H2S – 61

OCD COMMENTS
OXY HOBBS
H2S CP

04/03/2013

OPERATOR QUICK REFERENCE GUIDE

If H2S (facility alarm or personal monitor) is detected greater than 10 ppm [1]

- Move away from the source and get away from the affected area-with continuous *wind direction awareness* (upwind and perpendicular to the release)
- Verbally alert other affected personnel and direct them to a safe assembly area [2]
- Don personal SCBA and assist personnel in distress (always use the Buddy system) [3]
- Account for on-site personnel
- Take immediate measures to control the presence of or potential H2S discharged and to eliminate possible ignition sources. Emergency shutdown procedures should be initiated as necessary to correct or control the specific situation.

Was release abated?

Yes

- Call Team Lead.
- Monitor air to see when re-entry is safe (< 10 ppm H2S)

No [4]

Call Team Lead. Monitor air with H2S monitor within ROE to determine if public is affected by 100 ppm H2S in a public area, 500 ppm H2S on a public road, or 100 ppm over 3000 ft.

Was public affected by release?

No

Monitor air and cordon off area until re-entry is safe (<10 ppm H2S) [5]

Yes

Call 911

- Activate H2S Contingency Plan
- Coordinate with Fire Dept. regarding blocking unauthorized access to the unsafe area and assist as appropriate. Make ROE's and site drawings available to Fire Dept.
- Coordinate with Fire Dept regarding the evacuating the public and assist as appropriate.

Notify NMOCD and National Response Center as applicable.

Information to provide 911 Operator

- Name, phone number and/or address of person reporting emergency
- Location of emergency (Well or facility number, cross street and/or lat/long)
- Any known injuries or missing persons
- Concise statement of what is happening
- What type of emergency services are needed on location

Summary of Comments on REACTION-TYE CONTINGENCY PLAN

Page: 3

Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 9:14:22 AM

facility alarm is not discussed in CP
personal monitors are only mentioned once and not discussed
SO2 is not addressed in detail in Part 11, but is part of RP-55

Number: 2 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 9:03:06 AM

maps do not show safe assembly areas.

Number: 3 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 9:06:24 AM

Text indicates only that Night Riders have SCBA - need to address Gas Plant ops.

What other Oxy staff are in the field during the day and weekends?

Number: 4 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 9:07:34 AM

How would field personnel know what the ROE is? The point is to select a action level and inform the public. RP-55 specifies 30 and 10 ppm (H2S, SO2).

Oxy indicates 10 ppm for H2S, but doesn't mention SO2.

Number: 5 Author: GVonGonten Subject: Sticky Note Date: 4/2/2013 3:36:57 PM

Understood that FD already has ROEs and maps. Too late to provide when have actual release

REACTION-PROCESS CONTINGENCY PLAN FOR A HYDROGEN SULFIDE GAS EMERGENCY INVOLVING THE OXY PERMIAN-HOBBS AREA

Section I.

A. Purpose and Scope of Plan Coverage

The purpose of this plan is to provide for the logical, efficient and safe emergency response action to be taken by the Occidental Permian, Central Operating Area, Hobbs Operations (Hobbs Area) as required by 19.15.11 NMAC and API RP-55. The protection of the general public and workers in the event of an accidental release of potentially hazardous quantity of Hydrogen Sulfide Gas (H_2S) from the site operations is of the highest priority. The closely associated dangers of CO2 are well known and documented and are covered within the Hobbs Area Emergency Action Plans.

A reaction-type contingency plan is a pre-planned, written procedure for alerting and protecting the public, within an area of exposure, at the moment of an accidental release of a potentially hazardous volume of hydrogen sulfide. It is intended that the senior emergency response official (e.g. Oxy Team Leader or his designee) will become the individual in charge of the Site specific Incident Command System (ICS). All emergency responders and their communication will be coordinated through the individual in charge of the ICS for the Hobbs Area of operation of the Occidental Permian Oil & Gas leases located within or near the proper city limits of the City of Hobbs, New Mexico.

The operations consist of approximately 282 producing oil and gas wells, 189 injection wells, 10 Tank Batteries with vapor recovery units, 16 production satellites1 CO2 Recompression Facility, 4 Water Injection facilities and several thousand feet of underground pipeline injection or production gathering systems. Several automated safety devices are in use, including: Emergency Shut Down (ESD) Valves, H2S Monitors, Continuous Pipeline Integrity Monitoring, and 24 hour Alarm Notification through a local answering service. In addition to the automation, Night Riders are in the field to conduct 24 hour surveillance of the operations and are equipped with SCBA's and Tri-Function gas detection meters. All Hobbs personnel are trained on Standard Operating Procedures and participate in Emergency Response drills and scenarios.

The Hobbs Area has operated a secondary recovery water flood program of the properties and since 2003 has operated a tertiary recovery program which utilizes carbon dioxide (CO2) flood as a means of additional recovery of oil and gas production.

The operational areas of the Hobbs Area are divided into two areas, the North Hobbs and South Hobbs Units. A map of the Hobbs Area boundaries is included as Appendix A in Section IV of this plan

Page: 4

Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:19:36 PM
Oxy must address the different requirements for wells, TBs, GPs, PLs, drilling and workover wells.

Number: 2 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:19:33 PM
19.15.11.6 OBJECTIVE: To require oil and gas operations be conducted in a manner that protects the public from exposure to hydrogen sulfide gas.

Number: 3 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:19:39 PM
Also, RP-68 and RP-49

Number: 4 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:19:43 PM
Need to address SO2 also.

Number: 5 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:19:46 PM
what are the Hobbs Area EAPs?

