GW - 001

H_2S CONTINGENCY PLAN

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, July 15, 2010 4:27 PM
To: 'Schmaltz, Randy'; Riege, Ed
Cc: VonGonten, Glenn, EMNRD
Subject: RE: H2S Exposure

Gentlemen:

The Oil Conservation hereby concurs with your July 9, 2010 letter indicating an H2S Contingency Plan nor public training under the OCD H2S Regulations will be required for your refineries unless conditions change, which you need to cognizant of and alert the OCD of conditions with hydrogen sulfide that may require an H2S Contingency Plan for your refinery(ies).

Thank you for your cooperation.

Cc: OCD Online GW-1 and GW-32 "H2S Contingency Plan" Thumbnails

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Schmaltz, Randy [mailto:Randy.Schmaltz@wnr.com]
Sent: Thursday, July 15, 2010 4:14 PM
To: Riege, Ed; Chavez, Carl J, EMNRD
Subject: RE: H2S Exposure

Carl,

That is correct, Bloomfield's worst case was for full-scale operation.

Thanks
Randy

From: Riege, Ed
Sent: Thursday, July 15, 2010 4:11 PM
To: Schmaltz, Randy
Subject: FW: H2S Exposure

Randy,
Please respond to Carl.

Ed Riege
Environmental Manager

Western Refining
Gallup Refinery
Route 3 Box 7
Gallup, NM 87301
(505) 722-0217

ed.riege@wnr.com

Safety starts with "S", but always begins with "You"

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, July 15, 2010 4:05 PM
To: Riege, Ed
Subject: RE: H2S Exposure

Ed:

I'm in receipt. I trust the Bloomfield data reflect full-scale operation and not under present operating conditions.... I'll get back with you. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
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Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Riege, Ed [mailto:Ed.Riege@wnr.com]
Sent: Thursday, July 15, 2010 4:04 PM
To: Chavez, Carl J, EMNRD
Cc: Schmaltz, Randy
Subject: H2S Exposure

Hi Carl,
Here is the additional information you requested.

Bloomfield
The Distillate Hydrotreater (DHT) unit has the highest level of H2S. The 8000 ppm used in the worst case was a measured value. The maximum escape rate 764,000 scf/day is an engineering estimate based on the assumption the worst case would exceed the average measured flow rate of 674,000 scf/day. See attached pg 21.

Gallup
The basis for the assumed value of 450,000 ppm of H2S concentration is from our Air Quality Bureau permit for the Thiosolv unit, where we estimated a total mass flow rate (design-basis maximum) for the Amine unit of 11.61 lb-mol/hr at a molecular weight of 36.67 (or 36.67 lb/lb-mol) = 425.7387 lbs/hr, and an H2S mass flow rate of 5.445 lb-mol/hr at a molecular weight of 34 (or 34 lb/lb-mol) = 185.13 lbs/hr. The mass fraction of H2S then becomes 185.13 lbs/425.7387 lbs = 0.434844, or 434,844 ppm. The Amine unit itself does not have a permit from the Air Quality Bureau as it is a closed system. We have in our radius of exposure calculations used a more conservative number of 451,000 ppm.
The Amine unit's flows are measured instantaneously for control purposes at two split streams. The Amine unit (that has the highest H2S concentrations) sends acid gas to the Thiosolv unit, and a part (generally from overpressure and as a back-up) to the Sulfur Recovery Unit (SRU). As the streams are monitored separately and at discrete intervals it is not simply a matter of adding the averages of the two streams to get a daily average. That is, if flow begins to the SRU, the Thiosolv flow may at times begin to go down. Therefore, averaging a sum of the two flows is not straightforward from daily averages that have been calculated from polling intervals that are not identical for the control of each unit. However, as we pointed out, the assumption of the entire Amine assumed flow rate of 85,000 standard cubic feet (scf)/day venting directly to the atmosphere without any treatment and for a duration that lasts the entire day is extremely conservative. At this time, for example, the Amine unit is sending 81,000 scf/day to the Thiosolv and, 0 scf/day to the SRU. Even if the Amine unit generated more flow at any given time, this could not at our assumed rate of 85,000 scf/day vent to the atmosphere for the whole day. Many emergency systems would be activated – for example, sending the gases to the flare system, shutting other gas generating units down, etc. This is why we believe an assumed rate of 85,000 scf/day venting to the atmosphere and lasting the whole day is an extremely conservative estimate. See attached pg 28.

Thanks,

Ed

Ed Riege
Environmental Manager

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Safety starts with "S", but always begins with "You"

H_2S CONTINGENCY PLAN
Bloomfield Refinery

Western Refining Southwest, Inc
Bloomfield Refinery
#50 County Road 4990
Bloomfield, New Mexico 87413

APRIL 2010

APPENDIX A – Radius of Exposure Calculations

Worst-case Scenario

The Distillate Hydrotreater (DHT) unit has the highest level of H_2S concentration in its process gases. This concentration has been measured previously as 8,000 ppm.

The average measured flow rate in the DHT process unit of high-H_2S containing process gases is 674,000 scf/day. Therefore, we have assumed a maximum escape rate that lasts a whole day as 764,000 scf/day.

The worst-case scenario assumes that process gases from the DHT unit at 8,000 ppm of H_2S are released for a 24-hour period at the flow rate of 764,000 scf/day.

In the existing situation, if there was a failure of any kind at the DHT unit, high H_2S gases would be routed to the flare and combusted. If the flare system also failed, the units would be shut down. The DHT is equipped with an Emergency Shutdown device. Therefore, there is almost no possibility of high-H_2S gases being continuously released from the DHT unit at 8,000 ppm and at a flow rate of 764,000 scf/day for a full 24-hour period.

By assuming this extreme and unlikely worst-case scenario, we have accounted for all other scenarios of smaller impacts.

Radius of Exposure Calculations

The formula for calculating the two ROEs (as specified in the OCD regulations) are as follows:

500-ppm Radius of Exposure calculation

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

Where:

X = radius of exposure in feet

Hydrogen sulfide concentration = decimal equivalent of mole or volume fraction of hydrogen sulfide in the gaseous mixture

Q = Escape rate expressed in standard cubic feet per day

For, hydrogen sulfide concentration = 8,000 ppm (0.008 moles), and Q = 764,000 scf/day,

X = 143 feet

100-ppm Radius of Exposure calculation

$X = [(1.589)(\text{hydrogen sulfide concentration})(Q)]^{0.6253}$

Where:

X = radius of exposure in feet

Hydrogen sulfide concentration = decimal equivalent of mole or volume f fraction of hydrogen sulfide in the gaseous mixture

Q = Escape rate expressed in standard cubic feet per day

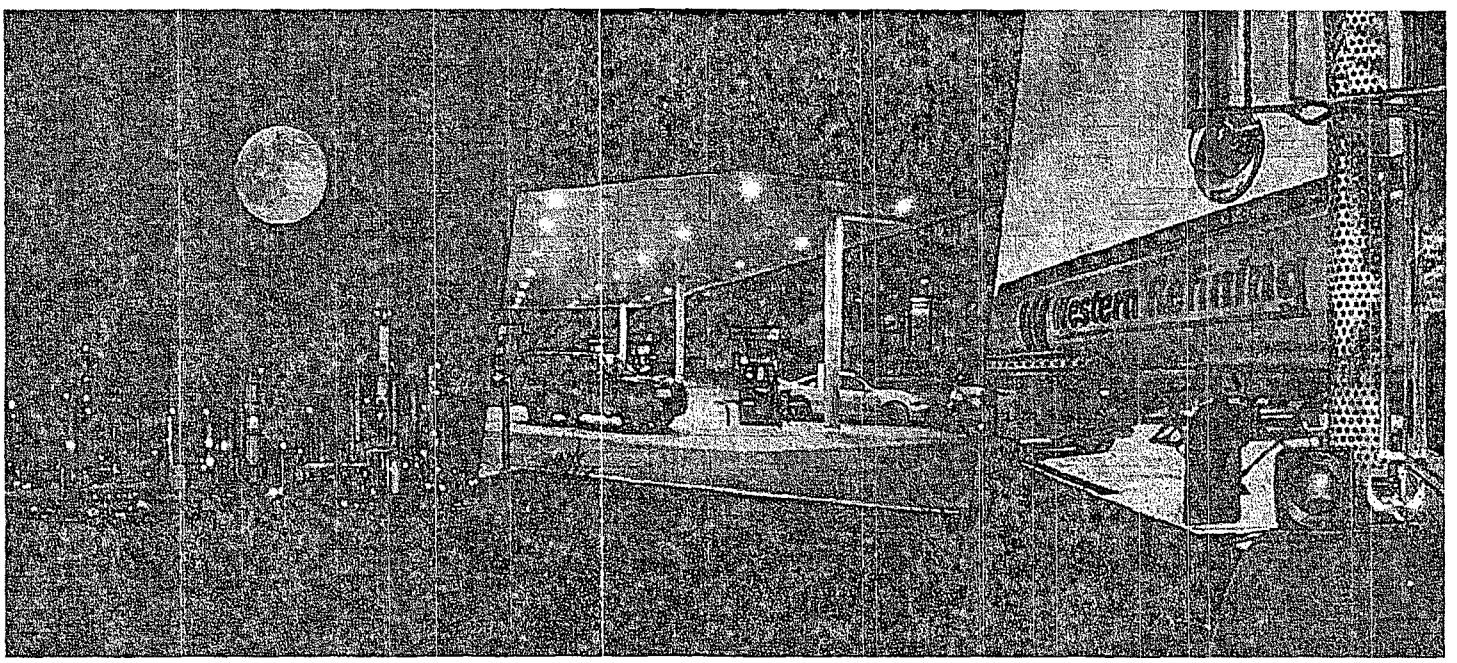
For, hydrogen sulfide concentration = 8,000 ppm (0.008 moles), and Q = 764,000 scf/day,

X = 313 feet

H2S Contingency Plan: Gallup Refinery

Western Refining
Gallup, New Mexico

April 2010



Appendix A: ROE Calculations

Worst-case Scenario

The Amine unit has the highest level of H2S concentration in its process gases. This concentration has been measured previously as 451,000 ppm.

The average measured flow rate in the amine unit of high-H2S containing process gases, as measured in recent months (at maximum charge rates), is 80,000 scf/day, rising to a temporary (< 1-hour) maximum of about 90,000 scf/day. Therefore, we have assumed a maximum escape rate that lasts a whole day as 85,000 scf/day.

The worst-case scenario that we assume is that process gases from the Amine unit at 451,000 ppm of H2S are released for a 24-hour period at the flow rate of 85,000 scf/day.

In the existing situation, if there was a failure of ay kind at the Amine unit, high-H2S gases would be routed to the Sulfur Recovery Unit (SRU) and treated. If the SRU unit also failed, the gases would be routed to the flare system. And, if the flare system also failed, the units would be shut down. Therefore, there is almost no possibility of high-H2S gases being continuously released from the Amine unit at 451,000 ppm and at a flow rate of 85,000 scf/day, for a full 24-hour period.

By assuming this extreme and unlikely worst-case scenario, we have accounted for all other less worse scenarios.

Radius of Exposure Calculations

The formula for calculating the two ROEs (as specified in the OCD regulations) are as follows:

500-ppm Radius of Exposure calculation

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

Where
X = radius of exposure in feet
Hydrogen sulfide concentration = decimal equivalent of mole or volume fraction of hydrogen sulfide in the gaseous mixture
Q = Escape rate expressed in standard cubic feet per day

For, hydrogen sulfide concentration = 451,000 ppm, and Q = 85,000 scf/day,

X = 405 feet

100-ppm Radius of Exposure calculation

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

Where
X = radius of exposure in feet
Hydrogen sulfide concentration = decimal equivalent of mole or volume fraction of hydrogen sulfide in the gaseous mixture
Q = Escape rate expressed in standard cubic feet per day

For, hydrogen sulfide concentration = 451,000 ppm, and Q = 85,000 scf/day,

X = 860 feet

Western Refining

GALLUP

WNR LISTED NYSE

RECEIVED OCD

2010 JUL 14 A 11:44

July 9, 2010

Mr. Carl Chavez
Oil Conservation Division
Environmental Bureau
1220 S. St. Francis Dr.
Santa Fe, NM 87505

Re: Hydrogen Sulfide Contingency Plan (Plan)

Dear Mr. Chavez:

Western reviewed the regulations and based on the results of the Radius of Exposure (ROE) calculations it was determined that the Hydrogen Sulfide Contingency Plans (Plans) for the Gallup and Bloomfield Refineries are not required. The Plans indicate there are no offsite impacts expected from the worst case scenario based on the Radius of Exposure (ROE) calculations. A Plan is required if a facility involves a potentially hazardous volume of hydrogen sulfide as per 19.15.11.9. A potentially hazardous volume is defined in 19.15.11.7 H. and neither refinery meets these definitions as indicated in the attached ROEs. Western therefore believes that public notice and training is not required for the Gallup and Bloomfield refineries since there is not a potentially hazardous volume as shown in the enclosed attachments from the Plans.

The Plans includes the Regulatory Threshold as required by 19.15.11.8. If a change or alteration may materially increase the hydrogen sulfide concentration at the facility then a new determination will be made at that time. It was a good exercise to write the Plans otherwise the ROEs would have been unknown.

Please contact me at (505) 722-0217 if you have any comments or questions regarding this submittal.

Sincerely,

Ed Riege
Environmental Manager

C: Ms. Hope Monzeglio
Mark B. Turri
Randy Schmaltz
Vic McDaniel
Bill Robertson
Jim Lieb

H_2S CONTINGENCY PLAN
Bloomfield Refinery

Western Refining Southwest, Inc
Bloomfield Refinery
#50 County Road 4990
Bloomfield, New Mexico 87413

APRIL 2010

Table 1: Hydrogen Sulfide Properties and Characteristics

Hydrogen Sulfide Properties & Characteristics	
CAS No.	7783-06-4
Molecular Formula	H_2S
Molecular Weight	34.082
TWA	10 ppm
STEL	15 ppm
IDLH	100 ppm
Specific Gravity (air = 1.0)	1.189
Boiling Point	-76.5°F
Freezing Point	-121.8°F
Vapor Pressure	396 psia
Autoignition Temperature	518°F
Lower Flammability Limit	4.3%
Upper Flammability Limit	46.0%
Stability	Stable
pH in water	3
Corrosivity	Reacts with metals, plastics, tissues & nerves

Hydrogen Sulfide Properties & Characteristics	
CAS No.	7783-06-4
Molecular Formula	H_2S
Molecular Weight	34.082
TWA	10 ppm
STEL	15 ppm
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Specific Gravity (air = 1.0)	1.189
Boiling Point	-76.5°F
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Vapor Pressure	396 psia
Autoignition Temperature	518°F
Lower Flammability Limit	4.3%
Upper Flammability Limit	46.0%
Stability	Stable
pH in water	3
Corrosivity	Reacts with metals, plastics, tissues & nerves

Table 2: Physical Effects of Hydrogen Sulfide

Physical Effects of Hydrogen Sulfide		
Concentration		
ppm	%	Physical Effect
1	.00010	Can be smelled (rotten egg odor)
10	0.0010	Obvious & unpleasant odor; Permissible Exposure Limit; Safe for 8-hour exposure
15	0.0015	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 & 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
1,000	0.1000	Instant unconsciousness; followed by death within minutes

3.2 Radii of Exposure (ROE)

For the existing operations, the "Radius of Exposure" for both 500-ppm and 100-ppm of H_2S gas was determined using the maximum escape rate and the maximum H_2S concentration expected (worst-case scenario) in process gases (Refer to Table 3). Details of the rates and other variables used to calculate the ROEs are

presented in Appendix A. A figure showing the 500-ppm ROE and the 100-ppm ROE is presented in Appendix B.

Table 3: Calculated ROE for 500 ppm and 100 ppm of H_2S gas

Concentration (ppm)	ROE (feet)
500	143
100	313

3.3 Conclusion

Based on the ROE calculations, there are no impacts to off-site public areas expected from the worst-case scenario. A detailed Process Hazard Analysis (PHA) of the Distillate Hydrotreater Process Units was conducted for the Bloomfield Refinery in 2001 and revalidated in 2006. This PHA also concluded that there would be no impacts to off-site areas from a release in this unit.

APPENDIX A

Radius of Exposure Calculations

APPENDIX A – Radius of Exposure Calculations

Worst-case Scenario

The Distillate Hydrotreater (DHT) unit has the highest level of H_2S concentration in its process gases. This concentration has been measured previously as 8,000 ppm.

The average measured flow rate in the DHT process unit of high-H_2S containing process gases is 674,000 scf/day. Therefore, we have assumed a maximum escape rate that lasts a whole day as 764,000 scf/day.

The worst-case scenario assumes that process gases from the DHT unit at 8,000 ppm of H_2S are released for a 24-hour period at the flow rate of 764,000 scf/day.

In the existing situation, if there was a failure of any kind at the DHT unit, high H_2S gases would be routed to the flare and combusted. If the flare system also failed, the units would be shut down. The DHT is equipped with an Emergency Shutdown device. Therefore, there is almost no possibility of high-H_2S gases being continuously released from the DHT unit at 8,000 ppm and at a flow rate of 764,000 scf/day for a full 24-hour period.

By assuming this extreme and unlikely worst-case scenario, we have accounted for all other scenarios of smaller impacts.

