7.2] 1

III. Plan Availability
[API RP-55 7.3] 1

IV. Emergency Procedures 2
[NMAC 19.15.11.9.B(2)(a)][API RP-55 7.4 a.]
A. Responsibilities and Duties of Personnel During an Emergency
B. Immediate Action Plan
C. Telephone Numbers and Communication Methods
D. Location of Residents, Roads, and Medical Facilities
E. Evacuation Routes, Emergency Evacuation Areas, and Road Block Locations
F. Monitoring Equipment, Alarm Systems, Safety Equipment, and Supplies

V. Characteristics of Hydrogen Sulfide (H_2S), Sulfur Dioxide (SO_2), and Carbon Dioxide (CO_2) [NMAC 19.15.11.9.B(2)(b)][API RP-55 7.4 b.] 13
A. Characteristics of Hydrogen Sulfide (H_2S)
B. Sulfur Dioxide (SO_2)
C. Carbon Dioxide (CO_2)
D. Radii of Exposure

VI. Facility Description, Maps, and Drawings
[AC [19.15.11.9.B(2)(c)][API RP-55 7.4 c.] 17
A. Empire Abo Processing Plant Description of Operations
B. Map of Plant

VII. Training and Drills
[NMAC 19.15.11.9.B(2)(d)][API RP-55 7.4 d.] 17
A. Responsibilities and Duties of Essential Personnel
B. On-site or Classroom Drills
C. Notification and Training of Residents on Protective Measures in Emergency Situations
D. Training and Attendance Documentation
E. Briefing of Public Officials on Evacuation and Shelter in Place Plans

VIII. Coordination with State Emergency Plans
[NMAC 19.15.11.9.B(2)(e)] 18
A. Oil Conservation Division
B. New Mexico State Police

IX. Plan Activation
[NMAC 19.15.11.9.C][API RP-55 7.4 d.]..... 18
A. Activation Levels
B. Events that Could Lead to a Release

X. Submission of H_2S Contingency Plans
[NMAC 19.15.11.9.D]..... 19
A. Submission
B. Retention
C. Inventory

APPENDICES

Appendix A – Facility Maps and Drawings
A-1: Facility Map
A-2: Alarm and Monitor Locations
A-3: Safety and Fire Equipment Locations

Appendix B – Response Flow Diagrams

Appendix C – ROE Calculations
Map C-1: Facility ROE

Appendix D – Emergency Assembly Areas and Evacuation Routes
D-1: Evacuation Route and Emergency Assembly Area Locations

Appendix E – Distribution List

Location of Facility

1) Frontier Field Services, LLC, Empire Abo Gas Plant
The physical location of the Plant is in Section 3, Township 18S, Range 27E, Eddy County, NM. The plant is approximately nine miles east-southeast of the city of Artesia, NM. Driving Directions to the plant are as follows: (1) From Artesia follow US 82E approximately 10 miles to Hilltop Road. Turn south (right) on Hilltop Road and follow approximately 400 yards before turning west (right) on Empire Road. Follow Empire Road just over two miles to the facility.

The mailing address of the plant is:
257 Empire Road
Drawer 70
Artesia, NM 88210

2) The Empire Abo Gas Plant Office (See Map A-1) will serve as the Communication Center during the response to an H_2S release. If this location must be evacuated, an alternate location well away from any hazardous exposure area will be established by the incident commander of designee.

I. Introduction

[API RP-55 7.1]

The Frontier Field Services Empire Abo Gas Processing Plant is a natural gas processing plant which process field gas containing hydrogen sulfide (H_2S) and handles and/or generates sulfur dioxide (SO_2). This H_2S contingency plan was created to document procedures that are to be followed in the event of an H_2S release that occurs at the plant. This plan complies with the ***New Mexico Oil Conservation Division (OCD) Rule 11(§ 19.15.11 et. seq. NMAC)***. The plan and operation of the Empire Abo Plant also conform to standards set forth in ***API RP-55 "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide".*** The Empire Abo Gas Plant does not have any storage tanks in which hydrogen sulfide or other gas or gas products are stored, and thus, API regulations and OCD regulations (specifically 19.15.11.12.E NMAC) relative to those types of storage are not applicable for this plant.

II. Scope

[API RP-55 7.2]

This contingency plan is specific to the Frontier's Empire Abo Gas Processing Plant. It contains procedures to provide an organized response to an unplanned release from the plant and documents procedures that would be followed to alert and protect any members of the public, residents in surrounding areas and/or contractors working on or around the plant in the event of an unplanned release. This H_2S Contingency Plan has been prepared to minimize the hazard resulting from an H_2S release. It will be used to inform company personnel, local emergency responders and the public of actions to be taken before, during and after an H_2S release. All operations shall be performed with safety as the primary goal. The primary concern of Frontier Field Services Empire Abo Gas Plant, during an H_2S release, is to protect Company employees, contractors and the public; the secondary concern is to minimize the damage and other adverse effects of the emergency. Any part of the operation that might compromise the safety of individuals will cease until the operation can be re-evaluated and the proper engineering controls to assure safety are implemented. No individual should place the protection of the Plant property above his or her own personal safety.

It must be kept in mind that in a serious situation involving a Hydrogen Sulfide (H_2S) release, not only Frontier Field Services personnel are involved, but local Fire Departments, Law Enforcement, County and even State of New Mexico agencies may be interested parties. Cooperation will expedite all decisions. In any emergency situation involving a H_2S release, delegation of duties will be made to appropriate employees and groups. These duties will be reviewed on an annual basis to ensure complete understanding which will facilitate a well-coordinated response by all involved personnel to the emergency situation.

III. Plan Availability

[API RP-55 7.3]

This contingency plan shall be available to all personnel responsible for implementing any portion of the plan (see Appendix E for distribution list). Copies of the plan will be distributed to the following agencies: OCD; New Mexico Department of Public Safety (DPS), Local Emergency Planning Committee (LEPC);Riverside, Artesia Fire Departments; New Mexico State Police, Artesia and Carlsbad Sheriff's Offices. The Plan will be available at the following Frontier Field Services, LLC locations: Empire Abo Gas Processing Plant, Artesia, NM; Frontier Field Services Main Office, 4200 Skelly Drive, Suite 700, Tulsa, OK 74135.

IV. Emergency Procedures
[NMAC 19.15.11.9.B(2)(a)] [API RP-55 7.4 a] [29 CFR 1910.1200]

A. Responsibilities and Duties of Personnel during an Emergency

Plant evacuation for all visitors and Plant personnel that are not operators begins with the 10 ppm H_2S fast whelping alarm and/or flashing red beacon. The Plant operators will make a determination of the level of the incident as detailed below and will respond immediately, if required, by donning 30-minute Self Contained Breathing Apparatus (SCBA). They will determine if any personnel are in distress and will assist any distressed personnel to evacuate to a designated Emergency Assembly Area. Emergency services (911) will be contacted if there are injuries or as otherwise deemed necessary. At the sound of the alarm and/or upon observation of the flashing beacons, all other personnel in the Plant are to stop work, check the prevailing wind direction and immediately proceed along designated evacuation routes and/or upwind to the pre-designated Emergency Assembly Area(s) that are described in Appendix D.

Roll call shall be conducted at the Emergency Assembly Area to assure all personnel have evacuated safely. This facility requires that all visitors check in before entering the Plant, and thus the check-in sheet will be used at the Emergency Assembly Areas to make a full accounting of all personnel and visitors.

The Plant Manager or designee will serve as the Incident Commander (IC) and head of the Incident Command Team. The IC will bear the overall responsibility to see that objectives of the Plan are met and to insure the safety of the public and all personnel involved in the response. The IC will monitor all activities being carried out. Members of the Empire Abo Plant Incident Response Team will keep him informed of conditions throughout the release emergency. The IC's role is to ensure control of the emergency incident. He will notify or delegate responsibility for notification of all Frontier or contract personnel and any civil authorities needed to respond to the incident. The IC will assign any additional personnel to support roles as needed. Upon notification or discovery of an H_2S release, the following steps will be initiated by the Frontier IC or designee:

1. Assume the role of Incident Commander (IC) and gather as much information as possible regarding the release of H_2S.
2. Alert other emergency response personnel of the potential hazard.
3. Arrange for support personnel to be sent to the location of the release.
4. Proceed to the site to assess emergency response actions needed
5. Set up an on-site command station
6. Implement the H_2S Incident Response Plan as necessary
7. Remain on site as IC until relieved or the incident is under control.

The following is a description of key personnel responsibilities during an Incident Response. Depending on the specific circumstances surrounding the release, a single individual may serve multiple roles for key personnel outlined below.

Incident Commander (IC).

a. Obtain initial incident briefing from on scene or prior IC, if available
b. Ensure the safety of all personnel involved in the response.
c. Assess the incident situation and develop appropriate strategies. Conduct site investigations as needed. Establish response priorities.
d. Conduct initial and ongoing briefings with IC staff..
e. Activate elements of the Incident Command System as required.
f. Ensure planning response meetings are conducted.
g. Keep Frontier Field Services line and senior management informed of response situation.
h. Manage all incident operations.
i. Ensure a Frontier Field Services media representative has approved all information releases prior to release or issue.

1. **Operations Section Chief.**
   a. Obtain briefing from IC.
   b. Ensure the safety of all personnel under Operations Section Chief supervision.
   c. Brief and assign operations personnel in accordance with Incident Response needs.
   d. Supervise operations; ensure personnel have the equipment, materials supplies and support needed to respond in a safe, efficient and effective manner.
   e. Determine Operations Section needs and request additional resources as necessary.
   f. Report information about special activities, events and occurrences to the IC.
   g. Ensure site security.

2. **Safety Officer**
   a. Obtain briefing from IC.
   b. Exercise emergency authority to stop and prevent unsafe acts.
   c. Apply for manpower, equipment and services necessary to ensure safe operations at all sites.
   d. Ensure hazard communications systems, including Material Safety Data Sheets (MSDS's), are in place at all involved field locations.
   e. Identify hazardous situations associated with the incident.
   f. Ensure all regulatory requirements as related to safety are satisfied.
   g. Ensure that employees and contractors entering the clean-up sites are properly briefed as to the dangers and precautions to be observed at the site. Ensure only those involved in the response are involved in the clean-up of hazardous materials; otherwise, review their training and qualifications.
   h. Determine the types of air monitoring equipment (direct reading, personal monitoring, etc.) necessary to support response operations.
   i. Participate in response planning meetings.
   j. Lead Incident Investigation Teams for any incident occurring during or after the emergency. Document and review findings with all team members

3. **Logistics Section Chief**
   a. Obtain briefing from the IC.
   b. Identify and provide logistics support for planned and expected operations.
   c. Coordinate and process requests for additional resources.
   e. Assist Officers and Section Chiefs from other functions in resources procurement.
   f. Advise on current service and support capabilities.

5. **Information Officer**
   a. Obtain briefing from IC.
   b. Establish a single incident information center whenever possible.
   c. Identify and communicate public, community, and media concerns to the IC.
   d. Respond to special requests for information.

6. **Planning Section Chief**
   a. Obtain briefing from IC.
   b. Reassign initial response and incident personnel into incident positions as needed.
   c. Assemble information on alternative strategies.
   d. Identify need for use of specialized resources.
   e. Advise IC staff of any significant changes in incident status.
   f. Distribute IC's orders and prepare plans for implementation.

7. **Other Employees**
   All employees on duty should be on standby awaiting instructions from the IC. They may be called on to provide support contacting vendors for supplies, contacting local support groups for assistance to the general public, provide onsite logistical support to the responders, blocking roads, assist with evacuations, etc.

No employee or contractor will be asked to provide incident scene support that they are not comfortable in their ability to perform or have not been specifically trained to perform.

B. Immediate Action Plan

1. The following outlines the Immediate Action Plan that is illustrated by the response flow diagrams included in Appendix B. The Immediate Action Plan is divided into three levels which are activated in response to increased severity of an unanticipated release of H_2S at the Plant. The following procedures are to be used when responding to an H_2S release. In the event of activation of an H2S alarm, the Plant Operator will assess the situation pursuant to Paragraph IV. A above and determine the appropriate level of response consistent with Immediate Action Plan. Additional or long-term response actions will be determined on a case-by-case basis, if needed, once the Incident Command Center (ICC) and System (ICS) are established following the immediate response.

Level	Alarms	Actions
I	Fast whelping audible alarm sounded and flashing red lights activated for H_2S at 10 ppm or greater.	**1.** The audible signal for a Plant emergency and evacuation is a fast whelping siren alarm and a flashing red beacon. An H_2S alarm is activated and a red light flashes when 10 ppm or greater are detected. The audible alarm and flashing red lights are redundant systems which function independently of one another so that should one system fail, the other would remain active. These systems incorporate back-up battery capabilities as recommended in API RP 55 which insure their operation in the event of a power failure. A computer in the control room and in the Plant Operator's office establishes which H_2S monitor has activated the alarm and/or flashing red beacon. At the initial sound of the fast whelping alarm or the flashing red beacon, assigned operator will assess the location of the alarm and make an initial determination of the cause of the alarm. The operator will attempt to rule out potential false alarms based on sensor malfunction or other conditions and if a release is detected, he will make a determination of prevailing wind and estimated magnitude of the release. If the cause of the release is a minor problem such as a packing or seal leak, the operator will take the necessary steps to correct the situation and eliminate the source of the release. If necessary, the operator will make a call to the supervisor on call for back-up. Once the operator has back-up they will put on a 30 minute self-contained breathing apparatus (SCBA). (There are two operators at the plant at all times, and at least 17 SCBA devices are located where they are accessible to the operator.) All other personnel in the Plant complex shall immediately evacuate the Plant and go to the closest Emergency Assembly Area (see Appendix D, Map D-1). The operators, using a buddy system will first help any persons in distress evacuate to the Emergency Assembly Area. If deemed necessary by the Plant Manager (IC) or Plant Supervisor, local emergency response service providers will be contacted by Plant personnel designated by the IC or Plant Supervisor. **2.** All entities within the 500 ppm radius of exposure (ROE) will be notified (by telephone) of a release if the audible alarm is activated at 10 ppm H_2S or greater. Notification will be done by personnel designated by the IC or his designee. The nature of the release and status of containment will be conveyed. Businesses will be advised to report the incident to employees working near the Plant and to alert any third party contractors or service companies working in the Plant vicinity or imminently scheduled to work in the vicinity of the release. All individuals will be instructed to leave the area and not to enter/re-enter area until further notice. There are no known residences within the 500 or 100 ppm ROE. The only businesses within the 100 ppm ROE are a gas plant owned by Duke Conoco Phillips Company (DCP) and a Limerock office. In the event of an H_2S release, the DCP Gas Plant and Limerock will be contacted by Frontier personnel, and if individuals are present they will be advised either to evacuate to an Emergency Assembly Area or to shelter in place, as deemed appropriate by the IC. Frontier personnel will also make a visual inspection of the ROE area to insure that no individuals are seen inside the ROE, and if any are observed, they will be advised to immediately evacuate to the designated Emergency Assembly area, described above. **3.** Wearing the SCBAs, the operator(s) will attempt to fix the cause of the release. The H_2S levels at the Emergency Assembly Area will be monitored with a hand held or personal monitor. If H_2S levels in the Emergency Assembly Areas exceed 10 ppm H_2S, everyone will evacuate to an alternate Emergency Assembly Area, as designated by the IC (See Appendix D, Map D-1). **4.** The IC will set up secondary re-entry team(s) with 30 minute SCBAs to re-enter and resolve the situation. Re-entry will occur in 15 minute shifts at the direction of the IC until the problem is resolved or the emergency shutdown (ESD) is activated. If release is resolved and monitored levels in the Plant are less than 10 ppm H_2S, personnel may re-enter the Plant. The OCD shall be notified within four hours of any release that activates the Plan. If the release is not resolved and H_2S levels continue to increase, Level II Response is indicated.

Levels	Alarms	Actions
II	Fast Whelping audible alarm sounded and flashing red lights activated and H_2S greater than 20 ppm measured with handheld device	**1.** The fast whelping audible alarm and red flashing lights indicate the detection of H_2S greater than or equal to 10 ppm and the operator(s) have been unable to stop the release of H_2S or level measured with handheld device exceeds 20 ppm. The audible alarm and flashing lights are redundant systems which function independently of one another so that should one system fail, the other would remain active. These systems incorporate back-up battery capabilities as recommended in API RP 55 which insure their operation in the event of a power failure. A control panel in the Process Control Room establishes which H_2S monitor has activated the alarm and or flashing blue beacon. If Level II Response is activated, operators will immediately put on 30 minute SCBAs, and all other personnel in the Plant complex will put on emergency escape packs (located throughout the plant) and evacuate using the evacuation routes to the Emergency Assembly Area specified by the IC or his designee (see Appendix D Map D-1). The operators, upon suit up with the SCBAs, will first help any persons in distress evacuate to the Emergency Assembly Area. See Section IV. F. (see Page12) for a listing of respirator equipment available at the Plant. If deemed necessary, local emergency response service providers will be contacted by the IC or his designee. **2.** All other entities within the 100 ppm ROE will be contacted by phone and notified of release and asked to evacuate. The nature of the release and status of containment will be conveyed. Depending on release status and prevailing wind conditions, some entities within the 100 ppm ROE may be asked to shelter in place rather than evacuate. Those entities will be instructed to close any windows and shut off any air conditioning/heating until further notice. In addition, they will be instructed to contact other employees/residents not currently present and instruct them not to enter/reenter the area until further instruction. **3.** The LEPC and law enforcement will be contacted by phone and notified of the release and status of containment. The IC will assign responsibility for notification to appropriate personnel. There are no known residences within the 100 ppm ROE. The only businesses within the 100 ppm ROE are a gas plant owned by Duke Conoco Phillips Company (DCP) and a Limerock office. In the event of an H_2S release, the DCP Gas Plant and Limerock will be contacted by Frontier personnel, and if individuals are present they will be advised either to evacuate to an Emergency Assembly Area or to shelter in place, as deemed appropriate by the IC. Frontier personnel will also make a visual inspection of the ROE area to insure that no individuals are seen inside the ROE, and if any are observed, they will be advised to immediately evacuate to the designated Emergency Assembly Area as described above. **4.** Operator(s) with 30 minute SCBAs will assess the release and attempt to resolve it. If after 15 minutes on scene there is no resolution, the operator(s) will notify the Plant Manager to determine if the emergency shutdown (ESD) should be activated. **5.** If monitored H_2S levels at the Emergency Assembly Area exceed 10 ppm, everyone will evacuate to an alternate Emergency Assembly Area, as designated by the IC. **a)** Re-entry will occur in full SCBA and in 15 minute shifts at the direction of the IC until IC determines problem has been resolved or emergency shut downs (ESDs) are activated. **b)** If release is resolved and monitored levels of H_2S in the Plant are less than 10 ppm, personnel may return to Plant. The OCD shall be notified within four hours of any release that activates the Plan. All entities previously notified will be informed that the release has been resolved and advised of the current monitored H_2S levels at the Plant. **c)** No resolution requires activation of Level III Response with notifications and reporting as per Plan. If the release is not resolved and/or H_2S levels continue to increase, Level III Response is indicated. **5.** Initiate and maintain a Chronological Record of Events log.

Level	Alarms	Actions
III	Fast whelping audible alarm sounded and flashing red lights activated for catastrophic release; blue lights for fire or explosion ESD alarm is a continuous audible alarm with flashing red lights	**1.** Level III Response indicated in the event of a catastrophic release; fire; explosion; a continuous release of maximum volume for 24 hours; or NMAC 19.15.11: mandatory activation of indication of 100 ppm in any defined public area; 500 ppm at any public road; or 100 ppm at a distance greater than 3000 feet from the site or the release. If H_2S is at 20 ppm or greater and repair efforts at Level II have been unsuccessful, then a Level III response may be implemented at the discretion of the IC. Emergency Shutdown (ESD) procedures will immediately be implemented if a Level III Response is initiated. **2.** Road block locations may vary depending on wind direction, size of the release, and ability to quickly isolate the leak. **3.** All personnel shall have evacuated to a designated Emergency Assembly Area. Evacuation of all entities within the 100 ppm ROE will have been confirmed. Full H_2S Plan with all notifications and public agency involvement will be implemented. Notifications to all entities within the 100 ppm ROE will include the nature of the release and status of containment. Notifications will include but are not limited to the following: **a)** All businesses within the 100 ppm ROE will be instructed to immediately alert all company personnel, third party contractors and/or services companies working in the area, and those imminently scheduled to work in the area, of the release and evacuation status of the Plant. They will be instructed to immediately leave and/or not enter/reenter the area within the roadblocks until further instruction. **b)** All other entities within the 100 ppm ROE will be instructed to immediately shelter in place, if appropriate, based on the source of the release and the wind direction. Those entities will be instructed to close any windows and shut off any air conditioning/heating until further notice. In addition, they will be instructed to contact other employees/residents not currently present and instruct them to not enter/reenter the area until further instruction. **c)** The IC will make the decision based on, but not limited to, H_2S concentration and wind direction, whether a safe evacuation can be implemented, and recommend an evacuation route. There are no known residences within the 100 ppm ROE. The only businesses within the 100 ppm ROE are a gas plant owned by Duke Conoco Phillips Company (DCP) and a Limerock office. In the event of an H_2S release, the DCP Gas Plant and Limerock will be contacted by Frontier personnel, and if individuals are present they will be advised either to evacuate to an Emergency Assembly Area or to shelter in place, as deemed appropriate by the IC. Frontier personnel will also make a visual inspection of the 500 ppm ROE area to insure that no individuals are seen inside the ROE, and if any are observed, they will be advised to immediately evacuate to the designated Emergency Assembly area, described above. **4.** If escaping vapors have ignited, the vapors should be allowed to continue to burn unless the fire endangers personnel, other property, or other equipment. **5.** When applicable, maintain communication with the Plant Manager, or his designee, to keep him up-to-date of the situation and the action taken prior to his arrival at the location. **6.** Initiate and maintain a Chronological Record of Events log. **7.** Within one hour after the activation of the H_2S Plan, begin agency notifications by calling OCD and National Response Center (NRC). **8.** Establish media staging area adjacent to the Emergency Assembly Area and direct all media to it. **9.** Once resolved and monitored levels in the Plant and at Emergency Assembly Area are less than 10 ppm, roadblocks will be removed, and all entities within the 100 ppm ROE will be allowed to return. All entities previously notified will be informed that the release has been resolved and advised of the current monitored H_2S levels. **10.** Monitoring will continue after problems are abated, at the direction of the Plant Manager **11.** Agency reports to be submitted as required.

C. Telephone Numbers and Communication Methods

1. Emergency Services

AGENCY		TELEPHONE #
Fire Departments	Artesia	(575) 746-5050
	Loco Hills	(575) 677-2349
	Riverside	(575) 746-3390
Ambulance Services	Artesia	(575) 746-5050
	Carlsbad	(575) 885-2111
Hospitals		
	Artesia General	(575) 748-3333
	Carlsbad Medical Center	(575) 887-4100
	Lubbock University Medical Center (UMC) Level I Trauma Center	(806)775-8200
State Police (HMER) Eddy County		(575) 885-3137
Poison Control (Albuquerque)		(800) 222-1222
Helicopter Services		
	Lifeguard (Albuquerque)	1-888-866-7256
	Southwest Medivac (Hobbs)	1-800-971-4348
	AeroCare (Lubbock)	1-800-823-1991
	Air Med (El Paso)	(915) 772-9292

2. Government Agencies

AGENCY	TELEPHONE #
Oil Conservation Division, Santa Fe, NM (OCD) Oil Conservation District Office (Artesia) Air Quality Bureau, Santa Fe, NM	(505) 476-3440 (575) 748-1283 (505) 827-1494
US BLM (Carlsbad District Office)	(575) 887-6544
Local Emergency Planning Committee (LEPC)	(575) 887-9511
National Response Center (NRC)	1-800-424-8802

3. Operators and Contractors

COMPANY	SERVICE	CONTACT	PHONE
Exterran Energy	Compressor Maintenance	David Gonsalez	432-230-6504
Central Valley Electric	Electric		575-746-3571
Compliance Services Testing	Emissions Testing	Chris Spencer	505-681-4909
Desert X-Ray	X-Ray Services	Elic Brymer	432-363-0669
L&E Trucking	Vacuum Trucks		575-746-4214
Stevenson Roach	Contract Labor		575-746-3222

Ferguson Construction	Contract Labor		800-748-1869
Merryman Construction	Contract Labor		575-395-3110
EDW Contruction	Contract Labor		575-391-7814
Sweatt Construction	Earth Moving Equipment		575-748-1238
Compliance Services	HazMat Response		575-391-7797
Safety and Environmental Solutions	HazMat Response	Bob Allen	575-397-0510 575-390-7063
Transwestern Pipeline	Natural Gas Pipeline	Terry Younggren	713-853-5544 575-703-0648
Kinder Morgan	Natural Gas Pipeline	Glenn Wells	806-336-3015 575-236-1037
West Texas LPG Pipeline	LPG Pipeline	Eric Anker	575-390-2382
Martin Gas Transport	Sulfur		800-256-4421
Agave Energy Company	Natural Gas	Bill Johnson	575-748-4521 575-748-6816
DCP Midstream Artesia Plant	Natural Gas		575-677-3107 575-677-5217
DCP Midstream Carlsbad Office	Natural Gas	John Lamb	575-234-6400
NM Natural Gas Company	Natural Gas Pipeline		575-241-4624 575-236-6682
Apache Hobbs Office	Producer	James Wells	575-393-7106 575-441-4516
Appache Artesia Office	Producer	Mike Dunham	575-677-3642 575-441-9989
Frontier Maljamar Gas Plant	Natural Gas	John Prentiss	575-676-2400 575-676-3528
Concho Energy	Producer	Dean Chumley	575-748-3303

4. Public

N/A There are no residences within the 100 ppm ROE. The plant is located in an isolated area.

5. Frontier Internal Call List

NAME	TITLE	Office #	Cell #	Home #
	Maljamar Plant Control Room	(575) 676-2400		
	24 Hour Emergency Number	(800) 503-5545		
Mike Hicks	President	(918) 388-8417	(918) 699-5738	
Kyle Stevenson	Plant Supervisor/ Incident Commander	(575) 677-5102	(575) 703-0893	(575) 746-3624
Joe Ysusi	Manager, Compliance Safety Officer	(575) 676-3505	(575) 706-9670	(575) 746-2213
Kevin Hampton	Operations Section Chief Field Supervisor	(575) 677-5130	(575) 703-0890	(575) 703-0890
Glen Parrish	Maintenance Foreman, Planning Section Chief	(575) 677-5102	(575) 703-0892	(575) 746-4751
Deryl Elrod	Gathering System Technician Logistics Section Chief	(575) 676-5104	(575) 703-0897	(575) 513-0596
David Feather	Environmental Technician Information Officer	(575) 676-5140	(575) 706-5287	(575) 622-0396

6. Frontier Field Services, LLC will use 2-way radios and telephones to communicate internally. Telephone will be used for external communication. Land lines and high speed internet access are available at the plant office.

D. Location of Nearby Residences, Roads, and Medical Facilities

1. There are no residences are located within the ROE of the Plant.

2. The following roads are located within the ROE:
   a) US Highway 82
   b) Little Diamond, CR 207
   c) Empire, CR 225
   d) Evans, CR 226
   e) Hilltop, CR 204
   f) TV Tower CR 205
   g) Illinois Camp, CR
   h) ARCO, CR 228
   i) Holt, CR 207
   j) Turkey Tract, CR 209

3. The following facilities are located within the ROE of the Plant:
   a) Duke Energy Pecos Diamond Plant
   b) Limerock Field Offic
   c) Transwestern, Atoka 1 Compressor Station
   d) SDX Field Office
   e) Crown Castle Intl. TV Tower

4. There are no medical facilities located within the ROE.

5. In addition to notifying the facilities listed above, Frontier personnel will make a visual inspection of the ROE area to insure that no individuals are seen inside the ROE, and if any are observed, they will be advised to immediately evacuate to the designated Emergency Evacuation Area, described above.

E. Evacuation Routes, Emergency Assembly Areas, and Road Block Locations

1. The Empire Abo Gas Plant office will serve as the Communication Center during the response to an H_2S release. If this location must be evacuated, an alternate location well away from any hazardous exposure will be established by the incident commander or designee. Personnel not directly involved in the response will be instructed to refrain from using company mobile phones, hand held radios and telephones during a response.

2. Evacuation Routes and Emergency Assembly Areas are depicted on Map D-1 in Appendix D.

3. Pre-planned road block locations are designated near the Emergency Evacuation areas on County Road 207 and County Road 225. Each location will have pre-positioned, portable road barriers with lights. Actual locations may vary depending on actual wind direction, size of release, and ability to quickly isolate the leak. The locations will have flashing lights and warning signs. The IC will designate a representative to staff each of the roadblocks. If deemed necessary by the IC, the State or Local Police will be asked to assist with maintaining the roadblocks.

F. Monitoring Equipment, Alarm Systems, Safety Equipment, and Supplies Available

1. EMERGENCY SHUTDOWN SYSTEM (ESD): There are 5 ESD manual stations located at various points in the facility. See Maps A-2 and A-3 in Appendix A. The Plant ESD can be activated at any time by any employee or at the direction of the IC. If a Level III Response is initiated, then ESD will immediately be activated.
When any one of the 5 manual stations is activated, the system will be shutdown and the natural gas inlets and outlets will be blocked. The operators are also able to auto close the high pressure main block valve on the incoming gas line to the Plant. Activating these should allow the plant to avoid a Level III response. The IC can send trained personnel to designated off-site manual block valves. There are also various methods to shut down gas flow at the various wellheads and incoming gathering lines. These can and would be evaluated on a case by case basis. Designated employees will have remote access to the plant controls including ESD capabilities.

2. PLANT ALARMS, VISIBLE BEACONS & WIND INDICATORS: Colored beacons, horns, and wind direction indicators are located in various locations throughout the Plant and are depicted in Appendix A on the listing in A-2.

Wind direction indicators are installed throughout the plant. At least one wind direction indicator can be seen at any location within the Plant complex, as well as from any point on the perimeter of the plant. There are 16 windsocks located at the Plant.

