

**H2S – 063**

**H2S Contingency  
Plan**

**2016**

## Chavez, Carl J, EMNRD

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**From:** Chavez, Carl J, EMNRD  
**Sent:** Friday, February 24, 2017 7:27 AM  
**To:** 'jwg@geolex.com'  
**Cc:** 'Alberto A. Gutierrez'; Jared Smith {Geolex}; Griswold, Jim, EMNRD; Brown, Maxey G, EMNRD  
**Subject:** RE: DCP Midstream, LP (H2S-063) "Zia Gas Plant H2S Contingency Plan-Revised" (July 2016) Sec. 19 T19S R32E Lea County, New Mexico

Julie, et al.:

Thank you for the update.

Mr. Carl J. Chavez, CHMM (#13099)  
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Energy Minerals and Natural Resources Department  
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E-mail: [CarlJ.Chavez@state.nm.us](mailto:CarlJ.Chavez@state.nm.us)

**“Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?” (To see how, go to: <http://www.emnrd.state.nm.us/OCD> and see “Publications”)**

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**From:** Julie W. Gutierrez [mailto:jwg@geolex.com]  
**Sent:** Thursday, February 23, 2017 10:07 PM  
**To:** Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>  
**Cc:** 'Alberto A. Gutierrez' <aag@geolex.com>; Jared Smith {Geolex} <jsmith@geolex.com>  
**Subject:** DCP Midstream, LP (H2S-063) "Zia Gas Plant H2S Contingency Plan-Revised" (July 2016) Sec. 19 T19S R32E Lea County, New Mexico

Hi Carl,

I am writing to update you concerning the status of the new AGI well (Zia AGI D #2) at the DCP Zia Gas Plant. The approved H2S was prepared in anticipation of the installation of a second AGI well at the plant. That second AGI well has been drilled, completed, and was brought into service as of February 2, 2017. The well is functioning as anticipated with no problems.

The final surface location of the well is: Section 19 T19S-R32E, 1,893' FSL and 950' FWL. The approved H2S Plan identified the proposed surface location of the well as: Section 19 T19S-R32E, 1900' FSL, and 950' FWL (within 17' of the projected location).

The well was drilled to a TD of 14,750' , and acid gas is being injected into the Siluro-Devonian formation, as the approved H2S plan anticipated.

All other parameters of both wells remain the same as described in the Revised H2S plan approved on July 22, 2016, including injection volume, H2S concentration and, thus, ROE calculations.

Please let me know if you have any questions.

Julie

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Energy, Minerals and Natural Resources Department

**Susana Martinez**  
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Cabinet Secretary

**Tony Delfin**  
Deputy Cabinet Secretary

**David R. Catanach, Division Director**  
Oil Conservation Division



**JULY 22, 2016**

Julie W. Gutiérrez  
**Geolex, Inc®**  
500 Marquette Avenue, NW Suite 1350  
Albuquerque, NM 87102

**Re: DCP Midstream, L.P. (H2S-063): "Zia II Gas Plant H2S Contingency Plan- Revised" (July 2016) Sec. 19**  
**TI9S R32E Lea County, New Mexico**

Dear Mrs. Gutiérrez,

The Oil Conservation Division (OCD) is in receipt of DCP Midstream Services, L.P.'s "Zia Gas Plant and Acid Gas Injection (AGI) Facility H2S Contingency Plan" (plan) dated July 2016.

OCD has completed its review of the plan and finds that it appears to meet the intent of the OCD Hydrogen Sulfide Gas Regulations (19.15.11 NMAC). Therefore, OCD hereby accepts the plan for record.

*Please be advised that OCD approval of this plan does not relieve DCP Midstream, L.P. of responsibility should its operations fail to adequately detect, investigate, and/or undertake corrective actions to prevent or stop a hydrogen sulfide release(s) that may pose a threat to groundwater, surface water, human health, public safety or the environment. In addition, OCD approval does not relieve DCP Midstream, L.P. of responsibility for compliance with any other federal, state, or local laws and/or regulations.*

If you have any questions, please contact Carl Chavez of my staff at (505) 476-3490, the mail at the address below, or email at [CarlJ.Chavez@state.nm.us](mailto:CarlJ.Chavez@state.nm.us). Thank you.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Griswold".

Jim Griswold  
Environmental Bureau Chief

JG/cjc

cc: OCD Hobbs District Office

## Chavez, Carl J, EMNRD

---

**From:** Julie W. Gutierrez <jwg@geolex.com>  
**Sent:** Friday, July 15, 2016 4:40 PM  
**To:** Chavez, Carl J, EMNRD  
**Subject:** Revision of Zia II Gas Plant H2S Contingency Plan  
**Attachments:** Zia II Gas Plant H2S CP Revisions.pdf; Zia H2S Contingency Plan Revised July 2016.pdf; OCD Approval Letter Zia II Gas Plant 6-26-2015 (2).pdf

Dear Carl,

Per our telephone conversation, I am submitting a revision of the H2S Contingency Plan for the Zia II Gas Plant which was approved by OCD on June 26, 2015. The reason for the revision is that the depth of the injection zone and the specifications for AGI #2 have changed. Nothing else relative to the H2S Contingency Plan has changed—surface location of wells and processing facilities, volume of gas processed, concentration of H2S, ROE, etc.—remain the same. I am attaching several files:

- 1) A PDF that shows only the revisions to the plan. The revisions to the text have been done in red-line format so that you can readily identify any changes. The changed pages are as follows:
  - Cover Page: Date changed and revision noted
  - Page iii: Table of Contents (Figure 5b has been added)
  - Page 13: Red-line revisions to the text are shown to reflect the redesign of AGI #2. These are the only revisions to the text of the plan.
  - Figure 5a: This is an updated figure and replaces what was Figure 5 in the old plan—it shows the design schematic of AGI #1
  - Figure 5b: This is a new figure that shows the revised design schematic of AGI #2
  - Figure 6: This is a revised figure to show AGI #1 and the revised AGI#2 together
- 2) A PDF of the entire revised plan with all changes above incorporated.
- 3) A copy of the OCD approval of the initial plan for this facility, dated June 25, 2015.

A C-108 has been submitted relative to the changes in the design of AGI #2, and a hearing is scheduled for August 25<sup>th</sup>. Hopefully, these revisions to the H2S Plan can be approved prior to that hearing.

As always, let me know if you have questions.

Best regards,

Julie

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# **H<sub>2</sub>S Contingency Plan**

## **Zia II Gas Plant**

**DCP Midstream, LP**

REVISED

**July 2016**

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## Location of Plant

### ZIA II GAS PLANT

DCP Midstream, LP (DCP) has constructed a new gas processing plant in southeastern New Mexico. In addition to processing gas, DCP will also operate two acid gas injection (AGI) and CO<sub>2</sub> sequestration wells at the gas plant which is located in Section 19, Township 19S, Range 32E in Lea County, New Mexico, approximately 35 miles west of Hobbs (Figure 1). The Plant and AGI wells are located on land leased from the Federal Bureau of Land Management (BLM) by DCP.

Physical/Mailing Address:

89 Lusk Road  
Lovington, NM 88260

Driving Directions from Hobbs, New Mexico to the Plant:

Take Highway 62-180 west out of Hobbs, New Mexico for approximately 34 miles to State Road 243 – turn right (north) onto Road 243. Continue on State Road 243 approximately 4.5 miles to CR 126a – Maljamar Road. Turn right (north) onto CR 126a and proceed 5.5 miles to CR 126/248 – Lusk Road; turn left onto 126/248. Continue on 126/248 approximately 1 mile to the first Lease Road on the left (south). Turn left and continue south on the Lease Road for approximately ¼ mile. Plant site will be on the left (east) side of the road.

Coordinates for Plant:

Latitude: 32.643  
Longitude: -103.809

### ACID GAS INJECTION WELLS

The Zia II AGI Wells (Zia AGI Wells #1 and #2) are located on the northwest corner of the Plant (see Figure 1b)

Surface Locations are:

**AGI #1:** 2100' FSL, 950' FWL Section 19, T19S, R32 E  
Latitude: 32.64459881, Longitude: -103.8111449 (API # 30-025-42208)

**AGI #2:** 1900' FSL, 950' FWL, Section 19, T19S, R32E  
Latitude 32.64403555, Longitude: -103.8111449 (API # 30-025-42207)

## GLOSSARY OF ACRONYMS UTILIZED IN THE PLAN

<b>ACGIH</b>	American Conference of Governmental Industrial Hygienists
<b>AGI</b>	Acid Gas Injection
<b>ANSI</b>	American National Standards Institute
<b>API</b>	American Petroleum Institute
<b>CO<sub>2</sub></b>	Carbon Dioxide
<b>DCS</b>	Distributed Control System
<b>DOT</b>	Department of Transportation
<b>ERO</b>	Emergency Response Officer
<b>ESD</b>	Emergency Shut-Down
<b>H<sub>2</sub>S</b>	Hydrogen Sulfide
<b>IC</b>	Incident Commander
<b>ICS</b>	Incident Command System
<b>ICC</b>	Incident Command Center
<b>IDLH</b>	Immediately Dangerous to Life or Health
<b>LEL</b>	Lower Explosive Limit
<b>LEPC</b>	Local Emergency Planning Committee
<b>MSDS</b>	Materials Safety Data Sheets
<b>NACE</b>	National Association of Corrosive Engineers
<b>NCP</b>	National Contingency Plan
<b>NIIMS</b>	National Interagency Incident Management System
<b>NIOSH</b>	National Institute for Occupational Safety and Health
<b>NGL</b>	Natural Gas Liquid
<b>NMAC</b>	New Mexico Administrative Code
<b>NMED</b>	New Mexico Environment Department
<b>NMOCC</b>	New Mexico Oil Conservation Commission
<b> OCD</b>	Oil Conservation Division
<b>OSHA</b>	Occupational Safety and Health Administration
<b>PLC</b>	Programmable Logic Controller
<b>PPE</b>	Personal Protective Equipment
<b>PPM</b>	Parts Per Million
<b>ROE</b>	Radius of Exposure
<b>SCBA</b>	Self-Contained Breathing Apparatus
<b>SERC</b>	State Emergency Response Commission
<b>SO<sub>2</sub></b>	Sulfur Dioxide
<b>STEL</b>	Short Term Exposure Limit
<b>TLV</b>	Threshold Limit Value
<b>TWA</b>	Time Weighted Average

## **I. INTRODUCTION [NMAC 19.15.11 et. seq.][API RP-55 7.1 RP-49, RP-68]**

DCP Midstream has just constructed the new Zia II Plant in order to process natural gas that will be coming into the plant from various gathering systems in the area. The Zia II Gas Plant (hereinafter the "Plant") is a natural gas processing plant which processes field gas containing hydrogen sulfide (H<sub>2</sub>S) and handles and/or generates sulfur dioxide (SO<sub>2</sub>). The Zia II Plant has two associated Acid Gas Injection wells (Zia II AGI #1 and Zia II AGI #2) which will be utilizing for disposal of H<sub>2</sub>S. Thus, this Hydrogen Sulfide Contingency Plan (the "H<sub>2</sub>S Plan" or "the Plan") is being submitted to document procedures that are to be followed in the event of an H<sub>2</sub>S release that occurs at any location on the Plant or at the AGI Processing area where AGI #1 or #2 are located.

This plan complies with **New Mexico Oil Conservation Division (OCD) Rule 11**(§ 19.15.11 et. seq. NMAC). The plan and operation of the DCP Zia Plant conform to standards set forth in **API RP-55 "Recommended Practice for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide" as well as API RP 49 "Recommended Practice for Drilling and Well Servicing Operations Involving Hydrogen Sulfide" and API RP 68 "Oil and Gas Well Servicing and Workover Operations involving Hydrogen Sulfide", and applicable NACE standards for sour gas service and current best management practices.** The Plant does not have any storage tanks in which H<sub>2</sub>S 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. Drilling and completion of the Zia II Plant AGI Wells was done in compliance with NMAC 19.15.11.11. The terms used in this Plan are used as defined in Title 19 Chapter 15 Part 11 of the New Mexico Administrative code (19.15.11.7-Definitions) unless otherwise defined herein. Safety precautions in the event of a release could include placement of road blocks, evacuation along designated routes or instructions to shelter-in-place. When the term "shelter-in-place" is used in this Plan, it means that individuals should go inside homes, businesses, etc., turn off heating and air conditioning systems, close windows and doors and put towels or tape around doors and/or windows that are not sealed and wait for further instruction.

## **II. SCOPE [API RP-55 7.2]**

This Plan is specific to the Zia II Gas Processing Plant and AGI Wells. It contains procedures to provide an organized response to an unplanned release of H<sub>2</sub>S from the Plant or the AGI Wells contained within 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<sub>2</sub>S Contingency Plan has been prepared to minimize the hazard resulting from an H<sub>2</sub>S 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<sub>2</sub>S release. All operations shall be performed with safety as the primary goal. The primary concern of the Zia II Gas Plant, during an H<sub>2</sub>S 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. In the event of a release, any part of the Plant 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 can be 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 an H<sub>2</sub>S release, not only Zia II personnel are involved, but local Fire Departments, Law Enforcement, BLM, County and even State of New Mexico agencies may be interested parties. Cooperation will expedite all decisions. In any emergency situation

involving a H<sub>2</sub>S 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 and facilitate a well-coordinated response by all involved personnel to the emergency situation.

### **III. PLAN AVAILABILITY [API RP-55 7.3]**

The H<sub>2</sub>S Plan shall be available to all personnel responsible for implementation, regardless of their normal location assignment. A copy of the Plan will be maintained at the Zia II Plant Control Room, in the Plant Supervisor's office at the plant, in the Asset Manager's office at the Hobbs office, and at the Permian Region Safety Manager's office in Midland, Texas. See Appendix E for the H<sub>2</sub>S Plan Distribution List, which lists all the additional entities that will be provided a copy of the H<sub>2</sub>S Plan.

### **IV. EMERGENCY PROCEDURES [NMAC 19.15.11.9.B(2)(a)] [API RP-55 7.4 a] [29 CFR 1910.1200]**

#### **RESPONSIBILITIES AND DUTIES OF PERSONNEL DURING AN EMERGENCY**

It is the responsibility of all personnel on-site to follow the safety and emergency procedures outlined in this H<sub>2</sub>S Contingency Plan as well as the following documents:

- DCP Midstream Safe Work Practices
- DCP Midstream Zia II Plant Emergency Response Plan, Groundwater Discharge Plan, and Oil Spill Contingency Plan; and
- DCP Midstream Environmental Policies and Programs.

The Plant uses the Incident Command System (ICS) for emergency response (see Figure 7 for a diagram of the DCP command structure). The ICS structure used is based on the National Interagency Incident Management System (NIIMS), and is consistent with the National Contingency Plan (NCP). All Plant employees shall be prepared to respond to an H<sub>2</sub>S emergency at the Plant and the AGI Wells. In the event of an accidental release that results in the activation of the H<sub>2</sub>S Plan all personnel will have been evacuated out of the affected area, and the Plant Supervisor, or designee, will be the on-scene Incident Commander (IC in this Plan). The IC will contact and coordinate with DCP Midstream's management.

The Plant Supervisor or his designee shall determine:

- 1) Plant Shutdowns
- 2) Isolation of pipeline segments
- 3) Repairs, tests or restarts as required

If an emergency occurs, the Plant Supervisor, or designee, shall be notified first, and that individual shall notify the Southeast New Mexico Asset Director who will notify the Regional Operations Vice President; the Regional Operations Vice President shall contact the Permian Business Unit President to activate the DCP Midstream Crisis Management Plan. If any person in this chain of command is unavailable, the DCP Midstream employee shall elevate the communication to the next level. The intention of this process is to allow the IC to make one phone call and then be able to focus on the incident response.

### **Site Security [NMAC 19.15.11.12.B]**

In order to have an accurate listing of all personnel on-site in the event of an emergency, a daily sign-in log sheet shall be utilized. The sign-in log sheet shall include at a minimum the person's name, the company name, the time of arrival, and the time of departure. All personnel are required to sign in at the Plant Office/Control Room. The Incident Commander shall be responsible for assuring that all personnel sign-in upon arrival and sign-out upon departure from the job site. The Incident Commander may, at his discretion, assign the responsibilities for the daily sign-in log sheet to the individual designated as the Record Keeper or another designee. At the discretion of the Incident Commander, a security coordinator and/or a security team may be established, and the access to the job site restricted. In compliance with 19.15.11.12.B NMAC the Plant and AGI Wells are contained within a secure fenced area with locking gates.

### **Discovery and Internal Reporting**

All personnel, including contractors who perform operations, maintenance and/or repair work in sour gas areas within the Plant wear personal H<sub>2</sub>S monitoring devices to assist them in detecting the presence of unsafe levels of H<sub>2</sub>S. When any person, while performing such work, discovers a leak or emission release they are to attempt to resolve the issue as long as H<sub>2</sub>S levels remain below 10 ppm. The personal monitoring devices they wear will give off an audible alarm at 10 ppm. If the response action needed to resolve the issue is more than simply closing a valve or stopping a small leak, the personnel who have discovered the leak shall notify the Plant Supervisor or his designee, initiate and maintain a Chronologic Record of Events Log (See Appendix F) which records the time, date and summary of events, and convey, at a minimum, the following information:

- Name, telephone number, and location of person reporting the situation
- Type and severity of the emergency
- Location of the emergency and the distance to surrounding equipment and/or structures
- The cause of the spill or leak, name and quantity of material released, and extent of the affected area including the degree of environmental hazard
- Description of injuries and report of damage to property and structures

If any person detects H<sub>2</sub>S levels of 10 ppm or greater, either as a result of an alarm from their personal monitoring device or one of the plant fixed monitors, they will immediately report this to the Control Room Operator who will contact the Plant Supervisor for assistance, and the responding Operator will put on the 30-minute Self Contained Breathing Apparatus (SCBA). All non-essential persons shall be notified of the release and evacuated from the area. The responding Operator, wearing the SCBA, will first help any persons requiring assistance during the evacuation, then attempt to resolve the issue. The Control Room Operator is responsible for notifying the Plant Supervisor or his designee so that the H<sub>2</sub>S Contingency Plan can be activated, if necessary.

Once the Plant Supervisor/IC is contacted, he or his designee is to contact the appropriate DCP management and Plant emergency response personnel and notify them of the existing situation. Local emergency response providers will also be contacted as deemed necessary by the IC. If necessary, the Control Room Operator will then conduct the notifications of federal and state regulatory agencies including the BLM Field Office in Carlsbad, the NMOCD District Office and emergency response agencies listed in Appendix C. DCP operations personnel are to advise any contractor and all others on-site or attempting to enter the Plant that the H<sub>2</sub>S Plan has been activated.

## **IMMEDIATE ACTION PLAN**

Immediate Action Plans outlining procedures and decision processes to be used in the event of an H<sub>2</sub>S release are contained in Appendix A. These procedures and decision processes have been designed to ensure a coordinated, efficient and immediate action plan for alerting and protecting operating personnel and the public as well as to prevent or minimize environmental hazards and damage to property. Emergency response actions may be taken for a variety of situations that may occur. The Plan is activated in progressive levels (Levels 1, 2 and 3), based on the concentration and duration of the H<sub>2</sub>S release. Response Flow Diagrams illustrating these Immediate Action Plans are contained in Appendix B.

**Zia II Plant Operators are authorized to elevate the level of response based on observed conditions if they feel a lower level response may not be effective in protecting personnel, the public, or the environment.** 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.