Number: 6 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:20:05 PM
What about Hobbs FD and Lea Co EM?

Number: 7 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 3:59:18 PM
Need maps, drawings of all facilities, including locations of sensors, lights, sirens, emergency equipment, etc.

Specify which facilities are manned and how unmanned facilities are monitored.

Number: 8 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 4:46:28 PM
need to discuss these safety devices in detail, where located, calibration, etc.
H2S monitor need to be located at well head, not on fences.
Need map of GP with locations of all sensors, equipment, emergency gates, etc.

Number: 9 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:20:10 PM
Text indicates only that Night Riders have SCBA - need to address Gas Plant ops.

Later reference is made to quad-function.

Number: 10 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:20:12 PM
Provide SOPs

Sources of potentially hazardous volumes of H2S gas in the Hobbs Area operations include:

- Oil and gas producing wells and associated flow lines
- Gas gathering systems (pipelines)
- Fluid gathering and handling facilities (satellites and batteries)
- Produced Gas Injection Compression Facility, it's distribution system and associated injection wells

Leaks from these sources could create an H_2S exposure area. Whether such exposure areas would be hazardous would depend upon their location and size. The calculations of the exposure potential, leak size is assumed to be the maximum possible from the particular system. This is generally and intentionally a conservative calculation because the vast majority of leaks will occur as small fraction of the system. These calculations are based on the escape rates as allowed by New Mexico Hydrogen Sulfide standard for existing and new operations. The H2S concentrations were determined using applicable ASTM or GPA standards or another method approved by the NMOCD. Radii of exposure (ROE) were calculated in accordance with these requirements using the approved DNV PHAST chemical dispersion software (see *Section IV* of this plan).

B. Safety and Design Specifications

Production and Injection Wells

All of the SFRM (Specialty Field Risk Management) Wells (See Appendix B for location of these wells) are being equipped with new 3,000 PSI integral type flanged wellheads. These wellheads are constructed with materials that meet or exceed the NACE MRO 175 specification and the API 6A specification for wellhead and Christmas tree equipment.

A high and low-pressure switch that will shut down the pumping unit or Electrical Submersible Pump (ESP) when a condition outside the normal operating range is detected will protect the flowlines. The rod pumped wells are equipped with a polished rod "blow out preventer".

Production fluids are sent to the Satellites through new Zaplock, 4" Schedule 40 ERW pipe (HIC resistant) rated to 2000 PSI.

The Injection System in North Hobbs is a water- alternating- gas injection system (WAG), which means we re-inject all of our produced water. The WAG injection lines are 3" Sch. 40, ASTM A-312, GR TP 316/316L ERW with a MAOP of 2160 psi and are constructed to handle the injection pressure of 1750 psi.

Also, a pressure safety valve on the injection source is designed to protect the injection line. Each CO2 distribution lateral is also protected with thermal relief valves that will prevent a harmful overpressure condition due to trapped CO2.

Page: 5

Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 9:18:13 AM
Need to discuss H2S & SO2 concentrations and ROE using PG to demonstrate requirement to have H2S CP.

Number: 2 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:21:42 PM
Is this the CO2 Recompression Facility

Number: 3 Author: GVonGonten Subject: Sticky Note Date: 4/3/2013 4:13:58 PM
specify what methods for each site. you provided this information in checklist, but it needs to be specified in the CP.

Must specify whether H2S was sampled or by facility knowledge and refer to tables.

Number: 4 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 4:47:56 PM
For the purposes of determining whether a CP is required, Oxy must use PG for ROE.

Provide some discussion of Phast

Number: 5 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:25:24 PM
Section 1.B should follow what was indicated in the section above that specifies what the Hobbs Area operations include.

Need section dealing with CO2 Recompression Facility. Need to detail all safety equipment, monitors, alarms, etc.

Number: 6 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 4:48:26 PM
A conceptual diagram of the project area would be helpful.

Number: 7 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 4:48:28 PM
need to specify BOPs

Number: 8 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:25:23 PM
Define SFRM
CP must cover all wells with H2S >100 PPM
Need to detail how many of Oxy's wells are SFRM and talk about the balance that are not SFRM.

Number: 9 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 9:21:29 AM
specify if 100% of wells are so equipped.

Number: 10 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 9:24:41 AM
what about non "rod pumped wells"?

Batteries & Satellites

The battery and satellite equipment is equipped with safety devices on all the pressure vessels, and production headers. These vessels have been equipped with pressure monitoring devices and pressure safety valves. In the event of an overpressure or an upset situation, the gas volume will be directed to the flare at the battery. The pressure vessel design incorporates Emergency Shutdown (ESD) Valves to protect against an overpressure or underpressure condition. Level alarms and devices have been installed to notify and prevent an unsafe condition due to overflow or gas release. Pressure safety devices and flow control devices will be used to control the pressure and flow during the operation of the central battery.

H2S Monitoring System

Oxy maintains fixed gas monitors in the North and South Hobbs Unit that notify operators of an H2S and or CO2 leak. The monitors detect any condition from 0 to 100 PPM with alarm capability at a high level, low level and a fault condition, and shutdown the producing well to minimize the release of gas. This monitoring system can provide notification to the operations personnel before the problem impacts the public. Battery backup is on standby and ensures continued operation of the monitors due to a power failure. All monitors are calibrated and tested every 90 days and records are kept in the Maximo data base. All SFRM sites (Appendix B) have H2S monitors.

Warning Signs & Markers

In accordance to applicable regulations, warning signs containing the words 'poison gas' are posted at all surface facilities and buried lines in the high-pressure gas distribution system where the potential exists to be exposed to a release of hydrogen sulfide gas. The posted markers and signs warn of the impending danger if the line ruptures.