3. GAS DETECTION EQUIPMENT: The Plant uses Otis Notis Stand Alone fixed H_2S Sensors. These sensors are part of a fixed point monitoring system used to detect the presence of hydrogen sulfide in ambient air. The red flashing beacon is activated at H_2S concentrations of 10 ppm or greater. The horn is also activated with a fast whelping alarm at H_2S concentrations of 10 ppm or greater. The fixed hydrogen sulfide monitors are strategically located throughout the Plant to detect an uncontrolled released of hydrogen sulfide. The Plant operators are able to monitor the H_2S levels of all the Plant sensors on the control monitor located in the control room. In addition, select employees can access this information remotely. These sensors are located on the the listing in appendix A page A-2. These sensors all have to be acknowledged and will not clear themselves. This requires immediate action for any occurrence or malfunction. The Plant sensors have battery backup systems and are calibrated monthly. Audible alarm systems are also calibrated monthly.

Handheld gas detection monitors are available to plant personnel to check specific areas and equipment prior to initiating maintenance or working on equipment. There are 2 handheld monitors and

each individual is assigned a personal H_2S monitor. The handheld gas detection devices are BioSystems Multipro 4 gas monitor. The detectors have sensors for oxygen, LEL (lower explosive limit hydrocarbon atmospheres), hydrogen sulfide, and carbon monoxide. They indicate the presence of H_2S with a beeping sound at 10 ppm. The beeps change in tone as H_2S increases to 20 ppm. The personal monitors are set to alarm (beep) at 10 ppm with the beeps becoming closer together as the H_2S concentration increases to 20 ppm. Both the handheld and personal monitors have digital readouts of H_2S ppm concentration.

The compressor building has two methane sensors; one sends a call out at the 30% lower explosive limit (LEL); the second shuts the compressors down at 50% LEL. The methane sensors are visual and audible alarms. The compressor building also is equipped with fire eyes that will also shut the units down. The four product pumps also have LEL sensors.

4. RESPIRATORS: The facility has 17 Drager 30-minute self-contained breathing apparatus (SCBA) respirators strategically located throughout the Plant. There are also 2 emergency packs with supplied air lines located on the safety air trailer. The respirator locations are identified in Appendix A on Map A-2. All Plant personnel are certified to use the self-contained breathing apparatus (SCBAs) respirators and emergency packs.

5. FIRE FIGHTING EQUIPMENT: The Plant personnel are trained only for insipient stage fire fighting. The fire extinguishers located in the Plant process areas, compressor buildings, process buildings, and company vehicles are typically an Ansul 30# ABC dry chemical fire extinguisher. See Appendix A, Map A-3 for location. The Plant does not have a fire water system, only a utility water system that is not designed for fire fighting.

- 6. TRAFFIC CONTROL KIT: The Plant has a Traffic Control Kit located in the office which contains the necessary equipment to initiate and maintain traffic control.

7. FIRST AID EQUIPMENT LOCATIONS:
   a) First Aid Kits are located at the following locations:
   - Control Room
   - Office

   b) Eye Wash stations are located at the following locations:
   - Cooling Water Area
   - Boiler House
   - Caustic Area
   - Welding Shop
   - Truck Rack

8. PERSONAL H_2S MONITORS: All Frontier personnel assigned to the Plant and associated field personnel are issued and required to use personal H_2S monitors while on duty.

10. SIGNS and MARKERS: The Plant has warning, caution and notice signs indicating the presence of "H_2S/Poisonous Gas" and high pressure gas at the entrance to the Plant. Emergency response phone numbers are posted at the entrance to the Plant. Signs are located at the Plant gate entrance indicating that all visitors are to sign in.

V. Characteristics of Hydrogen Sulfide (H_2S), Sulfur Dioxide (SO_2) and Carbon Dioxide (CO_2) [NMAC 19.15.11.9.B(2)(b)] [API RP-55 7.4 b.]

A. Hydrogen Sulfide (H_2S): Hydrogen Sulfide (H_2S): The proposed inlet gas streams into the Plant will contain a maximum of 18,500 ppm (or 1.85 mole percent) of hydrogen sulfide based on data generated from the sampling of the inlet gas at least daily. Hydrogen sulfide is a colorless, toxic and flammable gas, and has the odor of rotten eggs. Hydrogen sulfide gas is heavier than air. Hydrogen sulfide presents a significant health hazard by paralyzing the respiratory system resulting in serious injury or death.

Hydrogen Sulfide Properties and Characteristics	
CAS No.	7783-06-4
Molecular Formula	H_2S
Molecular Weight	34.082 g/mol
Ceiling Concentration	20 ppm (OSHA)
Ceiling Peak Concentration	50 ppm (OSHA)
Threshold Limit Value (TLV)	15 ppm (ACGIH)
Time Weighted Average (TWA)	10 ppm (NIOSH)
Short Term Exposure Level (STEL)	15 ppm (ACGIH)
Immediately Dangerous to Life or Health (IDLH)	100 ppm
Specific Gravity Relative to Air (Air=1.0)	1.189
Boiling Point	-76.5F
Freezing Point	-121.8F
Vapor Pressure	396 psia
Autoignition Temperature	518F
Lower Flammability Limit	4.3%
Upper Flammability Limit	46.0%
Stability	Stable
pH in water	3
Corrosivity	Reacts with metals, plastics, tissues and nerves

Physical Effects of Hydrogen Sulfide		
Concentration		
ppm	%	Physical Effects
1	0.00010	Can be smelled (rotten egg odor)
10	0.0010	Obvious & unpleasant odor; Permissible exposure level; safe for 8 hour exposure
20	0.0020	Acceptable ceiling concentration
50	0.0050	Loss of sense of smell in 15 minutes
100	0.0100	Immediately dangerous to life and health(IDLH) loss of sense of smell in 3-15 minutes; stinging in eyes & throat; Altered breathing
200	0.0200	Kills smell rapidly; stinging in eyes & throat
500	0.0500	Dizziness; Unconscious after short exposure; Need artificial respiration
700	0.0700	Unconscious quickly; death will result if not rescued promptly
1000	0.1000	Instant unconsciousness; followed by death within minutes

B. Sulfur Dioxide (SO_2): Sulfur dioxide is produced as a by-product of H_2S combustion at the flare and at the sulfur recovery unit tail gas incinerator. The sulfur recovery unit tail gas incinerator receives the residual hydrogen sulfide and carbon dioxide stream that is routed from the amine unit. It is colorless, transparent, and is non-flammable, with a pungent odor associated with burning sulfur. Sulfur dioxide is heavier than air, but will be picked up by a breeze and carried downwind at elevated temperatures.

Sulfur dioxide can be extremely irritating to the eyes and mucous membranes of the upper respiratory tract.

Sulfur Dioxide Properties & Characteristics	
CAS No.	7446-09-5
Molecular Formula	SO_2
Molecular Weight	64.07 g/mol
Permissible Exposure Limit (PEL)	5 ppm(OSHA)
Time Weighted Average (TWA)	2 ppm(ACGIH)
Short Term Exposure Level (STEL)	5 ppm(ACGIH)
Immediately Dangerous to Life and Health (IDLH)	100 ppm
Specific Gravity Relative to Air (Air = 1.0)	2.26
Boiling Point	14°F
Freezing Point	-103.9°F
Vapor Pressure	49.1 psia
Autoignition Temperature	N/A
Lower Flammability Limit	N/A
Upper Flammability Limit	N/A
Stability	Stable
Corrosivity	Could form an acid rain in aqueous solutions

Physical Effects of Sulfur Dioxide	
Concentration	**Effect**
1 ppm	Pungent odor, may cause respiratory changes
2 ppm	Permissible exposure limit; Safe for an 8 hour exposure
3-5 ppm	Pungent odor; normally a person can detect sulfur dioxide in this range
5 ppm	Short Term Exposure Limit (STEL); Safe for 15 minutes of exposure
12 ppm	Throat irritation, coughing, chest constriction, eyes tear and burn
100 ppm	Immediately Dangerous To Life & Health (IDLH)
150 ppm	So irritating that it can only be endured for a few minutes
500 ppm	Causes a sense of suffocation, even with first breath
1,000 ppm	Death may result unless rescued promptly.

C. **Carbon Dioxide (CO_2)**: The proposed inlet streams into the Plant will contain a maximum of 11,105 ppm (or 1.1105 mole percent) of carbon dioxide based on data generated from the sampling of the inlet gas at least daily. Carbon dioxide gas is colorless, odorless and non-flammable and is heavier than air.

Carbon Dioxide Properties & Characteristics	
CAS No.	124-38-9
Molecular Formula	CO_2
Molecular Weight	44.010 g/mol
Time Weighted Average (TWA)	5,000 ppm
Short Term Exposure Level (STEL)	30,000 ppm
Immediately Dangerous to Life and Health (IDLH)	40,000 ppm
Specific Gravity Relative to Air (Air = 1.0)	1.5197
Boiling Point	-109.12°F
Freezing Point	-69.81°F
Vapor Pressure	830 psia
Autoignition Temperature	N/A
Lower Flammability Limit	N/A
Upper Flammability Limit	N/A
Stability	Stable
pH in Saturated Solution	3.7
Corrosivity	dry gas is relatively inert & not corrosive; can be corrosive to mild steels in aqueous solutions

Physical Effects of Carbon Dioxide	
Concentration	**Effect**
1.0 %	Breathing rate increases slightly
2.0 %	Breathing rate increases to 50% above normal level. Prolonged exposure can cause headache, tiredness
3.0 %	Breathing rate increases to twice normal rate and becomes labored. Weak narcotic effect. Impaired hearing, headache, increased blood pressure and pulse rate
4 – 5 %	Breathing increases to approximately four times normal rate, symptoms of intoxication become evident, and slight choking may be felt
5 – 10 %	Characteristic sharp odor noticeable. Very labored breathing, headache, visual impairment, and ringing in the ears. Judgment may be impaired, followed within minutes by loss of consciousness
10 – 100 %	Unconsciousness occurs more rapidly above 10% level. Prolonged exposure to high concentrations may eventually result in death from asphyxiation

D. Radii of Exposure [NMAC 19.15.11.7.K]

The basis for worst case scenario calculations is as follows:

- The hydrogen sulfide content of the inlet natural gas stream into the Frontier Empire Gas Plant is variable, ranging up to 18500 parts per million (ppm) or 1.85 mole percent as determined from average daily inlet gas analyses.

- The plant has a maximum daily (24 hour) processing volume of 56 MMSCF.

- The worst case scenario ROE also assumes an uncontrolled instantaneous release of the entire 24-hour throughput from the inlet contactor at the facility. Because the Plant is a throughput process plant, it is impossible that the entire 24-hour throughput volume of the Plant could be released instantaneously as is assumed in the worst case scenario calculations of the ROE. However, to comply with NMAC 19.15.11, that assumption is the worst case scenario in the formulas and calculations are provided here and in Appendix C.

It should further be noted that the reason this rate, used as worst case, could not ever be released over a 24-hour period is the Plant's emergency shutdown (ESD) systems would be activated. The ESD would prevent the flow of gas into the Plant in the event of an emergency. Appendix C contains the ROE calculation and a map (C-1) showing the ROE around the Plant.

The formulas for calculating the 100 ppm and the 500 ppm radii of exposure are as follows:

100 ppm ROE Calculation (as per 19 NMAC 15.11.7.K.1):

$$X=[(1.589)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$$

500 ppm Radius of Exposure Calculation (as per 19 NMAC 15.11.7.K.2):

$$X=[(0.4546)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$$

Where:
X = radius of exposure in feet
"hydrogen sulfide concentration" = the decimal equivalent of the mole or volume fraction of hydrogen sulfide in the gaseous mixture
Q = Escape rate expressed in cubic feet per day (corrected for standard conditions of 14.73 psi absolute and 60 degrees Fahrenheit)

Low Pressure Amine Unit

500-ppm ROE	**2248 feet**
100-ppm ROE	**4920 feet**

High Pressure Amine Unit

500-ppm ROE	**2351 feet**
100-ppm ROE	**5146 feet**

Sulfur Recovery Unit

500-ppm ROE	**2045 feet**
100-ppm ROE	**4475 feet**

Both the 500 ppm and the 100 ppm radii of exposure for the facility are shown on Map C-1 of Appendix C. This ROE pattern is designed to include the 100 and 500 ppm radii for a potential worst case failure.

VI. Facility Description, Maps, and Drawings
[NMAC 19.15.11.9.B(2)(c)] [API RP-55 7.4 c.]

A. Empire Abo Gas Processing Plant Description of Operations: The primary function of the plant is to remove H_2S and CO_2 from sour field gas so that the gas can meet pipeline specifications. The plant has been designated a primary Standard Industrial Classification (SIC) Code of 1321. The operation of the Frontier Empire Abo Gas Plant is intended to process up to 56 MMSCFD of gas. The facility is authorized to operate continuously (8760 hr/yr) at design maximum capacity processing rates with a cap of 250 lbs/hr sulfur dioxide from the SRU Incinerator on a 24 hour average. The gas is treated to remove acid gas components, dehydrated to remove water and processed to remove heavy (liquid) hydrocarbons from the gas stream. Several plant systems are involved in performing these functions.

The amine unit is designed to remove acid gas components (carbon dioxide, hydrogen sulfide and mercaptans) from the natural gas stream. These components are removed from the natural gas because they are corrosive, hazardous to health, and reduce the heating value of the natural gas stream. In addition, the carbon dioxide can freeze in the cryogenic unit forming dry ice and forcing the shutdown of the facility. This process is known as the gas sweetening process. The acid gas removed by the amine unit is routed to the flare for incineration.

Molecular sieve dehydration is used upstream of the cryogenic processes to achieve a -150°F dew point. The process uses two molecular sieve vessels with one vessel in service absorbing moisture from the gas stream and the other vessel in the regeneration mode. The cryogenic unit is designed to liquefy natural gas components from the sweet, dehydrated inlet gas by removing work (heat) from the gas by means of the turbo expander. The cryogenic unit recovers natural gas liquids (NGL) by cooling the gas stream to extremely cold temperatures (-150°F) and condensing components such as ethane, propane, butanes and heavier hydrocarbons. Once the sweet, dry gas (essentially 100 % methane) exits the cryogenic unit, it needs to be recompressed to approximately 600 - 700 psi before the gas is sent to the main transportation pipeline. This is accomplished with four gas driven compressors with a total of 5360 horsepower.

B. Map of Plant
See Appendix A, Map A-1

VII. Training and Drills
[NMAC 19.15.11.9.B(2)(d)] [API RP-55 7.4 d]

A. Responsibilities and Duties of Essential Personnel
Please See Section IV. Emergency Procedures (Page 2) for a detailed listing of responsibilities of essential personnel during a response. Personnel responsible for implementing this plan shall be trained on their duties and responsibilities related to this plan during the annual on-site or table top training exercises. All Plant personnel, visitors, and contractors must attend a Plant overview orientation prior to obtaining permission to enter the Plant. A refresher course on this training is required annually for all persons. This training also complies with the requirements of the Frontier Field Services, LLC Corporate Safety Program.

B. On-site or Classroom Drills
Frontier Field Services, LLC may use table top exercises as well as hands-on emergency response training methods. Training and drills in emergency response procedures help ensure personnel are adequately prepared to handle most emergency situations. Frontier personnel will be trained on the H_2S Incident Response Plan and procedures annually. Everyone's role and responsibilities will be covered. The need for emergency preparedness will be emphasized through the use of drills and other exercises that simulate an emergency in which personnel perform or demonstrate their roles in the emergency. These drills can be either "table-top" discussions or realistic drills in which equipment

will be deployed and contractors will participate. Frontier Field Services, LLC shall conduct a table top exercise annually at a minimum.

C. Notification and Training of Others on Protective Measures in Emergency Situations

At the time of submission of this plan there are no residences within the 100 ppm ROE. However, in the event of a release, Frontier personnel will make a visual inspection of the ROE area to insure that no individuals are seen inside the ROE, and if any are observed, they will be advised to immediately evacuate to the designated Emergency Evacuation Area. Businesses located within the 100 ppm ROE include an Duke Conoco Phillips Gas Plant and a Limerock Field Office. DCP and Limerock personnel will be invited to participate in and/or observe annual drills where they will be briefed on notification, evacuation and shelter in place plans such as shutting off any air conditioning/heating units until they are notified that it is safe. The DCP Gas Plant and Limerock Field Office will be contacted by Frontier personnel in the event of a release.

D. Training and Attendance Documentation

All training and drills will be documented. Documentation of the training, drills and reviews will be on file at the Frontier Field Services office at the Empire Abo Plant. Documentation shall include sign in sheets, synopsis of the training conducted, and an after action review of the training.

E. Briefing of Public Officials on Evacuation and Shelter in Place Plans

Local law enforcement, first responders, and fire personnel will also be invited to participate and/or observe annual drills, as well as being briefed on notification, evacuation, and shelter in place plans.

VIII. Coordination with State Emergency Plans

[NMAC 19.15.11.9.B(2)(e)]

A. Oil Conservation Division (OCD)

OCD will be notified via email to the District II office advising of the activation of the H_2S Contingency Plan if any of the alarms are activated at 10 ppm H_2S or greater. In the event of a power failure, a phone call will be made within four hours. All subsequent paperwork will be filed in a timely fashion.

B. New Mexico State Police/ New Mexico Hazardous Materials Emergency Response Plan

The New Mexico State Police are responsible for overall scene management and coordination of all resources. A designated Emergency Response Officer (ERO) will establish the National Interagency Incident Management System (NIIMS) Incident Command System (ICS) as the Incident Commander (IC) and be responsible for management of all response resources on scene. Off-scene coordination of response resources will be handled through designated Headquarters Emergency Response Officers. Law enforcement-related activities will be coordinated by State Police.

IX. Plan Activation

[NMAC 19.15.11.9.C] [API RP-55 7.4 d]

A. Activation Levels

Level I– Fast whelping audible alarm sounded and/or flashing red beacons activated for H_2S greater than or equal to 10 ppm

Level II – Fast whelping audible alarm sounded and/or flashing red beacons activated for H_2S greater than or equal to 10 ppm and H2S release unable to be resolved or level of H2S in excess of 20 ppm measured with handheld detection devices.

Level III–Catastrophic release; fire; explosion; a continuous release of maximum volume for 24 hours; or NMAC 19.15.11: mandatory activation of indication of 100 ppm in any defined public area; 500 ppm at any public road; or 100 ppm at a distance greater than 3000 feet from the site or the release.

B. Events that Could Lead to a Release of H_2S

- Inlet and plant piping failure
- Amine still failure
- Flange/gasket leaks on inlet and plant piping
- Valve packing
- Failure of flare to ignite

X. Submission of H_2S Contingency Plans [NMAC 19.15.11.9.D]

A. Submission

1. Frontier Field Services, LLC has submitted this H_2S Contingency Plan to the OCD.

B. Retention

1. Frontier Field Services, LLC shall maintain a copy of the contingency plan at the Empire Abo Gas Plant and at Frontier Field Services Headquarters office in Tulsa Oklahoma. The plan shall be will be submitted to the OCD and will be readily accessible for review by the OCD at the facility upon request.

C. Inventory

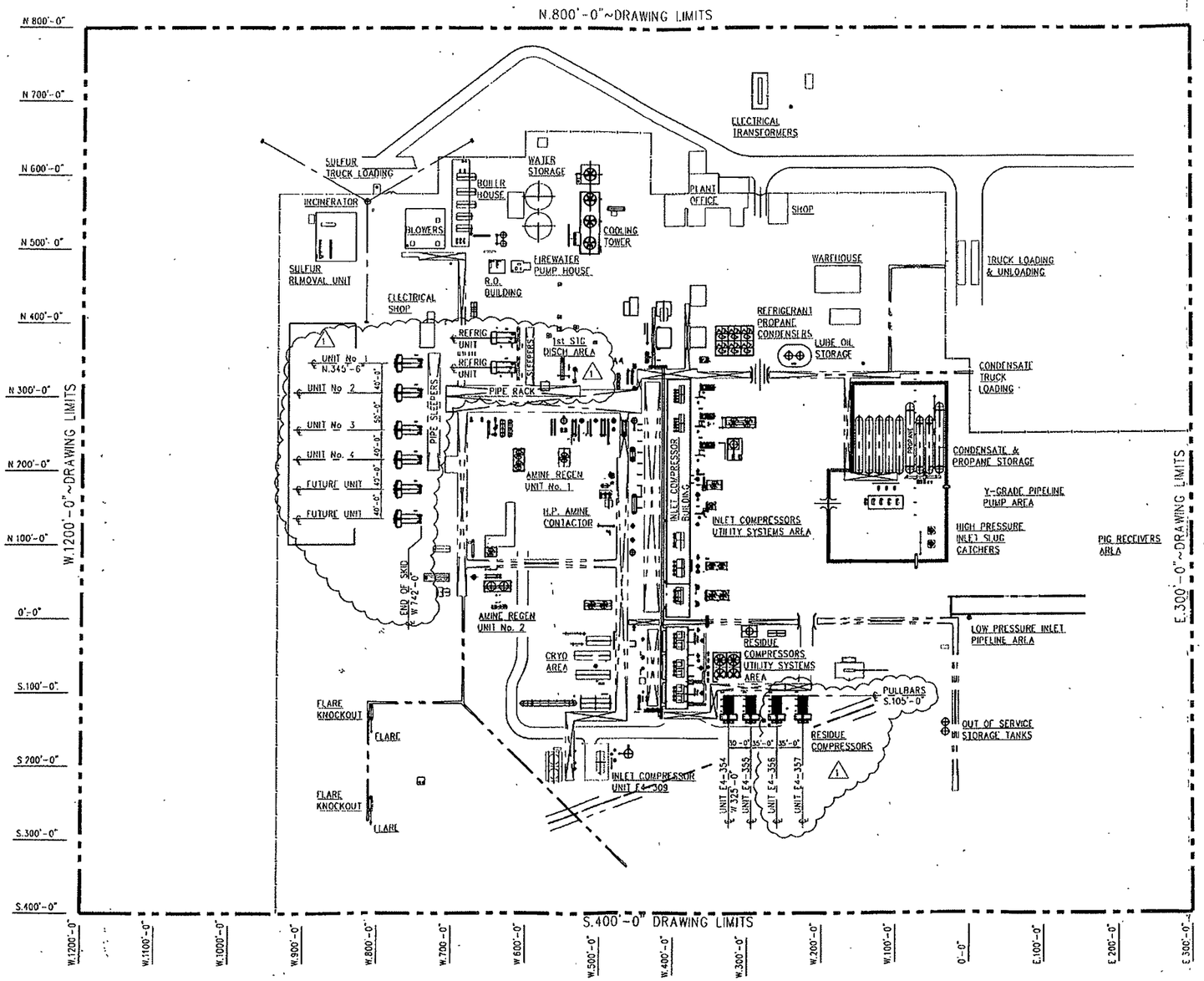
1. Frontier Field Services, LLC will file an annual inventory of wells, facilities and operations for which plans are on file with the OCD, to the Local Emergency Planning Committee (LEPC) and the State Emergency Response Commission as per NMAC 19.15.11.
2. The inventory shall include the name, address, telephone number, and point of contact for all operations in which plans are on file.

Appendix A – Facility Maps and Drawings

A-1 – Facility Map

A-2 – Alarm and Monitor Locations

A-3 – Safety and Fire Equipment Locations



Facility Map

GENERAL NOTES

REVISIONS

MK.	DESCRIPTION	DATE	CK	APPR
1	ADDED PROPOSED COMPRESSORS	12/10		
0	GENERATED DRAWING	11/10		

REFERENCE DRAWINGS

DRAWING NO.	TITLE	DRAWING NO.	TITLE

NOTICE

THIS DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF FRONTIER FIELD SERVICES, LLC AND IS LENT TO THE BORROWER FOR HIS CONFIDENTIAL USE ONLY IN CONSIDERATION OF THE LOAN OF THIS DRAWING. THE BORROWER PROMISES AND AGREES TO RETURN IT UPON REQUEST AND AGREES THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF DIRECTLY OR INDIRECTLY, NOR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SPECIFICALLY FURNISHED

FRONTIER

APPROVED	DATE	TITLE
CHECKED		PLOT PLAN OVERALL PLANT PROPOSAL EMPIRE ABO GAS PLANT
DESIGNED		
DRAWN: A.E. Meier	11-27-10	JOB No.

SCALE: 1"=15'-0" | DWG. NO.: D-100-100 | REV: 1

Alarm Type	Tag #	Location	Alarm Type	Tag #	Location
LEL	AAR5732	North SVG Compressor	H2S	GIT-2700-2	North of #1 Amine Regnerator
LEL	AAR5022	South SVG Compressor	H2S	GIT-2700-4	East of #1 Amine Contactor
LEL	AAR5823	Compressor #1 South	H2S	GIT-2700-3	South of #1 Amine Regenerator
LEL	AAR5700	Compressor #1 North	H2S	GIT-2700-1A	East of #1 Amine Reflux Scrubber
LEL	AAR5024	Compressor #2 South	H2S	GIT-2700-5	North of #2 Amine Bag Filter
LEL	AAR5761	Compressor #2 North	H2S	GIT-2700-6	Northeast of #2 Amine Regnerator
LEL	AAR5021	Compressor #3 South	H2S	GIT-2500-1	North of Sulfur Plant Steam Turbine
LEL	AAR5787	Compressor #3 North	H2S	GIT-2500-2	Southeast of the SRU Muffle Furnace
LEL	AAR5071	Compressor #4 South	H2S	GIT-2500-4	East of the Acid Gas Scrubber
LEL	AAR5756	Compressor #4 North	H2S	GIT-2500-3	South of Sulfur Storage Tank
LEL	AAR5699	Compressor #5 South	H2S	GIT-2500-5	South of South Electric Air Blower SRU
LEL	AAR5068	Compressor #6 North	H2S	GIT-2500-6	North of North Electric Air Blower SRU
LEL	AAR5698	Compressor #6 North	H2S	GIT-301-3	Compressor #1 West Wall
LEL	AAR5870	Compressor #7	H2S	GIT-302-2	Compressor #2 West Wall
LEL	AAR5703	Compressor #8	H2S	GIT-303-3	Compressor #3 West Wall
LEL	AAR5755	Compressor #9	H2S	GIT-304-4	Compressor #4 West Wall
LEL	AAR5723	Compressor 351 Methane	H2S	GIT-305-5	Compressor #5 West Wall
LEL	AAR5728	Compressor 351 Propane	H2S	GIT-306-6	Compressor #6 West Wall
LEL	AR5760	Compressor 352 Methane	H2S	GIT-307-2	Compressor #7 West Wall
LEL	AAR5727	Compressor 352 Propane	H2S	GIT-308-2	Compressor #8 West Wall
LEL	AAR5825	Compressor 353 Methane	H2S	GIT-309-3	Compressor #9 West Wall South End
LEL	AAR5702	Compressor 353 Propane	H2S	GIT-309-2	Compressor #9 West Wall North End
LEL	AAW8712	NW Tank Farm	H2S	GIT-291	South of #9 Compressor Inlet Scrubber
LEL	AAW8663	N Cneter Tank Farm	H2S	GIT-1800-1	Northeast Flare K.O Sump Pump
LEL	AAW8472	NE Tank Farm	H2S	GIT-1800-2	Northwest Flare K.O. Sump Pump
LEL	AAW8418	Center E tank Farm	H2S	GIT-1800-3	Southeast Flare K.O. Sump Pump
LEL	AAW8471	SE tank Farm	H2S	GIT-1104-1	South of Slop Oil Tanks
LEL	AAW8707	S Center Tank Farm	H2S	GIT-1104-2	West of Slop Oil Tanks
LEL	AAW8419	SW Tank Farm	H2S	GIT-1104-3	North of Slop Oil Tanks
LEL	AAW8465	Center W Tank Farm			

DWG NO D-63630-301

N

W-9+00 W-8+00 W-7+00 W-6+00 W-5+00 W-4+00 W-3+00 W-2+00 W-1+00 W-0+00 E-0+00

N-7+00 N-6+00 N-5+00 N-4+00 N-3+00 N-2+00 N-1+00 N-0+00

SULFUR PLANT NO. 3 (OUT OF SERVICE)

SULFUR PLANT NO. 1 (OUT OF SERVICE)

CHEMICAL STORAGE BUILDING

PARKING

PARKING

OFFICE

SHOP

DRIVE GATE

15'0" SIDE ROAD

FENCE

TICKET HOUSE

WAREHOUSE

WAREHOUSE

STORAGE BLDG.

EVAPORATION TANK

MATCH LINE N-0+00'-0" SEE DWG. D-63630-302

LEGEND

- FIRE EXTINGUISHER
- FIRE MONITOR
- FIRE HYDRANT
- FIRE BLANKET
- FIRE HOSE BUILDING
- WHEELED FIRE CART
- SAFETY SHOWER
- EYE WASH STATION
- SCOTT AIR PACK
- RESUSCITATOR
- FIRE ALARM
- FIRE MONITOR/HYDRANT

NOTE: SEE DWG. 63630305 FOR EQUIPMENT LEGEND.

REV NO	BY	DATE	REVISION	EOC PROCESS	EOC APPROVED	DATE	CONTR PROCESS	CONTR APPROVED	DATE
0	TRS	11/99	COMPLETE REVISION						

TRS RESOURCES
Carlsbad New Mexico

EMPIRE ABO GAS PLANT
EDDY COUNTY, NEW MEXICO

ELKHORN OPERATING CO.