Radius of Exposure Calculations

The formula for calculating the two ROEs (as specified in the OCD regulations) are as follows:

500-ppm Radius of Exposure calculation

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

Where:

X = radius of exposure in feet

Hydrogen sulfide concentration = decimal equivalent of mole or volume fraction of hydrogen sulfide in the gaseous mixture

Q = Escape rate expressed in standard cubic feet per day

For, hydrogen sulfide concentration = 8,000 ppm (0.008 moles), and Q = 764,000 scf/day,

X = 143 feet

100-ppm Radius of Exposure calculation

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

Where:

X = radius of exposure in feet

Hydrogen sulfide concentration = decimal equivalent of mole or volume f fraction of hydrogen sulfide in the gaseous mixture

Q = Escape rate expressed in standard cubic feet per day

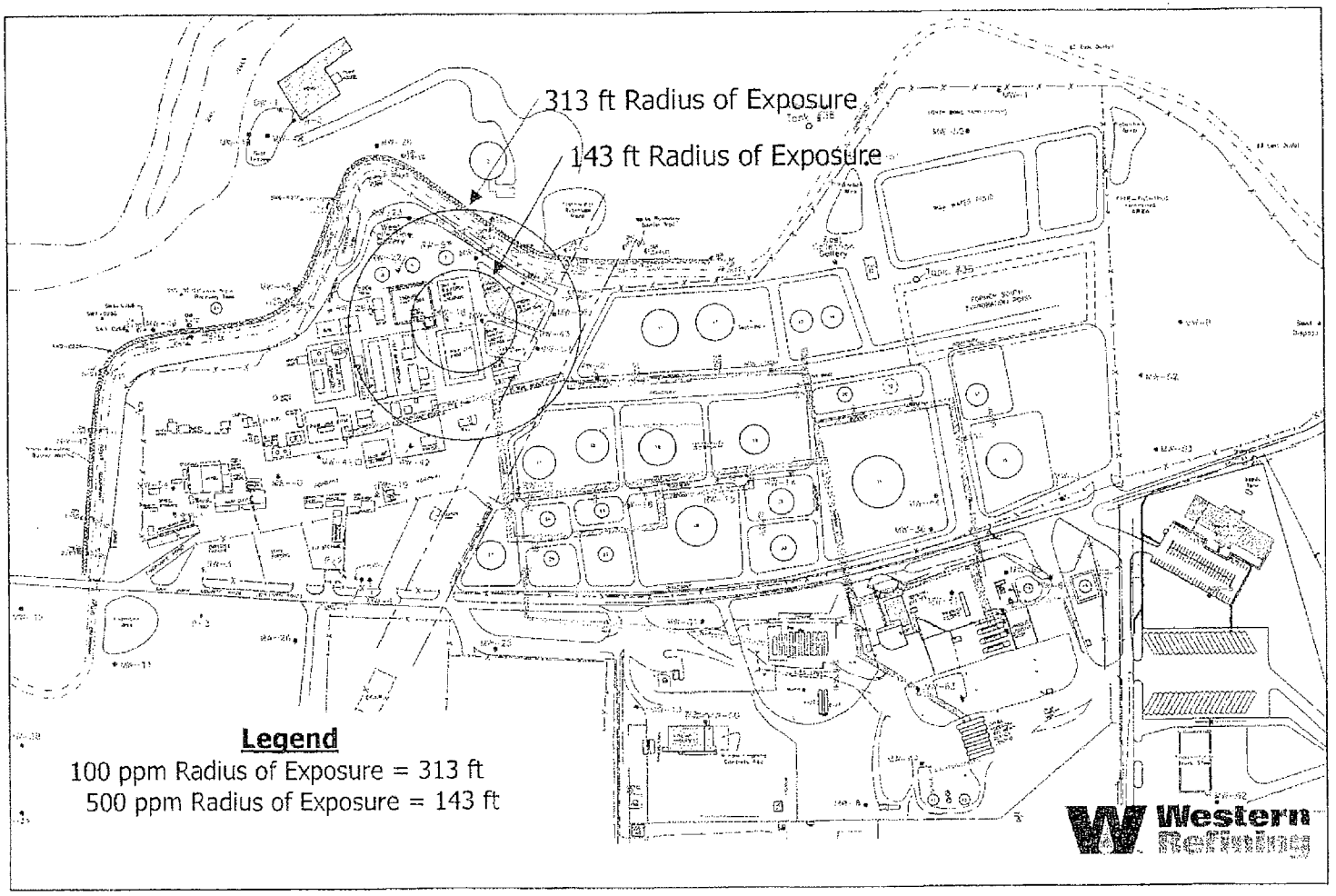
For, hydrogen sulfide concentration = 8,000 ppm (0.008 moles), and Q = 764,000 scf/day,

X = 313 feet

APPENDIX B

Radius of Exposure Map

APPENDIX B - Radius of Exposure Map



Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, July 07, 2010 8:11 AM
To: 'Schmaltz, Randy'; 'Riege, Ed'
Cc: VonGonten, Glenn, EMNRD
Subject: FW: Artesia Refinery Public Training Notice H2S Contingency Plan OCD Draft Review

Randy and Ed:

FYI, it appears that Navajo Refining Company is having some issues with its H2S Contingency Plan and what it thinks is necessary to train the public on its H2S Contingency Plan.

I am forwarding this message to you because OCD had intended to use the Artesia Refinery as a public training model for Western's refineries. Please review the information below and contact me by COB this Friday to discuss your refinery's plans for public training on your recently submitted H2S Contingency Plans. The OCD does not want Navajo's delay to become your delay so any thoughts you can provide that can move you forward with your public training process would be appreciated. The OCD wants to work with Western to complete its public training requirement under the H2S regulations. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Wednesday, July 07, 2010 8:07 AM
To: 'Lackey, Johnny'
Cc: Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD; Whatley, Michael; Moore, Darrell; Sanchez, Daniel J., EMNRD; Jelmini, David
Subject: RE: Artesia Refinery Public Training Notice H2S Contingency Plan OCD Draft Review

Johnny:

The OCD has completed its review of your response to the OCD's July 2, 2010 e-mail communiqué associated with the above subject.

The OCD has become more concerned based on your responses, i.e., "The OCD will be notified when the plan is activated due to a H2S release that could result in the public being exposed to H2S concentrations above the 500 or 100 ppm thresholds." It would appear based on your responses that Navajo Refining Company's (NRC) emergency measures are in need of revision?

The purpose of the H2S Contingency Plan (CP) is for NRC to develop a CP that would outline measures taken in the event of a major release of H2S that could adversely affect nearby public areas. All that is remaining for NRC to do is to train the public on its CP and who does what in the event of an emergency.

Therefore, the OCD requires that NRC make a determination on whether it needs to update its emergency measures sections of its CP by COB on Friday, July 9, 2010. If not, NRC should provide an outline of how it proposes to train the general public on its completed CP. If revisions are needed, NRC needs to provide the OCD with a deadline for completion of the updates that will include a date and time for a public training or information meeting to discuss its completed CP emergency measures with the general public to satisfy the intent of the H2S Regulations.

Since NRC has put together its CP with lists of emergency information and contacts, the above should make your meeting straight forward on what you need to train the public about. As you mentioned the refinery has more safety measures than ever, this should highlighted when you discuss the contents of your CP with the public. Thank you.

Carl J. Chavez, CHMM
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Oil Conservation Division, Environmental Bureau
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Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Lackey, Johnny [mailto:Johnny.Lackey@hollycorp.com]
Sent: Tuesday, July 06, 2010 11:32 AM
To: Chavez, Carl J, EMNRD
Cc: Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD; Whatley, Michael; Moore, Darrell; Sanchez, Daniel J., EMNRD; Jelmini, David
Subject: RE: Artesia Refinery Public Training Notice H2S Contingency Plan OCD Draft Review

See Navajo's response below.

Johnny Lackey
Environmental Manager
Navajo Refining Company, L.L.C.
Office - 575-746-5490
Cell - 972-261-8075
Fax - 575-746-5451
Johnny.Lackey@hollycorp.com

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Friday, July 02, 2010 3:41 PM
To: Lackey, Johnny
Cc: Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD; Whatley, Michael; Moore, Darrell; Sanchez, Daniel J., EMNRD
Subject: RE: Artesia Refinery Public Training Notice H2S Contingency Plan OCD Draft Review

Johnny:

Good afternoon. The OCD had perceived from the most recent meetings and communiqués on the above subject with Navajo Refining Company (NRC) that NRC and OCD had identified to use of the public notice as a process for soliciting or peaking the interest of the public or community for the public training requirements of the H2S Regulations for the facility.

Navajo will coordinate notification and training requirements for the public with City officials and determine the most effective method for conducting the training, sharing information, number of meetings required, how to present the training, what the content of the training should be, etc. These details should be planned and organized in advance to most effectively present the information to the public. The Rule does not provide any guidance other than "The hydrogen sulfide contingency plan shall also provide for training of residents as appropriate...and shall provide for briefing of public officials on issues such as evacuation or shelter in place plans". Company and city officials will determine how this should

be addressed now that the plan has been submitted and approved. Navajo has had one meeting with city officials (including OCD Representatives) and is trying to set up another meeting to plan the next step in this process (public awareness and training). Navajo plans to accomplish this through public meetings, if city officials feel this is the most effective way to present this information, and will include the local ERO's. It is anticipated that the ERO's will receive the highest volume of follow-up inquiries (concerns, notifications, fears, etc.). The public notice as it was being developed could have created undue public concerns. The wording suggested by OCD indicates the 'worst case scenario' is imminent. Nothing similar to the 'worst case H2S release scenario' has happened at Navajo in the 41 years since the company was established. In addition, the refinery has many more early warning and mitigation systems in place than ever before, so the likelihood of the 'worst case scenario' is much less likely than it has been in the past. Therefore, information and training must be prepared with a well thought approach by persons with appropriate expertise to prevent creation of unwarranted fears within the public sector. The intent is to inform, not cause alarm.

It is my understanding that NRC and OCD were both aware that the public notice process was not a regulatory requirement, but a path forward process for developing public training interest and to satisfy the H2S Regulations public training requirement. The OCD is on board with NRC in order to meet the public training requirement, but feels based on your message that you are now cutting off communications with the OCD and are attempting to move on your own path to satisfy the OCD H2S Regulations. OCD had indicated that due to the proximity of the public areas and ROEs calculated by NRC in its H2S Contingency Plan for the facility that a public meeting was imminent to make sure the public is informed, trained to know what to do and what will happen in the event of an H2S worse case release scenario that would threaten the safety of the community.

There is no intent to exclude the OCD from this process. As mentioned above, OCD was included in the meeting with city officials to discuss the plan. The Rule gives direction to the company for implementing requirements within the plan as necessary. The OCD will be notified when the plan is activated due to a H2S release that could result in the public being exposed to H2S concentrations above the 500 or 100 ppm thresholds. Navajo fully intends to work with the city officials to provide training and notification to the public. The training content and means to present the training will be developed and approved by those that will assume the burden of satisfying the public need – i.e. the local public officials, ERO's and Navajo.

It appears based on your message below that NRC is uncomfortable with the public notice process and seems to indicate that OCD required it. This is not correct. Therefore, NRC is still obligated to satisfy the H2S Public Training Requirement in the OCD Regulations with the OCD. Based on your reply, "Navajo has no further comment and will work closely with Artesia Public officials to provide for training of residents as appropriate on the proper protective measures to be taken in the event of a release and shall provide for briefing of public officials on issues such as evacuation or shelter in place plans."

The "no further comment" statement was referencing OCD's comments to the Public Notice Draft that was submitted. As stated, after further review the public notice is not required and Navajo was under the impression from our previous meeting that this was a requirement from OCD and was proceeding accordingly. Yes, NRC is uncomfortable with a public notice via newspaper ad especially without inclusion of the local public officials who will be required to respond to perceived as well as actual emergencies.

The OCD hereby requires NRC to provide it with its new training agenda by a date agreed to by the OCD and NRC to satisfy the OCD H2S Regulations and specifically the "Public Training" provision. Please contact me by next Wednesday so we can communicate on NRC's new plans to educate the public and protect public safety based on the H2S Contingency Plan developed by the NRC.

Due to the large role and responsibility that will be required of the local public officials and ERO's, Navajo believes that they must be included in deciding the appropriate date based on the timing required to develop their response plan in the unlikely event of a 'worst case scenario'. Navajo plans to meet with city officials and ERO's to develop communication plans, training requirements and timing. As stated previously, we are trying to schedule this meeting ASAP. Navajo is awaiting response from city officials. Nothing in the rule or API 55 guidance requires companies to furnish the Bureau with training agendas, content or a date to submit this information.

The OCD wishes to communicate and work with NRC to our mutual satisfaction as long as we can meet the intent of the OCD H2S Regulations. Thank you.

Mutual satisfaction must include the local public officials and ERO's.

File: OCD Online GW-028 "H2S Contingency Plan"

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
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E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Lackey, Johnny [mailto:Johnny.Lackey@hollycorp.com]
Sent: Friday, July 02, 2010 3:14 PM
To: Chavez, Carl J, EMNRD
Cc: Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD; Whatley, Michael; Moore, Darrell
Subject: RE: Artesia Refinery Public Training Notice H2S Contingency Plan OCD Draft Review

Carl:

After further review and research, Navajo finds no directive in rule 19.15.11, Hydrogen Sulfide Gas or in API Recommended Practice 55 that requires the company to provide notice to the general public regarding H2S Contingency Plans. The Rule you cited in an earlier email (20.6.2.3108) is a requirement for application for a discharge permit, modification or renewal; therefore, Navajo has no further comment and will work closely with Artesia Public officials "to provide for training of residents as appropriate on the proper protective measures to be taken in the event of a release and shall provide for briefing of public officials on issues such as evacuation or shelter in place plans".

Johnny Lackey
Environmental Manager
Navajo Refining Company, L.L.C.
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Fax - 575-746-5451
Johnny.Lackey@hollycorp.com

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Tuesday, June 22, 2010 4:10 PM
To: Lackey, Johnny
Cc: Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD
Subject: FW: Artesia Refinery Public Training Notice H2S Contingency Plan OCD Draft Review

Johnny:

Please find attached OCD's comments on Navajo Refinery's draft public notice. I think some of the items Randy Dade mentioned in his e-mail below should be incorporated into what happens when the contingency plan is activated. Remember that the public needs to be training on what would happen in a worse case scenario so they will know how to react and what to do in the event of a major H2S release to the community.

I had commented that we should just post a public meeting date, time and location to discuss the H2S Contingency Plan Emergency Procedures. Perhaps the meeting could be termed, "H2S Contingency Plan & Public Training Meeting" to satisfy the H2S Regulations.

Please contact me to discuss or resend another draft to Randy and I by COB next Friday, July 2, 2010.

Thank you for your cooperation in this matter.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Dade, Randy, EMNRD
Sent: Tuesday, June 22, 2010 1:54 PM
To: Chavez, Carl J, EMNRD
Subject: RE: Artesia Refinery Public Training Notice H2S Contingency Plan OCD Draft Review

It was brought up at the meeting that at the public meeting, both the fire and police departments would be represented. It was also mentioned that all persons in the affected area that had telephone landlines would be notified by reverse 911. Navajo also mentioned setting up a phone system to take calls and leave comments during the initial public notice. I don't have any comments yet. I would like to read the final draft before it goes public. If there is anything else, give me a call, Randy.

From: Chavez, Carl J, EMNRD
Sent: Tuesday, June 22, 2010 1:07 PM
To: Dade, Randy, EMNRD
Cc: VonGonten, Glenn, EMNRD
Subject: Artesia Refinery Public Training Notice H2S Contingency Plan OCD Draft Review

Randy:

Here are my comments. Do you have any? I want to send our draft back to Johnny and let them send us another one to look at....

I think we should also indicate in the end that a public meeting will be scheduled....? Should we schedule a date and time for the public meeting in the public notice to give the location, date and time of the meeting.....

Give me a call to discuss. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
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Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, June 29, 2010 10:30 AM
To: 'Schmaltz, Randy'; 'Riege, Ed'
Cc: VonGonten, Glenn, EMNRD
Subject: H2S Contingency Plan Public Notice

Hey guys.

FYI, I will be forwarding you a copy of the most recent public notice draft by the Navajo Refining Company (NRC) next week for consideration in your public notices to the general public with information on what will happen in the event of a worst case scenario from your facility.

Note that NRC held a meeting with the LEPC or Fire Marshall as part of the process to generate a public notice. NRC fell short on the details of evacuation and specifying specifically what actions would be taken in a worst case scenario. So Western may want to meet with the LEPC to see who does what in the event of a worst case scenario. I reference the Hazwoper Guide of evacuations to NRC....

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, May 20, 2010 9:02 AM
To: 'Lackey, Johnny'
Cc: 'Schmaltz, Randy'; 'Riege, Ed'; VonGonten, Glenn, EMNRD
Subject: H2S CP & Public Notice

Johnny, et al.:

FYI, you are probably already aware of the Emergency Response Guidebook usually provided during Hazwoper Training Courses. This gives detailed guidance on evacuation radius, etc.

Also, OCD wants the LEPC and Fire Departments to be fully engaged during facility emergencies. The communities are relying on their local Fire Marshals and Fire Departments to step up to plate when they need to stand and deliver during emergencies. We do not want to see the LEPC excluded or turned away from refinery gates during emergencies at refineries in New Mexico. They must become an integral part of the response, solution, provide command and control infrastructure during an emergency, and catastrophies, etc. Please be sure to include them in the emergency process at the refineries in New Mexico.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, May 13, 2010 2:36 PM
To: 'Schmaltz, Randy'
Cc: McDaniel, Vic; Robertson, Bill; Riege, Ed; VonGonten, Glenn, EMNRD; Perrin, Charlie, EMNRD
Subject: RE: H2S Contingency Plan

Randy:

Depending on the public interest, it may only become an annual public notice. At most, a 2-hour public meeting would be conducted to go over the H2S Plan and what happens when there is an emergency. What OCD does not to happen, is for the LEPC or Fire Departments to be turned away from emergencies by the refinery, as the communities are relying on them to keep them safe in an emergency or catastrophic event. We hope the refinery can foster a good working relationship with the LEPC, City Emergency Plan folks, etc. in the community. We may even learn some things from the community on what they view is important by having an open meeting.

OCD looks forward to reviewing Western's public notices by July 1, 2010.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Schmaltz, Randy [mailto:Randy.Schmaltz@wnr.com]
Sent: Thursday, May 13, 2010 2:28 PM
To: Chavez, Carl J, EMNRD
Cc: McDaniel, Vic; Robertson, Bill; Riege, Ed
Subject: H2S Contingency Plan

Carl,

In response to your request for a proposed date to submit a draft of Public Notice, Western Refining Southwest Inc. – Bloomfield Refinery will submit a "Draft" for OCD review on or before July 1, 2010. Bloomfield Refinery will schedule a meeting with the LEPC and the Bloomfield Fire Department to get their thoughts and comments to be included in the "Draft". Bloomfield will also have to get approval of the release from Western's legal department.

Thanks

Randy Schmaltz
Environmental Manager

Western Refining Southwest, Inc.
Bloomfield Refinery
#50 County Road 4990
Bloomfield, New Mexico 87413
(505) 632-4171
(505) 320-6989

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, May 07, 2010 6:39 AM
To: 'Schmaltz, Randy'; Riege, Ed
Cc: VonGonten, Glenn, EMNRD; Perrin, Charlie, EMNRD
Subject: Western Refining SW- Bloomfield (GW-001) & Gallup (GW-032) Refineries H2S Contingency Plans

Randy and Ed:

Good morning. Similar to the Navajo Refining Company (NRC) Refineries in southern New Mexico, the OCD is requiring a public notice of the H2S emergency procedures to fulfill the public training section of the H2S Regulations. I have provided excerpts from OCD's discussions of the public notice to fulfill public training requirements with NRC for your consideration. Note that Western and OCD need to assess the interest from the public based on the public notice in order to determine whether a public meeting should be scheduled. If there is little or no interest, perhaps an annual posting may satisfy the requirement at a certain time each year? Please contact me by next Friday May 14, 2010 COB let me know your plans.

Thanks in advance for your cooperation in this matter.

NRC should look over its recent submittal to address the needed information for the public education/training requirement of the regulations.

OCD looks forward to receiving your draft public notice by June 18, 2010 for final approval or approval with additional requirements from the OCD-EB before the public notice is placed in the local newspaper. A good primer for the public notice process is 20.6.2.3108 NMAC (English and Spanish) which may include posting outside of the classified ad section of the newspaper and at key locations for the general public (i.e., library), etc. NRC should state a time limit to receive inquiries of about 30 days so we can bring closure to the process.

There should be a mail address, e-mail address and telephone number to an Refinery Representative who can answer technical questions, address concerns of callers, and record the concerns of citizens and this log needs to be provided to the local Fire Marshal (or LEPC), State Police, OCD-EB and OCD Aztec District Office for determination of a meeting. The information should identify the exact action steps the refinery working in concert with the local Fire Marshal, State Police, OCD would undertake to protect public safety from a release of H2S and SO2 from the facility. A map with ROEs at a minimum should be displayed.

Carl:

In response to your request for a proposed date to submit a draft of the Public Notice to the OCD, NRC will submit a draft for OCD review on or before June 18, 2010. Navajo will schedule a meeting with the local emergency response groups (Fire Dept., Police Dept.) and District OCD representatives to get their thoughts and comments to be included in the draft as well as approval of the release from our legal department prior to submittal to the local newspaper. NRC will include the OCD recommendations listed below in the notification.

Thanks,

Johnny:

Re: As we discussed, once the plan is approved, NRC will prepare a "Public Notice" for the local newspaper to publish which will serve as notice to those that may be affected by a release from the refinery. I will send a copy of the proposed release to you for review and approval before sending to the newspaper for publishing.