Security

All the injection and producing wells that are classified as SFRM (See Appendix B for SFRM locations) are equipped with fencing around the wells. This fencing serves as a deterrent to public access and will remain locked when unattended.

Hydrogen Sulfide Precautions during Operations

Lease Operators and Maintenance personnel are required to have in their possession all the customary personal safety equipment such as hard hats, steel toe shoes and safety glasses. In addition each operator is equipped with a personal H2S monitor and is required to have it with him when working in a known H2S environment. All monitors will be calibrated on a monthly basis to assure proper working condition and accuracy.

Page: 6

Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 2:37:23 PM
Need to specify how many TBs have what monitors and safety valves and flares

Number: 2 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 4:09:53 PM
how does Oxy monitor the level alarms and devices?

Number: 3 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 4:10:32 PM
discuss monitoring system in detail.

Number: 4 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 2:39:04 PM
Specify which wells, TBs, etc. have monitors and provide maps.

Number: 5 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 9:31:25 AM
what about all the Hobbs wells with H2S > 100 ppm.

Number: 6 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 9:31:51 AM
Specify how many
specify how frequently signs are posted.
Must meet ANSI Standard

Number: 7 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 9:31:53 AM
show example in appendix

Number: 8 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 9:31:11 AM
the fencing requirements apply to all wells with H2S >100 ppm

Drilling & Workover Operations

Each drilling and workover operation is equipped with detection and monitoring equipment, warning signs, wind direction indicator(s), flare systems, and well control equipment as required by NMAC 9.15.11.11.

C. Coordination with State Emergency Plans

As provided for in the New Mexico Hazardous Materials Emergency Response Plan (HMER), the New Mexico State Police responding to the emergency may elect to assume the position of On-Scene-Commander (OSC) or they may establish a Unified Command of which the OXY OSC may be a key member. The OXY OSC will be the senior OXY employee on-site until when/if the Hobbs area TEAM LEAD or designated relief arrives. Under the Unified Command scenario, the OXY OSC shall cooperate with the other involved emergency responders, such as the New Mexico State Police, local fire department, City Police, Sheriff's Office, NMOCD or other appropriate public emergency response agencies to manage the effective and safe response to the emergency situation. The OSC will ensure that the local authorities have any and all required information regarding the extent (ROE), chemical concentration, hazards and expected timeline for any OXY release so they can appropriately establish an action plan regarding restricted access (road blocks, etc), notification of the public, area evacuation or shelter in place. The ROE tables (see section IV) have been calculated with due consultation and input from the local area fire department to ensure adequacy and usability. These ROE can be used by the fire department electronic mapping software to display detailed maps of any areas of concern, showing public buildings, roadways and other pertinent information needed.

The Hobbs AREA OSC will notify or delegate notifications of all OXY Permian or contract personnel as well as the civil authorities needed for response to the situation. The OXY OSC will assign additional OXY personnel to support roles as needed.

See additional roles and responsibilities in Section III Roles and Responsibilities of Emergency Response Personnel.

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Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 3:41:19 PM

How do you know what a turn key rig has on it?
SCBA in earlier version
Must specify that Oxy will use ROE of 3000' per **19.15.11.7**

Number: 2 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:26:33 PM

Need to be very clear what the relationship will be between Oxy, HFD, State Police, and Lea Co.

Number: 3 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 2:44:08 PM

specify how this will happen

Section II. Emergency Procedures

A. Discovery and Implementation of an Immediate Action Plan

1. Upon discovering or recognizing a potentially hazardous H2S release, from an H2S monitor alarm or personal H2S monitor that is triggered at 10 ppm, OXY employees should implement the following immediate action plan:
    a) Move away from the source and get away from the affected area- with continuous *wind direction awareness* (upwind and perpendicular to the release)
    b) Verbally alert other affected personnel and direct them to a safe assembly area
    c) Don personal protective breathing equipment-supplied air, respiratory protection (SCBA-self contained breathing apparatus)
    d) Assist personnel in distress- First Aid/Rescue (always use the Buddy system)
    e) Account for on-site personnel using job safety analysis (JSA) or Security gate head-count
    f) If abatement measures were successful, monitor the ambient air in the area of exposure with quad function H2S monitors to determine when it is safe for re-entry
    g) Notify the TEAM LEAD (or relief) of the situation, then TEAM LEAD or relief will perform (h, i, and j below)
    h) Notify other key HOBBS AREA personnel and alert them to situation.
    i) The Team leader shall then proceed to the site to assess the situation.
    j) The Team leader shall determine if the H2S contingency plan is to be initiated based on monitoring the ambient air. If it is indicated that that release may pose a danger or affect the public in the following concentrations:
        A. 100 ppm in any public area
        B. 500 ppm in any public road
        C. 100 ppm if ROE is greater than 3000 ft. from the release

    k) In the absence of the Team Leader (or relief) the OXY employee at the site shall determine whether or not to activate the Reaction-process H2S contingency plan and shall remain at the scene until relieved by another OXY employee in command with Civil Authorities.

2. Take immediate measures to control the presence of or potential H2S discharged and to eliminate possible ignition sources. Emergency shutdown procedures should be initiated as necessary to correct or control the specific situation. When the required action cannot be accomplished in time to prevent exposing operating personnel or the public to hazardous

Page: 8

Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 3:56:08 PM
Provide discussion of RP-55, RP-68, and RP-49

Number: 2 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 4:00:54 PM
need to discuss monitors, alarms, etc.

Number: 3 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 4:02:43 PM
need to address wind socks.