FACILITY PLOT PLAN

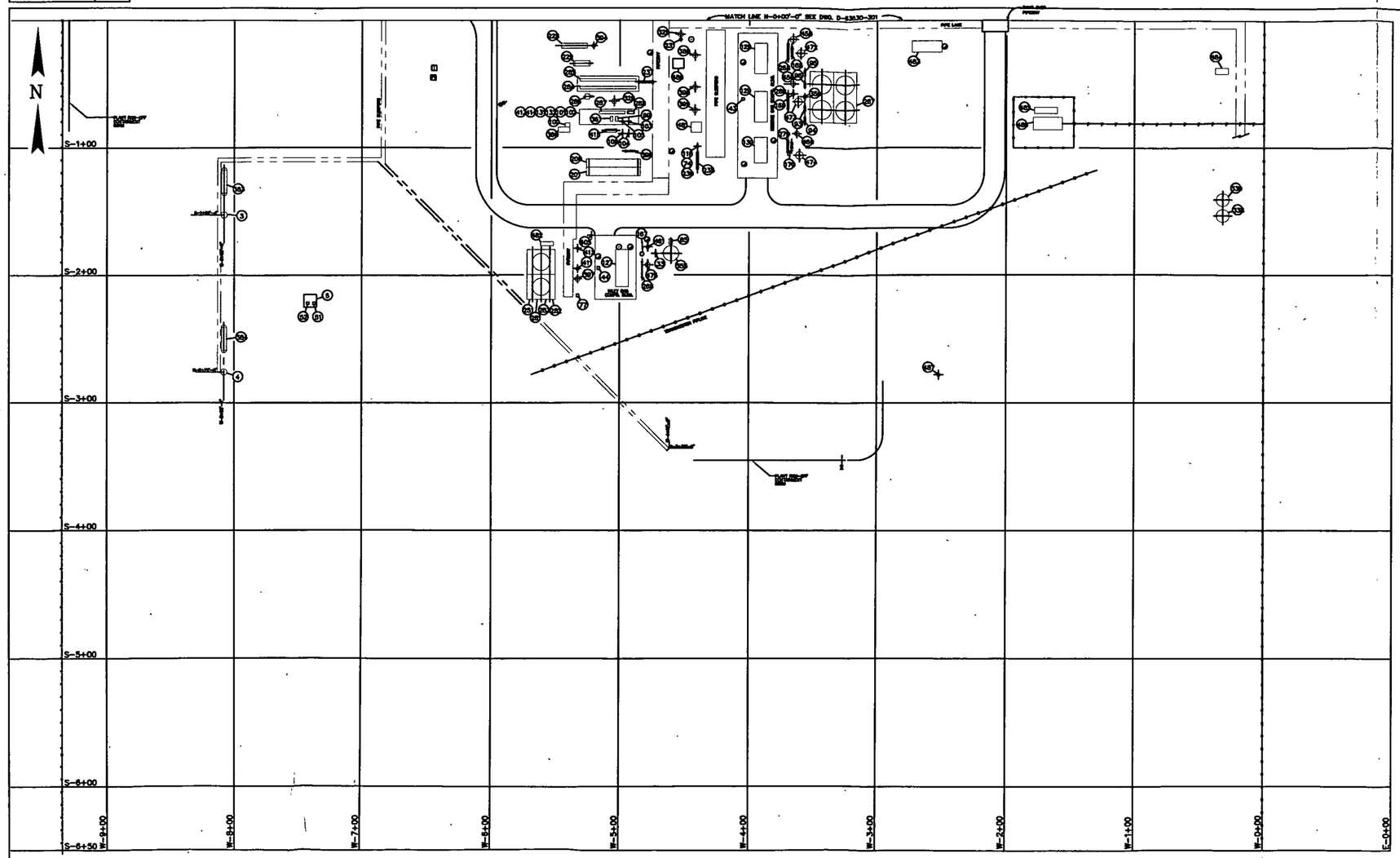
FIRE SAFETY PLAN
1 OF 2

SCALE	DRAWN BY	DATE	CHECKED BY	REV NO
NONE	TRS	11/99	RS	0
PROJECT CODE 9906-E	DRAWING NO D-63630-301			

Filename 63630301.DWG

Safety and Fire Equipment Locations

DWG. NO. D-63630-302



LEGEND

- FIRE EXTINGUISHER
- FIRE MONITOR
- FIRE HYDRANT
- FIRE BLANKET
- FIRE HOSE BUILDING
- WHEELED FIRE CART
- SAFETY SHOWER
- EYE WASH STATION
- SCOTT AIR PACK
- RESUSCITATOR
- FIRE ALARM
- FIRE MONITOR/HYDRANT

NOTE: SEE DWG. 63630305 FOR EQUIPMENT LEGEND.

REV NO	BY	DATE	REVISION	EOC PROCESS	EOC APPROVED	DATE	CONTR PROCESS	CONTR APPROVED	DATE
0	TRS	11/99	COMPLETE REVISION						

TRS RESOURCES
Carlsbad, New Mexico

EMPIRE ABO GAS PLANT
EDDY COUNTY NEW MEXICO

ELKHORN OPERATING CO.

FACILITY PLOT PLAN

FIRE SAFETY PLAN
2 OF 2

SCALE	DRAWN BY	DATE	CHECKED BY	REV NO
NONE	TRS	11/99	RS	0

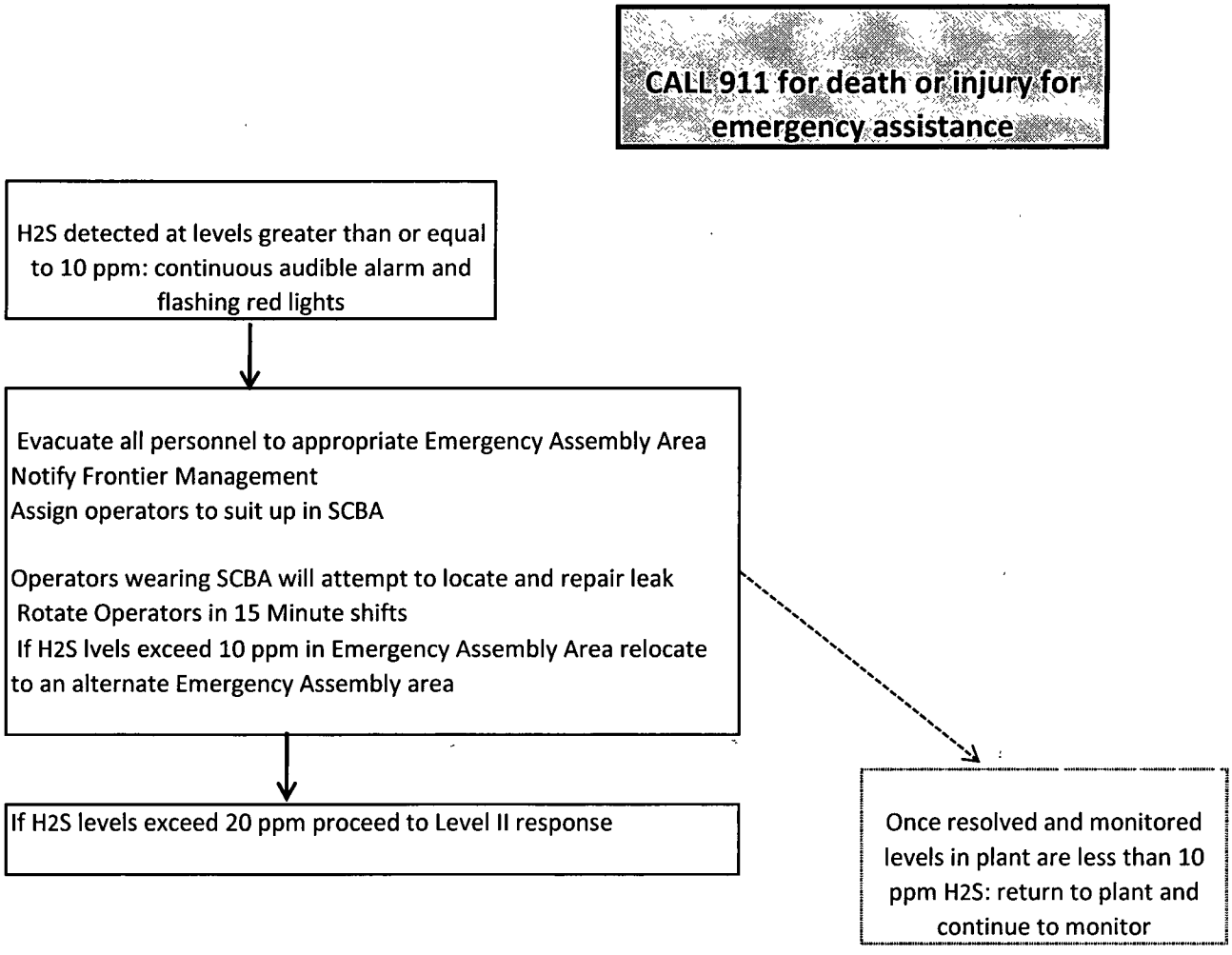
PROJECT CODE 9906-E
DRAWING NO D-63630-302

Filename: 63630302.DWG

Safety and Fire Equipment Locations

Appendix B – Response Flow Diagrams

LEVEL I RESPONSE



LEVEL II RESPONSE

CALL 911 for death or injury for emergency assistance

H2S detected at levels greater than or equal to 20 ppm or Level I release not resolved: continuous audible alarm and flashing red lights

Operators put on SCBA
Others put on Emergency Respirators
Evacuate all personnel from plant to designated Emergency Assembly Area
Assign operators to suit up in SCBA
Notify entities in the 100 ppm ROE to shelter in place or evacuate depending on weather and release conditions (IC determines this) if perimeter alarms are activated
Operators wearing SCBA attempt to locate and repair leak
Re-entry will occur for 45 minutes or until the IC determines the
Notify LEPC
If H2S Levels exceed 10 ppm in Emergency Assembly Area relocate to an alternate Emergency Assembly Area

If H2S levels exceed 20 ppm and repair efforts are unsuccessful, worst case scenario and/or catastrophic release has occurred then implement Level 3 response

Once resolved and monitored levels in plant are less than 10 ppm H2S: return to plant and continue to monitor

LEVEL III RESPONSE

CALL 911 for death or injury for emergency assistance

H2S detected at levels greater than or equal to 20 ppm or Level I release not resolved: continuous audible alarm and flashing red lights repairs efforts are unsuccessful, worst case scenario and/or catastrophic release has occurred

↓

Set up roadblocks as directed by Incident Commander
Confirm all personnel have evacuated the 500 ppm ROE

Instruct all personnel in the 10 ppm ROE to evacuate to Emergency Assembly Area or shelter in place as determined by the IC
If vapors have ignited, continue to let burn unless fires endanger personnel
Initiate a chronological record of events
Within one hour of activation of the plan notify NMOCD and the NRC
Establish a Media staging area
Submit agency reports as required

→

Once resolved and monitored levels in plant are less than 10 ppm H2S: return to plant and continue to monitor

Appendix C – ROE Calculations

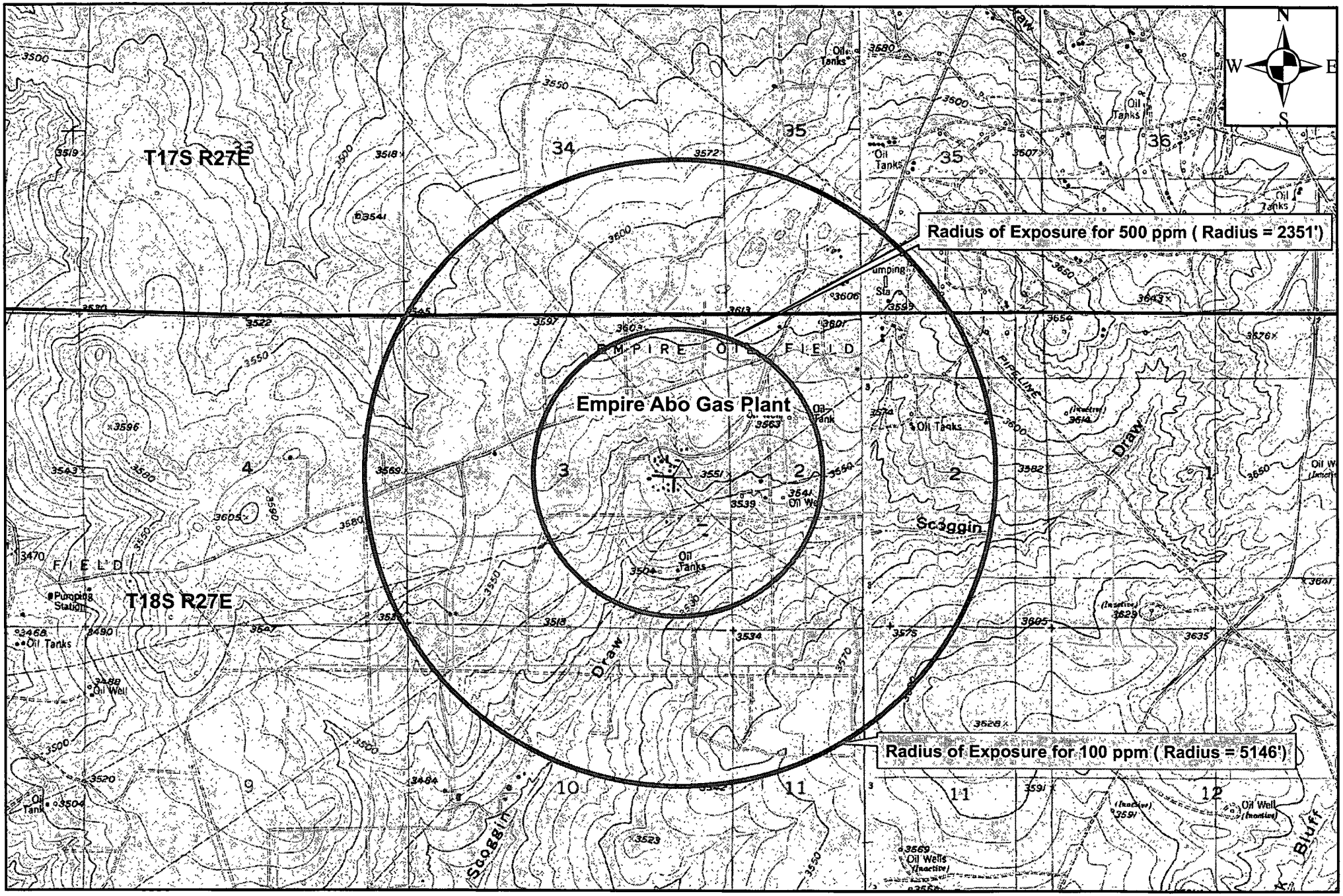
ROE Calculations Worksheet
Map C-1: Facility ROE

The radius of exposure is calculated using the following equations:
100 ppm ROE calculation (as per 19 NMAC 15.11.7.K.1)
$X_{100ppm}=[(1.589)(Conc_{H2S})(Q)]^{(0.6258)}$
500 ppm ROE Calculation (as per 19 NMAC 15.11.7.K.2)
$X_{500ppm}=[(0.4546)(Conc_{H2S})(Q)]^{(0.6258)}$
Where:
X= radius of exposure (ft)
$Conc_{H2S}$= the decimal equivalent of the mole or volume fraction of H_2S in the gas
Q= daily plant throughput corrected to standard conditions (SCFD)

Plant Parameters for Inlet Stream					
Q=	56 MMSCFD	=	56,000,000 SCFD		
$Conc_{H2S}$=	18500 ppm	=	1.85 %=	0.0185 fraction	
ROE Calculations					
			Low Pressure Amine Unit		
X_{100ppm}=	[(1.589)*(0.0185)*(27000000)]^(0.6258)				
X_{100ppm}=	4920	feet	=	0.932	miles
X_{500ppm}=	[(0.4546)*(0.017)*(27000000)]^(0.6258)				
X_{500ppm}=	2248	feet	=	0.426	miles
			High Pressure Amine Unit		
X_{100ppm}=	[(1.589)*(0.0185)*(29000000)]^(0.6258)				
X_{100ppm}=	5146	feet	=	0.975	miles
X_{500ppm}=	[(0.4546)*(0.0185)*(29000000)]^(0.6258)				
X_{500ppm}=	2351	feet	=	0.445	miles

Plant Parameters for Acid Gas Stream					
Q=	1.073 MMSCFD	=	1,073,000 SCFD		
$Conc_{H2S}$=	400000 ppm	=	40 %=	0.4 fraction	
ROE Calculations					
			Sulfur Recovery Unit		
X_{100ppm}=	[(1.589)*(0.40)*(1073000)]^(0.6258)				
X_{100ppm}=	4475	feet	=	0.848	miles
X_{500ppm}=	[(0.4546)*(0.017)*(1073000)]^(0.6258)				
X_{500ppm}=	2045	feet	=	0.387	miles

Appendix C ROE Calculations for Empire Abo Gas Plant



0 500 1,000 2,000 3,000 4,000 Feet

1 in = 2,000 feet

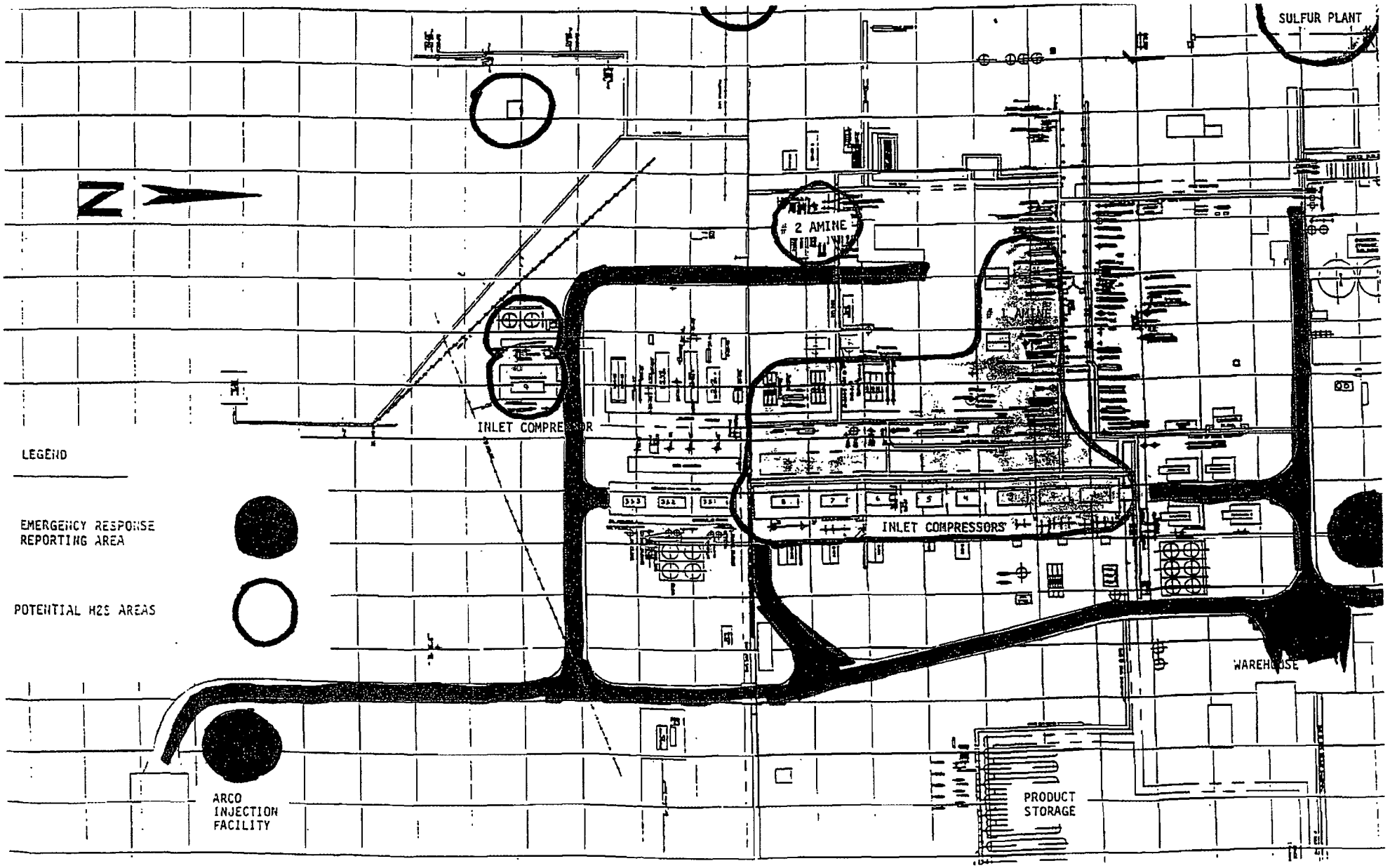
Radii of Exposure for 100 ppm and 500 ppm

Empire Abo Gas Plant

FRONTIER field services, llc

Appendix D – Emergency Assembly Areas and Evacuation Routes

Map D-1: Evacuation Route and Emergency Assembly Area Locations



Emergency Assembly Areas

Appendix E – Distribution List

APPENDIX E – H_2S Contingency Plan Distribution List

New Mexico Oil Conservation Division
811 South First
Artesia, NM 88210

New Mexico Department of Public Safety
P.O. Box 391
Artesia, NM 88210

Eddy County Local Emergency Planning Committee
101 East Greene Street
Carlsbad, NM 88220

Artesia Fire Department
309 North 7th Street
Artesia, NM 88210-1913

Eddy County Sheriff's Department
102 N Canal Street
Carlsbad, NM 88220-5750

Empire Abo Gas Plant
257 Empire Road
Artesia, NM 88211

Frontier Field Services LLC Main Office
4200 Skelly Drive, Suite 700
Tulsa, OK 74135

Chavez, Carl J, EMNRD

From: Feather, David [dfeather@akaenergy.com]
Sent: Friday, July 29, 2011 11:05 AM
To: Sanchez, Daniel J., EMNRD; Chavez, Carl J, EMNRD; Goodyear, Richard, NMENV
Cc: Hicks, Mike; Prentiss, John; Stevenson, Kyle
Subject: Submittal of H2S Contingency Plan Frontier Field Services LLC Empire Abo Gas Plant
Attachments: H2SContPlanFFSEmpireAbo.pdf

To whom it may concern:

Attached is an electronic copy of the H2S Contingency plan being submitted by Frontier Field Services LLC for the Empire Abo Gas Plant. If you have any questions or require additional information please contact me using the contact information listed below. This plan has also been submitted via first class mail.

Thank you,

ehs
Key to Success

David J. Feather
Environmental, Health and Safety Technician
direct line: 575-677-5140 cell: 575-706-5287
dfeather@akaenergy.com

AKA ENERGY GROUP, LLC

FRONTIER field services, llc
southern ute indian tribe

July 27, 2011
Mr. Daniel Sanchez
Acting Division Director
NM Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

VIA EMAIL AND FIRST CLASS MAIL
RETURN RECEIPT REQUESTED

RE: SUBMITTAL OF FRONTIER FIELD SERVICES, LLC EMPIRE ABO GAS PLANT H_2S CONTINGENCY PLAN PURSUANT TO §19.15.11 et seq. NMAC

Dear Mr. Sanchez:

Pursuant to your letter of March 17, 2011 regarding the requirements under current OCD rules pertaining to H_2S under §19.15.11 et seq. NMAC we submitted our existing Rule 118 plan on March 29th and at that time we informed you that we were already in process of revising our plan to be consistent with Rule 11 and our intent to submit it prior to your August 11, 2011 deadline.

As mentioned in our letter of March 29, 2011 and in keeping with Frontier's commitment to safety and to operating in compliance with all applicable state, federal and local regulations, attached you will find the plan revised to conform to all requirements of NMOCD's Rule 11 (§19.15.11 et seq. NMAC). I trust that this submission brings Frontier Field Services, LLC up to date with all of NMOCD's rules relative to H_2S contingency planning.

If you have any questions or require additional information, please contact me at 575-706-6983 or David Feather at 575-706-5287.

Sincerely,
Frontier Field Services, LLC.

John Prentiss,
Area Manager

Enclosure

cc: Carl Chavez, NMOCD Environmental Bureau
Richard Goodyear, NMED-AQB
OCD District Office Artesia

4200 E. Skelly Drive, Suite 700, Tulsa, OK 74135
Phone (918) 493-4450 ~ Fax (918) 492-4701

H_2S Contingency Plan

Frontier Field Services LLC
Empire Abo Gas Plant
257 Empire Road
Drawer 70
Artesia, NM 88210
(575-677-5124)

July 27, 2011

TABLE OF CONTENTS

Page

I. Introduction
[API RP-55 7.1] 1

II. Scope
[API RP-55 7.2] 1

III. Plan Availability
[API RP-55 7.3] 1

IV. Emergency Procedures 2
[NMAC 19.15.11.9.B(2)(a)][API RP-55 7.4 a.]
A. Responsibilities and Duties of Personnel During an Emergency
B. Immediate Action Plan
C. Telephone Numbers and Communication Methods
D. Location of Residents, Roads, and Medical Facilities
E. Evacuation Routes, Emergency Evacuation Areas, and Road Block Locations
F. Monitoring Equipment, Alarm Systems, Safety Equipment, and Supplies

V. Characteristics of Hydrogen Sulfide (H_2S), Sulfur Dioxide (SO_2), and Carbon Dioxide (CO_2) [NMAC 19.15.11.9.B(2)(b)][API RP-55 7.4 b.] 13
A. Characteristics of Hydrogen Sulfide (H_2S)
B. Sulfur Dioxide (SO_2)
C. Carbon Dioxide (CO_2)
D. Radii of Exposure

VI. Facility Description, Maps, and Drawings
[AC [19.15.11.9.B(2)(c)][API RP-55 7.4 c.] 17
A. Empire Abo Processing Plant Description of Operations
B. Map of Plant

VII. Training and Drills
[NMAC 19.15.11.9.B(2)(d)][API RP-55 7.4 d.] 17
A. Responsibilities and Duties of Essential Personnel
B. On-site or Classroom Drills
C. Notification and Training of Residents on Protective Measures in Emergency Situations
D. Training and Attendance Documentation
E. Briefing of Public Officials on Evacuation and Shelter in Place Plans

VIII. Coordination with State Emergency Plans
[NMAC 19.15.11.9.B(2)(e)] 18
A. Oil Conservation Division
B. New Mexico State Police

IX. Plan Activation
[NMAC 19.15.11.9.C][API RP-55 7.4 d.]..... 18
A. Activation Levels
B. Events that Could Lead to a Release

X. Submission of H_2S Contingency Plans
[NMAC 19.15.11.9.D]..... 19
A. Submission
B. Retention
C. Inventory

APPENDICES

Appendix A – Facility Maps and Drawings
A-1: Facility Map
A-2: Alarm and Monitor Locations
A-3: Safety and Fire Equipment Locations

Appendix B – Response Flow Diagrams

Appendix C – ROE Calculations
Map C-1: Facility ROE

Appendix D – Emergency Assembly Areas and Evacuation Routes
D-1: Evacuation Route and Emergency Assembly Area Locations

Appendix E – Distribution List

Location of Facility

1) **Frontier Field Services, LLC, Empire Abo Gas Plant**
The physical location of the Plant is in Section 3, Township 18S, Range 27E, Eddy County, NM. The plant is approximately nine miles east-southeast of the city of Artesia, NM. Driving Directions to the plant are as follows: (1) From Artesia follow US 82E approximately 10 miles to Hilltop Road. Turn south (right) on Hilltop Road and follow approximately 400 yards before turning west (right) on Empire Road. Follow Empire Road just over two miles to the facility.

The mailing address of the plant is:
257 Empire Road
Drawer 70
Artesia, NM 88210

2) **The Empire Abo Gas Plant Office (See Map A-1)** will serve as the Communication Center during the response to an H_2S release. If this location must be evacuated, an alternate location well away from any hazardous exposure area will be established by the incident commander of designee.

I. Introduction

[API RP-55 7.1]

The Frontier Field Services Empire Abo Gas Processing Plant is a natural gas processing plant which process field gas containing hydrogen sulfide (H_2S) and handles and/or generates sulfur dioxide (SO_2). This H_2S contingency plan was created to document procedures that are to be followed in the event of an H_2S release that occurs at the plant. This plan complies with the ***New Mexico Oil Conservation Division (OCD) Rule 11(§ 19.15.11 et. seq. NMAC)***. The plan and operation of the Empire Abo Plant also conform to standards set forth in ***API RP-55 "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide".*** The Empire Abo Gas Plant does not have any storage tanks in which hydrogen sulfide or other gas or gas products are stored, and thus, API regulations and OCD regulations (specifically 19.15.11.12.E NMAC) relative to those types of storage are not applicable for this plant.

II. Scope

[API RP-55 7.2]

This contingency plan is specific to the Frontier's Empire Abo Gas Processing Plant. It contains procedures to provide an organized response to an unplanned release from the plant and documents procedures that would be followed to alert and protect any members of the public, residents in surrounding areas and/or contractors working on or around the plant in the event of an unplanned release. This H_2S Contingency Plan has been prepared to minimize the hazard resulting from an H_2S release. It will be used to inform company personnel, local emergency responders and the public of actions to be taken before, during and after an H_2S release. All operations shall be performed with safety as the primary goal. The primary concern of Frontier Field Services Empire Abo Gas Plant, during an H_2S release, is to protect Company employees, contractors and the public; the secondary concern is to minimize the damage and other adverse effects of the emergency. Any part of the operation that might compromise the safety of individuals will cease until the operation can be re-evaluated and the proper engineering controls to assure safety are implemented. No individual should place the protection of the Plant property above his or her own personal safety.

It must be kept in mind that in a serious situation involving a Hydrogen Sulfide (H_2S) release, not only Frontier Field Services personnel are involved, but local Fire Departments, Law Enforcement, County and even State of New Mexico agencies may be interested parties. Cooperation will expedite all decisions. In any emergency situation involving a H_2S release, delegation of duties will be made to appropriate employees and groups. These duties will be reviewed on an annual basis to ensure complete understanding which will facilitate a well-coordinated response by all involved personnel to the emergency situation.

III. Plan Availability

[API RP-55 7.3]

This contingency plan shall be available to all personnel responsible for implementing any portion of the plan (see Appendix E for distribution list). Copies of the plan will be distributed to the following agencies: OCD; New Mexico Department of Public Safety (DPS), Local Emergency Planning Committee (LEPC);Riverside, Artesia Fire Departments; New Mexico State Police, Artesia and Carlsbad Sheriff's Offices. The Plan will be available at the following Frontier Field Services, LLC locations: Empire Abo Gas Processing Plant, Artesia, NM; Frontier Field Services Main Office, 4200 Skelly Drive, Suite 700, Tulsa, OK 74135.

