

H₂S-54

H₂S
CONTINGENCY
PLAN



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

Ms. Jennifer Knowlton
Environmental Engineer
AGAVE ENERGY COMPANY
105 South Fourth Street
Artesia, NM 88210

Dear Ms. Knowlton:

Re: Agave Dagger Draw Gas Plant (GW-053) Oil and Gas Facilities/Operations that may Vent and/or Flare H₂S 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 (H₂S) 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 H₂S 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

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Ms. Knowlton
AGAVE ENERGY COMPANY
March 1, 2011
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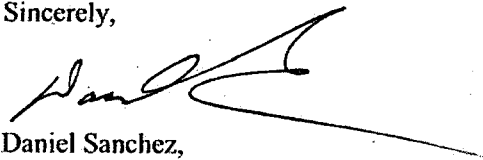
correct because operators are also required to comply with the requirements set out in the OCD Rules regarding flaring and venting. For example, in the situation where a gas plant operator has notified connected well operators of a gas-gathering pipeline shut-down, each of those well operators is required 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 H₂S concentrations may impact public areas. OCD records indicate that AGAVE ENERGY COMPANY has recently submitted an H₂S Contingency Plan (CP) that is on file and is under review by the OCD.

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,

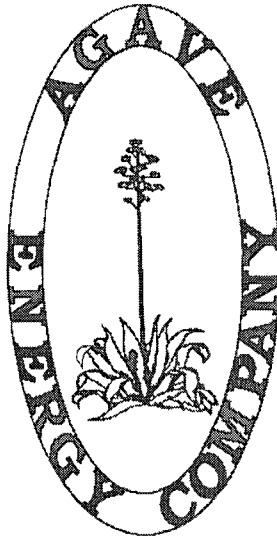


Daniel Sanchez,
Compliance & Enforcement Manager

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

H₂S Contingency Plan

**Agave Dagger Draw Processing Plant
and the
Metropolis Disposal #1 Well**



Agave Energy Company

105 South 4th Street
Artesia, NM 88210
(575-748-4555)

December 20, 2010

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- Map 1 Agave Dagger Draw Plant Facilities Locations**
- Map 2 General Diagram of Agave Dagger Draw Gas Plant and Location of Pipeline
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- Figure 1 Photos of Pipeline**

APPENDICES

Appendix A – Facility Maps and Drawings

- Map A-1: Facility Map**
- Map A-2: Alarms and Monitors, Dagger Draw Active Equipment**
- Map A-3: Safety and Fire Equipment, Dagger Draw Active Equipment**
- Map A-4: Evacuation Router, Dagger Draw Active Equipment**
- Map A-5: Proposed Perimeter Alarms**
- Map A-6: Metropolis Disposal #1 Well**

Appendix B – Response Flow Diagram

Appendix C – ROE Calculations

- Map C-1: Facility, Pipeline and Well Site ROE**

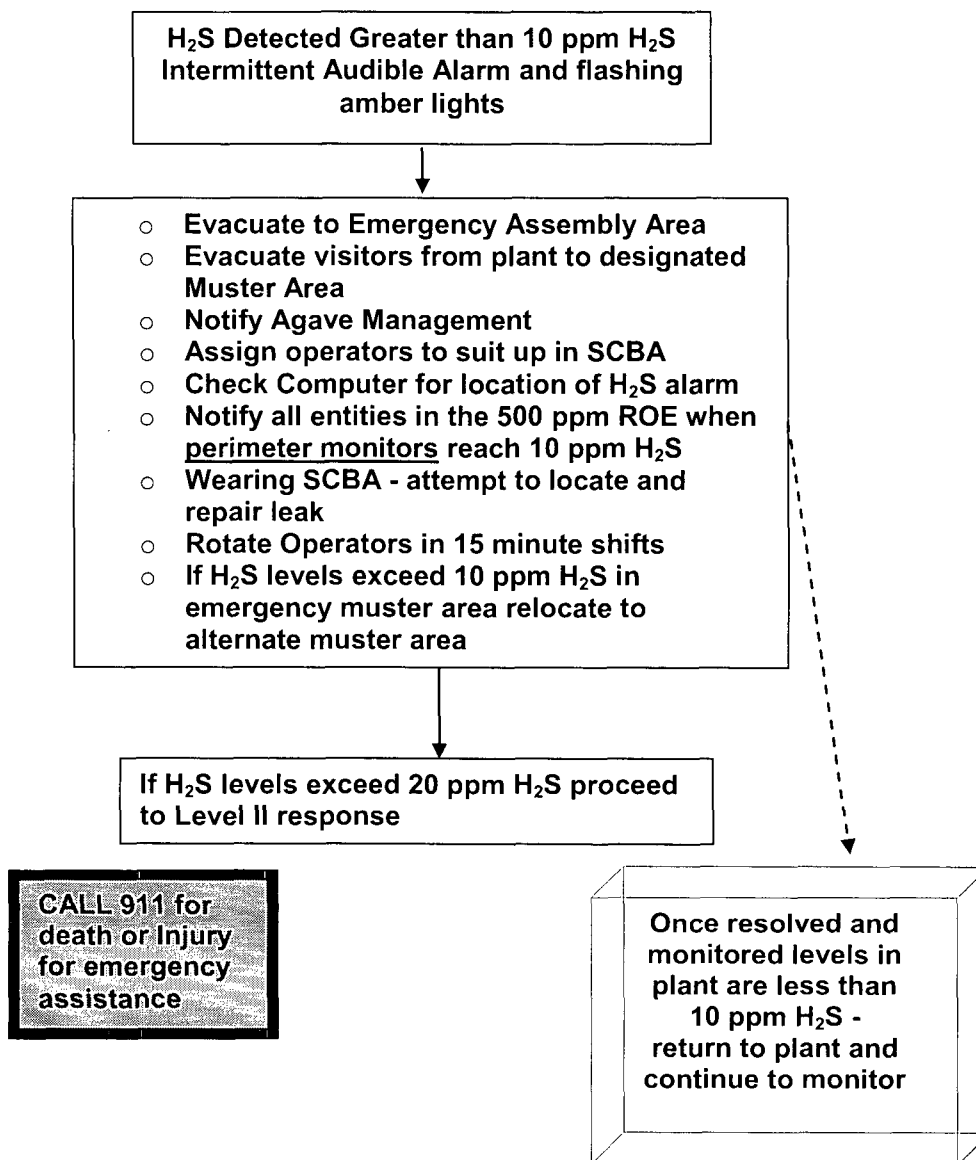
Appendix D – Muster Areas and Evacuation Routes

- Map D-1: Evacuation Routes to Muster Areas**

Appendix E – Distribution List

OPERATOR QUICK REFERENCE GUIDE

Dagger Draw Processing Plant Level 1 Response FOR PLANT OR WELLHEAD ALARMS



Location of Facilities

Agave Dagger Draw Processing Plant (See Map 1)

Go south of Artesia, NM on Hwy 285 approximately 9 miles to County Road 38 (Kincaid Ranch Road). Turn right (west) on Kincaid Ranch Road and go approximately 2.8 miles to Pipeline Road. Turn right (north) and go 0.2 miles to the Dagger Draw Gas Plant Office. Physical address is 278 Pipeline Road, Artesia, NM 88210.

Section 25-Township 18S-Range 25E

Metropolis Disposal #1 Well (See Map 1)

Go south of Artesia, NM on Hwy 285 approximately 9 miles to County Road 38 (Kincaid Ranch Road). Turn right (west) on Kincaid Ranch Road and go 2.6 miles (just past the Agave Field Office). Turn left (south) on dirt lease road and go approximately 0.6 miles then turn left (east) and go 0.2 miles to the Metropolis Disposal #1 Well. **Section 36-Township 18S-Range 25E**

Emergency Trailer – Atoka Facility Location (See Map 1)

From Artesia, drive south on Highway 285 to County Road 39. Turn east and drive approximately 2 miles. The facility is on the south side of the road in NW/NE Sec 14 18S 26 E.

I. Introduction

[API RP-55 7.1]

The Agave Dagger Draw Processing Plant is a natural gas processing plant which handles and/or generates hydrogen sulfide (H₂S) and/or sulfur dioxide (SO₂). This H₂S contingency plan was created to outline procedures that are to be followed in the event of an H₂S release that occurs at the plant, the acid gas well, or on the acid gas pipeline. The response plan is the same regardless of where the release takes place. This plan complies with the New Mexico Oil Conservation Division (OCD) Rule 11. This plan also conforms to API RP-55.

II. Scope

[API RP-55 7.2]

This contingency plan is specific to the Agave Dagger Draw Gas Processing Plant and acid gas injection system. This plan contains procedures to provide an organized response to an unplanned release from the plant, well site and pipeline connecting them.

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. Copies of the plan will be distributed to the following agencies: New Mexico Oil Conservation Division (OCD), New Mexico Department of Public Safety, Local Emergency Planning Committee (LEPC), Artesia Fire Department, Atoka Fire Department, Artesia Police Department, and Eddy County Sheriff's Department. The Plan will be available at the following Agave Energy Company locations: Dagger Draw Processing Plant, the Artesia Field Office, Emergency Response Trailer at Atoka (Map 1) and the Agave Main Office in Artesia.

IV. Emergency Procedures

[NMAC 19.15.11.9.B(2)(a)] [API RP-55 7.4 a]

A. Responsibilities and Duties of Personnel during an Emergency

1. Plant Manager or designee will serve as the Incident Commander (IC); is responsible for training operators assigned to the plant, contractors and visitors on the implementation of this plan; and will maintain communication with Agave management and residents within the radius of exposure (ROE).
2. Plant Supervisor or designee will serve as the Incident Commander (IC) in the absence of the Plant Manager; is responsible for training and supervising plant operators on the implementation of this plan, will maintain accountability of all contractors and visitors; and will maintain communication with the plant manager and Agave management.
3. Plant Operators will perform operations in accordance with this safety plan; assist in the accountability and evacuation of visitors and contractors to designated muster areas; and keep the plant supervisor and manager informed on the repair progress.
4. Essential Agave Personnel will be familiar with the procedures in this plan and assist plant operators in assisting with the implementation of this plan in a safe manner.
5. Visitors and contractors on site will be familiar with safety alarms and signals at the Dagger Draw Gas Processing Plant and the acid gas injection system; and adhere to instructions of Plant Operators and other Agave personnel in evacuation of the facilities.