Number: 4 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 4:02:40 PM
need to show where assembly areas are - can't figure this out during a release

Number: 5 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 4:00:11 PM
Text indicates only that Night Riders have SCBA - need to address Gas Plant and other facilities.

Number: 6 Author: GVonGonten Subject: Sticky Note Date: 4/2/2013 3:35:55 PM
need discussion

Number: 7 Author: GVonGonten Subject: Sticky Note Date: 4/2/2013 3:36:00 PM
Does not discuss abatement measures, but does have in Flow Chart

Number: 8 Author: GVonGonten Subject: Sticky Note Date: 4/2/2013 3:36:04 PM
Page 4 refers to tri-function monitors

Number: 9 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 4:04:30 PM
In flowchart, indicates that 911 will be called

Number: 10 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:27:58 PM
Need action level for H2S and SO2. This is not possible during a release. If trigger is 10 ppm, then call 911 and HFD. Can't calulate ROEs during a release.

Number: 11 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 4:07:21 PM
ESD are supposed to operate without human intervention.

concentration of H2S proceed to the following steps, as appropriate for the site specific conditions.

3. Call 911 and give all pertinent information including:
    a. Name, phone number and/or address of person reporting emergency
    b. Location of emergency (well or facility number, cross street and/or lat/long)
    c. Any known injuries or missing persons
    d. Concise statement of what is happening
    e. What type of emergency services are needed on location

4. Contact the first available designated supervisor on the call list. Notify the supervisor of the circumstances and whether or not immediate assistance is needed. The supervisor should notify (or arrange for notification of) other supervisors and other appropriate personnel (including public officials) on the Hobbs Area Emergency Telephone list (Section V).

5. Coordinate with fire dept. regarding blocking unauthorized access to the unsafe area and assist as appropriate. Make ROE's and site drawings available to Emergency Responders. *See section IV*.

6. Coordinate with fire dept regarding notifying and/or evacuating the public and assist as required (through public address, door to door, or reverse 911 as deemed appropriate).

7. Notify state and local officials (NMOCD) and the National Response Center to comply with applicable release reporting requirements in a timely manner.

B. Activation of Hydrogen Sulfide Contingency Plan (Action levels)

In addition to employees equipped with personal monitors, SFRM (Appendix B) facilities in close proximity to public areas are equipped with detectors that activate alarms and can shut down equipment at 10 ppm. The H2S contingency plan shall be activated if it is indicated that the release of product may create a danger or pose a hazard to the general public in the following concentrations:

- 100 ppm - in any public area
- 500 ppm - at any public road
- or if 100 ppm ROE is greater than 3000 feet from the site of the release

This will be determined through monitoring the H2S concentration in the area of the release with quad function monitors.

It is the responsibility of the OSC to ensure activation of the H2S contingency plan, and if necessary to coordinate these efforts in unified command with any state or local emergency responders.

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Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:28:31 PM
Need to detail how 911 will contact HFD.

Number: 2 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:29:11 PM
Need to specify which fire department. The appendices lists several nearby.

Can't make maps available during a release. If Oxy has provided maps, then need to discuss how HFD will access and use them

Number: 3 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:29:27 PM
as deemed appropriate by whom? How will decision by made?

Number: 4 Author: GVonGonten Subject: Sticky Note Date: 4/3/2013 4:30:23 PM
reference appendices, etc.

Number: 5 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:29:41 PM
need discussion on SFRM facilities in "close proximity"

Number: 6 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:29:48 PM
Oxy states that it will activate plan at 10 ppm. Reciting the regulatory requirements is not adequate. put in exactly what Oxy staff will do.

Number: 7 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:31:56 PM
personal monitors differ from fixed monitors at facilities.

Need to detail location of monitors at CO2 Recompression Facility, well sites, tank batteries, etc.

Monitors need to be mounted at well site, tank battery, not on the fences.

C. Training and Drills

The value of training and drills in emergency response procedures cannot be over emphasized. All OXY personnel and long term contractors shall be trained on the emergency action plan annually. The importance of each role of the emergency responders and the assignment that each person has during an emergency will be stressed. In additional, the need for emergency preparedness will emphasized through the use of drills and other exercises that simulate an emergency in which personnel perform or demonstrate their duties. These exercises will consist of table-top or realistic drills in which equipment is deployed, communications equipment is tested. Public officials will be informed and preferably involved in these annual exercises.

After drills or exercises are completed reviews and critiques will be conducted to identify any potential improvement opportunities. Action items will be agreed and tracked through to implementation. Documentation of the training, drills, attendance and reviews will be on file in the HOBBS AREA files.

The plan will be periodically reviewed and updated anytime its provisions or coverage change.

Oxy will provide training of residents as appropriate on the protective measures to be taken in the event of a release of H2S. 1

D. Physical Properties and Physiological Effects of Hydrogen Sulfide

Physical Data
Chemical Name: Hydrogen Sulfide
CAS Number: 7783-06-4
UN Number: 1053
DOT Hazard Class: 3.2 (Flammable liquids: *flashpoint between -18°C and 23°C*)
Synonyms: Sulfureted hydrogen, hydrosulfuric acid, dihydrogen sulfide,
Chemical Family: Inorganic sulfide
Chemical Formula: H2S
Normal Physical State: Colorless Gas, slightly heavier than air.
Vapor Density (specific gravity) at 59°F (15° C) and 1 atmosphere = 1.189
Auto ignition Temperature: 500°F (260° C)
Boiling Point: -76.4°F (-60.2° C)
Melting Point: -117°F (-82.9° C)
Flammable Limits: 4.3 – 46 percent vapor by volume in air.
Solubility: Soluble in water and oil; solubility decreases as the fluid temperature increases.
Combustibility: Burns with a blue flame to produce Sulfur Dioxide (SO_2)
Odor and Warning Properties: Hydrogen Sulfide has an extremely unpleasant odor, characteristic of rotten eggs, and is easily detected at low concentrations, however, due to rapid onset of olfactory fatigue and paralysis (inability to smell) ODOR SHALL NOT BE USED AS A WARNING MEASURE

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Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:32:28 PM
need additional detail

Exposure Limits
The OSHA Permissible Exposure Limit (PEL) of 10 ppm (8-hour TWA) and IDLH of 100ppm.