IV. Emergency Procedures
[NMAC 19.15.11.9.B(2)(a)] [API RP-55 7.4 a] [29 CFR 1910.1200]

A. Responsibilities and Duties of Personnel during an Emergency

Plant evacuation for all visitors and Plant personnel that are not operators begins with the 10 ppm H_2S fast whelping alarm and/or flashing red beacon. The Plant operators will make a determination of the level of the incident as detailed below and will respond immediately, if required, by donning 30-minute Self Contained Breathing Apparatus (SCBA). They will determine if any personnel are in distress and will assist any distressed personnel to evacuate to a designated Emergency Assembly Area. Emergency services (911) will be contacted if there are injuries or as otherwise deemed necessary. At the sound of the alarm and/or upon observation of the flashing beacons, all other personnel in the Plant are to stop work, check the prevailing wind direction and immediately proceed along designated evacuation routes and/or upwind to the pre-designated Emergency Assembly Area(s) that are described in Appendix D.

Roll call shall be conducted at the Emergency Assembly Area to assure all personnel have evacuated safely. This facility requires that all visitors check in before entering the Plant, and thus the check-in sheet will be used at the Emergency Assembly Areas to make a full accounting of all personnel and visitors.

The Plant Manager or designee will serve as the Incident Commander (IC) and head of the Incident Command Team. The IC will bear the overall responsibility to see that objectives of the Plan are met and to insure the safety of the public and all personnel involved in the response. The IC will monitor all activities being carried out. Members of the Empire Abo Plant Incident Response Team will keep him informed of conditions throughout the release emergency. The IC's role is to ensure control of the emergency incident. He will notify or delegate responsibility for notification of all Frontier or contract personnel and any civil authorities needed to respond to the incident. The IC will assign any additional personnel to support roles as needed. Upon notification or discovery of an H_2S release, the following steps will be initiated by the Frontier IC or designee:

1. Assume the role of Incident Commander (IC) and gather as much information as possible regarding the release of H_2S.
2. Alert other emergency response personnel of the potential hazard.
3. Arrange for support personnel to be sent to the location of the release.
4. Proceed to the site to assess emergency response actions needed
5. Set up an on-site command station
6. Implement the H_2S Incident Response Plan as necessary
7. Remain on site as IC until relieved or the incident is under control.

The following is a description of key personnel responsibilities during an Incident Response. Depending on the specific circumstances surrounding the release, a single individual may serve multiple roles for key personnel outlined below.

Incident Commander (IC).

a. Obtain initial incident briefing from on scene or prior IC, if available
b. Ensure the safety of all personnel involved in the response.
c. Assess the incident situation and develop appropriate strategies. Conduct site investigations as needed. Establish response priorities.
d. Conduct initial and ongoing briefings with IC staff..
e. Activate elements of the Incident Command System as required.
f. Ensure planning response meetings are conducted.
g. Keep Frontier Field Services line and senior management informed of response situation.
h. Manage all incident operations.
i. Ensure a Frontier Field Services media representative has approved all information releases prior to release or issue.

1. **Operations Section Chief.**
   a. Obtain briefing from IC.
   b. Ensure the safety of all personnel under Operations Section Chief supervision.
   c. Brief and assign operations personnel in accordance with Incident Response needs.
   d. Supervise operations; ensure personnel have the equipment, materials supplies and support needed to respond in a safe, efficient and effective manner.
   e. Determine Operations Section needs and request additional resources as necessary.
   f. Report information about special activities, events and occurrences to the IC.
   g. Ensure site security.

2. **Safety Officer**
   a. Obtain briefing from IC.
   b. Exercise emergency authority to stop and prevent unsafe acts.
   c. Apply for manpower, equipment and services necessary to ensure safe operations at all sites.
   d. Ensure hazard communications systems, including Material Safety Data Sheets (MSDS's), are in place at all involved field locations.
   e. Identify hazardous situations associated with the incident.
   f. Ensure all regulatory requirements as related to safety are satisfied.
   g. Ensure that employees and contractors entering the clean-up sites are properly briefed as to the dangers and precautions to be observed at the site. Ensure only those involved in the response are involved in the clean-up of hazardous materials; otherwise, review their training and qualifications.
   h. Determine the types of air monitoring equipment (direct reading, personal monitoring, etc.) necessary to support response operations.
   i. Participate in response planning meetings.
   j. Lead Incident Investigation Teams for any incident occurring during or after the emergency. Document and review findings with all team members

3. **Logistics Section Chief**
   a. Obtain briefing from the IC.
   b. Identify and provide logistics support for planned and expected operations.
   c. Coordinate and process requests for additional resources.
   e. Assist Officers and Section Chiefs from other functions in resources procurement.
   f. Advise on current service and support capabilities.

5. **Information Officer**
   a. Obtain briefing from IC.
   b. Establish a single incident information center whenever possible.
   c. Identify and communicate public, community, and media concerns to the IC.
   d. Respond to special requests for information.

6. **Planning Section Chief**
   a. Obtain briefing from IC.
   b. Reassign initial response and incident personnel into incident positions as needed.
   c. Assemble information on alternative strategies.
   d. Identify need for use of specialized resources.
   e. Advise IC staff of any significant changes in incident status.
   f. Distribute IC's orders and prepare plans for implementation.

7. **Other Employees**
   All employees on duty should be on standby awaiting instructions from the IC. They may be called on to provide support contacting vendors for supplies, contacting local support groups for assistance to the general public, provide onsite logistical support to the responders, blocking roads, assist with evacuations, etc.

No employee or contractor will be asked to provide incident scene support that they are not comfortable in their ability to perform or have not been specifically trained to perform.

B. Immediate Action Plan

1. The following outlines the Immediate Action Plan that is illustrated by the response flow diagrams included in Appendix B. The Immediate Action Plan is divided into three levels which are activated in response to increased severity of an unanticipated release of H_2S at the Plant. The following procedures are to be used when responding to an H_2S release. In the event of activation of an H2S alarm, the Plant Operator will assess the situation pursuant to Paragraph IV. A above and determine the appropriate level of response consistent with Immediate Action Plan. Additional or long-term response actions will be determined on a case-by-case basis, if needed, once the Incident Command Center (ICC) and System (ICS) are established following the immediate response.

Level	Alarms	Actions
I	Fast whelping audible alarm sounded and flashing red lights activated for H_2S at 10 ppm or greater.	**1.** The audible signal for a Plant emergency and evacuation is a fast whelping siren alarm and a flashing red beacon. An H_2S alarm is activated and a red light flashes when 10 ppm or greater are detected. The audible alarm and flashing red lights are redundant systems which function independently of one another so that should one system fail, the other would remain active. These systems incorporate back-up battery capabilities as recommended in API RP 55 which insure their operation in the event of a power failure. A computer in the control room and in the Plant Operator's office establishes which H_2S monitor has activated the alarm and/or flashing red beacon. At the initial sound of the fast whelping alarm or the flashing red beacon, assigned operator will assess the location of the alarm and make an initial determination of the cause of the alarm. The operator will attempt to rule out potential false alarms based on sensor malfunction or other conditions and if a release is detected, he will make a determination of prevailing wind and estimated magnitude of the release. If the cause of the release is a minor problem such as a packing or seal leak, the operator will take the necessary steps to correct the situation and eliminate the source of the release. If necessary, the operator will make a call to the supervisor on call for back-up. Once the operator has back-up they will put on a 30 minute self-contained breathing apparatus (SCBA). (There are two operators at the plant at all times, and at least 17 SCBA devices are located where they are accessible to the operator.) All other personnel in the Plant complex shall immediately evacuate the Plant and go to the closest Emergency Assembly Area (see Appendix D, Map D-1). The operators, using a buddy system will first help any persons in distress evacuate to the Emergency Assembly Area. If deemed necessary by the Plant Manager (IC) or Plant Supervisor, local emergency response service providers will be contacted by Plant personnel designated by the IC or Plant Supervisor. **2.** All entities within the 500 ppm radius of exposure (ROE) will be notified (by telephone) of a release if the audible alarm is activated at 10 ppm H_2S or greater. Notification will be done by personnel designated by the IC or his designee. The nature of the release and status of containment will be conveyed. Businesses will be advised to report the incident to employees working near the Plant and to alert any third party contractors or service companies working in the Plant vicinity or imminently scheduled to work in the vicinity of the release. All individuals will be instructed to leave the area and not to enter/re-enter area until further notice. There are no known residences within the 500 or 100 ppm ROE. The only businesses within the 100 ppm ROE are a gas plant owned by Duke Conoco Phillips Company (DCP) and a Limerock office. In the event of an H_2S release, the DCP Gas Plant and Limerock will be contacted by Frontier personnel, and if individuals are present they will be advised either to evacuate to an Emergency Assembly Area or to shelter in place, as deemed appropriate by the IC. Frontier personnel will also make a visual inspection of the ROE area to insure that no individuals are seen inside the ROE, and if any are observed, they will be advised to immediately evacuate to the designated Emergency Assembly area, described above. **3.** Wearing the SCBAs, the operator(s) will attempt to fix the cause of the release. The H_2S levels at the Emergency Assembly Area will be monitored with a hand held or personal monitor. If H_2S levels in the Emergency Assembly Areas exceed 10 ppm H_2S, everyone will evacuate to an alternate Emergency Assembly Area, as designated by the IC (See Appendix D, Map D-1). **4.** The IC will set up secondary re-entry team(s) with 30 minute SCBAs to re-enter and resolve the situation. Re-entry will occur in 15 minute shifts at the direction of the IC until the problem is resolved or the emergency shutdown (ESD) is activated. If release is resolved and monitored levels in the Plant are less than 10 ppm H_2S, personnel may re-enter the Plant. The OCD shall be notified within four hours of any release that activates the Plan. If the release is not resolved and H_2S levels continue to increase, Level II Response is indicated.

Levels	Alarms	Actions
II	Fast Whelping audible alarm sounded and flashing red lights activated and H_2S greater than 20 ppm measured with handheld device	**1.** The fast whelping audible alarm and red flashing lights indicate the detection of H_2S greater than or equal to 10 ppm and the operator(s) have been unable to stop the release of H_2S or level measured with handheld device exceeds 20 ppm. The audible alarm and flashing lights are redundant systems which function independently of one another so that should one system fail, the other would remain active. These systems incorporate back-up battery capabilities as recommended in API RP 55 which insure their operation in the event of a power failure. A control panel in the Process Control Room establishes which H_2S monitor has activated the alarm and or flashing blue beacon. If Level II Response is activated, operators will immediately put on 30 minute SCBAs, and all other personnel in the Plant complex will put on emergency escape packs (located throughout the plant) and evacuate using the evacuation routes to the Emergency Assembly Area specified by the IC or his designee (see Appendix D Map D-1). The operators, upon suit up with the SCBAs, will first help any persons in distress evacuate to the Emergency Assembly Area. See Section IV. F. (see Page12) for a listing of respirator equipment available at the Plant. If deemed necessary, local emergency response service providers will be contacted by the IC or his designee. **2.** All other entities within the 100 ppm ROE will be contacted by phone and notified of release and asked to evacuate. The nature of the release and status of containment will be conveyed. Depending on release status and prevailing wind conditions, some entities within the 100 ppm ROE may be asked to shelter in place rather than evacuate. Those entities will be instructed to close any windows and shut off any air conditioning/heating until further notice. In addition, they will be instructed to contact other employees/residents not currently present and instruct them not to enter/reenter the area until further instruction. **3.** The LEPC and law enforcement will be contacted by phone and notified of the release and status of containment. The IC will assign responsibility for notification to appropriate personnel. There are no known residences within the 100 ppm ROE. The only businesses within the 100 ppm ROE are a gas plant owned by Duke Conoco Phillips Company (DCP) and a Limerock office. In the event of an H_2S release, the DCP Gas Plant and Limerock will be contacted by Frontier personnel, and if individuals are present they will be advised either to evacuate to an Emergency Assembly Area or to shelter in place, as deemed appropriate by the IC. Frontier personnel will also make a visual inspection of the ROE area to insure that no individuals are seen inside the ROE, and if any are observed, they will be advised to immediately evacuate to the designated Emergency Assembly Area as described above. **4.** Operator(s) with 30 minute SCBAs will assess the release and attempt to resolve it. If after 15 minutes on scene there is no resolution, the operator(s) will notify the Plant Manager to determine if the emergency shutdown (ESD) should be activated. **5.** If monitored H_2S levels at the Emergency Assembly Area exceed 10 ppm, everyone will evacuate to an alternate Emergency Assembly Area, as designated by the IC. **a)** Re-entry will occur in full SCBA and in 15 minute shifts at the direction of the IC until IC determines problem has been resolved or emergency shut downs (ESDs) are activated. **b)** If release is resolved and monitored levels of H_2S in the Plant are less than 10 ppm, personnel may return to Plant. The OCD shall be notified within four hours of any release that activates the Plan. All entities previously notified will be informed that the release has been resolved and advised of the current monitored H_2S levels at the Plant. **c)** No resolution requires activation of Level III Response with notifications and reporting as per Plan. If the release is not resolved and/or H_2S levels continue to increase, Level III Response is indicated. **5.** Initiate and maintain a Chronological Record of Events log.

Level	Alarms	Actions
III	Fast whelping audible alarm sounded and flashing red lights activated for catastrophic release; blue lights for fire or explosion ESD alarm is a continuous audible alarm with flashing red lights	**1.** Level III Response indicated in the event of a catastrophic release; fire; explosion; a continuous release of maximum volume for 24 hours; or NMAC 19.15.11: mandatory activation of indication of 100 ppm in any defined public area; 500 ppm at any public road; or 100 ppm at a distance greater than 3000 feet from the site or the release. If H_2S is at 20 ppm or greater and repair efforts at Level II have been unsuccessful, then a Level III response may be implemented at the discretion of the IC. Emergency Shutdown (ESD) procedures will immediately be implemented if a Level III Response is initiated. **2.** Road block locations may vary depending on wind direction, size of the release, and ability to quickly isolate the leak. **3.** All personnel shall have evacuated to a designated Emergency Assembly Area. Evacuation of all entities within the 100 ppm ROE will have been confirmed. Full H_2S Plan with all notifications and public agency involvement will be implemented. Notifications to all entities within the 100 ppm ROE will include the nature of the release and status of containment. Notifications will include but are not limited to the following: **a)** All businesses within the 100 ppm ROE will be instructed to immediately alert all company personnel, third party contractors and/or services companies working in the area, and those imminently scheduled to work in the area, of the release and evacuation status of the Plant. They will be instructed to immediately leave and/or not enter/reenter the area within the roadblocks until further instruction. **b)** All other entities within the 100 ppm ROE will be instructed to immediately shelter in place, if appropriate, based on the source of the release and the wind direction. Those entities will be instructed to close any windows and shut off any air conditioning/heating until further notice. In addition, they will be instructed to contact other employees/residents not currently present and instruct them to not enter/reenter the area until further instruction. **c)** The IC will make the decision based on, but not limited to, H_2S concentration and wind direction, whether a safe evacuation can be implemented, and recommend an evacuation route. There are no known residences within the 100 ppm ROE. The only businesses within the 100 ppm ROE are a gas plant owned by Duke Conoco Phillips Company (DCP) and a Limerock office. In the event of an H_2S release, the DCP Gas Plant and Limerock will be contacted by Frontier personnel, and if individuals are present they will be advised either to evacuate to an Emergency Assembly Area or to shelter in place, as deemed appropriate by the IC. Frontier personnel will also make a visual inspection of the 500 ppm ROE area to insure that no individuals are seen inside the ROE, and if any are observed, they will be advised to immediately evacuate to the designated Emergency Assembly area, described above. **4.** If escaping vapors have ignited, the vapors should be allowed to continue to burn unless the fire endangers personnel, other property, or other equipment. **5.** When applicable, maintain communication with the Plant Manager, or his designee, to keep him up-to-date of the situation and the action taken prior to his arrival at the location. **6.** Initiate and maintain a Chronological Record of Events log. **7.** Within one hour after the activation of the H_2S Plan, begin agency notifications by calling OCD and National Response Center (NRC). **8.** Establish media staging area adjacent to the Emergency Assembly Area and direct all media to it. **9.** Once resolved and monitored levels in the Plant and at Emergency Assembly Area are less than 10 ppm, roadblocks will be removed, and all entities within the 100 ppm ROE will be allowed to return. All entities previously notified will be informed that the release has been resolved and advised of the current monitored H_2S levels. **10.** Monitoring will continue after problems are abated, at the direction of the Plant Manager **11.** Agency reports to be submitted as required.

C. Telephone Numbers and Communication Methods

1. Emergency Services

AGENCY		TELEPHONE #
Fire Departments	Artesia	(575) 746-5050
	Loco Hills	(575) 677-2349
	Riverside	(575) 746-3390
Ambulance Services	Artesia	(575) 746-5050
	Carlsbad	(575) 885-2111
Hospitals		
	Artesia General	(575) 748-3333
	Carlsbad Medical Center	(575) 887-4100
	Lubbock University Medical Center (UMC) Level I Trauma Center	(806)775-8200
State Police (HMER) Eddy County		(575) 885-3137
Poison Control (Albuquerque)		(800) 222-1222
Helicopter Services		
	Lifeguard (Albuquerque)	1-888-866-7256
	Southwest Medivac (Hobbs)	1-800-971-4348
	AeroCare (Lubbock)	1-800-823-1991
	Air Med (El Paso)	(915) 772-9292

2. Government Agencies

AGENCY	TELEPHONE #
Oil Conservation Division, Santa Fe, NM (OCD) Oil Conservation District Office (Artesia) Air Quality Bureau, Santa Fe, NM	(505) 476-3440 (575) 748-1283 (505) 827-1494
US BLM (Carlsbad District Office)	(575) 887-6544
Local Emergency Planning Committee (LEPC)	(575) 887-9511
National Response Center (NRC)	1-800-424-8802

3. Operators and Contractors

COMPANY	SERVICE	CONTACT	PHONE
Exterran Energy	Compressor Maintenance	David Gonsalez	432-230-6504
Central Valley Electric	Electric		575-746-3571
Compliance Services Testing	Emissions Testing	Chris Spencer	505-681-4909
Desert X-Ray	X-Ray Services	Elic Brymer	432-363-0669
L&E Trucking	Vacuum Trucks		575-746-4214
Stevenson Roach	Contract Labor		575-746-3222

Ferguson Construction	Contract Labor		800-748-1869
Merryman Construction	Contract Labor		575-395-3110
EDW Contruction	Contract Labor		575-391-7814
Sweatt Construction	Earth Moving Equipment		575-748-1238
Compliance Services	HazMat Response		575-391-7797
Safety and Environmental Solutions	HazMat Response	Bob Allen	575-397-0510 575-390-7063
Transwestern Pipeline	Natural Gas Pipeline	Terry Younggren	713-853-5544 575-703-0648
Kinder Morgan	Natural Gas Pipeline	Glenn Wells	806-336-3015 575-236-1037
West Texas LPG Pipeline	LPG Pipeline	Eric Anker	575-390-2382
Martin Gas Transport	Sulfur		800-256-4421
Agave Energy Company	Natural Gas	Bill Johnson	575-748-4521 575-748-6816
DCP Midstream Artesia Plant	Natural Gas		575-677-3107 575-677-5217
DCP Midstream Carlsbad Office	Natural Gas	John Lamb	575-234-6400
NM Natural Gas Company	Natural Gas Pipeline		575-241-4624 575-236-6682
Apache Hobbs Office	Producer	James Wells	575-393-7106 575-441-4516
Appache Artesia Office	Producer	Mike Dunham	575-677-3642 575-441-9989
Frontier Maljamar Gas Plant	Natural Gas	John Prentiss	575-676-2400 575-676-3528
Concho Energy	Producer	Dean Chumley	575-748-3303

4. Public

N/A There are no residences within the 100 ppm ROE. The plant is located in an isolated area.

5. Frontier Internal Call List

NAME	TITLE	Office #	Cell #	Home #
	Maljamar Plant Control Room	(575) 676-2400		
	24 Hour Emergency Number	(800) 503-5545		
Mike Hicks	President	(918) 388-8417	(918) 699-5738	
Kyle Stevenson	Plant Supervisor/ Incident Commander	(575) 677-5102	(575) 703-0893	(575) 746-3624
Joe Ysusi	Manager, Compliance Safety Officer	(575) 676-3505	(575) 706-9670	(575) 746-2213
Kevin Hampton	Operations Section Chief Field Supervisor	(575) 677-5130	(575) 703-0890	(575) 703-0890
Glen Parrish	Maintenance Foreman, Planning Section Chief	(575) 677-5102	(575) 703-0892	(575) 746-4751
Deryl Elrod	Gathering System Technician Logistics Section Chief	(575) 676-5104	(575) 703-0897	(575) 513-0596
David Feather	Environmental Technician Information Officer	(575) 676-5140	(575) 706-5287	(575) 622-0396

6. Frontier Field Services, LLC will use 2-way radios and telephones to communicate internally. Telephone will be used for external communication. Land lines and high speed internet access are available at the plant office.

D. Location of Nearby Residences, Roads, and Medical Facilities

1. There are no residences are located within the ROE of the Plant.

2. The following roads are located within the ROE:
   a) US Highway 82
   b) Little Diamond, CR 207
   c) Empire, CR 225
   d) Evans, CR 226
   e) Hilltop, CR 204
   f) TV Tower CR 205
   g) Illinois Camp, CR
   h) ARCO, CR 228
   i) Holt, CR 207
   j) Turkey Tract, CR 209

3. The following facilities are located within the ROE of the Plant:
   a) Duke Energy Pecos Diamond Plant
   b) Limerock Field Offic
   c) Transwestern, Atoka 1 Compressor Station
   d) SDX Field Office
   e) Crown Castle Intl. TV Tower

4. There are no medical facilities located within the ROE.

5. In addition to notifying the facilities listed above, Frontier personnel will make a visual inspection of the ROE area to insure that no individuals are seen inside the ROE, and if any are observed, they will be advised to immediately evacuate to the designated Emergency Evacuation Area, described above.

E. Evacuation Routes, Emergency Assembly Areas, and Road Block Locations

1. The Empire Abo Gas Plant office will serve as the Communication Center during the response to an H_2S release. If this location must be evacuated, an alternate location well away from any hazardous exposure will be established by the incident commander or designee. Personnel not directly involved in the response will be instructed to refrain from using company mobile phones, hand held radios and telephones during a response.

2. Evacuation Routes and Emergency Assembly Areas are depicted on Map D-1 in Appendix D.

3. Pre-planned road block locations are designated near the Emergency Evacuation areas on County Road 207 and County Road 225. Each location will have pre-positioned, portable road barriers with lights. Actual locations may vary depending on actual wind direction, size of release, and ability to quickly isolate the leak. The locations will have flashing lights and warning signs. The IC will designate a representative to staff each of the roadblocks. If deemed necessary by the IC, the State or Local Police will be asked to assist with maintaining the roadblocks.

F. Monitoring Equipment, Alarm Systems, Safety Equipment, and Supplies Available

1. EMERGENCY SHUTDOWN SYSTEM (ESD): There are 5 ESD manual stations located at various points in the facility. See Maps A-2 and A-3 in Appendix A. The Plant ESD can be activated at any time by any employee or at the direction of the IC. If a Level III Response is initiated, then ESD will immediately be activated.
When any one of the 5 manual stations is activated, the system will be shutdown and the natural gas inlets and outlets will be blocked. The operators are also able to auto close the high pressure main block valve on the incoming gas line to the Plant. Activating these should allow the plant to avoid a Level III response. The IC can send trained personnel to designated off-site manual block valves. There are also various methods to shut down gas flow at the various wellheads and incoming gathering lines. These can and would be evaluated on a case by case basis. Designated employees will have remote access to the plant controls including ESD capabilities.

2. PLANT ALARMS, VISIBLE BEACONS & WIND INDICATORS: Colored beacons, horns, and wind direction indicators are located in various locations throughout the Plant and are depicted in Appendix A on the listing in A-2.

Wind direction indicators are installed throughout the plant. At least one wind direction indicator can be seen at any location within the Plant complex, as well as from any point on the perimeter of the plant. There are 16 windsocks located at the Plant.

3. GAS DETECTION EQUIPMENT: The Plant uses Otis Notis Stand Alone fixed H_2S Sensors. These sensors are part of a fixed point monitoring system used to detect the presence of hydrogen sulfide in ambient air. The red flashing beacon is activated at H_2S concentrations of 10 ppm or greater. The horn is also activated with a fast whelping alarm at H_2S concentrations of 10 ppm or greater. The fixed hydrogen sulfide monitors are strategically located throughout the Plant to detect an uncontrolled released of hydrogen sulfide. The Plant operators are able to monitor the H_2S levels of all the Plant sensors on the control monitor located in the control room. In addition, select employees can access this information remotely. These sensors are located on the the listing in appendix A page A-2. These sensors all have to be acknowledged and will not clear themselves. This requires immediate action for any occurrence or malfunction. The Plant sensors have battery backup systems and are calibrated monthly. Audible alarm systems are also calibrated monthly.

Handheld gas detection monitors are available to plant personnel to check specific areas and equipment prior to initiating maintenance or working on equipment. There are 2 handheld monitors and

each individual is assigned a personal H_2S monitor. The handheld gas detection devices are BioSystems Multipro 4 gas monitor. The detectors have sensors for oxygen, LEL (lower explosive limit hydrocarbon atmospheres), hydrogen sulfide, and carbon monoxide. They indicate the presence of H_2S with a beeping sound at 10 ppm. The beeps change in tone as H_2S increases to 20 ppm. The personal monitors are set to alarm (beep) at 10 ppm with the beeps becoming closer together as the H_2S concentration increases to 20 ppm. Both the handheld and personal monitors have digital readouts of H_2S ppm concentration.

The compressor building has two methane sensors; one sends a call out at the 30% lower explosive limit (LEL); the second shuts the compressors down at 50% LEL. The methane sensors are visual and audible alarms. The compressor building also is equipped with fire eyes that will also shut the units down. The four product pumps also have LEL sensors.

4. RESPIRATORS: The facility has 17 Drager 30-minute self-contained breathing apparatus (SCBA) respirators strategically located throughout the Plant. There are also 2 emergency packs with supplied air lines located on the safety air trailer. The respirator locations are identified in Appendix A on Map A-2. All Plant personnel are certified to use the self-contained breathing apparatus (SCBAs) respirators and emergency packs.

5. FIRE FIGHTING EQUIPMENT: The Plant personnel are trained only for insipient stage fire fighting. The fire extinguishers located in the Plant process areas, compressor buildings, process buildings, and company vehicles are typically an Ansul 30# ABC dry chemical fire extinguisher. See Appendix A, Map A-3 for location. The Plant does not have a fire water system, only a utility water system that is not designed for fire fighting.

- 6. TRAFFIC CONTROL KIT: The Plant has a Traffic Control Kit located in the office which contains the necessary equipment to initiate and maintain traffic control.

7. FIRST AID EQUIPMENT LOCATIONS:
   a) First Aid Kits are located at the following locations:
   - Control Room
   - Office

   b) Eye Wash stations are located at the following locations:
   - Cooling Water Area
   - Boiler House
   - Caustic Area
   - Welding Shop
   - Truck Rack

8. PERSONAL H_2S MONITORS: All Frontier personnel assigned to the Plant and associated field personnel are issued and required to use personal H_2S monitors while on duty.

10. SIGNS and MARKERS: The Plant has warning, caution and notice signs indicating the presence of "H_2S/Poisonous Gas" and high pressure gas at the entrance to the Plant. Emergency response phone numbers are posted at the entrance to the Plant. Signs are located at the Plant gate entrance indicating that all visitors are to sign in.

V. Characteristics of Hydrogen Sulfide (H_2S), Sulfur Dioxide (SO_2) and Carbon Dioxide (CO_2) [NMAC 19.15.11.9.B(2)(b)] [API RP-55 7.4 b.]

A. Hydrogen Sulfide (H_2S): Hydrogen Sulfide (H_2S): The proposed inlet gas streams into the Plant will contain a maximum of 18,500 ppm (or 1.85 mole percent) of hydrogen sulfide based on data generated from the sampling of the inlet gas at least daily. Hydrogen sulfide is a colorless, toxic and flammable gas, and has the odor of rotten eggs. Hydrogen sulfide gas is heavier than air. Hydrogen sulfide presents a significant health hazard by paralyzing the respiratory system resulting in serious injury or death.

Hydrogen Sulfide Properties and Characteristics	
CAS No.	7783-06-4
Molecular Formula	H_2S
Molecular Weight	34.082 g/mol
Ceiling Concentration	20 ppm (OSHA)
Ceiling Peak Concentration	50 ppm (OSHA)
Threshold Limit Value (TLV)	15 ppm (ACGIH)
Time Weighted Average (TWA)	10 ppm (NIOSH)
Short Term Exposure Level (STEL)	15 ppm (ACGIH)
Immediately Dangerous to Life or Health (IDLH)	100 ppm
Specific Gravity Relative to Air (Air=1.0)	1.189
Boiling Point	-76.5F
Freezing Point	-121.8F
Vapor Pressure	396 psia
Autoignition Temperature	518F
Lower Flammability Limit	4.3%
Upper Flammability Limit	46.0%
Stability	Stable
pH in water	3
Corrosivity	Reacts with metals, plastics, tissues and nerves

Physical Effects of Hydrogen Sulfide		
Concentration		
ppm	%	Physical Effects
1	0.00010	Can be smelled (rotten egg odor)
10	0.0010	Obvious & unpleasant odor; Permissible exposure level; safe for 8 hour exposure
20	0.0020	Acceptable ceiling concentration
50	0.0050	Loss of sense of smell in 15 minutes
100	0.0100	Immediately dangerous to life and health(IDLH) loss of sense of smell in 3-15 minutes; stinging in eyes & throat; Altered breathing
200	0.0200	Kills smell rapidly; stinging in eyes & throat
500	0.0500	Dizziness; Unconscious after short exposure; Need artificial respiration
700	0.0700	Unconscious quickly; death will result if not rescued promptly
1000	0.1000	Instant unconsciousness; followed by death within minutes

B. Sulfur Dioxide (SO_2): Sulfur dioxide is produced as a by-product of H_2S combustion at the flare and at the sulfur recovery unit tail gas incinerator. The sulfur recovery unit tail gas incinerator receives the residual hydrogen sulfide and carbon dioxide stream that is routed from the amine unit. It is colorless, transparent, and is non-flammable, with a pungent odor associated with burning sulfur. Sulfur dioxide is heavier than air, but will be picked up by a breeze and carried downwind at elevated temperatures.

