Correspondence

Case No. 12897

October 2002

CONFIDENTIAL ATTORNEY-CLIENT COMMUNICATION

To: Lori Wrotenbery, Chair, Oil Conservation Commission
Jami Bailey, Member
Robert Lee, Member

From: Stephen C. Ross, Assistant General Counsel

Date: October 25, 2002

Re: **Proposed 19.15.2.52 NMAC**

Attached to this memorandum are three documents. The first is a draft I have prepared of an order in this matter and the second and third are drafts of the proposed rule (one showing changes from the August 30 draft and the other a clean copy). Please look over the documents and let me know if any revisions are required.

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19.15.2.52 Hydrogen Sulfide Gas (Hydrogen Sulfide)

A. Applicability. This section applies to any person, operator or facility subject to the jurisdiction of the Division, including, but not limited to, any person, operator or facility engaged in drilling, stimulating, injecting into, completing, working over or producing any oil, natural gas or carbon dioxide well or any person, operator or facility engaged in gathering, transporting, storing, processing or refining of crude oil, natural gas or carbon dioxide (referred to as "person, operator or facility" or "wells, facilities or operations"). This section shall not act to exempt or otherwise excuse surface waste management facilities permitted by the division pursuant to 19.15.9.711 NMAC from more stringent conditions on the handling of hydrogen sulfide required of such facilities by 19.15.9.711 NMAC or more stringent conditions existing in permits issued thereunder, nor shall such facilities be exempt or otherwise excused from the requirements set forth in this section by virtue of permitting under 19.15.9.711 NMAC.

B. Definitions (specific to this section).

1. ANSI. The acronym "ANSI" means the american national standards institute.

2. API. The acronym "API" means the american petroleum institute.

3. Area of Exposure. The phrase "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.

4. ASTM. The acronym "ASTM" means the american society for testing and materials.

5. Dispersion Technique. A "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.

6. Escape Rate. The "escape rate" is the maximum volume (Q) that is used to designate the possible rate of escape of a gaseous mixture containing hydrogen sulfide, as set forth herein.

a. For existing natural gas facilities or operations, the escape rate shall be ~~is~~ calculated using the maximum daily rate of the gaseous mixture produced or handled or the best estimate thereof. For an existing natural gas well, the escape rate shall be calculated by using the current daily absolute open flow rate against atmospheric pressure or the best estimate of that rate.

b. For new natural gas operations or facilities, the escape rate shall be calculated as the maximum anticipated flow rate through the system. For a new natural gas well, the escape rate shall be calculated using the maximum open-flow rate of offset wells in the pool, or the pool average of maximum open-flow rates.

c. For existing oil wells the escape rate shall be calculated by multiplying the producing gas/oil ratio by the maximum daily production rate or the best estimate thereof.

d. For new oil wells, the escape rate shall be calculated by multiplying the producing gas/oil ration by the maximum daily production rate of offset wells in the pool, or the pool average of the product of the producing gas/oil ration by the maximum daily production rate.

e. For facilities or operations not mentioned, the escape rate shall be calculated using the actual flow of the gaseous mixture through the operation or system.

7. GPA. The acronym "GPA" means the gas processors association.

8. LEPC. The acronym "LEPC" means the local emergency planning committee established pursuant to the emergency planning and community right-to-know act, 42 U.S. C. § 11001.

9. NACE. The acronym "NACE" refers to the national association of corrosion engineers.

10. PPM. The acronym "ppm" means "parts per million" by volume.

11. Potentially Hazardous Volume (hereinafter referred to as a "potentially hazardous volume") means the volume of hydrogen sulfide gas of such concentration that:

a. the 100-ppm radius of exposure includes any public area;

b. the 500-ppm radius of exposure includes any public road;

as defined herein; or

c. the 100-ppm radius of exposure exceeds 3,000 feet.

12. Public Area. A "public area" is any building or structure that is not associated with the well, operation or system 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 any 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.

13. Public Road. A "public road" is any federal, state, municipal or county road or highway or postal route.

14. Radius of Exposure. The radius of exposure is that 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 may be approved by the division:

a. For determining the 100-ppm radius of exposure: $X= [(1.589)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

b. For determining the 500-ppm radius of exposure: $X=[(0.4546)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

c. 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 3,000 feet shall be assumed.

C. Required Testing and Calculations.

1. Testing.

a. Each well, facility or operation shall determine by testing the hydrogen sulfide concentration within each well, facility or operation. A representative sample or process knowledge may be used in lieu of individual testing of wells, operations or facilities provided that the concentration derived from the representative sample or process knowledge is reasonably representative of the hydrogen sulfide concentration within the well, facility or operation.

b. The tests used to make the determination referred to in the previous subparagraph shall be conducted in accordance with applicable ASTM or GPA standards or by other method approved by the division.

c. If a representative sample from a well, facility or operation was tested prior to the effective date of this section and otherwise meets the requirements of the previous subparagraphs, new testing shall not be required.

d. If any change or alteration may materially increase the concentration of hydrogen sulfide in a well, facility or operation, retesting shall be required in accordance with this section.

2. Concentrations Determined to be Below 100 ppm. If the concentration of hydrogen sulfide in a given well, facility or operation is less than 100 ppm, no further actions shall be required pursuant to this section.

3. Concentrations Determined to be Above 100 ppm.

a. If the concentration of hydrogen sulfide in a given well, facility or operation is determined to be 100 ppm or greater, then the person, facility or operation must calculate the radius of exposure and comply with applicable requirements of this section.

b. If calculation of the radius of exposure reveals that a potentially hazardous volume is present, the results of the determination of the hydrogen sulfide concentration and the calculation of the radius of exposure shall be provided to the division. For a well, facility or operation existing on the effective date of this section, the determination, calculation and submission required herein shall be accomplished within 180 days of the effective date of this section; for any well, facility or operation that commences operations after the effective date of this section, the determination, calculation and submission required herein shall be accomplished before operations begin.

4. Recalculation. The person, operator or facility shall calculate or recalculate the radius of exposure if the hydrogen sulfide concentration in a well, facility or operation increases to 100 ppm or greater or, if the hydrogen sulfide concentration in a well, facility or operation was already 100 ppm or greater, there is a 25% or greater increase in the actual volume fraction of hydrogen sulfide. If calculation or recalculation of the radius of exposure reveals that a potentially hazardous volume is present, the results shall be provided to the division within sixty (60) days.

E. Hydrogen Sulfide Contingency Plan.

1. In General. A hydrogen sulfide contingency plan is a written document that provides a plan of action that will be used to alert and protect persons at risk in the event of a potentially significant release of hydrogen sulfide gas. The hydrogen sulfide contingency plan must be developed in accordance with the following paragraphs.

2. When Required. A hydrogen sulfide contingency plan must be prepared whenever a potentially hazardous volume of hydrogen sulfide is present or may reasonably be expected to be encountered.

3. Plan Contents.

a. API Guidelines. The hydrogen sulfide contingency plan shall be developed with due consideration of the guidelines in paragraph 7.6 of the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, most recent edition.

b. Required Contents. The hydrogen sulfide contingency plan shall contain, but shall not be limited to, information on the following subjects, as appropriate to the well, operation or system to which it applies:

i. Emergency procedures. The hydrogen sulfide contingency plan shall contain information on emergency procedures to be taken in the event of a release, and shall include, at a minimum, information concerning the responsibilities of personnel during the emergency, an immediate action plan as described in the API document referenced in the previous subsubparagraph, and telephone numbers of public agencies, emergency responders, local government and other appropriate public authorities. The plan shall also include the locations of nearby residences, businesses, parks, schools, churches, roads, medical facilities etc., shall describe proposed evacuation routes and 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 location and availability of necessary safety equipment and supplies.

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

iii. Maps and drawings. The hydrogen sulfide contingency plan shall include maps and drawings that depict the radius of exposure, areas potentially affected thereby, public areas, public roads and any areas potentially affected by a release of a potentially hazardous volume.

iv. Trainings and Drills. The hydrogen sulfide contingency plan shall include a description of the responsibilities and duties of essential personnel, provide for periodic on-site or classroom drills or exercises that simulate a release, and shall describe how that training, and attendance at the training, will be documented. 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 include provisions for briefing public officials on issues such as evacuations or shelter-in-place plans.

v. Coordination with State Emergency Plans. The hydrogen sulfide contingency plan shall describe how emergency response actions proposed in the plan will be coordinated with the division and with the New Mexico state police consistent with the New Mexico hazardous materials emergency response plan (HMER).

vi. Activation Levels. The hydrogen sulfide contingency plan shall include the activation threshold 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. Plans Required by Other Jurisdictions. A plan required by the Bureau of Land Management or other jurisdiction that meets the requirements of this subsection may be submitted to the division in satisfaction of this subsection.

4. Submission.

a. Where Submitted. The hydrogen sulfide contingency plan shall be submitted to the division.

b. When Submitted. A hydrogen sulfide contingency plan for a well, facility or operation existing on the effective date of this section shall be submitted within 180 days from the date a determination is made that a potentially hazardous volume exists. A hydrogen sulfide contingency plan for a new well, system or operation shall be submitted before operations commence. A hydrogen sulfide contingency plan shall be submitted within 180 days after the person, operator or facility 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. The hydrogen sulfide contingency plan for a drilling, completion, workover or well servicing operation must be on file with the division before operations commence and may be submitted separately or along with the application for permit to drill (APD) or may be on file from a previous submission.

c. Electronic Submission. The hydrogen sulfide contingency plan shall be submitted electronically in a generally accepted format that is compatible with the division's systems.

5. Failure to Submit Plan. 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 appropriate enforcement action.

6. Review, Amendment. The person, operator or facility shall review the hydrogen sulfide contingency plan any time a subject addressed in the plan 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, operator or facility to add provisions to the plan or amend the plan as necessary to protect public safety.

7. 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 inspection by the division.

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

9. Plan Activation. The hydrogen sulfide contingency plan shall be activated in the event of a release that may create a concentration of hydrogen sulfide as set forth in the hydrogen sulfide contingency plan, but at a minimum the plan shall provide for activation when a concentration of hydrogen sulfide exists more than 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.

F. Signage. Each well, facility or operation containing a concentration of hydrogen sulfide of 100 ppm or greater shall provide and maintain signage. Each sign shall conform with the current ANSI standard Z53.1 and shall provide other information sufficient to warn the public that a potential danger exists. Signs shall be prominently posted at locations like entrance points and road crossings, and shall be sufficient to alert the public that a potential danger exists.

G. Protection from Hydrogen Sulfide During Drilling, Completion, Workover, and Well Servicing Operations.

1. API Standards. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present shall be conducted with due consideration to the guidelines published by the API entitled "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 Wells Containing Hydrogen Sulfide," RP-49, most recent editions.

2. Detection and Monitoring Equipment. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present shall provide hydrogen sulfide detection and monitoring equipment as follows:

a. Each drilling and completion site shall have an accurate and precise hydrogen sulfide detection and monitoring system that will automatically activate visible and audible alarms when the ambient air concentration of hydrogen sulfide reaches a predetermined value set by the operator, not to exceed 20 ppm. There shall be a sensing point located 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.

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

c. Hydrogen sulfide detection and monitoring equipment must be provided and must be made operational during drilling when drilling is within 500 feet of a zone anticipated to contain hydrogen sulfide and continuously thereafter through all subsequent drilling.

3. Wind Indicators. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present shall provide wind indicators. Equipment to indicate wind direction shall be present and visible at all times. At least two devices to indicate wind direction shall be installed at separate elevations and visible from all principal working areas at all times. When a sustained concentration of hydrogen sulfide is detected in excess of 20 ppm at any detection point, red flags shall be displayed.

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

5. Well Control Equipment. When the 100 ppm radius of exposure includes a public area, the following additional measures shall be required:

a. Drilling. A remote controlled well control system shall be installed and operational at all times beginning when drilling is within 500 feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The well control system must 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 API-16C and API-RP 53 or other specifications approved by the division. Mud-gas separators shall be used. These systems shall be tested and maintained pursuant to the specifications referenced, according to the requirements of this part, or otherwise as approved by the division.

b. Completion, Workover and Well Servicing. A remote controlled pressure and hydrogen sulfide rated well control system that meets or exceeds API specifications or other specifications approved by the division shall be installed and operationsla at all times during completion, workover and servicing of a well.

6. Mud Program. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present shall provide a hydrogen sulfide mud program capable of handling hydrogen sulfide conditions and well control, including de-gassing and flaring.

7. Well Testing. Except with prior approval of the division, drill-stem testing of a zone that contains hydrogen sulfide shall be conducted only during daylight hours and formation fluids shall not be permitted to flow to the surface (closed chamber only).

8. 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 in the gaseous mixture, the operator must satisfy the requirements of this section before continuing drilling operations. The operator shall notify the division of the event and the mitigating steps that have or are being taken 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 any required hydrogen sulfide contingency plan.

H. Protection from Hydrogen Sulfide at Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Pipelines, Refineries, Gas Plants and Compressor Stations.

1. API Standards. Operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations where a concentration of hydrogen sulfide above 100 ppm is present shall be conducted with due consideration to the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, latest edition.

2. Security. Well sites and other unattended, fixed surface facilities shall be protected from public access by fencing with locking gates when the location is within 1/4 mile of a public area. A surface pipeline shall not be considered a fixed surface facility for purposes of this paragraph.

3. Wind Direction Indicators. All crude oil pump stations, producing wells, tank batteries and associated production facilities, pipelines, refineries, gas plants and compressor stations where a concentration of hydrogen sulfide of above 100 ppm is present shall provide equipment to indicate wind direction. The wind direction equipment shall be installed and visible from all principal working areas at all times.

4. Well Control Equipment. All crude oil pump stations, producing wells, tank batteries and associated production facilities, pipelines, refineries, gas plants and compressor stations where a concentration of hydrogen sulfide of above 100 ppm is present shall provide well control equipment as provided herein. Any well shall possess a secondary means of immediate well control through the use of appropriate christmas tree or downhole completion equipment. Such equipment shall allow downhole accessibility (reentry) under pressure for permanent well control. In addition, safety devices such as automatic shut-down devices shall be installed and maintained in good operating condition. Alternatively, safety procedures shall be established designed to prevent the undetected release of hydrogen sulfide. Any well shall possess a secondary means of immediate well control through the use of an appropriate christmas tree or downhole completion equipment. Such equipment shall permit the downhole accessibility (re-entry) under pressure for immediate well control.

5. Tanks or vessels. Each stair or ladder leading to the top of any tank or vessel containing 300 ppm or more of hydrogen sulfide in the gaseous mixture shall be chained or marked to restrict entry.

6. Compliance Schedule. Each existing crude oil pump station and producing well, tank battery and associated production facility, pipeline, refinery, gas plant and compressor station not currently meeting the requirements of this subsection shall be brought into compliance within one year of the effective date of this section.

I. Personnel Protection and Training. All persons responsible for the implementation of any hydrogen sulfide contingency plan shall be provided training in hydrogen sulfide hazards, detection, personal protection and contingency procedures.

J. Standards for Equipment That May Be Exposed to Hydrogen Sulfide. Whenever a potentially hazardous volume of hydrogen sulfide is present or may reasonably be expected to be encountered, persons, operators and facilities shall select equipment with consideration for both the hydrogen sulfide working environment and anticipated stresses and use NACE Standard MR0175 (latest edition) or some other standard approved by the division for selection of metallic equipment or, if applicable, provide adequate protection by chemical inhibition or other methods that control or limit the corrosive effects of hydrogen sulfide.