B. Immediate Action Plan

1. The following outlines the immediate action Plan that is illustrated by the response flow diagram in Appendix B. This is to be used when responding to an H₂S release. Response levels are the same for a release at the plant or the acid gas well. 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	Intermittent audible alarm sounded and/or flashing yellow lights activated for H ₂ S at 10 ppm or greater.	<p>1. The audible signal for a Plant emergency and evacuation is an intermittent alarm and yellow lights (repeating off/on) activated when levels of H₂S of 10 ppm or greater are detected. In addition, a flashing yellow light or beacon will be activated at 10 ppm or greater of H₂S. A computer in the control room and in the Plant Supervisor office establishes which H₂S monitor has activated the alarm and/or flashing yellow beacon, be it a plant monitor or well monitor. At the initial sound of the intermittent alarm or the flashing yellow beacon, assigned operators will put on a 30 minute self-contained breathing apparatus (SCBA) and all other personnel in the Plant complex or well site shall immediately evacuate the Plant or well site to the Emergency Assembly Area. If H₂S concentrations are 10 ppm or greater, then personnel will evacuate to a designated Muster Area determined by the Incident Commander (IC) (see Appendix D). The operators, upon suit up with the self-contained breathing apparatus (SCBA), will first help any persons in distress evacuate to the Emergency Assembly Area. If deemed necessary by the Plant Manager or Plant Supervisor, local emergency response service providers will be contacted by Plant personnel designated by the Plant Manager or Supervisor.</p> <p>2. All entities within the 500 ppm radius of impact (ROE) will be notified (by telephone) of a release if the <u>perimeter alarms</u> are activated at 10 ppm H₂S or greater. Notification will be done by personnel designated by the Plant Manager 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 should be instructed to leave the area and not to enter/re-enter area until further notice. Operators will put on self-contained breathing apparatus (SCBA).</p> <p>3. Wearing the self-contained breathing apparatus (SCBA), the operator(s) will attempt to fix the cause of the release. The H₂S levels at the Emergency Assembly Area will be monitored with a hand held or personal monitor and with the fixed monitor.</p> <p>4. The Incident Commander (IC) will set up secondary re-entry team(s) with 30 minute self-contained breathing apparatus (SCBA) to re-enter and resolve the situation. Re-entry will occur in 15 minute shifts at the direction of the Incident Commander (IC) until the problem is resolved or the <u>emergency shut down (ESD)</u> is activated. If H₂S levels in the Emergency Assembly Areas exceed 10 ppm H₂S, evacuate to alternate Emergency Assembly Area and continue to monitor Emergency Assembly Area with personal or handheld H₂S monitors. If evacuation to Muster Area occurs, road blocks will be established near the Muster Areas on Kincaid and Pipeline Road. If release is resolved and monitored levels in the Plant are less than 10 ppm H₂S, personnel may re-enter the Plant. The Oil Conservation Division (OCD) shall be notified within four hours of any release that activates the Plan. If the release is not resolved and H₂S levels continue to increase, Level 2 Response is indicated.</p>

Levels	Alarms	Actions
II	Intermittent audible alarm sounded and/or flashing red lights activated for H ₂ S greater than 20 ppm	<p>1. The intermittent alarm and red flashing lights indicate the detection of H₂S greater than or equal to 20 ppm. (Flashing yellow lights indicate a H₂S release of 10 ppm or greater and they will change to red for a release of 20 ppm or greater.) A control panel in the Plant supervisor's office establishes which H₂S monitor has activated the alarm and or flashing red beacon, be it a plant monitor or a well monitor. At the initial sound of the intermittent alarm or observance of the flashing red beacons, the operators will exit to the Muster Area designated by the Plant Manager or his designee. Other personnel in the Plant complex will put on emergency escape packs located throughout the plant, or well location and evacuate along with the operators using the evacuation routes to the Emergency Assembly Area and then to the Muster Area (see Appendix D) designated by the Plant Manager or designee. At the assembly area, the Plant Manager or designee will assign operators to put on a 30 minute self-contained breathing apparatus (SCBA). Local emergency response service providers will be contacted by Plant Manager or designee.</p> <p>2. All other entities within the 100 ppm and 500 ppm radius of impact (ROE) will be contacted by phone and notified of release and asked to evacuate when a <u>perimeter monitor</u> reads 10 ppm H₂S or greater. All entities within the 100 ppm radius of impact (ROE) will be contacted by phone and notified of release. 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 radius of impact (ROE) may be asked to shelter in place or evacuate. Notifications will include but are not limited to the following:</p> <ul style="list-style-type: none"> a) Other entities within the 100 ppm radius of impact (ROE), depending on release status and prevailing wind conditions, will be asked to shelter in place. 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. b) If a <u>perimeter monitor</u> is activated, the LEPC and law enforcement will be contacted by phone and notified of the release and status of containment. The Incident Commander (IC) will assign personnel notification responsibility. <p>3. Operator(s) with 30 minute self-contained breathing apparatus (SCBA) will assess the release and attempt to resolve it. If after 45 minutes on scene there is no resolution, the operator(s) will notify the Plant Manager to determine <u>if the emergency shut down (ESD) should be activated</u>.</p> <p>4. If monitored H₂S levels at Muster Area exceed 10 ppm, evacuate to an alternate Muster Area. If deemed necessary, local emergency response service providers will be contacted by the Incident Commander (IC).</p> <ul style="list-style-type: none"> a) Re-entry will occur in full self-contained breathing apparatus (SCBA) and in 15 minute shifts at the direction of the IC until IC determines problem has been resolved <u>or emergency shut downs (ESDs) are activated</u>. b) If release is resolved and monitored levels of H₂S in the Plant are less than 10 ppm, personnel may return to Plant. The Oil Conservation Division (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 H₂S levels at the Plant. c) No resolution requires activation of full H₂S Plan with notifications and reporting as per Plan. If the release is not resolved and/or H₂S levels continue to increase, Level 3 Response is indicated. d) Monitoring will continue after problems are abated, at the direction of the Plant Manager.

Level	Alarms	Actions
III	<p>Intermittent audible alarm sounded and/or flashing red lights activated for catastrophic release; fire; or explosion</p> <p>ESD alarm is a continuous siren with red, amber, and blue lights that flash</p>	<p>1. If H₂S is at 20 ppm or greater and repair efforts at Level 2 have been unsuccessful, worst case scenario, and/or catastrophic release have occurred, then implement a Level 3 response.</p> <p>2. Road blocks will be set up near the Muster Areas on Kincaid Road and Pipeline Road.</p> <p>3. All personnel shall have evacuated to a designated Muster Areas. Evacuation of all entities within the 500 ppm radius of impact (ROE) will have been confirmed. Implement full H₂S Plan with all notifications and public agency involvement. Notifications to all entities within the 100 ppm radius of impact (ROE) will include the nature of the release and status of containment. Notifications will include but are not limited to the following:</p> <p>a) All businesses within the 100 ppm radius of impact (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.</p> <p>b) All other entities (including private residents) within the 100 ppm radius of impact (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 to not enter/reenter the area until further instruction.</p> <p>c) The Incident Commander (IC) will make the decision based on, but not limited to, H₂S concentration and wind direction, whether a safe evacuation can be implemented, and recommend an evacuation route.</p> <p>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.</p> <p>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.</p> <p>6. Initiate and maintain a Chronological Record of Events log.</p> <p>7. Within one hour after the activation of the H₂S Plan, begin agency notifications by calling Oil Conservation Division (OCD) and National Response Center (NRC).</p> <p>8. Establish media staging area adjacent to Muster Area 2 and direct all media to it.</p> <p>9. Once resolved and monitored levels in the Plant and at Muster Area are less than 10 ppm, roadblocks will be removed, and all entities within the 100 ppm radius of impact (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 H₂S levels.</p> <p>10. Monitoring will continue after problems are abated, at the direction of the Plant Manager</p> <p>11. Agency reports to be submitted as required.</p>

C. Telephone Numbers and Communication Methods

1. Emergency Services

AGENCY	TELEPHONE #
Artesia Fire Department	(575) 946-5050
Atoka Fire Department	(575) 946-5050
Artesia Police Department	(575) 746-5000
Eddy County Sheriff	(575) 887-7551
Carlsbad Police Department	(575) 885-2111
State Police (HMER)	
District 3 Roswell	(575) 827-9312
Sub District 3 Carlsbad	(575) 885-3138
Sub District 3 Hobbs	(575) 827-9320
Ambulance Services	
Artesia	(575) 746-5050
Carlsbad	(575) 885-2111
Hospitals	
Artesia General	(575) 748-3333
Carlsbad Medical Center	(575) 887-4100
Veterinarians	
Artesia Animal Clinic	(575) 748-2042
Livingston Animal Clinic	(575) 746-6167
Helicopter Services	
Lifeguard (Albuquerque)	1-800-633-5438
Southwest Medivac (Hobbs)	1-800-242-6199
AeroCare (Lubbock)	1-800-627-2376
Air Med (El Paso)	(915) 772-1449

2. Government Agencies

AGENCY	TELEPHONE #
Oil Conservation Division (OCD)	(505) 476-3440 (575) 748-1283
US BLM	(575) 887-6544
Local Emergency Planning Committee (LEPC)	(575) 887-9511
National Response Center (NRC)	1-800-424-8802

3. Operators and Contractors

COMPANY	TELEPHONE #
CVE	(575) 746-3571
PVT	(575) 748-1241
DCP Midstream	(800) 435-1679
Chevron/West Texas Pipeline Company	(800) 762-3404
Transwestern Pipeline	(281) 714-2265
Yates Petroleum Corporation	(575) 748-1471

4. Public

Name	Address	TELEPHONE #
David and Diana Wilson	80 West Kincaid Ranch Road	(575) 457-2309
Raul and Delilah Baeza	193 West Kincaid Ranch Road	(575) 308-3195
Efrin and Maria Baeza	179 West Kincaid Ranch Road	(575) 513-0471
Christine Baeza	175 West Kincaid Ranch Road	(575) 457-2585

5. Agave Internal Call List

NAME	TITLE	Office #	Cell #
J.B. Smith	President	(575) 748-4414	(575) 365-8517
Rusty Nasta	Operations Manager	(575) 748-4523	(575) 626-7971
Ivan Villa	Engineering Supervisor	(575) 748-4528	(575) 365-4888
Jennifer Knowlton	Environmental Engineer	(575) 748-4528	(505) 238-3588
Robert Moorhead	Plant Manager/South Mechanical Supervisor	(575) 748-6815	(575) 365-4840
Gary Greenwood	Plant Supervisor	(575) 748-8414	(575) 365-6794
Mark Smith	PSM Coordinator/Plant Operator	(575) 748-8410	(575) 365-5053
Dustin McNeely	Plant Operator	N/A	(575) 703-5493
Justin Troublefield	Plant Operator	N/A	(575) 365-7503
Glen Blake	Regulatory Coordinator	(575) 748-4546	(575) 626-8168
Bill Johnson	South Measurement Supervisor	(575) 748-6816	(575) 365-4615
Jason Fuentes	South Pipeline Supervisor	(575) 748-4518	(575) 365-8939

6. Agave Energy Company will use 2-way radios and telephones to communicate internally. Telephone will be used for external communication.