## **TELEPHONE NUMBERS, COMMUNICATION METHODS AND MEDIA SITE**

### **Telephone Numbers and Communication Methods**

In the event of activation of the Plan, emergency responders, public agencies, local government, BLM and other appropriate public authorities must be contacted. Telephone contact information for those entities is included in Appendix C.

### **Media Site**

If a Level 2 Response occurs, the Media Site will be located adjacent to Emergency Assembly Area 2 (see Figure 4). If a Level 3 Response occurs, the Media Site will be located adjacent to Emergency Assembly Area 3 (see Figure 4). The IC will designate a Media Site adjacent to the Emergency Assembly Area. The IC will also designate an individual to assume the duties of Media Liaison Officer. Under no circumstances will media personnel be allowed inside the warm or hot zone (road blocked area). Media personnel will only be allowed inside the road blocked area once the area has been monitored and restored to a cold zone (less than 10 ppm H<sub>2</sub>S) and the IC has approved their entry. Media personnel shall not be allowed to enter DCP Midstream property without the approval of the DCP Midstream Asset Manager or his designee, and shall be escorted by DCP Midstream personnel at all times.

## **LOCATION OF NEARBY RESIDENCES, ROADS AND MEDICAL FACILITIES**

Public awareness and communication is a primary function of this Plan. DCP has compiled a list of various public, private, federal, state, and local contacts that are to be notified at various phases during the activation of the Plan. The Level 1, 2 and 3 Immediate Action Plans and the Response Flow diagrams contained in Appendices A and B indicate when certain entities are to be contacted in event of activation of this Plan. There are no businesses, residences, medical facilities or other public places located within the 500 or 100 ppm ROE of the Plant; only producers are located within the ROE. Appendix C contains a listing of all producers with wells within the 500 ppm and 100 ppm ROE who will be contacted in the event of activation of the H<sub>2</sub>S Plan. DCP will inform all state and local response organizations if the H<sub>2</sub>S Plan is activated; contact information for them is also contained in Appendix C. All entities contacted will be advised of the following:

- The nature and extent of the release/emergency at the Plant and recommendations for protective actions, such as evacuation or shelter-in-place.
- Any other event-specific information that is necessary to protect the public.

- Updated status of the release and continued safety measures to be taken, including but not limited to when to evacuate and/or when it is safe to return to the area.

### **Public Roads**

There are three public roads located within the 500 ppm ROE: Lusk Plant Road (CR 248), Dry Lake Road (CR 126) and Maljamar Road (CR 126a). All three of these roads also have sections within the 100 ppm ROE. There are emergency trailers, equipped with flashing lights, windsocks, and roadblock signs for use in alerting the public of hazardous conditions on any of these three roads. In the event of activation of this Plan, Zia personnel will be dispatched to establish roadblocks on these roads to prevent entrance into the 500 and/or 100 ppm ROE, depending on the response level and as designated by the IC (see Figure 4). Roadblocks will be established at the designated locations regardless of wind direction in anticipation that variations in wind conditions can occur. Signs warning of the potential presence of H<sub>2</sub>S have been installed where the 500 and 100 ppm ROEs of the Plant intersect the above referenced public roads. (See Figure 4 for the location of these signs, and see Figure 8 for a photograph of one of these signs).

### **Businesses or Other Public Areas**

The Plant and AGI wells are located on land leased from the Federal Bureau of Land Management (BLM) by DCP, however, there are no businesses or other public areas within the 500 ppm or 100 ppm ROE. The DCP Lusk Booster Station (just north of the Zia II Plant) is located within the 500 ppm ROE but was closed and abandoned when the new Zia II Plant was brought on-line. The original Zia Plant is also located inside the 500 ppm ROE, but it has been closed and abandoned for a number of years.

**In addition to notifying operators (listed in Appendix C) DCP personnel, as designated by the IC, will make a visual inspection of the ROE area to insure that no individuals are seen inside the ROE. If any are observed, they will be advised to evacuate immediately to the designated Emergency Evacuation Area described above (see Figure 4).**

### **Medical Facilities**

There are no medical facilities located within the ROE.

## **EVACUATION ROUTES, EMERGENCY ASSEMBLY AREAS AND ROAD BLOCK LOCATIONS**

### **Evacuation Routes and Emergency Assembly Areas**

Figure 1b shows the Plant plot plan and schematic of the Plant and location of the AGI Wells, and Figure 2e shows internal plant evacuation routes. Figure 4 shows the locations of Emergency Assembly Areas and recommended evacuation routes. Evacuation for all visitors and all personnel that are not operators begins at the 10 ppm H<sub>2</sub>S intermittent alarm and flashing yellow beacons. The responding Plant operator(s) are to put on the 30-minute SCBA and first determine if any personnel are in distress and assist any distressed personnel to evacuate to Emergency Assembly Area 1. Emergency services (911) will be contacted if there are injuries or as otherwise deemed necessary. Responding operators, wearing the SCBAs, will then investigate the cause of the release. At the sound of the alarm and flashing yellow beacons, all other personnel in the Plant are to stop work, check the prevailing wind direction (using visible windsocks) and immediately proceed along designated evacuation routes and/or upwind to the pre-designated Emergency Assembly Areas shown in Figure 4. Prevailing winds for the area are from the southwest. Personnel should evacuate along the designated route unless that route is downwind of the release (based on the wind directions observed at the windsocks); in that event all evacuees should

proceed along a route that is perpendicular to the release and then upwind to the designated Emergency Assembly Area.

Roll call shall be conducted at the Emergency Assembly Area to ensure all personnel (including contractors and visitors) are accounted for and have evacuated safely. The Zia II Plant is a Process Safety Management (PSM) facility and requires all personnel to check-in and sign-in at the Plant Office or Plant Control Room before entering the Plant. The sign-in sheet will be used at the Emergency Assembly Areas to make a full accounting of all personnel and visitors.

At each Emergency Assembly Area, the ambient air quality will be monitored for H<sub>2</sub>S concentration to ensure the area remains at less than 10 ppm. If the H<sub>2</sub>S concentration rises to 10 ppm or greater, the assembly area will be relocated as detailed in the immediate action plan section of this document (see Appendix A).

### **Road Block Locations**

Pre-planned road block locations (which would be utilized in the event of a Level 2 or Level 3 response) are shown on the ROE Map (Figure 4). Each location will have portable road barriers and flashing lights and warning signs. The IC will designate representatives 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.

## **MONITORING EQUIPMENT, ALARM SYSTEMS, SAFETY EQUIPMENT AND SUPPLIES**

### **Emergency Shutdown Systems [NMAC 19.15.11.12.D(1)]**

DCP Midstream has installed an emergency shutdown (ESD) system at the Zia II Plant and AGI Wells. The ESD system is a fail-safe hardwired system that provides logic solving via a Foxboro Ticonex Safety System. Twenty ESD manual pull stations are placed throughout the Plant. Operators in consultation with the IC will determine if an H<sub>2</sub>S release situation warrants ESD of the plant. When activated the ESD System is designed to perform the following actions through the use of a hardwired interface:

- Close all hydrocarbon inlet and outlet valves to and from the Plant and AGI Wells.
- Initiate a distinct alarm and/or light which is separate from the general plant alarm.
- Shut off fuel at all individual fuel users.
- Isolate NGL storage tanks and NGL product pumps.
- Shut down all electric motors (with exceptions such as lube oil pumps, flare blowers, instrument air compressors, etc.).
- Shut down rotating equipment (engine-driven equipment, expander/compressors, pumps, etc.)
- Isolate fuel to engine-driven equipment.

The locations of the ESD buttons and Isolation Valves are shown in Figures 2a and 3. The ESD systems are designed to prevent a Level 3 response. Block valves on incoming lines can be closed where they enter the Plant perimeter (see Figure 3). Additional isolating block valves outside the Plant perimeter on the incoming lines can be closed to prevent further gas flow into the Plant. The block valves furthest upstream can isolate the entire system from the field gathering lines coming into the Plant. At the discretion of the IC, operations personnel may be designated to close valves at field locations on inlet gas pipelines to insure that incoming gas is shut off.

AGI compressors will be shut-down if two or more of the H<sub>2</sub>S sensors located in the fenced AGI Well area go into high alarm (90 ppm). When AGI compressors are shut-down isolation valves upstream and downstream of the units will close as well as those located on the wellhead.

**The Plant ESD can be activated at any time by the Zia II Plant Operators and is to be activated if efforts to control the release have failed or if a catastrophic release has occurred.**

## **ALARMS, VISIBLE BEACONS AND WIND INDICATORS**

Colored beacons, horns, and wind direction indicators and ESD stations are situated in various locations throughout the Plant and are shown on Figures 2, 2a and 2b and 3. The audible signal for an emergency response is an intermittent alarm that sounds at 10 ppm H<sub>2</sub>S. Flashing yellow beacons are also activated at 10 ppm H<sub>2</sub>S. The alarm will become continuous when the concentration of the H<sub>2</sub>S release is 90 ppm or higher, and evacuation of the Plant will be initiated. As per 19.15.11.12.C, wind direction indicators which are visible night and day are installed throughout the Plant as shown in Figure 2b. At least one wind direction indicator can be seen from any location within the Plant as well as from any point on the perimeter of the Plant.

## **SIGNS AND MARKERS [NMSA 19.15.11.10]**

The Plant and AGI Wells (which are contained totally within the Plant boundaries) have readily readable warning, caution and notice signs which conform to the current ANSI standard Z535.1-2002 (Safety Color Code). These signs contain language warnings about the presence of H<sub>2</sub>S/Poisonous Gas and high pressure gas; they are posted at the Plant entrance and around the perimeter of the Plant and where isolation/block valves are located (see Figure 3). The signs are of sufficient size to be readable at a distance of 50 feet and contain the words “Caution Poison Gas”. Emergency response phone numbers are also posted at the entrance to the Plant, and there are signs at the Plant entrance requiring that all visitors sign-in at the Plant office. DCP does not have the authority to require individual operators who send gas to the Plant for processing to conform to OCD and/or Department of Transportation (DOT) regulations relative to placement of warning signs at individual wells or on gathering lines. It is the responsibility of these individual operators to conform to appropriate regulations and to certify compliance with those regulations to those regulating agencies, as required. Signs warning of the potential presence of H<sub>2</sub>S have been installed where the 500 and 100 ppm ROEs of the Plant intersects the above referenced public roads. (See Figure 4 for the location of these signs, and see Figure 8 for a photograph of one of these signs).

## **EMERGENCY EQUIPMENT**

### **Emergency Trailers**

Emergency trailers, equipped with flashing lights and windssocks will be utilized at public road locations to establish roadblocks (as shown in Figure 4) to alert the public in the event of hazardous conditions.

### **First Aid Equipment**

The first aid stations are located at the all Emergency Assembly Area (see Figure 4) and at other strategic locations throughout the plant.

## **GAS DETECTION EQUIPMENT**

### **Fixed Monitors**

DCP Midstream has installed 65 ambient hydrogen sulfide detectors strategically throughout the Plant to detect possible leaks. Upon detection of hydrogen sulfide at 10 ppm at any detector, visible beacons are activated and an alarm is sounded. Upon detection of hydrogen sulfide at 90 ppm at any detector, an evacuation alarm is sounded throughout the Plant at which time all personnel will proceed immediately to a designated evacuation area. The Plant utilizes fixed-point monitors to detect the presence of H<sub>2</sub>S in ambient air. The sensors are connected to the Control Room alarm panel's Programmable Logic

Controllers (PLCs), and then to the Zia II Distributed Control System (DCS). The monitors are equipped with a yellow flashing beacon. The yellow flashing beacon is activated at 10 ppm. The plant and AGI Well horns are activated with an intermittent alarm at 10 ppm and a continuous alarm at 90 ppm.

The Plant operators are able to monitor the ppm level of H<sub>2</sub>S of all the Plant and AGI Well sensors on the DCS located in the control room. The AGI system monitors can also be viewed on the PLC displays located at the Plant. These sensors are all shown on the plot plans (see Figure 2). All sensors must be acknowledged and will not clear themselves. This requires immediate action for any occurrence or malfunction. All H<sub>2</sub>S sensors are calibrated quarterly.

### **Personal and Handheld H<sub>2</sub>S Monitors**

All personnel working at the Zia II Plant wear personal H<sub>2</sub>S monitors. The personal monitors are set to alarm and vibrate at 10 ppm. Handheld gas detection monitors are available at strategic locations around the Plant so that plant personnel can check specific areas and equipment prior to initiating maintenance or work on the process or equipment. The handheld gas detectors have sensors for oxygen, LEL (explosive hydrocarbon atmospheres), H<sub>2</sub>S and carbon dioxide (CO<sub>2</sub>).

### **RESPIRATORS**

There are 30 minute SCBA respirators and cascade hose reel systems strategically located throughout the Plant. The cascade hose reel systems have 2-4 compressed air cylinders hooked up in series to provide a sustained supply of breathing air for extended work time in a hazardous atmosphere. Each cylinder will supply a person 6-8 hours of breathing air at normal workloads or 3 hours at medium/heavy workloads. Several hose reels and masks may be attached to a cascade system. The system is equipped with a low pressure alarm to allow workers to safely exit the hazardous area with plenty of reserve air capacity. The respirator containers and equipment locations are shown in Figure 2c. All Plant personnel are trained and fit tested annually to use the SCBA respirators.

### **PROCESS PURGE SYSTEM**

All vessels, pumps, compression equipment, and piping in the acid gas injection process are designed and equipped to allow purging with pipeline quality gas to remove the acid gas prior to conducting maintenance or inspection work. The purge gas stream with residual acid gas is routed safely into the acid gas flares located at the plant. Operating procedures include this purging of all equipment to avoid acid gas exposure to personnel and to prevent acid gas from escaping to the environment.

### **FIRE FIGHTING EQUIPMENT**

Plant personnel are trained only for incipient stage fire-fighting. The fire extinguishers located in the Plant process areas, compressor buildings, process buildings, and company vehicles are typically a 30# dry chemical fire extinguisher. The Zia II Plant is also equipped with portable fire extinguishers that may be used in an emergency, and air packs which can be utilized for escape or rescue located throughout the plant in key locations.

**V. CHARACTERISTICS OF HYDROGEN SULFIDE (H<sub>2</sub>S), SULFUR DIOXIDE (SO<sub>2</sub>)  
CARBON DIOXIDE (CO<sub>2</sub>) [NMAC 19.15.11.9.B(2)(b)] [API RP-55 7.4 b.]**

**HYDROGEN SULFIDE (H<sub>2</sub>S)**

The current inlet gas streams into the Plant contain approximately 1.0 ppm (or 0.9992 mole percent) of H<sub>2</sub>S based on data generated from the sampling of the combined inlet gas stream. The current inlet to the AGI pipeline, and injection well contains 14.2853 mole percent H<sub>2</sub>S. H<sub>2</sub>S is a colorless, toxic and flammable gas, and has the odor of rotten eggs. It is heavier than air and presents a significant health hazard by paralyzing the respiratory system resulting in serious injury or death.

<b>Hydrogen Sulfide Properties and Characteristics</b>		
CAS No.	7783-06-4	
Molecular Formula	H <sub>2</sub> S	
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	
Auto-ignition 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	
<b>Physical Effects of Hydrogen Sulfide</b>		
<b>Concentration</b>		<b>Physical Effects</b>
Ppm	%	
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
15	.005	Short Term Exposure Limit (STEL); Safe for 15 minutes of exposure without respirator
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

## SULFUR DIOXIDE (SO<sub>2</sub>)

SO<sub>2</sub> is produced as a by-product of H<sub>2</sub>S combustion. The waste gas stream consisting of H<sub>2</sub>S and CO<sub>2</sub> is routed to the plant acid gas flare during abnormal conditions when the acid gas injection equipment is out of service. Waste gas is routed to the acid gas flare at the AGI Well sites during maintenance operations when equipment needs to be blown down. It is colorless, transparent, and is non-flammable, with a pungent odor associated with burning sulfur. SO<sub>2</sub> is heavier than air, but can be picked up by a breeze and carried downwind at elevated temperatures. It can be extremely irritating to the eyes and mucous membranes of the upper respiratory tract.

<b>Sulfur Dioxide Properties &amp; Characteristics</b>	
CAS No.	7446-09-5
Molecular Formula	SO <sub>2</sub>
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
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
<b>Physical Effects of Sulfur Dioxide</b>	
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 SO <sub>2</sub> 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.

## CARBON DIOXIDE (CO<sub>2</sub>)

The projected inlet gas streams to the Plant contain approximately 6% CO<sub>2</sub>. The inlet to the AG pipeline and injection well is projected to contain approximately 85.7 mole percent of CO<sub>2</sub>. CO<sub>2</sub> is a colorless, odorless and non-flammable. It is heavier than air.

<b>Carbon Dioxide Properties &amp; Characteristics</b>	
CAS No.	124-38-9
Molecular Formula	CO <sub>2</sub>
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
Auto-ignition 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
<b>Physical Effects of Carbon Dioxide</b>	
<b>Concentration</b>	<b>Effect</b>
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

## VI. RADII OF EXPOSURE [NMAC 19.15.11.7. K]

**WORST CASE SCENARIOS:** See Appendix D for actual ROE calculations. The basis for worst case scenario calculations is as follows:

- The worst case ROE for this Plan has been calculated utilizing the maximum inlet and TAG flow rates (24-hour rate) contained in the permit issued by OCD for this Plant which is 200 MMCFD. The ROE calculation in this Plan utilizes that inlet flow rate and an H<sub>2</sub>S concentration for inlet gas of .9992 mole percent. Based on this inlet flow analysis, the calculated TAG flow rate from the amine unit to the AGI well is 13.9892 MMCFD with an H<sub>2</sub>S concentration of 14.2853 mole percent. Although the H<sub>2</sub>S concentration is lower in the inlet gas than in the TAG stream, the flow rate is much higher for the inlet gas than for the TAG stream. The calculated ROE's for the inlet gas and TAG streams are identical as shown in the calculations in Appendix D.
- The worst case scenario ROE assumes an uncontrolled instantaneous release of a 24-hour volume of gas at the Plant. 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. Further, the Plant's ESD systems would be activated in the event of a catastrophic emergency and would prevent the flow of gas into the Plant and would isolate the AGI compressors and equipment and route the acid gas safely to the Plant acid gas flare. To comply with NMAC 19.15.11, the worst case scenario calculations (assuming an instantaneous release of the 24-hour processing and/or TAG volume) are utilized here (see Appendix C for actual calculations).

The formulas for calculating the radius of exposure (ROE) 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 ROE 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 FOR ZIA II PLANT WORST CASE SCENARIO**

**500-ppm ROE 5,354 feet (1.01 miles)**

**100-ppm ROE 11,717 feet (2.22 miles)**

The ROE for the Plant and AGI Wells are shown on Figure 4. This ROE pattern is designed to include the 100 ppm and 500 ppm radii for a potential worst case failure at any point in the system.

**VII. FACILITY DESCRIPTION, MAPS AND DRAWINGS [NMAC 19.15.11.9.B (2)(c)]**  
**[API RP-55 7.4 c.]**

**DESCRIPTION OF PLANT OPERATIONS AND ZIA #1 AND #2 AGI WELLS**

The Plant and AGI Wells are in operation and are manned 24-hours-a-day, 7-days-a week. The Plant operations include gas compression, treating and processing. The Plant gathers and processes produced natural gas from Lea and Eddy Counties in New Mexico. Once gathered at the Plant, the produced natural gas is compressed, dehydrated to remove the water content and processed to remove and recover natural liquids. The processed natural gas and recovered natural gas liquids are then sold and shipped to various customers. The inlet gathering lines and pipelines that bring gas into the plant are regulated by DOT, NACE other applicable standards which require that they be constructed and marked with appropriate warning signs along their respective right-of-ways.