The most immediate concern to OCD based on the NRC Artesia Refinery Plan is the ROEs (100 & 500 ppm) overlapping the nearby community and public health concerns. Fortunately, NRC has maintained good communication throughout the Plan preparation and we discussed a plan for educating the public on what Navajo will do in the event of an H2S release that threatens public safety..

OCD's recommendation and in consideration of any recommendation(s) by OCD District Office Supervisor, NRC shall submit a draft of its public notice for the local newspaper(s) for OCD review and comment. We want the map to be shown, an explanation of what H2S and SO2 are and why they are dangerous, and the emergency action steps that Navajo will undertake to protect the community with a mail address and phone number for all incoming calls on the matter and letters to be logged and shared with the OCD. The OCD's position is that if there is significant interest voiced and/or documented by letter to Navajo, OCD feels it is in the best interest to hold a "Safety Meeting" open to the community where any questions, issues, etc. may be discussed with the community with the local Fire Marshal in attendance along with the OCD.

Please let me know your thoughts with proposed date to submit your draft to Randy and I so we can proceed to address the H2S Public Safety issues together for the NRC Refineries. Thank you.

Copy: GW-001 & GW-032 "H2S Contingency Plan" OCD Online Folder

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, April 28, 2010 2:58 PM
To: 'Schmaltz, Randy'
Subject: Western Refining Southwest, Inc.- Bloomfield Refinery (GW-001) H2S Contingency Plan Submittal

Randy:

The OCD is in receipt of your H2S Contingency Plan (Plan). Please consider your submittal to have satisfied the intent of the OCD regulations.

OCD reserves the right to require modifications to the Plan at a future date and will work with Western when, and if necessary.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Western Refining

WNR LISTED NYSE

April 26, 2010

RECEIVED OCD
2010 APR 30 A 11:35

Carl Chavez
New Mexico Oil Conservation Division
Environmental Bureau
1220 South St. Francis Dr
Santa Fe, NM 87505

Certified Mail: 7007 2560 0002 5890 7246

RE: Western Refining Southwest, Inc. –Bloomfield Refinery
H2S Contingency Plan

Dear Mr. Chavez,

Please find enclosed Western Refining Southwest, Inc. – Bloomfield Refinery's H2s Contingency Plan as requested in you January 28, 2010 email.

If you need additional information, please contact me at (505) 632-4171.

Sincerely,

James R. Schmaltz
Environmental Manager
Western Refining – Bloomfield

H_2S CONTINGENCY PLAN
Bloomfield Refinery

Western Refining Southwest, Inc
Bloomfield Refinery
#50 County Road 4990
Bloomfield, New Mexico 87413

APRIL 2010

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1.0 INTRODUCTION

The Western Refining Southwest, Inc. – Bloomfield Refinery (Bloomfield Refinery) is a hydrocarbon (crude and/or other hydrocarbon feedstock) processing plant that handles and/or generates hydrogen sulfide and/or sulfur dioxide; therefore, this Hydrogen Sulfide Contingency Plan, the "H_2S Plan" or the "Plan", has been developed to satisfy the New Mexico Oil Conservation Division Rule 11.

This Plan also conforms to API Recommended Practice 750 (API RP 750) Management of Process Hazards, which was developed for refineries, petrochemical operations, and major processing facilities.

Essentially, this Plan creates a site-specific hydrogen sulfide contingency plan that outlines the emergency response procedures that will be implemented 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. The terms used in this Plan are to be used in the same manner as defined in Title 19 Chapter 15 part II of the New Mexico Administrative code (19.15.11.7 – definitions) unless otherwise noted herein.

1.1 Plant description and maps

The Bloomfield Refinery is located approximately 1-mile south of Bloomfield, New Mexico and the facility encompasses 285+ acres. More specifically, the Refinery is located 1 miles southeast of the intersection of South Bloomfield Blvd. (Highway 44) and East Broadway Avenue (Hwy. 64) or east of Hwy 44 on Road 4990 [NW/4 NE/4 S/2 NW/4, and the N/2 NE/4 SW/4 of Section 26, Township 29 North, Range 11 West, NMPM, San Juan County, New Mexico]. Figure 1 shows the regional location of the Bloomfield Refinery.

The owner is:

Western Refining - (Parent Corporation)
123 W. Mills Avenue
El Paso, TX 79901

Operator:

Western Refining Southwest, Inc. (Postal address)
P.O. Box 159
Bloomfield, New Mexico 87413

Western Refining Southwest, Inc. (Physical address)
#50 County Road 4990
Bloomfield, New Mexico 87413

SIC code 2911 (petroleum refining) applies to the Bloomfield Refinery.

The following regulatory identification and permits govern the Bloomfield Refinery:

- U.S. EPA ID Number NMD089416416
- OCD Discharge Permit No. GW-001

The facility status is corrective action/compliance.

The Refinery incorporates various processing units that convert crude oil and natural gasoline into finished products. These units are briefly described as follows.

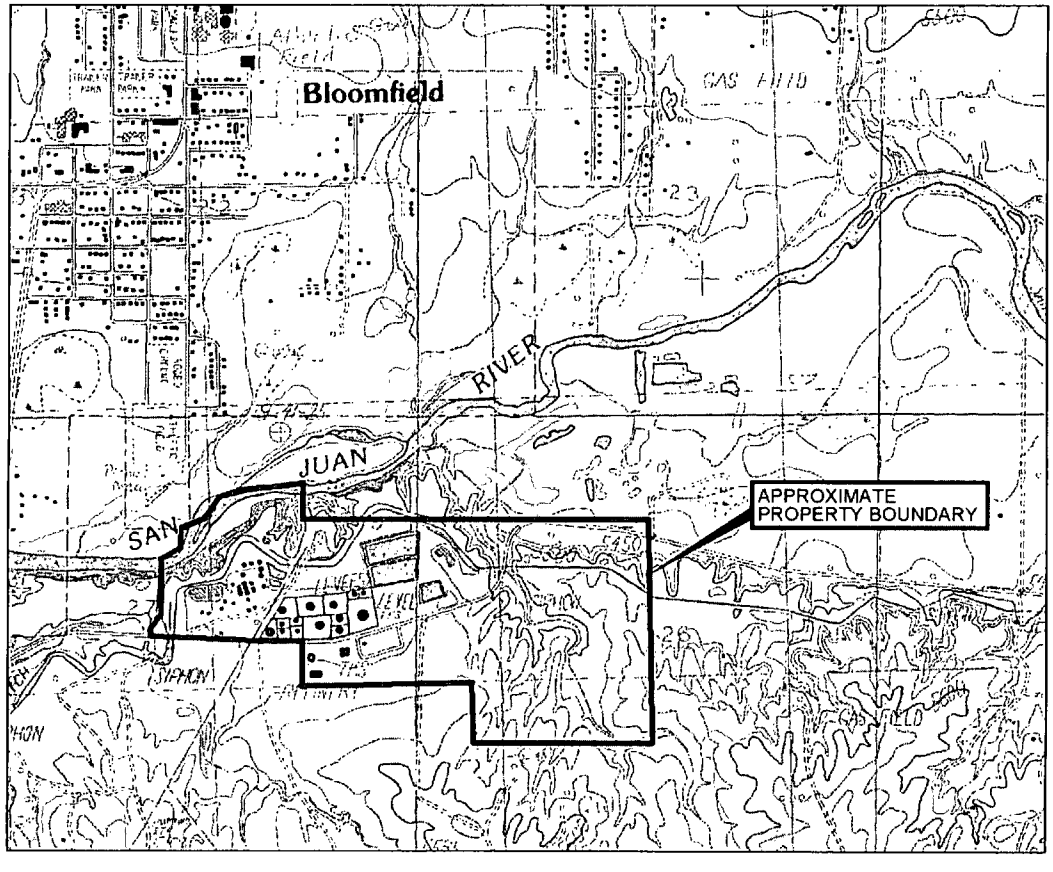
- The crude distillation unit separates crude oil into various fractions; including gas, naphtha, light oil, heavy oil, and residuum.
- The fluidized catalytic cracking (FCC) unit breaks up long-chain hydrocarbon molecules into smaller molecules, and essentially converts heavier oils into naphtha and lighter oils.
- The reforming unit recombines low octane naphtha molecules to form high octane naphtha.
- The hydrotreating unit removes undesirable sulfur and nitrogen compounds from intermediate feedstocks, and also saturates these feedstocks with hydrogen.
- The treater units remove impurities from various intermediate and blending feedstocks in order to produce finished products that comply with sales specifications.
- The catalytic polymerization unit converts olefins such as propylene and butylene into high octane polymers.
- The sulfur recovery unit converts and recovers various sulfur compounds from the gases and liquids produced in other processing units to create a solid elemental sulfur product.

As a result of these processing steps, the Refinery produces a wide range of petroleum products including propane, butane, unleaded gasoline, diesel, and residual fuel.

Storage tanks are used throughout the refinery to hold and store crude oil, natural gasoline, intermediate feedstocks, finished products, chemicals, and water. These tanks are all located aboveground and range in size from 100,000 barrels to less than a 1,000 barrels.

Pumps, valves, and piping systems are used throughout the refinery to transfer various liquids among storage tanks and processing units.

Figure 1: Bloomfield Refinery Regional Location Map



2.0 H_2S PLAN

2.1 Responsibility for conformance with the H_2S Plan

It is the responsibility of all personnel on-site to follow the safety and emergency procedures outlined in this H_2S Plan as well as in the following documents:

- Integrated Contingency Plan
- Risk Management Plan
- Bloomfield Refinery Safety and Health Policies, Procedures and Programs
- Western Refining Environmental Policies and Programs

2.2 Revisions to the Plan

The H_2S Plan will be reviewed annually by the Refinery's Environmental and Safety Departments, and will be revised as necessary to address changes to the Plant facilities, operations, training requirements, contact information, and especially to those areas within the radii-of-exposure.

2.3 Availability of the H_2S Plan

The H_2S 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 Plant in the Safety Department.

2.4 Content of the Plan

At a minimum, the H_2S Plan will contain information regarding the following:

- Emergency procedures to be followed in the event of an H_2S release that may pose a threat to the Plant, public, or public areas;
- Characteristics of H_2S;
- Facility description, map and/or drawings; and
- Information regarding training and drills to be conducted related to this Plan.

3.0 PLAN DESIGN CONSIDERATIONS

3.1 Characteristics of Gases of Concern

Major gases and vapors of concern at the Bloomfield Refinery are – hydrogen sulfide, sulfur dioxide, carbon dioxide, carbon monoxide, ammonia, and chlorine. In this Plan we are concerned primarily with hydrogen sulfide. Other gases are discussed in other documents of the Bloomfield refinery, such as the Risk Management Plan, etc. In this section, therefore, we present information on hydrogen sulfide.

Hydrogen Sulfide

Hydrogen sulfide is a highly toxic, colorless, and flammable gas. Hydrogen sulfide is heavier than air. Being heavier than air, it tends to accumulate at the bottom of poorly ventilated spaces. Hydrogen sulfide has the odor of rotten eggs. This strong and distinctive odor is evident at concentration as low as 1 ppm. At higher concentrations the sense of smell may be deadened as the olfactory nerves become fatigued and paralyzed, therefore the sense of smell shall never be used as the sole detector of H_2S.

Hydrogen sulfide presents a significant health hazard by paralyzing the respiratory system resulting in serious injury or death. Inhalation is the primary route of exposure. Strict respiratory protection guidelines must be followed.

A summary of hydrogen sulfide properties, characteristics, and potential physical effects are summarized in Table 1 and Table 2 below.

Table 1: Hydrogen Sulfide Properties and Characteristics

Hydrogen Sulfide Properties & Characteristics	
CAS No.	7783-06-4
Molecular Formula	H_2S
Molecular Weight	34.082
TWA	10 ppm
STEL	15 ppm
IDLH	100 ppm
Specific Gravity (air = 1.0)	1.189
Boiling Point	-76.5°F
Freezing Point	-121.8°F
Vapor Pressure	396 psia
Autoignition Temperature	518°F
Lower Flammability Limit	4.3%
Upper Flammability Limit	46.0%
Stability	Stable
pH in water	3
Corrosivity	Reacts with metals, plastics, tissues & nerves

Hydrogen Sulfide Properties & Characteristics	
CAS No.	7783-06-4
Molecular Formula	H_2S
Molecular Weight	34.082
TWA	10 ppm
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Boiling Point	-76.5°F
Freezing Point	-121.8°F
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Autoignition Temperature	518°F
Lower Flammability Limit	4.3%
Upper Flammability Limit	46.0%
Stability	Stable
pH in water	3
Corrosivity	Reacts with metals, plastics, tissues & nerves

Table 2: Physical Effects of Hydrogen Sulfide

Physical Effects of Hydrogen Sulfide		
Concentration		
ppm	%	Physical Effect
1	.00010	Can be smelled (rotten egg odor)
10	0.0010	Obvious & unpleasant odor; Permissible Exposure Limit; Safe for 8-hour exposure
15	0.0015	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 & 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
1,000	0.1000	Instant unconsciousness; followed by death within minutes

3.2 Radii of Exposure (ROE)

For the existing operations, the "Radius of Exposure" for both 500-ppm and 100-ppm of H_2S gas was determined using the maximum escape rate and the maximum H_2S concentration expected (worst-case scenario) in process gases (Refer to Table 3). Details of the rates and other variables used to calculate the ROEs are

presented in Appendix A. A figure showing the 500-ppm ROE and the 100-ppm ROE is presented in Appendix B.

Table 3: Calculated ROE for 500 ppm and 100 ppm of H_2S gas

Concentration (ppm)	ROE (feet)
500	143
100	313

3.3 Conclusion

Based on the ROE calculations, there are no impacts to off-site public areas expected from the worst-case scenario. A detailed Process Hazard Analysis (PHA) of the Distillate Hydrotreater Process Units was conducted for the Bloomfield Refinery in 2001 and revalidated in 2006. This PHA also concluded that there would be no impacts to off-site areas from a release in this unit.

4.0 EMERGENCY ACTION PROCEDURES

4.1 Emergency Response Organization

The Bloomfield Refinery uses the Incident Command System (ICS) for emergency response. The ICS structure is based on the National Interagency Incident Management System (NIMS) and is consistent with the National Contingency Plan. The ICS system shall be implemented for all emergency response incidents and the staffing levels shall be adjusted to meet the specific needs of the incident. A copy of the Bloomfield Refinery's Emergency Action Plan Safety Order S-1 is provided in Appendix C.

Incident Command: The first Bloomfield refining employee on scene will function as the "Incident Commander" until this person relinquishes this authority to a more qualified Individual (Operations or Safety Supervisor).

It will be the Incident Commander's duty to do the following:

- Respond to and initiate size-up of incident.

- Call out for additional resources if needed and activate emergency response plan.
- Determine if there are casualties or, missing personnel.
- Determine if there are personnel who need rescue and or medical assistance.
- Develop initial tactical plan and deploy resources.

Emergency Response Team: The size of the Emergency Response Team will be determined by the size and complexity of the incident.

4.2 Emergency Response Team Responsibilities

SHIFT SUPERVISOR

The Operation's Shift Supervisor has special knowledge of operating equipment and process flows and is generally most available at any time day or night. For this reason it will be the Shift Supervisor's responsibility to assume command of emergency control efforts and act as Fire Chief until arrival of a member of the Safety Department. The Shift Supervisor will then assist the control effort as a member of the command team.

SAFETY SUPERINTENDENT

Direct field command at emergency scene and assure all functions pertaining to the emergency operation are being carried out in an efficient manner. Later references in this order may signify this position by the title of "Fire Chief".

SAFETY SUPERVISOR & PSM COORDINATOR

Assist the direction of field command by establishing an Emergency Command Post to coordinate activities and establish lines of communication. In the absence of the Safety Superintendent, the Safety Supervisor will assume duties required as Fire Chief.

OPERATIONS SUPERVISOR & TRAINER

Coordinate activities between emergency command post at emergency scene and process equipment control in control room. The Operations' Supervisor is also

responsible for maintaining an updated list of employees and their phone numbers in a readily accessible location in the control room.

CHIEF OPERATOR

Maintain control of process unit(s) left operating and act as dispatch operator until an Emergency Control Center can be established. It is also the Chief Operators responsibility to know the call-out system and how to activate it on moments notice.

OPERATORS

Perform necessary shut down of involved equipment as required by the situation and assist emergency control efforts as fire crew member.

PUMPER

To take command of gate guard duties as outlined in the section of this order titled "Plant Security".

MAINTENANCE SUPERVISORS & PLANNERS

Proceed to "Employee Staging Area" (Section G of Appendix C) to be assigned to fire crew leaders under direction of acting Fire Chief. The Maintenance Supervisors and Maintenance employees will insure all necessary fire equipment is taken to the scene as needed.

MAINTENANCE EMPLOYEES

Proceed to "Employee Staging Area" (Section G of Appendix C) to be assigned to fire crew duties under direction of assigned fire crew leaders.

TECHNICAL SERVICES DEPT. / PROCESS and ENVIRONMENTAL ENGINEERS

Act as information officer(s) between emergency scene and Emergency Control Center. Provide technical and process information to command team.

OFFICE STAFF

Assume duties of coordinating first aid and medical treatment. Coordinate ambulance/rescue personnel. Reports to Emergency Control Center for obtaining needed supplies and equipment.

PLANT MANAGER

Coordinate all activities by establishing an Emergency Control Center in the main office building aided by the H.R. Manager, Maintenance Manager, and Operation Manager.

EMERGENCY CONTROL CENTER

Make available outside services, equipment, and supplies as needed. Coordinate support services and provide communication to necessary corporate offices and news media.

WAREHOUSE SUPERVISOR & EMPLOYEES

Responsible for delivery of fire fighting foam and/or supplies to the emergency scene as required by Command Post.