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

1. The following residences are located within the ROE of the:

- a) Plant — None
- b) Metropolis Disposal #1 Well – None
- c) Pipeline – None

2. The following roads are located within the ROE:

- a) Kincaid Ranch Road
- b) Pipeline Road

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

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

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

2. Pre-planned road block locations are designated near the muster areas on Pipeline Road and Kincaid Ranch Road and are depicted on Map D-1 in Appendix D. Each location will have pre-positioned, portable road barriers with lights. The locations will have flashing lights and warning signs. If the release is sufficient to require evacuation to muster areas, then roadblocks near the muster areas on Kincaid Ranch Road and Pipeline Road to the west and north of the facility, respectively, will be established. The

Incident Commander (IC) will designate a representative to staff each of the two roadblocks. If deemed necessary by the Incident Commander (IC), the State or Local Police will be asked to assist with maintaining the roadblocks.

3. Emergency lights on the Muster Area signs will be activated by any perimeter alarm of 10 ppm or greater H₂S or Level III activation.

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

1. EMERGENCY SHUTDOWN SYSTEM: There are (8) 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 Incident Commander (IC).

When any one of the eight (8) 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 one (1) main block valve on the incoming gas line to the Plant. Activating these should allow the plant to avoid a Level 3 response. The Incident Commander (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 indicated in Appendix A on Maps A-2, A-3, and A-6.

The audible signal for an emergency response and Plant evacuation is a repeating intermittent alarm that sounds at H₂S concentrations of 10 ppm or greater. The alarm will remain intermittent when the concentration of the H₂S release is 20 ppm or higher. At the initial sound of this intermittent alarm, the plant operators will evacuate to the emergency assembly area put on a self-contained breathing apparatus (SCBA) and all personnel in the plant complex shall immediately proceed in a safe manner to the Emergency Assembly Areas as prescribed by the Emergency Action Plan.

A flashing red beacon signifies an H₂S release of 20 ppm or higher and all personnel in the plant complex shall immediately proceed in a safe manner to the Emergency Assembly Area located outside of the plant office. If this area is not determined to be safe, all will move to designated Muster Area. Evacuation routes and Muster Areas are indicated on the map in Appendix A, on Map A-4 and A-6 as well as Appendix D, on Map D-1.

A routine process alarm will cause a horn to sound. This horn sound is used to alert the plant Operator to return to the Control Room. No emergency response or evacuation is required when this horn sounds.

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 ten (10) windsocks located in the Plant.

3. GAS DETECTION EQUIPMENT: The Plant uses a Smart Sensor System fixed plant H₂S Sensors. These sensors are a fixed point monitoring system used to detect the presence of hydrogen sulfide in ambient air. The yellow flashing beacon is activated at H₂S concentrations of 10 ppm or greater. The horn is activated with an intermittent alarm at H₂S concentrations of 10 ppm or greater. The lights change to red at 20 ppm H₂S and the horn remains intermittent. 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 H₂S level of all the Plant sensors on the control monitor located in the control room and the Dagger Draw Plant Field Office. In addition, select employees can access this information remotely. These sensors are located on the plot plan in Appendix A, Maps A-2 and A-3. These sensors all have to be acknowledged and will not clear themselves. This requires immediate action for any occurrence or malfunction. The Plant sensors are calibrated monthly.

Redline wireless H₂S detectors are installed along the perimeter of the plant and the perimeter of the acid gas disposal well. Perimeter H₂S detectors report to the Redline monitor every five minutes to confirm detector functionality. Once H₂S gas is detected, the H₂S detectors report to the monitor every five seconds. The detectors will go into alarm at H₂S values of 10 ppm and above. Redline H₂S head unit locations are depicted on Map A-5 and A-6 in Appendix A.

Handheld gas detection monitors are available to plant personnel to check specific areas and equipment prior to initiating maintenance or work on the process equipment. There are 3 handheld monitors and each individual is assigned a personal H₂S monitor. The handheld gas detection devices are Industrial Scientific ITX 3-gas detectors and BW Gas Alert Micro 5 4-way monitors. The detectors have sensors for oxygen, LEL (explosive hydrocarbon atmospheres), hydrogen sulfide, and carbon dioxide. They indicate the presence of H₂S with a beeping sound at 10 ppm. The beeps change in tone as H₂S increases to 20 ppm. The personal monitors are set to alarm (beep) at 10 ppm with the beeps becoming closer together as the H₂S concentration increases to 20 ppm. Both the handheld and personal monitors have digital readouts of H₂S ppm concentration.

- a) The compressor building has two methane sensors; one sends a call out at 30% lower explosive limit (LEL); the second shuts the compressors down at 50% lower explosive limit (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 Plant has 30 minute self-contained breathing apparatus (SCBA) respirators and 5 minute escape packs strategically located throughout the Plant. The respirator locations are identified in Appendix A on Maps A-3 and A-6. All Plant personnel are certified to use the self-contained breathing apparatus (SCBA) respirators.

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 a 20# ABC dry chemical fire extinguisher. See Appendix A, Maps A-3 and A-6 for locations. The Plant does not have a fire water system, only a utility water system that is not designed for fire fighting.

6. EMERGENCY RESPONSE TRAILER AND EQUIPMENT: Agave Energy Company has an Emergency Response Trailer located at the Atoka Facility (Map 1; Map D-2 Appendix D). This is located outside all radii of exposure (ROE) from the facility along the pipeline to the well.

Driving Directions: From Artesia, drive south on Highway 285 to County Road 39. Turn east and drive approximately 2 miles. The facility is on the south side of the road in the NW/NE Sec 14 18S 26 E. See Map D-2 in Appendix D. The trailer can serve as a mobile resource center or Incident Command Center.

a) EMERGENCY RESPONSE TRAILER CONTENTS

- 2 wind socks / wind direction indicators w/poles & spares
- 1 – 110 volt generator, portable w/wheels
- 4 5-gas sensor ambient monitors (O₂, SO₂, LEL, CO, H₂S) with automatic air pumps (15 sec per foot) and data logging capability
- 1 calibration unit for monitors
- 5 intrinsically safe communication radios & chargers, 32 channel with capability to be programmed to fire service and police channels
- 4 20# stored pressure, ABC class Fire Extinguishers
- 4 4500 Grade D breathing air cylinders, regulator, low pressure alarm, and hose reel w/ 300 ft hose (total) and correct quick disconnects.
- 1 stretcher
- 1 20-person First Aid Kit with burn gel packets
- 4 30-minute SCBA's
- 4 work unit SCBA's
- 2 lights, mounted on each rear of trailer for night operations
- 2 hand cleaner for decontamination of petroleum products.
- 3 traffic Control Kits
- 1 emergency flare gun for lighting uncontrollable hazardous gases
- 2 full body harness and 150' X 2 lifelines
- 2 "Hazardous Area" "Do Not Enter" signs / barricades
- 2 burn gel blankets
- 1 set of maps and Emergency Response Plans
- 4 temporary use Nomex Fire retardant clothing (2-LG & 2-XLG)

7. TRAFFIC CONTROL KIT CONTENTS

- 3 electronic road flares
- 1 28" stop sign paddle
- 4 reflective traffic control vests
- 2 emergency signal wands
- 1 emergency Response Guidebook

8. FIRST AID EQUIPMENT LOCATIONS:

- a) First Aid Kits are located at the following locations:
- Lab
 - Office
- b) Eye Wash stations are located at the following locations:
- Lab
 - Office

9. **PERSONAL H₂S MONITORS** All Agave personnel assigned to the Plant and associated field personnel are issued personal H₂S monitors.

10. **SIGNS and MARKERS** The Plant has warning signs indicating the presence of "H₂S/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 (H₂S), Sulfur Dioxide (SO₂) and Carbon Dioxide (CO₂) [NMAC 19.15.11.9.B(2)(b)] [API RP-55 7.4 b.]

A. Hydrogen Sulfide (H₂S): Hydrogen Sulfide (H₂S): The proposed inlet gas streams into the Plant will contain a maximum of 7,600 ppm (or 0.76 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 ₂ S	
Molecular Weight	34.082 g/mol	
Ceiling Concentration	20 ppm (OSHA)	
Ceiling Peak Concentration	50 ppm (OSHA)	
TLV	15 ppm (ACGIH)	
TWA	10 ppm (NIOSH)	
STEL	15 ppm (ACGIH)	
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 (SO₂): Sulfur dioxide is produced as a by-product of H₂S combustion at the flare. The flare unit 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
PEL	5 ppm(OSHA)
TWA	2 ppm(ACGIH)
STEL	5 ppm(ACGIH)
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
Auto ignition 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 (CO₂):** The proposed inlet streams into the Plant will contain a maximum of 383,100 ppm (or 38.31 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
TWA	5,000 ppm
STEL	30,000 ppm
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 (ROE) [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 Agave Dagger Draw Gas Plant is variable, ranging upwards to 7,600 parts per million (ppm) or 0.76 mole percent. In reality, the actual H₂S concentration that the plant processes will be much less than this.
- The inlet gas H₂S concentration of 0.76 mole percent was determined using a mass-balance approach, an analysis of 60.8 mole percent H₂S in the acid gas stream and a maximum acid gas flow rate of 0.5 MMSCFD. It is assumed that the amine system removes 100% of the H₂S from the inlet gas.
- The plant has a maximum daily (24 hour) processing volume of 40 MMSCF.
- The worst case scenario radius of exposure (ROE) also assumes an uncontrolled instantaneous release from the area around either the Metropolis Disposal #1 Well, the amine still at the facility and/or at any point along the pipeline connecting the two of the above referenced volume and concentration. 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/calculations provided here.