Sulfur dioxide can be extremely irritating to the eyes and mucous membranes of the upper respiratory tract.

Sulfur Dioxide Properties & Characteristics	
CAS No.	7446-09-5
Molecular Formula	SO_2
Molecular Weight	64.07 g/mol
Permissible Exposure Limit (PEL)	5 ppm(OSHA)
Time Weighted Average (TWA)	2 ppm(ACGIH)
Short Term Exposure Level (STEL)	5 ppm(ACGIH)
Immediately Dangerous to Life and Health (IDLH)	100 ppm
Specific Gravity Relative to Air (Air = 1.0)	2.26
Boiling Point	14°F
Freezing Point	-103.9°F
Vapor Pressure	49.1 psia
Autoignition Temperature	N/A
Lower Flammability Limit	N/A
Upper Flammability Limit	N/A
Stability	Stable
Corrosivity	Could form an acid rain in aqueous solutions

Physical Effects of Sulfur Dioxide	
Concentration	**Effect**
1 ppm	Pungent odor, may cause respiratory changes
2 ppm	Permissible exposure limit; Safe for an 8 hour exposure
3-5 ppm	Pungent odor; normally a person can detect sulfur dioxide in this range
5 ppm	Short Term Exposure Limit (STEL); Safe for 15 minutes of exposure
12 ppm	Throat irritation, coughing, chest constriction, eyes tear and burn
100 ppm	Immediately Dangerous To Life & Health (IDLH)
150 ppm	So irritating that it can only be endured for a few minutes
500 ppm	Causes a sense of suffocation, even with first breath
1,000 ppm	Death may result unless rescued promptly.

C. **Carbon Dioxide (CO_2)**: The proposed inlet streams into the Plant will contain a maximum of 11,105 ppm (or 1.1105 mole percent) of carbon dioxide based on data generated from the sampling of the inlet gas at least daily. Carbon dioxide gas is colorless, odorless and non-flammable and is heavier than air.

Carbon Dioxide Properties & Characteristics	
CAS No.	124-38-9
Molecular Formula	CO_2
Molecular Weight	44.010 g/mol
Time Weighted Average (TWA)	5,000 ppm
Short Term Exposure Level (STEL)	30,000 ppm
Immediately Dangerous to Life and Health (IDLH)	40,000 ppm
Specific Gravity Relative to Air (Air = 1.0)	1.5197
Boiling Point	-109.12°F
Freezing Point	-69.81°F
Vapor Pressure	830 psia
Autoignition Temperature	N/A
Lower Flammability Limit	N/A
Upper Flammability Limit	N/A
Stability	Stable
pH in Saturated Solution	3.7
Corrosivity	dry gas is relatively inert & not corrosive; can be corrosive to mild steels in aqueous solutions

Physical Effects of Carbon Dioxide	
Concentration	**Effect**
1.0 %	Breathing rate increases slightly
2.0 %	Breathing rate increases to 50% above normal level. Prolonged exposure can cause headache, tiredness
3.0 %	Breathing rate increases to twice normal rate and becomes labored. Weak narcotic effect. Impaired hearing, headache, increased blood pressure and pulse rate
4 – 5 %	Breathing increases to approximately four times normal rate, symptoms of intoxication become evident, and slight choking may be felt
5 – 10 %	Characteristic sharp odor noticeable. Very labored breathing, headache, visual impairment, and ringing in the ears. Judgment may be impaired, followed within minutes by loss of consciousness
10 – 100 %	Unconsciousness occurs more rapidly above 10% level. Prolonged exposure to high concentrations may eventually result in death from asphyxiation

D. Radii of Exposure [NMAC 19.15.11.7.K]

The basis for worst case scenario calculations is as follows:

- The hydrogen sulfide content of the inlet natural gas stream into the Frontier Empire Gas Plant is variable, ranging up to 18500 parts per million (ppm) or 1.85 mole percent as determined from average daily inlet gas analyses.

- The plant has a maximum daily (24 hour) processing volume of 56 MMSCF.

- The worst case scenario ROE also assumes an uncontrolled instantaneous release of the entire 24-hour throughput from the inlet contactor at the facility. Because the Plant is a throughput process plant, it is impossible that the entire 24-hour throughput volume of the Plant could be released instantaneously as is assumed in the worst case scenario calculations of the ROE. However, to comply with NMAC 19.15.11, that assumption is the worst case scenario in the formulas and calculations are provided here and in Appendix C.

It should further be noted that the reason this rate, used as worst case, could not ever be released over a 24-hour period is the Plant's emergency shutdown (ESD) systems would be activated. The ESD would prevent the flow of gas into the Plant in the event of an emergency. Appendix C contains the ROE calculation and a map (C-1) showing the ROE around the Plant.

The formulas for calculating the 100 ppm and the 500 ppm radii of exposure are as follows:

100 ppm ROE Calculation (as per 19 NMAC 15.11.7.K.1):

$$X=[(1.589)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$$

500 ppm Radius of Exposure Calculation (as per 19 NMAC 15.11.7.K.2):

$$X=[(0.4546)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$$

Where:
X = radius of exposure in feet
"hydrogen sulfide concentration" = the decimal equivalent of the mole or volume fraction of hydrogen sulfide in the gaseous mixture
Q = Escape rate expressed in cubic feet per day (corrected for standard conditions of 14.73 psi absolute and 60 degrees Fahrenheit)

Low Pressure Amine Unit

500-ppm ROE	**2248 feet**
100-ppm ROE	**4920 feet**

High Pressure Amine Unit

500-ppm ROE	**2351 feet**
100-ppm ROE	**5146 feet**

Sulfur Recovery Unit

500-ppm ROE	**2045 feet**
100-ppm ROE	**4475 feet**

Both the 500 ppm and the 100 ppm radii of exposure for the facility are shown on Map C-1 of Appendix C. This ROE pattern is designed to include the 100 and 500 ppm radii for a potential worst case failure.

VI. Facility Description, Maps, and Drawings
[NMAC 19.15.11.9.B(2)(c)] [API RP-55 7.4 c.]

A. Empire Abo Gas Processing Plant Description of Operations: The primary function of the plant is to remove H_2S and CO_2 from sour field gas so that the gas can meet pipeline specifications. The plant has been designated a primary Standard Industrial Classification (SIC) Code of 1321. The operation of the Frontier Empire Abo Gas Plant is intended to process up to 56 MMSCFD of gas. The facility is authorized to operate continuously (8760 hr/yr) at design maximum capacity processing rates with a cap of 250 lbs/hr sulfur dioxide from the SRU Incinerator on a 24 hour average. The gas is treated to remove acid gas components, dehydrated to remove water and processed to remove heavy (liquid) hydrocarbons from the gas stream. Several plant systems are involved in performing these functions.

The amine unit is designed to remove acid gas components (carbon dioxide, hydrogen sulfide and mercaptans) from the natural gas stream. These components are removed from the natural gas because they are corrosive, hazardous to health, and reduce the heating value of the natural gas stream. In addition, the carbon dioxide can freeze in the cryogenic unit forming dry ice and forcing the shutdown of the facility. This process is known as the gas sweetening process. The acid gas removed by the amine unit is routed to the flare for incineration.

Molecular sieve dehydration is used upstream of the cryogenic processes to achieve a -150°F dew point. The process uses two molecular sieve vessels with one vessel in service absorbing moisture from the gas stream and the other vessel in the regeneration mode. The cryogenic unit is designed to liquefy natural gas components from the sweet, dehydrated inlet gas by removing work (heat) from the gas by means of the turbo expander. The cryogenic unit recovers natural gas liquids (NGL) by cooling the gas stream to extremely cold temperatures (-150°F) and condensing components such as ethane, propane, butanes and heavier hydrocarbons. Once the sweet, dry gas (essentially 100 % methane) exits the cryogenic unit, it needs to be recompressed to approximately 600 - 700 psi before the gas is sent to the main transportation pipeline. This is accomplished with four gas driven compressors with a total of 5360 horsepower.

B. Map of Plant
See Appendix A, Map A-1

VII. Training and Drills
[NMAC 19.15.11.9.B(2)(d)] [API RP-55 7.4 d]

A. Responsibilities and Duties of Essential Personnel
Please See Section IV. Emergency Procedures (Page 2) for a detailed listing of responsibilities of essential personnel during a response. Personnel responsible for implementing this plan shall be trained on their duties and responsibilities related to this plan during the annual on-site or table top training exercises. All Plant personnel, visitors, and contractors must attend a Plant overview orientation prior to obtaining permission to enter the Plant. A refresher course on this training is required annually for all persons. This training also complies with the requirements of the Frontier Field Services, LLC Corporate Safety Program.

B. On-site or Classroom Drills
Frontier Field Services, LLC may use table top exercises as well as hands-on emergency response training methods. Training and drills in emergency response procedures help ensure personnel are adequately prepared to handle most emergency situations. Frontier personnel will be trained on the H_2S Incident Response Plan and procedures annually. Everyone's role and responsibilities will be covered. The need for emergency preparedness will be emphasized through the use of drills and other exercises that simulate an emergency in which personnel perform or demonstrate their roles in the emergency. These drills can be either "table-top" discussions or realistic drills in which equipment

will be deployed and contractors will participate. Frontier Field Services, LLC shall conduct a table top exercise annually at a minimum.

C. Notification and Training of Others on Protective Measures in Emergency Situations

At the time of submission of this plan there are no residences within the 100 ppm ROE. However, in the event of a release, Frontier personnel will make a visual inspection of the ROE area to insure that no individuals are seen inside the ROE, and if any are observed, they will be advised to immediately evacuate to the designated Emergency Evacuation Area. Businesses located within the 100 ppm ROE include an Duke Conoco Phillips Gas Plant and a Limerock Field Office. DCP and Limerock personnel will be invited to participate in and/or observe annual drills where they will be briefed on notification, evacuation and shelter in place plans such as shutting off any air conditioning/heating units until they are notified that it is safe. The DCP Gas Plant and Limerock Field Office will be contacted by Frontier personnel in the event of a release.

D. Training and Attendance Documentation

All training and drills will be documented. Documentation of the training, drills and reviews will be on file at the Frontier Field Services office at the Empire Abo Plant. Documentation shall include sign in sheets, synopsis of the training conducted, and an after action review of the training.

E. Briefing of Public Officials on Evacuation and Shelter in Place Plans

Local law enforcement, first responders, and fire personnel will also be invited to participate and/or observe annual drills, as well as being briefed on notification, evacuation, and shelter in place plans.

VIII. Coordination with State Emergency Plans

[NMAC 19.15.11.9.B(2)(e)]

A. Oil Conservation Division (OCD)

OCD will be notified via email to the District II office advising of the activation of the H_2S Contingency Plan if any of the alarms are activated at 10 ppm H_2S or greater. In the event of a power failure, a phone call will be made within four hours. All subsequent paperwork will be filed in a timely fashion.

B. New Mexico State Police/ New Mexico Hazardous Materials Emergency Response Plan

The New Mexico State Police are responsible for overall scene management and coordination of all resources. A designated Emergency Response Officer (ERO) will establish the National Interagency Incident Management System (NIIMS) Incident Command System (ICS) as the Incident Commander (IC) and be responsible for management of all response resources on scene. Off-scene coordination of response resources will be handled through designated Headquarters Emergency Response Officers. Law enforcement-related activities will be coordinated by State Police.

IX. Plan Activation

[NMAC 19.15.11.9.C] [API RP-55 7.4 d]

A. Activation Levels

Level I– Fast whelping audible alarm sounded and/or flashing red beacons activated for H_2S greater than or equal to 10 ppm

Level II – Fast whelping audible alarm sounded and/or flashing red beacons activated for H_2S greater than or equal to 10 ppm and H2S release unable to be resolved or level of H2S in excess of 20 ppm measured with handheld detection devices.

Level III–Catastrophic release; fire; explosion; a continuous release of maximum volume for 24 hours; or NMAC 19.15.11: mandatory activation of indication of 100 ppm in any defined public area; 500 ppm at any public road; or 100 ppm at a distance greater than 3000 feet from the site or the release.

B. Events that Could Lead to a Release of H_2S

- Inlet and plant piping failure
- Amine still failure
- Flange/gasket leaks on inlet and plant piping
- Valve packing
- Failure of flare to ignite

X. Submission of H_2S Contingency Plans [NMAC 19.15.11.9.D]

A. Submission

1. Frontier Field Services, LLC has submitted this H_2S Contingency Plan to the OCD.

B. Retention

1. Frontier Field Services, LLC shall maintain a copy of the contingency plan at the Empire Abo Gas Plant and at Frontier Field Services Headquarters office in Tulsa Oklahoma. The plan shall be will be submitted to the OCD and will be readily accessible for review by the OCD at the facility upon request.

C. Inventory

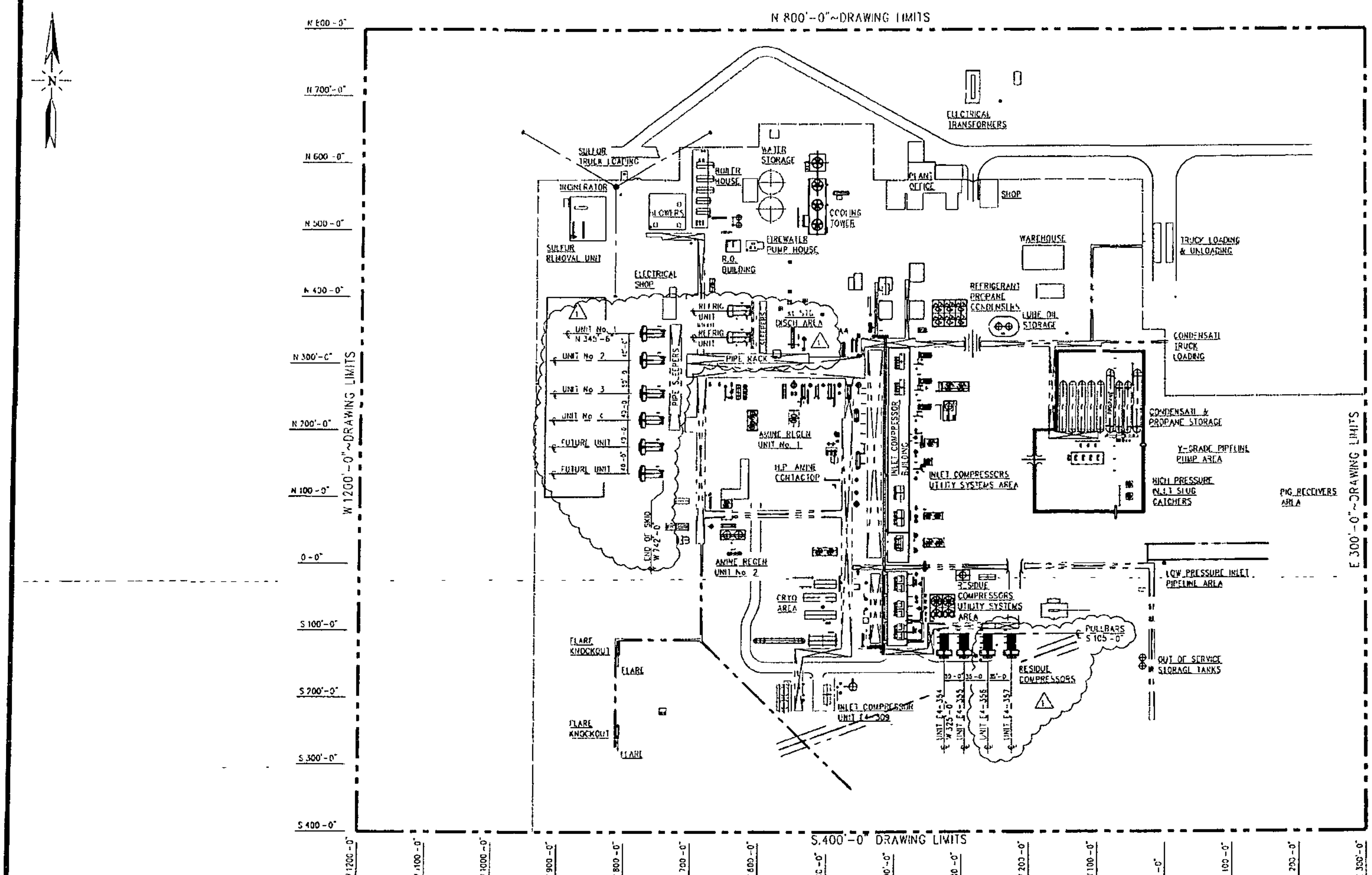
1. Frontier Field Services, LLC will file an annual inventory of wells, facilities and operations for which plans are on file with the OCD, to the Local Emergency Planning Committee (LEPC) and the State Emergency Response Commission as per NMAC 19.15.11.
2. The inventory shall include the name, address, telephone number, and point of contact for all operations in which plans are on file.

Appendix A – Facility Maps and Drawings

A-1 – Facility Map

A-2 – Alarm and Monitor Locations

A-3 – Safety and Fire Equipment Locations



GENERAL NOTES				

REVISIONS

MK	DESCRIPTION	DATE	CK	APPR
1	ADDED PROPOSED COMPRESSORS	12/10		
0	GENERATED DRAWING	11/10		

REFERENCE DRAWINGS

DRAWING NO	TITLE	DRAWING NO	TITLE

NOTICE

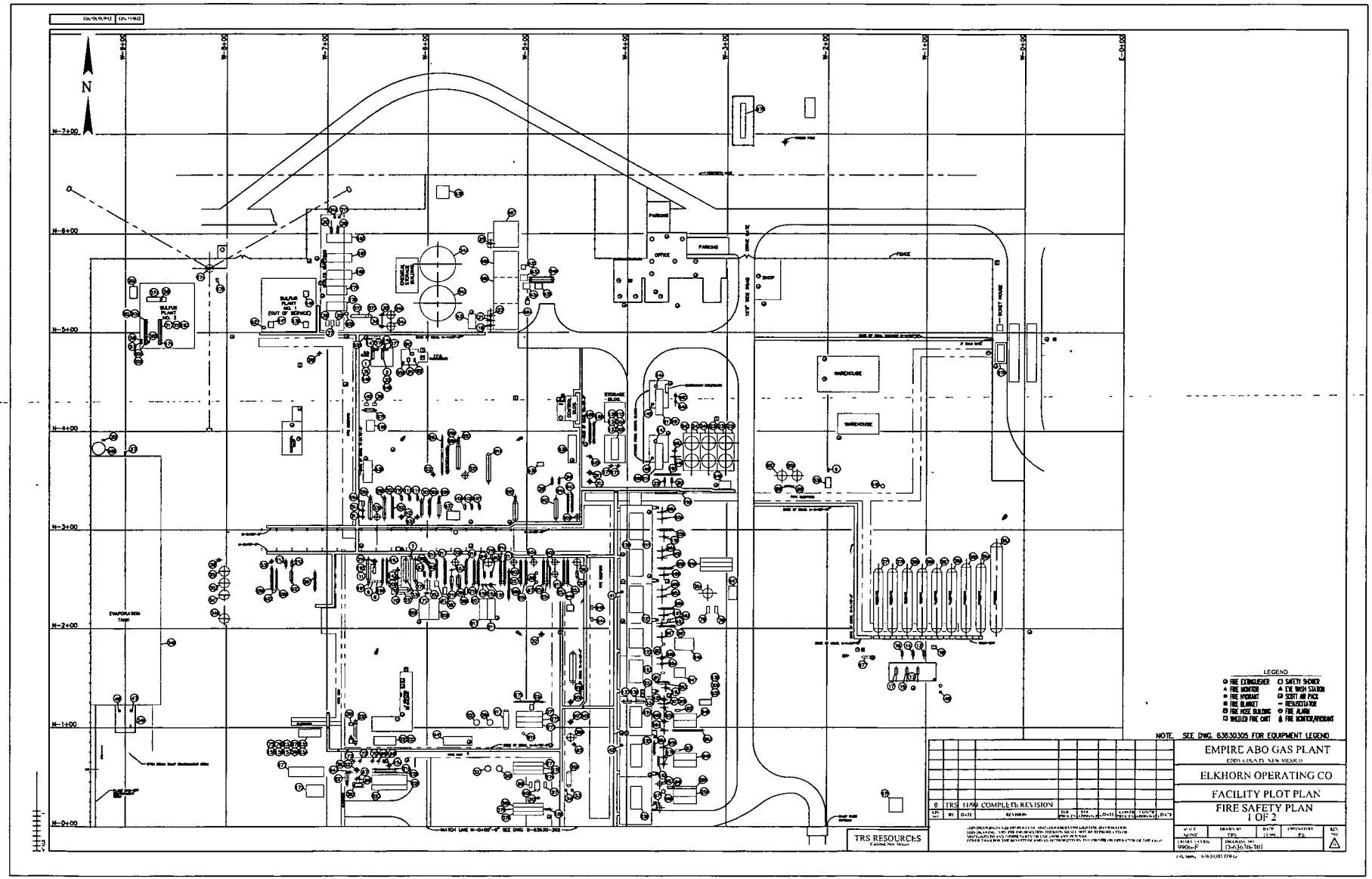
THIS DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF FRONTIER FIELD SERVICES LLC AND IS LENT TO THE BORROWER FOR HIS CONFIDENTIAL USE ONLY IN CONSIDERATION OF THE LOAN OF THIS DRAWING THE BORROWER PROMISES AND AGREES TO RETURN IT UPON REQUEST AND AGREES THAT IT SHALL NOT BE REPRODUCED COPIED, LENT OR OTHERWISE DISPOSED OF DIRECTLY OR INDIRECTLY NOR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SPECIFICALLY FURNISHED

FRONTIER

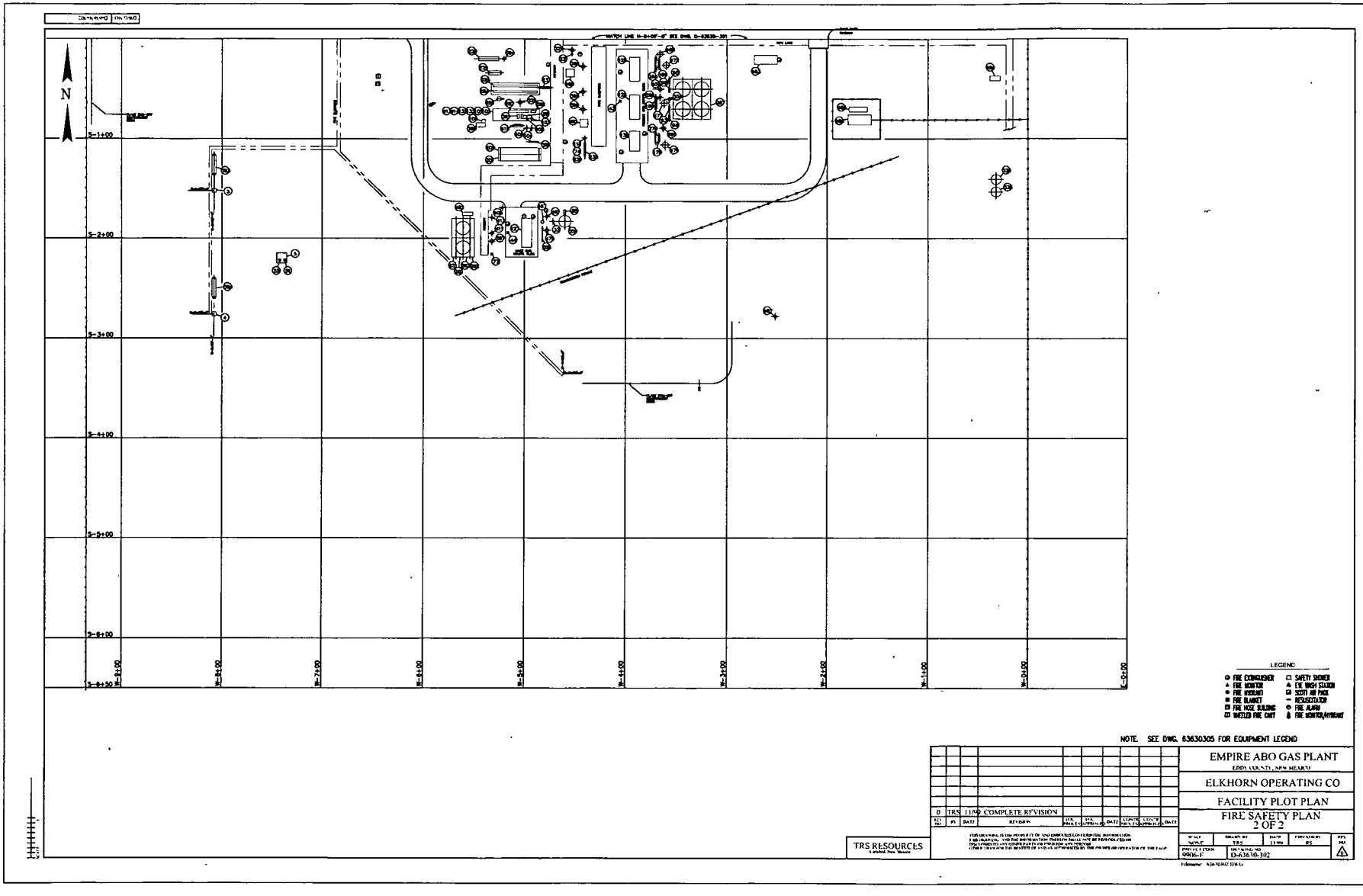
APPROVED	DATE	TITLE			
CHECKED		PLOT PLAN OVERALL PLANT PROPOSAL EMPIRE ABO GAS PLANT			
DESIGNED					
DRAWN A.J. Miller	11-27-10	JOB No	SCALE	DWG. NO D-100-100	REV 1

Facility Map

Alarm Type	Tag #	Location	Alarm Type	Tag #	Location
LEL	AAR5732	North SVG Compressor	H2S	GIT-2700-2	North of #1 Amine Regnerator
LEL	AAR5022	South SVG Compressor	H2S	GIT-2700-4	East of #1 Amine Contactor
LEL	AAR5823	Compressor #1 South	H2S	GIT-2700-3	South of #1 Amine Regenerator
LEL	AAR5700	Compressor #1 North	H2S	GIT-2700-1A	East of #1 Amine Reflux Scrubber
LEL	AAR5024	Compressor #2 South	H2S	GIT-2700-5	North of #2 Amine Bag Filter
LEL	AAR5761	Compressor #2 North	H2S	GIT-2700-6	Northeast of #2 Amine Regnerator
LEL	AAR5021	Compressor #3 South	H2S	GIT-2500-1	North of Sulfur Plant Steam Turbine
LEL	AAR5787	Compressor #3 North	H2S	GIT-2500-2	Southeast of the SRU Muffle Furnace
LEL	AAR5071	Compressor #4 South	H2S	GIT-2500-4	East of the Acid Gas Scrubber
LEL	AAR5756	Compressor #4 North	H2S	GIT-2500-3	South of Sulfur Storage Tank
LEL	AAR5699	Compressor #5 South	H2S	GIT-2500-5	South of South Electric Air Blower SRU
LEL	AAR5068	Compressor #6 North	H2S	GIT-2500-6	North of North Electric Air Blower SRU
LEL	AAR5698	Compressor #6 North	H2S	GIT-301-3	Compressor #1 West Wall
LEL	AAR5870	Compressor #7	H2S	GIT-302-2	Compressor #2 West Wall
LEL	AAR5703	Compressor #8	H2S	GIT-303-3	Compressor #3 West Wall
LEL	AAR5755	Compressor #9	H2S	GIT-304-4	Compressor #4 West Wall
LEL	AAR5723	Compressor 351 Methane	H2S	GIT-305-5	Compressor #5 West Wall
LEL	AAR5728	Compressor 351 Propane	H2S	GIT-306-6	Compressor #6 West Wall
LEL	AR5760	Compressor 352 Methane	H2S	GIT-307-2	Compressor #7 West Wall
LEL	AAR5727	Compressor 352 Propane	H2S	GIT-308-2	Compressor #8 West Wall
LEL	AAR5825	Compressor 353 Methane	H2S	GIT-309-3	Compressor #9 West Wall South End
LEL	AAR5702	Compressor 353 Propane	H2S	GIT-309-2	Compressor #9 West Wall North End
LEL	AAW8712	NW Tank Farm	H2S	GIT-291	South of #9 Compressor Inlet Scrubber
LEL	AAW8663	N Cneter Tank Farm	H2S	GIT-1800-1	Northeast Flare K.O Sump Pump
LEL	AAW8472	NE Tank Farm	H2S	GIT-1800-2	Northwest Flare K.O. Sump Pump
LEL	AAW8418	Center E tank Farm	H2S	GIT-1800-3	Southeast Flare K.O. Sump Pump
LEL	AAW8471	SE tank Farm	H2S	GIT-1104-1	South of Slop Oil Tanks
LEL	AAW8707	S Center Tank Farm	H2S	GIT-1104-2	West of Slop Oil Tanks
LEL	AAW8419	SW Tank Farm	H2S	GIT-1104-3	North of Slop Oil Tanks
LEL	AAW8465	Center W Tank Farm			