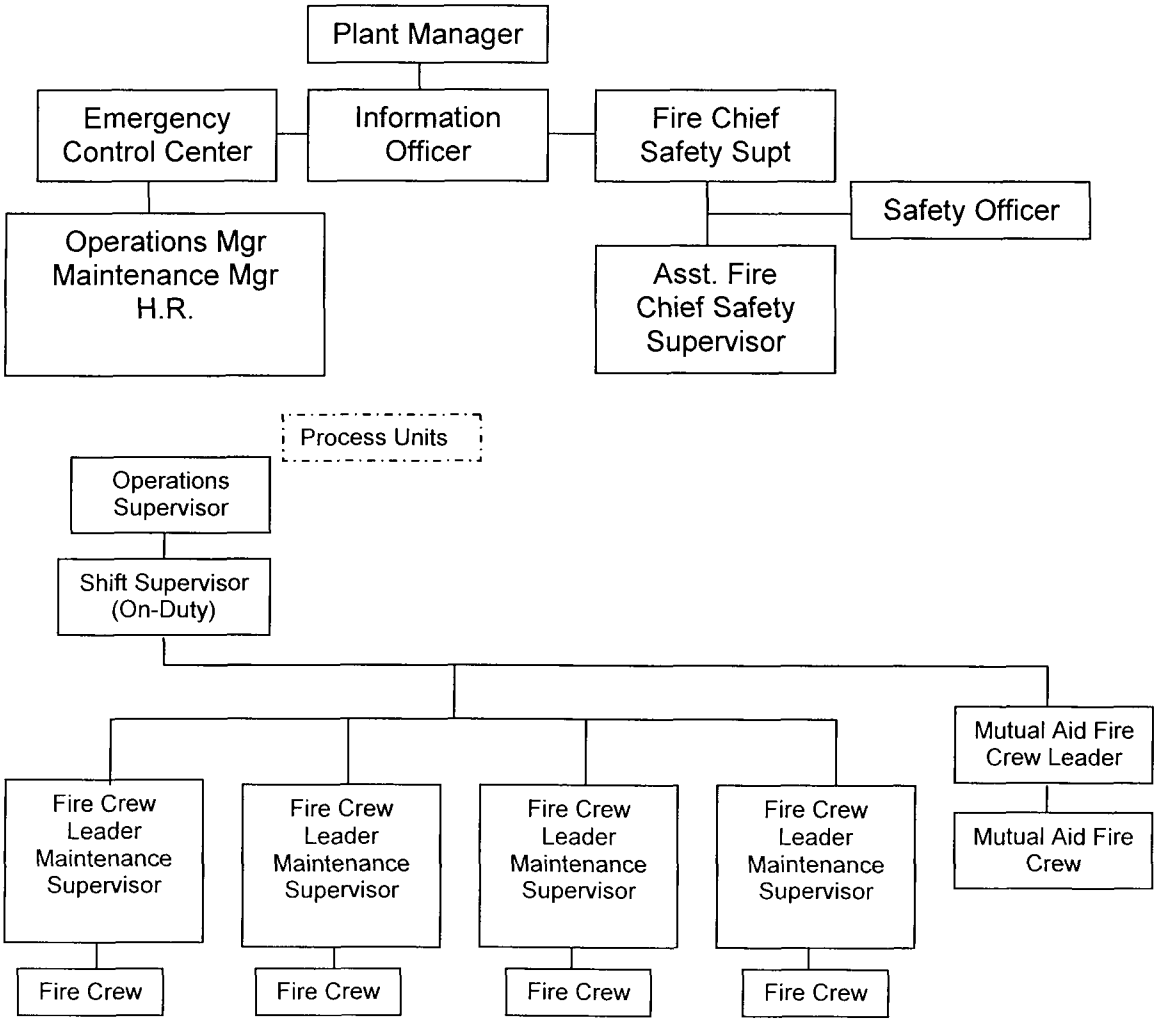
ALL OTHER EMPLOYEES (Lab, Projects, Blending)

Proceed to "Employee Staging Area" (Section G of Appendix C) to be assigned to fire crew duties.

RESPONSIBILITY FOR EMERGENCY PLAN REVISIONS

The Safety Manager is responsible for the contents of this order and to ensure it is in updated form. Contact the Safety Department for questions or clarifications to any portion of this plan. Further information on the Refinery Emergency Action applications can be found in the "Integrated Contingency Plan" and the Corporate "Crisis Communication Plan" which are maintained at the Refinery.

4.3 Emergency Organization Chart



5.0 EMERGENCY RESPONSE

This section explains the procedures and decision process to be used in the event of a H_2S release: much of which has been pre-determined to ensure a coordinated, efficient and immediate action plan for alerting and protesting operating personnel and the public as well as to prevent or minimize property damage, and environmental hazards.

All Bloomfield Refinery employees, contractors and visitors are expected to attend Emergency Plan training. The training will include information on potential hazardous, site conditions, and procedures to follow in the event of an Emergency.

The Bloomfield refinery is equipped with a stationary H_2S detection monitor that is located in the DHT/ Sulferox unit. This area is the most probable area to experience a release of H_2S. The stationary H_2S monitoring device is programmed to sound an alert at 20 ppm, and a give a warning alarm at 50 ppm. The 20 ppm alert will be signaled by a flashing orange light accompanied by an interminent beeping alarm, the 50 ppm warning is signaled by flashing red lights with a steady sounding alarm. In addition to the stationary monitor, any person entering this area is required to wear a personal H_2S monitor. The monitor must be worn in the breathing zone. All personal monitors are programmed to sound an alert at 10 ppm, and a give a warning alarm at 20 ppm. The 10 ppm alert will be signaled by a flashing light accompanied by an intermminent (beeping) alarm sound, the 20 ppm warning will be signaled by the flashing light with a steady sounding alarm.

6.0 EMERGENCY LEVELS

Bloomfield Refinery's emergency response actions will incorporate four progressive emergency response levels based on the concentration of H_2S of the release.

Level I Emergency (10 ppm)

A Level I is an emergency which does not require a response by the Refinery Emergency Response Team (ERT). During a Level I emergency, if Plant personnel

(operators and/or maintenance) while performing their assigned work task discover or cause a leak or emission release, they are to attempt to resolve the issue as long as the H_2S levels remains at 10 ppm. If the response action needed to resolve the issue is more than simply closing a valve or stopping a leak, the plant personnel shall notify the operations supervisor immediately. Operations supervisor will access the emergency and direct plant operating personnel to wear 30-min SCBA so they can attempt to resolve the issue. Operations supervisor will notify the Safety Manager and Environmental Manager of the issue.

Level I Audible Signal: None

Level II Emergency (20 ppm)

A level II emergency is one that requires response by the ERT members on-site at the refinery. This response will be for fires or H_2S releases which may require Operations and Support Brigade ERT response. Upon determination that the H_2S level is above the 20 ppm level, Operations supervisor will call for the emergency alarm to be sounded. All on site ERT members will immediately go to the firehouses, don turnout gear, start equipment and prepare to respond on order from Western Command. All non-essential personnel will move to their emergency assembly points, conduct head count and stand by for instructions.

Level II Audible Signal: As described in the Emergency Action Plan Safety Order S-1 (Appendix C).

Level III Emergency (50 ppm)

A level III Emergency is a large event that may require a response by all available refinery ERT members and could possibly require Mutual Aid Resources. In the case of a Level III emergency, the Emergency Response Call Out System for off-duty refinery personnel may be needed. All non-essential personnel will move to their emergency assembly points, conduct head count and stand by for instructions.

Level III Audible Signal: As described in the Emergency Action Plan Safety Order S-1 (Attachment C).

Level IV Emergency:

This is any out of control emergency which may require evacuation of the refinery and the surrounding community.

Level IV Audible Signal: As described in the Emergency Action Plan Safety Order S-1 (Appendix C).

7.0 REQUESTS FOR OUTSIDE ASSISTANCE

In the event that outside assistance is needed, we can request this aid from the local fire departments-primarily the Bloomfield Department. It shall be the responsibility of the Chief Operator to request this aid, by telephone (911), upon the direction of the Fire Chief.

Mutual aid personnel and equipment from all outside responding agencies will assemble outside the main refinery gate in the roadway southwest of the gate. The person in charge of each group should report to the main gate and stand by. Personnel and equipment will be admitted to the refinery only after specific authorization and instruction from the Emergency Command Post. Each responding Fire Chief, or Officer is responsible for the safety of their specific personnel. Each responding fire chief will work with, and under the direction of the Bloomfield Refinery Fire Chief at the scene.

8.0 FACILITY EVACUATION

Should it become evident that the emergency has become uncontrollable or circumstances arise that endanger personnel attempting to rectify an emergency situation, the Fire Chief will request a "Facility Evacuation" Signal be sounded on the fire alarm. He will also broadcast an ordered evacuation on each of the channels of the radio system and notify any outside assistance personnel of the need to evacuate. This order should not be questioned but efforts taken

immediately to secure fire fighting equipment to a safe manner and leave the emergency scene. All evacuation routes will be determined by the location and type of emergency; however general guidelines include determination of wind direction and evacuating upwind or cross wind as appropriate. (See Attachment III of Appendix C for Evacuation Routes from the Refinery). Upon completion of evacuation of the Refinery all personnel will proceed to the San Juan Regional Office building for verification of complete evacuation and a head count. If the emergency is located at the terminals area, the Refinery Office will be the secondary evacuation rally point. The Staging Officer will take the manpower availability board to the evacuation site to assist accountability of all personnel.

8.1 Evacuation Guidelines

The following guidelines should be followed when evacuating the refinery:

Distance will be determined by the nature and location of the incident and be made by the Western Incident Command in communication with the On Scene Command.

- Evacuation will be on foot or by company vehicles. Personnel with company vehicles should pick up passengers on the way to evacuation site. Vehicles will be driven slowly and carefully to avoid injury to personnel.
- Evacuating personnel should take small personal items of a valuable nature, required medication and appropriate clothing if weather is a factor.
- Evacuating control houses and leaving process plants running is an extremely difficult decision. But the control houses are not adequate protection in some scenarios and should be evacuated. Plant Operators should do what they can to "safe" the plants before they evacuate the control houses.
- Supervisors and Security Officers will assist in guiding personnel to the evacuation route and final assembly point.
- At the final assembly point, roll shall be taken and all personnel accounted for. Each work group supervisor will account for their personnel and report to the HR Manager. The IC will be notified of the results of the roll call.
- The Incident Command and Emergency Operation Center (EOC) will be moved to Evacuation site.

- Personnel will remain in the Final Assembly Area until relocated by bus to other shelter, released to go home, or until the area is declared safe.

9.0 TRAINING

All Bloomfield Refining employees and contract employees shall receive H_2S training as part of the initial employee orientation training. Refresher training will be conducted on an annual basis; this training will include any plan changes that have occurred. This training will include at a minimum prevention, detection, and response.

APPENDIX A

Radius of Exposure Calculations

APPENDIX A – Radius of Exposure Calculations

Worst-case Scenario

The Distillate Hydrotreater (DHT) unit has the highest level of H_2S concentration in its process gases. This concentration has been measured previously as 8,000 ppm.

The average measured flow rate in the DHT process unit of high-H_2S containing process gases is 674,000 scf/day. Therefore, we have assumed a maximum escape rate that lasts a whole day as 764,000 scf/day.

The worst-case scenario assumes that process gases from the DHT unit at 8,000 ppm of H_2S are released for a 24-hour period at the flow rate of 764,000 scf/day.

In the existing situation, if there was a failure of ay kind at the DHT unit, high H_2S gases would be routed to the flare and combusted. If the flare system also failed, the units would be shut down. The DHT is equipped with an Emergency Shutdown device. Therefore, there is almost no possibility of high-H_2S gases being continuously released from the DHT unit at 8,000 ppm and at a flow rate of 764,000 scf/day for a full 24-hour period.

By assuming this extreme and unlikely worst-case scenario, we have accounted for all other scenarios of smaller impacts.

Radius of Exposure Calculations

The formula for calculating the two ROEs (as specified in the OCD regulations) are as follows:

500-ppm Radius of Exposure calculation

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

Where:

X = radius of exposure in feet

Hydrogen sulfide concentration = decimal equivalent of mole or volume fraction of hydrogen sulfide in the gaseous mixture

Q = Escape rate expressed in standard cubic feet per day

For, hydrogen sulfide concentration = 8,000 ppm (0.008 moles), and Q = 764,000 scf/day,

X = 143 feet

100-ppm Radius of Exposure calculation

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

Where:

X = radius of exposure in feet

Hydrogen sulfide concentration = decimal equivalent of mole or volume f fraction of hydrogen sulfide in the gaseous mixture

Q = Escape rate expressed in standard cubic feet per day

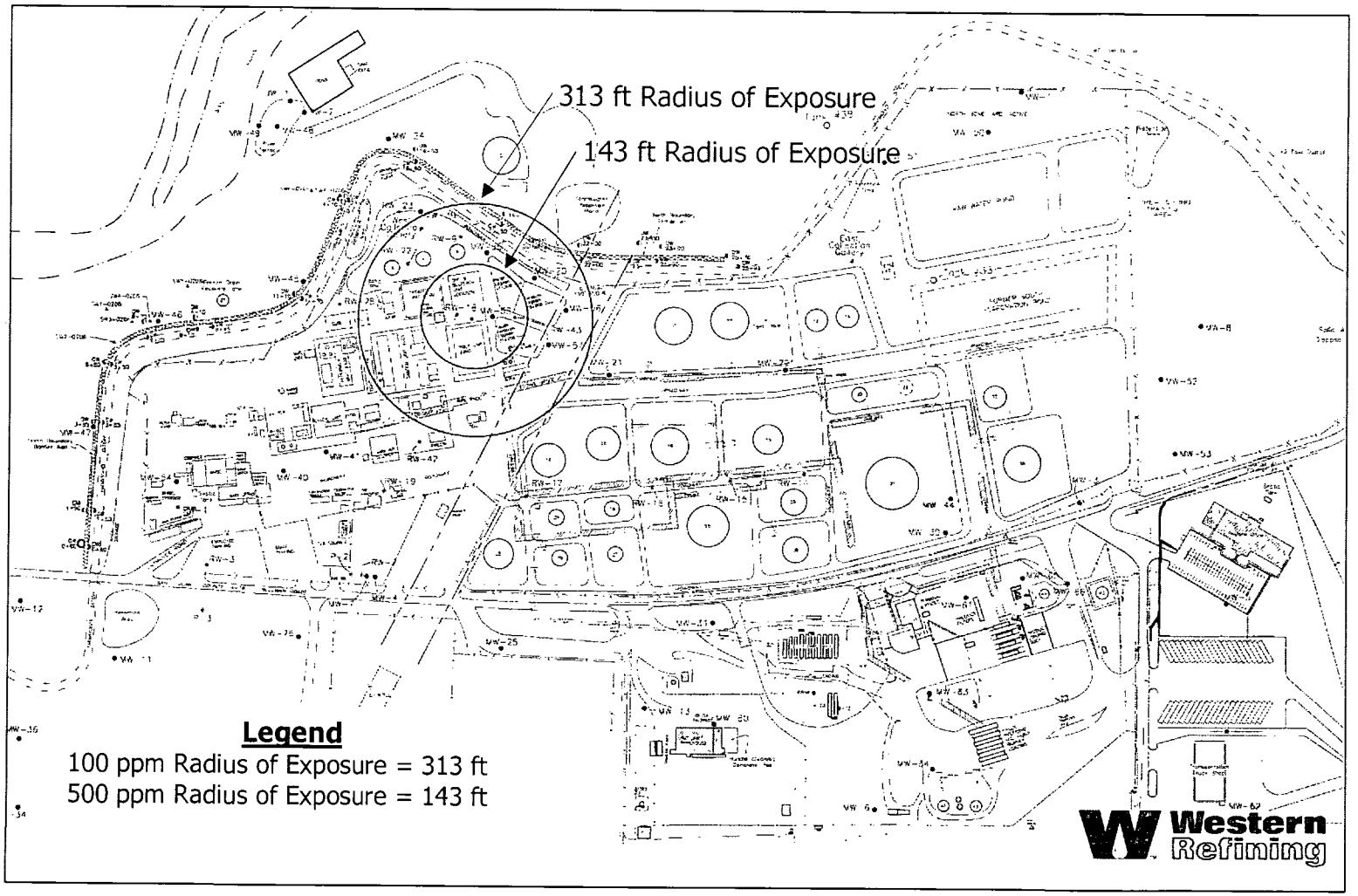
For, hydrogen sulfide concentration = 8,000 ppm (0.008 moles), and Q = 764,000 scf/day,

X = 313 feet

APPENDIX B

Radius of Exposure Map

APPENDIX B - Radius of Exposure Map



APPENDIX C

Emergency Action Plan

EMERGENCY PLAN and EMERGENCY RESPONSE ORGANIZATION

GENERAL

Explosions, fires, or serious accidents may occur despite the finest possible safety precautions. In these times of emergency, it is essential for the protection of personnel and property that preplanned, well rehearsed action be taken. It is the purpose of this emergency plan to outline the action to be taken, and to assign the responsibility for these actions. The items found in the Emergency Action Plan will be supplemented by the Integrated Contingency Plan for the Bloomfield Facility.

This plan is intended to cover foreseeable types of emergencies.
Examples are:

1. Fire and/or explosions.
2. Release of Flammable Vapor or Gas.
3. Release of Toxic Vapor or Gas.
4. Bomb Threats.

All Bloomfield Refinery personnel are part of the emergency organization and are expected to carry out their assigned duties of firefighting operations involving incipient stage fires as well as more advanced exterior fires and emergencies to the ability of received training. The fire brigade at the Bloomfield Refinery will not perform any interior structural fire fighting activities beyond incipient stage fires which are controllable by available hand held fire extinguishers.

Each employee will participate in combined academic instruction, practical training and/or drills quarterly to better equip them with the knowledge and skill required for performance of their duties. All members of the emergency organization should remain currently informed as to their roles in handling these emergency situations. Each employee assigned exterior firefighting activities will receive training in the following aspects of industrial firefighting and emergency control:

a. Hose handling and appliances
b. Inspection, maintenance and use of portable fire extinguishers
c. Agents and modes of extinguishment
d. Tank fire fighting (pressure and atmospheric)
e. Operation of mobile fire equipment
f. Operation of fire pumps
g. Use of protective clothing
h. Use and inspection of breathing apparatus
i. Control of hazardous materials
j. Control of leaks (with or without fire)
k. Control of spills (with or without fire)

Each employee expected to carry out the requirement of fire and emergency action will be issued and expected to wear appropriate personal protective equipment to perform those duties. Western Refinery will assure that protective clothing purchased protects the head, body, and extremities which comply with requirements of OSHA 1910.156 and NFPA 600 exterior fire fighting activities. It will be each employee's responsibility to insure that their individual equipment is in satisfactory condition and suitable for continued use.

TABLE OF CONTENTS

I. RESPONSIBILITIES

SHIFT SUPERVISOR

The Operation's Shift Supervisor has special knowledge of operating equipment and process flows and is generally most available at any time day or night. For this reason it will be the Shift Supervisor's responsibility to assume command of emergency control efforts and act as Fire Chief until arrival of a member of the Safety Department. The Shift Supervisor will then assist the control effort as a member of the command team.

SAFETY SUPERINTENDENT

Direct field command at emergency scene and assure all functions pertaining to the emergency operation are being carried out in an efficient manner. Later references in this order may signify this position by the title of "Fire Chief".

SAFETY SUPERVISOR & PSM COORDINATOR

Assist the direction of field command by establishing an Emergency Command Post to coordinate activities and establish lines of communication. In the absence of the Safety Superintendent the Safety Supervisor will assume duties required as Fire Chief.

OPERATIONS SUPERVISOR & TRAINER

Coordinate activities between emergency command post at emergency scene and process equipment control in control room. The Operations' Supervisor is also responsible for maintaining an updated list of employees and their phone numbers in a readily accessible location in the control room.

CHIEF OPERATOR

Maintain control of process unit(s) left operating and act as dispatch operator until an Emergency Control Center can be established. It is also the Chief Operators responsibility to know the call-out system and how to activate it on moments notice.

OPERATORS

Perform necessary shut down of involved equipment as required by the situation and assist emergency control efforts as fire crew member.

PUMPER-to take command of gate guard duties as outlined in the section of this order titled "Plant Security".

MAINTENANCE SUPERVISORS & PLANNERS

Proceed to "Employee Staging Area" (section G) to be assigned to fire crew leaders under direction of acting Fire Chief. The Maintenance Supervisors and Maintenance employees will insure all necessary fire equipment is taken to the scene as needed.

MAINTENANCE EMPLOYEES

Proceed to "Employee Staging Area" (section G) to be assigned to fire crew duties under direction of assigned fire crew leaders.

TECHNICAL SERVICES DEPT. / PROCESS and ENVIRONMENTAL ENGINEERS
Act as information officer(s) between emergency scene and Emergency Control Center. Provide technical and process information to command team.

OFFICE STAFF
Assume duties of coordinating first aid and medical treatment. Coordinate ambulance/rescue personnel. Reports to Emergency Control Center for obtaining needed supplies and equipment.