Because the natural gas that is gathered and processed at the Plant contains H<sub>2</sub>S (“sour gas”), it must be treated or processed to remove these and other impurities. The CO<sub>2</sub> and H<sub>2</sub>S stream that is removed from the natural gas in the amine treating process is compressed to approximately 1,500 – 2,644 psi. This is accomplished using electric driven, reciprocating compressors. Water vapor contained in the gas stream is removed during compression and cooling and is disposed of through a wastewater disposal system. The compressed acid gas is transported via an overhead stainless steel, corrosion-resistant, NACE-compliant pipe, approximately 1,050 feet in length, from the compressor to the AGI Wells. AGI #1 injects into the lower Cherry Canyon (5,470 to 5,670 feet) and upper Brushy Canyon (5,670 to 6,070 feet) Formations. AGI #2 will inject into the Siluro-Devonian between 13,700 and 14,650 feet. The pipe between the compressors and the AGI Wells is contained totally within the boundaries of the Plant and does not cross any public roads. H<sub>2</sub>S sensors are located at critical junctions along the pipe which is run on an overhead pipe rack. The pressure in the pipe is monitored continuously so that the acid gas injection process could be stopped should there be any unusual variations in pressure.

The AGI Wells are integral components of the Zia Gas Plant design. Both of the wells are constructed using the materials shown in Figures 5a and 5b. The overall schematic of the AGI wells is shown in Figure 6. The intermediate casing of each well extends to 4,600 feet to assure the protection of the Capitan Aquifer and the Upper Delaware Group. Each string of the telescoping casing is cemented to the surface and includes the “downhole” subsurface safety valves (SSVs) which are located approximately 250 feet below the surface on the production tubing to assure that fluid cannot flow back out of the well in the event of a failure of the injection equipment. In addition, the annular space between the production tubing and the well bore are filled with diesel fuel (an inert fluid) as a further safety measure which is consistent with injection well designs that have been approved by NMOCD for acid gas injection.

Per National Association of Corrosion Engineers (NACE) specifications, downhole components including the SSV and packer are constructed of Inconel 925. Corrosion Resistant Alloy (CRA) joints are constructed of a similar nickel alloy manufactured by Sumitomo. The gates, bonnets and valve stems within the Christmas tree are nickel coated as well. The rest of the Christmas tree is made of standard carbon steel components and outfitted with annular pressure gauges that remotely reports operating pressure conditions in real time to a gas control center. Pursuant to NMAC 19.15.11.12.D(2), in the case of abnormal pressures or any other situation requiring immediate action, the acid gas injection process can be stopped at the compressor, and the wellhead can be shut in using a hydraulically operated wing valve on the Christmas tree. The Plant operator or IC may also shut the SSV. In addition, the well has profile nipples which provide the ability to insert a blanking plug into the base of the well below the packer which would allow for the safe reentry of the well. These safety devices provide for downhole

accessibility and reentry under pressure for permanent well control. The SSV provides a redundant safety feature to shut in the wells in case the wing valves do not close properly (see Figures 5 and 6).

## MAPS AND FIGURES

Figures 1 and 1a show the location of the Zia II Plant as well as AGI #1 and #2. Figure 1b shows the plot plan of the Plant. Figure 2, 2a, 2b, 2c and 2d show the locations of safety equipment at the plant. Figure 4 shows the 100 and 500 ppm ROE, escape routes, roadblock locations and emergency assembly areas. The design schematic of the AGI Wells is shown in Figures 5, and the schematic of the AGI Wells' tie-in to the Zia Plant is shown in Figure 6.

## **VIII. TRAINING AND DRILLS [NMAC 19.15.11.9.B(2)(d)] [API RP-55 7.4 d.]**

DCP will conduct annual training for its own personnel as well as for the public and emergency responders, as detailed below. Training will include:

- Characteristics of H<sub>2</sub>S and safety precautions
- An overview of the Zia II Plant and AGI operations
- A review of their roles in responding to activation of the Zia II H<sub>2</sub>S Contingency Plan
- Location of the Radii of Exposure and how to protect the public within the Radii of Exposure
- Potential roadblock locations, potential evacuation routes, and how they can assist in implementing the Plan.

## TRAINING OF ESSENTIAL PERSONNEL

Annual training for DCP personnel shall include plant operators, mechanics, instrument and electrical technicians, and maintenance support personnel. Plant Operators will be responsible for initiating and implementing the Plan. In addition, all Plant personnel will receive:

- Annual training on the H<sub>2</sub>S Contingency Plan. This training will include a review of all aspects of the Plan and will include, at a minimum, one table top drill involving activation of the H<sub>2</sub>S Contingency Plan.
- 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. Included as part of this orientation is how to respond and evacuate safely in the event of a H<sub>2</sub>S alarm or release. This training also complies with the requirements of the DCP and Zia II Plant's Process Safety Management Program and Procedures Manuals.
- All Plant personnel are also trained annually on the Zia II Emergency Response Plan.
- H<sub>2</sub>S and SO<sub>2</sub> Training - All Plant personnel receive annual refresher training on H<sub>2</sub>S and SO<sub>2</sub>, which is conducted by DCP personnel. If an individual is unable to attend, they may be required to attend a third party training session. All contract employees are required to have had H<sub>2</sub>S training and to provide the Plant a copy of their certification card prior to obtaining permission to enter the Plant.
- Respirators - All Plant personnel are trained annually on the proper use of respirators. In addition to the annual training, all Plant personnel are fit tested annually on the respirators. All Plant personnel must have medical clearance for respirator use.
- Hazard Communication - All Plant personnel are trained annually on Hazard Communication. The annual training includes, at a minimum, the use of material safety data sheets (MSDS) for those materials that are present at the Plant.

- Personal Protective Equipment (PPE) - All Plant personnel are trained annually on the DCP requirements for PPE. The training includes, at a minimum, a review of all the types and levels of personal protective equipment and how to select the correct equipment for the job.

### **ON-SITE OR CLASSROOM EMERGENCY RESPONSE DRILLS**

- The Plant will conduct, at least, a tabletop drill annually. Multiple drills during the year may be scheduled at the discretion of the Plant Supervisor.
- The annual drill will execute this Plan and include, at a minimum, the Public Officials and Local Emergency Response Agencies listed below.
- Annual training a will also include making contact with the entities including any that are identified as being within the 500 ppm and 100 ppm ROE (see Appendix C) to make sure contact information for them in Appendix C is current. Appendix C will be verified and updated annually by DCP to be sure any changes of occupancy, ownership or new commercial and/or residential buildings are reflected, and all owners/occupants receive training on protective measures.
- The drills will also include briefing of public officials on issues such as evacuation or shelter-in-place plans.

### **NOTIFICATION AND TRAINING OF PRODUCERS LOCATED WITHIN THE ROE**

DCP Midstream will provide annual training to the producers listed in Appendix C that includes:

- An overview of the Zia II Plant and AGI operations
- Design and operating safety features on the Zia II Plant
- A review of the H<sub>2</sub>S alarms and significance
- Notification procedures
- Roadblock locations
- Potential evacuation routes
- Procedures for sheltering in place
- Radii of exposure

### **TRAINING OF PUBLIC OFFICIALS AND EMERGENCY RESPONSE AGENCIES**

All of the Emergency Response Agencies listed in Appendix C will have copies of the H<sub>2</sub>S Contingency Plan, and DCP Midstream will provide annual training to the following Emergency Response Agencies:

- NM State Police-Hobbs and Carlsbad Offices
- Eddy County 911 Emergency Response
- Eddy County Emergency Planning Committee
- Hobbs, Artesia and Carlsbad Police Department
- Lea County Sherriff's Department
- Hobbs, Artesia and Carlsbad Fire Department
- New Mexico Oil Conservation Division-Hobbs District Office
- Bureau of Land Management (BLM) Carlsbad Field Office

Training will include:

- An overview of the Zia II Plant and AGI operations
- Design and operating safety features on the Zia II Plant
- A review of the H<sub>2</sub>S alarms and significance
- Notification procedures
- Roadblock locations
- Potential evacuation routes
- Procedures for sheltering in place
- Radii of exposure

DCP Midstream will also conduct, at a minimum, one annual tabletop drill involving the Emergency Response Organizations listed above on the activation of the Zia II Plant H<sub>2</sub>S Contingency Plan.

### **TRAINING AND ATTENDANCE DOCUMENTATION [NMAC 19.15.11.9 G]**

Per NMAC 19.15.11.9.G drill training will be documented, and those records will be maintained at the Plant and will be available to an OCD representative upon request. The documentation shall include at a minimum the following:

- Description or scope of the drill, including date and time
- Attendees and Participants in the drill
- Summary of activities and responses
- Post-drill debriefing and reviews

### **IX. COORDINATION WITH STATE EMERGENCY PLANS [NMAC 19.15.11.9.B(2)(e)]**

#### **NOTIFICATIONS AND REPORTS**

The Plant has various notification and reporting obligations. Some are related to its state air quality permit that is overseen by NMED as well as state and federal spill reporting obligations. In addition to the regulatory obligations noted above, Plant personnel also have internal and external notification and reporting obligations associated with the activation of this Plan. Reporting obligations are as follows:

#### **New Mexico Oil Conservation Division (OCD) [NMAC 19.15.11.16]**

As soon as possible, but no later than four hours after plan activation, (recognizing that a prompt response should supersede notification), OCD will be notified by the IC or the IC's designee via email or fax to the District II Office of the activation of the H<sub>2</sub>S Contingency Plan. In the event of a power failure, a phone call will be made within four hours. A full report of the incident to the OCD, utilizing Form C-141 shall be made no later than 15 days following the release (see Appendix G).

#### **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.

#### **Bureau of Land Management (BLM)**

The BLM will also be contacted (see Appendix C for phone number) in the event of activation of the plan since the Plant is located on land leased from BLM by DCP Midstream.

### **X. PLAN ACTIVATION [NMAC 19.15.11.9.C] [API RP-55 7.4 d]**

The plan will be activated as described in the Immediate Action Plans and Response Flow Diagrams in Appendix A. **At a minimum, Per NMAC 19.15.11.8.C, the Plan also shall be activated at Level 3 (see Appendices A and B for detail) whenever a release may create an H<sub>2</sub>S concentration of more than 100 ppm in a public area, 500 ppm at a public road or 100 ppm 3,000 feet from the site of release.**

#### **ACTIVATION LEVELS**

The Plan has three activation levels that are described in detail in the Immediate Action Plan Section of this Plan (see Appendix A) and in outline form in the Response Flow Diagrams (see Appendix B).

**Level 1** - Intermittent alarm sounded and flashing yellow beacons activated for H<sub>2</sub>S greater than 10 ppm at personal or fixed monitor. (See Appendices A, Level 1, and B Level 1 for detail.)

**Level 2** - Continuous alarm sounded and flashing yellow beacons activated for H<sub>2</sub>S greater than 90 ppm; when corrective actions at Level 1 have been unsuccessful or when Operators activate ESD. Notification of operators, businesses, public, BLM and state agencies is initiated. (See Appendices A, Level 2 and B, Level 2 for detail.)

**Level 3** - Catastrophic release; fire; explosion; a continuous release of maximum volume for 24 hours; or Rule 11 mandatory activation for 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. Notification of operators, businesses, public, and state agencies is initiated. (See Appendices A, Level 3 and B, Level 3 for detail.)

As soon as the Plan has been activated based on the criteria above, the Plant Supervisor, or his designee will be notified.

#### **EVENTS THAT COULD LEAD TO A RELEASE OF H<sub>2</sub>S**

- Inlet and plant piping failure
- Amine still failure (This would be a leak in the amine process equipment, or amine still utilized to separate methane from H<sub>2</sub>S and CO<sub>2</sub>.)
- Flange/gasket leaks on inlet and plant piping
- Flange/gasket leak on the acid gas compressors
- Flange/gasket or valve packing leak at the AGI Well or associated piping
- Valve packing failure
- Seal failure on acid gas compressors
- Failure of flare to ignite during Plant emergency blow down
- Damage to AGI Wellhead

## **XI. SUBMISSION OF H<sub>2</sub>S CONTINGENCY PLANS [NMAC 19.15.11.9.D]**

### **SUBMISSION**

DCP Midstream, LP submitted this H<sub>2</sub>S Contingency Plan to the OCD for review and approval in June 2015.

### **RETENTION**

DCP Midstream shall maintain a copy of the contingency plan at the Zia II Gas Plant, at DCP Headquarters in Hobbs, NM and at DCP Headquarters office in Denver, CO. The plan as approved by the OCD will be readily accessible for review by the OCD at the facility upon request.

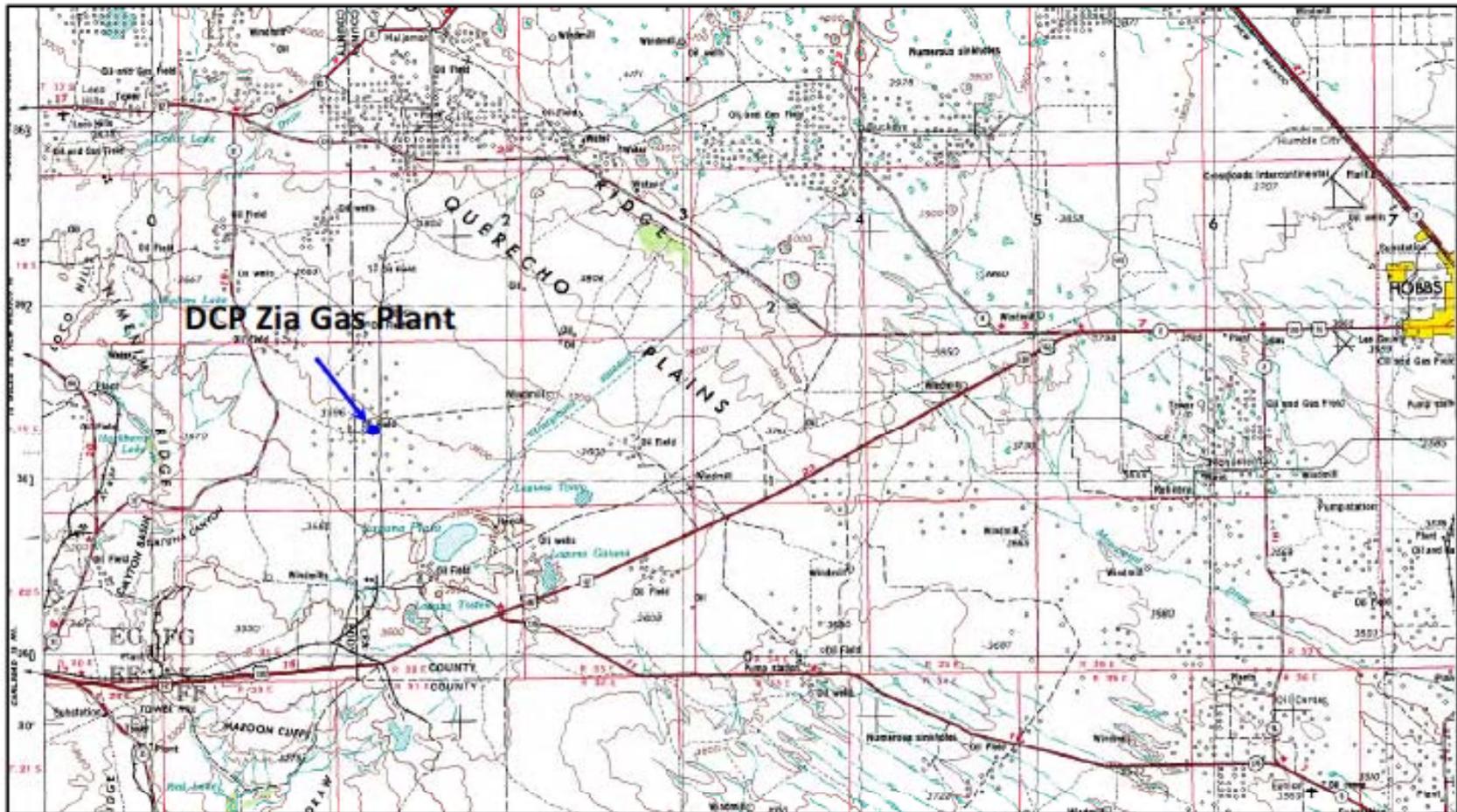
### **REVISIONS TO THE PLAN**

The H<sub>2</sub>S Plan will be reviewed annually and revised at that time as necessary to address changes to the Plant facilities, operations, or training requirements, contact information and the public areas including roads, businesses, or residents potentially affected by the operations of the Plant and AGI Wells, specifically those areas within the radii-of-exposure.

### **ANNUAL INVENTORY OF CONTINGENCY PLANS**

DCP Midstream, LP will file an annual inventory of wells, facilities and operations for which H<sub>2</sub>S Contingency Plans are on file with the OCD with the appropriate Local Emergency Planning Committee (LEPC) and the State Emergency Response Commission as per NMAC 19.15.11.9H. The inventory shall include the name, address, telephone number, and point of contact for all operations for which H<sub>2</sub>S Contingency Plans are on file with the OCD.