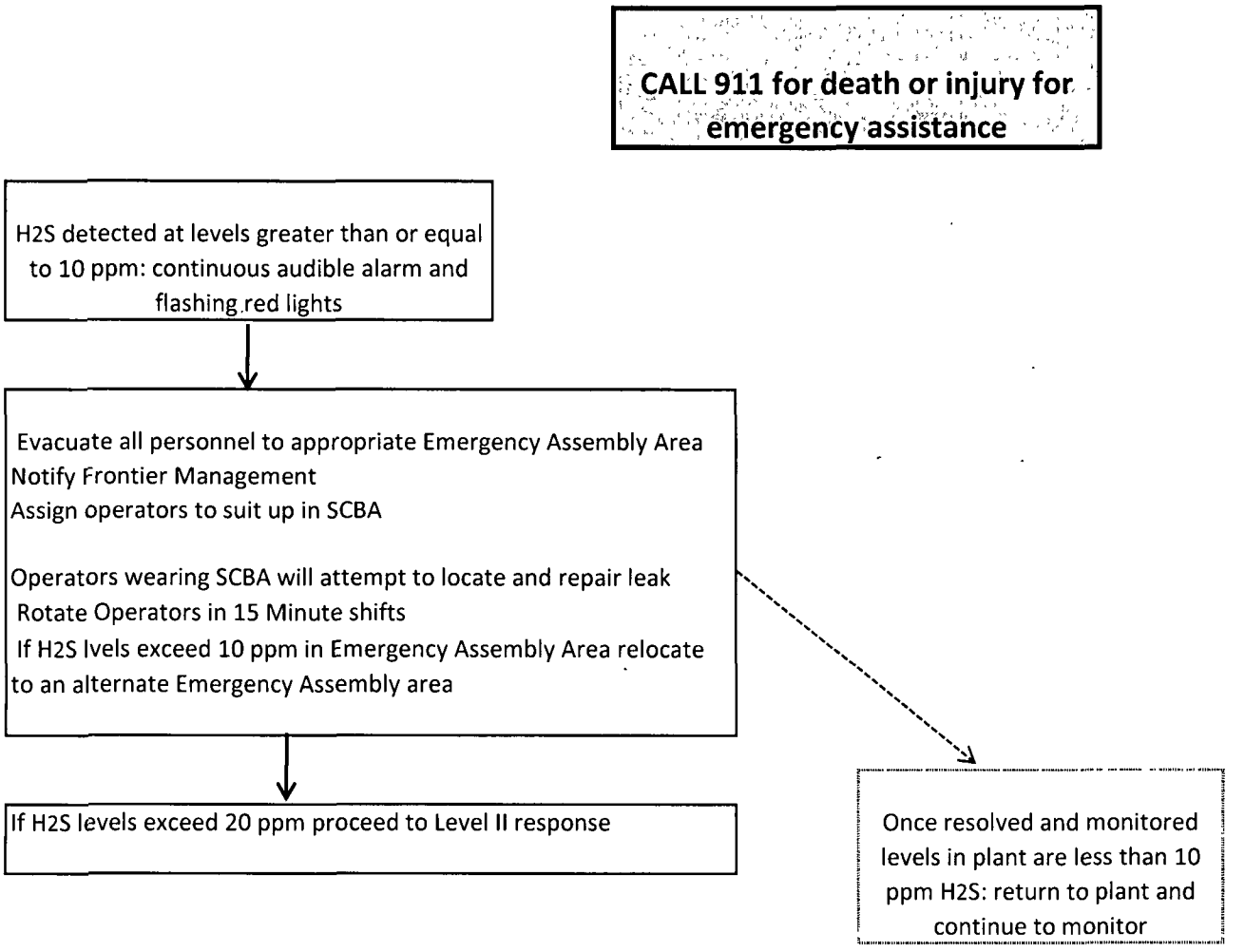
Safety and Fire Equipment Locations



Safety and Fire Equipment Locations

Appendix B – Response Flow Diagrams

LEVEL I RESPONSE



LEVEL II RESPONSE

CALL 911 for death or injury for emergency assistance

H2S detected at levels greater than or equal to 20 ppm or Level I release not resolved: continuous audible alarm and flashing red lights

Operators put on SCBA
Others put on Emergency Respirators
Evacuate all personnel from plant to designated Emergency Assembly Area
Assign operators to suit up in SCBA
Notify entities in the 100 ppm ROE to shelter in place or evacuate depending on weather and release conditions (IC determines this) if perimeter alarms are activated
Operators wearing SCBA attempt to locate and repair leak
Re-entry will occur for 45 minutes or until the IC determines the
Notify LEPC
If H2S Levels exceed 10 ppm in Emergency Assembly Area relocate to an alternate Emergency Assembly Area

If H2S levels exceed 20 ppm and repair efforts are unsuccessful, worst case scenario and/or catastrophic release has occurred then implement Level 3 response

Once resolved and monitored levels in plant are less than 10 ppm H2S: return to plant and continue to monitor

LEVEL III RESPONSE

CALL 911 for death or injury for emergency assistance

H2S detected at levels greater than or equal to 20 ppm or Level I release not resolved: continuous audible alarm and flashing red lights repairs efforts are unsuccessful, worst case scenario and/or catastrophic release has occurred

↓

Set up roadblocks as directed by Incident Commander
Confirm all personnel have evacuated the 500 ppm ROE

Instruct all personnel in the 10 ppm ROE to evacuate to Emergency Assembly Area or shelter in place as determined by the IC
If vapors have ignited, continue to let burn unless fires endanger personnel
Initiate a chronological record of events
Within one hour of activation of the plan notify NMOCD and the NRC
Establish a Media staging area
Submit agency reports as required

↘

Once resolved and monitored levels in plant are less than 10 ppm H2S: return to plant and continue to monitor

Appendix C – ROE Calculations

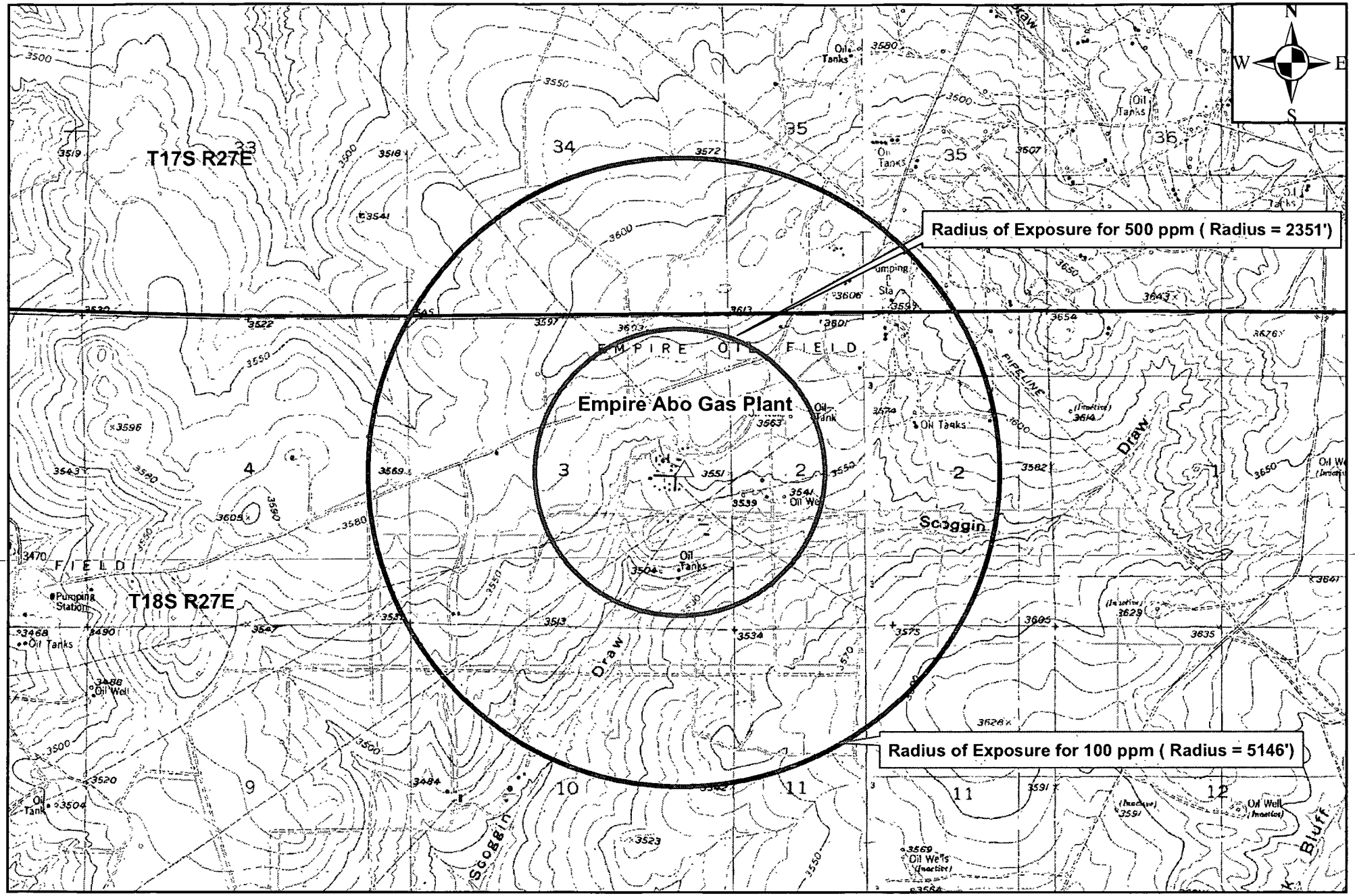
ROE Calculations Worksheet
Map C-1: Facility ROE

The radius of exposure is calculated using the following equations:
100 ppm ROE calculation (as per 19 NMAC 15.11.7.K.1)
$X_{100ppm}=[(1.589)(Conc_{H2S})(Q)]^{(0.6258)}$
500 ppm ROE Calculation (as per 19 NMAC 15.11.7.K.2)
$X_{500ppm}=[(0.4546)(Conc_{H2S})(Q)]^{(0.6258)}$
Where:
X= radius of exposure (ft)
$Conc_{H2S}$= the decimal equivalent of the mole or volume fraction of H_2S in the gas
Q= daily plant throughput corrected to standard conditions (SCFD)

Plant Parameters for Inlet Stream					
Q=	56 MMSCFD	=	56,000,000 SCFD		
$Conc_{H2S}$=	18500 ppm	=	1.85 %=	0.0185 fraction	
ROE Calculations					
			Low Pressure Amine Unit		
X_{100ppm}=	[(1.589)*(0.0185)*(27000000)]^(0.6258)				
X_{100ppm}=	4920	feet	=	0.932	miles
X_{500ppm}=	[(0.4546)*(0.017)*(27000000)]^(0.6258)				
X_{500ppm}=	2248	feet	=	0.426	miles
			High Pressure Amine Unit		
X_{100ppm}=	[(1.589)*(0.0185)*(29000000)]^(0.6258)				
X_{100ppm}=	5146	feet	=	0.975	miles
X_{500ppm}=	[(0.4546)*(0.0185)*(29000000)]^(0.6258)				
X_{500ppm}=	2351	feet	=	0.445	miles

Plant Parameters for Acid Gas Stream					
Q=	1.073 MMSCFD	=	1,073,000 SCFD		
$Conc_{H2S}$=	400000 ppm	=	40 %=	0.4 fraction	
ROE Calculations					
			Sulfur Recovery Unit		
X_{100ppm}=	[(1.589)*(0.40)*(1073000)]^(0.6258)				
X_{100ppm}=	4475	feet	=	0.848	miles
X_{500ppm}=	[(0.4546)*(0.017)*(1073000)]^(0.6258)				
X_{500ppm}=	2045	feet	=	0.387	miles

Appendix C ROE Calculations for Empire Abo Gas Plant



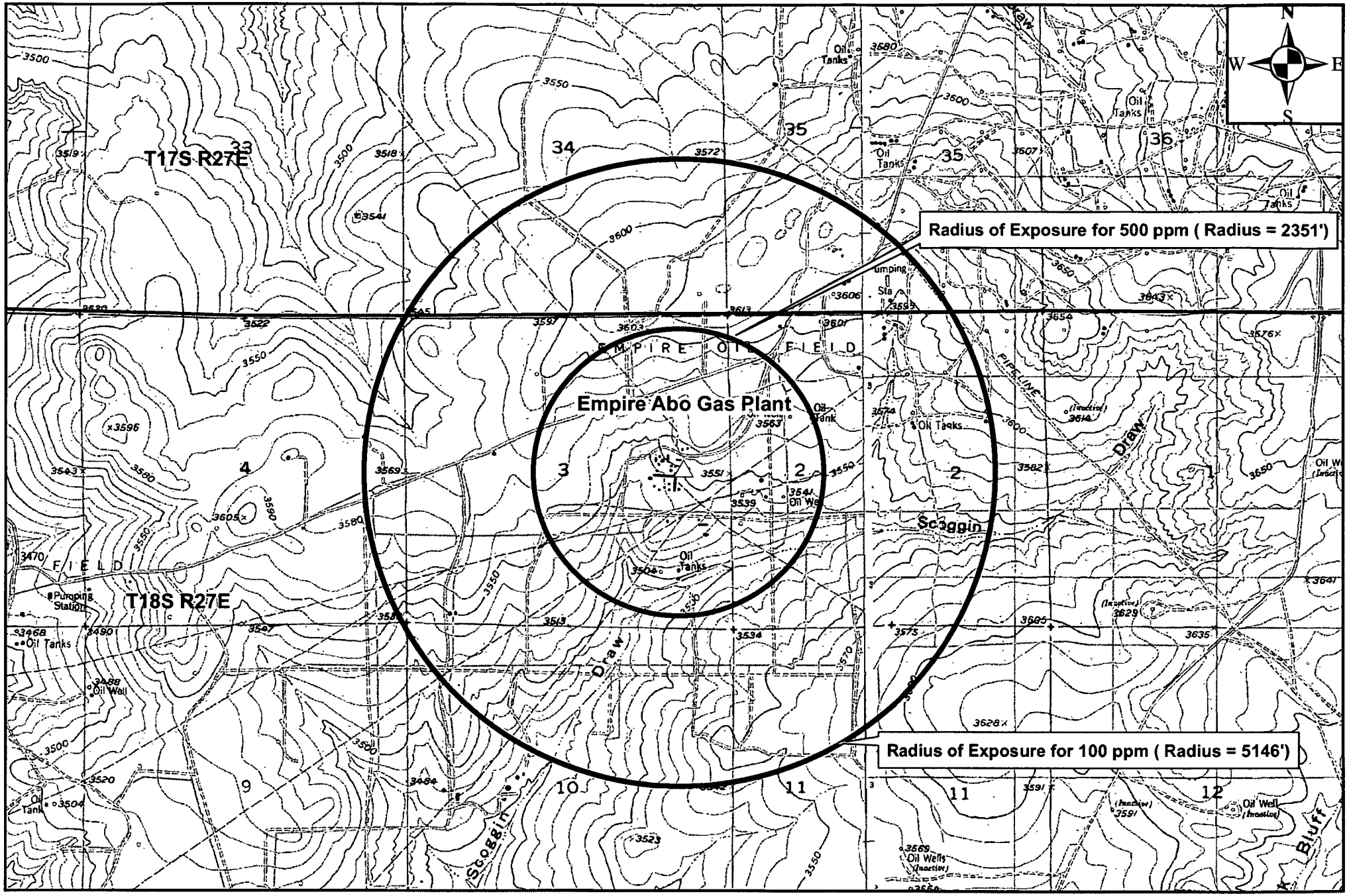
0 500 1,000 2,000 3,000 4,000 Feet

1 in = 2,000 feet

Radii of Exposure for 100 ppm and 500 ppm

Empire Abo Gas Plant

FRONTIER field services llc



0 500 1,000 2,000 3,000 4,000 Feet

1 in = 2,000 feet

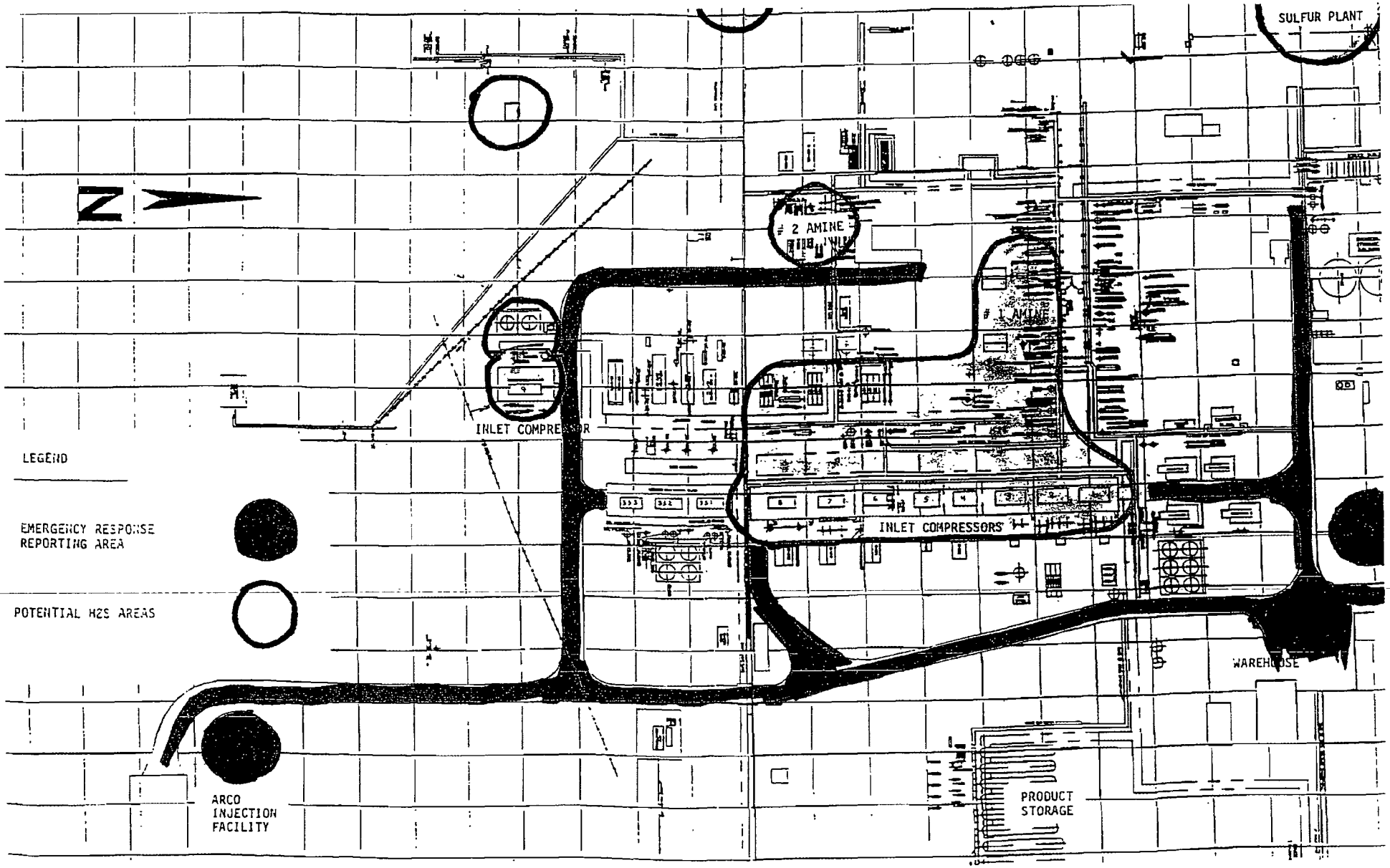
Radii of Exposure for 100 ppm and 500 ppm

Empire Abo Gas Plant

FRONTIER field services, llc

Appendix D – Emergency Assembly Areas and Evacuation Routes

Map D-1: Evacuation Route and Emergency Assembly Area Locations



Emergency Assembly Areas

Appendix E – Distribution List

APPENDIX E – H_2S Contingency Plan Distribution List

New Mexico Oil Conservation Division
811 South First
Artesia, NM 88210

New Mexico Department of Public Safety
P.O. Box 391
Artesia, NM 88210

Eddy County Local Emergency Planning Committee
101 East Greene Street
Carlsbad, NM 88220

Artesia Fire Department
309 North 7th Street
Artesia, NM 88210-1913

Eddy County Sheriff's Department
102 N Canal Street
Carlsbad, NM 88220-5750

Empire Abo Gas Plant
257 Empire Road
Artesia, NM 88211

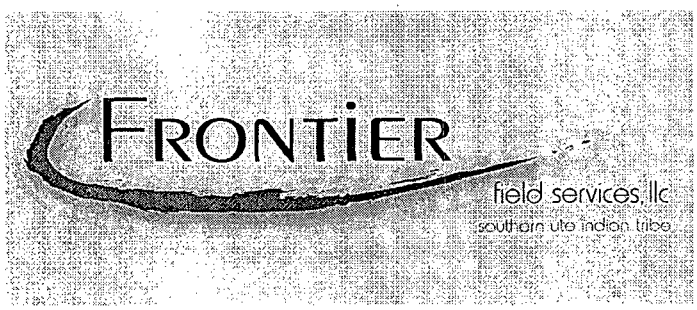
Frontier Field Services LLC Main Office
4200 Skelly Drive, Suite 700
Tulsa, OK 74135

Chavez, Carl J, EMNRD

From: Alberto A. Gutierrez, RG [aag@geolex.com]
Sent: Tuesday, May 10, 2011 6:36 PM
To: Chavez, Carl J, EMNRD; VonGonten, Glenn, EMNRD
Cc: 'Prentiss, John'; 'Franzen, Matthew'; 'Julie W. Gutierrez'; Hill, Larry, EMNRD; Dade, Randy, EMNRD
Subject: RE: Submission of Frontier Field Services LLC Maljamar Gas Plant H2S Contingency Plan (GW-020)

Thanks for your note Carl. I will find out for you what goes with the Empire/Abo plan. I am certain Frontier intends to submit it prior to the August deadline. Call me or Julie if you have any questions on the Maljamar plan. We intend to submit a C-108 for an AGI well at the Maljamar location (as discussed with Glenn and Richard) later this month.
Talk to you soon.
Alberto

Alberto A. Gutiérrez, RG
Geolex, Inc®
500 Marquette Avenue, NW Suite 1350
Albuquerque, NM 87102
505-842-8000 Ext. 105
505-842-7380 Fax



March 29, 2011
Mr. Daniel Sanchez
Acting Division Director
NM Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

FIRST CLASS MAIL
RETURN RECEIPT REQUESTED

RE: FRONTIER FIELD SERVICES, LLC EMPIRE ABO GAS PLANT H_2S CONTINGENCY PLAN STATUS – YOUR LETTER OF MARCH 17, 2011

Dear Mr. Sanchez:

We are in receipt of your letter of March 17, 2011 regarding the requirements under current OCD rules regarding flaring/venting pursuant to §19.15.7.37 et seq. NMAC and rules pertaining to H_2S under §19.15.11 et seq. NMAC. A consultant for Frontier Field Services, Alberto Gutiérrez (Geolex, Inc.®), spoke with Carl Chavez of your office on March 10, 2011, to clarify the applicability of above referenced OCD rules to our Malajamar Gas Plant and I am writing this letter to confirm our understanding based on that conversation and the status of the Empire Abo Gas Plant.

Frontier's Empire Abo Gas Plant operates under NMED Air Quality Permit NSR 126M6 and TV P146R1M1 which allows for the flaring of up to 1.2 tons of sulfur per year with a maximum throughput of 56 MMCFD. We also operate under OCD discharge plan GW-022. We understand that while we operate in compliance with these permits which explicitly allow flaring as described above we are not subject to the requirements of §19.15.7.37 et seq. NMAC and the OCD Form C-129 process.

In response to the second point in the letter relative to OCD rules pertaining to H_2S under §19.15.11 et seq. NMAC, as Mr. Gutierrez explained to Mr. Chavez, Frontier does have a H_2S Contingency Plan in place which was submitted to NMOCD back in September of 2005 pursuant to the old requirements under Rule 118. A copy of that plan is attached, since according to your records you were not able to locate the plan. Mr. Chavez mentioned that this may have resulted from that plan not having been in your files when you had the files scanned for electronic files in 2009. Pursuant to Mr. Chavez' request, this copy is being provided as an information copy only for confirmation that Frontier's Empire Abo Gas Plant has been in compliance with the former Rule 118 requirements to have a H_2S Contingency Plan in place.

4200 E. Skelly Drive, Suite 700, Tulsa, OK 74135
Phone (918) 493-4450 ~ Fax (918) 492-4701

In keeping with Frontier's commitment to safety and to operating in compliance with all applicable state, federal and local regulations, we are well underway in the process of upgrading our current H_2S Contingency Plan to comply with the requirements of Rule 11 (§19.15.11 et seq. NMAC). We anticipate submitting this plan to the OCD Environmental Bureau by June, well in advance of the August 11, 2011 deadline required by your letter. I trust that this letter clarifies Frontier Field Services, LLC status with respect to the rules addressed in your letter. If you have any questions or require additional information, please contact me at 575-706-6983. Primary contacts for the Empire Abo Gas Plant are as follows: Dave Harris, Plant Manager, Drawer 70, Artesia, NM 88211, phone 575-677-5117; or David Feather, Environmental Technician, phone 575-706-5287.

Sincerely,
Frontier Field Services, LLC.

John Prentiss
Area Manager

Enclosure

cc: Carl Chavez, NMOCD Environmental Bureau
Richard Goodyear, NMED-AQB
OCD District Office Artesia

4200 E. Skelly Drive, Suite 700, Tulsa, OK 74135
Phone (918) 493-4450 ~ Fax (918) 492-4701

EMPIRE ABO GAS PLANT AND GATHERING SYSTEM

H2S CONTINGENCY PLAN
(Rule 118)

EMPIRE ABO MAIN OFFICE FILE ROOM

Table of Contents

Table of Contents 1

Purpose and Scope 2

Emergency Procedures 3

Phone Numbers 10

Potentially Affected Public Areas and Public Roads 20

Evacuation Routes 22

Road Blocks 22

Public Notification 22

Safety Equipment and Supplies 23

Characteristics of Hydrogen Sulfide and Sulfur Dioxide 26

Training and Drills 27

Coordination with State Emergency Plans 28

Activation Levels 29

Maps

- Map Legend
- Overall Gathering System
- West Gathering System
- Central Gathering System
- East Gathering System South
- Gathering System

Purpose and Scope

This H2S contingency plan (Plan) is developed and implemented pursuant to 19.15.3.118 (Rule 118) NMAC. The purpose of the plan is to protect the public from exposure to any significant H2S releases from Empire ABO Plant and associated pipelines. The authority with oversight of this contingency plan is the local New Mexico Oil Conservation Commission office located in Artesia, NM.

The Plan applies to all gathering system piping and is based on evaluation of potential H2S leaks. The Plan should be reviewed periodically and revised as necessary to accurately reflect potential public exposure to H2S leaks.

API publication "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide", RP-55 was reviewed prior to the preparation of the Plan.

It is the responsibility of the Empire ABO Plant Manager to keep the Plan current.

Emergency Procedures

Following is a description of key personnel responsibilities for incident response:

Plant Manager: He will serve as the Incident Commander. His primary responsibility is to ensure proper evacuation, total evacuation if necessary, establish the mustering location, and control the emergency incident. Additionally, he is responsible for contacting Tulsa Management of Frontier Field Services, the BP Company contact and other outside personnel **as needed.** He is also responsible for all documentation. His designated relief will assume these responsibilities in his absence.

He will also notify or assign someone to notify the appropriate regulatory agencies whenever environmental concerns and regulations dictate. These may involve the New Mexico Oil Conservation Commission, New Mexico Environmental Division, New Mexico Occupational Safety & Health Bureau, and Bureau of Land Management.

He will coordinate all required regulatory agency and Company notification in the event of serious injury or death.

Maintenance Supervisor: He will serve as the On-Scene-Commander and is responsible for the accounting of all personnel. For emergencies outside normal working hours, he will call other employees as needed. In his absence, his relief designee will assume these responsibilities.

Primary responsibility is to notify-or delegate notifications of all Frontier and contract personnel, as well as the civil authorities needed for emergency response to the situation. He will direct the actions of all personnel on-site and make tactical decisions. He will also determine when an emergency is considered over. In his absence, his relief designee will assume these responsibilities.

Additionally, he is responsible to provide clean-up directions, requirements for spill remediation, and disposal guidelines. He is also responsible for the assessment of the hazards of the situation and assuring the safety of the response personnel. He will assist in acquiring and deploying the appropriate personal protective equipment as needed. Supervisors will critique the outcome of the situation; coordinate the investigation and post-appraisal of the incident. The Maintenance Supervisor will perform other duties as requested by the Plant Manager.

Operators and Maintenance Employees: Employees should lend assistance without unduly endangering themselves and should take the following action:

a. Alert and/or assist any persons apparently in immediate danger.
b. Sound the appropriate emergency alarm.
c. Report to the appropriate mustering area.
d. Follow instructions of their Supervisor.

The Operations Supervisor or Lead Operators will act as the incident commander when neither the Plant Manager nor the Maintenance Supervisor is in the plant.

Warehouseman and Plant Clerk: (Pre-assigned specific safety duties) They immediately respond to the mustering area. They will assist with taking headcount and verification that all employees and contractors have reached a safe area. They will also assist the Plant Manager with other actions as assigned, such as setting up the air trailer, gas monitoring equipment, first aid supplies and other available safety equipment that may be needed.

Gathering System Technician: Determines the location of gathering system leaks and verifies if the leak requires activation of the Plan.

EMERGENCY ACTION PLAN FOR A HYDROGEN SULFIDE GAS EMERGENCY INVOLVING THE EMPIRE ABO GASOLINE PLANT AND GATHERING SYSTEM

INTRODUCTION

The purpose of this plan is to provide for the logical, efficient, and safe action required by Frontier to protect the general public and employees in the event of an accidental release of a Potentially Hazardous Volume of hydrogen sulfide gas (H2S).

EMERGENCY ACTIONS

Immediately upon detection or notification of the release of a Potentially Hazardous Volume of H2S, this reaction plan shall be activated by initiating and carrying out the following actions as necessary to end the emergency.

1. Request assistance if and as needed.
2. Alert and/or evacuate the people within the exposure area.
3. Cordon off the exposure area to prevent entry.
4. Stop the escape of H2S.
5. Complete notifications as required.
6. Return the situation to normal.