Physiological Effects
Inhalation at certain concentrations can lead to injury or death. The 300 ppm is considered by the ACGI as Immediately Dangerous to Life and Health (IDLH) Hydrogen Sulfide is an extremely toxic, flammable gas that may be encountered in the production of gas well gas, high-sulfur content crude oil, crude oil fractions, associated gas, and waters.
Since hydrogen sulfide is heavier than air, it can collect in low places.

It is colorless and has a foul, rotten egg odor. In low concentrations, H2S can be detected by its characteristic odor; however smell cannot be relied on to forewarn of dangerous concentrations because exposure to high concentrations (greater than 100 ppm) of the gas rapidly paralyzes the sense of smell due to paralysis of the olfactory nerve. A longer exposure to lower concentrations has a similar desensitizing effect on the sense of smell.
It should be well understood that the sense of smell will be rendered ineffective by hydrogen sulfide, which can result in the individual failing to recognize the presence of dangerously high concentrations.

Exposure to hydrogen sulfide causes death by poisoning the respiratory system at the cellular level. Symptoms from repeated exposure to low concentrations usually disappear after not being exposed for a period of time. Repeated exposure to low concentrations that do not produce effects initially may eventually lead to irritation if the exposures are frequent.

Respiratory Protection
Supplied air respiratory protection (SCBA) shall be worn above the initial action level of 10 ppm and until such time that H2S concentrations have been determined by monitoring the area with quad function H2S monitors.

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Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:33:29 PM
Where is SCBA stored at CO2 Recompression facility, tank batteries, etc. and other staff.

E. Physical Properties and Physiological Effects of Sulfur Dioxide

Physical Data
Chemical Name: Sulfur Dioxide
CAS Number: 7446-09-05
UN Number: 1079
DOT Hazard Class: 2.3 (Poisonous Gases)
Synonyms: Sulfurous acid anhydride, sulfurous oxide, sulfur oxide
Chemical Family: Inorganic
Chemical Formula: SO_2
Normal Physical State: Colorless Gas, heavier than air.
Vapor Density: 2.2
Boiling Point: 148°F
Flammable Limits: Non-flammable (produced by burning hydrogen sulfide)
Solubility: Soluble in water and oil; solubility decreases as the fluid temperature increases.
Odor and Warning Properties: Sulfur Dioxide has a pungent odor associated with burning sulfur. It produces a suffocating effect and produces sulfurous acid on membranes of the nose and throat.

Exposure Limits
The OSHA PEL is 2 ppm as an 8-hour TWA. STEL is 5 ppm averaged over 15 minutes. IDLH is 100 ppm

Physiological Effects
Acute Toxicity: Inhalation at certain concentrations can lead to injury or death. 100 ppm is considered by the ACGIH as Immediately Dangerous to Life and Health.

Respiratory Protection
Supplied air respiratory protection (SCBA) shall be worn above the initial action level of 2 ppm for initial testing and until such time that SO2 concentrations have been determined and action levels established.

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Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 9:08:15 AM

A/A - where is SCBA stored

Section III

Roles and Responsibilities of Emergency Response Personnel

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

a. **On Scene Commander (OSC):** The civil authorities (Fire Dept.) responding to the emergency may elect to assume the position of OSC or they may establish a Unified Command of which the OXY OSC may be a key member. The first, most senior OXY personnel on the scene will act as the OSC until relieved by either the OXY Operation Team Lead or their designated alternate (for the Plant Operations the Plant Operator will act as initial OSC). The OSC's responsibility is to ensure control of the emergency incident. The OSC will notify or delegate notifications of all OXY Permian or contract personnel needed for response to the situation. The OSC will assign additional OXY personnel to support roles as needed. The initial priority for the OSC is to assess the size and scope of the incident scene. Such factors as the immediate level of danger to employees, contractors, and the general public should be high on the list of considerations. The OSC will act as a liaison between the site ERT and the Business Unit Emergency Management Team (BU EMT). The following is an abbreviated list concerning the responsibilities and recommended sequence for the OXY OSC to achieve his/her responsibilities.

1. Assess the size and scope of the incident scene.
2. Establish preliminary “hot and cold zones” based on the information available.
3. Set up a mobile command post at the scene of the incident.
4. Initiate any “municipal emergency response” requests as deemed appropriate.
5. Ensure that the OXY Emergency Personnel are contacted according to the appropriate call out list (Field or Plant areas).
6. Manage all aspects of the incident as OXY’s OSC or as a key player in a Unified Command.
7. Communicate routinely with the OXY Permian Operations Emergency Manager on the BU EMT.
8. OSC is responsible for assigning support roles as listed below.

Note: The On Scene Commander, or relief, remains on site until the emergency is over. The On Scene Commander ensures repairs have been completed and ensures the operation has returned to normal, before releasing emergency team members.

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Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:05:57 PM
Oxy has indicated that the Hobbs FD and the Lea Co. Emergency Management will be the lead agency, not optional.

Number: 2 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:01:56 PM
Does Oxy have a trailer - what does this refer to?