K. Exemptions. Any person, operator or facility may petition the director or the director's designee for an exemption to any requirement of this section. Any such petition shall provide specific information as to the circumstances that warrant approval of the exemption requested and how the public safety will be protected. The director, or the director's designee, after considering all relevant factors, may approve an exemption if the circumstances warrant an exemption.

L. Notification of the Division. The person, operator or facility 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 supercede notification. The person, operator or facility shall submit a full report of the incident to the division on Form C-141 no later than fifteen (15) days following the release.

M. Corrective Actions. The division may require corrective actions if necessary to maintain control of a well or any other facility or to safeguard public safety.

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19.15.2.52 Hydrogen Sulfide Gas (Hydrogen Sulfide)

A. ~~In General. Hydrogen sulfide gas is a flammable, poisonous gas that may occur naturally as a component of crude petroleum and natural gas. The gas has a distinct and characteristic odor of rotten eggs but due to olfactory fatigue may not be sensed by the human sense of smell.~~

~~B.~~ Applicability. This section applies to any person, operator or facility subject to the jurisdiction of the Division, including, but not limited to, any person, operator or facility engaged in drilling, stimulating, injecting into, completing, working over or producing any oil, natural gas or carbon dioxide well or any person, operator or facility engaged in gathering, transporting, storing, processing or refining of crude oil, natural gas or carbon dioxide (hereinafter referred to as "person, operator or facility" when referring to a personal obligation and "wells, facilities or operations" when referring to regulated operations). This section shall not act to exempt or otherwise excuse surface waste management facilities permitted by the division pursuant to 19.15.9.711 NMAC ~~15.I.711~~ from more stringent conditions on the handling of hydrogen sulfide required of such facilities by 19.15.9.711 NMAC ~~15.I.711~~ or more stringent conditions existing in permits issued thereunder, nor shall such facilities be exempt or otherwise excused from the requirements set forth in this section by virtue of permitting under 19.15.9.711 NMAC ~~15.I.711~~.

B. ~~C.~~ Definitions (specific to this section).

1. ANSI. The acronym "ANSI" means the american national standards institute.
2. API. The acronym "API" means the american petroleum institute.
3. Area of Exposure. The phrase "area of exposure" means the area within a circle constructed with a ~~the~~ point of escape at its center and the radius of exposure as its radius.
4. ASTM. The acronym "ASTM" means the american society for testing and materials.
5. Dispersion Technique. A "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.
6. Escape Rate. The "escape rate" is the maximum volume (Q) that is used to designate the possible rate of escape of a gaseous mixture containing hydrogen sulfide, as set forth herein.

a. For existing natural gas facilities or operations, the escape rate shall be ~~is~~ calculated using the maximum daily rate of the gaseous mixture produced or handled or the best estimate thereof. For an existing natural gas well, the escape rate shall be calculated by using the current daily absolute open flow rate against atmospheric pressure or the best estimate of that rate.

b. For new natural gas operations or facilities, the escape rate shall be calculated as the maximum anticipated flow rate through the system. For a new natural gas well, the escape rate shall be calculated using the maximum open-flow rate of offset wells in the pool, or the pool average of maximum open-flow rates.

c. For existing oil wells the escape rate shall be calculated by multiplying the producing gas/oil ratio by the maximum daily production rate or the best estimate thereof.

d. For new oil wells, the escape rate shall be calculated by multiplying the producing gas/oil ration by the maximum daily production rate of offset wells in the pool, or the pool average of the product of the producing gas/oil ration by the maximum daily production rate.

e. For facilities or operations not mentioned, the escape rate shall be calculated using the actual flow of the gaseous mixture through the operation or system.

7. GPA. The acronym "GPA" means the gas processors association.
8. LEPC. The acronym "LEPC" means the local emergency planning committee established pursuant to the emergency planning and community right-to-know act, 42 U.S. C. § 11001.
9. NACE. The acronym "NACE" refers to the national association of corrosion engineers.
10. PPM. The acronym "ppm" means "parts per million" by volume.
11. Potentially Hazardous Volume (hereinafter referred to as a "potentially hazardous volume") means the volume of hydrogen sulfide gas of such concentration that:

a. the 100-ppm radius of exposure includes any public area ~~as defined herein~~;
b. the 500-ppm radius of exposure includes any public road

~~as defined herein~~; or

c. the 100-ppm radius of exposure exceeds ~~is equal to or in excess of~~ 3,000 feet.

12. Public Area. A "public area" is any building or structure that is not associated with the well, operation or system 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 any 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.

13. Public Road. A "public road" is any federal, state, municipal or county road or highway or postal route.

14. Radius of Exposure. The radius of exposure ~~(hereinafter referred to as "radius of exposure" or "ROE")~~ is that 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 may be approved by the division:

a. For determining the 100-ppm radius of exposure: $X= [(1.589)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

~~or~~

b. For determining the 500-ppm radius of exposure: $X=[(0.4546)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

c. 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 3,000 feet shall be assumed.

C. ~~D.~~ Required Testing and Calculations. ~~Determination of Hydrogen Sulfide Risk~~.

1. Testing ~~Determination of Hydrogen Sulfide Concentration~~.

a. Each well, facility or operation ~~person, operator or facility to which this section applies~~ shall determine by testing the hydrogen sulfide concentration within each ~~of its~~ well, facility or operation ~~or systems~~. A representative sample or process knowledge may be used in lieu of individual testing of wells, operations or facilities ~~systems~~ provided that ~~the person, operator or facility can demonstrate that~~ the concentration derived from the representative sample or process knowledge is reasonably representative of the hydrogen sulfide concentration within the well, facility or operation ~~or facility system~~.

b. The tests used to make the determination referred to in the previous subparagraph shall be conducted in accordance with applicable ASTM or GPA standards or by other methods approved by the division.

c. If a representative sample from a well, facility or operation ~~or system~~ was tested prior to ~~within one (1) year of~~ the effective date of this section and otherwise meets the requirements of the previous subparagraphs, new testing shall not be required~~; provided, however, new testing shall not be required for a producing well that was tested at any time prior to the effective date of this section~~.

d. If any change or alteration may materially increase the concentration of hydrogen sulfide in a well, facility or operation, retesting shall be required in accordance wit this section.

2. ~~Tested~~ Concentrations Determined to be Below 100 ppm. If the concentration of hydrogen sulfide in a given well, facility or operation ~~or system~~ is less than 100 ppm, no further actions shall be required pursuant to this section.

3. ~~Tested~~ Concentrations Determined to be Above 100 ppm~~; Calculation of the Radius of Exposure~~.

a. If the concentration of hydrogen sulfide in a given well, facility or operation ~~or system~~ is determined to be 100 ppm or greater, then the person, facility or operation ~~or facility~~ must calculate the radius of exposure and comply with applicable requirements of ~~pursuant to~~ this section.

b. If calculation of the radius of exposure reveals that a potentially hazardous volume is present, the ~~person, operator or facility shall provide the~~ results of the determination of the hydrogen sulfide concentration and the calculation of the radius of exposure shall be provided to the division. For a well, facility or operation ~~or system~~ existing on the effective date of this section, the determination, calculation and submission required herein shall be accomplished within 180 days of the effective date of this section; for any well, facility or operation ~~or system~~ that commences operations after the effective date of this section, the determination, calculation and submission required herein shall be accomplished before operations begin.

4. Recalculation. The person, operator or facility shall calculate or recalculate the radius of exposure if ~~an operational change or production alteration causes~~ the hydrogen sulfide concentration in a well, facility or operation ~~or system to~~ increases to 100 ppm or greater or, if the hydrogen sulfide concentration in a well, facility or operation ~~or system~~ was already 100 ppm or greater, there is ~~causes~~ a 25% or greater increase in the actual volume fraction of hydrogen sulfide. If calculation or recalculation of the radius of exposure reveals that a potentially hazardous volume is present, ~~the person, operator or facility shall provide~~ the results shall be provided to the division within sixty ~~thirty~~ (60) days.

E. Hydrogen Sulfide Contingency Plan.

1. In General. A hydrogen sulfide contingency plan is a written document that provides a plan of action that will be used to alert and protect persons at risk in the event of a potentially significant release of hydrogen sulfide gas. The hydrogen sulfide contingency plan must be developed in accordance with the following paragraphs.

2. When Required. A hydrogen sulfide contingency plan must be prepared whenever a potentially hazardous volume of hydrogen sulfide is present or may reasonably be expected to be encountered.

3. ~~Input of Emergency Response Authorities and the Division. The person, operator or facility shall develop a proposed hydrogen sulfide contingency plan and provide a copy to the division, the New Mexico department of public safety (*i.e.*, the New Mexico state police), and the local emergency planning committee. If the potential source of release is within a municipality, a copy shall be provided to the municipal police and fire department. If the potential source of the release is outside the boundaries of a municipality, a copy shall instead be provided to the county sheriff and the county fire department or departments. Input on the proposed plan shall be sought from each of the foregoing; if an emergency response authority provided with a copy of the proposed plan fails to provide input or fails to respond at all, that fact shall be stated in the final hydrogen sulfide contingency plan submitted to the division. The input provided by the emergency response authorities shall be considered when preparing the final plan for submission to the division but failure to include any specific suggestion shall not affect the validity of the plan or cause disapproval of the plan by the division.~~

~~4.~~ Plan Contents ~~Elements~~.

~~a. Elements Required for Each Plan:~~

~~i. A detailed description of each action to be taken in the event of a release of hydrogen sulfide requiring activation shall be included in each hydrogen sulfide contingency plan, including provisions for alerting and accounting for personnel, controlling any release of hydrogen sulfide gas, eliminating possible ignition sources, alerting the public (directly or through appropriate government agencies), evacuating persons in the affected area, using the call list to alert company officials and emergency response authorities, making recommendations to public officials to block access to affected areas and conducting evacuations and coordinating emergency response with emergency response authorities.~~

a. API Guidelines. The hydrogen sulfide contingency plan shall be developed with due consideration of the guidelines ~~plan that addresses the items described~~ in paragraph 7.6 of the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas

Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, most recent edition. ~~, shall be adequate for this purpose~~

b. Required Contents. The hydrogen sulfide contingency plan shall contain, but shall not be limited to, information on the following subjects, as appropriate to the well, operation or system to which it applies:

i. Emergency procedures. The hydrogen sulfide contingency plan shall contain information on emergency procedures to be taken in the event of a release, and shall include, at a minimum, information concerning the responsibilities of personnel during the emergency, an immediate action plan as described in the API document referenced in the previous subsubparagraph, and telephone numbers of public agencies, emergency responders, local government and other appropriate public authorities. The plan shall also include the locations of nearby residences, businesses, parks, schools, churches, roads, medical facilities etc., shall describe proposed evacuation routes and 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 location and availability of necessary safety equipment and supplies.

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

iii. Maps and drawings. The hydrogen sulfide contingency plan shall include maps and drawings that depict the radius of exposure, areas potentially affected thereby, public areas, public roads and any areas potentially affected by a release of a potentially hazardous volume.

iv. Trainings and Drills. The hydrogen sulfide contingency plan shall include a description of the responsibilities and duties of essential personnel, provide for periodic on-site or classroom drills or exercises that simulate a release, and shall describe how that training, and attendance at the training, will be documented. 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 include provisions for briefing public officials on issues such as evacuations or shelter-in-place plans.

v. Coordination with State Emergency Plans. The hydrogen sulfide contingency plan shall describe how emergency response actions proposed in the plan will be coordinated with the division and with the New Mexico state police consistent with the New Mexico hazardous materials emergency response plan (HMER).

vi. Activation Levels. The hydrogen sulfide contingency plan shall include the activation threshold 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. Plans Required by Other Jurisdictions. A plan required by the Bureau of Land Management or other jurisdiction that meets the requirements of this subsection may be submitted to the division in satisfaction of this subsection.

~~ii. A call list including the following as applicable:~~

~~aa. local supervisory personnel;~~

~~bb. county sheriff;~~

~~cc. department of public safety and state police;~~

~~dd. city or municipal police;~~

~~ee. appropriate division district office; and~~

~~ff. other public agencies as appropriate;~~

~~iii. A plat or map detailing the area within the radius of exposure of a potentially hazardous volume; and~~

~~iv. A list of the names and telephone numbers of all personnel to be contacted when a release is reported or suspected.~~

~~b. Where the 500-ppm radius of exposure encompasses any public road, the person, operator or facility shall include the following additional elements in the hydrogen sulfide contingency plan:~~

~~i. A plat or map detailing the area of exposure, including the locations of public roads; and~~

~~ii. A plan to divert traffic and safely get existing traffic off the road and out of danger.~~

~~c. Where the 100 ppm radius of exposure encompasses any public area, the following additional elements shall be included in the hydrogen sulfide contingency plan:~~

~~i. A call list including all the persons set forth in Sub subparagraph E(4)(a)(ii), above, and the following:~~

~~aa. ambulance services;~~

~~bb. hospitals;~~

~~cc. county and city fire departments;~~

~~dd. doctors;~~

~~ee. contractors for supplemental or emergency equipment; and~~

~~ff. other public agencies as appropriate;~~

~~ii. A statement describing how emergency response actions will be coordinated with the division and the New Mexico state police, consistent with the New Mexico hazardous materials emergency response plan (HMER);~~

~~iii. A plat or map detailing the area of exposure, including the locations of public areas and public roads;~~

~~iv. The names and telephone numbers of all persons living within the area of exposure and contact persons for areas of public concentration such as churches, schools, hospitals, offices and places of business;~~

~~v. Provision for advance briefing of affected persons within the radius of exposure. Such advance briefing shall include the hazards and characteristics of hydrogen sulfide, the necessity for a hydrogen sulfide contingency plan, the possible sources of hydrogen sulfide within the radius of exposure, instructions for reporting a gas leak, the manner in which persons will be notified in the event of an emergency and steps to be taken in an emergency;~~

~~vi. In lieu of the provision for advance briefing of persons within the radius of exposure described in the previous subsubparagraph, a reaction type plan may be prepared and submitted that provides for mass notification of a release of hydrogen sulfide and for evacuation of affected areas; and~~

~~vii. Additional support information, if applicable, such as the location of emergency evacuation routes, the location of safety and life support equipment, the location of facilities containing hydrogen sulfide, the location of nearby telephones or other means of communication and special instructions for conditions at a particular installation such as local terrain and the effect of various weather conditions.~~

~~d. Additional Requirements. The division may impose additional requirements or modify requirements based on site specific conditions, population density or special circumstances~~.

4. Submission.

a. Where Submitted. The hydrogen sulfide contingency plan shall be submitted to the division ~~and a copy shall be submitted to the local emergency planning committee, if one exists~~.

b. When Submitted. A hydrogen sulfide contingency plan for a well, facility or ~~system or~~ operation existing on the effective date of this section shall be submitted within 180 days from the ~~effective~~ date a determination is made that a potentially hazardous volume exists ~~of this section~~. A hydrogen sulfide contingency plan for a new well, system or operation shall be submitted before operations commence. A hydrogen sulfide contingency plan shall be submitted within 180 days after the person, operator or facility becomes aware or should have become aware that ~~if~~ a public area or public road is established that creates a potentially hazardous volume where none previously existed. The hydrogen sulfide contingency plan for a drilling, completion, workover or well servicing operation must be on file with the division before operations commence and may be submitted separately or along with the application for permit to drill (APD) or may be on file from a previous submission.

c. Electronic Submission. The hydrogen sulfide contingency plan shall be submitted electronically in a generally accepted format that is compatible with the division's systems.