# FIGURES



**Figure 1: Location of the DCP Zia Gas Plant and AGI Wells  
(USGS 1:250,000)**



**Figure 1a: Surface and Bottom Hole Locations of Zia AGI #1 and AGI #2**

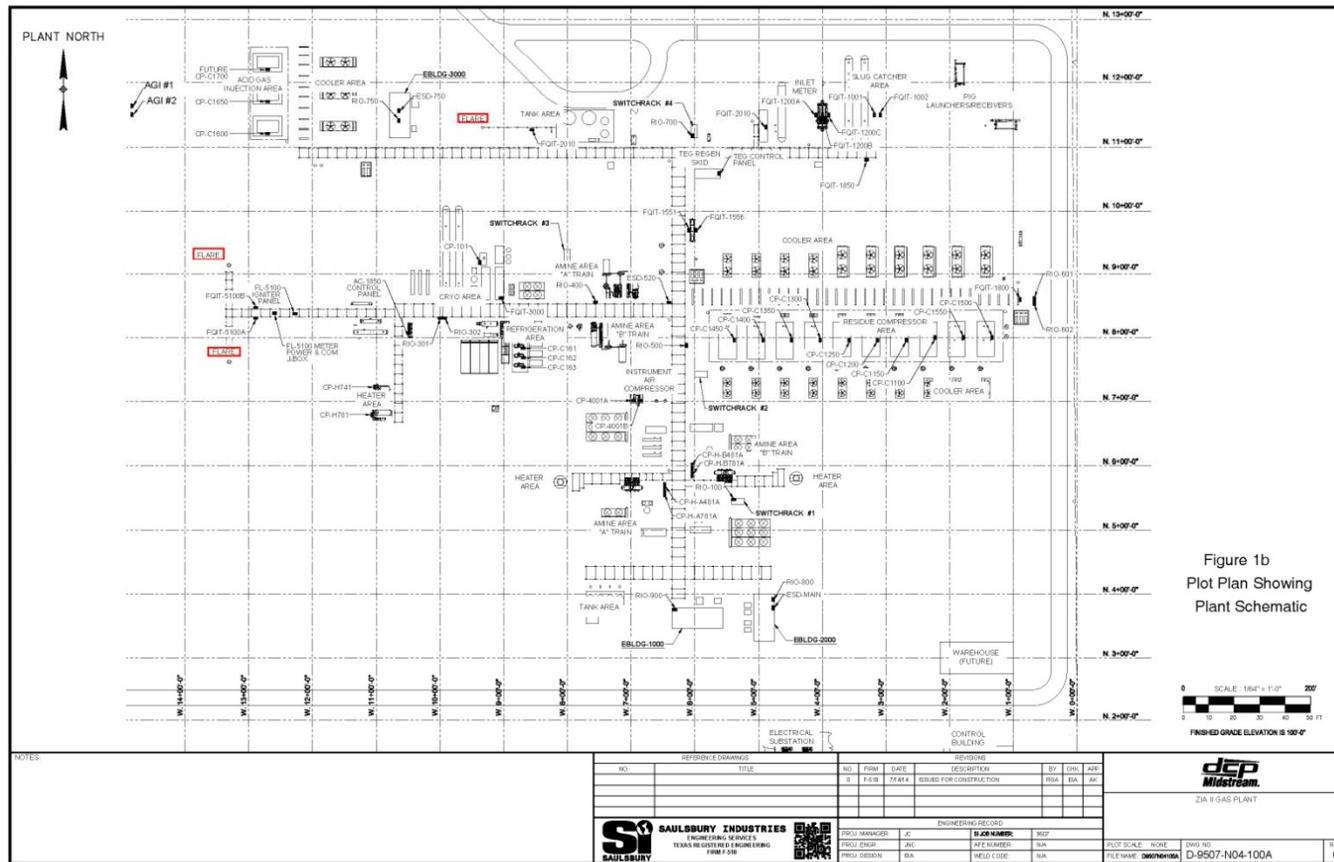


Figure 1b: Plot Plan Showing Plant Schematics

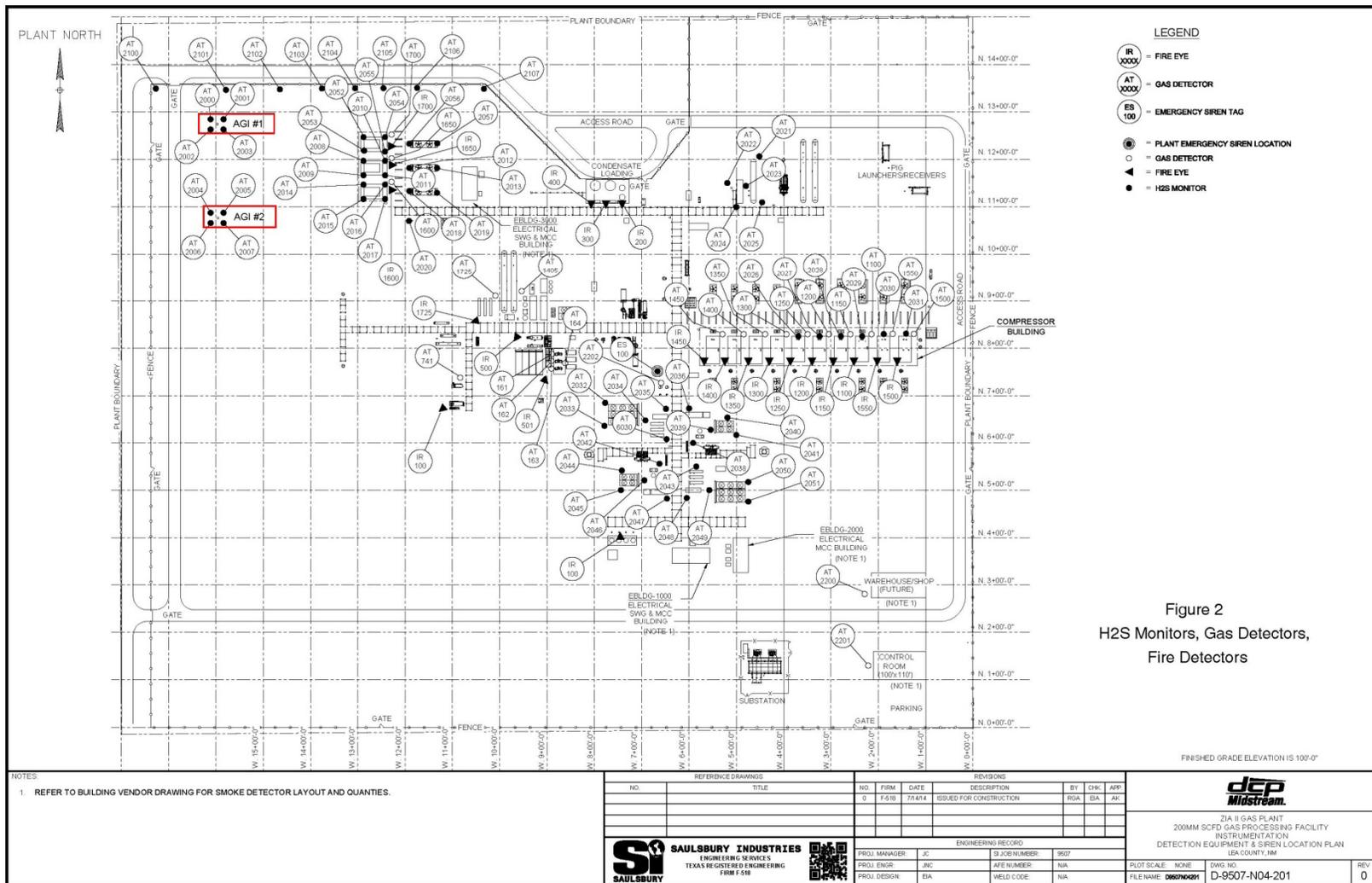
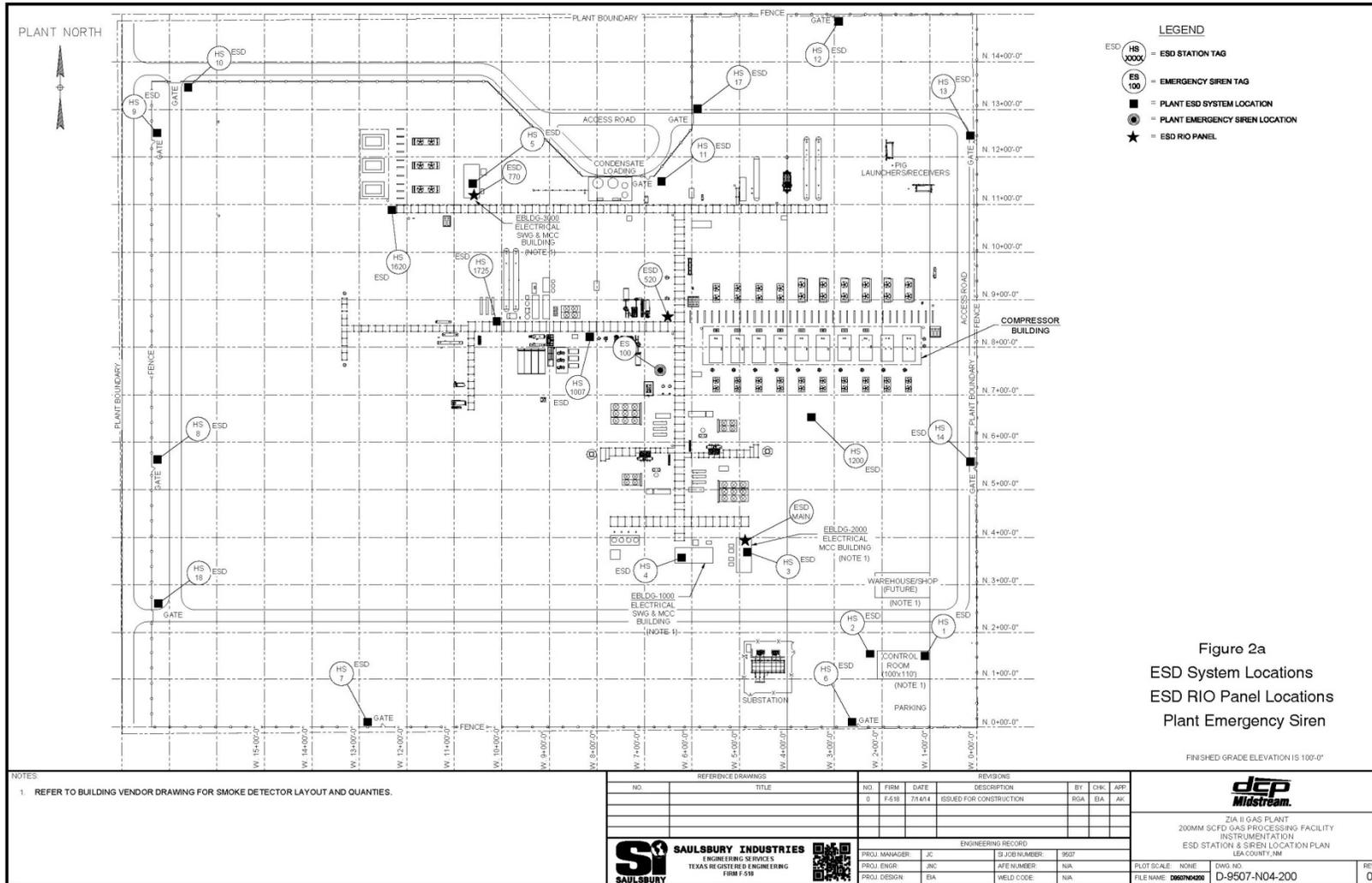


Figure 2  
H2S Monitors, Gas Detectors,  
Fire Detectors

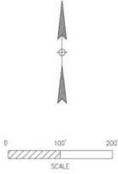
Figure 2: H2S Monitors, Gas Detectors and Fire Detectors



**Figure 2a: ESD System Locations, ESD RIO Panel Locations and Plant Emergency Siren**

J:\DCP\9507 DCP Zia II Cryo Plant\03 ENGINEERING\DESIGN\3 Electrical\3.1 Drawings\9507-N04-200 ESD Station & Siren Location Plan (07/14/2014 3:28:06 PM)

PLANT NORTH



Legend:

● - Wind Sock

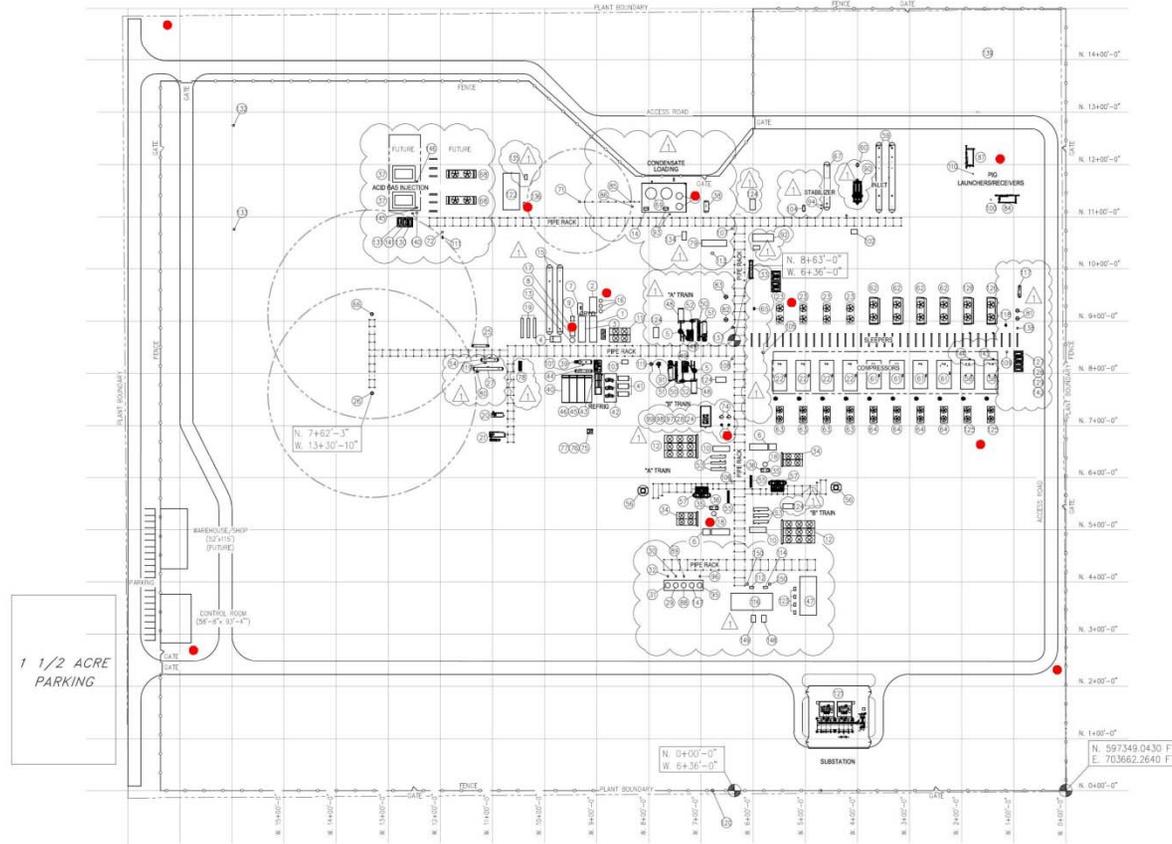


Figure 2b  
Wind Sock Location Plan

NOTES:

REFERENCE DRAWINGS		REVISIONS						
NO.	TITLE	NO.	FIRM	DATE	DESCRIPTION	BY	CHK	APP
0		0	F-518	05/14/14	ISSUED FOR CONSTRUCTION	MS3	MS3	JC
1		1	F-518	10/06/14	REVISED AS NOTED	CEG	MS3	JC

ENGINEERING RECORD	
PROJ. MANAGER: JC	SI JOB NUMBER: 9507
PROJ. ENGR: JC	APE NUMBER:
PROJ. DESIGN: MS3	WELD CODE:

**dcp**  
**Midstream.**

ZIA II GAS PLANT  
200MM SCFD GAS PROCESSING FACILITY  
PLOT PLAN

LEA COUNTY, TX

PLOT SCALE: 1"=100'-0"  
DWG. NO.:  
FILE NAME: C03-100  
D-9507-C03-100

REV 1

**SI**  
**SAULSBURY INDUSTRIES**  
ENGINEERING SERVICES  
TEXAS REGISTERED ENGINEERING  
FIRM F-518

\\sawing\Jobs\DCP\9507 DCP Zia II Cryo Plant\03 ENGINEERING DESIGN\3.4 Piping\3.4.3 Drawings - Plot Plans\C03-100 (10/20/14 9:36:45 AM)