Number: 3 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:02:07 PM
what does this mean?

Number: 4 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:03:33 PM
Oxy does not have the capability of acting as the OSC or handling an H2S release and notifying the public

Number: 5 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:05:30 PM
The purpose of the H2S CP is to alert and protect the public, not effect repairs.

4. Initiate and maintain an incident documentation system to ensure all activities are captured and a summary report will be available.
5. Begin supplying logistical support to the incident scene, staging operations, and local areas as soon as practical
6. Coordinate site security capabilities with the OSC, OPCS, SO, and responding municipalities.

g. **Public Information Officer (PIO):** The designated PIO reports to the OSC. The PIO will work very closely with the OSC, OPSC, and the OXY Corporate Communications Representative. Initial priorities for the PIO will include the following:
   1. Establish themselves as the onsite Public Information Officer or media contact for all media inquiries.
   2. Work with Corporate Communications to establish and distribute an initial press release as soon as feasible and with an announced time of when additional updates would be available.
   3. Either assist the OSC or personally conduct all initial media interviews until relieved by a member of Corporate Communications or their designate.

h. **Lea County Emergency Operations Center (EOC) Liaison:** The Lea County EOC Liaison will report to the EOC as required to form communications between the EOC Emergency Manager and the OXY OSC or EMT Emergency manager. This position will only be filled if the event escalates to a level that requires the manning of the Lea County EOC and the event adversely affects, or could affect OXY operations or personnel.

i. **Other Employees**: All other personnel should stand by and wait for instructions from the OSC.
   1. Once accounted for, Hobbs AREA employees may be called upon by the OSC to support in many different directions.
   2. OXY personnel in “staging area” wait to assist in the actual response efforts, escorting vendors to remote locations as a guide, blocking roads, assisting with evacuations, etc.

   It should be understood however, no employee or contractor of the Hobbs Area will be asked to provide incident scene support that they are not comfortable in their ability to perform or have not been specifically trained to do.

j. **Caprock Answering Service:** The Caprock Answering Service is a 24-hr answering service contracted by Oxy. Their phone number is

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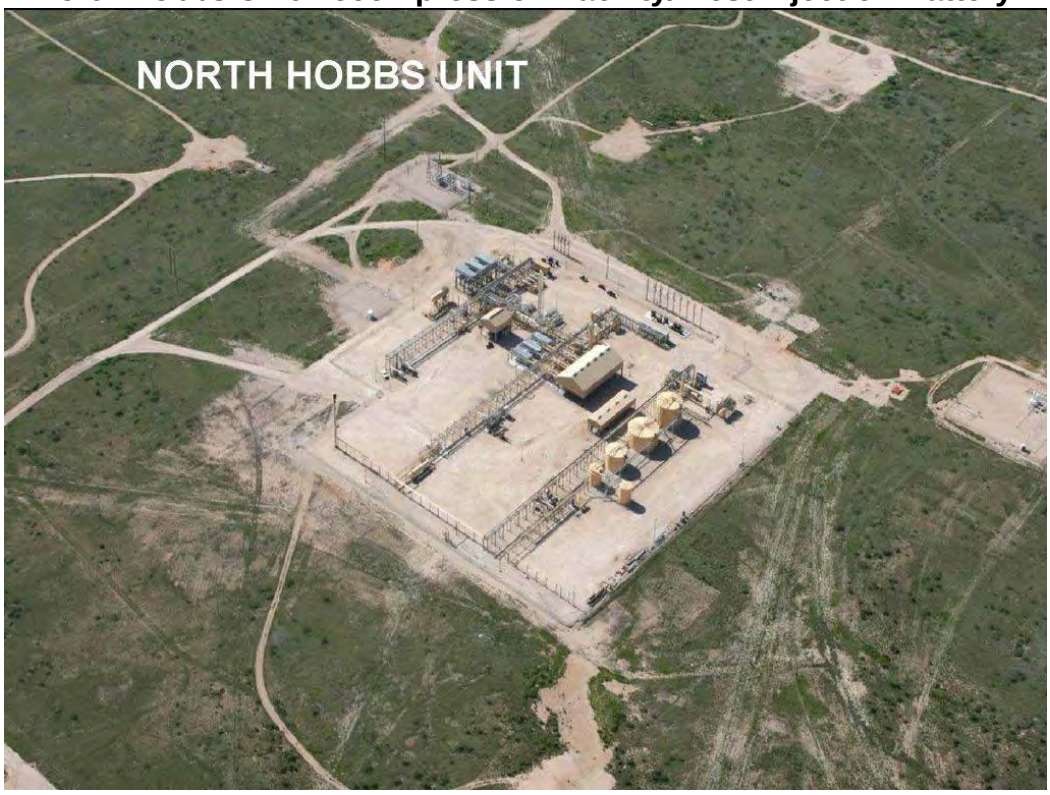
Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:06:46 PM
What about HFD?

Section IV Appendices

Appendix A Maps of Hobbs Area Facilities

North Hobbs Unit Recompression Facility/West Injection Battery



North Hobbs Unit Central Tank Battery

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Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:45:10 PM
where will the maps that were emailed go?