5. Failure to Submit Plan. Failure to submit a hydrogen sulfide contingency plan when required may result in denial of an application for permit to drill ~~that well~~, cancellation of an allowable for the subject well or other appropriate enforcement action.

6. ~~Annual~~ Review, Amendment. The person, operator or facility shall review the hydrogen sulfide contingency plan any time a subject addressed in the plan changes and make appropriate amendments. ~~on an annual basis, or more frequently if activation of a plan reveals a deficiency or, if changes to processes, concentrations of hydrogen sulfide or other circumstances occur, or if a new public area and/or a new public road is established that creates a potentially hazardous volume. The person, operator or facility shall submit any amendments to the division and to the local emergency planning committee. Reasonable efforts shall be taken to update on an annual basis the lists of names and telephone numbers in the hydrogen sulfide contingency plan.~~ If the division determines that a hydrogen sulfide contingency plan is inadequate to protect public safety, the division may require the person, operator or facility to add provisions to the plan or amend the plan as necessary to protect public safety.

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

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

9. Plan Activation. The hydrogen sulfide contingency plan shall be activated in the event of a release that may create a concentration of hydrogen sulfide as set forth in the hydrogen sulfide contingency plan, but at a minimum the plan provide for activation when a concentration of hydrogen sulfide exists more than 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.

F. Signage. Each well, facility or operation containing a concentration of hydrogen sulfide of 100 ppm or greater shall provide and maintain signage. Each sign ~~or marker~~ shall conform with the current ANSI standard Z53.1 and shall provide other information sufficient to warn the public that a potential danger exists. Signs ~~markers~~ shall be prominently posted at locations like entrance points and road crossings, and shall be sufficient to alert the public that a potential danger exists.

~~Signage at Wells, Facilities or Operations. For every well, operation or system to which this section applies that contains a concentration of hydrogen sulfide of 100 ppm or greater, the person, operator or facility must provide signage as set forth herein.~~

~~1. Drilling, Completion, Workover, and Well Servicing Operations. A danger or caution sign shall be displayed at each drilling, completion, workover and well servicing operation along each point of access to the site. The signs shall read "DANGER - POISON GAS, HYDROGEN SULFIDE PRESENT" or, as appropriate, "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT" or use equivalent language approved by the division, and shall state in smaller lettering: "Do Not Approach If Red Flag is Flying" or use equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration, or in another color approved by the division. The signs shall be legible and large enough to be read by all persons entering the well site and shall be placed a minimum of 200 feet but no more than 500 feet from the well site and at a location that allows vehicles to turn around at a safe distance prior to reaching the site.~~

~~2. Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Refineries, Gas Plants and Compressor Stations. A danger sign or signs shall be posted within 50 feet of each crude oil pump station, producing well, tank battery and associated production facility, refinery, gas plant and compressor station to alert the public of the potential hydrogen sulfide danger. If fenced, a danger sign at the gates shall suffice. The signs shall read "DANGER - POISON GAS -~~

~~HYDROGEN SULFIDE PRESENT," or, as appropriate, "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT" or use equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration, or in another color approved by the division. The signs shall be legible and large enough to be read by all persons entering the site. A sign shall be placed at each point where a flow line or gathering line crosses a public road; each sign shall be legible and shall contain the name of the owner or operator and an emergency telephone number.~~

~~3. Tanks or Vessels. A danger sign or signs shall be posted on or within 50 feet of any storage tank to alert persons of the potential hydrogen sulfide danger. For any storage tank for which fencing is required, a danger sign posted at the locked gates shall suffice. The signs shall read "DANGER - POISON GAS - HYDROGEN SULFIDE PRESENT," or, as appropriate "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT," or equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration or another color approved by the division. The sign(s) shall be legible and large enough to be read by all persons entering the site.~~

G. Protection from Hydrogen Sulfide During Drilling, Completion, Workover, and Well Servicing Operations.

1. API Standards. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present ~~where it is reasonably expected that a potentially hazardous volume of hydrogen sulfide will be encountered~~ shall be conducted with due consideration to the guidelines published by the API entitled "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 ~~of~~ Wells Containing Hydrogen Sulfide," RP-49, most recent editions.

~~2. Minimum Standards. At a minimum, each drilling, completion, workover and well servicing operation where a potentially hazardous volume of hydrogen sulfide may reasonably be expected to be encountered shall be conducted in accordance with the following:~~

~~a. Before Commencing Operations. Hydrogen sulfide training shall be completed and warning systems shall be operational before commencement of operations. Detection and monitoring equipment is not required for drilling from the surface to within 500 feet of the zone anticipated to contain hydrogen sulfide.~~

~~b. Egress Routes. The person, operator or facility shall maintain passable egress routes at all times during operations.~~

2. Detection and Monitoring Equipment. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present ~~The person, operator or facility~~ shall provide hydrogen sulfide detection and monitoring equipment as follows:

a. Each drilling and completion site shall have an accurate and precise hydrogen sulfide detection and monitoring system that will automatically activate visible and audible alarms when the ambient air concentration of hydrogen sulfide reaches a predetermined value set by the operator, not to exceed 20 ppm. There shall be a sensing point located 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.

~~ii. The detection system shall be calibrated and tested and the results recorded monthly. Each test of the hydrogen sulfide monitoring system shall be recorded on the driller's log or its equivalent.~~

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

c. Hydrogen sulfide detection and monitoring equipment must be provided and must be made operational during drilling when drilling is within 500 feet of a zone anticipated to contain hydrogen sulfide and continuously thereafter through all subsequent drilling.

3. Wind Indicators. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present shall provide wind indicators.

~~a.~~ Equipment to indicate wind direction shall be present and visible at all times. At least two devices to indicate wind direction shall be installed at separate elevations and visible from all principal working areas at all times.

~~b.~~ When a sustained concentration of hydrogen sulfide is detected in excess of 20 ppm at any detection point, red flags shall be displayed.

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

5. ~~Use of~~ Well Control Equipment. When the 100 ppm radius of exposure includes a public area, the following additional measures shall be required:

a. Drilling. A remote controlled well control system ~~choke and accumulator~~ shall be installed and operational at all times beginning when drilling is within 500 feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The well control system ~~remote controlled choke~~ must 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 API-16C and API-RP 53 or other specifications approved by the division. ~~The blowout preventer stack shall have at least one spool for the kill and choke lines, two pipe rams, one blind ram, one annular device and a rotating head.~~ Mud-gas separators shall ~~also~~ be used. These systems shall be tested and maintained pursuant to the specifications referenced, according to the requirements of this part, or otherwise as approved by the division.

b. Completion, Workover and Well Servicing. A remote controlled pressure and hydrogen sulfide rated well control system that meets or exceeds API specifications or other specifications approved by the division shall be installed and operationsla at all times during completion, workover and servicing of a well. ~~If feasible, the equipment described in the previous subsubparagraph shall be installed and operational at all times during completion, workover and well servicing of a well. If not feasible, a suitable alternative to a remote choke such as a remote-controlled valve or blow out preventer with remote accumulator may be used, so long as the alternative equipment will be protective of public safety.~~

6. Mud Program. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present shall provide a hydrogen sulfide mud program capable of handling hydrogen sulfide conditions and well control, including de-gassing and flaring, ~~shall be used.~~

7. Well Testing. Except with prior approval of ~~by~~ the division, drill-stem testing of a zone that contains hydrogen sulfide shall be conducted only during daylight hours and ~~closed chamber only, in that~~ formation fluids shall not be permitted to flow to the surface (closed chamber only).

8. If Hydrogen Sulfide Encountered During Operations.

~~a.~~ 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 in the gaseous mixture, the operator must satisfy the requirements of this section before continuing drilling operations. ~~shall immediately ensure control of the well, suspend drilling operations unless detrimental to well control, take whatever measures are necessary under the circumstances to assure public safety, calculate the radius of exposure and, if a potentially hazardous volume is present, prepare a hydrogen sulfide contingency plan and obtain materials and equipment to bring operations into compliance with this section.~~ The operator shall notify the division of the event and the mitigating steps that have or are being taken 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 any required hydrogen sulfide contingency plan.

~~b. If Hydrogen Sulfide Is Encountered During Use of Air, Gas, Mist or Other Non-Mud Circulating Media. If hydrogen sulfide gas in excess of 100 ppm is encountered while drilling with air, gas, mist or other non-mud circulating mediums, the well shall be killed with a water- or oil-~~

~~based mud, and mud shall be used thereafter as the circulating medium for continued drilling. An alternate drilling method may be used if specifically approved by the division.~~

H. Protection from Hydrogen Sulfide at Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Pipelines, Refineries, Gas Plants and Compressor Stations.

1. API Standards. Operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations ~~containing a potentially hazardous volume of hydrogen sulfide~~ where a concentration of hydrogen sulfide above 100 ppm is present shall be conducted with due consideration to the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, latest edition.

~~2. Minimum Standards. At a minimum, operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations containing a potentially hazardous volume of hydrogen sulfide shall also be conducted in accordance with the following subparagraphs and subsubparagraphs.~~

2. Security ~~Fencing~~. Well sites and other unattended, fixed surface facilities shall be protected from public access by fencing with locking gates when the location is within 1/4 mile of a public area. A surface pipeline shall not be considered a fixed surface facility for purposes of this paragraph. ~~Fencing and gates shall be required when crude oil pump stations and producing wells, tank batteries and associated production facilities are located in a public area or within a 1/4 mile of a building or structure used as a dwelling, office, place of business, church, school, hospital or government building or within 1/4 mile of a park, playground or school bus stop. The fence shall consist of a 5-foot chain link topped by two stands of barbed wire or other design approved by the division. Gates shall be locked when unattended.~~

3. Wind Direction Indicators. All crude oil pump stations, producing wells, tank batteries and associated production facilities, pipelines, refineries, gas plants and compressor stations where a concentration of hydrogen sulfide of above 100 ppm is present shall provide equipment to indicate wind direction. The wind direction equipment shall be installed and visible from all principal working areas at all times. ~~Wind direction indicators shall be required.~~

4. ~~Secondary~~ Well Control Equipment. All crude oil pump stations, producing wells, tank batteries and associated production facilities, pipelines, refineries, gas plants and compressor stations where a concentration of hydrogen sulfide of above 100 ppm is present shall provide well control equipment as provided herein. Any well shall possess a secondary means of immediate well control through the use of appropriate christmas tree or downhole completion equipment. Such equipment shall allow downhole accessibility (reentry) under pressure for permanent well control ~~operations~~.
In addition, safety devices such as automatic shut-down devices shall be installed and maintained in good operating condition. Alternatively, safety procedures shall be established designed to prevent the undetected release of hydrogen sulfide. Any well shall possess a secondary means of immediate well control through the use of an appropriate christmas tree or downhole completion equipment. Such equipment shall permit the downhole accessibility (re-entry) under pressure for immediate well control.

~~d. Automatic Safety Valve or Shutdown. Any well shall possess an automatic safety valve or shutdown at the facility or wellhead or other appropriate shut-in control. The automatic safety valve shall be set to activate upon a release of a volume of hydrogen sulfide that may create a concentration of hydrogen sulfide of 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.~~

5. Tanks or vessels. Each stair or ladder leading to the top of any tank or vessel containing 300 ppm or more of hydrogen sulfide in the gaseous mixture shall be chained or marked to restrict entry. ~~Any tank or tank battery that requires fencing pursuant to this section may substitute a danger sign posted at the gates for chaining and signs.~~

6. Compliance Schedule. Each existing crude oil pump station and producing well, tank battery and associated production facility, pipeline, refinery, gas plant and compressor station not currently meeting the requirements of this subsection ~~and minimum standards set forth herein~~ shall be brought into compliance within one year of the effective date of this section. ~~Each crude oil pump station~~

~~and producing well, tank battery and associated production facility constructed following the effective date of this section shall be designed, constructed and operated to meet the requirements set forth herein.~~

I. Personnel Protection and Training. All persons responsible for the implementation of any hydrogen sulfide contingency plan shall be provided training in hydrogen sulfide hazards, detection, personal protection and contingency procedures.

J. Standards for Equipment That May Be Exposed to Hydrogen Sulfide. Whenever a potentially hazardous volume of hydrogen sulfide is present or may reasonably be expected to be encountered, persons, operators and facilities shall select ~~choose~~ equipment with consideration for both the hydrogen sulfide working environment and anticipated stresses and use NACE Standard MR0175 (latest edition) or some other standard approved by the division ~~shall be used~~ for selection of metallic equipment or, if applicable, provide adequate protection by chemical inhibition or other methods that control or limit the corrosive effects of hydrogen sulfide ~~shall be used~~.

K. Exemptions. Any person, operator or facility may petition the director or the director's designee for an exemption to any requirements of this section. Any such petition shall provide specific information as to the circumstances that warrant approval of the exemption requested and how the public safety will be protected. ~~A safety plan required by other governmental agencies may accompany the petition for exemption.~~ The director, or the director's deisgnee, after considering all relevant factors, may approve an exemption if the circumstances warrant an exemption.

~~L. Release. Upon a release of hydrogen sulfide the following actions must be taken:~~

~~1. Activation of the Hydrogen Sulfide Contingency Plan. The hydrogen sulfide contingency plan shall be activated in the event of a release that may create a concentration of hydrogen sulfide of 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.~~ **[moved to contingency plans]**

~~2.~~ Notification of the Division. The person, operator or facility shall notify the division upon a release of hydrogen sulfide requiring activation of the hydrogen sulfide contingency plan, ~~preferably within one hour of discovery of the release, but~~ as soon as possible, but no more than four hours after plan activation, recognizing that a ~~in cases where~~ prompt response should supercede notification. The person, operator or facility shall submit a full report of the incident to the division on Form C-141 no later than fifteen (15) days following the release.

~~M. Electronic Submission. Any submission to the division required by this section shall be made electronically in a generally accepted format that is compatible with the division's systems~~. [moved to contingency plan section]

N. Corrective Actions. The division may require corrective actions if necessary to maintain control of a well or any other facility or to safeguard public safety.

DRAFT

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:

APPLICATION OF THE NEW MEXICO OIL CONSERVATION DIVISION, THROUGH THE ENVIRONMENTAL BUREAU CHIEF, FOR THE ADOPTION OF AMENDMENTS TO DIVISION RULE 118 (HYDROGEN SULFIDE GAS)

CASE NO. 12897

ORDER NO. R-11847

ORDER OF THE OIL CONSERVATION COMMISSION

BY THE COMMISSION:

THIS MATTER came before the Oil Conservation Commission (hereinafter referred to as "the Commission") on July 19, August 30, September 20, September 27, and _____, 2002, at Santa Fe, New Mexico, on application of the New Mexico Oil Conservation Division through the Chief of the Environmental Bureau (hereinafter referred to as "the Division"), and the Commission, having carefully considered the evidence, the pleadings, comments and other materials submitted in support and in opposition of the proposal, now, on this ____ day of _____, 2002,

FINDS,

1. In this rule-making proceeding, the Oil Conservation Division (hereinafter referred to as "the Division") has applied for repeal of existing Rule 118 of the Rules and Regulations of the Oil Conservation Division, 19.15.1.118 NMAC, and for adoption of a replacement rule, to be codified in the New Mexico Administrative Code as 19.15.2.52 NMAC.

2. Two public hearings have been conducted, one on July 19, 2002 and a second on September 20, 2002. The Commission has also accepted written comments concerning the proposed rulemaking following the first hearing and accepted written comments prior to the second hearing. The Commission also accepted a report and consensus revised draft of a proposed rule from the hydrogen sulfide work group on October 15, 2002. The Commission deliberated on the application in open session during its meetings of August 30, September 27, October 25, and _____, 2002.