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

The formulas for calculating the two radius of exposure (ROE) are as follows:

100 ppm Radius of Exposure 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)

Amine Unit (Facility)

500-ppm ROE	1648 feet
100-ppm ROE	3606 feet

Pipeline

500-ppm ROE	1648 feet
100-ppm ROE	3606 feet

Acid Gas Disposal Well

500-ppm ROE	1648 feet
100-ppm ROE	3606 feet

The ROE for the facility, pipeline and well 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 at any point in the system from the facility at the north to the well to the south.

VI. Facility Description, Maps, and Drawings

[NMAC 19.15.11.9.B(2)(c)] [API RP-55 7.4 c.]

A. Dagger Draw Processing Plant Description of Operations- The primary function of the plant is to remove H₂S and CO₂ 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 1311. The operation of the Agave Dagger Draw Gas Plant is intended to process 40 MMSCFD of gas. The facility is authorized to operate continuously (8,760 hr/yr) at design maximum capacity processing rates. The gas will be treated to remove acid gas components, dehydrated to remove water and processed to remove heavy (liquid) hydrocarbons from the gas stream. Several plant systems will be involved to perform 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 is known as the gas sweetening process. The acid gas removed by the amine unit will be disposed of by either acid gas injection into a disposal well or by incinerating in a flare. The preferred method of disposal will be to compress the gas and inject it into the well. Under emergency situations, the gas will be flared to prevent the emission of lethal hydrogen sulfide to atmosphere.

The glycol dehydration unit will receive approximately 40.0 MMSCFD of treated gas (sweet) from the amine unit and reduce the water content of the gas by circulating triethylene glycol (TEG). 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 exits the cryogenic unit, it needs to be recompressed to approximately 800 to 1200 psi before the gas is sent to the main transportation pipeline. This is accomplished with two 2500 horsepower electric drive compressors.

The hot oil system in the plant is used to provide heat to certain processes within the facility. The system will circulate approximately 600 GPM of hot oil and deliver 15.5 MMBTU/hr to other processes.

B. Metropolis Disposal #1 Well Description of Operations- The low pressure (< 10 psig), acid gas stream from the amine unit is routed to the acid gas compressor. The stream is then subject to a series of compression and cooling cycles, thus dehydrating and compressing the acid gas stream to a pressure of approximately 1150 psig. The high pressure acid gas stream then flows through a 2" stainless steel pipeline to the injection well site. At this point, the stream is introduced into the well.

There are a number of safeguards designed to prevent leaks or overpressure of the system. The acid gas compressor is equipped with multiple pressure transmitters. These transmitters monitor compressor suction and discharge pressures and are programmed to shut the acid gas system down when the pressures fall outside a pre-programmed operating range. As an additional safeguard, the compressor panel is also equipped with high and low pressure shutdowns for each stage of compression that will shut the compressor down when pressures reach preset high and low pressure set points.

As shown on Map 2, the acid gas pipeline runs from the Agave Dagger Draw Plant in a southwesterly direction, crosses Kincaid Ranch Road at the plant boundary and continues southwesterly along a gravel road for approximately 3680 feet. The pipeline then turns east along the Metropolis Disposal #1 Well access road for an additional 900 feet to the wellhead. South of Kincaid Ranch Road, the pipeline and well are entirely contained within Section 36, Township 18 South, Range 25 East. This land is owned by the State of New Mexico. Agave Energy has the following three Rights-of-Way from the State of New Mexico in this section for the pipeline: R18068, R17745 and R17949. The Metropolis Disposal #1 Well Site is covered under Yates Petroleum Company Oil Leases VO-6141-0000 and E1-0165-0001. The pipeline is buried at a depth of 6-1/2 feet for its entire length and is marked, as required, with permanent surface markers. (See Map 2 and Figure 1)

The acid gas pipeline is constructed from 2" inch 304 stainless steel tubing. The pipeline has been designed with a maximum allowable working pressure of 2350 psig. Historical injection pressures average 1150 psig. For leak detection purposes, the 2" acid gas line has been encased in 6" SDR 11 polyethylene pipe. A "sweet" gas stream flows through the annulus between the 6" and 2" pipelines at a preset pressure and flow rate. This sweet gas stream is monitored continuously for H₂S and over/ under pressure. If any one variable falls outside the predetermined operating range, the acid gas compressor is shut down and the acid gas stream is routed to the flare.

Safeguards for the acid gas injection well consist of a subsurface safety valve. This valve is designed to isolate and shut in the injection well if a leak occurs along the acid gas pipeline or at the surface of the well.

C. Map of Plant and Metropolis Disposal #1 Well

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

1. 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.

2. Plant Orientation Training - 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 Agave Energy Company Process Safety Management Program and Procedures Manual.

B. On-site or Classroom Drills

Agave Energy Company may use table top exercises as well as hands on emergency response training methods. Agave Energy Company shall conduct a table top exercise annually at a minimum.

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

Affected residents will be invited to participate and/or observe annual drills, as well as being briefed on notification, evacuation, and shelter in place plans.

D. Training and Attendance Documentation

All training and drills will be documented. 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)

1. Oil Conservation Division (OCD) will be notified with an automatic email to the District II office advising of the activation of the H₂S Contingency Plan if any of the alarms are activated at 10 ppm H₂S 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

1. 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 1 – Intermittent alarm sounded and/or flashing amber beacons activated for H₂S greater than or equal to 10 ppm

Level 2 – Intermittent alarm sounded and/or flashing red beacons activated for H₂S greater than or equal to 20 ppm

Level 3 – 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. Because the 100 ppm radius of impact (ROE) boundary is greater than 3000 feet from the site of release, a Level 3 response would occur before the escape of the 24 hour release volume.

B. Events that Could Lead to a Release of H₂S

- Inlet and plant piping failure
- Amine still failure
- Flange/gasket leaks on inlet and plant piping
- Flange/gasket leaks on the acid gas compressor
- Flange/gasket leaks at metropolis disposal well
- Failure of acid gas pipeline
- Valve packing
- Seal failure on acid gas compressor
- Failure of flare to ignite during Plant emergency blow down

X. Submission of H₂S Contingency Plans

[NMAC 19.15.11.9.D]

A. Submission

1. Agave Energy Company will submit the H₂S Contingency Plan to the Oil Conservation Division (OCD).

B. Retention

1. Agave Energy Company shall maintain a copy of the contingency plan in the Main Office at 105 South 4th Street in Artesia, NM. The plan shall be readily accessible for review by the Oil Conservation Division (OCD) upon request.

C. Inventory

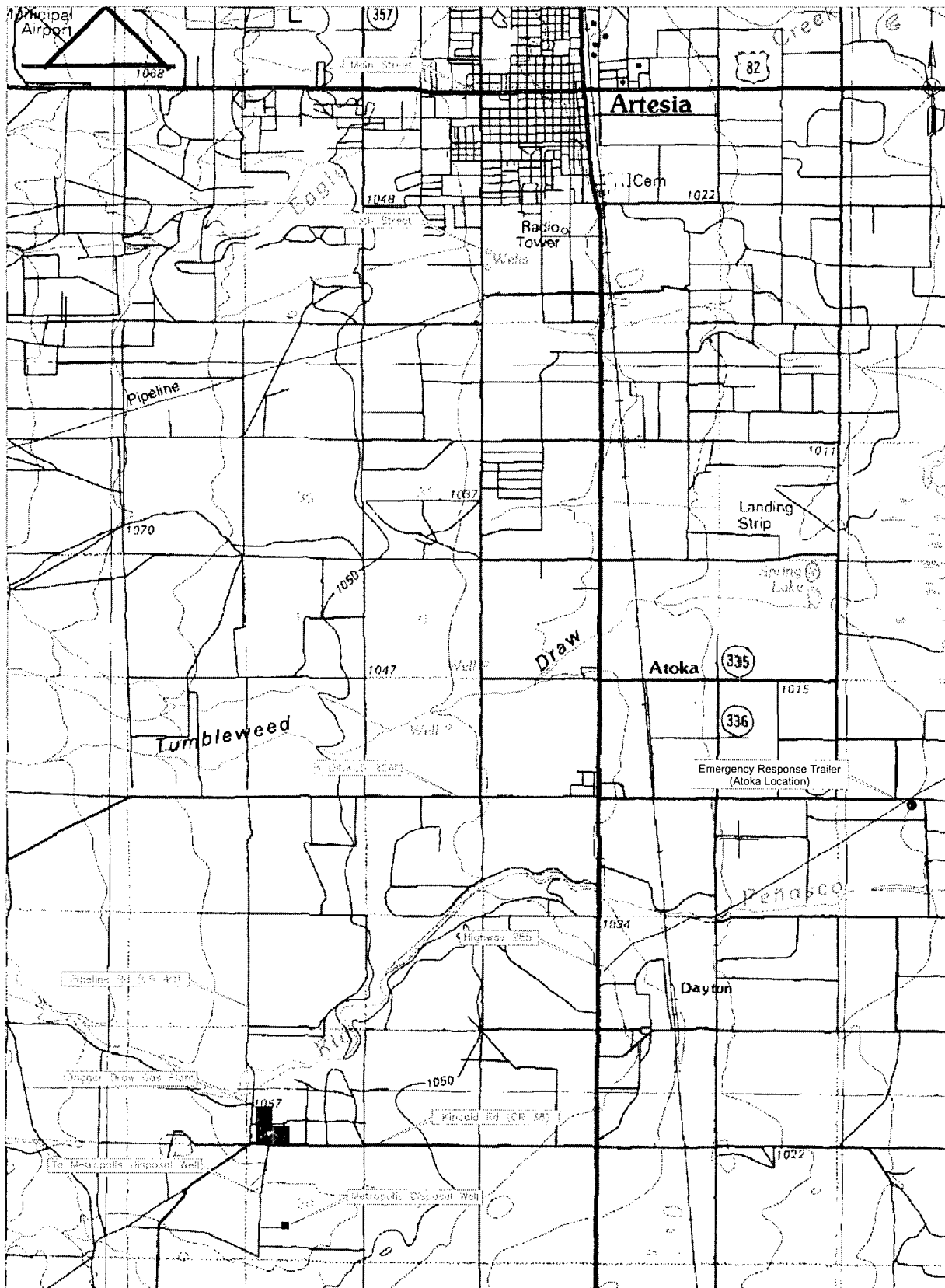
1. Agave Energy Company will file an annual inventory of wells, facilities and operations for which plans are on file with the Oil Conservation Division (OCD), to the Local Emergency Planning Committee (LEPC) and the State Emergency Response Commission as per NMAC 19.15.11.
2. The inventory shall include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