PLANT MANAGER
Coordinate all activities by establishing an Emergency Control Center in the main office building aided by the H.R. Manager, Maintenance Manager, and Operation Manager.

EMERGENCY CONTROL CENTER

Make available outside services, equipment, and supplies as needed. Coordinate support services and provide communication to necessary corporate offices and news media.

WAREHOUSE SUPERVISOR & EMPLOYEES
Responsible for delivery of fire fighting foam and/or supplies to the emergency scene as required by Command Post.

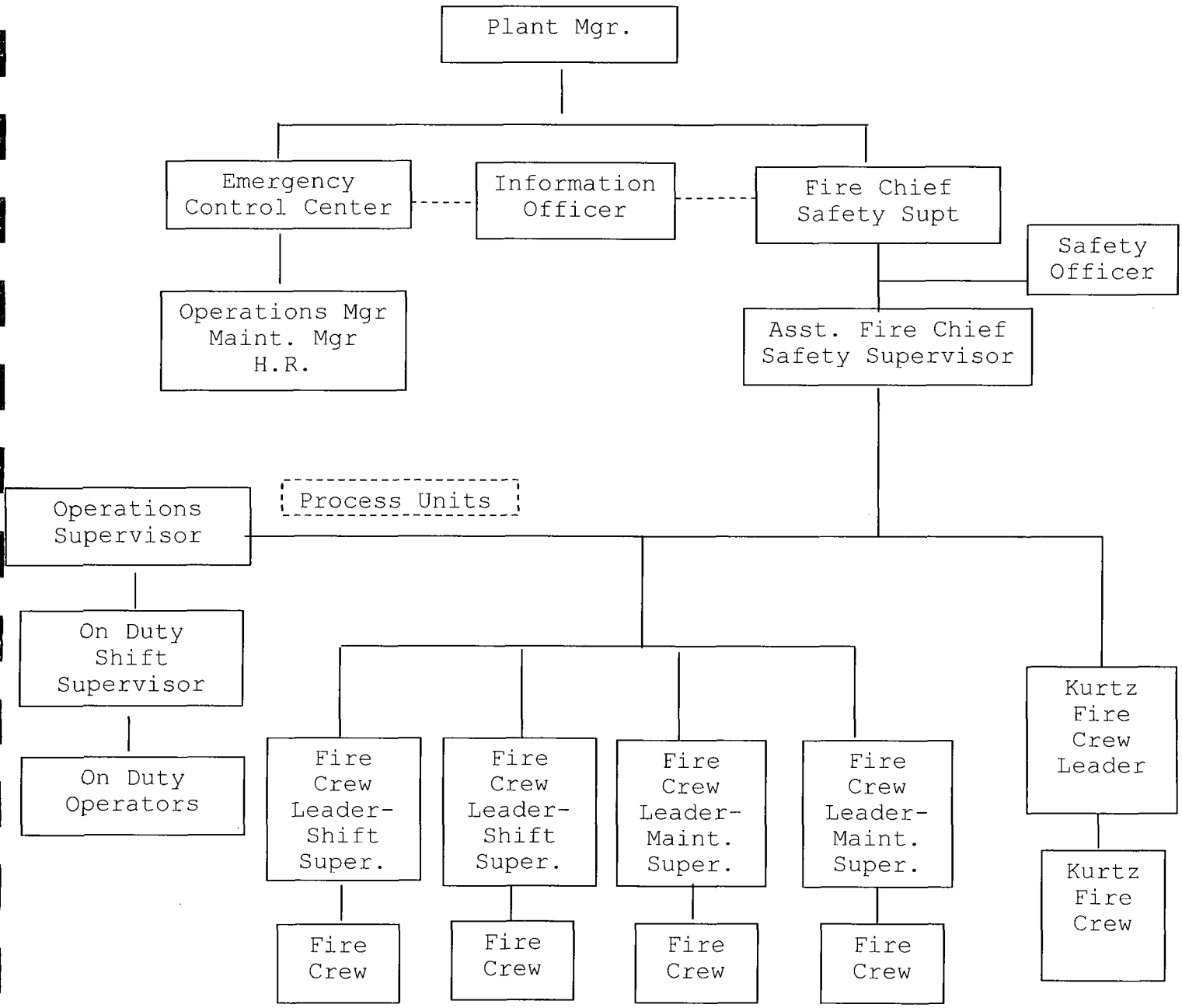
ALL OTHER EMPLOYEES (Lab, Projects, Blending)
Proceed to "Employee Staging Area" (section G) to be assigned to fire crew duties.

KURTZ FIRE SERVICE
Kurtz firemen will proceed directly to the scene and the on-shift officer will report to the Shift Supervisor (IC) for instruction. First Priority will be Rescue and medical treatment. Then assist operating personnel under direction of the Shift Supervisor in fire control efforts on a defensive basis until off duty assistance arrives. If responding from off duty proceed to "Employee Staging Area" (section G) to be assigned to fire crew duties under direction of acting Fire Chief.

RESPONSIBILITY FOR EMERGENCY PLAN REVISIONS

The Safety Manager is responsible for the contents of this order and to ensure it is in updated form. Contact the Safety Department for questions or clarifications to any portion of this plan. Further information on the Refinery Emergency Action applications can be found in the "Integrated Contingency Plan" and the Corporate "Crisis Communication Plan".

EMERGENCY ORGANIZATION CHART



II. FIRE AND/OR EXPLOSION

A. REPORTING THE FIRE

Upon discovering a fire, unless it is obvious that it is so small that it can be easily extinguished, proceed immediately to one of the alert sounding stations either south of the control room or in the roadway between the Poly unit and Treator then signal the alarm. The alarm signals will identify the general location of the emergency by use of fire zones. (See Chart).

If the nearest alert station is not readily accessible, the alert should be communicated to the control room by radio or telephone, they will in turn sound the alert over the alarm system. When contact is made to the control room, give your name, the location of the fire, and the fire zone. Be calm; be sure that the person answering has received the proper information before discontinuing the conversation.

B. FIRE ZONES

To make it possible to quickly designate the general area of a fire or emergency, the Bloomfield Complex has been divided into three fire zones. The fire alarms should be sounded in a manner to identify the general location of the emergency. The alarm should sound a long blast (3-5 seconds), followed by short blast(s)(1-2 seconds) which indicate the fire zone, and then repeated after a short time lapse. The following table lists the fire zones, location, and corresponding alarm.

Zone No.	Locations	Alarm Signal
Zone 1	Process Unit	1 long-1 short
Zone 2	Tank Farm	1 long-2 short
Zone 3	Term./Trans.	1 long-3 short
For Toxic Leaks or Gas Leaks Without Fire		2 longs & above coding

FACILITY EVACUATION.....10-15 short blasts in succession

Testing – 1 long blast daily at 12:00 noon local time.

C. IMMEDIATE CORRECTIVE ACTION

Most fires, gas releases and spill are relatively small when first identified, but can spread very rapidly. Many serious fires and explosions have been prevented, by taking immediate action to extinguish the fire or prevent the escape of flammable liquid, vapor, or gas, yet not endangering personal safety. While the emergency is being reported, operations and maintenance personnel at the scene should immediately proceed to block off the feed to the fire, release, or spill and put to use available emergency equipment as needed. Do not wait for the fire crews to arrive; in most instances, the fire can be extinguished or contained before fire crews arrive.

D. DIRECTION OF FIRE FIGHTING EFFORTS

The ultimate responsibility as Fire Chief rests with the Safety Department. However, until their arrival, direction of the fire fighting effort must be assumed by others at the scene of the emergency. When the alarm is sounded the first Operating Shift Supervisor at the scene should assume responsibility for directing the fire fighting effort and isolating process equipment. Command should be transferred to a member of the safety department upon arrival and briefing, releasing the Shift Supervisor for fire crew leader duties.

E. FIRE WATER SUPPLY

Water for fire fighting purposes is provided by automatic start stand-by pumps, and a system of underground piping. If long duration fire fighting is probable all possible water resources from in-plant storage and city water supplies shall be made available and periodic checks of the fire pumps should be made. The fire chief shall determine when the above items become necessary and designate an available operator to assume the duties.

F. EMERGENCY CALL OUT PROCEDURE

An emergency occurring after standard daylight working hours can pose serious manpower problems. To minimize these problems the following call out procedure should be followed.

Alert lists are provided to notify appropriate refinery personnel of an emergency in an orderly manner. Each list has a specific purpose and designates who makes the call, who is called, and at what times these lists are used.

ALERT LIST # 1

The following people should be contacted directly by telephone by the Shift Supervisor in the event of a bomb threat, suspected radiation accident or a fire or emergency that has been controlled by personnel on duty:

1. Safety Supt. or Safety Supervisor
2. Operation Manager or Operations Supervisor
3. Refinery Manager

ALERT LIST # 2

This list is to be used when a major emergency arises which requires assistance from all off duty personnel. This is accomplished thru a computer based Emergency Notification System on our phone system listed below. Following are instructions to activate the emergency call out system from the plant as well as instructions for receiving a call at home.

ACTIVATING THE SYSTEM FROM THE PLANT

- **Dial 278** (this will access the mail box system)
- **Press ***
- **Dial 4600** (this is the emergency mailbox)
- **Press #** (this is the password- press it only once)
- **Press 2** (this will allow you to leave an emergency message)
- **Dial 49999** (this will activate the emergency call out list)
- **Press #**
- **Record a Short message** then hang up

RECEIVING AN EMERGENCY CALL AT HOME

- When the phone is answered it will say "this is the message center with a message for (*your name*). If you are (*your name*) **Press #**
- It will then ask you to enter your password – **Press #**
- It will then say "you have 1 new message" to hear new message **Press 1**
- You will then hear the message that was recorded during the emergency
- After listening to the message **Press 9** to delete the message
  (note - it is very important to press 9 to delete – if you do not, the system will continue to call you with the message)

G. EMERGENCY COMMAND POST

During a major emergency, it will be necessary to establish communication between members of management at the scene and the Emergency Control Center outside the immediate area of the emergency. This Emergency Command Post will be a base for the direction of all emergency control activities as well as a communication post to all involved. All information from this post will be communicated by a member of the Technical Support Group to the Emergency Control Center either directly, or by radio.

Outside aid organizations should report to this command post after arrival and clearance at the front gate.

EMPLOYEE STAGING AREA

For orderly assignment of employees reporting to assist emergency control efforts a staging area has been designated as the fire station south of the Crude Unit. When the alarm has been sounded or when reporting from home during off hours all employees should report to the staging area for assignment to fire crew duties.

H. EMERGENCY CONTROL CENTER

During a major emergency, it will be necessary to establish an Emergency Control Center where senior management have means of communication with the Emergency Command Post, with personnel outside the plant, with necessary corporate offices, and with press and news media personnel.

The maintenance office area has been designated as the Emergency Control Center. If the maintenance office is inhabitable because of the emergency the Regional office will become the Secondary Emergency Control Center. In anticipation of its use, a radio receiver-transmitter will remain in this center at times of emergency.

When a situation arises that requires establishing an Emergency Control Center, the H.R. Manager or another member of this team will be responsible for contacting clerical, purchasing, and warehousing personnel to aid in the emergency effort through actions within their departmental control.

I. REQUESTS FOR OUTSIDE ASSISTANCE

In the event that outside assistance is needed, we can request this aid from the local fire departments-primarily the Bloomfield Department. It shall be the responsibility of the Chief Operator to request this aid, by telephone (911), upon the direction of the Fire Chief.

Mutual aid personnel and equipment from all outside responding agencies will assemble outside the main refinery gate in the roadway southwest of the gate. The person in charge of each group should report to the main gate and stand by. Personnel and equipment will be admitted to the refinery only after specific authorization and instruction from the Emergency Command Post. Each responding Fire Chief or Officer is responsible for the safety of their specific personnel. Each responding fire chief will work with, and under the direction of the Bloomfield Refinery Fire Chief at the scene.

J. CLEAN UP

As soon as the emergency is under control and in a safe condition all fire equipment will then be cleaned and returned to its designated locations for future use. Decontamination or the removal of hazardous substances from employees and their equipment to preclude the occurrence of foreseeable adverse health effects will be completed before leaving the emergency site. The decontamination will be completed by methods appropriate to the hazards which might have been encountered. When all equipment and personnel have been decontaminated and returned to operable condition, fire crew members will return to their regular jobs, or may return home when released by the Fire Chief.

In the days following any emergency action a complete Incident Investigation will be completed. As a part of this investigation process, a critique of the response and emergency actions that took place will be included. It will be the responsibility of the Safety Department to ensure that this investigation and appropriate reports are completed in a timely manner. (for additional information see Safety Order S-17 on Incident Reporting guidelines)

K. PUBLIC RELATIONS

A spectacular fire is a very newsworthy event, and we can expect visitations by members of the news media. It is quite important that only factual information be made available. In order to achieve these objectives it is critical during a major incident for all Western Refining personnel to be aware of and follow established media policies and procedures that have been put into place prior to an event. A current copy of the Corporate "**Crisis Communication Plan**" will be readily available in the Emergency Control Center for reference by members of local management.

A press waiting center will be set up in the Regional Office Cottonwood Conference Room until such time as the Emergency Control Center is prepared to make a statement. A person designated by the Emergency Control Center team will remain with press personnel and assure them they will be furnished information and updates as soon as

possible. Under no circumstances will news media personnel be allowed at the fire/emergency scene without explicit consent from the Fire Chief, and never unaccompanied.

L. PLANT SECURITY

During a major emergency, the main entrance gate becomes an important center of activity. Entry of personnel and vehicles into the plant must be curtailed or stopped completely. Congestion of vehicles must be prevented to make it possible to bring in emergency equipment without delay.

The activities at the main gate will be supervised by the Pumper as soon as he is relieved of his fire crew duties by the Fire Chief. These activities will include taking station at the front gate to restrict or eliminate all unnecessary traffic.

If additional security is needed along the frontage road, contact will be made to the county sheriff's office at 334-6107 or 911. The gate guard will request this assistance through the Chief Operator or through the Emergency Control Center if one has been established.

M. INJURIES AND FIRST AID

If a major explosion or fire results in multiple serious injuries, Kurtz Fire is to coordinate first aid and medical treatment of these injured individuals. The Shift Supervisor or Fire Chief should consider the injuries when requesting outside assistance. If ambulances and/or medical assistance are needed, it can be obtained from the Bloomfield Fire Department and the San Juan Emergency Center by dialing 911.

If needed, a medical staging area will be set up in the fire station to the south of the Crude Unit, if tenable, and manned by office or other available personal trained in rendering first aid to assist Kurtz Fire in tending the injured.

After medical treatment for the injured individuals has been administered, the first aid coordination group should make a record of those treated, and the status of each. This information should be relayed to the Emergency Control Center to make contact with the injured's families. A member of the Emergency Control Center will make this contact in person or by phone depending on the seriousness of the injuries. For further information injuries will be handled in accordance with Standard Safety Procedure S-18.

N. EMERGENCY SHUT DOWN PROCEDURE

A quick efficient shutdown of equipment is a necessity in emergency action situations. Each situation will be different but the main objective is to eliminate flow to the involved area. This may involve simply closing a suction valve to a pump for seal fires or may require complete unit shutdown for more involved emergencies. Each operator should know the safe emergency shutdown procedure for his unit. Emergency shut down procedures are found in the unit operating manuals.

O. FACILITY EVACUATION

Should it become evident that the emergency has become uncontrollable or circumstances arise that endanger personnel attempting to rectify an emergency situation the Fire Chief will request a "Facility Evacuation" Signal be sounded on the fire alarm. He will also broadcast an ordered evacuation on each of the channels of the radio system and notify any outside assistance personnel of the need to evacuate. This order should not be questioned but efforts taken immediately to secure fire fighting equipment to a safe manner and leave the emergency scene. All evacuation

routes will be determined by the location and type of emergency, however general guidelines include determination of wind direction and evacuating upwind or cross wind as appropriate. (See Attachment III for Evacuation Routes from the Refinery). Upon completion of evacuation of the Refinery all personnel will proceed to the San Juan Regional Office building for verification of complete evacuation and a head count. If the emergency is located at the terminals area the Refinery Office will be the secondary evacuation rally point. The Staging Officer will take the manpower availability board to the evacuation site to assist accountability of all personnel.

III. RELEASE OF FLAMMABLE VAPOR OR GAS

In general, releases of flammable vapors or gas are handled in much the same way as fires. The reporting of these emergencies, sounding of the alarm, and responding of fire crews should be identical to the procedure outlined in the other sections of this emergency plan.

All sources of ignition near the release should be extinguished immediately. Large quantities of water should be directed upon the area of discharge to disperse the flammable material and isolate it from sources of ignition. Every effort should be made to quickly isolate and depressurize the leaking equipment.

The formation of a flammable vapor cloud can be extremely hazardous. Every effort should be made to prevent personnel from entering the cloud whether on or off Refinery property, because they can be engulfed in flame if ignition occurs.

IV. RELEASE OF TOXIC VAPOR OR GAS

In the event of a major release of a toxic vapor or gas, it may be desirable to absorb or disperse the toxic material with large volumes of water. In this event, the regular alarm should be sounded, as outlined in other sections of this plan, and fire crews will respond.

When responding to a release of, or fire involving, toxic material, all personnel should respond to the upwind side of the emergency. All personnel should be prepared to use the protective equipment required for such a case as directed by the supervisor in charge. It should be remembered that water solutions of some chemical vapors are extremely corrosive (chlorine, HCl). For this reason, if water sprays are directed on the leak, the resulting corrosion could intensify the leak. However, a curtain of water spray may be played on the vapor cloud downwind of the leak, until such time as the equipment can be isolated and the leak stopped.

Every effort should be made to prevent personnel both on and off the property from entering a toxic vapor cloud. Sullivan Road may have to be closed for protection of the public.

V. REGULATORY NOTIFICATION/REPORTING REQUIREMENTS

Almost any emergency will require some sort of notification to Federal and/or State governmental agencies. In most cases an initial verbal notification needs to be made as soon as possible (as soon as the responsible person can free himself from the demands of the emergency). Reporting requirements vary according to the specific regulations affected and are often difficult to determine during an emergency, but "failure to report" penalties can be substantial, so when in doubt -- MAKE A REPORT.

A. RESPONSIBILITY

The Environmental Department will be responsible for making the required notifications. In the event that he/she is not promptly available at the Emergency Control Center, the person in charge of the Emergency Control Center will be responsible for making the notifications as required by the Western Corporate "Release Reporting Manual".

B POSSIBLE REQUIRED INFORMATION

Although response agencies such as the local fire departments and police will likely already be involved in the emergency, it remains important that notification be on record at the proper agency offices as soon as possible. The person making the notification be prepared to provide as much information as is available. Be as factual as possible and clearly state what information is available. Some of the information you may need to provide is:

1) Description of the incident
2) Date, hour, and duration of occurrence
3) Name of any chemicals or substances involved
4) Estimate of quantities involved
5) If a release, into what medium (air, water or soil)
6) Status of local emergency response
7) Evacuation requirements
8) Name and telephone number of the person to be contacted for further information.

VI. INCIDENTS INVOLVING RADIATION SOURCES

Radiation is a form of energy and as such can be put to use for a variety of purposes. As with other forms of energy it can be dangerous when uncontrolled. To control radiation intelligently it is necessary to understand its seriousness and proceed with respect.

The radioactive elements in use at the refinery (i.e. precipitator hopper level indicators) are sealed sources with controlled directional energy output which present no personnel physical danger under normal operating conditions. However, as with any other hazardous material, when one of these sources enters an uncontrolled state through physical damage to the sealed housing, proper precautions and definite action steps must be taken to rectify the situation.