A potentially hazardous volume of H2S is defined as one which could result in ground level concentration that:

a. the 100 ppm ROE includes any public area;
b. the 500 ppm ROE includes any public road; or
c. the 100 ppm ROE exceeds 3,000 feet.

Special Warning to Employees: In the event of the release of a Potentially Hazardous Volume of H2S at the Empire ABO Gasoline Plant or its gathering system, it is likely that employees at those locations will be exposed earlier and to higher concentrations of hydrogen sulfide than the general public. Even more likely is the possibility of gas release not large enough to endanger the general public, but still large enough to pose a hazard to employees. Frontier employees, by virtue of their special training and knowledge of the potential hazards, should be alert and take appropriate precautions to protect themselves. However, as appropriate, this plan should be applied for employee safety as well as the public.

The following discussion expands on the emergency actions, in the order which they were previous listed. An attempt was made to list these actions in logical sequence and priority order. Ideally, some of these actions after the first will be performed simultaneously. There may be situations where actions must be performed in a different sequence from that listed. The employee first knowing about the potential hazard will generally take the first action listed. Subsequent actions will generally be taken by or assisted by persons dispatched to help.

1. **Request assistance if and as needed.**

   Notify your immediate supervisor or the person in charge of your work location, by the fastest means. Advise him of the location and nature of the emergency and of the assistance needed. Advise him of what additional actions you can and will proceed to take. The supervisor will be responsible for notifying public safety personnel. (New Mexico State Police, Police Department, Fire Department, and Sheriffs Department) and request assistance in setting up and maintaining road blocks and evacuating the public if necessary. Proceed with such notification from the Emergency Telephone List in pages 10-19. **IMPORTANT: LAW ENFORCEMENT PERSONNEL WILL NOT BE ASKED TO COME INTO A CONTAMINATED AREA.** Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

2. **Alert and/or evacuate people within the potentially hazardous area.**

   Alert people within the exposure area. In the event a leak causes a potentially hazardous area on a' public road, notification must be made by personal contact. It must be done immediately by the Frontier employee who discovers or arrives first at the leak site **if** he judges the situation serious enough to **require prompt evacuation;** otherwise, this notification task shall be assigned by the supervisor in charge. In the event of a leak that creates a potentially hazardous area, the notifications shall be handled by the supervisor in charge, or by his delegates(s), and shall be made by telephone and/or personal contact, whichever would yield the fastest notifications under the circumstances. Refer to the Emergency Telephone List on pages 10-19 of this Plan. In the event partial evacuation becomes necessary, the completion of the evacuation must be confirmed by personal observations, regardless of how the general public is alerted. If evacuation is deem prudent, advise the general public arid/or assist them in leaving the area without delay, by the fastest route out of the exposure area.

   a. First, within the calculated **500 ppm** exposure area, giving priority to the downwind portion;

   b. Next, with the balance of the calculated **100 ppm** exposure area, giving priority to the downwind portion;

   c. Monitor for ambient hydrogen sulfide concentration beyond and downwind from the calculated 100 ppm exposure area, and effect additional evacuation if and as necessary to clear the **actual** 100 ppm H2S exposure area.

3. **Cordon off the exposure area to prevent entry.**

Place barricades and/or warning signs at or beyond the calculated 100 ppm H2S exposure radius, on **all** routes into the exposure area, so as to keep people away. If possible, have these barricades manned. Persons manning the barricades must be equipped with hydrogen sulfide measuring **devices** or personnel monitors and two-way radios.

4. **Stop the escape of hydrogen Sulfide.**

Plug the leak or shut off the sources of gas to the rupture. In some cases, clamps can probably be used for temporarily stopping smaller leaks. For leaks either too large or inconveniently located to stop by clamping, isolate the leak by closing the most readily accessible valves upstream and downstream. A decision to ignite the escaping gas to reduce the toxicity hazard should be made only as a last resort, and must give consideration to whether or not the stream can be ignited safely (i.e., is there a possibility of a widespread flammable atmosphere nearby, by virtue of the gas that has already escaped), and whether or not the burning can be conducted safely at this particular location (i.e., will the flame or heat endanger adjacent structures, etc.). **The decision to ignite the plant is the responsibility of Frontier's Plant Manager, or his designee. in concurrence with New Mexico State Police (see ignition procedures. Section IV).**

5. **Complete notifications as required.**

Generally, some notifications will have been made when requesting assistance, under Step No. 1. Any of the following notifications that were not made in Step No. 1 must be made as soon as reasonably possible but not more than 4 hours after this contingency plan is activated:

a. Continue (or initiate) the Chain of notification in Frontier.

b. Notify the local public safety officials who need to be aware of the emergency, regardless of whether or not assistance is requested of them. Refer to the Emergency Telephone List, Page 10.

c. Notify the NMOCD and E.D., Air Quality Bureau. Refer to the Emergency Telephone List, Page 10.

d. Form C-141 must be filed with the NMOCD 15 days following the release.

6. **Return the Situation to Normal.**

As soon as the complete and permanent stopping of the gas escape is confirmed, begin monitoring evacuated areas for hydrogen sulfide concentration and combustible gas concentration. When the total absence of hydrogen sulfide and combustible gas is confirmed throughout the evacuated area, allow and/or assist the evacuees in returning to the area. Remove all barricades and warning signs. Advise all parties previously notified that the emergency has ended.

III. POST-EMERGENCY ACTION

In the event this plan is ever activated, the following post-emergency action shall be taken in an effort to reduce the possibility of a recurrence of the type of problem that required its activation, and/or assure that any future activation will be as effective as possible:

1. Clean up, recharge, restock, repair, and/or replace emergency equipment as necessary, and return it to its proper place.

2. Critique all actions. Train or retrain employees in emergency procedures, etc., if the need is indicated.

3. Review the factors that caused or allowed the emergency to happen, and if the need is indicated, modify operating, maintenance, and/or Surveillance procedures.

IV. IGNITION PROCEDURES

1. Two people are required for the actual igniting operation. They must wear self-contained breathing units and have a safety rope attached. One man will check the atmosphere for explosive gases with an explosimeter. The Plant Manager is responsible for deciding if ignition is the appropriate action.

2. Primary method to ignite: 25MM flare gun with range of approximately 500 feet.

3. Ignite up-wind and do not approach any closer than is warranted.

4. Select the ignition site best for protection and easy escape.

5. Before firing, check for presence of combustible gases.

6. After igniting, continue emergency action and procedures as before.

7. All unassigned personnel will limit their actions to those directed by Frontier's Plant Manager.

REMEMBER: AFTER GAS IS IGNITED, BURNING HYDROGEN SULFIDE WILL CONVERT TO SULFUR DIOXIDE, WHICH IS ALSO HIGHLY TOXIC - DO NOT ASSUME THE AREA IS SAFE AFTER THE GAS IS IGNITED.

V. "NON-FRONTIER" EMERGENCIES

It is possible that a Frontier employee could discover a potentially hazardous leak from a pipeline or other facility not operated by Frontier. Also, leaks could be reported to Frontier personnel, but upon investigation turn out to be from someone else's facility. In such instances, the Frontier employee(s) involved should lend assistance without unduly endangering themselves. Generally, such assistance would include the following actions:

1. Alert and/or assist any persons apparently in immediate danger.

2. Notify the appropriate public safety personnel of the location and nature of the emergency and assistance needed, if any.

3. Notify the OPERATOR of the facility, if identity can be determined.

4. Continue to lend assistance, such as manning road barricades, until relieved by employees of the operator or public safety personnel.

VI. POTENTIAL EXPOSURE AREAS AND CONDITIONS

Regarding H2S, the emergency action requirements are based on two exposure radii, the 100 parts per million by volume (ppm) radius, and the 500 ppm radius. The 100 ppm radius, for example, is that distance from the point of escape out to where the concentration in the breathing atmosphere equals 100 ppm. **Theoretically,** the concentration of H2S equals 100 ppm all around the circumference of the 100 ppm area of exposure **and exceed 100 ppm inside the circumference.**

The concentration of 100 ppm H2S has significance because it may burn the eyes and throat, and kills the sense of smell within three to fifteen minutes. The concentration of 500 ppm H2S has significance because it is immediately dangerous to life, causing loss of senses of reason and balance, unconsciousness within two to fifteen minutes and cessation of breathing within 30 to 45 minutes. The calculated 500 ppm radius of exposure is smaller than the calculated 100 ppm radius. **Everyone involved in H2S safety must be aware that results of the exposure radius calculation are not precise, and "life or death" decisions shall not be made solely on the basis of a calculated exposure radius.**

Leaks from the gathering system could create H2S exposure areas, as would leaks from wells and facilities. Whether or not such leaks would be hazardous would depend upon their location and size. In calculating exposure potential, leak size is assumed to be the maximum possible for the particular system. This is generally and intentionally conservative because the vast majority of leaks will occur as small cracks or corrosion holes and the gas escape rate will be a small fraction of the system throughout.

Should massive leaks from systems occur, they could create areas of H2S exposure on the public roads/highways.

The H2S concentration from an l0ak would gradually decrease as the distance from the leak increases. A fire hazard would also exist for some distance around the leak. The fire hazard radius would generally be smaller than the 100 ppm H2S exposure radius.

NOTE, HOWEVER, THAT RESULTS FROM THIS FIGURE MUST BE CONSIDERED ROUGH APPROXIMATIONS AND SHALL NOT BE USED AS A BASIS FOR "LIFE OR DEATH" DECISIONS. WHETHER OR Not THE ATMOSPHERE IS FLAMMABLE AT ANY PARTICULAR LOCATION MUST BE DETERMINED BY A SUITABLE COMBUSTIBLE GAS DETECTOR.

Emergency Phone List

EMERGENCY ---------- 911

AMBULANCE ---------- 505 746-5050

AeroCare (Life Flight Helicopter) Lubbock, TX ---------- 800 727-2376

DOCTOR: Dr. Moreno, Artesia, NM ---------- 505 748-1266

HOSPITAL, Artesia General ---------- 505 748-3333

FIRE DEPARTMENT:

(non-emergency: use 911 in case of emergency)

Artesia, NM ---------- 505 746-5050
Loco Hills, NM ---------- 505 677-2349
Riverside, NM ---------- 505 746-3390

LAW ENFORCEMENT:

Eddy County Sheriff (Day) ---------- 505 746-9888
(Night) ---------- 505 746-5000
State Police ---------- 505 746-5000
City Police ---------- 505 746-5000

REGULATORY AGENCIES:

New Mexico Occupational Safety and Health Bureau - Santa Fe, NM -800 222-6742

Bureau of Land Management:
Carlsbad, NM ---------- 505 887-6544
Santa Fe, NM ---------- 505 325-4572

New Mexico Oil Conservation Division:
Artesia, NM ---------- 505 748-1283
Santa Fe, NM ---------- 505 325-4572

New Mexico Environmental Dept., Air Quality Bureau - Santa Fe, NM--505 827-1494
(fax) ---------- 505 827-1523

LEPC ---------- 505 887-9511
(fax) ---------- 505 887-1039

SERC ---------- 505 476-9620
(fax) ---------- 505 476-9695

NRC ---------- 800 424-8802

CORPORATE CONTACTS:

Frontier Field Services, LLC ----------**918 492-4450**
(fax) ----------918 492-4701

PLANT:

Main Phone Lines to Plant ----------**505 677-2154, 505 677-2161, 505 677-2192**
(fax)----------505 677-5152
Operations Emergency Cell----------505 703-0895
Maintenance Call Out---------- -505 703-0896
Field Call Out---------- 505 703-0897

Plant Superintendent----------**505 677-5117**
David Harris (home) ----------505 392-0948
(cellular)----------505 703-0891

Area Manager (Maljamar)----------505-676-3528
John Prentiss (Home)----------505 885-1265
(cellular)----------505 361-0053

Director of Operations
Mike Hicks(Tulsa)----------918 388-8417
(cell)----------918 688-5738

Maintenance Superintendent----------**505 677-5102**
Glen Parrish (home) ----------505 746-4751
(cellular)----------505 703-0892

Operations Supervisor ----------**505 677-5119**
Kyle Stevenson (home) ----------505 746-3624
(cellular)----------505 703-0893
[personal cellular] ----------505 308-1287

Field Supervisor ----------**505 677-5130**
Ernest Medrano (home)----------505 885-9815
(cellular)----------505 361-0177

Plant Clerk ----------**505 677-5105**
Sherry Bowman (home)----------505 885-9242
(personal cellular) ----------505 361-5686

Edna Washburn 746-6964 home
637-5100 cell

Automation Technicians ---------- **505 677-5118 or 505 677-5128 or 505 677-5129**
(cell) ---------- 505 703-0894
Tim Baize (home) ---------- 505 746-6577
[personal cellular] ---------- 505 748-5371
Tom Thompson (home) ---------- 505 885-2255
[personal cellular] ---------- 505 706-3868

Field Technicians ---------- **505 677-5123 or 505 677-5104**
Deryl Elrod (home) ---------- 505 513-0596
(cellular) ---------- 505 703-0892
Fred Torrez (home) ---------- 505 746-4894
(cellular) ---------- 505 703-0886

Lead Operators ---------- **505 677-5124**
(cellular) ---------- 505 703-0895
Dewayne Barnett (home) ---------- 505 746-3186
Tom Hines (home) ---------- 505 885-1869
David Lewis (home) ---------- 505 748-3768
(personal cellular) ---------- 505 748-5723
Jackie Clifton (home) ---------- 505 887-3538

Plant (cont.)

Plant Operators ---------- **505 677-5124 or 505 677-5125**
Mark Byers (home) ---------- 505 746-9450
Jaime Flores (home) ---------- 505 748-3128
Wayland Gilchrest (home) ---------- 505 365-2745
Don Dutchover (home) ---------- 505 457-2128
Tommy Montgomery (home) ---------- 505 748-2953
Heber Mendoza (home) ---------- 505 513-1584

Utilityman ---------- **505 677-5102**
Toby Byers (home) ---------- 505 628-0819

Senior Maintenance Technician ---------- **505 677-5127**
Eddie Tabor (home) ---------- 505 885-7737
(call out/cell) ---------- 505 703-0896

Maintenance Technician II ---------- **505 677-5126**
Vacant (home) ---------- 505 ???-????
Jimmy Moreau (home) ---------- 505 746-6227
[personal cellular] ---------- 505 365-8416
(call out/cell) ---------- 505 703-0896
Donald Tabor (home) ---------- 505 365-3140
(personal cellular) ---------- 505 513-0434
(call out/cell) ---------- 505 703-0896

Maintenance Technician I ---------- **505 677-5102**
Martin Gutierrez (home) ---------- 505 746-0521
(call out/cell)----------505 703-0896

Martin Losoya (home) ---------- 505 748-8737
(call out/cell)----------505 703-0896

Miscellaneous Plant Phones:

Safety Office ---------- 505 677-5103
Break Room ---------- 505 677-5106
Computer Office ----------505 677-5107 or 505 677-5111
Laboratory ---------- 505 677-5108
Conference Room ---------- 505 677-5110
Old Process Building ---------- 505 677-5115
Electrical Technician Office ---------- 505 677-5116
Electrical Shop ---------- 505 677-5121
Engineer Office ---------- 505 677-5120
Boiler Operator ---------- 505 677-5122
Compressor Maintenance Office ---------- 505 677-5113
Switch Room ----------505 677-5197 or 505 677-5198
Area Outside Maintenance Superintendent Office ---------- 505 677-5109
PROVOX Modem ---------- 505 677-5137
Computer Room Modem ---------- 505 677-5151
Modicon Modem ---------- 505 677-5180
Loading Rack Modem ---------- 505 677-5181
Warehouse----------505 677-5123 or (fax) 505 677-5153

Other Phone Numbers

bp Gas Control

Steve Kuehler (Houston, TX) ---------- **281 366-4687**
(cellular) ---------- 281 744-8562

Weekends
Bill Wright (Houston,TX) ---------- **281 366-4677**
(cellular) ---------- 281 380-0316

bp Sulfur Sales

John Paiva (Calgary, Canada ---------- **403-410-8763**
(fax) ---------- 630 836-6535

bp Trucked Liquid Product Sales

Gabriel Valderamma (Houston, TX) ---------- **281 366-2657**
(cellular) ---------- 713 628-7672
(home) ---------- 281 646-8477
Kelly Purvine ---------- **281-366-2657**

Transwestern Pipeline

Houston, TX---------- **713 853-5544**
Terry Younggren (cellular) ---------- 505 703-0648
Segrid McPherson (Gas Volume Statement) 713 853-0300 or ----- 713 853-6161

Natural Gas Pipeline (NGPL)(Kinder Morgan)

Gas Control Houston ---------- **800 733-2490**
Glenn Wells (cellular) 505 369-1862
(home) ---------- 505 885-9038
Compressor Station ---------- 800 687-7537

West Texas LPG Pipeline (Chevron)

Chevron Control Center---------- **877 596-2814**
Coahoma Station ----------432 263-3179 or 432 267-6120
Eric Anker(cellular) ---------- 505 390-2382

Plains Marketing & Transportation Gasoline Trucker Dispatcher ---------- **800 358-3006**
(Office) ---------- 432 684-3400
Terry Heada (Area supervisor)---------- 505 394-3198
(cellular)---------- 915 638-5102

Martin Gas Transport – Sulfur ---------- **800 256-4421**

Agave Energy Company---------- **505 748-4521**
Bill Johnson (office) ---------- 505 748-6816
(cellular) ---------- 505 365-4615
Jason Fuentes ---------- 505 365-8939
Tim Allen (cellular) ---------- 505 365-5409
(home)---------- 505 746-2119
(pager)---------- 800 656-1459

Duke Energy Field Services

Loving Plant ---------- 505 234-6490
Tom Bernal---------- 505 745-3410
Pecos Diamond Plant (Bob Dawson) ---------- 505 677-3107
Artesia Plant ---------- 505 677-3154
Kenneth Winn ---------- 505 397-5680
Harley Temple (cellular)---------- 505 390-2206

Public Service Company of New Mexico (PNM) ----------**505 241-4624 or 505 236-6682**

Producer Phones

bp

Office - Loco Hills, TX	**505 677-3642**
Answering Service	505 746-4302
Barry Price (cellular)	505 390-9310
(Office)	505 394-1648
(home)	505 394-2146
(pager)	800 899-3938
Kent Whitmire (cellular)	505 748-5794
(home)	505 746-6769
(pager)	800 641-4335
Tim Duncan (home)	505 746-3819
David Chavarria (home)	505 746-3854
(cellular)	505 748-5789

Aspen Oil

Larry Barnett, Office (Hobbs, NM)	505 393-2223
Greg Milner, Office (Lovington, NM)	505 631-2232
(cellular)	505 390-8171

Frontier

Maljamar Plant	505 676-2400 or 505 676-3509
Jeff Driver	505 676-3503
Kevin Schuster, Office	505 676-3505
(cellular)	505 631-6103
John Prentiss, Office	505 676-3528

Devon Energy

Office	505 748-3371
Jerry Mathews (cellular)	505 748-5234
(home)	505 677-2109
(pager)	505 370-6452

Duke Energy Field Services

Carlsbad Office	505 234-6400
John Lamb, (cellular)	505 706-1983
Randy Counts (cellular)	505 706-1996
Oscar Valensuela_	505 910-4674
Greg Schmidt (cellular)	505 706-1984

Marathon Oil Company

Office (and answering service)	**505 393-7106**
Terry Morehead (cellular)	505 390-8872
(pager)	800 586-4950
Tony Hallum (cellular)	505 390-8871
Al Lava (cellular)	505 390-8859

Marbob Energy

John Billberry, Office ---------- 505 746-2422
(cellular) ---------- 505 748-5992
Doyle David (cellular) 505-748-5975
Dean Chumley (office) ---------- 505-748-3303

Merit Energy

Davis Lease Service (contract pumper) ---------- 505 457-2334
Jimmy Davis (cellular) ---------- 505 365-7780
(cellular 2) ---------- 505 746-7273

Mewbourne

Office ---------- 505 393-5905
Leonard Pounds (home) ---------- 505 392-1107
(cellular) ---------- 505 390-4105

Ricks Exploration Company

GG Contract Pumping Services (contract pumper) ---------- 505 746-0314
Gary Geeslin (home) ---------- 505 746-8945
(cellular) ---------- 505 365-5514
(emergency) ---------- 505 746-7006

SDX Resources

Artesia Office ---------- 505 748-9724
Jerry Smith (home) ---------- 505 746-2478
(cellular) ---------- 505 746-7721
Dennis Howard (home) ---------- 505 365-2376
(cellular) ---------- 505 746-7723
Midland Office ---------- 800 344-1761
Midland Office ---------- 432 685-1761

Deminion Oil

Gene Simer (Carlsbad Office) ---------- 505 885-1313
Calvin Daniel (cellular) ---------- 505 390-3736
Ryan Faulkenberry(pumper)(cell) ---------- 505 365-6272
(home) ---------- 505 748-9851

VF Petroleum

Jerry Garr ---------- 915 683-3344
Wayne Luna (pumper) (cellular) ---------- 915 557-2688
Henry Whitman (cellular) ---------- 505 369-6994
Joe Whitman (cellular) ---------- 505 369-5079

Cameron Oil & Gas

David Sweeney ---------- 505 420-1108

Service Providers

Linco-Electromatic ---------- **915 694-9644**

Hanover Compressor (NGPL Compressor Maintenance)
Carlsbad Office ---------- **505 887-5258**
Answering Service ---------- 505 885-0523
Jerrell Pylant (cellular) ---------- 505 706-0908

Central Valley Electric
Artesia,NM ---------- **505 746-3571(day), 505 746-6635 (night)**

Penasco Valley Telephone
Artesia, NM ---------- **505 746-9844 or 800 501-4844**

Avaya - Expanets
Albuquerque, NM ---------- **866 336-3100**

O'Brien Enterprises ---------- Jerry O'Brien (cellular) ---------- 432 528-1710
Shane Marler (cellular) ---------- 432 559-8792

Caprock Water Johnny Jones ---------- **505 677-2221**

BJ Services (Unichem) Steve Peterson (cellular) ---------- **505 631-8251**

Equipment and Material Available

Vacuum Trucks
I&W Trucking - Loco Hills, NM ---------- 505 677-2111
Rowland Trucking - Hobbs, NM ---------- 505 393-4994

Contract Labor
Stevenson-Roach - Artesia, NM ---------- 505 746-3222
Mesquite Services, Inc. - Artesia, NM ---------- 800 616-3633
Ferguson Construction - Lovington, NM ---------- 800 748-1689
B&H Maintenance - Eunice, NM ---------- 800 782-5901
Merryman Construction – Jal, NM ---------- 505 395-3110
EDW Construction – Hobbs, NM ---------- 505 391-7814

Earth Moving Equipment
Sweatt Construction - Artesia, NM ---------- 505 748-1238
Ferguson Construction - Lovington, NM ---------- 800 748-1689
Mesquite Services, Inc. - Artesia, NM ---------- 800 616-3633

HazMat Response
Compliance Services - Hobbs, NM ---------- 505 391-7797
Safety & Environmental Solutions – Hobbs, NM 505 397-0510
Bob Allen (cellular) ---------- 505 390-7063

Potentially Affected Public Areas and Public Roads

The following public areas are potentially affected by a release of H2S from Empire ABO Plant and Gathering System.

Public Area	Location	Potential Exposure, ppm H2S
Duke Energy, Pecos Diamond Plant	SW, Section 3, T18S,R27E	500
Devon Field Office	NE, Section 3, T18S,R27E	500
Transwestern, Atoka 1 Compr. Sta.	NE, Section 1, T18S, R27E	500
SDX Field Office	SW, Section 32, T17S, R28E	500
Crown Castle Intl. TV Tower	SE, Section 31, T17S, R28E	100

The following public roads are potentially affected by a release of H2S from Empire ABO Plant and Gathering System.

Public Road	Location	Potential Exposure, ppm H2S
U.S. Highway 82	SE, Section 30, T17S, R27E SW, Section 26, T17S, R28E SE, Section 26, T17S, R28E SW, Section 25, T17S, R28E	500 500 500 500
Little Diamond, CR 207	SE, Section 4, T18S,R27E NE, Section 3, T18S,R27E NW, Section 2, T18S, R27E	500 500 500
Empire, CR 225	SW, Section 35, T17S, R27E NW, Section 2, T18S, R27E NE, Section 3, T18S,R27E	500 500 500
Evans, CR 226	SE, Section 35, T17S, R27E SW, Section 36, T17S, R27E	100 100
Hilltop, CR 204	SE, Section 36, T17S, R27E SW, Section 31, T17S, R28E NW, Section 6, T18S, R28E SE, Section 6, T18S, R28E	100 500 500 100
TV Tower, CR 205	SE, Section 31, T17S,R28E	500
Illinois Camp, CR	SW, Section 32, T17S, R28E NW, Section 5, T18S, R28E SE, Section 7, T18S,R28E	500 500 500
ARCO, CR228	S/2, Section 31, T17S, R28E S/2, Section 32, T17S, R28E S/2, Section 33, T17S, R28E S/2, Section 34, T17S, R28E	500 500 500 500
Holt, CR 207	SE, Section 33, T17S, R28E	500
Turkey Tract, CR 209	SW, Section 26, T17S, R28E NW, Section 26, T17S, R28E SW, Section 23, T17S, R28E	100 500 100

Blue Stem, SR 360	Section 34, T17S,R28E	500
Public Road	**Location**	**Potential Exposure, ppm H2S**
Depco, CR229	SW, Section 33, T17N, R28E NW, Section 4, T18S, R28E SW, Section 21, T18S,R28E	500 500 500
Boot Top, CR 230	NW, Section 5, T18S,R28E	500
Cowtown, CR233	SE, Section 21, T18S,R28E SW, Section 22, T18S, R28E SW, Section 22, T18S, R28E	500 100 500
Hagerman Cutoff, CR 217	SW, Section 27, T18S,R28E	500
Hillman, CR246	SW, Section 4, T19S,R28E	500

There are no residences located within the 100 ppm or 500 ppm radius of exposure.

Evacuation Routes

Responders to any H2S release should direct affected persons away from the leak site and beyond the 100 ppm boundary. Evacuation, when possible, should be made along routes perpendicular to the actual wind direction. Affected personnel may be required to leave their vehicle in order to effect a proper evacuation.

Road Blocks

Potential road block locations are indicated on the attached maps. Actual locations might vary depending on actual wind direction, the size of the leak and ability to quickly isolate the leak. Please refer to the attached maps for potential locations.

Public Notification

Public notifications will be made using phone lists included in the Plan.

Location of Necessary Safety Equipment and Supplies

LOCATION OF SAFETY AND LIFE SUPPORT EQUIPMENT
For Emergency Response
EMPIRE ABO GASOLINE PLANT

No. of Units	Equipment and Locations
1	**Safety Trailer Equipped with:**
1	Cascade System-6-300 cu ft fresh air breathing cylinders
2	Survivair Work Pak with 200 Ft. Hose
1	Egress Spare Bottle
3	Survivair XL-30 S.C.B.A
2	Waterjel Fire and First Aid Wraps
2	20 Lb. Dry Chemical Fire Extinguishers
	Warehouse
1	Hazmat Spill Kit and Salvage Drum
3	MSA Respirators with Cartridge Filters
7	Survivair Respirators
1	Survivair Facemask with Hose
3	Full Body Harnesses
2	2.5" Strait Stream Nozzles
5	2.5" Elkhart Adjustable Nozzles
1	Joy Model 15 HEP Fresh Air Compressor
1	Cascade System-5-300 Cu. Ft. Cylinders and Fill Hose
8	45 Cu. Ft. Spare S.C.B.A. Bottles, MSA and Survivair
2	Spare Egress Bottles
1	Spare Egress Unit
6	Reflective Traffic Cones
	Fire Fighting Water System
1	100HP Electric Motor Driven Pump (600 GPM) 1
Diesel Engine Driven Pump (600 GPM) 6	
Combination Fire Hydrant-Monitors	
	Fire House #1
1	Fire Hose Cart
	350 Ft. of 2.5" Fire Hose
	Tool Box
	1.5" Akron Turbojet Nozzle
	Spanner Wrenches 2.5" x
	1.5" Reducer
1	Portable Monitor with 100 Ft. of 2.5" Fire Hose
2	1.5" Akron Turbojet Nozzles
2	Hydrant Wrenches
4	50 Ft. Sections of 1.5" Fire Hose
	Various Hardware, Reducers, Wye's, Double Male and Female

Fire House #2

1 Fire Hose Cart
  350 Ft. of 2.5" Fire Hose
  Tool Box
  1.5" Akron Turbojet Nozzle
  Spanner Wrenches 2.5" x
  1.5" Reducer
2 Portable Monitors with 100 Ft. of 2.5" Fire Hose
4 50 Ft. Sections of 2.5" Fire Hose
3 Akron Turbojet Nozzles
1 Foam Eductor
2 5-Gallon Pails AFFF Foam
Various Hardware, Reducers, Wye's, Double Male and Female

Fire Box North of Cryo Shack

2 50 Ft. Sections of 1.5" Fire Hose

69 Fire Extinguishers Located throughout the Plant

4 Vehicles (pickups)

4 Strobe Lights (1 each vehicle)
8 Reflective vests (2 each vehicle)
4 reflective traffic cones (2 Plant Manager vehicle, 2 Gathering Tech. vehicle)

Self-Contained Breathing Apparatus

2 Old Process Shack, Survivair XL 30
1 Boiler House, Survivair XL 30
3 Safety Trailer, Survivair XL 30
2 Cryo Shack, Survivair XL 30, MSA 401
9 Located throughout the plant

Oxygen Resuscitators

1 Safety Trailer
1 Old Process Shack
1 Cryo Shack
12 Work Paks and Egress (5 min.) located throughout the Plant

Caustic Area Safety Cabinet

3 Rubber Rain Suits
1 Rubber Boots
2 Face Shields
2 Goggles
4 Rubber Gloves

Stretcher

1 Inside North SVG Building

Wateriel Fire and First Aid Blankets

2 Safety Trailer
2 Old Process Shack

2 Cryo Shack
1 Truck Rack
1 Tank Farm
1 Injection Shack
1 Electrician's Shop
1 Office in Safety File Room

H2S, Oxygen and Flammable Gas Monitors

4 Safety File Room, Industrial Scientific Model HMX 271
2 Lab, Gastec Permeation Tube
1 Lab, Drager Bellow's Pump, Model 31

Injection Cooling Tower Safety Locker

2 Rubber Rain Suits
2 Pair Rubber Boots
1 Face Shield
2 Goggles
3 Rubber Gloves
1 Emergency Eye Wash

Characteristics of Hydrogen Sulfide and Sulfur Dioxide

H2S is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 ppm, which is .001 percent by volume. H_2S is heavier than air (specific gravity = 1.19) and is colorless. It forms an explosive mixture with air between 4.3 and 46.0 percent by volume. H_2S is almost as toxic as hydrogen cyanide and is between five and six times more toxic than carbon monoxide. Toxicity data for H2S and various other gases are compared in Table I. Physical effects of various H2S exposure levels are given in Table II.