MAPS AND FIGURES

MAP 1: Agave Dagger Draw Plant Facilities Locations

MAP 2: General Diagram of Agave Dagger Draw Gas Plant and Location of Pipeline
Connecting Plant with Metropolis Disposal #1 Well

FIGURE 1: Photos of Pipeline



MAP



AGAVE ENERGY COMPANY 105 South Fourth Street, Alameda, New Mexico 87002			
AGAVE DAGGER GAS DRAW PLANT HYDROGEN SULFIDE CONTINGENCY PLAN FACILITIES LOCATIONS			
DATED: 1/1/2010 BY: [Signature] FOR: [Signature]	REVISION: 1/1/2010 BY: [Signature] FOR: [Signature]	REVISION: 1/1/2010 BY: [Signature] FOR: [Signature]	REVISION: 1/1/2010 BY: [Signature] FOR: [Signature]



Map 2: General Diagram of Agave Dagger Draw Gas Plant and Location of Pipeline Connecting the Plant with the Metropolis Disposal #1 Well

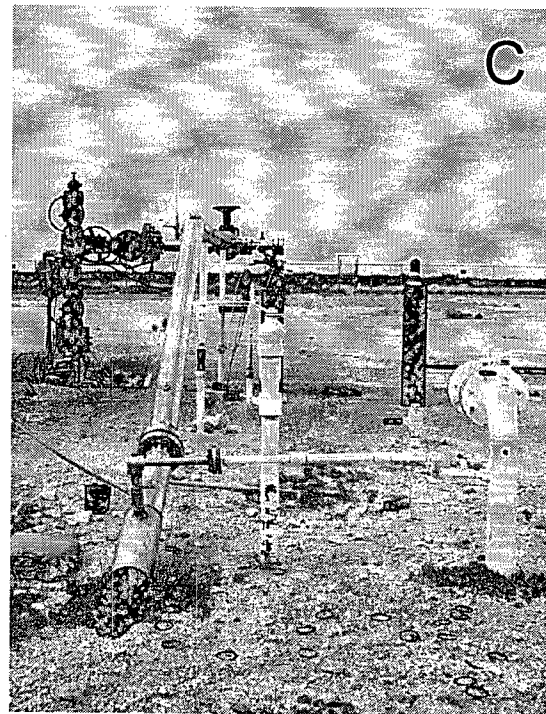
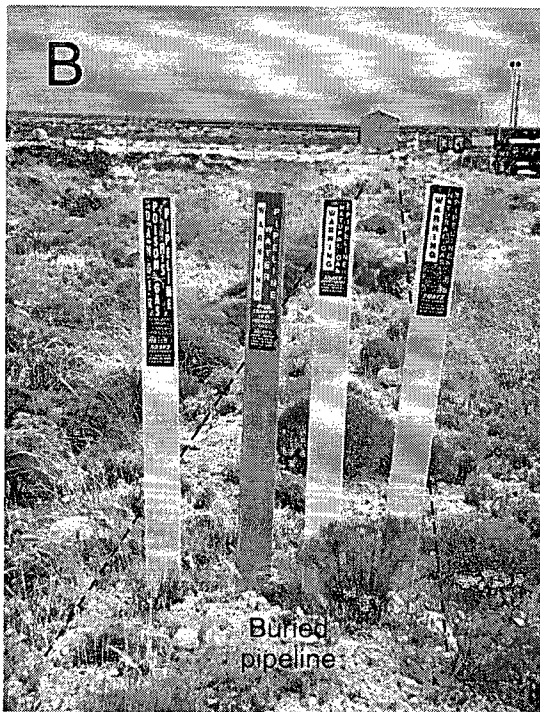
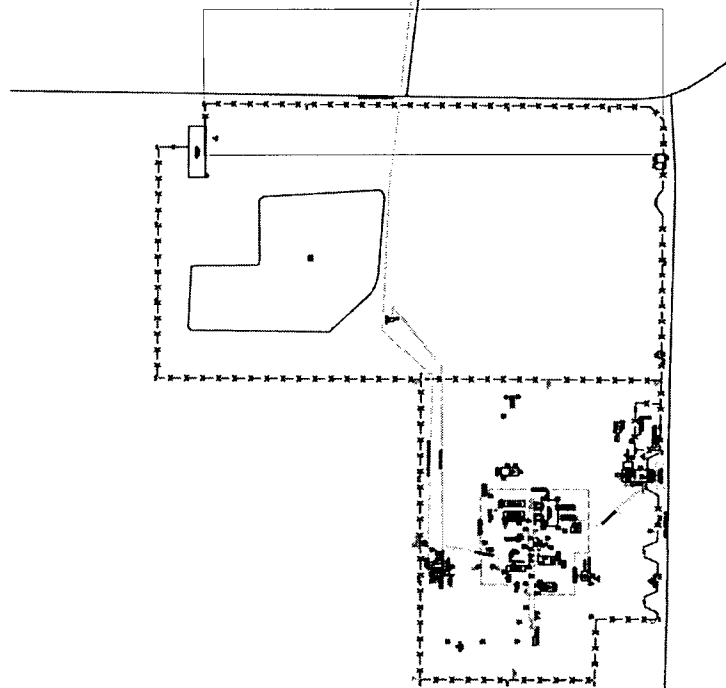


Figure 1: Photos of Pipeline Connecting Agave Energy's Dagger Draw Gas Plant With Metropolis Disposal #1 well. A) Acid Gas Compressed at the Gas Plant is Introduced to a 2" Stainless Steel Pipeline Surrounded by a 6" Polyethylene Pipe. Pipeline Integrity is Monitored Using a Stream of Sweet Natural Gas in the Volume Between the Two Pipes. B) Outside of the Fenced in Areas at the Plant and Wellhead, the Pipeline is Buried and Clearly Marked. C) The Pipeline Rises Above Ground and Connects to the Production Tree at the Metropolis Disposal #1 Wellhead

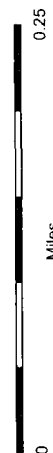
APPENDIX A – Facility Maps

- Map A-1: Facility Map**
- Map A-2: Alarms and Monitors, Dagger Draw Active Equipment**
- Map A-3: Safety and Fire Equipment, Dagger Draw Active Equipment**
- Map A-4: Evacuation Router, Dagger Draw Active Equipment**
- Map A-5: Proposed Perimeter Alarms**
- Map A-6: Metropolis Disposal Well**

MAP A-1

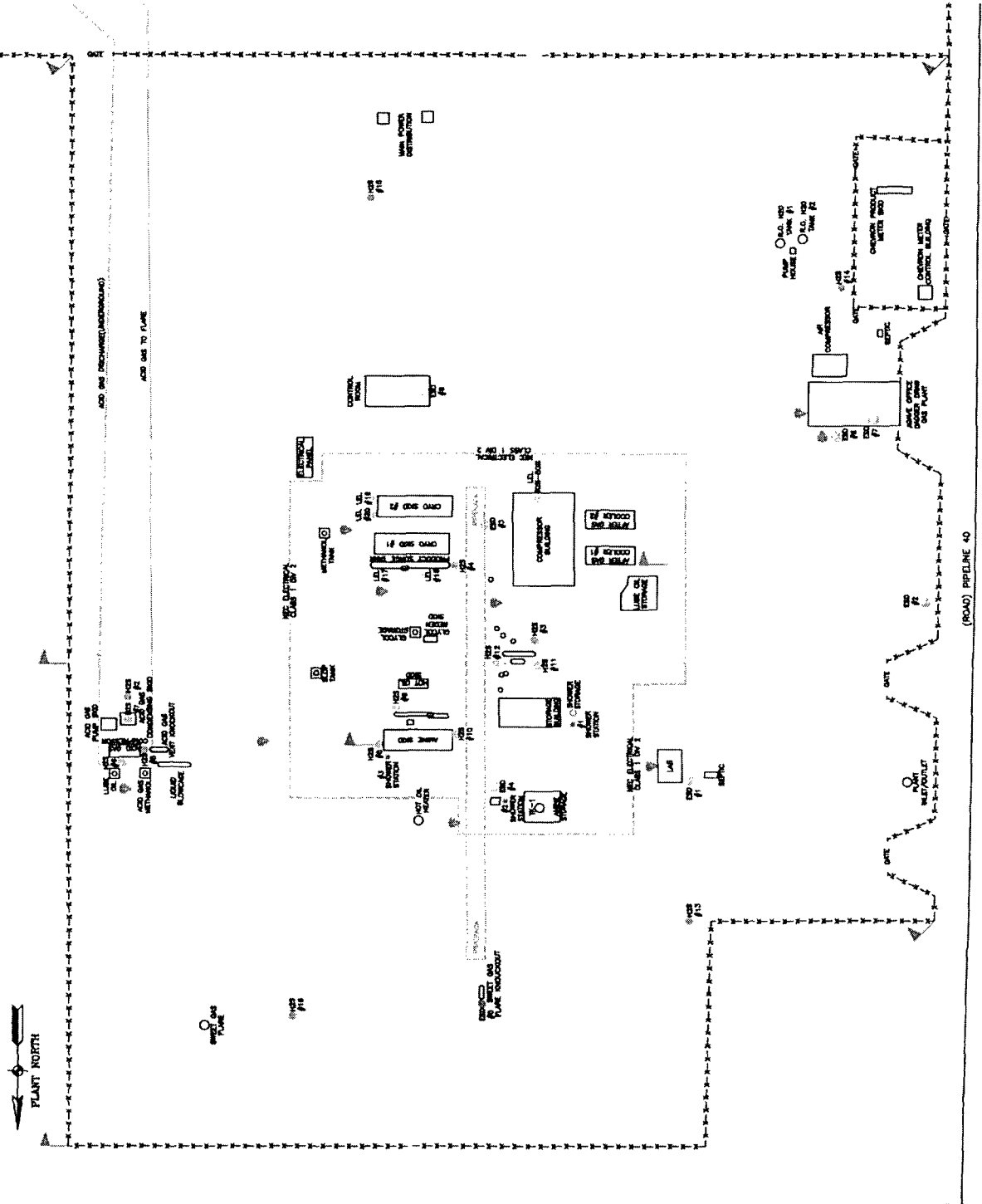


AGAVE ENERGY COMPANY		105 South Fourth Street, Arroyo, New Mexico 88210
AGAVE DAGGER DRAW		
GAS PROCESSING PLANT		
STATE	NEW MEXICO	
COUNTY	GRANT	
TOWNSHIP	13N	
RANGE	2E	
SECTION	21	
TRACT	13640	
OWNER	AGAVE ENERGY COMPANY	
DATE	10/1/88	
BY	AGAVE ENERGY COMPANY	