Appendix C

List of Hobbs Area Facilities and 100 and 500 ppm ROEs

Unit	Description	H2S Conc. (ppm)	Latitude	Longitude	100 ppm ROE (ft)	500 ppm ROE (ft)
NHU	INJECTION BATTERY	19840	32.7065	-103.1616	463	100
NHU	SATELLITE 19 CO2	11000	32.7289	-103.1894	450	58
NHU	SATELLITE 24 CO2	9220	32.7287	-103.2038	430	55
NHU	SATELLITE 25	28115	32.7176	-103.2005	77	14
NHU	SATELLITE 27	46224	32.7136	-103.1434	142	28
NHU	SATELLITE 28	43430	32.7211	-103.1541	133	29
NHU	SATELLITE 29 CO2	4150	32.7198	-103.1700	103	16
NHU	SATELLITE 30 CO2	7000	32.7074	-103.1837	216	28
NHU	SATELLITE 31 EAST CO2	8960	32.7038	-103.1841	298	37
NHU	SATELLITE 32 EAST CO2	7020	32.7043	-103.1634	220	27
NHU	SATELLITE 32 WEST	39507	32.7010	-103.1723	84	26
NHU	SATELLITE 32 WEST CO2	7650	32.7015	-103.1731	270	28
NHU	SATELLITE 33	54654	32.7036	-103.1556	255	53
NHU	CENTRAL TANK BATTERY	16060	32.7182	-103.1794	630	73
NHU	WEST INJECTION BATTERY	20330	32.7208	-103.1999	746	100
NHU	RECOMPRESSION FACILITY	9760	32.7208	-103.1999	417	144
SHU	CENTRAL TANK BATTERY	119778	32.6801	-103.1479	773	110
SHU	SATELLITE 1	40892	32.6861	-103.1728	410	95
SHU	SATELLITE 2	43163	32.6803	-103.1523	250	85
SHU	SATELLITE 3	53477	32.6797	-103.1426	325	128
SHU	SATELLITE 5	57141	32.6882	-103.1569	248	61
	TURNER TRACT 2 BATTERY	0	32.6797	-103.1426	0	0
	CONOCO A STATE BATTERY	0	32.7027	-103.1530	0	0
	CONOCO STATE 3 & CONOCO STATE 4 BATTERY	0	32.7033	-103.1530	0	0
	B HARDIN BATTERY	0	32.7426	-103.1988	0	0
	HOBBS DEEP A BATTERY	0	32.7426	-103.1988	0	0
	STATE A BATTERY	0	32.7149	-103.1672	0	0
	STATE A AND B BATTERY	139	32.70576	-103.1653	0.34	0
	STATE HF BATTERY	0	32.68205	-103.1523	0	0
	STATE LAND 32 BATTERY	619	32.70220	-103.1679	4.1	0.2

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Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 5:04:06 PM

Need ULSTR because it is posted on all well sites.
Need API No.
ROE should be based on Phast Model

Number: 2 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:37:03 PM

should add ULSTR
add street intersections?

ID Number	Unit	Well Number	Latitude	Longitude	H2S Conc. (ppm)	100 ppm ROE (ft)	500 ppm ROE (ft)
3002505446	NHU	341-13	32.74194	-103.2022	9400	205	28
3002512491	NHU	341-19	32.72642	-103.18629	9400	205	28
3002507371	NHU	341-20	32.72641	-103.16909	54654	92	25
3002505490	NHU	341-24	32.72642	-103.20332	9400	205	28
3002512489	NHU	341-28	32.71192	-103.15187	9400	205	28
3002507445	NHU	341-29	32.7119	-103.16909	9400	205	28
3002524665	NHU	341-30	32.71372	-103.18415	9400	205	28
3002512757	NHU	341-33	32.69829	-103.15075	54654	92	25
3002507567	NHU	341-34	32.69829	-103.13457	54654	92	25
3002529931	NHU	342-28	32.71046	-103.15009	9400	205	28
3002529906	NHU	343-32	32.69827	-103.16662	9400	205	28
3002523522	NHU	411-24	32.7374	-103.19899	9400	205	28
3002507490	NHU	411-31	32.71008	-103.17986	9400	205	28
3002507516	NHU	411-32	32.71009	-103.16265	9400	205	28
3002507556	NHU	411-33	32.70921	-103.1465	9400	205	28
3002505479	NHU	412-24	32.73921	-103.19683	9400	205	28
3002523384	NHU	412-30	32.72343	-103.18057	9400	205	28
3002529932	NHU	412-33	32.7056	-103.14606	9400	205	28
3002528879	NHU	414-24	32.74009	-103.19992	9400	205	28
3002505456	NHU	421-14	32.74829	-103.21406	9400	205	28
3002507368	NHU	421-19	32.73377	-103.18304	9400	205	28
3002505466	NHU	421-23	32.73559	-103.21401	9400	205	28
3002523081	NHU	421-24	32.73468	-103.19825	9400	205	28
3002505504	NHU	421-25	32.71916	-103.19689	9400	205	28
3002507468	NHU	421-30	32.71917	-103.182	9400	205	28
3002507493	NHU	421-31	32.70722	-103.17984	9400	205	28
3002512507	NHU	421-32	32.70465	-103.16265	9400	205	28
3002507554	NHU	421-33	32.70558	-103.14649	9400	205	28
3002528887	NHU	422-31	32.70478	-103.1807	9400	205	28
3002523130	NHU	424-32	32.70569	-103.16373	9400	205	28
3002505487	NHU	431-24	32.73185	-103.19686	9400	205	28
3002507413	NHU	431-28	32.71555	-103.14759	9400	92	25
3002507458	NHU	431-29	32.71735	-103.16265	9400	205	28
3002507474	NHU	431-30	32.71734	-103.182	9400	205	28
3002512758	NHU	431-31	32.70279	-103.17981	9400	205	28
3002507553	NHU	431-33	32.70176	-103.14713	9400	92	25
3002530308	NHU	433-33	32.70156	-103.14753	9400	205	28
3002512732	NHU	441-13	32.74103	-103.19683	9400	205	28
3002507366	NHU	441-19	32.72643	-103.17986	9400	205	28
3002505473	NHU	441-23	32.72824	-103.21398	9400	92	25
3002505486	NHU	441-24	32.72641	-103.19688	9400	205	28

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Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:09:36 PM
How is it that so many wells have the same H2S concentration?