Table I - Toxicity of Various Gases

Common Name	Chemical Formula	Specific Gravity (Air=1)	Threshold Limit[1]	Hazardous Limit[2]	Lethal Concentration[3]
Hydrogen Cyanide	HCN	0.94	10 ppm	150ppm/hr	300 ppm
Hydrogen Sulfide	H_2S	1.19	10 ppm	250 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21	5 ppm	—	1000 ppm
Chlorine	CL_2	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	CO_2	1.52	5,000 ppm	5%	10%
Methane	CH_4	0.55	90,000 ppm	Combustible If > 5% in air.	—

Threshold limit: Concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects.

Hazardous Limit: Concentration that may cause death.

Lethal Concentration: Concentration that will cause death with short-term exposure.

Table II - Physical Effects of Hydrogen Sulfide*

CONCENTRATION			PHYSICAL EFFECTS
Percent / %)	PPM	Grains/100 scr	
0.001	10	0.65	Obvious and unpleasant odor Safe for 8 hours exposure
0.010	100	6.48	Kills smell in 3 to 15 minutes; may sting eyes and throat
0.020	200	12.96	Kills smell shortly; stings eyes and throat
0.050	500	32.96	Dizziness; breathing ceases in a few minutes; needs prompt artificial respiration
0.070	700	45.36	Unconscious quickly; death will result if not rescued promptly
0.100	1000	64.80	Unconscious at once; followed by death within minutes

* CAUTION: Hydrogen Sulfide is a colorless and transparent flammable gas. It is heavier than air and may accumulate in low places.

** At 15 psia and 60°F

Training and Drills

New employees and employees recently assigned to the Plant must receive training on the Emergency Action Plan within the first week of employment. Contract personnel who routinely enter work sites will receive a briefing of their responsibility in an emergency situation prior to entering the work place.

All affected personnel should be trained in the following areas necessary for proper execution of the emergency responses for which this plan was developed:

1. Dry chemical fire extinguisher use (annual)
2. Respiratory protection/use of self-contained breathing apparatus (annual)
3. Use of portable gas detection equipment (annual)
4. Proper use of personal protective equipment (ongoing)
5. Initial eight hour First Aid/CPR Course (with refresher training every two years)
6. Hazard Communication/Chemical Safety Review (annual)
7. Lockout/Tagout/Confined Space Entry & Hot Work Permit Requirement (annual)

Training is documented with sign-off by all personnel in attendance.

Drills will be conducted at least once annually to test Emergency Action Plans and enhance employee preparedness. Response will be critiqued after the drill to ensure that the procedures are complete and address all aspect of the emergency. An actual incident which requires activation of the Plan may take the place of a drill.

Coordination with State Emergency Plans

Oil Conservation Commission

The Oil Conservation Commission will be notified when a potentially hazardous volume is released. No immediate action is expected of the Commission during the control of the leak.

State Police

New Mexico State Police will be notified when a Federal, State, or County road is involved in a potentially hazardous release. They will be asked to assist as necessary by establishing road blocks and controlling traffic.

Activation Levels

The Plan shall be activated when a release creates concentrations of H2S in excess of the following levels:

- 100 ppm in any public area
- 500 ppm at any public road
- 100 ppm where the 100 ppm radius exceeds 3,000 feet

The most likely cause of a leak exceeding activation levels is a dig-in. Dig-ins are preventable by following one-call procedures and properly locating pipelines.

The next most likely cause is of a leak is pipeline corrosion. However, corrosion based leaks seldom release enough gas to exceed the activation levels.

Empire ABO Gas Plant
Radius of Exposure

MAP LEGEND

ROADS

MAIN HWY

STATE & COUNTY ROADS

DIRT ROADS

ROAD BLOCKS

BUILDINGS

HOUSES OR SMALL OFFICE BUILDINGS

PLANT BOUNDARIES

TV Towers

DIRT ROADS

PIPELINES

STEEL PIPE

POLYETHYLENE PIPE

FIBERGLASS PIPE

TRANSITE PIPE

SURVEYED

HISTORICAL

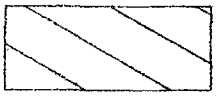
PROPOSED

ABANDONED

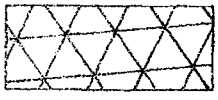
 VALVES  REDUCERS  CAP

BLOWDOWN DRIP ROAD CROSSING

H2S EXPOSURE RADIUS

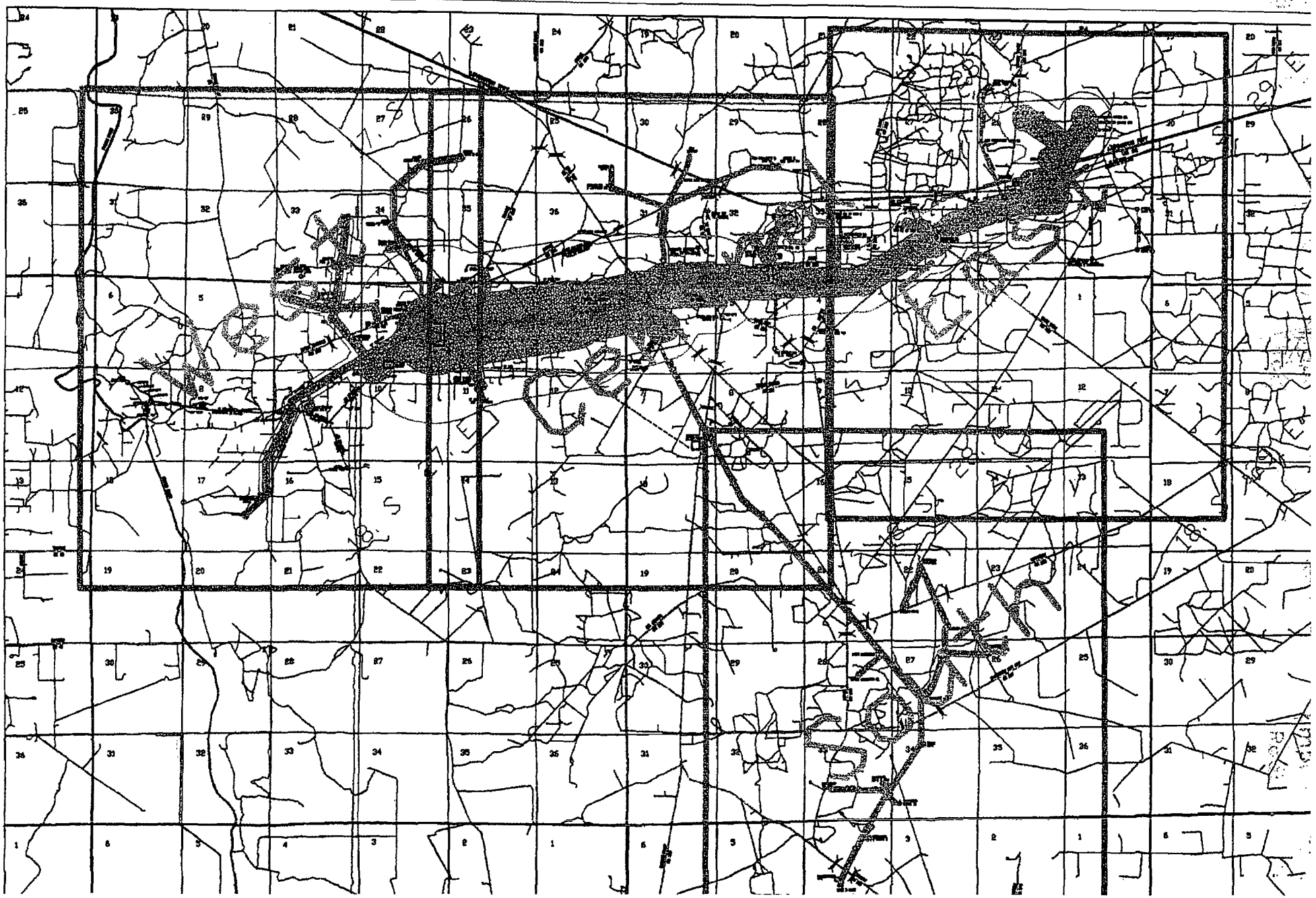


100 PPM



500 PPM

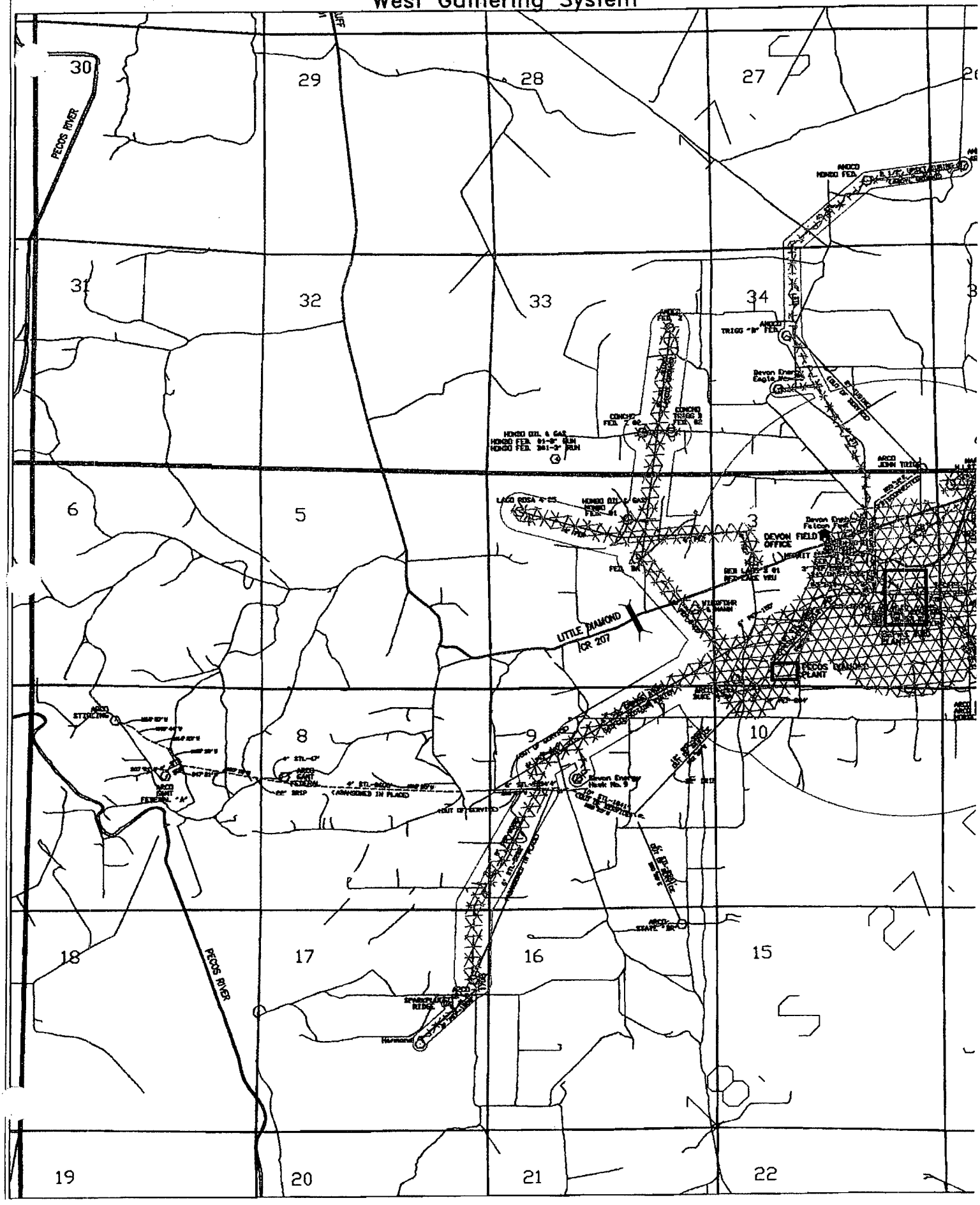
Empire ABO Gas Plant
Radius of Exposure
General Map



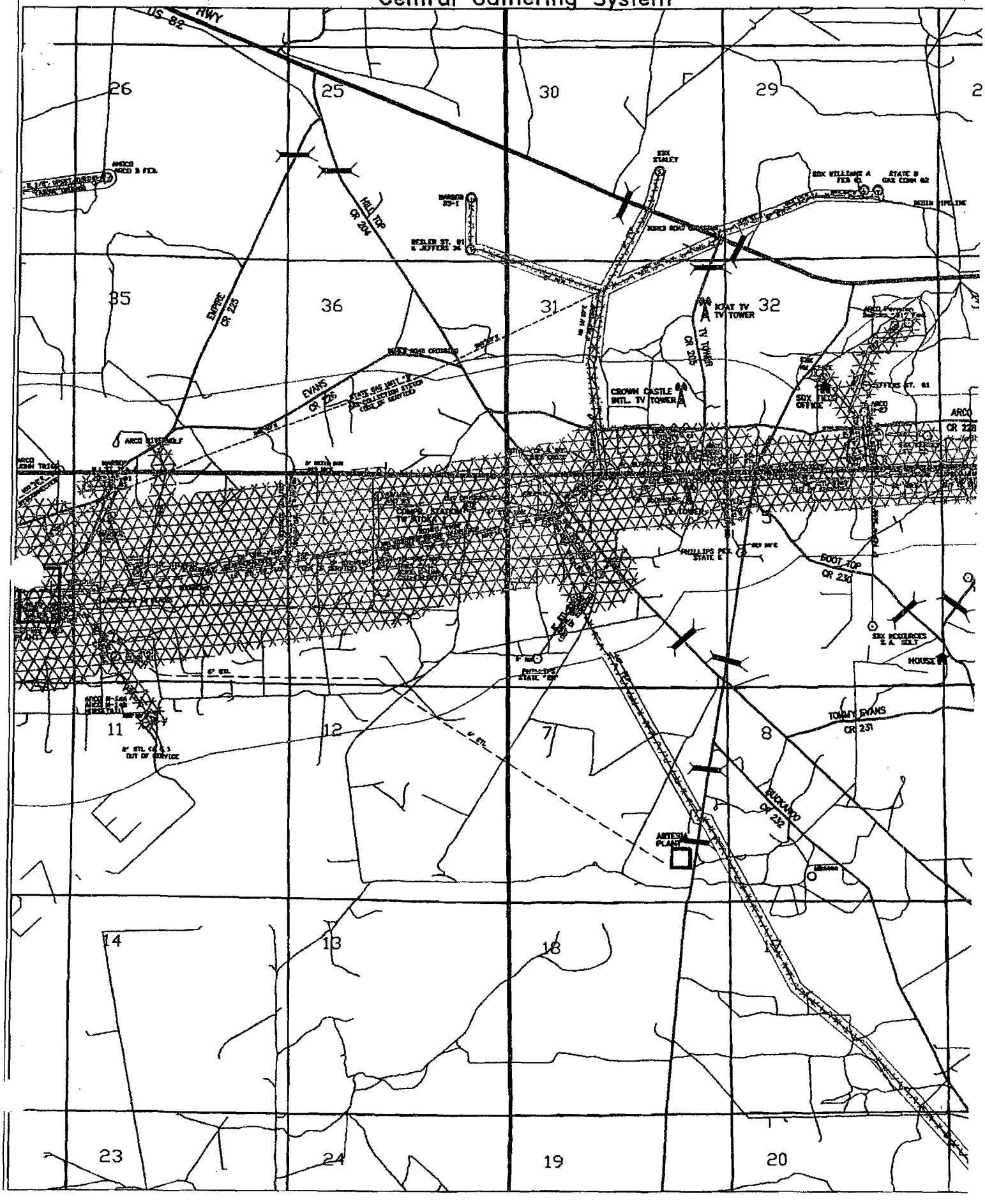
Empire ABO Gas Plant

Radius of Exposure

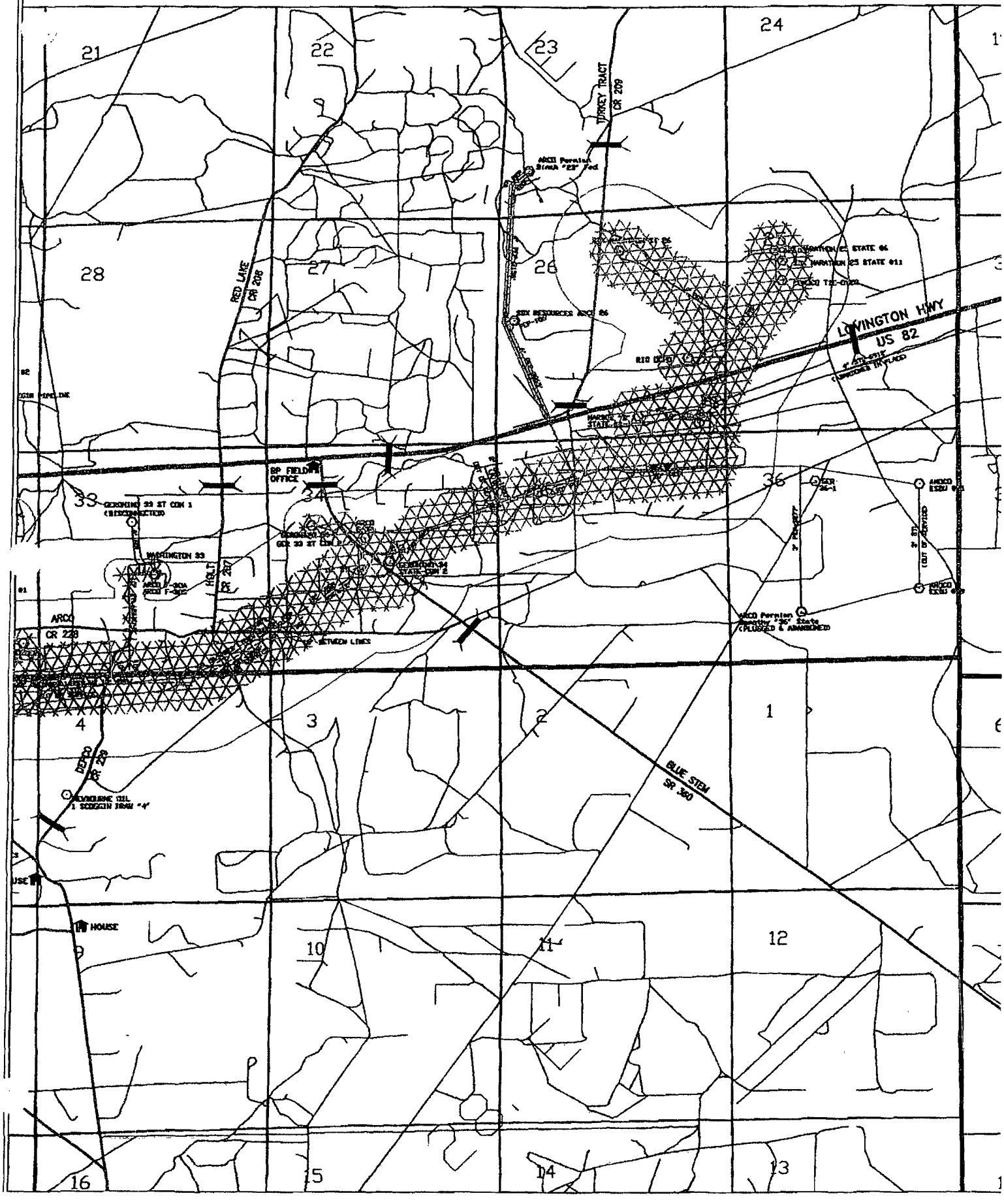
West Gathering System



Radius of Exposure
Central Gathering System

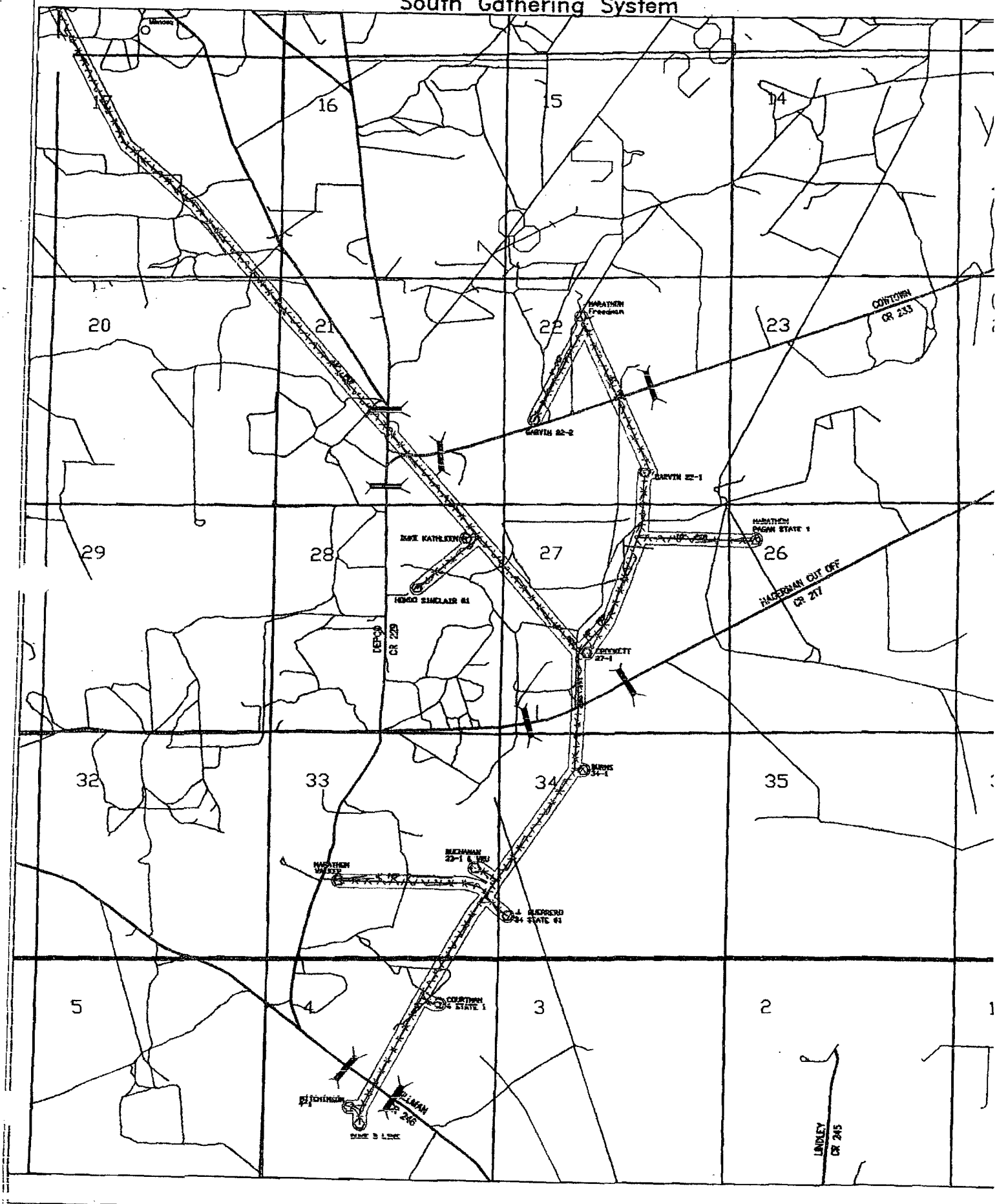


Empire ABO Gas Plant
Radius of Exposure
East Gathering System



Empire ABO Gas Plant Project

Radius of Exposure
South Gathering System



Chavez, Carl J, EMNRD

From: Alberto A. Gutierrez, RG [aag@geolex.com]
Sent: Thursday, March 24, 2011 10:09 PM
To: Chavez, Carl J, EMNRD
Cc: Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Hill, Larry, EMNRD; Dade, Randy, EMNRD; 'Prentiss, John'; 'Franzen, Matthew'
Subject: RE: Frontier Maljamar Gas Plant Lea County (GW-020) Frontier Letter w/ Attached Rule 118 H2S CP for OCD Records

Mr. Chavez:

Thanks for your email regarding Frontier's Rule 118 plan for the Maljamar Plant and you are correct, you will have the updated H2S CP pursuant to Rule 11 for that plant well before your August 11, 2011 deadline.

In reply to your inquiry regarding the Empire Abo Gas Plant (GW-022), Frontier is in receipt of your letter also and you will receive an updated plan for that facility as well before the August 11, 2011 deadline. I will be in touch with you shortly regarding the anticipated submittal date for both plans.

Call me if you have questions.

Regards
Alberto

Alberto A. Gutiérrez, RG
Geolex, Inc®
500 Marquette Avenue, NW Suite 1350
Albuquerque, NM 87102
505-842-8000 Ext. 105
505-842-7380 Fax

New Mexico Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

Brett F. Woods, Ph.D.
Acting Cabinet Secretary

Daniel Sanchez
Acting Division Director
Oil Conservation Division

March 1, 2011

Mr. David Harris
Plant Manager
Frontier Field Services, LLC
257 Empire Road
Artesia, NM 88210

Dear Mr. Harris:

Re: Empire Abo Gas Plant (GW-022) Oil and Gas Facilities/Operations that may Vent and/or Flare H_2S Gas

The New Mexico Oil Conservation Division (OCD) is writing to operators of the above-referenced types of facilities or operations that may have New Mexico Environmental Department (NMED) - Air Quality Bureau (AQB) Oil and Gas type Permits. The purpose of this communication is to inform operators of such facilities regarding OCD Rules that may be applicable to gas plant operators and/or oil and gas facilities/operations in the hope that it provides some clarification regarding the applicability of these rules, and to ultimately increase overall compliance

In New Mexico, the OCD Rules that pertain to Hydrogen Sulfide (H_2S) Gas are provided at § 19.15.11 et seq. NMAC (Hydrogen Sulfide Gas). The OCD Oil and Gas Rules that address "No-Flare" and the OCD Form C-129 process are provided at § 19.15.7.37 et seq. NMAC (Application for Exception to No-Flare). Gas plants have gas gathering pipelines with meters connected to operators who then either sell or vent casinghead gas into the gas gathering pipelines that feed into the plants. The OCD Rules that pertain to "Casinghead Gas" are provided at § 19.15.18.12 et seq. NMAC (Production Operating Practices).

This letter was precipitated by a recent event where a gas plant operator shut-in a "gas gathering pipeline." This "shutting-in" of the pipeline impacted approximately thirty individually-metered operators who may have continued operating instead of "shutting-in" their well(s). In spite of the fact that approximately thirty operators were impacted, the OCD observed that only one of those thirty operators contacted the OCD via Form C-129 as required under the OCD Rules to obtain approval of their application for an "exception to no-flare." (The operator initially had contacted the OCD to request approval to vent H_2S gas into the air rather than shut-in the well.) The OCD has serious public safety concerns when operators do not properly shut-in their wells when gas gathering pipelines and/or meters are shut-in, especially where the wells are near populated and/or agricultural areas due to the potential for loss of life from toxic gas.

In subsequent communications with gas plant operators who flare gas, the OCD discovered that the operators were under the impression that if their facility has an NMED- AQB Construction Permit which includes a provision to flare/emit gas, then this is all that is needed to operate in New Mexico. This is actually only partially

correct because operators are also required to comply with the requirements set out in the OCD Rules regarding flaring and venting. For example, in the situation where a gas plant operator has notified connected well operators of a gas-gathering pipeline shut-down, each of those well operators is required to shut-in its well(s) or to obtain OCD District Supervisor approval to flare via an OCD C-129 Form. Operators who do not comply are illegally venting and/or flaring gas under OCD Rules.

In addition, gas plants and/or oil and gas operators may be required to satisfy OCD § 19.15.11 et seq. NMAC (Hydrogen Sulfide Gas) Contingency Plan requirements for facilities and wells in cases where 100 ppm or greater H_2S concentrations may impact public areas. OCD records indicate that Frontier Field Services, LLC does **not** currently have an H_2S Contingency Plan (CP) on file with the OCD. If you do not have an approved CP under § 19.15.11 et seq. NMAC (Hydrogen Sulfide Gas) for your gas plant yet, please submit your CP to the OCD Environmental Bureau in Santa Fe on or before August 11, 2011. (*The OCD notes that it is aware of some operators who have recently submitted CPs to the OCD that are currently under review. Please advise if this is the case for* Frontier Field Services, LLC.)

The OCD recognizes that when multiple sets of Rules, Regulations and Statutes apply, it can sometimes be tricky to definitively determine which requirements apply, to whom and in what circumstances. Operators must, however, take all care to ensure that they are at all times operating in compliance with all applicable state, federal and/or local rules and regulations. In this instance, this means that operators are subject not only to the requirements imposed by the NMED-AQB permitting structure, but also to those set forth in the OCD Rules.

We hope that this communication has helped to clarify the issue regarding the applicability of the OCD Rules in these situations, regardless of the existence of a valid NMED-AQB permit. Please contact Carl Chavez of my staff at (505) 476-3490 if you have questions or need assistance with the CP. The OCD looks forward to bringing your facility into compliance with OCD Rules if it is not currently already in compliance. Thank you for your cooperation in this matter.

Sincerely,

Daniel Sanchez,
Compliance & Enforcement Manager

xc: Richard Goodyear, NMED- AQB
OCD Environmental Bureau
OCD District Offices