Miles

MAP A-2



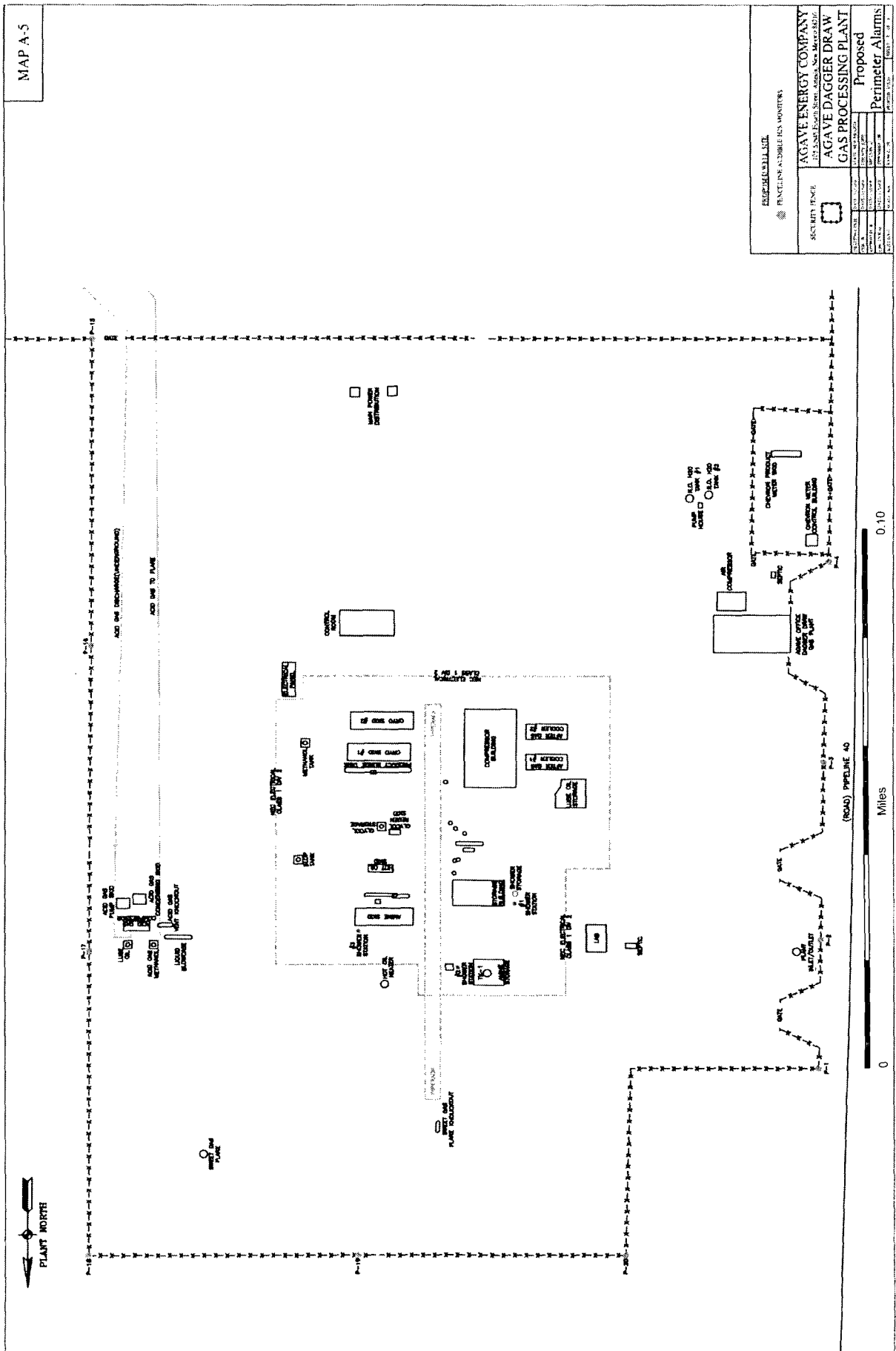
AGAVE ENERGY COMPANY	
AGAVE DANGER DRAW	
GAS PROCESSING PLANT	
Alarms & Monitors	
Alarm	Monitor
1. AGAVE ENERGY COMPANY	1. AGAVE ENERGY COMPANY
2. AGAVE DANGER DRAW	2. AGAVE DANGER DRAW
3. AGAVE GAS PROCESSING PLANT	3. AGAVE GAS PROCESSING PLANT
4. AGAVE ALARMS & MONITORS	4. AGAVE ALARMS & MONITORS
5. AGAVE GAS INLET	5. AGAVE GAS INLET
6. AGAVE GAS OUTLET	6. AGAVE GAS OUTLET
7. AGAVE GAS PURIFICATION	7. AGAVE GAS PURIFICATION
8. AGAVE GAS DRYING	8. AGAVE GAS DRYING
9. AGAVE GAS HEATING	9. AGAVE GAS HEATING
10. AGAVE GAS COOLING	10. AGAVE GAS COOLING
11. AGAVE GAS SEPARATION	11. AGAVE GAS SEPARATION
12. AGAVE GAS STORAGE	12. AGAVE GAS STORAGE
13. AGAVE GAS TREATMENT	13. AGAVE GAS TREATMENT
14. AGAVE GAS PURIFICATION	14. AGAVE GAS PURIFICATION
15. AGAVE GAS DRYING	15. AGAVE GAS DRYING
16. AGAVE GAS HEATING	16. AGAVE GAS HEATING
17. AGAVE GAS COOLING	17. AGAVE GAS COOLING
18. AGAVE GAS SEPARATION	18. AGAVE GAS SEPARATION
19. AGAVE GAS STORAGE	19. AGAVE GAS STORAGE
20. AGAVE GAS TREATMENT	20. AGAVE GAS TREATMENT



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[illegible]



PROPERTY OF THE

FLUORESCENCE AND DIALYSIS MONITORS

SECURITY FENCE	AGAVE ENERGY COMPANY 175 S. 54th Street, Ames, Iowa 50010 AGAVE DAGGER DRAW GAS PROCESSING PLANT
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[illegible]

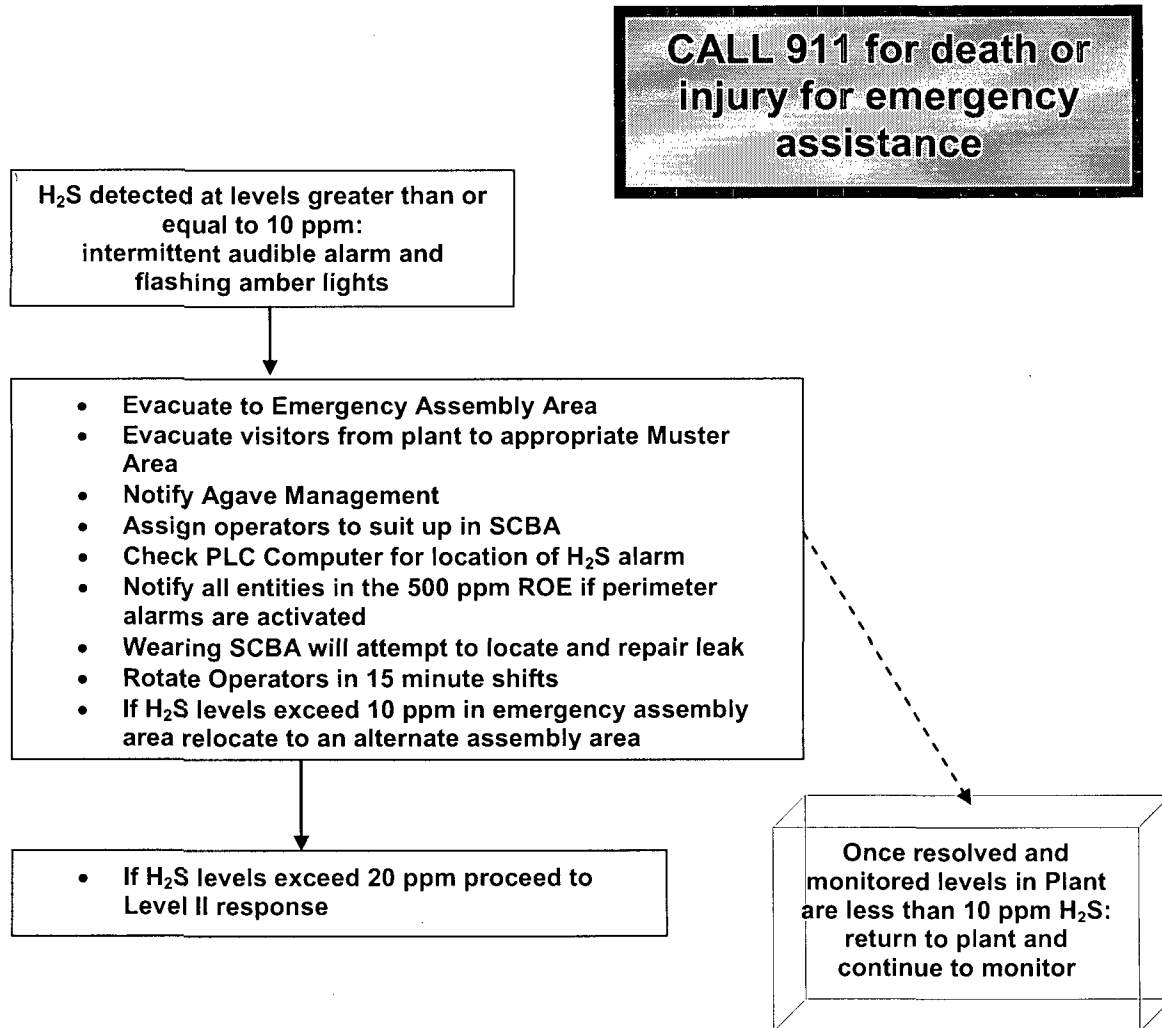
0.10

Miles

6

APPENDIX B – Response Flow Diagrams

LEVEL I RESPONSE



LEVEL II RESPONSE

CALL 911 for death or injury for emergency assistance

H₂S detected greater than or equal to 20 ppm: intermittent audible alarm and flashing red lights