3. A draft of a new rule, 19.15.2.52 NMAC is attached hereto as Exhibit A. It should be adopted, published in the New Mexico Register, and adopted as a part of the Rules and Regulations of the Oil Conservation Division.

4. The need for effective regulation of hydrogen sulfide gas is undisputed. Hydrogen sulfide is an extremely toxic gas sometimes encountered in the drilling and production of oil and natural gas. The gas is so toxic that exposure to a concentration of between 350 to 500 parts per million for four to eight hours can cause death. Exposure to a concentration of between 600 and 1500 parts per million for two minutes or less can cause death. Its toxicity explains why exposure to hydrogen sulfide gas is the leading cause of sudden death in the workplace, according to the Centers for Disease Control, the National Institute for Occupational Safety and Health (hereinafter referred to as "NIOSH").

5. While hydrogen sulfide is the most odiferous substances that exist (it emits an odor like rotten eggs), exposure to concentrations of the gas around 100 parts per million deaden the sense of smell so that it cannot be detected. Therefore, at its most deadly concentrations, it cannot be detected by smell alone.

6. Health effects caused by exposure to smaller concentrations of hydrogen sulfide vary depending on the concentration and the duration of the exposure. For example, exposure to fifty parts per million for a few minutes will induce a severe headache and the person exposed will have difficulty breathing and thinking. Exposure to 100 ppm for a few minutes will induce more severe respiratory difficulties; regulations of the Occupational Health and Safety Administration (hereinafter referred to as "OSHA") require immediate workplace evacuation if concentrations reach this level. Exposure to a level of five hundred parts per million for a few minutes induces unconsciousness.

7. The Occupational Health and Safety Administration has declared that exposure to one hundred parts per million of hydrogen sulfide for thirty minutes is "immediately dangerous to life and health" (IDLH). At this level, a person may suffer irreversible health effects or die. A person will suffer loss of the sense of smell, become dizzy and lose the ability to function. The specific effects depend on the person's body weight, previous exposure to hydrogen sulfide, and whether the person is an alcoholic or taking medications. Between 50 ppm and 100 ppm, regulations of OSHA require a worker to don protective equipment including a respirator. At a level of 100 ppm, a person must leave the area even if equipped with a respirator. Indeed, NIOSH recommends that a person don a respirator when a concentration of 100 ppm is present.

8. Hydrogen sulfide gas is already regulated in New Mexico through Rule 118, 19.15.1.118 NMAC.

9. The application of the Division seeks to repeal Rule 118 and adopt a replacement rule. The application culminates an approximately two-year process during which the provisions of Rule 118 were critically examined.

10. In winter of 2000-01, the Director of the Division directed the Environmental Bureau (hereinafter referred to as "the Bureau") to review the rule and determine whether the rule was adequately protective of public safety. The Bureau subsequently gathered information from other governmental agencies and the American Petroleum Institute (API) and the American Society for Testing and Materials (ASTM). After comparing the information received to Rule 118 and conducting its own technical inquiries, the Bureau concluded that Rule 118 was not adequately protective of public safety and had serious flaws.

11. For example, during the hearings in this matter, witnesses employed by the Bureau testified that Rule 118 exempts facilities that process a volume fraction of hydrogen sulfide gas that is less than 10 mcf per day, regardless of the actual concentration of gas that might result if a release were to occur. Thus, if a given facility handled 9.9 mcf of pure hydrogen sulfide each day, the facility would be exempt from regulation notwithstanding the fact that a release from such a facility could produce a lethal concentration of hydrogen sulfide gas. A facility that handles just less than 1,000 mcf per day of a gaseous mixture that consists of one percent hydrogen sulfide gas would also be exempt, notwithstanding the fact that a release of the gaseous mixture could produce a radius of exposure of 55 parts per million of hydrogen sulfide gas at 200 feet and one hundred parts per million at four hundred-fifty feet.

12. Witnesses also testified that the Rule 118 exempts from regulation tanks that may contain a concentration of hydrogen sulfide gas up to 1000 parts per million and certain other facilities that may contain a concentration of hydrogen sulfide gas up to 500 parts per million. Witnesses testified that such facilities are not required to operate according to any standards, are not required to have certain safety devices or procedures, signs, fencing or contingency plans. Witnesses testified that Rule 118 does not require facilities containing hydrogen sulfide gas to have safety devices or safety procedures, and the standards that are referenced are advisory in nature, enforcement of which could be problematic.

13. It is thus evident that Rule 118 fails to adequately protect the public from the hazards of hydrogen sulfide and should be repealed and replaced with a more effective regulatory scheme.

14. Having found that the current regulatory scheme was inadequate and not protective of the public safety, the Bureau set out to develop a new rule that would be protective of public safety. The Bureau conducted air-dispersion models to determine how hydrogen sulfide gas disperses in air following an accidental release. Such mathematical models are used to predict the probability of exposure to a given concentration of hydrogen sulfide gas at selected distances from a hypothetical point of release. As hydrogen sulfide moves away from the point of release, its concentration

decreases as it disperses and mathematical models seek to define the concentrations at a certain distance. Several models are available. The Bureau chose the Pasquill-Gifford equation, an equation derived from the Gaussian distribution plume model and assumes a continuous source. While it tends in some cases to overstate the consequences of a release, this serves to better protect public safety. Most states and the federal government use a steady state model like Pasquill-Gifford. The equation, through a coefficient, takes into account environmental factors and weather, and the mathematical experiments conducted by the Bureau used climatological data specific to New Mexico.

15. The Bureau conducted peer review of its results by a registered New Mexico engineer who is a member of the Bureau but who had not been involved in the hydrogen sulfide investigation previously.

16. The Environmental Bureau created a work group composed industry technical personnel, the New Mexico Oil and Gas Association, the Independent Producers Association of New Mexico, public representatives, other governmental agencies (including the Bureau of Land Management, and local emergency planning committees of several counties), the New Mexico Department of Public Safety and members of the Environmental Bureau. The work group was charged with reviewing a draft rule prepared by the Bureau and making recommendations.

17. The Pasquill-Gifford model, providing both an adequate margin of safety for protection of the public, and having been accepted by other regulatory bodies, should be adopted in New Mexico.

18. A critical feature of a regulatory scheme based on the Pasquill-Gifford model is establishing the "radius of exposure" and the "area of exposure" to hydrogen sulfide gas. The radius of exposure uses the mathematical model to describe a distance from a hypothetical release where certain regulatory requirements designed to be protective of public safety should attach. The radius of exposure in turn describes a circular area around the theoretical point of release; this describes the theoretical area of exposure.

19. A potentially hazardous volume can be created by a release as an anchor point. 100 ppm is widely accepted as a point where exposure to hydrogen sulfide becomes dangerous to life. As noted, the Occupational Health and Safety Administration (hereinafter referred to as "OSHA") regards exposure to one hundred parts per million of hydrogen sulfide for thirty minutes as "immediately dangerous to life and health" because at this level, a person may suffer irreversible health effects or die. Coincidentally, at the same concentration, a person will suffer loss of the sense of smell at this level and not be aware of the hazard. At 100 ppm, OSHA requires a person, even equipped with protective equipment such as a respirator, to leave the area, and NIOSH recommends that a person don a respirator when a concentration of 100 ppm is present.

20. Therefore, in determining points where a potentially hazardous volume exists for purposes of imposing regulatory requirements, 100 ppm is a reasonable threshold, and should be adopted. A slightly relaxed standard of 500 ppm should be adopted for public

roads. A potentially hazardous volume should be defined as a concentration of one hundred parts per million in a public area, five hundred parts per million at a public road or one hundred parts per million three thousand feet from the release point.

21. Using the mathematical model, the concentration and flow of the hydrogen sulfide gas in the operation, facility or system, the distance that a 100-ppm and a 500-ppm release could theoretically travel can be calculated and imaginary circles can be drawn on a map designating the area potentially impacted by a potentially hazardous release. Thus, the Division, the Bureau and the operator will know who is potentially affected by such a release, who needs to be protected from releases, who needs to be warned, and who needs to be evacuated in the event of a release.

22. To determine whether a potentially hazardous volume is present, the concentration of hydrogen sulfide within the gaseous mixtures and the potential volume of a theoretical release need to be known. This can only be known by testing.

23. If a concentration of 100 ppm or less is known to exist as a result of testing, a release would not be immediately dangerous to life. Once a gaseous mixture is determined to be below this threshold, no further actions should be required with respect to the well, facility or operation (Except for tanks??).

24. If a concentration greater than 100 ppm exists, a further determination of whether a potentially hazardous volume is present should be made, and regulatory requirements should attach to operations depending on the proximity of the operations to areas where the public will be present.

25. Some provision has to be made for wells that are drilled in areas where insufficient data exists to assess the hydrogen sulfide risk. The proposal of the Division assumes a 3,000 foot radius of exposure in these situations, and this does not seem an unreasonable assumption and provides an adequate margin of error.

26. The specific regulatory requirements to be adopted by the Commission were a source of source of some controversy during the proceedings. Some of these are discussed in the following paragraphs.

27. For example, the applicability of the regulation to Rule 711 became an issue during these proceedings. The regulation now clarifies that such facilities are governed by both new rule 52 (19.15.3.52 NMAC) and Rule 711 (19.15.5.711 NMAC). Rule 711, and permits issued thereunder, may under some circumstances provide more stringent requirements for managing hydrogen sulfide gas than set out in the regulation attached hereto. A representative for one such facility seemed to argue that this regulation, if enacted, would void provisions of Rule 711 and more stringent provisions of permits issued thereunder.

28. It seems, however, to be undisputed that surface waste facilities regulated under Rule 711 have the potential to generate hydrogen sulfide. The proposed regulation

is intended to protect public safety from the acute consequences of exposure to hydrogen sulfide. Such consequences can certainly result from management of wastes on the surface of the earth at surface waste management facilities. Nothing therefore justifies excusing such facilities form the requirements of the proposed rule, nor can changes to Rule 711 be justified without going through the rule-making process to revisit that rule. Staff should be directed to examine the requirements of Rule 711 and determine whether changes to the hydrogen sulfide regime need to be reconsidered in light of this rulemaking.

29. The attached regulation should apply equally to surface waste management facilities as it does to all the other facilities, and nothing in this regulation can be interpreted to provide for a repeal of any provision of Rule 711 or to effect any change in any permit issued thereunder. The language of the regulation has been amended to clearly state this proposition.

30. As noted, a consensus draft of the proposed regulation was presented. That draft represented a consensus of members of the hydrogen sulfide gas workgroup and the Bureau concerning specific items of concern in earlier drafts. Many of the recommendations embodied in that draft should be accepted, and are reflected in Exhibit A.

31. However, several recommendations are not acceptable or reasonable and should not be adopted. For example, the consensus draft provides that submission of the test results and the resulting radius of exposure is to be performed within one year and a hydrogen sulfide contingency plan should be submitted one year later. These time frames are simply too long to be reasonable. While it is true that the new rule adopts a different regulatory approach than the existing rule and well, facilities and operations should be provided with reasonable time to comply with the new requirements, two years is too long. Exhibit A provides six months to perform the initial testing and determination, and six months to prepare the hydrogen sulfide contingency plan.

32. The consensus draft proposed activation of the hydrogen sulfide contingency plan upon release of a "potentially hazardous volume" of hydrogen sulfide. The problem with this approach is that a potentially hazardous volume is a calculated volume, and represents a worst-case scenario. A release, if one occurs, may not occur as calculated, or may represent a lesser volume than a worst-case scenario. This would present uncertainty at a critical time and could result in a delay of implementation of contingency plans and a delay in public notice and evacuation, and the benefits of having a plan to protect public safety could be lost. It is more prudent to use a lesser standard for activation of the plan, on the theory that a potentially significant release evidences that the situation is beginning to move out of control.

33. The consensus draft also proposed "grant fathering" of signs used to warn the public of the hazards of hydrogen sulfide at wells, facilities and operations. Such a provision would effectively nullify this section; there are over 60,000 wells in this state and only <> permits to drill new wells are granted each year. AT this rate, it would be

many years before event the majority of wells had adequate signage. This is an unacceptable compromise of the public safety.

34. The consensus draft also provides a broad exemption from regulation under the proposed rule if the well, facility or operation is the subject of a regulatory program of another jurisdictional entity, such as the Bureau of Land Management. The proposed rule, however, differs in important respects from the rules and regulations of the Bureau of Land Management, and including such a provision in the proposed rule would effectively write out many of its important provisions for wells on federal land.

35. The consensus draft also responded to many comments concerning the electronic submission requirements of earlier drafts. As many are aware, the Division performs many of its functions electronically. As time goes on, more and more functions will be performed electronically. Earlier drafts reflected that reality. Exhibit A, however, requires only hydrogen sulfide contingency plans be submitted electronically, and permits the remainder of submissions to be made in paper form or electronically. An exemption from any provision of the proposed rule is provided for those that have difficulty meeting this requirement.

36. The consensus draft also eliminated a provision that permitted the Division to require corrective actions if necessary to maintain control of a well or other facility and to safeguard public safety. The provision is certainly an accurate statement of the Division's authority under the Oil and Gas Act. It should be stated within the proposed rule so that there is no uncertainty on this point.

37. There has been some disagreement during the rulemaking process concerning the proposed requirement that an operator develop a hydrogen sulfide contingency plan, and what it should contain. Preparation of a contingency plan serves several objectives. First, it ensures that the operator focuses on emergency preparedness and thinks about what actions must be taken in the event of a release. If a release occurs, the exercise of writing a plan and thinking through the steps that must be taken may improve response and may save lives. Second, preparation of a plan provides the Division, the incident commander, the Department of Public Safety, and other emergency responders with basic information needed to make intelligent decisions concerning the release. For example, having access to the telephone numbers of company personnel means that personnel can be contacted to address the leak before it becomes a threat to public safety. Having the names and telephone numbers available of persons potentially at risk simplifies evacuation, should that become necessary. Knowing which roads might need to be closed can impact public safety.

38. The consensus draft argues for more flexibility in drafting a plan that is sensible when applied to a particular facility, and that is a sensible approach. Therefore, Exhibit A requires such plans to address certain subjects, but leaves the specificity in developing a plan to the operator. If it is apparent that a plan is defective, the Division has the authority under Exhibit A to require amendments to address the deficiency.

39. The consensus draft permits substitution of a hydrogen sulfide contingency plan prepared for another agency, such as the Bureau of Land Management. The concept has not been perpetuated in Exhibit A. While a plan prepared for another agency may, in fact, comply fully with the requirements under the proposed rule, in some cases it may not. The Division should be permitted to review the plan and determine whether it is acceptable before substitution is permitted.

40. There has been some controversy during the rulemaking process about the use of employee protection standards (OSHA and NIOSH), the argument being that double regulation could result. It should be very clear that Exhibit A is not a worker protection rule. It is a public safety rule. However, as several witnesses testified during the two public hearings in this matter, protection of workers is relevant to public safety. If workers are not protected from hydrogen sulfide gas, the public safety may suffer because it is the workers who are the first line of defense. Only the workers can contain or prevent a release of hydrogen sulfide gas. If the workers are alerted to a release, they can contain it or give a timely warning to permit evacuation.

41. The training requirements set forth in Exhibit A share the same rationale. Workers need to be trained to properly respond to hydrogen sulfide to protect themselves and the public from exposure. Well-trained workers can prevent releases in the first place. If a situation gets out of control, well-trained workers can provide necessary (and early) warning and evacuation. Well-trained workers will be able to provide a warning of the hazardous situation to those who happen on the situation.