Figure 2b: Wind Sock Location Plan



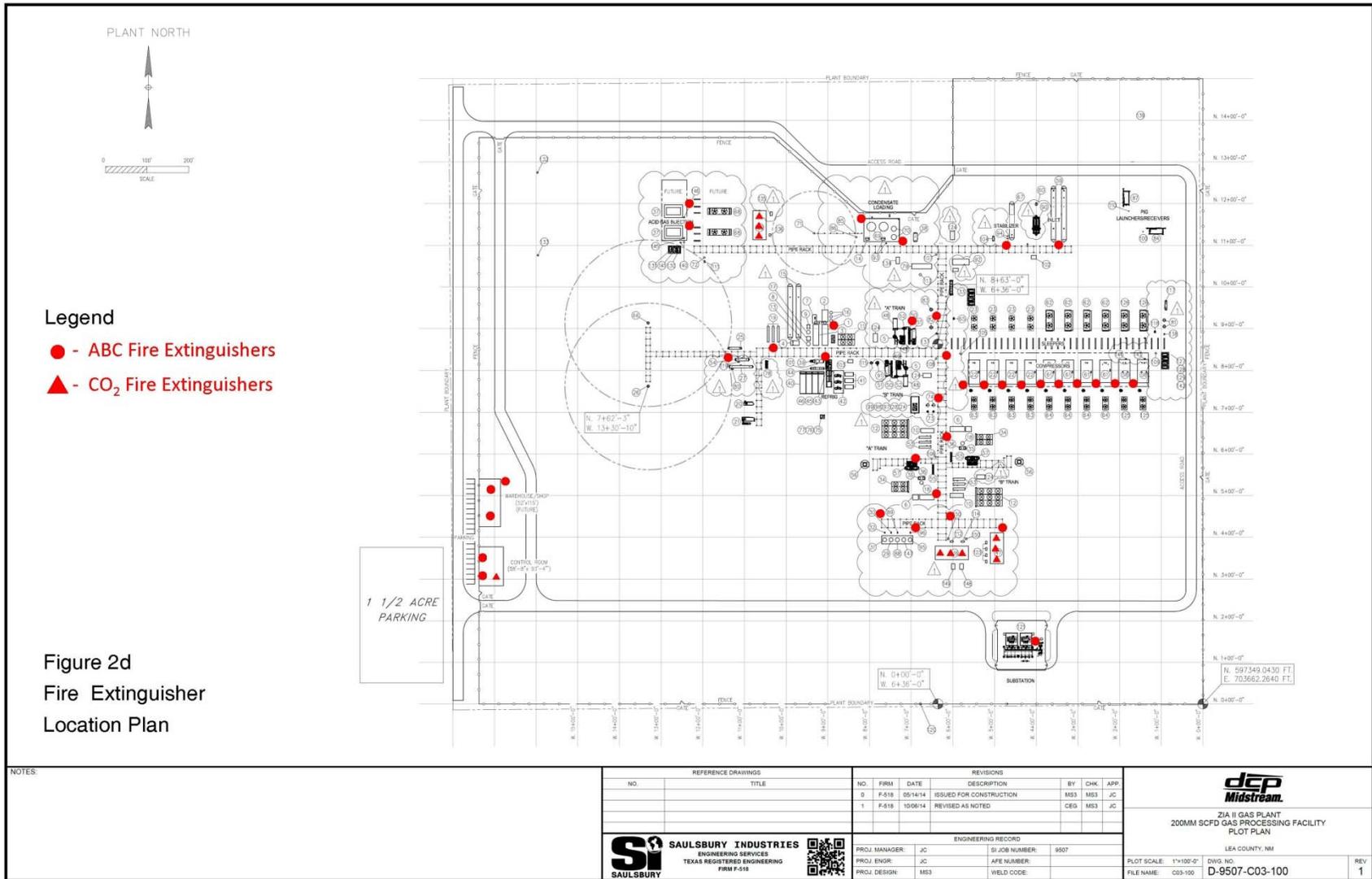


Figure 2d: Fire Extinguisher Location Plan

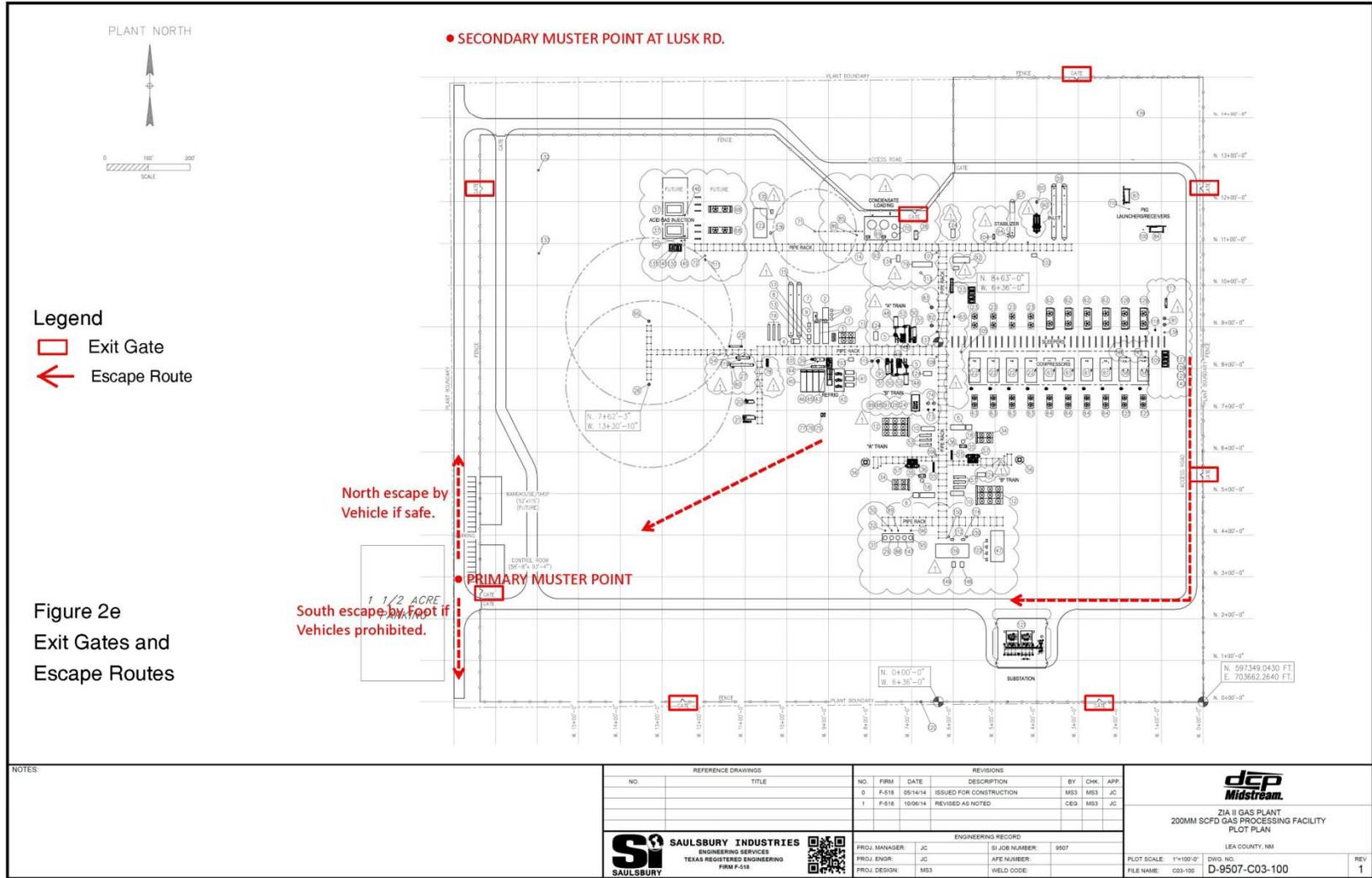


Figure 2e: Exit Gates and Escape Routes

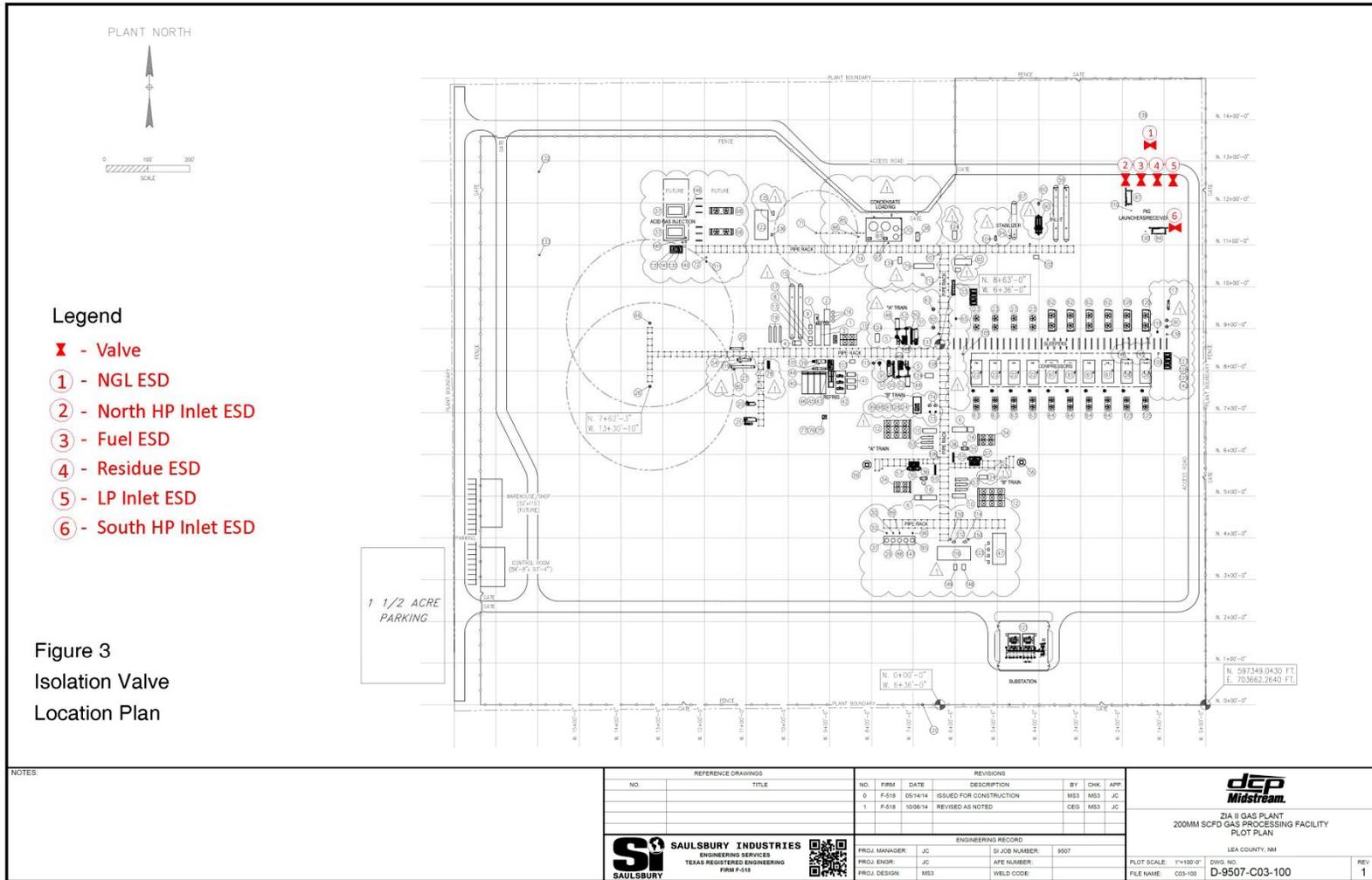


Figure 3: Isolation Valve Location Plan

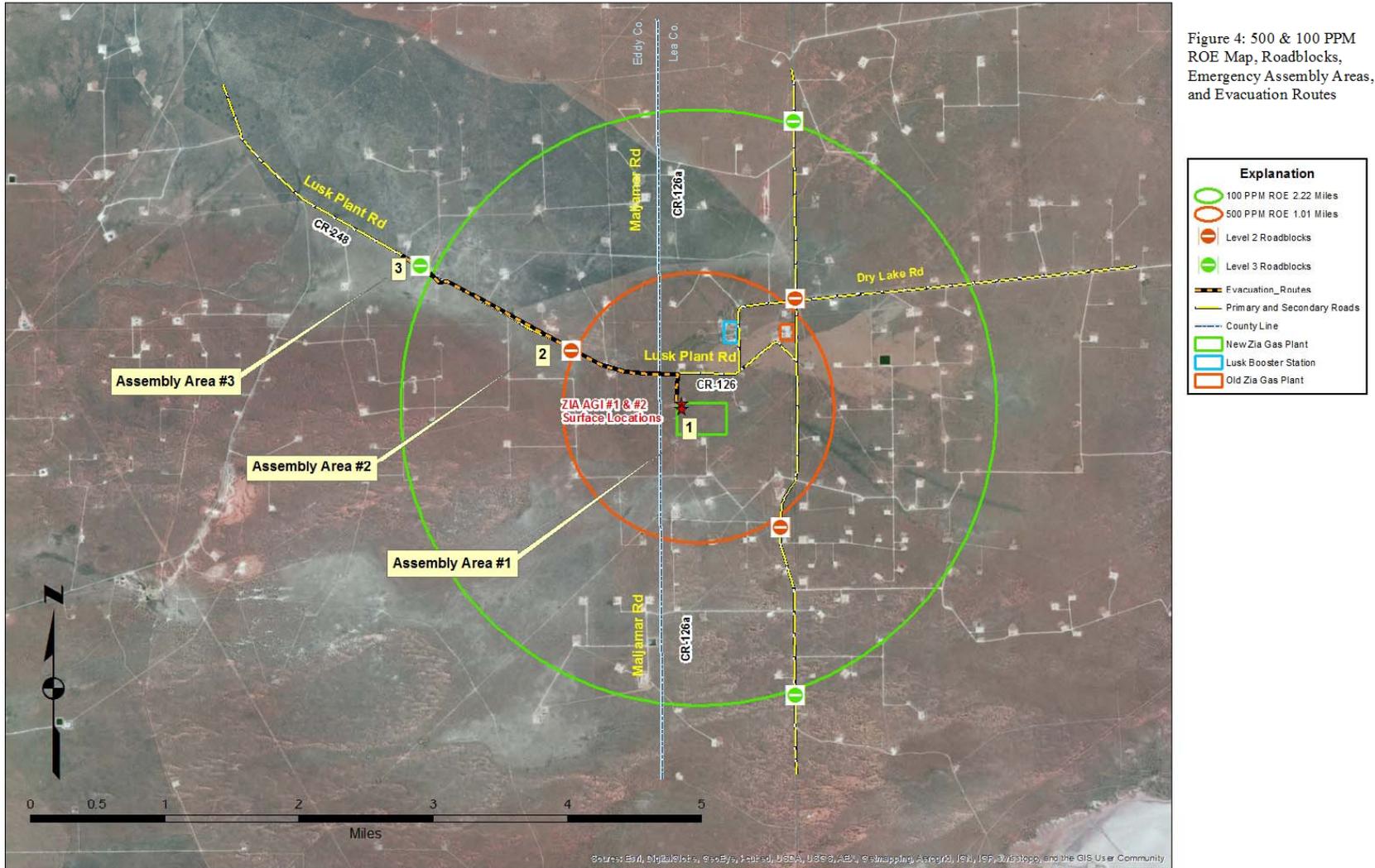


Figure 4: 500 and 100 ppm ROE Map, Roadblocks, Emergency Assembly Areas and Evacuation Routes

Location: DCP Zia AGI #1 (API 30-025-42209)  
 STR: Section 19(L), T19S-R32E Q100 FSL & 950 FWL  
 County, St.: LEA COUNTY, NEW MEXICO

**16.2 DEGREE SLANT**

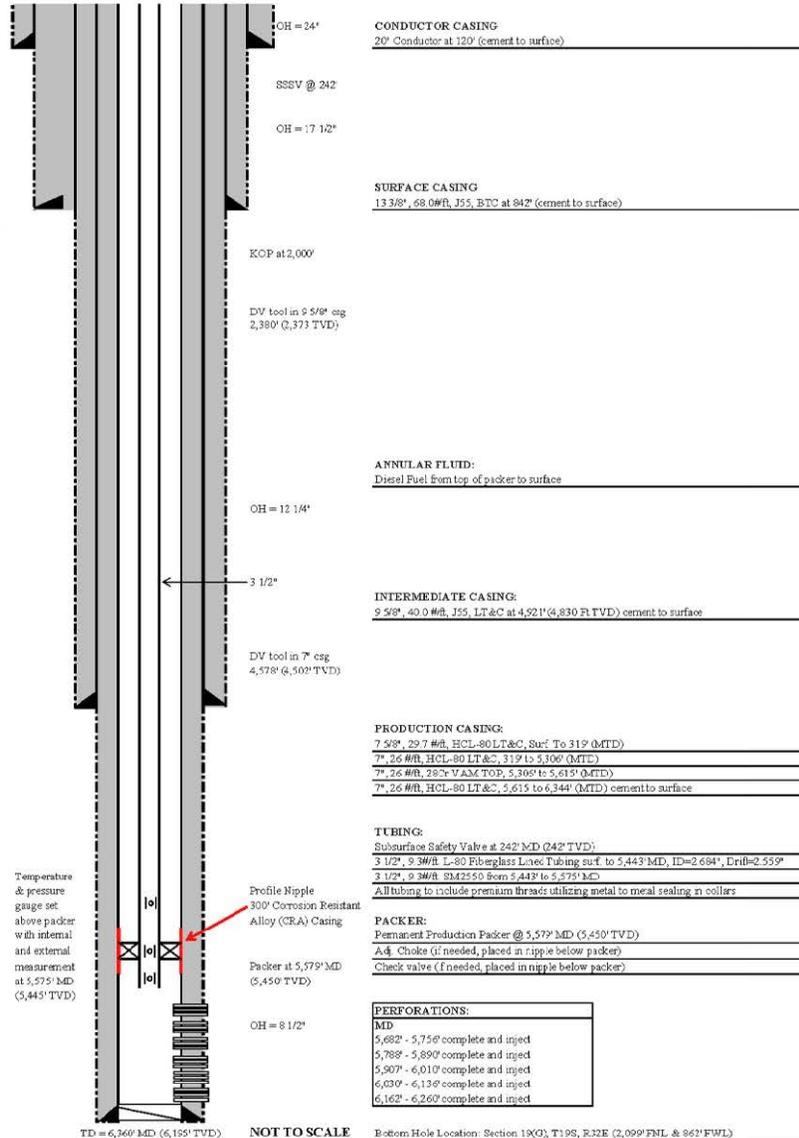


Figure 5a: Well Design Schematic – Zia AGI #1

Lea County, NM  
Section 19 T19S R32E

ZIA AGI 2

Devonian AGI

**GEOLEX**  
INCORPORATED

Rig: Unknown  
Cmt: Unknown  
Mud: Unknown  
Dir Drig: Unknown  
Wellhead: Unknown  
AFE Days: 47  
AFE Cost: \$4,720,000 @ RR

SHL  
1900' FSL  
950' FWL

KB: ?'  
GL: ?'

32.\*\*\*\*\*N / 103.\*\*\*\*\*W

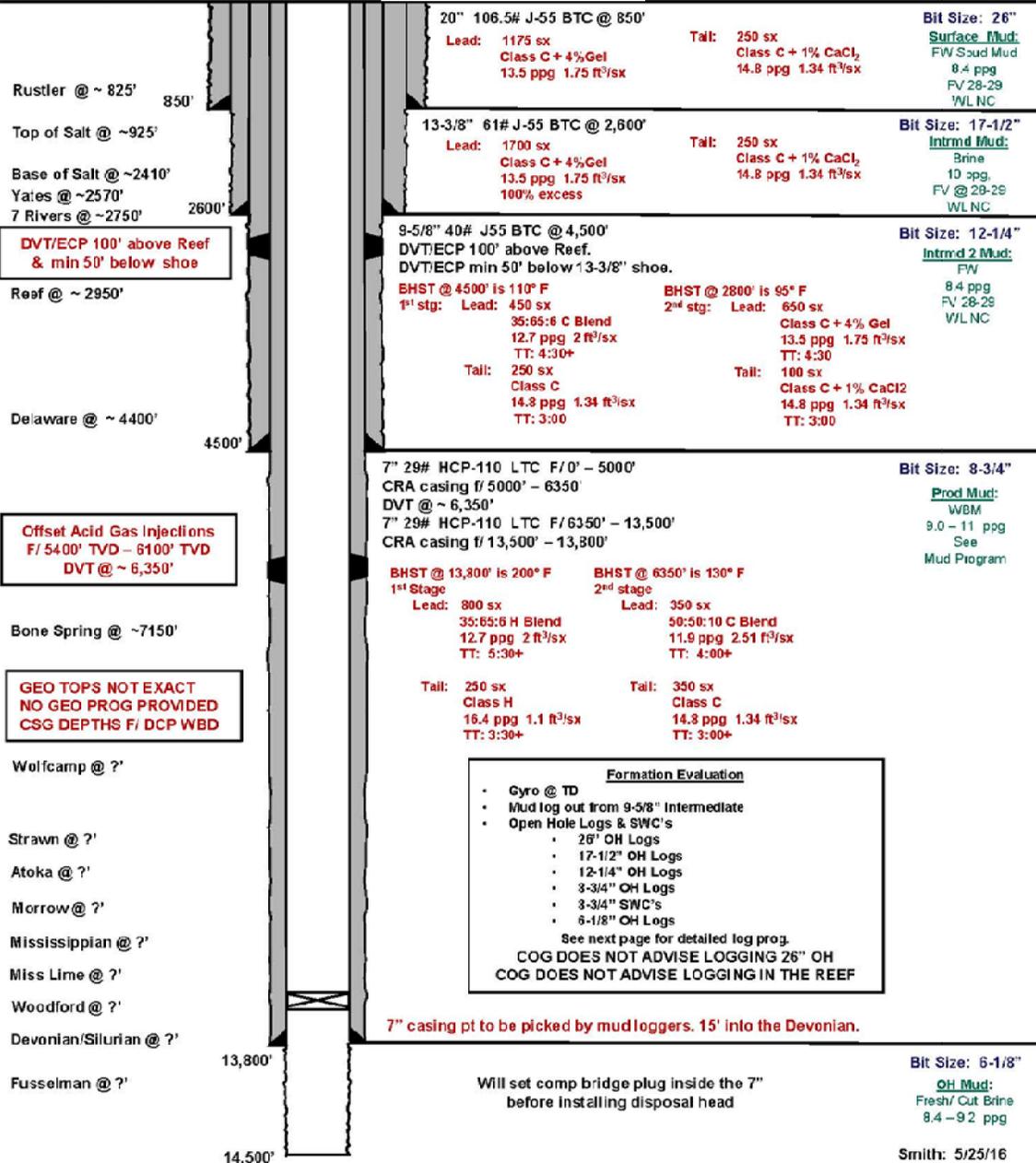
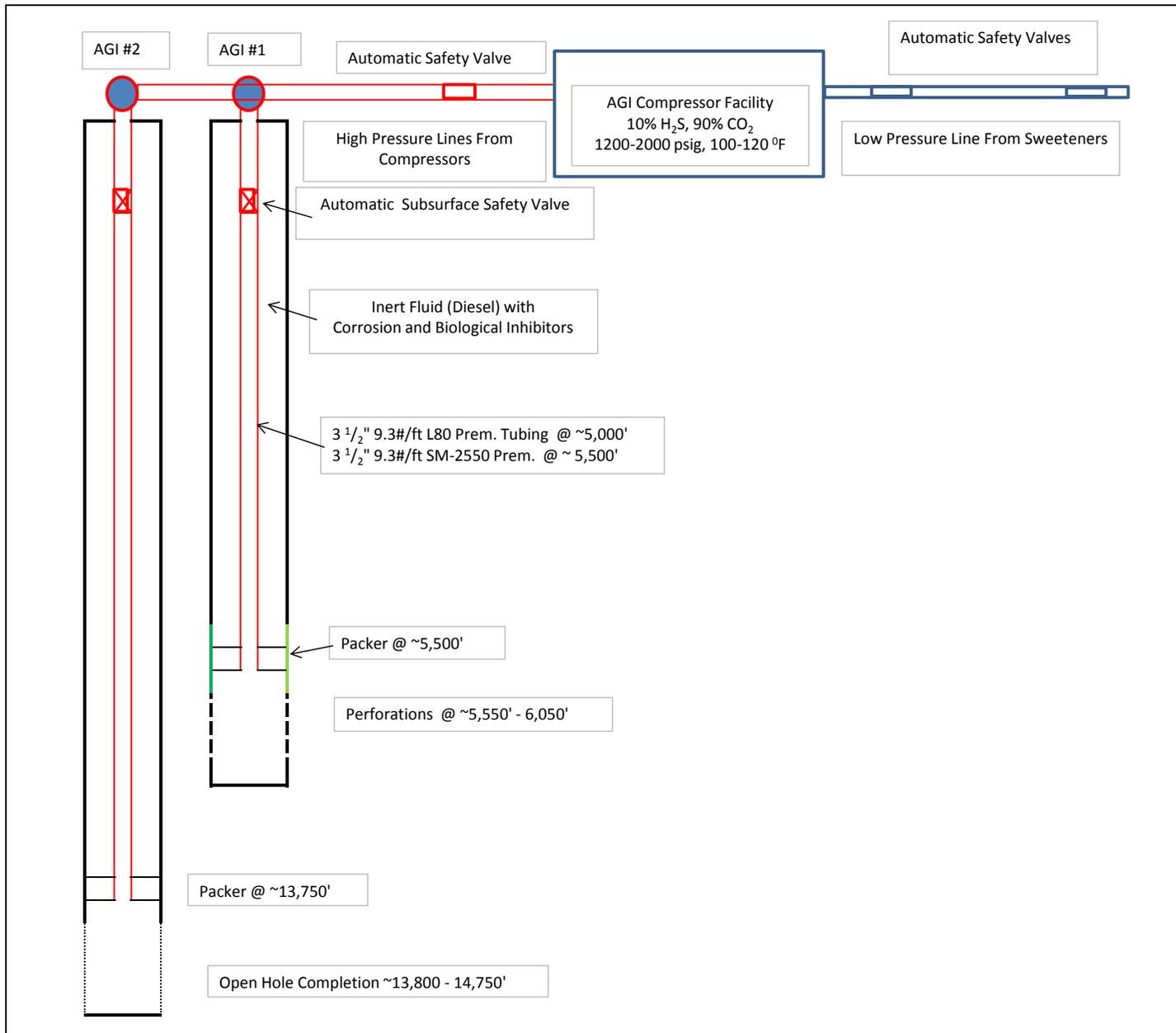