No employee is to attempt operation or repairs on any equipment containing a radioactive source without specific authorization, instruction and training in the operation and handling of the equipment.

The following procedure is to be used in the case of suspected damage or leakage of a radiation device. (Cause for concern could be physical evidence of damage, fire involving the area of the source housing or general surveys conducted using the portable radiation detection meter).

1. Clear the area of all personnel as quickly as possible, to distance of 15 feet from the source.

2. Contact the Shift Supervisor and the Safety Department.

3. Establish a 2 mRem/hr boundary line using radiation detection instruments.

4. Avoid confusion and assist in maintaining control of established boundaries.

5. Make a report or log listing:
   a. Time of suspected incident.
   b. Names of personnel in the area and their exact location at time of incident.
   c. Incidental meter readings and their location taken while establishing boundaries.
   d. Cause of disturbance of radioactive material (if known).

6. Contact Kay-Ray if additional assistance or information is needed.
   *NOTE** - All reports to governmental and other agencies will be made by the Safety Department.

VII BOMB THREATS

It is the purpose of this section to establish a policy and procedure that will provide for personal safety of employees, protection of company property and products, and assure continuance of safe operations in the event that a threat of destruction is directed against a the Bloomfield facility.

Action to be taken in response to these threats is the responsibility of the Operations Manager or Safety Supt. The Operations Manager also has the responsibility of:

a. Communications with senior management.
b. Requesting law enforcement assistance.
c. Notifying other industry of a possible threat to their location.

Information concerning a threat of destruction should not be released to non-Bloomfield Refinery persons or news media by anyone except the Operations Manager or Plant Manager.

A. PROCEDURES

Threats would probably be received by the receptionist in the office during office hours or a Shift Supervisor or operator in the control room after hours. However, a threat could be directed to any person working at the plant. Any person receiving a bomb threat should respond as follows:

1. Remain calm. DO NOT PANIC!!!

2. STALL. Keep the party talking and get as much information as possible.

3. Listen closely to the individual and for any background noises. If possible, have another person listen to the conversation from another phone.

4. Have available, and fill out the accompanying phone call form with as much detail as possible. (Attachment II)

5. Immediately, upon completion of the telephone call, relay the information to the Operation Manager and Safety Department.

When a call is received, the Safety Department or available supervision will set up emergency headquarters to coordinate emergency efforts, and/or address the following:

1. Evaluate the threat for validity

2. Request visitors, contractors, non-essential employees to leave the facility since only authorized personnel will be allowed to remain in or be admitted to the refinery.

3. Designate someone to watch for suspicious persons or cars outside the plant and record any descriptions or license numbers.

4. If more help is needed, the Operation Manager is the only person authorized to call off duty employees to assist.

5. Turn off two-way radios and leave them in the control room or offices. DO NOT use them while the refinery is under alert.

6. Decide if a search for possible bomb location should be instituted. If so, each operator should perform a search of his unit paying special attention to column skirts, debris and cluttered areas, and areas around major pieces of equipment. Only a general visual inspection will be conducted by in-house personnel. Contact will be made with the State Police for assistance and more extensive search efforts, if warranted.

7. If a time of explosion was indicated by the caller, any search will continue to within ten minutes of the set time. At that time all personnel will be evacuated, except those required in the control room. The units will not be shut down or left unattended. If a specific time was not given, contact the Operations Manager for direction.

8. If a bomb or anything out of the ordinary is discovered:
   a. Notify the emergency headquarters.
   b. Do not touch, attempt to remove, or disarm.
   c. "Bomb Removal" personnel (from the Farmington Police Department) will be brought to the site.

VII RADIO SYSTEM

Two-way radios provide a valuable means of communication in an emergency situation. With the aid of a two-channel system we are able to use the number two channel only for direction of fire fighting efforts. When an alarm is sounded, channel two will be cleared except for emergency purposes. Channel one will be used for the activities involved in isolating the involved equipment by the operating department. All other use of the radios will be discontinued until such a time as the situation is in hand and the recall is given.

VIII CONTRACTORS AND VISITORS

When an emergency alarm is sounded, all contractors and visitors are to be directed to leave the process area and assemble at the main shop area. Contract Supervisors are to account for each of their employees and report any missing to a member of the Emergency Control Center who will contact you. Contractors and visitors are not to return into the plant without authorization from the Emergency Command Post.

IX. PIPELINE EMERGENCIES

Pipeline emergencies are to be handled in the same manner as any other fire or hydrocarbon release encountered at the refinery. The prime concern is protection of exposures from a fire until such time as the feed can be isolated from the involved line(s) and final extinguishment is made. The responsibility for isolating the feed will be with the pipeline company whose facilities are involved.

More detailed information is given in the following summaries stating responsibilities, block valve location, emergency phone numbers, product identification and any special procedures.

SAN JUAN PIPELINE

Product Involved: Crude Oil

Origin: Bisti Station near El Paso Chaco Plant

Arrives Refinery: Through the southwest gates by tank # 23: Bloomfield Refinery receiving surfaces at LACT unit

On Site Destination: Tank # 31 - North 8" valve on west side of tank, or at tank # 28 Thru the 8" valve on north side of tank

Securing Responsibility: On Site-Pumper
Off Site- Western Pipeline Dept

Block Valve Location: 6" plug valve immediately preceding the west meter (or) block valve located where line surfaces in right-of-way

Telephone Numbers: Western Pipeline Dept
632-8006

EL PASO - ANGEL PEAK FIELD LINES

Product Involved: 20" on west in right- of-way; High Pressure Natural Gas.

Origin: Right-of-way travels northeast to southwest between tank farm and process units.

On Site Destination: None.

Securing Responsibilities: El Paso Natural Gas Company.

Emergency Telephone Numbers: El Paso Natural Gas
Operations Control: 599-2333.
1-800-334-8047

Enterprise Products

Product Involved: 34" west side of right-of-way; High Pressure Natural Gas.

Origin: Right-of-way travels northeast to southwest between tank farm and process units.

On Site Destination: None.

Securing Responsibilities: Enterprise Products Operating LP

Emergency Telephone Numbers: Enterprise Products Operating LP
1-800-203-1347

Conoco Phillips

Product Involved: 8" east side of right-of-way; High Pressure Natural Gas.

Origin: Right-of-way travels northeast to southwest between tank farm and process units.

On Site Destination: None.

Securing Responsibilities: Conoco Phillips

Emergency Telephone Numbers: Conoco Phillips 1-505-863-1020
1-505-632-4918

PNM - Gas Company of NM

Product Involved: Natural Gas.

Origin: Gas Company of New Mexico mainline.

Arrives: Southwest property corner by Warehouse

On Site Destination: Fuel Gas Drum.

Securing Responsibility: On Site-Pumper
Off Site - Gas Company of New Mexico.

Block Valve Location: 2" quarter turn plug valve at southwest property corner (or)

2" gate valves at control valve run behind shop

Emergency Phone Numbers: PNM: 950-1997

X. EVACUATION OF BUILDINGS

If the decision is made or an emergency requires evacuation of a building structure, each individual should follow the closest path of travel to an exit. Time should not be spent in trying to take any articles with you. Of prime importance is the safety of personnel, and article rescue should be left to trained personnel. Every individual should become familiar with both primary and secondary exits in the buildings they use. Observe posted evacuation route signs. The Safety Department will ensure all employees will be aware of proper evacuation routes before hand and will ensure proper and order evacuation in an emergency. See Attachment IV for Evacuation Routes for and emergency occurring inside of the Office Building.

XI. COMMUNICATION CONTINGENCY

Should an emergency arise that would damage or render inoperative the public telephone system at a location, alternative methods of communication should be used. This communication can be accomplished by the use of the Terminals phones if the Refinery was affected or the use of the Refinery phones if Terminals phones are affected. The operating crews in each area are responsible for aiding in this manner should the need arise.

In the event of a power failure associated with an emergency situation the switchboard will not work. Outgoing calls can still be made from any phone in the refinery, but the phone lights will not work and incoming calls will ring only at specially designated phones as indicated on the Refinery phone extension list.

ATTACHMENT I

EMERGENCY PHONE NUMBERS

Bloomfield Fire Department	911
Bloomfield Police Department	911
San Juan County Sheriff	911
State Police	911
Ambulance	911
County Fire Departments	911
N.M.Poison Control	1-800-222-1222
Bomb Personnel (Farmington Police Dept)	911
CHEMTREC (Chemical Emergencies)	1-800-424-9300
HAZMAT Response Team (Farmington Fire)	911
City of Farmington (Electric Utility)	327-7701
Kay-Ray (Radiation accident at Precipitator)	708-803-5100
E.I.D.Radiation Protection Bureau	505-827-2948
Mobile Inspection (Radiography Assistance)	327-9473
HED Environmental Improvement Division	505-827-9329

EQUIPMENT RESOURCES

Foam Supplies

Western Gallup Refinery	505-722-3833
Thunderbird Sales	505-881-6222
Williams Fire Control	409-727-2347

ATTACHMENT II

THREATENING PHONE CALL FORM

Time call received _____ Time caller hung up_____

Exact words of person placing call: _____
_____
_____

Questions to ask:

1. When is bomb going to explode?_____

2. Where is bomb right now?_____
_____

3. What kind of bomb is it?_____
_____

4. What does it look like?_____
_____

5. Why did you place the bomb?_____
_____

DESCRIPTION OF CALLER'S VOICE

Male _____ Female _____ Tone of Voice_____

Young _____ Middle Aged _____ Old_____

Accent _____ Background Noise _____

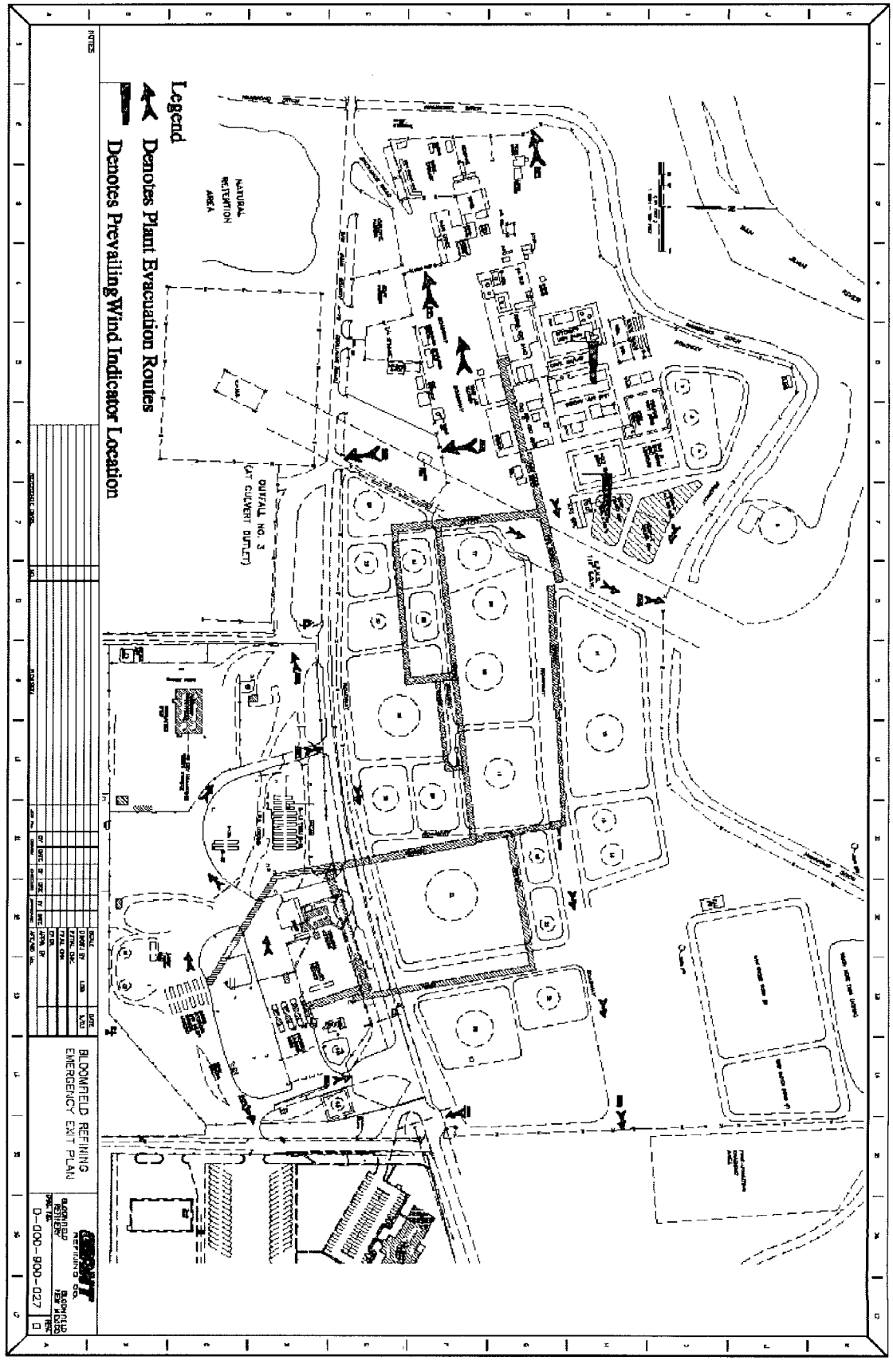
Voice Familiar? _____ If so, who did it sound like? _____

Remarks:_____
_____
_____
_____
_____

Person (receiving) (monitoring) call_____

Immediately notify following persons when call is complete:
Operations Manager and Safety Department.

Attachment III – Refinery Evacuation Routes



Attachment IV

Refinery Office Evacuation Routes

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, January 28, 2010 6:25 AM
To: 'Ed.Riege@wnr.com'; 'Schmaltz, Randy'
Cc: VonGonten, Glenn, EMNRD; 'Lackey, Johnny'
Subject: FW: H2S Contingency Plan Checklist.docx
Attachments: 19.15.11 NMAC.doc; H2S Plan Checklist.docx

Gentlemen:

You may recall that the OCD had alerted you to the New Mexico Oil Conservation Division hydrogen sulfide gas regulations and the requirement to have a H2S Contingency Plan if there is a potential for a release of 100 ppm or greater of H2S at your facilities.

Please find attached a document that was shared with the Navajo Refining Company in preparation of their H2S Contingency Plan. Please find attached the H2S Regulations to review the requirements for your facilities. Also, a sample of an H2S Contingency Plan approved by the OCD that may be similar to that required at a refinery and may be found on OCD Online at http://ocdimage.emnrd.state.nm.us/imaging/AEOrderCriteria.aspx (GW-33).

Please submit your H2S Contingency Plan(s) to the OCD within 90 days of today's date (April 28, 2010). Please contact me if you wish to meet to discuss the contingency plan for your facilities. If you feel your facility does not meet the requirements of the regulations, please provide an explanation for our records.

Please contact me if you have questions or need further assistance. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Thursday, January 28, 2010 6:15 AM
To: 'Lackey, Johnny'
Subject: FW: H2S Contingency Plan Checklist.docx

Johnny:

Re: Refinery Hydrogen Sulfide Contingency Plan Requirements

It was a pleasure meeting with Navajo Refining Company Representatives yesterday to discuss the hydrogen sulfide contingency plan for your refineries. The OCD is working to ensure all facilities (including refineries) that may discharge H2S at concentrations greater than 100 ppm meet the NMOCD H2S Regulations. As you realized yesterday, the public training, meetings, etc. component of the H2S contingency plan is an extremely important component of a refinery contingency plan. As you indicated, refineries are a little different than a gas plant with raw gas containing H2S because a refinery produces H2S and can shut down or flare gas under emergency conditions. A Gas Plant handles raw gas that inherently contains a volume fraction of H2S with fewer controls than a refinery that produces it in its refining process.

Here is the checklist that Glen von Gonten was glad to provide and that you requested yesterday.

Disclaimer: Please be advised that the attached document is not an official guidance document from the OCD, but is provided to assist you with your evaluation of the New Mexico Hydrogen Sulfide Regulations Title 19 (Natural Resources and Wildlife), Chapter 15 [(Oil and Gas), and Part 11 (Hydrogen Sulfide Gas- 19.15.11 NMAC)].

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: VonGonten, Glenn, EMNRD
Sent: Wednesday, January 27, 2010 4:00 PM
To: Chavez, Carl J, EMNRD
Subject: H2S Plan Checklist.docx

Carl,

For Navajo.

Glenn

TITLE 19 NATURAL RESOURCES AND WILDLIFE
CHAPTER 15 OIL AND GAS
PART 11 HYDROGEN SULFIDE GAS

19.15.11.1 ISSUING AGENCY: Energy, Minerals and Natural Resources Department, Oil Conservation Division.
[19.15.11.1 NMAC - N, 12/1/08]

19.15.11.2 SCOPE: 19.15.11 NMAC applies to a person subject to the division's jurisdiction, including a person engaged in drilling, stimulating, injecting into, completing, working over or producing an oil, gas or carbon dioxide well or a person engaged in gathering, transporting, storing, processing or refining of oil, gas or carbon dioxide. 19.15.11 NMAC does not exempt or otherwise excuse surface waste management facilities the division permits pursuant to 19.15.36 NMAC from more stringent conditions on the handling of hydrogen sulfide required of such facilities by 19.15.36 NMAC or more stringent conditions in permits issued pursuant to 19.15.36 NMAC, nor shall the facilities be exempt or otherwise excused from the requirements set forth in 19.15.11 NMAC by virtue of permitting under 19.15.36 NMAC.
[19.15.11.2 NMAC - Rp, 19.15.3.118 NMAC, 12/1/08]

19.15.11.3 STATUTORY AUTHORITY: 19.15.11 NMAC is adopted pursuant to the Oil and Gas Act, NMSA 1978, Section 70-2-6, Section 70-2-11 and Section 70-2-12.
[19.15.11.3 NMAC - N, 12/1/08]

19.15.11.4 DURATION: Permanent.
[19.15.11.4 NMAC - N, 12/1/08]

19.15.11.5 EFFECTIVE DATE: December 1, 2008, unless a later date is cited at the end of a section.
[19.15.11.5 NMAC - N, 12/1/08]

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.
[19.15.11.6 NMAC - N, 12/1/08]

19.15.11.7 DEFINITIONS:

A. "ANSI" means the American national standards institute.

B. "Area of exposure" means the area within a circle constructed with a point of escape at its center and the radius of exposure as its radius.

C. "Dispersion technique" is a mathematical representation of the physical and chemical transportation characteristics, dilution characteristics and transformation characteristics of hydrogen sulfide gas in the atmosphere.

D. "Escape rate" means the maximum volume (Q) that is used to designate the possible rate of escape of a gaseous mixture containing hydrogen sulfide, as set forth in 19.15.11 NMAC.

(1) For existing gas facilities or operations, the escape rate is calculated using the maximum daily rate of the gaseous mixture produced or handled or the best estimate thereof. For an existing gas well, the escape rate is calculated using the current daily absolute open flow rate against atmospheric pressure or the best estimate of that rate.

(2) For new gas operations or facilities, the escape rate is calculated as the maximum anticipated flow rate through the system. For a new gas well, the escape rate is calculated using the maximum open-flow rate of offset wells in the pool or reservoir, or the pool or reservoir average of maximum open-flow rates.

(3) For existing oil wells, the escape rate is calculated by multiplying the producing gas/oil ratio by the maximum daily production rate or the best estimate of the maximum daily production rate.