42. The requirements that apply to tanks are somewhat different than for other facilities. Some tanks are incapable of generating a potentially hazardous volume of hydrogen sulfide gas. The vapor space above the liquid in a tank can nevertheless contain many times the concentration of hydrogen sulfide than the liquid. Therefore, it is hazard to anyone who opens the hatch and is exposed the vapor. The hatch must be secure from persons like children who might desire to open it. Therefore, Exhibit A requires that such facilities be made secure with chains and locks.

IT IS THEREFORE ORDERED:

1. A new regulation of the Oil Conservation Commission, to be codified at 19.15.2.52 NMAC (or elsewhere if necessary to meet requirements of the Commission of Public Records), copy attached as Exhibit A, is hereby adopted, effective as of the date of its publication in the New Mexico Register. Staff is instructed to forthwith seek publication of the new regulation in its entirety in the Register.

2. Staff of the Oil Conservation Division is instructed to examine the requirements of Rule 711 and determine whether changes to the hydrogen sulfide regime need to be reconsidered in light of this rulemaking.

3. Jurisdiction of this matter is retained for entry of such further orders as may be necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

LORI WROTENBERY, CHAIR

JAMI BAILEY, MEMBER

ROBERT LEE, MEMBER

S E A L

CONFIDENTIAL ATTORNEY-CLIENT COMMUNICATION

To: Lori Wrotenbery, Chair, Oil Conservation Commission
Jami Bailey, Member
Robert Lee, Member

From: Stephen C. Ross, Assistant General Counsel

Date: October 24, 2002

Re: **Proposed 19.15.2.52 NMAC**

Attached to this memorandum are three documents. The first is a draft I have prepared of an order in this matter and the second and third are drafts of the proposed rule (one showing changes from the August 30 draft and the other a clean copy). Please look over the documents and let me know if any revisions are required.

19.15.2.52 Hydrogen Sulfide Gas (Hydrogen Sulfide)

A. Applicability. This section applies to any person, operator or facility subject to the jurisdiction of the Division, including, but not limited to, any person, operator or facility engaged in drilling, stimulating, injecting into, completing, working over or producing any oil, natural gas or carbon dioxide well or any person, operator or facility engaged in gathering, transporting, storing, processing or refining of crude oil, natural gas or carbon dioxide (referred to as "person, operator or facility" or "wells, facilities or operations"). This section shall not act to exempt or otherwise excuse surface waste management facilities permitted by the division pursuant to 19.15.9.711 NMAC from more stringent conditions on the handling of hydrogen sulfide required of such facilities by 19.15.9.711 NMAC or more stringent conditions existing in permits issued thereunder, nor shall such facilities be exempt or otherwise excused from the requirements set forth in this section by virtue of permitting under 19.15.9.711 NMAC.

B. Definitions (specific to this section).

1. ANSI. The acronym "ANSI" means the american national standards institute.

2. API. The acronym "API" means the american petroleum institute.

3. Area of Exposure. The phrase "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.

4. ASTM. The acronym "ASTM" means the american society for testing and materials.

5. Dispersion Technique. A "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.

6. Escape Rate. The "escape rate" is the maximum volume (Q) that is used to designate the possible rate of escape of a gaseous mixture containing hydrogen sulfide, as set forth herein.

a. For existing natural gas facilities or operations, the escape rate shall be ~~is~~ calculated using the maximum daily rate of the gaseous mixture produced or handled or the best estimate thereof. For an existing natural gas well, the escape rate shall be calculated by using the current daily absolute open flow rate against atmospheric pressure or the best estimate of that rate.

b. For new natural gas operations or facilities, the escape rate shall be calculated as the maximum anticipated flow rate through the system. For a new natural gas well, the escape rate shall be calculated using the maximum open-flow rate of offset wells in the pool, or the pool average of maximum open-flow rates.

c. For existing oil wells the escape rate shall be calculated by multiplying the producing gas/oil ratio by the maximum daily production rate or the best estimate thereof.

d. For new oil wells, the escape rate shall be calculated by multiplying the producing gas/oil ration by the maximum daily production rate of offset wells in the pool, or the pool average of the product of the producing gas/oil ration by the maximum daily production rate.

e. For facilities or operations not mentioned, the escape rate shall be calculated using the actual flow of the gaseous mixture through the operation or system.

7. GPA. The acronym "GPA" means the gas processors association.

8. LEPC. The acronym "LEPC" means the local emergency planning committee established pursuant to the emergency planning and community right-to-know act, 42 U.S. C. § 11001.

9. NACE. The acronym "NACE" refers to the national association of corrosion engineers.

10. PPM. The acronym "ppm" means "parts per million" by volume.

11. Potentially Hazardous Volume (hereinafter referred to as a "potentially hazardous volume") means the volume of hydrogen sulfide gas of such concentration that:

a. the 100-ppm radius of exposure includes any public area;

b. the 500-ppm radius of exposure includes any public road;

as defined herein; or

c. the 100-ppm radius of exposure exceeds 3,000 feet.

12. Public Area. A "public area" is any building or structure that is not associated with the well, operation or system 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 any 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.

13. Public Road. A "public road" is any federal, state, municipal or county road or highway or postal route.

14. Radius of Exposure. The radius of exposure is that 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 may be approved by the division:

a. For determining the 100-ppm radius of exposure: $X= [(1.589)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

b. For determining the 500-ppm radius of exposure: $X=[(0.4546)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

c. 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 3,000 feet shall be assumed.

C. Required Testing and Calculations.

1. Testing.

a. Each well, facility or operation shall determine by testing the hydrogen sulfide concentration within each well, facility or operation. A representative sample or process knowledge may be used in lieu of individual testing of wells, operations or facilities provided that the concentration derived from the representative sample or process knowledge is reasonably representative of the hydrogen sulfide concentration within the well, facility or operation.

b. The tests used to make the determination referred to in the previous subparagraph shall be conducted in accordance with applicable ASTM or GPA standards or by other method approved by the division.

c. If a representative sample from a well, facility or operation was tested prior to the effective date of this section and otherwise meets the requirements of the previous subparagraphs, new testing shall not be required.

d. If any change or alteration may materially increase the concentration of hydrogen sulfide in a well, facility or operation, retesting shall be required in accordance with this section.

2. Concentrations Determined to be Below 100 ppm. If the concentration of hydrogen sulfide in a given well, facility or operation is less than 100 ppm, no further actions shall be required pursuant to this section.

3. Concentrations Determined to be Above 100 ppm.

a. If the concentration of hydrogen sulfide in a given well, facility or operation is determined to be 100 ppm or greater, then the person, facility or operation must calculate the radius of exposure and comply with applicable requirements of this section.

b. If calculation of the radius of exposure reveals that a potentially hazardous volume is present, the results of the determination of the hydrogen sulfide concentration and the calculation of the radius of exposure shall be provided to the division. For a well, facility or operation existing on the effective date of this section, the determination, calculation and submission required herein shall be accomplished within 180 days of the effective date of this section; for any well, facility or operation that commences operations after the effective date of this section, the determination, calculation and submission required herein shall be accomplished before operations begin.

4. Recalculation. The person, operator or facility shall calculate or recalculate the radius of exposure if the hydrogen sulfide concentration in a well, facility or operation increases to 100 ppm or greater or, if the hydrogen sulfide concentration in a well, facility or operation was already 100 ppm or greater, there is a 25% or greater increase in the actual volume fraction of hydrogen sulfide. If calculation or recalculation of the radius of exposure reveals that a potentially hazardous volume is present, the results shall be provided to the division within sixty (60) days.

E. Hydrogen Sulfide Contingency Plan.

1. In General. A hydrogen sulfide contingency plan is a written document that provides a plan of action that will be used to alert and protect persons at risk in the event of a potentially significant release of hydrogen sulfide gas. The hydrogen sulfide contingency plan must be developed in accordance with the following paragraphs.

2. When Required. A hydrogen sulfide contingency plan must be prepared whenever a potentially hazardous volume of hydrogen sulfide is present or may reasonably be expected to be encountered.

3. Plan Contents.

a. API Guidelines. The hydrogen sulfide contingency plan shall be developed with due consideration of the guidelines in paragraph 7.6 of the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, most recent edition.

b. Required Contents. The hydrogen sulfide contingency plan shall contain, but shall not be limited to, information on the following subjects, as appropriate to the well, operation or system to which it applies:

i. Emergency procedures. The hydrogen sulfide contingency plan shall contain information on emergency procedures to be taken in the event of a release, and shall include, at a minimum, information concerning the responsibilities of personnel during the emergency, an immediate action plan as described in the API document referenced in the previous subsubparagraph, and telephone numbers of public agencies, emergency responders, local government and other appropriate public authorities. The plan shall also include the locations of nearby residences, businesses, parks, schools, churches, roads, medical facilities etc., shall describe proposed evacuation routes and 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 location and availability of necessary safety equipment and supplies.

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

iii. Maps and drawings. The hydrogen sulfide contingency plan shall include maps and drawings that depict the radius of exposure, areas potentially affected thereby, public areas, public roads and any areas potentially affected by a release of a potentially hazardous volume.

iv. Trainings and Drills. The hydrogen sulfide contingency plan shall include a description of the responsibilities and duties of essential personnel, provide for periodic on-site or classroom drills or exercises that simulate a release, and shall describe how that training, and attendance at the training, will be documented. 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 include provisions for briefing public officials on issues such as evacuations or shelter-in-place plans.

v. Coordination with State Emergency Plans. The hydrogen sulfide contingency plan shall describe how emergency response actions proposed in the plan will be coordinated with the division and with the New Mexico state police consistent with the New Mexico hazardous materials emergency response plan (HMER).

vi. Activation Levels. The hydrogen sulfide contingency plan shall include the activation threshold 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. Plans Required by Other Jurisdictions. A plan required by the Bureau of Land Management or other jurisdiction that meets the requirements of this subsection may be submitted to the division in satisfaction of this subsection.

4. Submission.

a. Where Submitted. The hydrogen sulfide contingency plan shall be submitted to the division.

b. When Submitted. A hydrogen sulfide contingency plan for a well, facility or operation existing on the effective date of this section shall be submitted within 180 days from the date a determination is made that a potentially hazardous volume exists. A hydrogen sulfide contingency plan for a new well, system or operation shall be submitted before operations commence. A hydrogen sulfide contingency plan shall be submitted within 180 days after the person, operator or facility 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. The hydrogen sulfide contingency plan for a drilling, completion, workover or well servicing operation must be on file with the division before operations commence and may be submitted separately or along with the application for permit to drill (APD) or may be on file from a previous submission.

c. Electronic Submission. The hydrogen sulfide contingency plan shall be submitted electronically in a generally accepted format that is compatible with the division's systems.

5. Failure to Submit Plan. 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 appropriate enforcement action.

6. Review, Amendment. The person, operator or facility shall review the hydrogen sulfide contingency plan any time a subject addressed in the plan 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, operator or facility to add provisions to the plan or amend the plan as necessary to protect public safety.

7. 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 inspection by the division.

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

9. Plan Activation. The hydrogen sulfide contingency plan shall be activated in the event of a release that may create a concentration of hydrogen sulfide as set forth in the hydrogen sulfide contingency plan, but at a minimum the plan shall provide for activation when a concentration of hydrogen sulfide exists more than 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.

F. Signage. Each well, facility or operation containing a concentration of hydrogen sulfide of 100 ppm or greater shall provide and maintain signage. Each sign shall conform with the current ANSI standard Z53.1 and shall provide other information sufficient to warn the public that a potential danger exists. Signs shall be prominently posted at locations like entrance points and road crossings, and shall be sufficient to alert the public that a potential danger exists.

G. Protection from Hydrogen Sulfide During Drilling, Completion, Workover, and Well Servicing Operations.

1. API Standards. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present shall be conducted with due consideration to the guidelines published by the API entitled "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 Wells Containing Hydrogen Sulfide," RP-49, most recent editions.

2. Detection and Monitoring Equipment. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present shall provide hydrogen sulfide detection and monitoring equipment as follows:

a. Each drilling and completion site shall have an accurate and precise hydrogen sulfide detection and monitoring system that will automatically activate visible and audible alarms when the ambient air concentration of hydrogen sulfide reaches a predetermined value set by the operator, not to exceed 20 ppm. There shall be a sensing point located 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.

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

c. Hydrogen sulfide detection and monitoring equipment must be provided and must be made operational during drilling when drilling is within 500 feet of a zone anticipated to contain hydrogen sulfide and continuously thereafter through all subsequent drilling.

3. Wind Indicators. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present shall provide wind indicators. Equipment to indicate wind direction shall be present and visible at all times. At least two devices to indicate wind direction shall be installed at separate elevations and visible from all principal working areas at all times. When a sustained concentration of hydrogen sulfide is detected in excess of 20 ppm at any detection point, red flags shall be displayed.

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

5. Well Control Equipment. When the 100 ppm radius of exposure includes a public area, the following additional measures shall be required:

a. Drilling. A remote controlled well control system shall be installed and operational at all times beginning when drilling is within 500 feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The well control system must 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 API-16C and API-RP 53 or other specifications approved by the division. Mud-gas separators shall be used. These systems shall be tested and maintained pursuant to the specifications referenced, according to the requirements of this part, or otherwise as approved by the division.

b. Completion, Workover and Well Servicing. A remote controlled pressure and hydrogen sulfide rated well control system that meets or exceeds API specifications or other specifications approved by the division shall be installed and operationsla at all times during completion, workover and servicing of a well.

6. Mud Program. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present shall provide a hydrogen sulfide mud program capable of handling hydrogen sulfide conditions and well control, including de-gassing and flaring.

7. Well Testing. Except with prior approval of the division, drill-stem testing of a zone that contains hydrogen sulfide shall be conducted only during daylight hours and formation fluids shall not be permitted to flow to the surface (closed chamber only).

8. 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 in the gaseous mixture, the operator must satisfy the requirements of this section before continuing drilling operations. The operator shall notify the division of the event and the mitigating steps that have or are being taken 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 any required hydrogen sulfide contingency plan.

H. Protection from Hydrogen Sulfide at Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Pipelines, Refineries, Gas Plants and Compressor Stations.

1. API Standards. Operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations where a concentration of hydrogen sulfide above 100 ppm is present shall be conducted with due consideration to the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, latest edition.

2. Security. Well sites and other unattended, fixed surface facilities shall be protected from public access by fencing with locking gates when the location is within 1/4 mile of a public area. A surface pipeline shall not be considered a fixed surface facility for purposes of this paragraph.

3. Wind Direction Indicators. All crude oil pump stations, producing wells, tank batteries and associated production facilities, pipelines, refineries, gas plants and compressor stations where a concentration of hydrogen sulfide of above 100 ppm is present shall provide equipment to indicate wind direction. The wind direction equipment shall be installed and visible from all principal working areas at all times.

4. Well Control Equipment. All crude oil pump stations, producing wells, tank batteries and associated production facilities, pipelines, refineries, gas plants and compressor stations where a concentration of hydrogen sulfide of above 100 ppm is present shall provide well control equipment as provided herein. Any well shall possess a secondary means of immediate well control through the use of appropriate christmas tree or downhole completion equipment. Such equipment shall allow downhole accessibility (reentry) under pressure for permanent well control. In addition, safety devices such as automatic shut-down devices shall be installed and maintained in good operating condition. Alternatively, safety procedures shall be established designed to prevent the undetected release of hydrogen sulfide. Any well shall possess a secondary means of immediate well control through the use of an appropriate christmas tree or downhole completion equipment. Such equipment shall permit the downhole accessibility (re-entry) under pressure for immediate well control.