Figure 5b: Well Design Schematic - ZIA AGI #2



**Figure 6: AGI Well Facility Schematic**

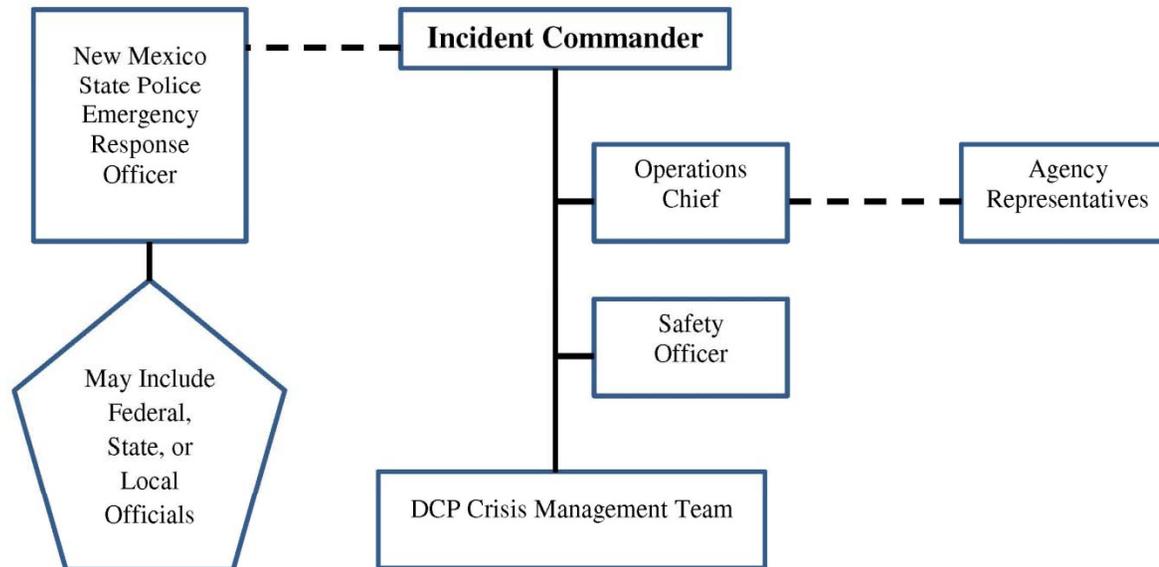


Figure 7: Incident Command System Structure

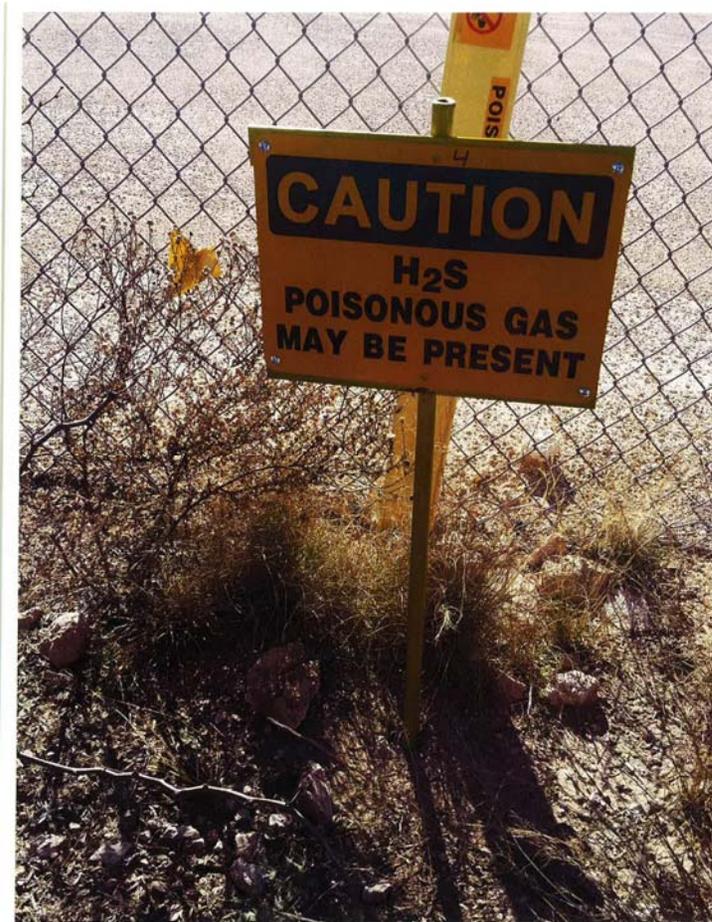


Figure 8: Photograph of H<sub>2</sub>S Warning Sign

# APPENDICES

# **APPENDIX A**

## **IMMEDIATE ACTION PLANS**

## **LEVEL 1 ACTIVATION**

### **Activating Conditions:**

- **H<sub>2</sub>S of 10 ppm or greater detected at any fixed monitor.**

### **Alarms and Automated Activations:**

- **Flashing yellow lights or beacons and an intermittent horn are activated if any fixed monitor senses H<sub>2</sub>S at 10 ppm or greater. The horn and flashing yellow lights are redundant systems which function independently of one another so that should one system fail, the other would remain active. These systems incorporate backup 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 office of the Plant Supervisor establishes the location of the monitor(s) at the Plant or Wellsite that has activated the alarm and flashing yellow beacons.**
- **All employees also wear personal monitors that sound an audible alarm at 10 ppm H<sub>2</sub>S or greater.**

### **Actions:**

1. At the initial sound of an audible alarm or the sight of a flashing yellow beacon, responding Operator(s) in the vicinity of the alarm will put on 30 minute Self-Contained Breathing Apparatus (SCBA) and help any person in distress evacuate to Emergency Assembly Area 1.
2. All other personnel in the Plant complex shall immediately proceed to Emergency Assembly Area 1 (see Figures 2c and 4).
3. Control Room Operator and Plant Supervisor will be notified of the release. Plant Supervisor or designee will assume the role of IC. Control Room Operator will remain in the control room, identify the location(s) of the alarms and monitor H<sub>2</sub>S concentrations throughout the Plant.
4. If a perimeter monitor (see Figure 2) detects 10 ppm H<sub>2</sub>S or greater, all entities and individuals located within the 500 ppm ROE (see Figure 4) will be notified by the IC or designee that a release is occurring and to stand by for further instructions. Entities will be advised to alert their employees and any third parties working for them, or imminently scheduled to work in the area, of the release and to leave the area and not return until further notice. (Phone numbers are listed in Appendix C).
5. If deemed necessary, Plant personnel as designated by the IC will contact local emergency response service providers (phone numbers provided in Appendix C).
6. All personnel will be accounted for at Emergency Assembly Area 1 using the Plant sign in sheet and air quality will be monitored for H<sub>2</sub>S concentrations. If H<sub>2</sub>S concentrations reach 10 ppm or greater at Emergency Assembly Area 1, all personnel will be evacuated to Emergency Assembly Area 2 using the designated routes (see Figures 2C and 4).
7. If the concentration of H<sub>2</sub>S in the control room reaches 10 ppm, the Control Room Operator will also put on a 30 minute SCBA.
8. Responding Operator(s) wearing SCBAs will assess the location of the alarm and attempt to make an initial determination of its cause and rule out potential false alarms based on sensor malfunction or other conditions. If the cause of the release is a minor problem such as a packing or seal leak, the Operator(s) will attempt to take the necessary steps to correct the situation and eliminate the source of the release.
9. IC will designate secondary re-entry teams in 30-minute SCBA's to re-enter and resolve the situation. Re-entry will occur in 15-minute increments at the direction of the IC until the problem is resolved or the Emergency Shutdown (ESD) is activated.
10. If corrective actions are successful, and the release is resolved and monitored H<sub>2</sub>S levels in the Plant return to less than 10 ppm, the IC or designee will signal all clear, and personnel will be allowed to sign in and re-enter the Plant to resume work.
11. If the release is not resolved and H<sub>2</sub>S levels continue to rise IC will initiate a Level 2 Response and/or instruct Operators to initiate Plant ESD.
12. The IC will initiate and maintain a Chronologic Record of Events Log (see Appendix F).
13. The Plant Supervisor or designee will contact the Oil Conservation Division (OCD) district office within 4 hours of a release that activates the plan at Level 1. **Per 19.15.11.16 NMAC, notification of Contingency Plan implementation will be submitted to the OCD via form C-141 within 15 days of release.**

## **LEVEL 2 ACTIVATION**

### **Activating Conditions:**

- **Corrective actions at Level 1 are unsuccessful;**
- **90 ppm of H<sub>2</sub>S or greater is detected at any fixed monitor.**
- **Operators activate ESD.**

### **Alarm and Automated Activations:**

- **Continuous horn and flashing yellow lights will be activated. The horn 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 backup battery capabilities as recommended in API RP 55 which insure their operation in the event of a power failure.**

### **Actions:**

1. The responding Operator(s), will put on SCBAs and help any persons in distress to evacuate to Emergency Assembly Area 2 (see Figure 4).
2. The Plant Supervisor and the Control Room Operator will be notified. The Plant Supervisor, or designee, will assume the role of IC. The Control Room Operator will put on SCBA, remain in the control room and monitor H<sub>2</sub>S concentrations throughout the Plant.
3. All personnel will be evacuated to Emergency Assembly Area 2 via designated routes (see Figure 4).
4. At Emergency Assembly Area 2, all personnel will be accounted for using the Plant sign-in list, and air quality will continue to be monitored for H<sub>2</sub>S at Emergency Assembly Area 2.
5. If two or more monitors within the AGI fenced area or around the AGI compressor (see Figure 2) detect 90 ppm H<sub>2</sub>S or greater, AGI compression will be shut down.
6. Plant ESD can be activated at any time by the Zia II Plant Operators as they and the IC determine that conditions are appropriate for such action.
7. Incident Command Center (ICC) will be established at Emergency Assembly Area 2.
8. A media staging area adjacent to Emergency Assembly Area 2 will be established and all media will be directed to it.
9. IC will designate personnel with H<sub>2</sub>S monitors and emergency trailers to move to the designated Level 2 (500 ppm ROE) roadblock areas shown on ROE map. Lusk Plant Road (CR-248), Dry Lake Road (CR 126) and Maljamar Road (CR 126a) will be blocked to prevent entry into the 500 ppm ROE (see Figure 4). Air quality will be monitored at each road block.
10. Emergency Responders, local law enforcement BLM and state agencies, including the OCD District Office (phone numbers provided in Appendix C) will be notified of the release and the status of containment by the IC or designee.
11. Designated personnel will notify all entities, individuals and producers within the 500 and 100 ppm ROE (phone numbers provided in Appendix C) of the nature of the release and the status of containment. All will be instructed to evacuate, or shelter in place, depending on the nature of the release and the prevailing wind conditions. They will be instructed to immediately alert all company personnel, third party contractors and/or service companies working in the area and those imminently scheduled to work in the area of the Plant evacuation status and advise them to leave and not reenter the Plant vicinity until further notice. All will be advised of the roadblocks on Lusk Plant Road (CR-248), Dry Lake Road (CR 126) and Maljamar Road (CR 126a).
12. Re-entry will occur in full SCBA and at 15-minute increments at the direction of the IC until IC determines problem has been resolved.
13. If release is resolved and monitored levels of H<sub>2</sub>S in the Plant are less than 10 ppm, IC or designee may authorize personnel to return to the Plant.
14. All entities and individuals previously notified will be informed that the release has been resolved and advised of the current monitored H<sub>2</sub>S levels. Roadblocks will be recalled, and traffic will be restored.
15. If monitored H<sub>2</sub>S levels at Emergency Assembly Area 2 or Level 2 roadblocks exceed 10 ppm, all personnel will evacuate to General Emergency Assembly Area 3 via designated route, ICC and media staging area will also be moved to Assembly Area 3.
16. If the release is not resolved or H<sub>2</sub>S levels continue to increase, IC will initiate a Level 3 Response.
17. The IC will initiate and maintain a Chronologic Record of Events log. (Appendix F)
18. The Plant Supervisor or designee will contact the Oil Conservation Division (OCD) district office within 4 hours of a release that activates the plan at Level 1. **Per 19.15.11.16 NMAC, notification of Contingency Plan implementation will be submitted to the OCD via form C-141 within 15 days of release.**

## LEVEL 3 ACTIVATION

### Activating Conditions:

- Corrective actions at Level 2 are unsuccessful;
- H<sub>2</sub>S concentrations reach 10 ppm or greater at Emergency Assembly Area 2;
- H<sub>2</sub>S concentrations reach 10 ppm or greater at Level 2 roadblocks;
- A catastrophic release, fire or explosion has occurred;
- A continuous release of maximum volume for 24 hours occurs;
- As per NMAC 19.15.11 there is indication of 100 ppm H<sub>2</sub>S in any defined public area, 500 ppm at any public road, or 100ppm at a distance greater than 3,000 feet from the site of the release.

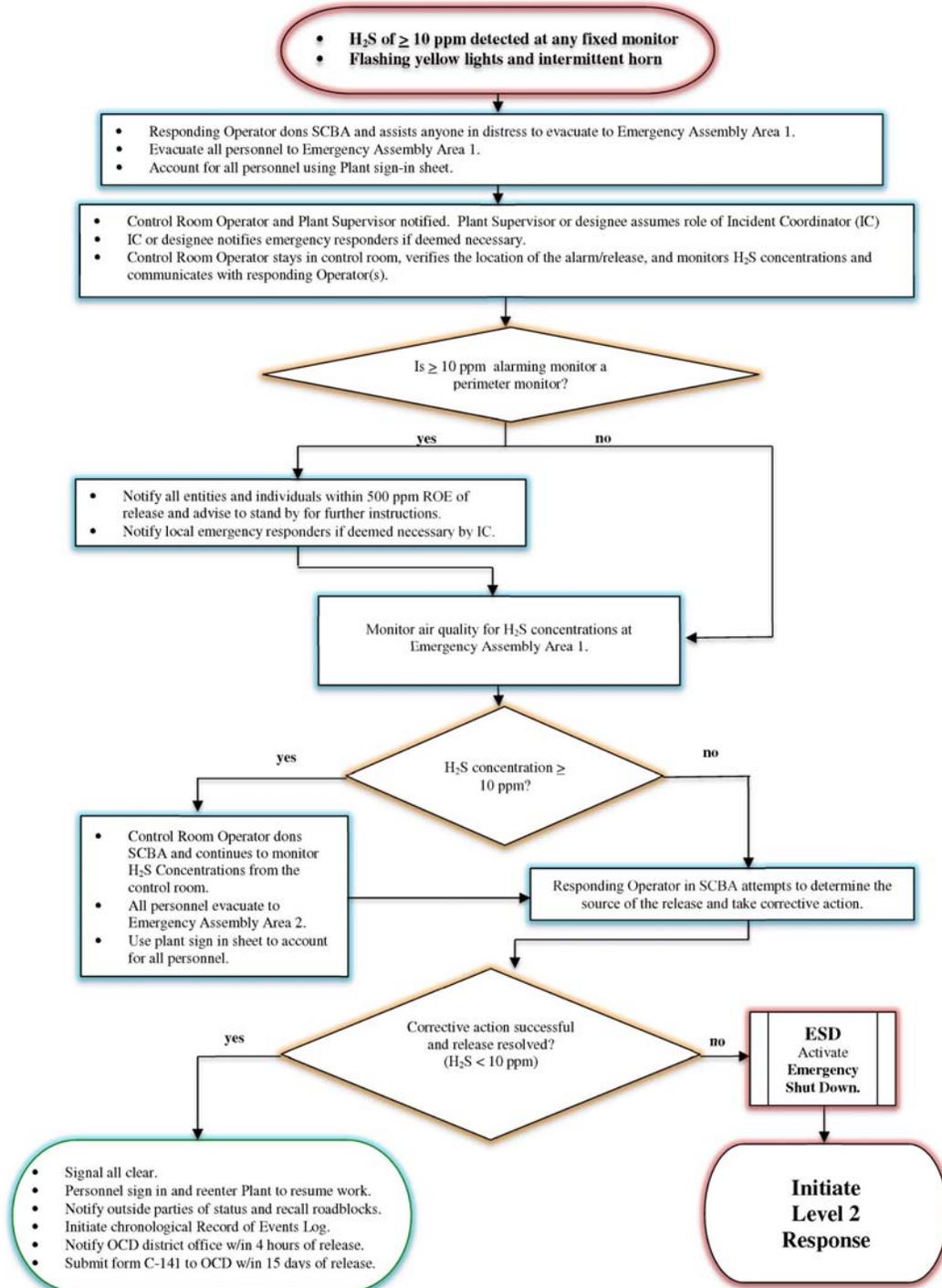
### Actions:

1. All personnel should be evacuated to and accounted for at Emergency Assembly Area 3 using the Plant sign in sheet, and air quality will be monitored for H<sub>2</sub>S concentrations (see Figure 4).
2. IC shall have activated or will immediately activate Plant ESD.
3. The ICC and media staging area shall be established and/or moved to Emergency Assembly Area 3.
4. Dispatch personnel with emergency trailers to move or establish designated Level 3 roadblocks at Lusk Plant Road (CR-248), Dry Lake Road (CR 126) and Maljamar Road (CR 126a) to prevent entry into the 100 ppm ROE (see Figure 4). Monitor H<sub>2</sub>S concentrations at the roadblocks.
5. Local emergency responders, BLM, and state agencies, including the OCD District Office, will be notified of the release and status of containment (phone numbers provided in Appendix C).
6. All individuals and entities within the 100 ppm ROE will already have been notified to evacuate or shelter in place. IC will review the status of evacuation, and make the final decision whether individuals within the 100 ppm ROE should evacuate or shelter in place based on, but not limited to H<sub>2</sub>S concentration, wind conditions and whether a safe evacuation can be implemented. If individuals within the 100 ppm ROE are instructed to evacuate, IC will recommend an evacuation route. All entities will be instructed to immediately alert all company personnel, third party contractors and/or service companies working in the area and those imminently scheduled to work in the area of the Plant evacuation status and advise them to leave and not enter, or re-enter the Plant vicinity until further notice. All will be advised of the roadblocks on Lusk Plant Road (CR-248), Dry Lake Road (CR 126) and Maljamar Road (CR 126a).
7. If escaping vapors have been ignited, the vapors should be allowed to continue to burn unless the fire endangers personnel, the public, other property, or other equipment.
8. Re-entry will occur in full SCBA and cascade breathing air systems at the direction of the IC until IC determines problem has been resolved.
9. Once release is resolved and monitored levels of H<sub>2</sub>S in the Plant are less than 10 ppm, IC or designee may authorize personnel to sign in and return to the Plant.
10. All entities and individuals previously notified will be informed that the release has been resolved and advised of the current monitored H<sub>2</sub>S levels at the Plant. Roadblocks will be recalled and traffic will be restored.
11. The IC will initiate and maintain a Chronologic Record of Events log. (Appendix F)
12. The Plant Supervisor or designee will contact the Oil Conservation Division (OCD) district office within 4 hours of a release that activates the plan at Level 1. **Per 19.15.11.16 NMAC, notification of Contingency Plan implementation will be submitted to the OCD via form C-141 within 15 days of release.**

# **APPENDIX B**

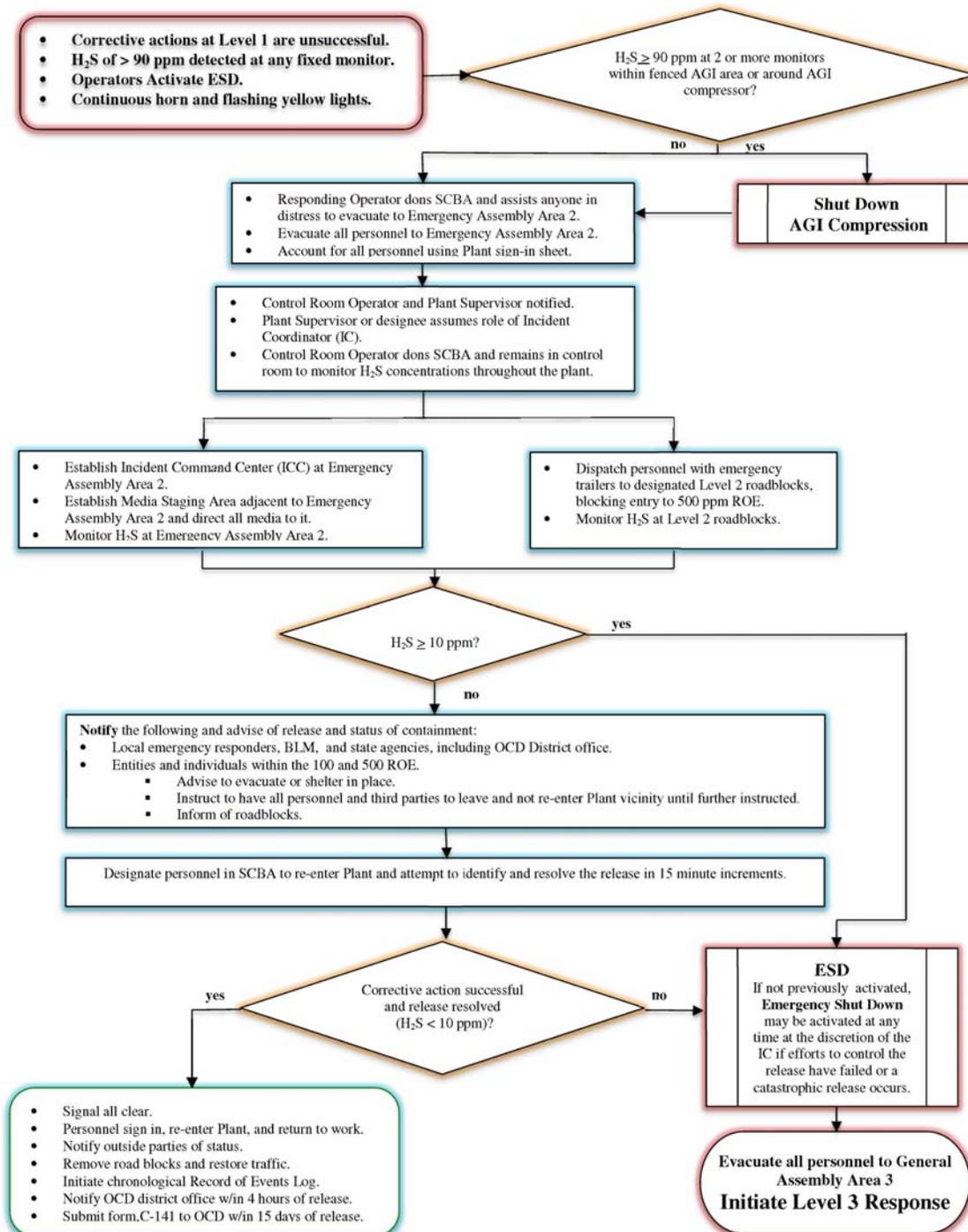
## **RESPONSE FLOW DIAGRAMS**

### ZIA II Gas Plant—Level 1 Activation Response Flow



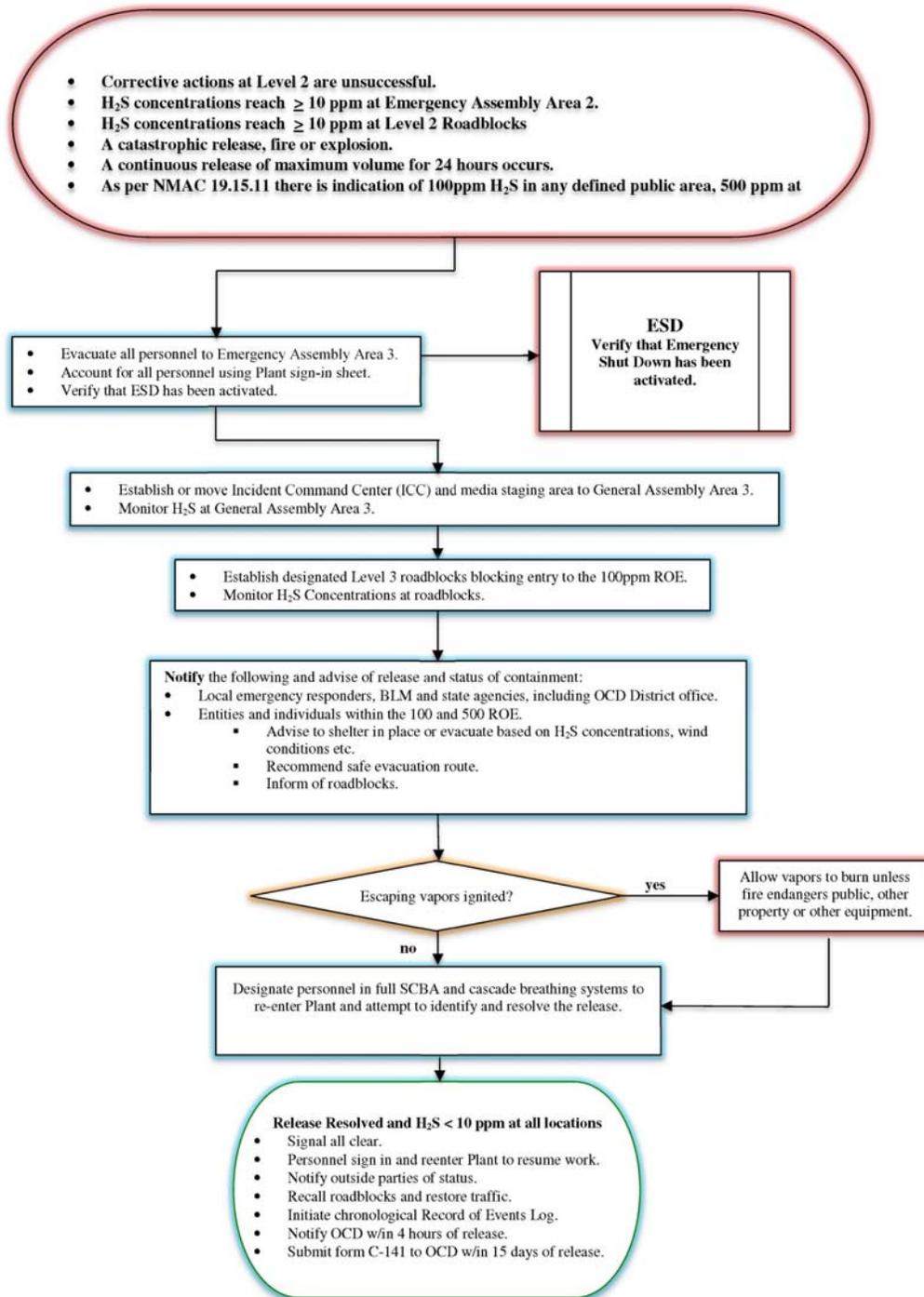
P:\14-007\Reports\H2S Contingency Plan\Appendices\Appendix B Response Flow Diagrams\ZIA FLOWCHART- LEVEL 1 RESPONSE.docx

### ZIA II Gas Plant —Level 2 Activation Response Flow



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### ZIA II Gas Plant—Level 3 Activation Response Flow



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## APPENDIX C TELEPHONE NUMBERS EMERGENCY CALL LIST

### BUSINESSES AND PUBLIC RECEPTORS WITHIN THE ROE

**There are none**

### PRODUCERS WITH WELLS WITHIN THE ROE

<b>PRODUCER</b>	<b>OFFICE LOCATION</b>	<b>Office Phone</b>
<b>500 ppm ROE</b>		
Chisos, Ltd.	670 Dona Ana Rd SW Deming, NM 88030	575-546-8802
COG Operating LLC	600 W. Illinois Ave One Concho Center Midland, TX 79701	575-748 6940
Devon Energy	333 W Sheridan Ave Oklahoma City, OK 73102	405- 235-3611
Oxy USA, Inc.	1017 W Stanolind Rd Hobbs, NM 88240	575-397-8237
Shackelford Oil Co	203 W Wall St #200 Midland, TX 79701	432-682-9784
Tandem Energy Corp	200 N Loraine, Suite 500 Midland, TX 77210	432-686-7136
Tom R. Cone	1304 W Broadway Pl Hobbs, NM 88240	575-396-3681
<b>100 ppm ROE</b>		
Apache Corp.	303 Veterans Airpark Ln Suite 3000 Midland, TX 79705	432-838-1062
BOPCO, LP	3104 E Greene St Carlsbad, NM 88220	575-887-7329
Cimarex Energy Company of Colorado	600 N. Marienfeld Street, Suite 600 Midland, TX 79701	432-571-7800
Endurance Resources, LLC	11382 Lovington Hwy Artesia, NM 88210	575-308-0722
Lynx Petroleum Consultants, Inc.	3325 N Enterprise Dr Hobbs, NM 88240	575-392-6950
Ray Westall Operating, Inc.	PO Box 1 Loco Hills, NM 88255	575-677-2376
Yates Petroleum Corporation	105 South 4th Street Artesia, NM 88210	575-748-1471

**DCP COMPANY INTERNAL NOTIFICATIONS**

<b>NAME</b>	<b>TITIE</b>	<b>OFFICE</b>	<b>CELL</b>
Todd Allison	Zia II Plant Supervisor		361-318-3275
Charlie Joslin	Hobbs Plant Supervisor		575-802-5101
Russ Ortega	SENM Asset Director	575-597-5598	575-390-7160
Lionel Torrez	SENM Asset Safety Coordinator	575-677-5227	575-618-9475
Jackie Strickland	GM Operations Permian Region	432-620-4066	979-732-7893
Bryan Frederick	President G&P Business Unit	713-735-3667	713-503-3130
	Safety Manager Permian Region	432-620-4009	
	DCP Gas Control, Houston, TX	800-435-1679	N/A
Brad Griffith	PSM Coordinator	575-677-5223	575-499-6873

**EMERGENCY RESPONDERS**

<b>AGENCY</b>	<b>PHONE</b>
Emergency Dispatch	911
Hobbs Fire Department	575-397-9308
Hobbs Police Department	575-397-9265
Hobbs Ambulance Service	575-397-9308
New Mexico State Police (Hobbs)	575-392-5580
Lea County Sheriff's Office	575-396-3611
Hobbs-Lea Regional Medical Center	575-492-5000
Lubbock University Medical Center (UMC) (Level 1 Trauma Center)	806-345-9911
New Mexico Poison Control (Albuquerque)	800-222-1222
<b>HELICOPTER SERVICES</b>	
AeroCare (Lubbock)	800-823-1991
Air Med (El Paso)	800-527-2767

**COUNTY AND LOCAL LAW ENFORCEMENT AND PUBLIC AGENCIES**

<b>AGENCY</b>	<b>PHONE NUMBER</b>
Oil Conservation Division Santa Fe Office District 1 Office, Lea County (Hobbs)	505-476-3440 575-370-3186
Local Emergency Planning Committee (LEPC) Lea County	575-396-8607
New Mexico State Police (Hobbs)	575-392-5580

Lea County Sheriff's Office	575-396-3611
National Response Center (NRC)	800-424-8802
New Mexico Department of Homeland Security & Emergency Management (NMDHSEM)	505-476-9600
New Mexico Emergency Response Commission in NMDHSEM	505-476-9640
New Mexico Department of Public Safety	505-827-9282
Bureau of Land Management (Carlsbad Office)	575-234-5972

## **APPENDIX D**

### **RADIUS OF EXPOSURE (ROE) CALCULATIONS**

<b>DCP</b>			
<b>MIDSTREAM ZIA II PLANT INLET Stream ROE CALCULATIONS PURSUANT TO RULE 11</b>			
<b>If data is provided in mole% use calculator below for getting ppm</b>			
Enter Mole % in cell C5	Mole %	ppm	
Convert mole% to ppm	0.9992	9992	
<b>If data is provided in mole fraction use calculator below for getting ppm</b>			
Enter Mole Fraction in cell C10	Mole Fraction	ppm	
Convert mole fraction to ppm		0	
<b>Use ppm derived from either of above calculations to input data below</b>			
<b>Input Data Here</b>	H <sub>2</sub> S Concentration (ppm)	9992	
	24 Hour Throughput (MMCFD)	200	
<b>The radius of exposure is calculated using the following equations:</b>			
100 ppm ROE calculation (as per 19 NMAC 15.11.7.K.1)			
$X_{100\text{ppm}} = [(1.589)(\text{Conc}_{\text{H}_2\text{S}})(Q)]^{(0.6258)}$			
500 ppm ROE calculation (as per 19 NMAC 15.11.7.K.2)			
$X_{500\text{ppm}} = [(0.4546)(\text{Conc}_{\text{H}_2\text{S}})(Q)]^{(0.6258)}$			
<b>Where:</b>			
X = radius of exposure (ft)			
Conc <sub>H<sub>2</sub>S</sub> = the decimal equivalent of the mole or volume fraction of H <sub>2</sub> S in the gas			
Q = daily plant throughput corrected to standard conditions (SCFD)			
<b>Plant parameters</b>			
Q =	200 MMSCFD =	200000000 SCFD	
Conc <sub>H<sub>2</sub>S</sub> =	9992 ppm =	0.9992 Mole % =	0.009992 Mole Fraction
<b>ROE calculation:</b>			
X <sub>100ppm</sub> =	[(1.589)*(0.009992)*(200000000)]^(0.6258)		
X <sub>100ppm</sub> =	11717 ft =	2.22 miles	
X <sub>500ppm</sub> =	[(0.4546)*(0.009992)*(200000000)]^(0.6258)		
X <sub>500ppm</sub> =	5354 ft =	1.01 miles	

DCP				
MIDSTREAM ZIA II PLANT TAG Stream ROE CALCULATIONS PURSUANT TO RULE 11				
<b>If data is provided in mole% use calculator below for getting ppm</b>				
Enter Mole % in cell C5	Mole %	ppm		
Convert mole% to ppm	14.2853	142853		
<b>If data is provided in mole fraction use calculator below for getting ppm</b>				
Enter Mole Fraction in cell C10	Mole Fraction	ppm		
Convert mole fraction to ppm		0		
<b>Use ppm derived from either of above calculations to input data below</b>				
<b>Input Data Here</b>	H <sub>2</sub> S Concentration (ppm)	142853		
	24 Hour Throughput (MMCFD)	13.9892		
The radius of exposure is calculated using the following equations:				
100 ppm ROE calculation (as per 19 NMAC 15.11.7.K.1)				
$X_{100\text{ppm}} = [(1.589)(\text{Conc}_{\text{H}_2\text{S}})(Q)]^{(0.6258)}$				
500 ppm ROE calculation (as per 19 NMAC 15.11.7.K.2)				
$X_{500\text{ppm}} = [(0.4546)(\text{Conc}_{\text{H}_2\text{S}})(Q)]^{(0.6258)}$				
Where:				
X = radius of exposure (ft)				
Conc <sub>H<sub>2</sub>S</sub> = the decimal equivalent of the mole or volume fraction of H <sub>2</sub> S in the gas				
Q = daily plant throughput corrected to standard conditions (SCFD)				
Plant parameters				
Q =	13.9892	MMSCFD =	13989200	SCFD
Conc <sub>H<sub>2</sub>S</sub> =	142853	ppm =	14.2853	Mole %= 0.142853 Mole Fraction
ROE calculation:				
X <sub>100ppm</sub> =	[(1.589)*(0.142853)*(13989200)]^(0.6258)			
X <sub>100ppm</sub> =	11717 ft	=	2.22 miles	
X <sub>500ppm</sub> =	[(0.4546)*(0.142853)*(13989200)]^(0.6258)			
X <sub>500ppm</sub> =	5354 ft	=	1.01 miles	



Bryan Research & Engineering, Inc.