ID Number	Well Number	Latitude	Longitude	H2S Conc. (ppm)	100 ppm ROE (ft)	500 ppm ROE (ft)
3002534871	813-29	32.71498	-103.17721	9760	325	44
3002540859	945-19	32.73361	-103.18225	9760	325	44

Appendix G *H2S RELEASE CHECKLIST:*

- ☐ OSC to determine if release could become a hazard to the public. 1
- ☐ If release is not a hazard, take appropriate action to eliminate the leak.
- ☐ If release is determined to be a hazard, and cannot be immediately eliminated:
  - ☐ Notify appropriate Operations Team Leaders.
  - ☐ Proceed to area with all necessary personal protective equipment and monitors.
  - ☐ Barricade roads as determined necessary and appropriate. 2
  - ☐ Call civil authorities for assistance. 3
  - ☐ Alert anyone within the immediate area of the potential hazard. 4
- ☐ Ensure hospital is notified to alert staff for possible injuries and allow them the opportunity to initiate their emergency action plan.
- ☐ Ensure every resident and/or business within the contaminated zone is contacted by the fastest possible means and advised about evacuation or shelter in place as appropriate. 5
- ☐ Assist local authorities in any way possible to mitigate the situation and keep them informed of all hazards and operational progress and strategy.
- ☐ Ensure operational isolation to Minimize release. 6

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Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:11:53 PM
CP states that HFD will be notified, maybe automatically if H2S >10 ppm.

Number: 2 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:13:10 PM
how is Oxy going to do this? HFD has the equipment, not Oxy

Number: 3 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:12:21 PM
HFD should be notified so that they may respond.

Number: 4 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:13:41 PM
What does immediate area mean?

Number: 5 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:14:21 PM
The CP is supposed to specify how this is to be done. What does contaminated zone mean?

Number: 6 Author: GVonGonten Subject: Sticky Note Date: 4/1/2013 3:32:04 PM
what does this mean?

EMERGENCY TELEPHONE LISTS:

OXY PERMIAN EMERGENCY ANSWERING SERVICE	**713-935-7210**
CAPROCK ANSWERING SERVICE	**575-397-8200/8255**

FIELD OPERATIONS EMERGENCY CALL-OUT LIST

Scott Hodges **Operation Team Leader** **Hobbs, NM**	**Office** **Cell** **Home**	**575-397-8211** **432-238-4405** **NA**
Alternate: **Tony Aguilar**	**Office** **Cell** **Home**	**575-397-8251** **575-390-6312** **575-441-7266**
Alternate: **Glen Hubbard**	**Office** **Cell** **Home**	**575-397-8276** **575-631-6881** **575-392-7663**
Brian Suttton **Well Servicing Coord.**	**Office** **Cell** **Home**	**806-592-6336** **806-215-0094** **NA**
Calvin Stewart **Well Operations Team Lead**	**Office** **Cell** **Home**	**806-592-6256** **806-215-0370** **806-592-5078**
Hollen Wheeler **Mgr. External Relations**	**Office** **Cell** **Home**	**432-685-5904** **432-741-3017** **432-230-9828**

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Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:16:04 PM

HFD?
Lea Co. EM|?

HOBBS AREA OPERATIONAL PERSONNEL

EMPLOYEE	CELL PHONE NUMBERS	HOME PHONE NUMBERS
Cordero, Pete	806-215-0066	575-392-3645
Henson, Willie	806-215-2168	575-393-5418
Hubbard, Glen	575-631-6881	575-392-7663
Jones, Steve	575-631-4469	575-394-3124
King, Jimmy	575-390-0068	575-392-8854
Ragsdale, Monty	575-390-3803	575-392-1740
Shaffer, Jessie	806-215-0115	575-441-6795
Whitley, Chuck	575-631-6259	575-397-0018
Baeza, Carlos	575-390-0018	--
Laster, Mark	575-942-3346	--
Savage, Tony	575-602-8328	--
Haynes, Mark	575-499-4454	--
Daniel Tucker	575-499-4992	--
Hobbs Area Well Runner	806-215-0310	--
Hobbs Area Night Rider	806-215-0304	--

1

Hobbs Treating Facility

FAX No. 806-592-6484

Name	Title	Residence Phone	Office Phone	Cellular or Phone patch or Pager
Jaime Perez	Central Plt. OTL	806-592-3192	806-592-3379	806-215-0281(C)
Doug Isbell	OP. Spec.	806-592-5159	806-592-7360	806-215-1495 (C)
Clay Lambert	OP. Spec	(806)215-1331	(806) 592-7304	(806)215-0410 (C)
Ronnie Popejoy	HES Tech	806-229-5381	806-592-7315	806-215-0527 (C)

Gathering System Personnel:

Callout Service 806-592-9055

Name	Title	Residence Phone	Office Phone	Cellular or Phone patch or Pager
David(Chip) Mitchell	Measurement Tech		806-592-6325	806-215-0184
Landon Tadlock	Gas Gathering Operator	806-592-5005	806-592-6224	800-923-6149 (P) 806-215-0474 (C)
Todd King	Measurement Specialist	806-592-9467	806-592-7360	806-215-0183 (C)

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Number: 1 Author: GVonGonten Subject: Sticky Note Date: 4/4/2013 1:17:25 PM
What do these people do?