(4) For new oil wells, the escape rate is calculated by multiplying the producing gas/oil ratio by the maximum daily production rate of offset wells in the pool or reservoir, or the pool or reservoir average of the producing gas/oil ratio multiplied by the maximum daily production rate.

(5) For facilities or operations not mentioned, the escape rate is calculated using the actual flow of the gaseous mixture through the system or the best estimate of the actual flow of the gaseous mixture through the system.

E. "GPA" means the gas processors association.

F. "LEPC" means the local emergency planning committee established pursuant to the Emergency Planning and Community Right-To-Know Act, 42 U.S.C. section 11001.

G. "NACE" means the national association of corrosion engineers.

H. "Potentially hazardous volume" means the volume of hydrogen sulfide gas of such concentration that:

(1) the 100-ppm radius of exposure includes a public area;

(2) the 500-ppm radius of exposure includes a public road; or

(3) the 100-ppm radius of exposure exceeds 3000 feet.

I. "Public area" means a building or structure that is not associated with the well, facility or operation for which the radius of exposure is being calculated and that is used as a dwelling, office, place of business,

church, school, hospital or government building, or a portion of a park, city, town, village or designated school bus stop or other similar area where members of the public may reasonably be expected to be 19.15.11 NMAC http://www.nmcpr.state.nm.us/nmac/parts/title19/19.015.0011.htm[1/16/2009 4:18:08 PM] present.

J. "Public road" means a federal, state, municipal or county road or highway.

K. "Radius of exposure" means the radius constructed with the point of escape as its starting point and its length calculated using the following Pasquill-Gifford derived equation, or by such other method as the division may approve:

(1) for determining the 100-ppm radius of exposure: X = [(1.589)(hydrogen sulfide concentration)(Q)](0.6258), where "X" is the radius of exposure in feet, the "hydrogen sulfide concentration" is the decimal equivalent of the mole or volume fraction of hydrogen sulfide in the gaseous mixture and "Q" is the escape rate expressed in cubic feet per day (corrected for standard conditions of 14.73 psi absolute and 60 degrees fahrenheit);

(2) for determining the 500-ppm radius of exposure: X = [(0.4546)(hydrogen sulfide concentration)(Q)](0.6258), where "X" is the radius of exposure in feet, the "hydrogen sulfide concentration" is the decimal equivalent of the mole or volume fraction of hydrogen sulfide in the gaseous mixture and "Q" is the escape rate expressed in cubic feet per day (corrected for standard conditions of 14.73 psi absolute and 60 degrees fahrenheit);

(3) for a well being drilled, completed, recompleted, worked over or serviced in an area where insufficient data exists to calculate a radius of exposure but where hydrogen sulfide could reasonably be expected to be present in concentrations in excess of 100 ppm in the

gaseous mixture, a 100-ppm radius of exposure equal to 3000 feet is assumed.
[19.15.11.7 NMAC - Rp, 19.15.3.118 NMAC, 12/1/08]

19.15.11.8 REGULATORY THRESHOLD:
A. Determination of hydrogen sulfide concentration.

(1) Each person shall determine the hydrogen sulfide concentration in the gaseous mixture within wells, facilities or operations either by testing (using a sample from each well, facility or operation); testing a representative sample; or using process knowledge in lieu of testing. If the person uses a representative sample or process knowledge, the concentration derived from the representative sample or process knowledge shall be reasonably representative of the hydrogen sulfide concentration within the well, facility or operation.

(2) The person shall conduct the tests used to make the determination referred to in Paragraph (1) of Subsection A of 19.15.11.8 NMAC in accordance with applicable ASTM or GPA standards or by another division-approved method.

(3) If the person conducted a test prior to January 31, 2003 that otherwise meets the requirements of Paragraphs (1) and (2) of Subsection A of 19.15.11.8 NMAC, new testing is not required.

(4) If a change or alteration may materially increase the hydrogen sulfide concentration in a well, facility or operation, the person shall make a new determination in accordance with 19.15.11 NMAC.

B. Concentrations determined to be below 100 ppm. If the hydrogen sulfide concentration in a given well, facility or operation is less than 100 ppm, the person is not required to take further actions pursuant to 19.15.11 NMAC.

C. Concentrations determined to be above 100 ppm.

(1) If the person determines the hydrogen sulfide concentration in a given well, facility or operation is 100 ppm or greater, then the person shall calculate the radius of exposure and comply with applicable requirements of 19.15.11 NMAC.

(2) If calculation of the radius of exposure reveals that a potentially hazardous volume is present, the person shall provide results of the hydrogen sulfide concentration determination and the calculation of the radius of exposure to the division. For a well, facility or operation, the person shall accomplish the determination, calculation and submission 19.15.11.8 NMAC requires before operations begin.

D. Recalculation. The person shall calculate the radius of exposure if the hydrogen sulfide concentration in a well, facility or operation increases to 100 ppm or greater. The person shall also recalculate the radius of exposure if the actual volume fraction of hydrogen sulfide increases by a factor of 25 percent in a well, facility or operation that previously had a hydrogen sulfide concentration of 100 ppm or greater. If calculation or recalculation of the radius of exposure reveals that a potentially hazardous volume is present, the person shall provide the results to the division within 60 days.
[19.15.11.8 NMAC - Rp, 19.15.3.118 NMAC, 12/1/08]

19.15.11.9 HYDROGEN SULFIDE CONTINGENCY PLAN:

A. When required. If a well, facility or operation involves a potentially hazardous volume of hydrogen sulfide, the person shall develop a hydrogen sulfide contingency plan that the person will use to alert and protect the public in accordance with the Subsections B through I of 19.15.11.9 NMAC.

B. Plan contents.

(1) API guidelines. The person shall develop the hydrogen sulfide contingency plan with due consideration of paragraph 7.6 of the guidelines in the API publication Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide, RP-55, most recent edition, or with due consideration to another division-approved standard.

(2) Required contents. The hydrogen sulfide contingency plan shall contain information on the following subjects, as appropriate to the well, facility or operation to which it applies.

(a) Emergency procedures. The hydrogen sulfide contingency plan shall contain information on emergency procedures the person will follow in the event of a release and shall include, at a minimum, information concerning the responsibilities and duties of personnel during the emergency, an immediate action plan as described in the API document referenced in Paragraph (1) of Subsection B of 19.15.11.9 NMAC, and telephone numbers of emergency responders, public agencies, local government and other appropriate public authorities. The plan shall also include the locations of potentially affected public areas and public roads and shall describe proposed evacuation routes, locations of road blocks and procedures for notifying the public, either through direct telephone notification using telephone number lists or by means of mass 19.15.11 NMAC http://www.nmcpr.state.nm.us/nmac/parts/title19/19.015.0011.htm[1/16/2009 4:18:08 PM] notification and reaction plans. The plan shall include information on the availability and location of necessary safety equipment and supplies.

(b) Characteristics of hydrogen sulfide and sulfur dioxide. The hydrogen sulfide contingency plan shall include a discussion of the characteristics of hydrogen sulfide and sulfur dioxide.

(c) Maps and drawings. The hydrogen sulfide contingency plan shall include maps and drawings that depict the area of exposure and public areas and public roads within the area of exposure.

(d) Training and drills. The hydrogen sulfide contingency plan shall provide for training and drills, including training in the responsibilities and duties of essential personnel and periodic on-site or classroom drills or exercises that simulate a release, and shall describe how the person will document the training, drills and attendance. The hydrogen sulfide contingency plan shall also provide for training of residents as appropriate on the proper protective measures to be taken in the event of a release, and shall provide for briefing of public officials on issues such as evacuation or shelter-in-place plans.

(e) Coordination with state emergency plans. The hydrogen sulfide contingency plan shall describe how the person will coordinate emergency response actions under the plan with the division and the New Mexico state police consistent with the New Mexico hazardous materials emergency response plan.

(f) Activation levels. The hydrogen sulfide contingency plan shall include the activation level and a description of events that could lead to a release of hydrogen sulfide sufficient to create a concentration in excess of the activation level.

C. Plan activation. The person shall activate the hydrogen sulfide contingency plan when a release creates a hydrogen sulfide concentration greater than the activation level set forth in the hydrogen sulfide contingency plan. At a minimum, the person shall activate the plan whenever a release may create a hydrogen sulfide concentration of more than 100 ppm in a public area, 500 ppm at a public road or 100 ppm 3000 feet from the site of release.

D. Submission.

(1) Where submitted. The person shall submit the hydrogen sulfide contingency plan to the division.

(2) When submitted. The person shall submit a hydrogen sulfide contingency plan for a new well, facility or operation before operations commence. The hydrogen sulfide contingency plan for a drilling, completion, workover or well servicing operation shall be on file with the division before operations commence and may be submitted separately or along with the APD or may be on file from a previous submission. A person shall submit a hydrogen sulfide contingency plan within 180 days after the person becomes aware or should have become aware that a public area or public road is established that creates a potentially hazardous volume where none previously existed.

(3) Electronic submission. A filer who operates more than 100 wells or who operates an oil pump station, compressor station, refinery or gas plant shall submit each hydrogen sulfide contingency plan in electronic format. The file may submit the hydrogen sulfide contingency plan through electronic mail, through an Internet filing or by delivering electronic media to the division, so long as the electronic submission is compatible with the division's systems.

E. Failure to submit plan. A person's failure to submit a hydrogen sulfide contingency plan when required may result in denial of an application for permit to drill, cancellation of an allowable for the subject well or other enforcement action appropriate to the well, facility or operation.

F. Review, amendment. The person shall review the hydrogen sulfide contingency plan any time a subject addressed in the plan materially changes and make appropriate amendments. If the division determines that a hydrogen sulfide contingency plan is inadequate to protect public

safety, the division may require the person to add provisions to the plan or amend the plan as necessary to protect public safety.

G. Retention and inspection. The hydrogen sulfide contingency plan shall be reasonably accessible in the event of a release, maintained on file at all times and available for division inspection.

H. Annual inventory of contingency plans. On an annual basis, each person required to prepare one or more hydrogen sulfide contingency plans pursuant to 19.15.11 NMAC shall file with the appropriate local emergency planning committee and the state emergency response commission an inventory of the wells, facilities and operations for which plans are on file with the division and the name, address and telephone number of a point of contact.

I. Plans required by other jurisdictions. The person may submit a hydrogen sulfide contingency plan to the BLM or other jurisdiction require that meets the requirements of 19.15.11.9 NMAC to the division in satisfaction of 19.15.11.9 NMAC.
[19.15.11.9 NMAC - Rp, 19.15.3.118 NMAC, 12/1/08]

19.15.11.10 SIGNS, MARKERS: For each well, facility or operation involving a hydrogen sulfide concentration of 100 ppm or greater, the person shall install and maintain signs or markers that conform with the current ANSI standard Z535.1-2002 (Safety Color Code), or some other division-approved standard. The sign or marker shall be readily readable, and shall contain the words "poison gas" and other information sufficient to warn the public that a potential danger exists. The person shall prominently post signs or markers at locations, including entrance points and road crossings, sufficient to alert the public that a potential danger exists.
[19.15.11.10 NMAC - Rp, 19.15.3.118 NMAC, 12/1/08]

19.15.11.11 PROTECTION FROM HYDROGEN SULFIDE DURING DRILLING, COMPLETION, WORKOVER AND WELL SERVICING OPERATIONS:

A. API standards. The person shall conduct drilling, completion, workover and well servicing operations involving a hydrogen sulfide concentration of 100 ppm or greater with due consideration to the guidelines in the API publications Recommended Practice for Oil and Gas Well Servicing and Workover Operations Involving Hydrogen Sulfide, RP-68, and Recommended Practices for Drilling and Well Servicing Operations Involving Hydrogen Sulfide, RP-49, most recent editions, or some other division-approved standard.

B. Detection and monitoring equipment. Drilling, completion, workover and well servicing operations involving a hydrogen sulfide 19.15.11 NMAC http://www.nmcpr.state.nm.us/nmac/parts/title19/19.015.0011.htm[1/16/2009 4:18:08 PM] concentration of 100 ppm or greater shall include hydrogen sulfide detection and monitoring equipment as follows.

(1) Each drilling and completion site shall have an accurate and precise hydrogen sulfide detection and monitoring system that automatically activates visible and audible alarms when the hydrogen sulfide's ambient air concentration reaches a predetermined value the operator sets, not to exceed 20 ppm. The operator shall locate a sensing point at the shale shaker, rig floor and bell nipple for a drilling site and the cellar, rig floor and circulating tanks or shale shaker for a completion site.

(2) For workover and well servicing operations, the person shall locate one operational sensing point as close to the well bore as practical. Additional sensing points may be necessary for large or long-term operations.

(3) The operator shall provide and maintain as operational hydrogen sulfide detection and monitoring equipment during drilling when

drilling is within 500 feet of a zone anticipated to contain hydrogen sulfide and continuously thereafter through all subsequent drilling.

C. Wind indicators. Drilling, completion, workover and well servicing operations involving a hydrogen sulfide concentration of 100 ppm or greater shall include wind indicators. The person shall have equipment to indicate wind direction present and visible at all times. The person shall install at least two devices to indicate wind direction at separate elevations that visible from all principal working areas at all times. When a sustained hydrogen sulfide concentration is detected in excess of 20 ppm at a detection point, the person shall display red flags.

D. Flare system. For drilling and completion operations in an area where it is reasonably expected that a potentially hazardous hydrogen sulfide volume will be encountered, the person shall install a flare system to safely gather and burn hydrogen-sulfide-bearing gas. The person shall locate flare outlets at least 150 feet from the well bore. Flare lines shall be as straight as practical. The person shall equip the flare system with a suitable and safe means of ignition. Where oncombustible gas is to be flared, the system shall provide supplemental fuel to maintain ignition.

E. Well control equipment. When the 100 ppm radius of exposure includes a public area, the following well control equipment is required.

(1) Drilling. The person shall install a remote-controlled well control system that is operational at all times beginning when drilling is within 500 vertical feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The well control system shall include, at a minimum, a pressure and hydrogen-sulfide-rated well control choke and kill system including manifold and blowout preventer that meets or exceeds the specifications in API publications Choke and Kill Systems, 16C and Blowout Prevention Equipment Systems for Drilling Wells, RP 53 or other division-approved specifications. The person shall use mud-gas separators. The person

shall test and maintain these systems pursuant to the specifications referenced, according to the requirements of 19.15.11 NMAC, or as the division otherwise approves.

(2) Completion, workover and well servicing. The person shall install a remote controlled pressure and hydrogen-sulfide-rated well control system that meets or exceeds API specifications or other division-approved specifications that is operational at all times during a well's completion, workover and servicing.

F. Mud program. Drilling, completion, workover and well servicing operations involving a hydrogen sulfide concentration of 100 ppm or greater shall use a hydrogen sulfide mud program capable of handling hydrogen sulfide conditions and well control, including de-gassing.

G. Well testing. except with prior division approval, a person shall conduct drill-stem testing of a zone that contains hydrogen sulfide in a concentration of 100 ppm or greater only during daylight hours and not permit formation fluids to flow to the surface.

H. If hydrogen sulfide encountered during operations. If hydrogen sulfide was not anticipated at the time the division issued a permit to drill but is encountered during drilling in a concentration of 100 ppm or greater, the operator shall satisfy the requirements of 19.15.11 NMAC before continuing drilling operations. The operator shall notify the division of the event and the mitigating steps that the operator has or is taking as soon as possible, but no later than 24 hours following discovery. The division may grant verbal approval to continue drilling operations pending preparation of a required hydrogen sulfide contingency plan. [19.15.11.11 NMAC - Rp, 19.15.3.118 NMAC, 12/1/08]

19.15.11.12 PROTECTION FROM HYDROGEN SULFIDE AT OIL PUMP STATIONS, PRODUCING WELLS, TANK

BATTERIES AND ASSOCIATED PRODUCTION FACILITIES, PIPELINES, REFINERIES, GAS PLANTS AND COMPRESSOR STATIONS:

A. API standards. A person shall conduct operations at oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations involving a hydrogen sulfide concentration of 100 ppm or greater with due consideration to the guidelines in the API publication Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide, RP-55, latest edition or some other division-approved standard.

B. Security. A person shall protect well sites and other unattended, fixed surface facilities involving a hydrogen sulfide concentration of 100 ppm or greater from public access by fencing with locking gates when the location is within 1/4 mile of a public area. For the purposes of Subsection B of 19.15.11.12 NMAC, a surface pipeline is not considered a fixed surface facility.

C. Wind direction indicators. Oil pump stations, producing wells, tank batteries and associated production facilities, pipelines, refineries, gas plants and compressor stations involving a hydrogen sulfide concentration of 100 ppm or greater shall have equipment to indicate wind direction. The person shall install wind direction equipment that is visible from all principal working areas at all times.

D. Control equipment. When the 100 ppm radius of exposure includes a public area, the following additional measures are required.

(1) The person shall install and maintain in good operating condition safety devices, such as automatic shut-down devices, to prevent hydrogen sulfide's escape. Alternatively, the person shall establish safety procedures to achieve the same purpose.

(2) A well shall possess a secondary means of immediate well control through the use of an appropriate christmas tree or downhole completion equipment. The equipment shall allow downhole accessibility (reentry) under pressure for permanent well control.

E. Tanks or vessels. The person shall chain each stair or ladder leading to the top of a tank or vessel containing 300 ppm or more 19.15.11 NMAC http://www.nmcpr.state.nm.us/nmac/parts/title19/19.015.0011.htm[1/16/2009 4:18:08 PM] of hydrogen sulfide in the gaseous mixture or mark it to restrict entry. [19.15.11.12 NMAC - Rp, 19.15.3.118 NMAC, 12/1/08]

19.15.11.13 PERSONNEL PROTECTION AND TRAINING: The person shall provide persons responsible for implementing a hydrogen sulfide contingency plan training in hydrogen sulfide hazards, detection, personal protection and contingency procedures.
[19.15.11.13 NMAC - Rp, 19.15.3.118 NMAC, 12/1/08]

19.15.11.14 STANDARDS FOR EQUIPMENT THAT MAY BE EXPOSED TO HYDROGEN SULFIDE: Whenever a well, facility or operation involves a potentially hazardous hydrogen sulfide volume, the person shall select equipment with consideration for both the hydrogen sulfide working environment and anticipated stresses and shall use NACE Standard MR0175 (latest edition) or some other division-approved standard for selection of metallic equipment or, if applicable, use adequate protection by chemical inhibition or other methods that control or limit hydrogen sulfide's corrosive effects.
[19.15.11.14 NMAC - Rp, 19.15.3.118 NMAC, 12/1/08]

19.15.11.15 EXEMPTIONS: A person may petition the director or the director's designee for an exemption to a requirement of 19.15.11 NMAC. A petition shall provide specific information as to the circumstances that warrant approval of the exemption requested and how the person will protect public safety. The director or the director's

designee, after considering all relevant factors, may approve an exemption if the circumstances warrant and so long as the person protects public safety.
[19.15.11.15 NMAC - Rp, 19.15.3.118 NMAC, 12/1/08]

19.15.11.16 NOTIFICATION OF THE DIVISION: The person shall notify the division upon a release of hydrogen sulfide requiring activation of the hydrogen sulfide contingency plan as soon as possible, but no more than four hours after plan activation, recognizing that a prompt response should supersede notification. The person shall submit a full report of the incident to the division on form C-141 no later than 15 days following the release.
[19.15.11.16 NMAC - Rp, 19.15.3.118 NMAC, 12/1/08]

HISTORY of 19.15.11 NMAC:
History of Repealed Material: 19.15.3 NMAC, Drilling (filed 10/29/2001) repealed 12/1/08.
NMAC History:
That applicable portion of 19.15.3 NMAC, Drilling (Section 118) (filed 10/29/2001) was replaced by 19.15.11 NMAC, Hydrogen Sulfide Gas, effective 12/1/08.