**ProMax<sup>®</sup> 3.2**

with  
**TSWEET<sup>®</sup> & PROSIM<sup>®</sup>**

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## Simulation Report

**Project: DCP Zia - Summer Recovery - 1% H2S - 6% CO2 Normalized Gas Analyses-Rev-4.pmx**

**Licensed to DCP Midstream, LP and Affiliates**

Client Name: DCP Midstream  
Location: New Mexico  
Job: 9420 DCP Zia II

ProMax Filename: C:\ZiaII\04-Process Models\DCP Zia - Summer Recovery - 1% H2S - 6% CO2 Normalized Gas Analyses-Rev-4.pmx  
ProMax Version: 3.2.12198.0  
Simulation Initiated: 2/14/2014 11:50:48 AM

### Bryan Research & Engineering, Inc.

Chemical Engineering Consultants  
P.O. Box 4767 Bryan, Texas 77805  
Office: (979) 776-5220  
FAX: (979) 776-4818  
<mailto:sales@bre.com>  
<http://www.bre.com>

Report Navigator can be activated via the ProMax Navigator Toolbar.

An asterisk (\*), throughout the report, denotes a user specified value.

A question mark (?) after a value, throughout the report, denotes an extrapolated or approximate value.

Component	Mol %
Hydrogen Sulfide	0.9992
Nitrogen	2.2311
Methane	68.3532
Carbon Dioxide	5.9954
Ethane	12.6577
Propane	6.1254
i-Butane	0.6925
n-Butane	1.6637
i-Pentane	0.3755
n-Pentane	0.3703
Neohexane	0.0035
Cyclopentane	0.0357
2-Methylpentane	0.0707
3-Methylpentane	0.0405
Hexane	0.0776
Methylcyclopentane	0.0493
Benzene	0.0458
Cyclohexane	0.0463
2-Methylhexane	0.0094
3-Methylhexane	0.0128
Cyclopentane, 1,1-Dimethyl-	0.0203
Heptane	0.0144
Methylcyclohexane	0.0248
Cyclopentane, 1,1,2-Trimethyl-	0.0012
Toluene	0.0169
2-Methylheptane	0.0062
3-Methylheptane	0.0012
Cyclohexane, 1,1-Dimethyl-	0.0036
Octane	0.0023
Ethylbenzene	0.0013
p-Xylene	0.0016
o-Xylene	0.0003
Cyclooctane	0.0021
Octane, 3-Methyl-	0.0030
Nonane	0.0004
Decane	0.0001
Undecane	0.0004
Dodecane	0.0003
Water	0.0439
DGA	0.0000
MDEA	0.0000
Piperazine	0.0000
TEG	0.0000
Total	100
Total Flow	200 MMSCFD

DCP ZIA GAS PLANT  
CONVERSION OF INLET GAS TO TREATED AID GAS

Inlet Gas	Inlet Gas	TAG % (calculated)
H2S	0.9992	14.2853
CO2	5.9954	85.7147
Various	93.0054	---
Total	100.0000	100.0000
Flow Rate	200	13.9892

## **APPENDIX E**

### **H<sub>2</sub>S PLAN DISTRIBUTION LIST**

New Mexico Oil Conservation Division, Santa Fe Office

New Mexico Department of Public Safety (State Office)

Lea County LEPC/Emergency Manager\*

Zia II Plant Supervisor's Office

Zia II Plant Control Room

DCP SENM Asset Manager's Office

DCP Permian Region Safety Manager's Office, Midland, TX

Zia II Plant Emergency Trailers

New Mexico State Police, Hobbs Office

State of New Mexico Emergency Response Commission (SERC)

Bureau of Land Management (BLM) Carlsbad Field Office

\*Note: Lea County LEPC Emergency Manager will make and send copies of this plan to appropriate entities within his jurisdiction, including the Hobbs Fire Department.

## **APPENDIX F**

### **CHRONOLOGIC RECORD OF EVENTS LOG**



## **APPENDIX G**

### **NEW MEXICO OIL CONSERVATION DIVISION FORM C-141**

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

### Release Notification and Corrective Action

#### OPERATOR

Initial Report     Final Report

Name of Company		Contact
Address		Telephone No.
Facility Name		Facility Type
Surface Owner	Mineral Owner	API No.

#### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_

#### NATURE OF RELEASE

Type of Release	Volume of Release	Volume Recovered
Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.*		
Describe Area Affected and Cleanup Action Taken.*		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		
Signature:		<b>OIL CONSERVATION DIVISION</b>
Printed Name:		Approved by Environmental Specialist:
Title:	Approval Date:	Expiration Date:
E-mail Address:	Conditions of Approval:	Attached <input type="checkbox"/>
Date:	Phone:	

\* Attach Additional Sheets If Necessary



# H<sub>2</sub>S Contingency Plan

## Zia II Gas Plant

DCP Midstream, LP

REVISED

July 2016

~~June 2015~~

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**VII. FACILITY DESCRIPTION, MAPS AND DRAWINGS [NMAC 19.15.11.9.B (2)(c)]**  
**[API RP-55 7.4 c.]**

**DESCRIPTION OF PLANT OPERATIONS AND ZIA #1 AND #2 AGI WELLS**

The Plant and AGI Wells are in operation and are manned 24-hours-a-day, 7-days-a week. The Plant operations include gas compression, treating and processing. The Plant gathers and processes produced natural gas from Lea and Eddy Counties in New Mexico. Once gathered at the Plant, the produced natural gas is compressed, dehydrated to remove the water content and processed to remove and recover natural liquids. The processed natural gas and recovered natural gas liquids are then sold and shipped to various customers. The inlet gathering lines and pipelines that bring gas into the plant are regulated by DOT, NACE other applicable standards which require that they be constructed and marked with appropriate warning signs along their respective right-of-ways.

Because the natural gas that is gathered and processed at the Plant contains H<sub>2</sub>S (“sour gas”), it must be treated or processed to remove these and other impurities. The CO<sub>2</sub> and H<sub>2</sub>S stream that is removed from the natural gas in the amine treating process is compressed to approximately 1,500 – 2,644 psi. This is accomplished using electric driven, reciprocating compressors. Water vapor contained in the gas stream is removed during compression and cooling and is disposed of through a wastewater disposal system. The compressed acid gas is transported via an overhead stainless steel, corrosion-resistant, NACE-compliant pipe, approximately 1,050 feet in length, from the compressor to the AGI Wells. ~~where AGI #1 it is injected~~ into the lower Cherry Canyon (5,470 to 5,670 feet) and upper Brushy Canyon (5,670 to 6,070 feet) Formations. ~~AGI #2 will inject into the Siluro-Devonian between 13,700 and 14,650 feet.~~ The pipe between the compressors and the AGI Wells is contained totally within the boundaries of the Plant and does not cross any public roads. H<sub>2</sub>S sensors are located at critical junctions along the pipe which is run on an overhead pipe rack. The pressure in the pipe is monitored continuously so that the acid gas injection process could be stopped should there be any unusual variations in pressure.

~~The two AGI wells are identical in drilling, casing and completion and differ only in their surface locations, direction and bottom hole locations.~~—The AGI Wells are integral components of the Zia Gas Plant design. Both of the wells are constructed using the ~~same~~ materials ~~as~~ shown in Figures 5a and 5b. The overall schematic of the AGI wells is shown in Figure 6. The intermediate casing of each well extends to 4,600 feet to assure the protection of the Capitan Aquifer and the Upper Delaware Group. Each string of the telescoping casing is cemented to the surface and includes the “downhole” subsurface safety valves (SSVs) which are located approximately 250 feet below the surface on the production tubing to assure that fluid cannot flow back out of the well in the event of a failure of the injection equipment. In addition, the annular space between the projection tubing and the well bore are filled with diesel fuel (an inert fluid) as a further safety measure which is consistent with injection well designs that have been approved by NMOCD for acid gas injection.

Per National Association of Corrosion Engineers (NACE) specifications, downhole components including the SSV and packer are constructed of Inconel 925. Corrosion Resistant Alloy (CRA) joints are constructed of a similar nickel alloy manufactured by Sumitomo. The gates, bonnets and valve stems within the Christmas tree are nickel coated as well. The rest of the Christmas tree is made of standard carbon steel components and outfitted with annular pressure gauges that remotely reports operating pressure conditions in real time to a gas control center. Pursuant to NMAC 19.15.11.12.D(2), in the case of abnormal pressures or any other situation requiring immediate action, the acid gas injection process can be stopped at the compressor, and the wellhead can be shut in using a hydraulically operated wing valve on the Christmas tree. The Plant operator or IC may also shut the SSV. In addition, the well has profile nipples which provide the ability to insert a blanking plug into the base of the well below the packer

Location: DCP Zia AGI #1 (API 10-025-42200)  
 WTR: Section 1901, T1-P2, S32E (1609 FNL & 950' FWL)  
 County, St: LEA COUNTY, NEW MEXICO

**16.2 DEGREE SLANT**

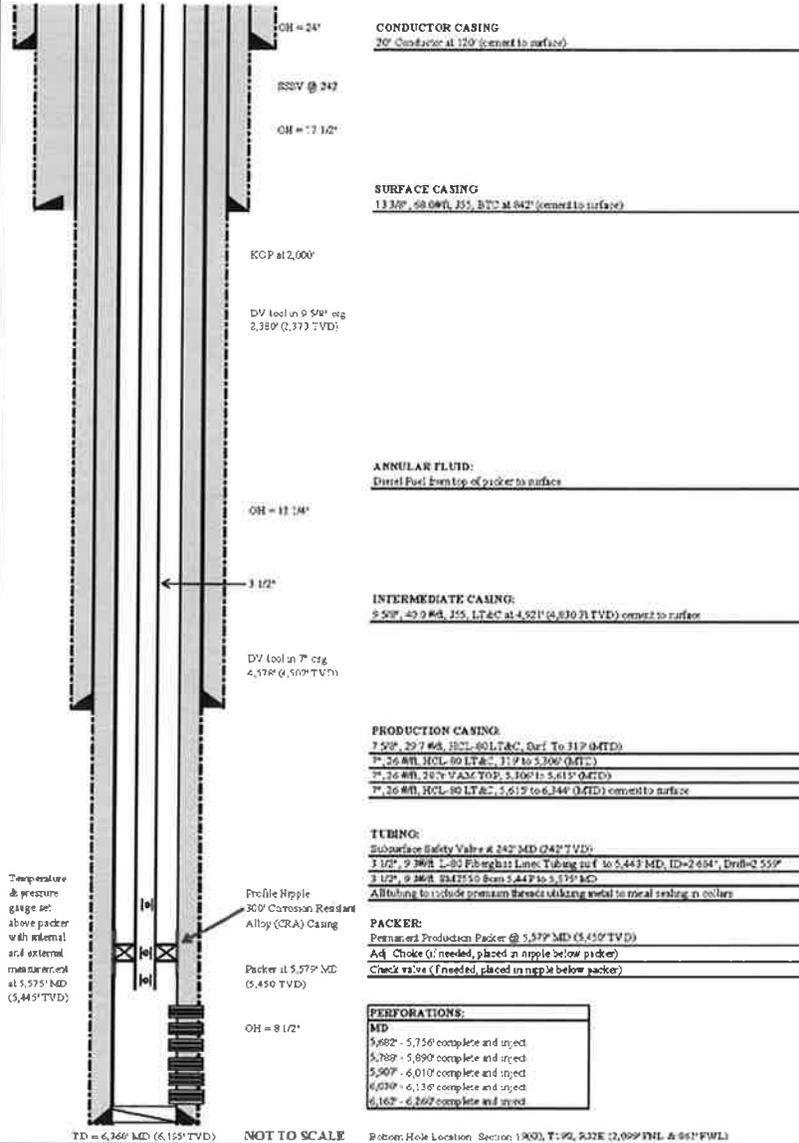


Figure 5a: Well Design Schematic – Zia AGI #1

Lea County, NM  
Section 19 T19S R32E

ZIA AGI 2  
Devonian AGI

Rig: Unknown  
Cmt: Unknown  
Mud: Unknown  
Dir Drig: Unknown  
Wellhead: Unknown  
AFE Days: 47  
AFE Cost: \$4,720,000 @ RR

SHL  
1900' FSL  
950' FWL

**GEOLEX**  
INCORPORATED

KB: ?  
GL: ?

32.\*\*\*\*\*N / 103.\*\*\*\*\*W

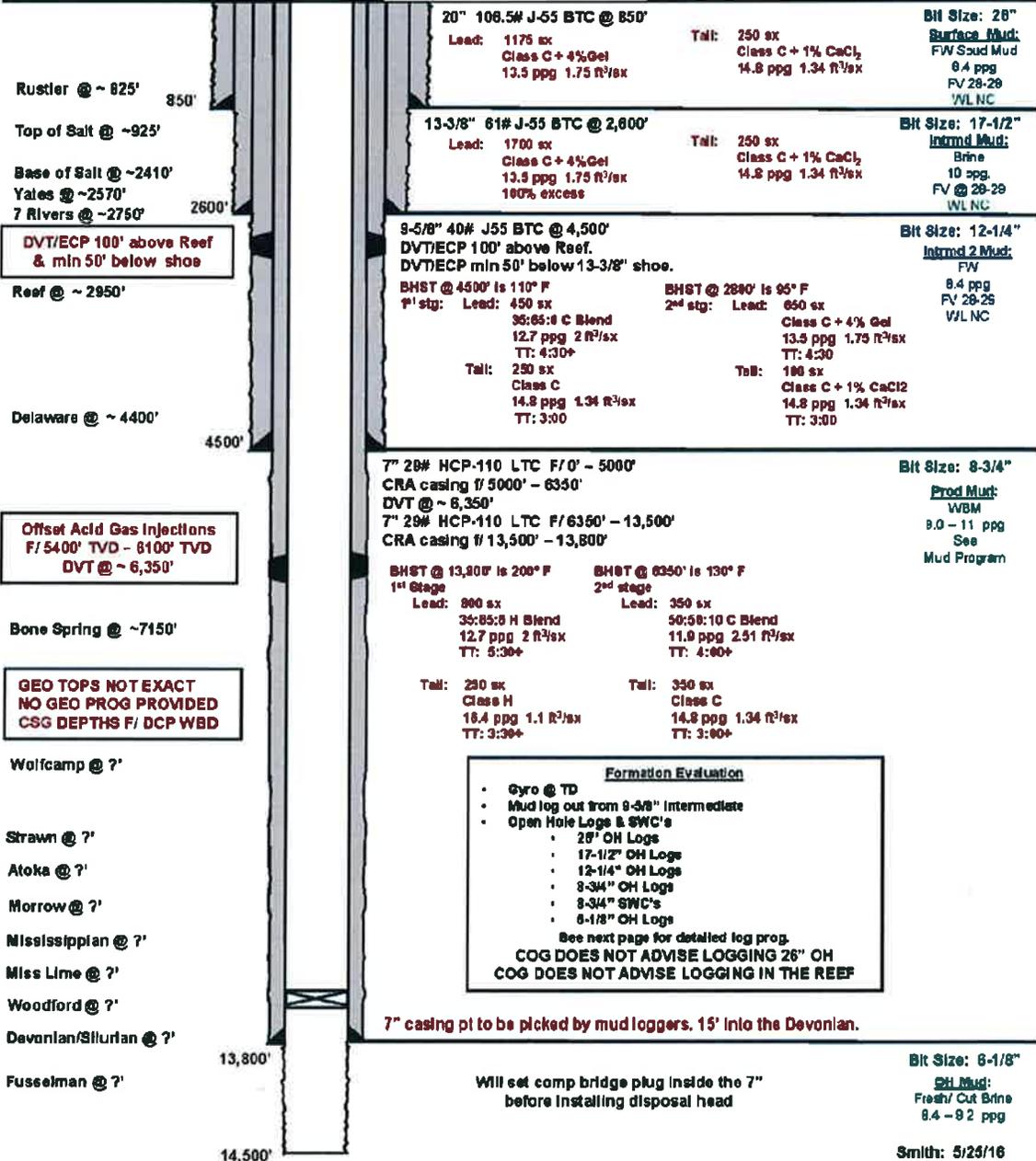
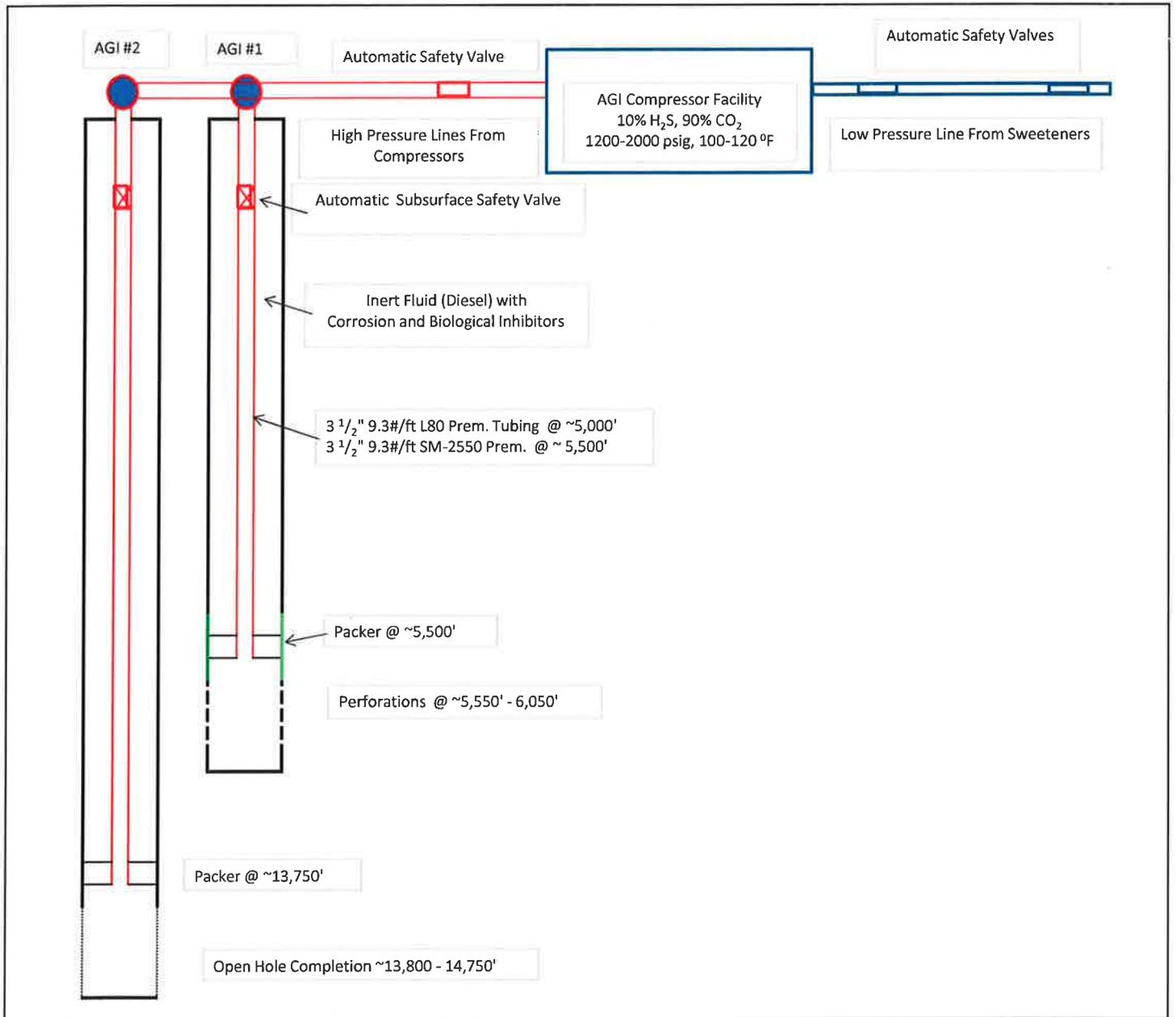


Figure 5b: Well Design Schematic - ZIA AGI #2



**Figure 6: AGI Well Facility Schematic**