5. Tanks or vessels. Each stair or ladder leading to the top of any tank or vessel containing 300 ppm or more of hydrogen sulfide in the gaseous mixture shall be chained or marked to restrict entry.

6. Compliance Schedule. Each existing crude oil pump station and producing well, tank battery and associated production facility, pipeline, refinery, gas plant and compressor station not currently meeting the requirements of this subsection shall be brought into compliance within one year of the effective date of this section.

I. Personnel Protection and Training. All persons responsible for the implementation of any hydrogen sulfide contingency plan shall be provided training in hydrogen sulfide hazards, detection, personal protection and contingency procedures.

J. Standards for Equipment That May Be Exposed to Hydrogen Sulfide. Whenever a potentially hazardous volume of hydrogen sulfide is present or may reasonably be expected to be encountered, persons, operators and facilities shall select equipment with consideration for both the hydrogen sulfide working environment and anticipated stresses and use NACE Standard MR0175 (latest edition) or some other standard approved by the division for selection of metallic equipment or, if applicable, provide adequate protection by chemical inhibition or other methods that control or limit the corrosive effects of hydrogen sulfide.

K. Exemptions. Any person, operator or facility may petition the director or the director's designee for an exemption to any requirement of this section. Any such petition shall provide specific information as to the circumstances that warrant approval of the exemption requested and how the public safety will be protected. The director, or the director's designee, after considering all relevant factors, may approve an exemption if the circumstances warrant an exemption.

L. Notification of the Division. The person, operator or facility 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 supercede notification. The person, operator or facility shall submit a full report of the incident to the division on Form C-141 no later than fifteen (15) days following the release.

M. Corrective Actions. The division may require corrective actions if necessary to maintain control of a well or any other facility or to safeguard public safety.

19.15.2.52 Hydrogen Sulfide Gas (Hydrogen Sulfide)

A. ~~In General. Hydrogen sulfide gas is a flammable, poisonous gas that may occur naturally as a component of crude petroleum and natural gas. The gas has a distinct and characteristic odor of rotten eggs but due to olfactory fatigue may not be sensed by the human sense of smell.~~

~~B.~~ Applicability. This section applies to any person, operator or facility subject to the jurisdiction of the Division, including, but not limited to, any person, operator or facility engaged in drilling, stimulating, injecting into, completing, working over or producing any oil, natural gas or carbon dioxide well or any person, operator or facility engaged in gathering, transporting, storing, processing or refining of crude oil, natural gas or carbon dioxide (hereinafter referred to as "person, operator or facility" when referring to a personal obligation and "wells, facilities or operations" when referring to regulated operations). This section shall not act to exempt or otherwise excuse surface waste management facilities permitted by the division pursuant to 19.15.9.711 NMAC ~~15.I.711~~ from more stringent conditions on the handling of hydrogen sulfide required of such facilities by 19.15.9.711 NMAC ~~15.I.711~~ or more stringent conditions existing in permits issued thereunder, nor shall such facilities be exempt or otherwise excused from the requirements set forth in this section by virtue of permitting under 19.15.9.711 NMAC ~~15.I.711~~.

B. ~~C.~~ Definitions (specific to this section).

1. ANSI. The acronym "ANSI" means the american national standards institute.
2. API. The acronym "API" means the american petroleum institute.
3. Area of Exposure. The phrase "area of exposure" means the area within a circle constructed with a ~~the~~ point of escape at its center and the radius of exposure as its radius.
4. ASTM. The acronym "ASTM" means the american society for testing and materials.
5. Dispersion Technique. A "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.
6. Escape Rate. The "escape rate" is the maximum volume (Q) that is used to designate the possible rate of escape of a gaseous mixture containing hydrogen sulfide, as set forth herein.

a. For existing natural gas facilities or operations, the escape rate shall be ~~is~~ calculated using the maximum daily rate of the gaseous mixture produced or handled or the best estimate thereof. For an existing natural gas well, the escape rate shall be calculated by using the current daily absolute open flow rate against atmospheric pressure or the best estimate of that rate.

b. For new natural gas operations or facilities, the escape rate shall be calculated as the maximum anticipated flow rate through the system. For a new natural gas well, the escape rate shall be calculated using the maximum open-flow rate of offset wells in the pool, or the pool average of maximum open-flow rates.

c. For existing oil wells the escape rate shall be calculated by multiplying the producing gas/oil ratio by the maximum daily production rate or the best estimate thereof.

d. For new oil wells, the escape rate shall be calculated by multiplying the producing gas/oil ration by the maximum daily production rate of offset wells in the pool, or the pool average of the product of the producing gas/oil ration by the maximum daily production rate.

e. For facilities or operations not mentioned, the escape rate shall be calculated using the actual flow of the gaseous mixture through the operation or system.

7. GPA. The acronym "GPA" means the gas processors association.
8. LEPC. The acronym "LEPC" means the local emergency planning committee established pursuant to the emergency planning and community right-to-know act, 42 U.S. C. § 11001.
9. NACE. The acronym "NACE" refers to the national association of corrosion engineers.
10. PPM. The acronym "ppm" means "parts per million" by volume.
11. Potentially Hazardous Volume (hereinafter referred to as a "potentially hazardous volume") means the volume of hydrogen sulfide gas of such concentration that:
    a. the 100-ppm radius of exposure includes any public area ~~as defined herein~~;
    b. the 500-ppm radius of exposure includes any public road

~~as defined herein~~; or

c. the 100-ppm radius of exposure exceeds ~~is equal to or in excess of~~ 3,000 feet.

12. Public Area. A "public area" is any building or structure that is not associated with the well, operation or system 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 any 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.

13. Public Road. A "public road" is any federal, state, municipal or county road or highway or postal route.

14. Radius of Exposure. The radius of exposure ~~(hereinafter referred to as "radius of exposure" or "ROE")~~ is that 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 may be approved by the division:

a. For determining the 100-ppm radius of exposure: $X = [(1.589)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

~~or~~

b. For determining the 500-ppm radius of exposure: $X=[(0.4546)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

c. 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 3,000 feet shall be assumed.

C. ~~D.~~ Required Testing and Calculations. ~~Determination of Hydrogen Sulfide~~ ~~Risk~~.

1. Testing ~~Determination of Hydrogen Sulfide Concentration~~.

a. Each well, facility or operation ~~person, operator or facility to which this section applies~~ shall determine by testing the hydrogen sulfide concentration within each ~~of its~~ well, facility or operation ~~or systems~~. A representative sample or process knowledge may be used in lieu of individual testing of wells, operations or facilities ~~systems~~ provided that ~~the person, operator or facility can demonstrate that~~ the concentration derived from the representative sample or process knowledge is reasonably representative of the hydrogen sulfide concentration within the well, facility or operation ~~or facility system~~.

b. The tests used to make the determination referred to in the previous subparagraph shall be conducted in accordance with applicable ASTM or GPA standards or by other methods approved by the division.

c. If a representative sample from a well, facility or operation ~~or system~~ was tested prior to ~~within one (1) year of~~ the effective date of this section and otherwise meets the requirements of the previous subparagraphs, new testing shall not be required~~; provided, however, new testing shall not be required for a producing well that was tested at any time prior to the effective date of this section~~.

d. If any change or alteration may materially increase the concentration of hydrogen sulfide in a well, facility or operation, retesting shall be required in accordance wit this section.

2. ~~Tested~~ Concentrations Determined to be Below 100 ppm. If the concentration of hydrogen sulfide in a given well, facility or operation ~~or system~~ is less than 100 ppm, no further actions shall be required pursuant to this section.

3. ~~Tested~~ Concentrations Determined to be Above 100 ppm~~; Calculation of the Radius of Exposure~~.

a. If the concentration of hydrogen sulfide in a given well, facility or operation ~~or system~~ is determined to be 100 ppm or greater, then the person, facility or operation ~~or facility~~ must calculate the radius of exposure and comply with applicable requirements of ~~pursuant to~~ this section.

b. If calculation of the radius of exposure reveals that a potentially hazardous volume is present, the ~~person, operator or facility shall provide the~~ results of the determination of the hydrogen sulfide concentration and the calculation of the radius of exposure shall be provided to the division. For a well, facility or operation ~~or system~~ existing on the effective date of this section, the determination, calculation and submission required herein shall be accomplished within 180 days of the effective date of this section; for any well, facility or operation ~~or system~~ that commences operations after the effective date of this section, the determination, calculation and submission required herein shall be accomplished before operations begin.

4. Recalculation. The person, operator or facility shall calculate or recalculate the radius of exposure if ~~an operational change or production alteration causes~~ the hydrogen sulfide concentration in a well, facility or operation ~~or system to~~ increases to 100 ppm or greater or, if the hydrogen sulfide concentration in a well, facility or operation ~~or system~~ was already 100 ppm or greater, there is ~~causes~~ a 25% or greater increase in the actual volume fraction of hydrogen sulfide. If calculation or recalculation of the radius of exposure reveals that a potentially hazardous volume is present, ~~the person, operator or facility shall provide~~ the results shall be provided to the division within sixty ~~thirty~~ (60) days.

E. Hydrogen Sulfide Contingency Plan.

1. In General. A hydrogen sulfide contingency plan is a written document that provides a plan of action that will be used to alert and protect persons at risk in the event of a potentially significant release of hydrogen sulfide gas. The hydrogen sulfide contingency plan must be developed in accordance with the following paragraphs.

2. When Required. A hydrogen sulfide contingency plan must be prepared whenever a potentially hazardous volume of hydrogen sulfide is present or may reasonably be expected to be encountered.

3. ~~Input of Emergency Response Authorities and the Division. The person, operator or facility shall develop a proposed hydrogen sulfide contingency plan and provide a copy to the division, the New Mexico department of public safety (*i.e.*, the New Mexico state police), and the local emergency planning committee. If the potential source of release is within a municipality, a copy shall be provided to the municipal police and fire department. If the potential source of the release is outside the boundaries of a municipality, a copy shall instead be provided to the county sheriff and the county fire department or departments. Input on the proposed plan shall be sought from each of the foregoing; if an emergency response authority provided with a copy of the proposed plan fails to provide input or fails to respond at all, that fact shall be stated in the final hydrogen sulfide contingency plan submitted to the division. The input provided by the emergency response authorities shall be considered when preparing the final plan for submission to the division but failure to include any specific suggestion shall not affect the validity of the plan or cause disapproval of the plan by the division.~~

~~4.~~ Plan Contents ~~Elements~~.

~~a. Elements Required for Each Plan:~~

~~i. A detailed description of each action to be taken in the event of a release of hydrogen sulfide requiring activation shall be included in each hydrogen sulfide contingency plan, including provisions for alerting and accounting for personnel, controlling any release of hydrogen sulfide gas, eliminating possible ignition sources, alerting the public (directly or through appropriate government agencies), evacuating persons in the affected area, using the call list to alert company officials and emergency response authorities, making recommendations to public officials to block access to affected areas and conducting evacuations and coordinating emergency response with emergency response authorities.~~

a. API Guidelines. The hydrogen sulfide contingency plan shall be developed with due consideration of the guidelines ~~plan that addresses the items described~~ in paragraph 7.6 of the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas

Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, most recent edition. ~~, shall be adequate for this purpose~~

b. Required Contents. The hydrogen sulfide contingency plan shall contain, but shall not be limited to, information on the following subjects, as appropriate to the well, operation or system to which it applies:

i. Emergency procedures. The hydrogen sulfide contingency plan shall contain information on emergency procedures to be taken in the event of a release, and shall include, at a minimum, information concerning the responsibilities of personnel during the emergency, an immediate action plan as described in the API document referenced in the previous subsubparagraph, and telephone numbers of public agencies, emergency responders, local government and other appropriate public authorities. The plan shall also include the locations of nearby residences, businesses, parks, schools, churches, roads, medical facilities etc., shall describe proposed evacuation routes and 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 location and availability of necessary safety equipment and supplies.

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

iii. Maps and drawings. The hydrogen sulfide contingency plan shall include maps and drawings that depict the radius of exposure, areas potentially affected thereby, public areas, public roads and any areas potentially affected by a release of a potentially hazardous volume.

iv. Trainings and Drills. The hydrogen sulfide contingency plan shall include a description of the responsibilities and duties of essential personnel, provide for periodic on-site or classroom drills or exercises that simulate a release, and shall describe how that training, and attendance at the training, will be documented. 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 include provisions for briefing public officials on issues such as evacuations or shelter-in-place plans.

v. Coordination with State Emergency Plans. The hydrogen sulfide contingency plan shall describe how emergency response actions proposed in the plan will be coordinated with the division and with the New Mexico state police consistent with the New Mexico hazardous materials emergency response plan (HMER).

vi. Activation Levels. The hydrogen sulfide contingency plan shall include the activation threshold 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. Plans Required by Other Jurisdictions. A plan required by the Bureau of Land Management or other jurisdiction that meets the requirements of this subsection may be submitted to the division in satisfaction of this subsection.

~~ii. A call list including the following as applicable:~~

~~aa. local supervisory personnel;~~

~~bb. county sheriff;~~

~~cc. department of public safety and state police;~~

~~dd. city or municipal police;~~

~~ee. appropriate division district office; and~~

~~ff. other public agencies as appropriate;~~

~~iii. A plat or map detailing the area within the radius of exposure of a potentially hazardous volume; and~~

~~iv. A list of the names and telephone numbers of all personnel to be contacted when a release is reported or suspected.~~

~~b. Where the 500-ppm radius of exposure encompasses any public road, the person, operator or facility shall include the following additional elements in the hydrogen sulfide contingency plan:~~

~~i. A plat or map detailing the area of exposure, including the locations of public roads; and~~

~~ii. A plan to divert traffic and safely get existing traffic off the road and out of danger.~~

~~c. Where the 100 ppm radius of exposure encompasses any public area, the following additional elements shall be included in the hydrogen sulfide contingency plan:~~

~~i. A call list including all the persons set forth in Sub subparagraph E(4)(a)(ii), above, and the following:~~

~~aa. ambulance services;~~

~~bb. hospitals;~~

~~cc. county and city fire departments;~~

~~dd. doctors;~~

~~ee. contractors for supplemental or emergency equipment; and~~

~~ff. other public agencies as appropriate;~~

~~ii. A statement describing how emergency response actions will be coordinated with the division and the New Mexico state police, consistent with the New Mexico hazardous materials emergency response plan (HMER);~~

~~iii. A plat or map detailing the area of exposure, including the locations of public areas and public roads;~~

~~iv. The names and telephone numbers of all persons living within the area of exposure and contact persons for areas of public concentration such as churches, schools, hospitals, offices and places of business;~~

~~v. Provision for advance briefing of affected persons within the radius of exposure. Such advance briefing shall include the hazards and characteristics of hydrogen sulfide, the necessity for a hydrogen sulfide contingency plan, the possible sources of hydrogen sulfide within the radius of exposure, instructions for reporting a gas leak, the manner in which persons will be notified in the event of an emergency and steps to be taken in an emergency;~~

~~vi. In lieu of the provision for advance briefing of persons within the radius of exposure described in the previous subsubparagraph, a reaction type plan may be prepared and submitted that provides for mass notification of a release of hydrogen sulfide and for evacuation of affected areas; and~~

~~vii. Additional support information, if applicable, such as the location of emergency evacuation routes, the location of safety and life support equipment, the location of facilities containing hydrogen sulfide, the location of nearby telephones or other means of communication and special instructions for conditions at a particular installation such as local terrain and the effect of various weather conditions.~~

~~d. Additional Requirements. The division may impose additional requirements or modify requirements based on site specific conditions, population density or special circumstances~~.