TITLE 19 NATURAL RESOURCES AND WILDLIFE CHAPTER 15 OIL& GAS **PART 11 HYDROGEN SULFIDE GAS** **19.15.11.7 DEFINITIONS:**	
A. "ANSI" means the American national standards institute.	
B. "Area of exposure" means the area within a circle constructed with a point of escape at its center and the radius of exposure as its radius.	
C. "Dispersion technique" is a mathematical representation of the physical and chemical transportation characteristics, dilution characteristics and transformation characteristics of hydrogen sulfide gas in the atmosphere.	
D. "Escape rate" means the maximum volume (Q) that is used to designate the possible rate of escape of a gaseous mixture containing hydrogen sulfide, as set forth in 19.15.11 NMAC.	
(1) For existing gas facilities or operations, the escape rate is calculated using the maximum daily rate of the gaseous mixture produced or handled or the best estimate thereof. For an existing gas well, the escape rate is calculated using the current daily absolute open flow rate against atmospheric pressure or the best estimate of that rate.	
(2) For new gas operations or facilities, the escape rate is calculated as the maximum anticipated flow rate through the system. For a new gas well, the escape rate is calculated using the maximum open-flow rate of offset wells in the pool or reservoir, or the pool or reservoir average of maximum open-flow rates.	
(3) For existing oil wells, the escape rate is calculated by multiplying the producing gas/oil ratio by the maximum daily production rate or the best estimate of the maximum daily production rate.	
(4) For new oil wells, the escape rate is calculated by multiplying the producing gas/oil ratio by the maximum daily production rate of offset wells in the pool or reservoir, or the pool or reservoir average of the producing gas/oil ratio multiplied by the maximum daily production rate.	
(5) For facilities or operations not mentioned, the escape rate is calculated using the actual flow of the gaseous mixture through the system or the best estimate of the actual flow of the gaseous mixture through the system.	
E. "GPA" means the gas processors association.	
F. "LEPC" means the local emergency planning committee established pursuant to the Emergency Planning and Community Right-To-Know Act, 42 U.S.C. section 11001.	
G. "NACE" means the national association of corrosion engineers.	
H. "Potentially hazardous volume" means the volume of hydrogen sulfide gas of such concentration that:	
(1) the 100-ppm radius of exposure includes a public area;	
(2) the 500-ppm radius of exposure includes a public road; or	
(3) the 100-ppm radius of exposure exceeds 3000 feet.	
I. "Public area" means a building or structure that is not associated with the well, facility or operation for which the radius of exposure is being calculated and that is used as a dwelling, office, place of business, church, school, hospital or government building, or a portion of a park, city, town, village or designated	

school bus stop or other similar area where members of the public may reasonably be expected to be present.	
J. "Public road" means a federal, state, municipal or county road or highway.	
K. "Radius of exposure" means the radius constructed with the point of escape as its starting point and its length calculated using the following Pasquill-Gifford derived equation, or by such other method as the division may approve:	
(1) for determining the 100-ppm radius of exposure: X = [(1.589)(hydrogen sulfide concentration)(Q)](0.6258), where "X" is the radius of exposure in feet, the "hydrogen sulfide concentration" is the decimal equivalent of the mole or volume fraction of hydrogen sulfide in the gaseous mixture and "Q" is the escape rate expressed in cubic feet per day (corrected for standard conditions of 14.73 psi absolute and 60 degrees fahrenheit);	
(2) for determining the 500-ppm radius of exposure: X = [(0.4546)(hydrogen sulfide concentration)(Q)](0.6258), where "X" is the radius of exposure in feet, the "hydrogen sulfide concentration" is the decimal equivalent of the mole or volume fraction of hydrogen sulfide in the gaseous mixture and "Q" is the escape rate expressed in cubic feet per day (corrected for standard conditions of 14.73 psi absolute and 60 degrees fahrenheit);	
(3) for a well being drilled, completed, recompleted, worked over or serviced in an area where insufficient data exists to calculate a radius of exposure but where hydrogen sulfide could reasonably be expected to be present in concentrations in excess of 100 ppm in the gaseous mixture, a 100-ppm radius of exposure equal to 3000 feet is assumed.	
19.15.11.8 REGULATORY THRESHOLD:	
A. Determination of hydrogen sulfide concentration.	
(1) Each person shall determine the hydrogen sulfide concentration in the gaseous mixture by testing a sample from each well, facility or operation; testing a representative sample; or using process knowledge in lieu of testing.	
(2) The person shall conduct the tests in accordance with applicable ASTM or GPA standards or by another division-approved method.	
(3) If the person conducted a test prior to January 31, 2003 that otherwise meets the requirements of Paragraphs (1) and (2) of Subsection A of 19.15.11.8 NMAC, new testing is not required.	
(4) If a change or alteration occurs operators shall make a new determination	
B. Concentrations determined to be below 100 ppm. If less than 100 ppm, the person is not required to take further actions pursuant to 19.15.11 NMAC.	
C. Concentrations determined to be above 100 ppm.	
(1) If the person determines the hydrogen sulfide concentration in a given well, facility or operation is 100 ppm or greater, then the person shall calculate the radius of exposure and comply with applicable requirements of 19.15.11 NMAC.	
(2) If calculation of the radius of exposure reveals that a potentially hazardous volume is present, the person shall provide results of the hydrogen sulfide concentration determination and the calculation of	

the radius of exposure to the division. For a well, facility or operation, the person shall accomplish the determination, calculation and submission 19.15.11.8 NMAC requires before operations begin.	
D. Recalculation. The person shall calculate the radius of exposure if the hydrogen sulfide concentration in a well, facility or operation increases to 100 ppm or greater. The person shall also recalculate the radius of exposure if the actual volume fraction of hydrogen sulfide increases by a factor of 25 percent in a well, facility or operation that previously had a hydrogen sulfide concentration of 100 ppm or greater. If calculation or recalculation of the radius of exposure reveals that a potentially hazardous volume is present, the person shall provide the results to the division within 60 days.	
19.15.11.9 HYDROGEN SULFIDE CONTINGENCY PLAN:	
A. When required. If a well, facility or operation involves a potentially hazardous volume of hydrogen sulfide, the person shall develop a hydrogen sulfide contingency plan that the person will use to alert and protect the public in accordance with the Subsections B through I of 19.15.11.9 NMAC. B. Plan contents.	
(1) API guidelines. The person shall develop the hydrogen sulfide contingency plan with due consideration of paragraph 7.6 of the guidelines in the API publication Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide, RP-55, most recent edition, or with due consideration to another division-approved standard.	
(2) Required contents. The hydrogen sulfide contingency plan shall contain information on the following subjects, as appropriate to the well, facility or operation to which it applies.	
(a) Emergency procedures. The hydrogen sulfide contingency plan shall contain information on emergency procedures the person will follow in the event of a release and shall include, at a minimum, information concerning the responsibilities and duties of personnel during the emergency, an immediate action plan as described in the API document referenced in Paragraph (1) of Subsection B of 19.15.11.9 NMAC, and telephone numbers of emergency responders, public agencies, local government and other appropriate public authorities. The plan shall also include the locations of potentially affected public areas and public roads and shall describe proposed evacuation routes, locations of road blocks and procedures for notifying the public, either through direct telephone notification using telephone number lists or by means of mass notification and reaction plans. The plan shall include information on the availability and location of necessary safety equipment and supplies.	
(b) Characteristics of hydrogen sulfide and sulfur dioxide. The hydrogen sulfide contingency plan shall include a discussion of the characteristics of hydrogen sulfide and sulfur dioxide.	
(c) Maps and drawings. The hydrogen sulfide contingency plan shall include maps and drawings that depict the area of exposure and public areas and public roads within the area of exposure.	
(d) Training and drills. The hydrogen sulfide contingency plan shall provide for training and drills, including training in the responsibilities and duties of essential personnel and periodic on-site or classroom drills or exercises that simulate a release, and shall describe how the person will document the training, drills and attendance. The hydrogen sulfide contingency plan shall also provide for training of residents as appropriate on the proper protective measures to be taken in the event of a release, and shall provide for briefing of public officials on issues such as evacuation or shelter-in-place plans.	

(e) Coordination with state emergency plans. The hydrogen sulfide contingency plan shall describe how the person will coordinate emergency response actions under the plan with the division and the New Mexico state police consistent with the New Mexico hazardous materials emergency response plan.	
(f) Activation levels. The hydrogen sulfide contingency plan shall include the activation level and a description of events that could lead to a release of hydrogen sulfide sufficient to create a concentration in excess of the activation level.	
C. Plan activation. The person shall activate the hydrogen sulfide contingency plan when a release creates a hydrogen sulfide concentration greater than the activation level set forth in the hydrogen sulfide contingency plan. At a minimum, the person shall activate the plan whenever a release may create a hydrogen sulfide concentration of more than 100 ppm in a public area, 500 ppm at a public road or 100 ppm 3000 feet from the site of release.	
D. Submission.	
(1) Where submitted. The person shall submit the hydrogen sulfide contingency plan to the division.	
(2) When submitted. The person shall submit a hydrogen sulfide contingency plan for a new well, facility or operation before operations commence. The hydrogen sulfide contingency plan for a drilling, completion, workover or well servicing operation shall be on file with the division before operations commence and may be submitted separately or along with the APD or may be on file from a previous submission. A person shall submit a hydrogen sulfide contingency plan within 180 days after the person becomes aware or should have become aware that a public area or public road is established that creates a potentially hazardous volume where none previously existed.	
(3) Electronic submission. A filer who operates more than 100 wells or who operates an oil pump station, compressor station, refinery or gas plant shall submit each hydrogen sulfide contingency plan in electronic format. The file may submit the hydrogen sulfide contingency plan through electronic mail, through an Internet filing or by delivering electronic media to the division, so long as the electronic submission is compatible with the division's systems.	
E. Failure to submit plan. A person's failure to submit a hydrogen sulfide contingency plan when required may result in denial of an application for permit to drill, cancellation of an allowable for the subject well or other enforcement action appropriate to the well, facility or operation.	
F. Review, amendment. The person shall review the hydrogen sulfide contingency plan any time a subject addressed in the plan materially changes and make appropriate amendments. If the division determines that a hydrogen sulfide contingency plan is inadequate to protect public safety, the division may require the person to add provisions to the plan or amend the plan as necessary to protect public safety.	
G. Retention and inspection. The hydrogen sulfide contingency plan shall be reasonably accessible in the event of a release, maintained on file at all times and available for division inspection.	
H. Annual inventory of contingency plans. On an annual basis, each person required to prepare one or more hydrogen sulfide contingency plans pursuant to 19.15.11 NMAC shall file with the appropriate local emergency planning committee and the state emergency response commission an inventory of the wells, facilities and operations for which plans are on file with the division and the name, address and	

telephone number of a point of contact.	
I. Plans required by other jurisdictions. The person may submit a hydrogen sulfide contingency plan the BLM or other jurisdiction require that meets the requirements of 19.15.11.9 NMAC to the division in satisfaction of 19.15.11.9 NMAC.	
19.15.11.10 SIGNS, MARKERS:	
For each well, facility or operation involving a hydrogen sulfide concentration of 100 ppm or greater, the person shall install and maintain signs or markers that conform with the current ANSI standard Z535.1-2002 (Safety Color Code), or some other division-approved standard. The sign or marker shall be readily readable, and shall contain the words "poison gas" and other information sufficient to warn the public that a potential danger exists. The person shall prominently post signs or markers at locations, including entrance points and road crossings, sufficient to alert the public that a potential danger exists.	
19.15.11.11 PROTECTION FROM HYDROGEN SULFIDE DURING DRILLING; COMPLETION, WORKOVER AND WELL SERVICING OPERATIONS:	
A. API standards. The person shall conduct drilling, completion, workover and well servicing operations involving a hydrogen sulfide concentration of 100 ppm or greater with due consideration to the guidelines in the API publications Recommended Practice for Oil and Gas Well Servicing and Workover Operations Involving Hydrogen Sulfide, RP-68, and Recommended Practices for Drilling and Well Servicing Operations Involving Hydrogen Sulfide, RP-49, most recent editions, or some other division-approved standard.	
B. Detection and monitoring equipment. Drilling, completion, workover and well servicing operations involving a hydrogen sulfide concentration of 100 ppm or greater shall include hydrogen sulfide detection and monitoring equipment as follows.	
(1) Each drilling and completion site shall have an accurate and precise hydrogen sulfide detection and monitoring system that automatically activates visible and audible alarms when the hydrogen sulfide's ambient air concentration reaches a predetermined value the operator sets, not to exceed 20 ppm. The operator shall locate a sensing point at the shale shaker, rig floor and bell nipple for a drilling site and the cellar, rig floor and circulating tanks or shale shaker for a completion site.	
(2) For workover and well servicing operations, the person shall locate one operational sensing point as close to the well bore as practical. Additional sensing points may be necessary for large or long-term operations.	
(3) The operator shall provide and maintain as operational hydrogen sulfide detection and monitoring equipment during drilling when drilling is within 500 feet of a zone anticipated to contain hydrogen sulfide and continuously thereafter through all subsequent drilling.	
C. Wind indicators. Drilling, completion, workover and well servicing operations involving a hydrogen sulfide concentration of 100 ppm or greater shall include wind indicators. The person shall have equipment to indicate wind direction present and visible at all times. The person shall install at least two devices to indicate wind direction at separate elevations that visible from all principal working areas at all times. When a sustained hydrogen sulfide concentration is detected in excess of 20 ppm at a	

detection point, the person shall display red flags.	
D. Flare system. For drilling and completion operations in an area where it is reasonably expected that a potentially hazardous hydrogen sulfide volume will be encountered, the person shall install a flare system to safely gather and burn hydrogen-sulfide-bearing gas. The person shall locate flare outlets at least 150 feet from the well bore. Flare lines shall be as straight as practical. The person shall equip the flare system with a suitable and safe means of ignition. Where noncombustible gas is to be flared, the system shall provide supplemental fuel to maintain ignition.	
E. Well control equipment. When the 100 ppm radius of exposure includes a public area, the following well control equipment is required.	
(1) Drilling. The person shall install a remote-controlled well control system that is operational at all times beginning when drilling is within 500 vertical feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The well control system shall include, at a minimum, a pressure and hydrogen-sulfide-rated well control choke and kill system including manifold and blowout preventer that meets or exceeds the specifications in API publications Choke and Kill Systems, 16C and Blowout Prevention Equipment Systems for Drilling Wells, RP 53 or other division-approved specifications. The person shall use mud-gas separators. The person shall test and maintain these systems pursuant to the specifications referenced, according to the requirements of 19.15.11 NMAC, or as the division otherwise approves.	
(2) Completion, workover and well servicing. The person shall install a remote controlled pressure and hydrogen-sulfide-rated well control system that meets or exceeds API specifications or other division-approved specifications that is operational at all times during a well's completion, workover and servicing.	
F. Mud program. Drilling, completion, workover and well servicing operations involving a hydrogen sulfide concentration of 100 ppm or greater shall use a hydrogen sulfide mud program capable of handling hydrogen sulfide conditions and well control, including de-gassing.	
G. Well testing. Except with prior division approval, a person shall conduct drill-stem testing of a zone that contains hydrogen sulfide in a concentration of 100 ppm or greater only during daylight hours and not permit formation fluids to flow to the surface.	
H. If hydrogen sulfide encountered during operations. If hydrogen sulfide was not anticipated at the time the division issued a permit to drill but is encountered during drilling in a concentration of 100 ppm or greater, the operator shall satisfy the requirements of 19.15.11 NMAC before continuing drilling operations. The operator shall notify the division of the event and the mitigating steps that the operator has or is taking as soon as possible, but no later than 24 hours following discovery. The division may grant verbal approval to continue drilling operations pending preparation of a required hydrogen sulfide contingency plan.	
19.15.11.12 PROTECTION FROM HYDROGEN SULFIDE AT OIL PUMP STATIONS, PRODUCING WELLS, TANK BATTERIES AND ASSOCIATED PRODUCTION FACILITIES, PIPELINES, REFINERIES, GAS PLANTS AND COMPRESSOR STATIONS:	
A. API standards. A person shall conduct operations at oil pump stations and producing wells, tank	

batteries and associated production facilities, refineries, gas plants and compressor stations involving a hydrogen sulfide concentration of 100 ppm or greater with due consideration to the guidelines in the API publication Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide, RP-55, latest edition or some other division-approved standard.	
B. Security. A person shall protect well sites and other unattended, fixed surface facilities involving a hydrogen sulfide concentration of 100 ppm or greater from public access by fencing with locking gates when the location is within 1/4 mile of a public area. For the purposes of Subsection B of 19.15.11.12 NMAC, a surface pipeline is not considered a fixed surface facility.	
C. Wind direction indicators. Oil pump stations, producing wells, tank batteries and associated production facilities, pipelines, refineries, gas plants and compressor stations involving a hydrogen sulfide concentration of 100 ppm or greater shall have equipment to indicate wind direction. The person shall install wind direction equipment that is visible from all principal working areas at all times.	
D. Control equipment. When the 100 ppm radius of exposure includes a public area, the following additional measures are required.	
(1) The person shall install and maintain in good operating condition safety devices, such as automatic shut-down devices, to prevent hydrogen sulfide's escape. Alternatively, the person shall establish safety procedures to achieve the same purpose.	
(2) A well shall possess a secondary means of immediate well control through the use of an appropriate Christmas tree or down hole completion equipment. The equipment shall allow downhole accessibility (reentry) under pressure for permanent well control. E. Tanks or vessels. The person shall chain each stair or ladder leading to the top of a tank or vessel containing 300 ppm or more of hydrogen sulfide in the gaseous mixture or mark it to restrict entry.	
19.15.11.13 PERSONNEL PROTECTION AND TRAINING:	
The person shall provide persons responsible for implementing a hydrogen sulfide contingency plan training in hydrogen sulfide hazards, detection, personal protection and contingency procedures.	
19.15.11.14 STANDARDS FOR EQUIPMENT THAT MAY BE EXPOSED TO HYDROGEN SULFIDE:	
Whenever a well, facility or operation involves a potentially hazardous hydrogen sulfide volume, the person shall select equipment with consideration for both the hydrogen sulfide working environment and anticipated stresses and shall use NACE Standard MR0175 (latest edition) or some other division-approved standard for selection of metallic equipment or, if applicable, use adequate protection by chemical inhibition or other methods that control or limit hydrogen sulfide's corrosive effects.	
19.15.11.15 EXEMPTIONS:	
A person may petition the director or the director's designee for an exemption to a requirement of 19.15.11 NMAC. A petition shall provide specific information as to the circumstances that warrant approval of the exemption requested and how the person will protect public safety. The director or the director's designee, after considering all relevant factors, may approve an exemption if the circumstances	

warrant and so long as the person protects public safety.	
19.15.11.16 NOTIFICATION OF THE DIVISION:	
The person shall notify the division upon a release of hydrogen sulfide requiring activation of the hydrogen sulfide contingency plan as soon as possible, but no more than four hours after plan activation, recognizing that a prompt response should supersede notification. The person shall submit a full report of the incident to the division on form C-141 no later than 15 days following the release.	
C-108 REQUIREMENTS	
XIV. PROOF OF NOTICE All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location. Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located.	
OTHER ISSUES - GW033	
OTHER ISSUES - BHP COAL MINE	