- Put on Emergency Respirators
- Evacuate to Emergency Assembly Area
- Evacuate visitors from plant to designated Muster Area
- Assign operators to suit up in SCBA
- Check Plant Control System for location of H₂S alarm
- Notify all entities in the 500 ppm ROE if perimeter alarms are activated
- Notify residents 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
- Wearing SCBA attempt to locate and repair leak
- Rotate Operators in 15 minute shifts
- Re-entry will occur for 45 minutes or until the IC determines the ESD must be activated
- Notify LEPC
- If H₂S levels exceed 10 ppm in emergency assembly area relocate to an alternate Muster Area

- If H₂S levels exceed 20 ppm and repair efforts are unsuccessful, worst case scenario and/or catastrophic release have 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 greater than 20 ppm:
intermittent audible alarm and
flashing red lights
repair efforts are unsuccessful, worst
case scenario and/or catastrophic
release have occurred

H₂S detected greater than 50 ppm:
plant will automatically go in to ESD. IC
determines to proceed with Level III or
Level II after ESD

- Set up road blocks on Kincaid and Pipeline Roads near the muster areas
- Confirm all personnel have evacuated the 500 ppm ROE
- Instruct all personnel in the 100 ppm ROE to evacuate to Muster Area 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 in Muster Area 2 or other location as the situation permits
- Submit agency reports as required

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

APPENDIX C - Radius of Exposure Calculations

Map C-1 Radius of Exposure

APPENDIX C-RADIUS OF EXPOSURE CALCULATIONS

The basis for worst case scenario calculations is as follows:

- The hydrogen sulfide content of the inlet natural gas stream into the Agave Dagger Draw Gas Plant is variable, ranging upwards to 7,600 parts per million (ppm) or 0.76 mole percent. In reality, the actual H₂S concentration that the plant processes will be much less than this.
- The inlet gas H₂S concentration of 0.76 mole percent was determined using a mass-balance approach, an analysis of 60.8 mole percent H₂S in the acid gas stream and a maximum acid gas flow rate of 0.5 MMSCFD. It is assumed that the amine system removes 100% of the H₂S from the inlet gas.

The plant has a maximum daily (24 hour) processing volume of 40 MMSCF.

- The worst case scenario radius of exposure (ROE) also assumes an uncontrolled instantaneous release from the area around either the Metropolis #1 Well, the amine still at the facility and at any point along the pipeline connecting the two of the above referenced volume and concentration. 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/calculations provided here.

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

The formulas for calculating the two radius of exposure (ROE) are as follows:

100 ppm Radius of Exposure 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)

ROE Inside the Plant

The escape rate (Q) is the maximum daily rate of the gaseous mixture produced or handled or the best estimate thereof. For releases inside the Agave Dagger Draw Gas Plant, the Company is using for contingency planning purposes an "escape rate" equal to the maximum inlet gas volume of 40,000 MCFD. The (actual) inlet gas volume at the Plant will be somewhat variable and is continuously metered. The Plant records daily inlet gas volumes and prepares a daily volume report. The assumed 40,000 MCFD inlet gas volume has been selected as the "escape rate" because it is the highest anticipated inlet volume that the Plant would handle under its proposed operations and is considered worst case interpretation of the volume of gas.

It should be noted that the plan will remain effective as long as the processed volume and H₂S content equate to the same or smaller ROE.

Previous monitoring data indicated variable inlet concentrations of hydrogen sulfide, but concentration will not exceed 7,600 ppm or .76 mole percent. Therefore, 7,600 ppm or .76 mole percent has been used in the worst case scenario operations for contingency planning purposes.

Using:

Q = 40,000,000

H₂S conc = 7,600 ppm or .76 mole%

500-ppm RADIUS OF EXPOSURE CALCULATION

$$X = [(0.4546) * (\text{H}_2\text{S concentration}) * (\text{gas volume (Q)})]^{0.6258}$$

$$X = [(0.4546) * (7,600 * .000001) * (40,000,000)]^{0.6258}$$

X = 1648 feet = 500-ppm ROE

100-ppm RADIUS OF EXPOSURE CALCULATION

$$X = [(1.589) * (\text{H}_2\text{S concentration}) * (\text{gas volume})]^{0.6258}$$

$$X = [(1.589) * (7,600 * .000001) * (40,000,000)]^{0.6258}$$

X = 3606 feet = 100-ppm ROE

ROE Along the Pipeline and At the Injection Well

The escape rate (Q) is the best estimate of the maximum daily flow rate of the acid gas. For releases inside the Agave Dagger Draw Gas Plant, the Company is using for contingency planning purposes an "escape rate" equal to the 500 MCFD. The assumed 500 MCFD acid gas volume has been selected as the "escape rate" because it is the highest anticipated gas volume that the Plant would handle under its proposed operations and is considered the worst case interpretation of the volume of gas.

It should be noted that the plan will remain effective as long as the processed volume and H₂S content equate to the same or smaller ROE.

Previous monitoring data indicated variable inlet concentrations of hydrogen sulfide, but concentration will not exceed 608,000 ppm or 60.8 mole% at the inlet. Therefore, 608,000 ppm or 60.8 mole percent has been used in the worst case scenario operations for contingency planning purposes. Again, Agave does not measure the H₂S concentration in the acid gas stream; rather the concentration is calculated based on the inlet conditions.

Using:

Q = 500,000

H₂S conc = 608,000 ppm or 60.8 mole%

500-ppm RADIUS OF EXPOSURE CALCULATION

$$X = [(0.4546) * (\text{H}_2\text{S concentration}) * (\text{gas volume (Q)})]^{0.6258}$$

$$X = [(0.4546) * (608,000 * .000001) * (500,000)]^{0.6258}$$

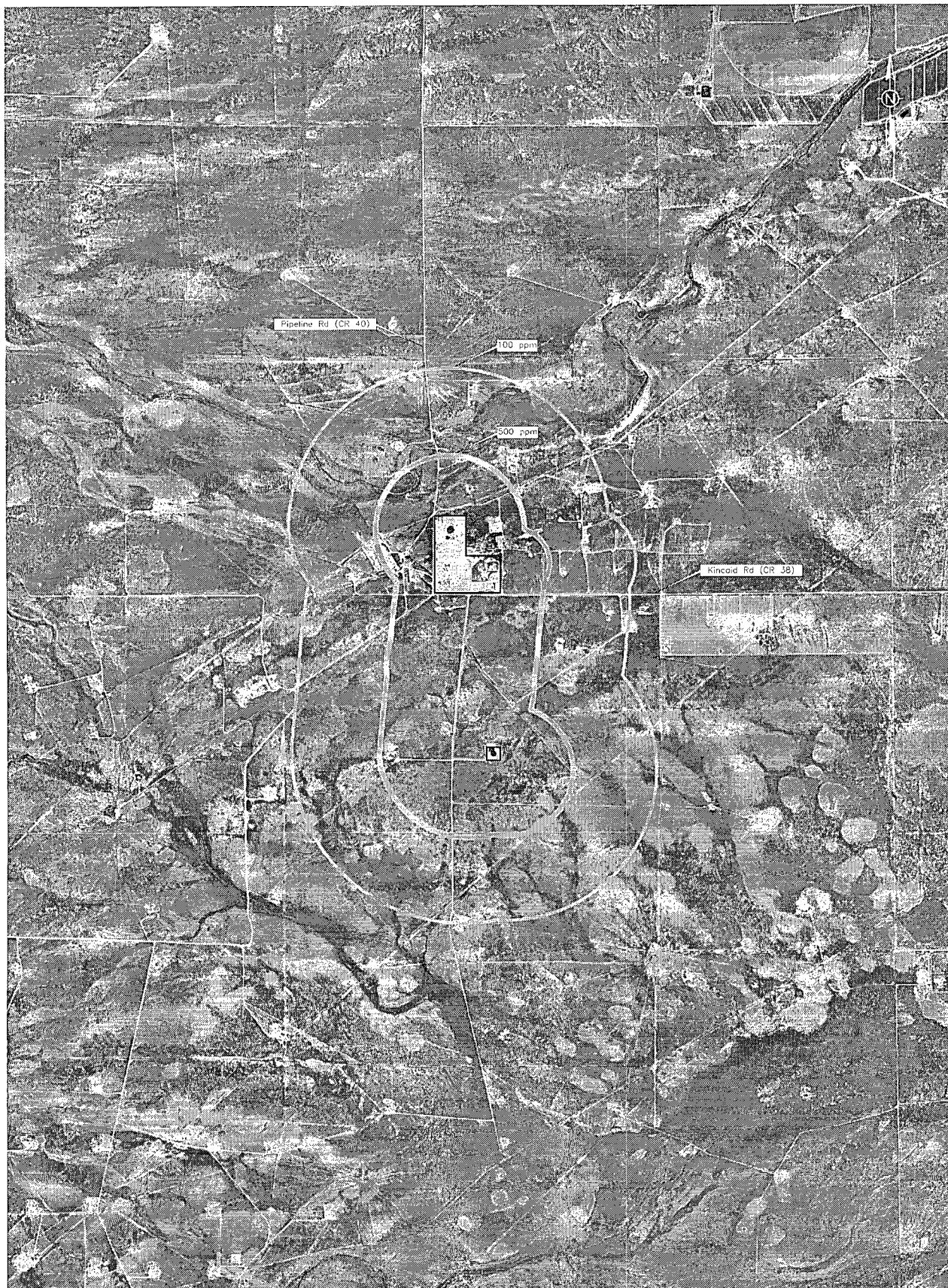
X = 1648 feet = 500-ppm ROE

100-ppm RADIUS OF EXPOSURE CALCULATION

$$X = [(1.589) * (\text{H}_2\text{S concentration}) * (\text{gas volume})]^{0.6258}$$

$$X = [(1.589) * (608,000 * .000001) * (500,000)]^{0.6258}$$

X = 3606 feet = 100-ppm ROE



2000' 1000' 0' 2000'