4. Submission.

a. Where Submitted. The hydrogen sulfide contingency plan shall be submitted to the division ~~and a copy shall be submitted to the local emergency planning committee, if one exists~~.

b. When Submitted. A hydrogen sulfide contingency plan for a well, facility or ~~system or~~ operation existing on the effective date of this section shall be submitted within 180 days from the ~~effective~~ date a determination is made that a potentially hazardous volume exists ~~of this section~~. A hydrogen sulfide contingency plan for a new well, system or operation shall be submitted before operations commence. A hydrogen sulfide contingency plan shall be submitted within 180 days after the person, operator or facility becomes aware or should have become aware that ~~if~~ a public area or public road is established that creates a potentially hazardous volume where none previously existed. The hydrogen sulfide contingency plan for a drilling, completion, workover or well servicing operation must be on file with the division before operations commence and may be submitted separately or along with the application for permit to drill (APD) or may be on file from a previous submission.

c. Electronic Submission. The hydrogen sulfide contingency plan shall be submitted electronically in a generally accepted format that is compatible with the division's systems.

5. Failure to Submit Plan. Failure to submit a hydrogen sulfide contingency plan when required may result in denial of an application for permit to drill ~~that well~~, cancellation of an allowable for the subject well or other appropriate enforcement action.

6. ~~Annual~~ Review, Amendment. The person, operator or facility shall review the hydrogen sulfide contingency plan any time a subject addressed in the plan changes and make appropriate amendments. ~~on an annual basis, or more frequently if activation of a plan reveals a deficiency or, if changes to processes, concentrations of hydrogen sulfide or other circumstances occur, or if a new public area and/or a new public road is established that creates a potentially hazardous volume. The person, operator or facility shall submit any amendments to the division and to the local emergency planning committee. Reasonable efforts shall be taken to update on an annual basis the lists of names and telephone numbers in the hydrogen sulfide contingency plan.~~ If the division determines that a hydrogen sulfide contingency plan is inadequate to protect public safety, the division may require the person, operator or facility to add provisions to the plan or amend the plan as necessary to protect public safety.

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

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

9. Plan Activation. The hydrogen sulfide contingency plan shall be activated in the event of a release that may create a concentration of hydrogen sulfide as set forth in the hydrogen sulfide contingency plan, but at a minimum the plan provide for activation when a concentration of hydrogen sulfide exists more than 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.

F. Signage. Each well, facility or operation containing a concentration of hydrogen sulfide of 100 ppm or greater shall provide and maintain signage. Each sign ~~or marker~~ shall conform with the current ANSI standard Z53.1 and shall provide other information sufficient to warn the public that a potential danger exists. Signs ~~markers~~ shall be prominently posted at locations like entrance points and road crossings, and shall be sufficient to alert the public that a potential danger exists.

~~Signage at Wells, Facilities or Operations. For every well, operation or system to which this section applies that contains a concentration of hydrogen sulfide of 100 ppm or greater, the person, operator or facility must provide signage as set forth herein.~~

~~1. Drilling, Completion, Workover, and Well Servicing Operations. A danger or caution sign shall be displayed at each drilling, completion, workover and well servicing operation along each point of access to the site. The signs shall read "DANGER - POISON GAS, HYDROGEN SULFIDE PRESENT" or, as appropriate, "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT" or use equivalent language approved by the division, and shall state in smaller lettering: "Do Not Approach If Red Flag is Flying" or use equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration, or in another color approved by the division. The signs shall be legible and large enough to be read by all persons entering the well site and shall be placed a minimum of 200 feet but no more than 500 feet from the well site and at a location that allows vehicles to turn around at a safe distance prior to reaching the site.~~

~~2. Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Refineries, Gas Plants and Compressor Stations. A danger sign or signs shall be posted within 50 feet of each crude oil pump station, producing well, tank battery and associated production facility, refinery, gas plant and compressor station to alert the public of the potential hydrogen sulfide danger. If fenced, a danger sign at the gates shall suffice. The signs shall read "DANGER - POISON GAS -~~

~~HYDROGEN SULFIDE PRESENT," or, as appropriate, "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT" or use equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration, or in another color approved by the division. The signs shall be legible and large enough to be read by all persons entering the site. A sign shall be placed at each point where a flow line or gathering line crosses a public road; each sign shall be legible and shall contain the name of the owner or operator and an emergency telephone number.~~

~~3. Tanks or Vessels. A danger sign or signs shall be posted on or within 50 feet of any storage tank to alert persons of the potential hydrogen sulfide danger. For any storage tank for which fencing is required, a danger sign posted at the locked gates shall suffice. The signs shall read "DANGER - POISON GAS - HYDROGEN SULFIDE PRESENT," or, as appropriate "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT," or equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration or another color approved by the division. The sign(s) shall be legible and large enough to be read by all persons entering the site.~~

G. Protection from Hydrogen Sulfide During Drilling, Completion, Workover, and Well Servicing Operations.

1. API Standards. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present ~~where it is reasonably expected that a potentially hazardous volume of hydrogen sulfide will be encountered~~ shall be conducted with due consideration to the guidelines published by the API entitled "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 ~~of~~ Wells Containing Hydrogen Sulfide," RP-49, most recent editions.

~~2. Minimum Standards. At a minimum, each drilling, completion, workover and well servicing operation where a potentially hazardous volume of hydrogen sulfide may reasonably be expected to be encountered shall be conducted in accordance with the following:~~

~~a. Before Commencing Operations. Hydrogen sulfide training shall be completed and warning systems shall be operational before commencement of operations. Detection and monitoring equipment is not required for drilling from the surface to within 500 feet of the zone anticipated to contain hydrogen sulfide.~~

~~b. Egress Routes. The person, operator or facility shall maintain passable egress routes at all times during operations.~~

2. Detection and Monitoring Equipment. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present ~~The person, operator or facility~~ shall provide hydrogen sulfide detection and monitoring equipment as follows:

a. Each drilling and completion site shall have an accurate and precise hydrogen sulfide detection and monitoring system that will automatically activate visible and audible alarms when the ambient air concentration of hydrogen sulfide reaches a predetermined value set by the operator, not to exceed 20 ppm. There shall be a sensing point located 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.

~~ii. The detection system shall be calibrated and tested and the results recorded monthly. Each test of the hydrogen sulfide monitoring system shall be recorded on the driller's log or its equivalent.~~

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

c. Hydrogen sulfide detection and monitoring equipment must be provided and must be made operational during drilling when drilling is within 500 feet of a zone anticipated to contain hydrogen sulfide and continuously thereafter through all subsequent drilling.

3. Wind Indicators. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present shall provide wind indicators.

~~a.~~ Equipment to indicate wind direction shall be present and visible at all times. At least two devices to indicate wind direction shall be installed at separate elevations and visible from all principal working areas at all times.

~~b.~~ When a sustained concentration of hydrogen sulfide is detected in excess of 20 ppm at any detection point, red flags shall be displayed.

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

5. ~~Use of~~ Well Control Equipment. When the 100 ppm radius of exposure includes a public area, the following additional measures shall be required:

a. Drilling. A remote controlled well control system ~~choke and accumulator~~ shall be installed and operational at all times beginning when drilling is within 500 feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The well control system ~~remote controlled choke~~ must 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 API-16C and API-RP 53 or other specifications approved by the division. ~~The blowout preventer stack shall have at least one spool for the kill and choke lines, two pipe rams, one blind ram, one annular device and a rotating head.~~ Mud-gas separators shall ~~also~~ be used. These systems shall be tested and maintained pursuant to the specifications referenced, according to the requirements of this part, or otherwise as approved by the division.

b. Completion, Workover and Well Servicing. A remote controlled pressure and hydrogen sulfide rated well control system that meets or exceeds API specifications or other specifications approved by the division shall be installed and operationsla at all times during completion, workover and servicing of a well. ~~If feasible, the equipment described in the previous subsubparagraph shall be installed and operational at all times during completion, workover and well servicing of a well. If not feasible, a suitable alternative to a remote choke such as a remote controlled valve or blow out preventer with remote accumulator may be used, so long as the alternative equipment will be protective of public safety.~~

6. Mud Program. All drilling, completion, workover and well servicing operations where a concentration of above 100 ppm is present shall provide a hydrogen sulfide mud program capable of handling hydrogen sulfide conditions and well control, including de-gassing and flaring, ~~shall be used.~~

7. Well Testing. Except with prior approval of ~~by~~ the division, drill-stem testing of a zone that contains hydrogen sulfide shall be conducted only during daylight hours and ~~closed chamber only, in that~~ formation fluids shall not be permitted to flow to the surface (closed chamber only).

8. If Hydrogen Sulfide Encountered During Operations.

~~a.~~ 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 in the gaseous mixture, the operator must satisfy the requirements of this section before continuing drilling operations. ~~shall immediately ensure control of the well, suspend drilling operations unless detrimental to well control, take whatever measures are necessary under the circumstances to assure public safety, calculate the radius of exposure and, if a potentially hazardous volume is present, prepare a hydrogen sulfide contingency plan and obtain materials and equipment to bring operations into compliance with this section.~~ The operator shall notify the division of the event and the mitigating steps that have or are being taken 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 any required hydrogen sulfide contingency plan.

~~b. If Hydrogen Sulfide Is Encountered During Use of Air, Gas, Mist or Other Non-Mud Circulating Media. If hydrogen sulfide gas in excess of 100 ppm is encountered while drilling with air, gas, mist or other non-mud circulating mediums, the well shall be killed with a water- or oil-~~

~~based mud, and mud shall be used thereafter as the circulating medium for continued drilling. An alternate drilling method may be used if specifically approved by the division.~~

H. Protection from Hydrogen Sulfide at Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Pipelines, Refineries, Gas Plants and Compressor Stations.

1. API Standards. Operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations ~~containing a potentially hazardous volume of hydrogen sulfide~~ where a concentration of hydrogen sulfide above 100 ppm is present shall be conducted with due consideration to the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, latest edition.

~~2. Minimum Standards. At a minimum, operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations containing a potentially hazardous volume of hydrogen sulfide shall also be conducted in accordance with the following subparagraphs and subsubparagraphs.~~

2. Security ~~Fencing~~. Well sites and other unattended, fixed surface facilities shall be protected from public access by fencing with locking gates when the location is within 1/4 mile of a public area. A surface pipeline shall not be considered a fixed surface facility for purposes of this paragraph. ~~Fencing and gates shall be required when crude oil pump stations and producing wells, tank batteries and associated production facilities are located in a public area or within a 1/4 mile of a building or structure used as a dwelling, office, place of business, church, school, hospital or government building or within 1/4 mile of a park, playground or school bus stop. The fence shall consist of a 5-foot chain link topped by two stands of barbed wire or other design approved by the division. Gates shall be locked when unattended.~~

3. Wind Direction Indicators. All crude oil pump stations, producing wells, tank batteries and associated production facilities, pipelines, refineries, gas plants and compressor stations where a concentration of hydrogen sulfide of above 100 ppm is present shall provide equipment to indicate wind direction. The wind direction equipment shall be installed and visible from all principal working areas at all times. ~~Wind direction indicators shall be required.~~

4. ~~Secondary~~ Well Control Equipment. All crude oil pump stations, producing wells, tank batteries and associated production facilities, pipelines, refineries, gas plants and compressor stations where a concentration of hydrogen sulfide of above 100 ppm is present shall provide well control equipment as provided herein. Any well shall possess a secondary means of immediate well control through the use of appropriate christmas tree or downhole completion equipment. Such equipment shall allow downhole accessibility (reentry) under pressure for permanent well control ~~operations~~.
In addition, safety devices such as automatic shut-down devices shall be installed and maintained in good operating condition. Alternatively, safety procedures shall be established designed to prevent the undetected release of hydrogen sulfide. Any well shall possess a secondary means of immediate well control through the use of an appropriate christmas tree or downhole completion equipment. Such equipment shall permit the downhole accessibility (re-entry) under pressure for immediate well control.

~~d. Automatic Safety Valve or Shutdown. Any well shall possess an automatic safety valve or shutdown at the facility or wellhead or other appropriate shut-in control. The automatic safety valve shall be set to activate upon a release of a volume of hydrogen sulfide that may create a concentration of hydrogen sulfide of 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.~~

5. Tanks or vessels. Each stair or ladder leading to the top of any tank or vessel containing 300 ppm or more of hydrogen sulfide in the gaseous mixture shall be chained or marked to restrict entry. ~~Any tank or tank battery that requires fencing pursuant to this section may substitute a danger sign posted at the gates for chaining and signs.~~

6. Compliance Schedule. Each existing crude oil pump station and producing well, tank battery and associated production facility, pipeline, refinery, gas plant and compressor station not currently meeting the requirements of this subsection ~~and minimum standards set forth herein~~ shall be brought into compliance within one year of the effective date of this section. ~~Each crude oil pump station~~

~~and producing well, tank battery and associated production facility constructed following the effective date of this section shall be designed, constructed and operated to meet the requirements set forth herein.~~

I. Personnel Protection and Training. All persons responsible for the implementation of any hydrogen sulfide contingency plan shall be provided training in hydrogen sulfide hazards, detection, personal protection and contingency procedures.

J. Standards for Equipment That May Be Exposed to Hydrogen Sulfide. Whenever a potentially hazardous volume of hydrogen sulfide is present or may reasonably be expected to be encountered, persons, operators and facilities shall select ~~choose~~ equipment with consideration for both the hydrogen sulfide working environment and anticipated stresses and use NACE Standard MR0175 (latest edition) or some other standard approved by the division ~~shall be used~~ for selection of metallic equipment or, if applicable, provide adequate protection by chemical inhibition or other methods that control or limit the corrosive effects of hydrogen sulfide ~~shall be used~~.

K. Exemptions. Any person, operator or facility may petition the director or the director's designee for an exemption to any requirements of this section. Any such petition shall provide specific information as to the circumstances that warrant approval of the exemption requested and how the public safety will be protected. ~~A safety plan required by other governmental agencies may accompany the petition for exemption.~~ The director, or the director's deisgnee, after considering all relevant factors, may approve an exemption if the circumstances warrant an exemption.

~~L. Release. Upon a release of hydrogen sulfide the following actions must be taken:~~

~~1. Activation of the Hydrogen Sulfide Contingency Plan. The hydrogen sulfide contingency plan shall be activated in the event of a release that may create a concentration of hydrogen sulfide of 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.~~ **[moved to contingency plans]**

~~2.~~ Notification of the Division. The person, operator or facility shall notify the division upon a release of hydrogen sulfide requiring activation of the hydrogen sulfide contingency plan, ~~preferably within one hour of discovery of the release, but~~ as soon as possible, but no more than four hours after plan activation, recognizing that a ~~in cases where~~ prompt response should supercede notification. The person, operator or facility shall submit a full report of the incident to the division on Form C-141 no later than fifteen (15) days following the release.

~~M. Electronic Submission. Any submission to the division required by this section shall be made electronically in a generally accepted format that is compatible with the division's systems~~. [moved to contingency plan section]

N. Corrective Actions. The division may require corrective actions if necessary to maintain control of a well or any other facility or to safeguard public safety.