- 1648 Ft (500 ppm)
- 3606 Ft (100 ppm)
- AMINE STILL
- METROPOLIS WELL HEAD
- ACID GAS PIPELINE

MAP C-1

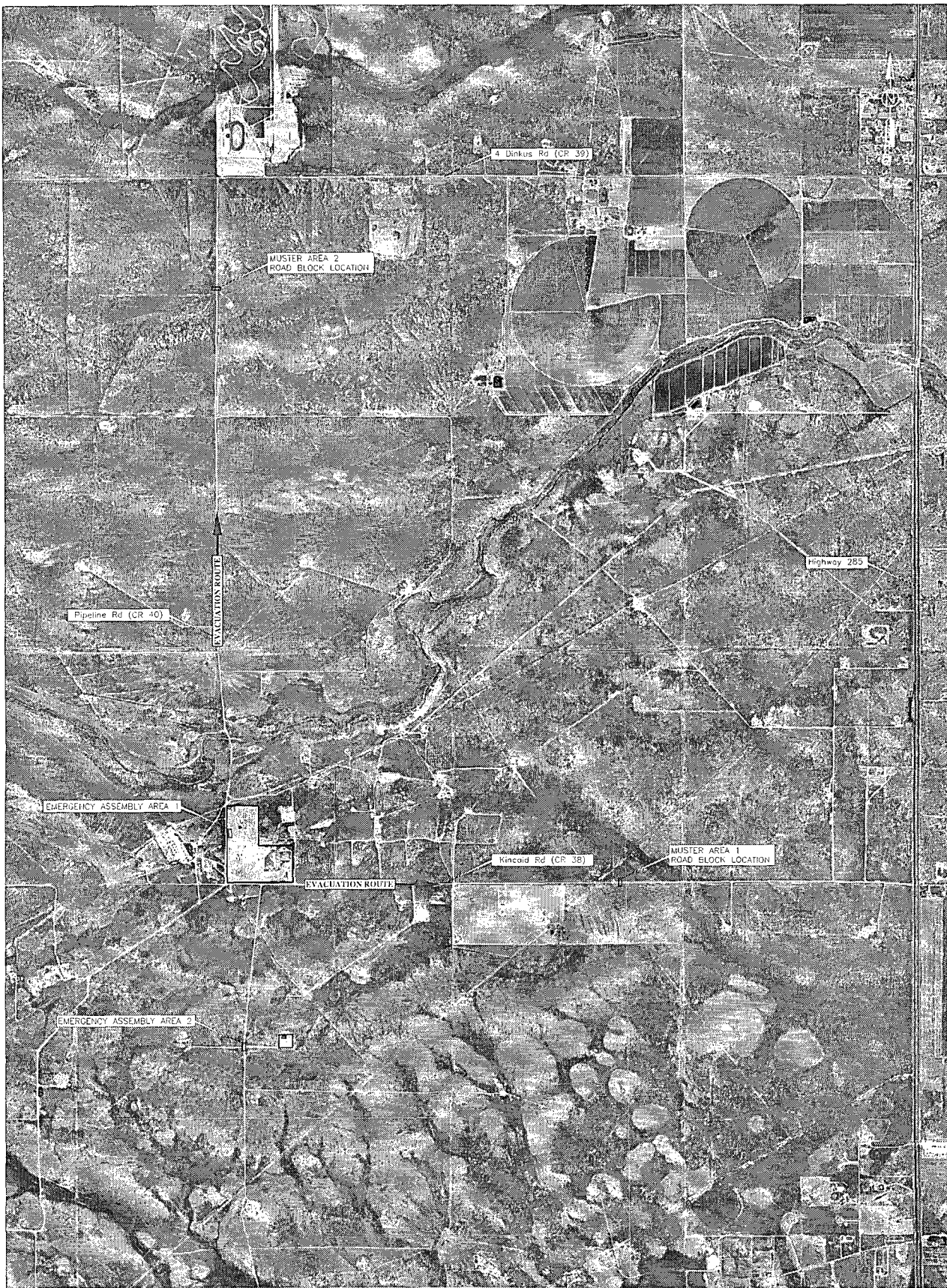


AGAVE ENERGY COMPANY 105 South Fourth Street, Artesia New Mexico 88210			
AGAVE DAGGER GAS DRAW PLANT HYDROGEN SULFIDE CONTINGENCY PLAN AMINE STILL RADIUS OF EXPOSURE			
DRAWING: JWH	PRINTED: 11/29/10	SHEET: 8	REV: 0
CHECK: JH	DATE: 11/29/10	SCALE: 1"=2000'	
APPROVED: JH	DATE: 11/29/10	SHEET: 1	of 1

APPENDIX D – Muster Areas, Evacuation Routes

Map D-1: Evacuation Routes to Muster Areas

Map D-2: Atoka Facility– Safety Trailer Location

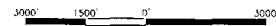
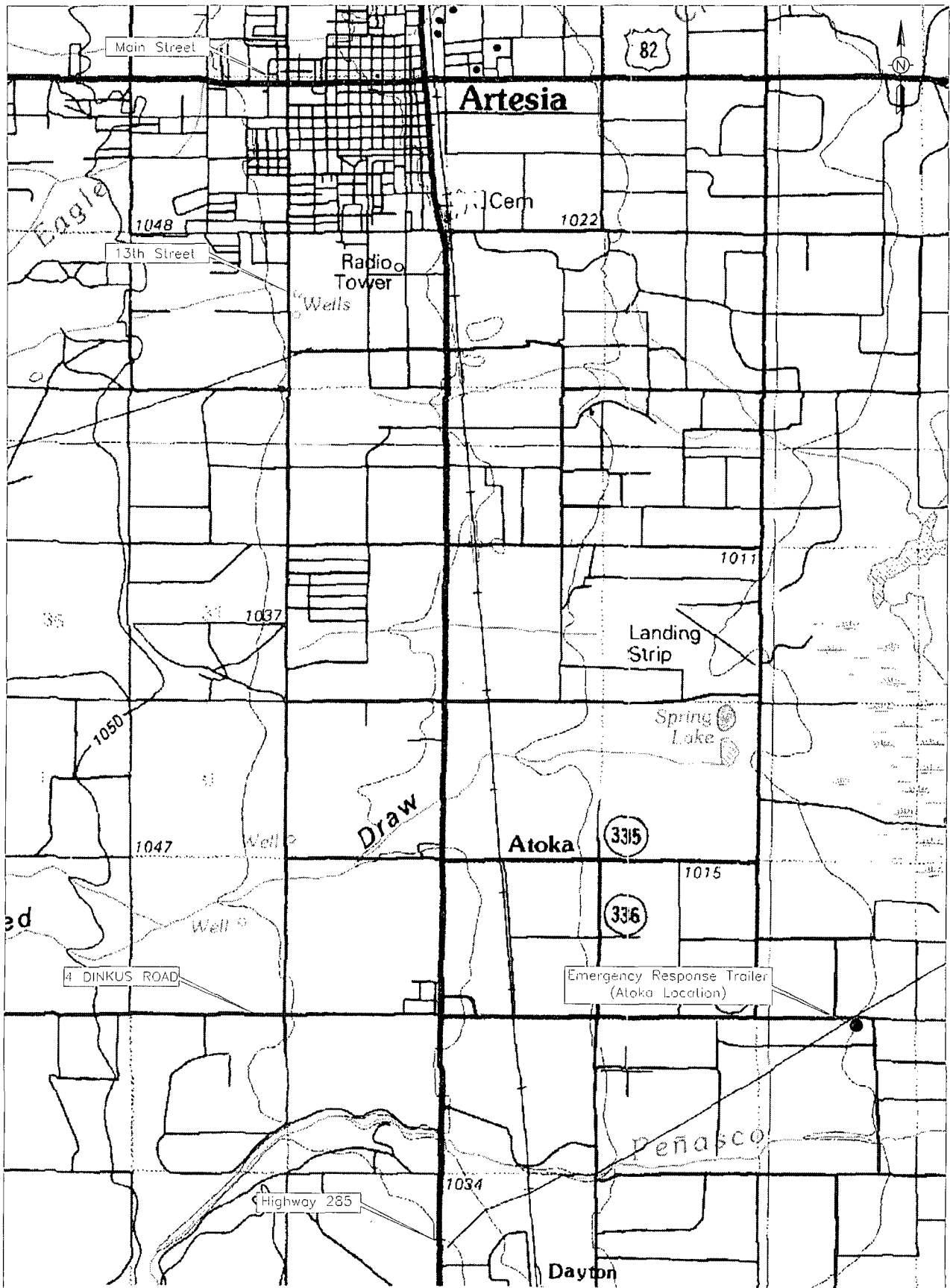


MAP D-1

AGAVE ENERGY COMPANY
 105 South Fourth Street, Artesia New Mexico 88210

**AGAVE DAGGER GAS DRAW PLANT
 HYDROGEN SULFIDE CONTINGENCY PLAN
 EVACUATION ROUTES**

CHARTING: EWI	PRINTED: 11/29/10	SHEET: 1 OF 1	REV: 0
DATE: 11/29/10	SCALE: 1"=2000'		
APPROVED: JF	DATE: 11/29/10		



MAP D-2



AGAVE ENERGY COMPANY			
105 South Fourth Street, Artesia New Mexico 88210			
AGAVE DAGGER GAS DRAW PLANT			
HYDROGEN SULFIDE CONTINGENCY PLAN			
EMERGENCY TRAILER LOCATION			
DRAFTING: BFW	REVIEWED: 11/29/10	SHEET: A150 II	REV: 0
CHK: JS	DATE: 11/29/10	SCALE: 1" = 1'	
APPROVED: JF	DATE: 11/29/10	SHEET: 1 of 1	

APPENDIX E – H₂S Contingency Plan Distribution List

APPENDIX E – H₂S Contingency Plan Distribution List

New Mexico Oil Conservation Division

1301 West Grand Avenue
Artesia, NM 88210-1729

New Mexico Department of Public Safety

4207 W 2nd Street
Roswell, NM 88201-8857

Local Emergency Planning Committee

324 S Canyon Street, Suite B
Carlsbad, NM 88210

Artesia Fire Department

309 North 7th Street
Artesia, NM 88210-1913

Atoka Fire Department

2611 South 13th Street
Artesia, NM 88210-9333

Eddy County Sheriff's Department

Eddy County Courthouse
102 N. Canal
Carlsbad, NM 88220

Dagger Draw Plant

278 Pipeline Road
Artesia, NM 88210

Agave Main Office

105 South 4th Street
Artesia, NM 88210