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:

APPLICATION OF THE NEW MEXICO OIL CONSERVATION DIVISION, THROUGH THE ENVIRONMENTAL BUREAU CHIEF, FOR THE ADOPTION OF AMENDMENTS TO DIVISION RULE 118 (HYDROGEN SULFIDE GAS)

CASE NO. 12897

ORDER NO. R-11847

ORDER OF THE OIL CONSERVATION COMMISSION

BY THE COMMISSION:

THIS MATTER came before the Oil Conservation Commission (hereinafter referred to as "the Commission") on July 19, August 30, September 20, September 27, and _____, 2002, at Santa Fe, New Mexico, on application of the New Mexico Oil Conservation Division through the Chief of the Environmental Bureau (hereinafter referred to as "the Division"), and the Commission, having carefully considered the evidence, the pleadings, comments and other materials submitted in support and in opposition of the proposal, now, on this ____ day of _____, 2002,

FINDS,

1. In this rule-making proceeding, the Oil Conservation Division (hereinafter referred to as "the Division") has applied for repeal of existing Rule 118 of the Rules and Regulations of the Oil Conservation Division, 19.15.1.118 NMAC, and for adoption of a replacement rule, to be codified in the New Mexico Administrative Code as 19.15.2.52 NMAC.

2. Two public hearings have been conducted, one on July 19, 2002 and a second on September 20, 2002. The Commission has also accepted written comments concerning the proposed rulemaking following the first hearing and accepted written comments prior to the second hearing. The Commission also accepted a report and consensus revised draft of a proposed rule from the hydrogen sulfide work group on October 15, 2002. The Commission deliberated on the application in open session during its meetings of August 30, September 27, October 25, and _____, 2002.

3. A draft of a new rule, 19.15.2.52 NMAC is attached hereto as Exhibit A. It should be adopted, published in the New Mexico Register, and adopted as a part of the Rules and Regulations of the Oil Conservation Division.

4. The need for effective regulation of hydrogen sulfide gas is undisputed. Hydrogen sulfide is an extremely toxic gas sometimes encountered in the drilling and production of oil and natural gas. The gas is so toxic that exposure to a concentration of between 350 to 500 parts per million for four to eight hours can cause death. Exposure to a concentration of between 600 and 1500 parts per million for two minutes or less can cause death. Its toxicity explains why exposure to hydrogen sulfide gas is the leading cause of sudden death in the workplace, according to the Centers for Disease Control, the National Institute for Occupational Safety and Health (hereinafter referred to as "NIOSH").

5. While hydrogen sulfide is the most odiferous substances that exist (it emits an odor like rotten eggs), exposure to concentrations of the gas around 100 parts per million deaden the sense of smell so that it cannot be detected. Therefore, at its most deadly concentrations, it cannot be detected by smell alone.

6. Health effects caused by exposure to smaller concentrations of hydrogen sulfide vary depending on the concentration and the duration of the exposure. For example, exposure to fifty parts per million for a few minutes will induce a severe headache and the person exposed will have difficulty breathing and thinking. Exposure to 100 ppm for a few minutes will induce more severe respiratory difficulties; regulations of the Occupational Health and Safety Administration (hereinafter referred to as "OSHA") require immediate workplace evacuation if concentrations reach this level. Exposure to a level of five hundred parts per million for a few minutes induces unconsciousness.

7. The Occupational Health and Safety Administration has declared that exposure to one hundred parts per million of hydrogen sulfide for thirty minutes is "immediately dangerous to life and health" (IDLH). At this level, a person may suffer irreversible health effects or die. A person will suffer loss of the sense of smell, become dizzy and lose the ability to function. The specific effects depend on the person's body weight, previous exposure to hydrogen sulfide, and whether the person is an alcoholic or taking medications. Between 50 ppm and 100 ppm, regulations of OSHA require a worker to don protective equipment including a respirator. At a level of 100 ppm, a person must leave the area even if equipped with a respirator. Indeed, NIOSH recommends that a person don a respirator when a concentration of 100 ppm is present.

8. Hydrogen sulfide gas is already regulated in New Mexico through Rule 118, 19.15.1.118 NMAC.

9. The application of the Division seeks to repeal Rule 118 and adopt a replacement rule. The application culminates an approximately two-year process during which the provisions of Rule 118 were critically examined.

10. In winter of 2000-01, the Director of the Division directed the Environmental Bureau (hereinafter referred to as "the Bureau") to review the rule and determine whether the rule was adequately protective of public safety. The Bureau subsequently gathered information from other governmental agencies and the American Petroleum Institute (API) and the American Society for Testing and Materials (ASTM). After comparing the information received to Rule 118 and conducting its own technical inquiries, the Bureau concluded that Rule 118 was not adequately protective of public safety and had serious flaws.

11. For example, during the hearings in this matter, witnesses employed by the Bureau testified that Rule 118 exempts facilities that process a volume fraction of hydrogen sulfide gas that is less than 10 mcf per day, regardless of the actual concentration of gas that might result if a release were to occur. Thus, if a given facility handled 9.9 mcf of pure hydrogen sulfide each day, the facility would be exempt from regulation notwithstanding the fact that a release from such a facility could produce a lethal concentration of hydrogen sulfide gas. A facility that handles just less than 1,000 mcf per day of a gaseous mixture that consists of one percent hydrogen sulfide gas would also be exempt, notwithstanding the fact that a release of the gaseous mixture could produce a radius of exposure of 55 parts per million of hydrogen sulfide gas at 200 feet and one hundred parts per million at four hundred-fifty feet.

12. Witnesses also testified that the Rule 118 exempts from regulation tanks that may contain a concentration of hydrogen sulfide gas up to 1000 parts per million and certain other facilities that may contain a concentration of hydrogen sulfide gas up to 500 parts per million. Witnesses testified that such facilities are not required to operate according to any standards, are not required to have certain safety devices or procedures, signs, fencing or contingency plans. Witnesses testified that Rule 118 does not require facilities containing hydrogen sulfide gas to have safety devices or safety procedures, and the standards that are referenced are advisory in nature, enforcement of which could be problematic.

13. It is thus evident that Rule 118 fails to adequately protect the public from the hazards of hydrogen sulfide and should be repealed and replaced with a more effective regulatory scheme.

14. Having found that the current regulatory scheme was inadequate and not protective of the public safety, the Bureau set out to develop a new rule that would be protective of public safety. The Bureau conducted air-dispersion models to determine how hydrogen sulfide gas disperses in air following an accidental release. Such mathematical models are used to predict the probability of exposure to a given concentration of hydrogen sulfide gas at selected distances from a hypothetical point of release. As hydrogen sulfide moves away from the point of release, its concentration

decreases as it disperses and mathematical models seek to define the concentrations at a certain distance. Several models are available. The Bureau chose the Pasquill-Gifford equation, an equation derived from the Gaussian distribution plume model and assumes a continuous source. While it tends in some cases to overstate the consequences of a release, this serves to better protect public safety. Most states and the federal government use a steady state model like Pasquill-Gifford. The equation, through a coefficient, takes into account environmental factors and weather, and the mathematical experiments conducted by the Bureau used climatological data specific to New Mexico.

15. The Bureau conducted peer review of its results by a registered New Mexico engineer who is a member of the Bureau but who had not been involved in the hydrogen sulfide investigation previously.

16. The Environmental Bureau created a work group composed industry technical personnel, the New Mexico Oil and Gas Association, the Independent Producers Association of New Mexico, public representatives, other governmental agencies (including the Bureau of Land Management, and local emergency planning committees of several counties), the New Mexico Department of Public Safety and members of the Environmental Bureau. The work group was charged with reviewing a draft rule prepared by the Bureau and making recommendations.

17. The Pasquill-Gifford model, providing both an adequate margin of safety for protection of the public, and having been accepted by other regulatory bodies, should be adopted in New Mexico.

18. A critical feature of a regulatory scheme based on the Pasquill-Gifford model is establishing the "radius of exposure" and the "area of exposure" to hydrogen sulfide gas. The radius of exposure uses the mathematical model to describe a distance from a hypothetical release where certain regulatory requirements designed to be protective of public safety should attach. The radius of exposure in turn describes a circular area around the theoretical point of release; this describes the theoretical area of exposure.

19. A potentially hazardous volume can be created by a release as an anchor point. 100 ppm is widely accepted as a point where exposure to hydrogen sulfide becomes dangerous to life. As noted, the Occupational Health and Safety Administration (hereinafter referred to as "OSHA") regards exposure to one hundred parts per million of hydrogen sulfide for thirty minutes as "immediately dangerous to life and health" because at this level, a person may suffer irreversible health effects or die. Coincidentally, at the same concentration, a person will suffer loss of the sense of smell at this level and not be aware of the hazard. At 100 ppm, OSHA requires a person, even equipped with protective equipment such as a respirator, to leave the area, and NIOSH recommends that a person don a respirator when a concentration of 100 ppm is present.

20. Therefore, in determining points where a potentially hazardous volume exists for purposes of imposing regulatory requirements, 100 ppm is a reasonable threshold, and should be adopted. A slightly relaxed standard of 500 ppm should be adopted for public

roads. A potentially hazardous volume should be defined as a concentration of one hundred parts per million in a public area, five hundred parts per million at a public road or one hundred parts per million three thousand feet from the release point.

21. Using the mathematical model, the concentration and flow of the hydrogen sulfide gas in the operation, facility or system, the distance that a 100-ppm and a 500-ppm release could theoretically travel can be calculated and imaginary circles can be drawn on a map designating the area potentially impacted by a potentially hazardous release. Thus, the Division, the Bureau and the operator will know who is potentially affected by such a release, who needs to be protected from releases, who needs to be warned, and who needs to be evacuated in the event of a release.

22. To determine whether a potentially hazardous volume is present, the concentration of hydrogen sulfide within the gaseous mixtures and the potential volume of a theoretical release need to be known. This can only be known by testing.

23. If a concentration of 100 ppm or less is known to exist as a result of testing, a release would not be immediately dangerous to life. Once a gaseous mixture is determined to be below this threshold, no further actions should be required with respect to the well, facility or operation (Except for tanks??).

24. If a concentration greater than 100 ppm exists, a further determination of whether a potentially hazardous volume is present should be made, and regulatory requirements should attach to operations depending on the proximity of the operations to areas where the public will be present.

25. Some provision has to be made for wells that are drilled in areas where insufficient data exists to assess the hydrogen sulfide risk. The proposal of the Division assumes a 3,000 foot radius of exposure in these situations, and this does not seem an unreasonable assumption and provides an adequate margin of error.

26. The specific regulatory requirements to be adopted by the Commission were a source of source of some controversy during the proceedings. Some of these are discussed in the following paragraphs.

27. For example, the applicability of the regulation to Rule 711 became an issue during these proceedings. The regulation now clarifies that such facilities are governed by both new rule 52 (19.15.3.52 NMAC) and Rule 711 (19.15.5.711 NMAC). Rule 711, and permits issued thereunder, may under some circumstances provide more stringent requirements for managing hydrogen sulfide gas than set out in the regulation attached hereto. A representative for one such facility seemed to argue that this regulation, if enacted, would void provisions of Rule 711 and more stringent provisions of permits issued thereunder.

28. It seems, however, to be undisputed that surface waste facilities regulated under Rule 711 have the potential to generate hydrogen sulfide. The proposed regulation

is intended to protect public safety from the acute consequences of exposure to hydrogen sulfide. Such consequences can certainly result from management of wastes on the surface of the earth at surface waste management facilities. Nothing therefore justifies excusing such facilities form the requirements of the proposed rule, nor can changes to Rule 711 be justified without going through the rule-making process to revisit that rule. Staff should be directed to examine the requirements of Rule 711 and determine whether changes to the hydrogen sulfide regime need to be reconsidered in light of this rulemaking.

29. The attached regulation should apply equally to surface waste management facilities as it does to all the other facilities, and nothing in this regulation can be interpreted to provide for a repeal of any provision of Rule 711 or to effect any change in any permit issued thereunder. The language of the regulation has been amended to clearly state this proposition.

30. As noted, a consensus draft of the proposed regulation was presented. That draft represented a consensus of members of the hydrogen sulfide gas workgroup and the Bureau concerning specific items of concern in earlier drafts. Many of the recommendations embodied in that draft should be accepted, and are reflected in Exhibit A.

31. However, several recommendations are not acceptable or reasonable and should not be adopted. For example, the consensus draft provides that submission of the test results and the resulting radius of exposure is to be performed within one year and a hydrogen sulfide contingency plan should be submitted one year later. These time frames are simply too long to be reasonable. While it is true that the new rule adopts a different regulatory approach than the existing rule and well, facilities and operations should be provided with reasonable time to comply with the new requirements, two years is too long. Exhibit A provides six months to perform the initial testing and determination, and six months to prepare the hydrogen sulfide contingency plan.

32. The consensus draft proposed activation of the hydrogen sulfide contingency plan upon release of a "potentially hazardous volume" of hydrogen sulfide. The problem with this approach is that a potentially hazardous volume is a calculated volume, and represents a worst-case scenario. A release, if one occurs, may not occur as calculated, or may represent a lesser volume than a worst-case scenario. This would present uncertainty at a critical time and could result in a delay of implementation of contingency plans and a delay in public notice and evacuation, and the benefits of having a plan to protect public safety could be lost. It is more prudent to use a lesser standard for activation of the plan, on the theory that a potentially significant release evidences that the situation is beginning to move out of control.

33. The consensus draft also proposed "grant fathering" of signs used to warn the public of the hazards of hydrogen sulfide at wells, facilities and operations. Such a provision would effectively nullify this section; there are over 60,000 wells in this state and only <> permits to drill new wells are granted each year. AT this rate, it would be

many years before event the majority of wells had adequate signage. This is an unacceptable compromise of the public safety.

34. The consensus draft also provides a broad exemption from regulation under the proposed rule if the well, facility or operation is the subject of a regulatory program of another jurisdictional entity, such as the Bureau of Land Management. The proposed rule, however, differs in important respects from the rules and regulations of the Bureau of Land Management, and including such a provision in the proposed rule would effectively write out many of its important provisions for wells on federal land.

35. The consensus draft also responded to many comments concerning the electronic submission requirements of earlier drafts. As many are aware, the Division performs many of its functions electronically. As time goes on, more and more functions will be performed electronically. Earlier drafts reflected that reality. Exhibit A, however, requires only hydrogen sulfide contingency plans be submitted electronically, and permits the remainder of submissions to be made in paper form or electronically. An exemption from any provision of the proposed rule is provided for those that have difficulty meeting this requirement.

36. The consensus draft also eliminated a provision that permitted the Division to require corrective actions if necessary to maintain control of a well or other facility and to safeguard public safety. The provision is certainly an accurate statement of the Division's authority under the Oil and Gas Act. It should be stated within the proposed rule so that there is no uncertainty on this point.

37. There has been some disagreement during the rulemaking process concerning the proposed requirement that an operator develop a hydrogen sulfide contingency plan, and what it should contain. Preparation of a contingency plan serves several objectives. First, it ensures that the operator focuses on emergency preparedness and thinks about what actions must be taken in the event of a release. If a release occurs, the exercise of writing a plan and thinking through the steps that must be taken may improve response and may save lives. Second, preparation of a plan provides the Division, the incident commander, the Department of Public Safety, and other emergency responders with basic information needed to make intelligent decisions concerning the release. For example, having access to the telephone numbers of company personnel means that personnel can be contacted to address the leak before it becomes a threat to public safety. Having the names and telephone numbers available of persons potentially at risk simplifies evacuation, should that become necessary. Knowing which roads might need to be closed can impact public safety.

38. The consensus draft argues for more flexibility in drafting a plan that is sensible when applied to a particular facility, and that is a sensible approach. Therefore, Exhibit A requires such plans to address certain subjects, but leaves the specificity in developing a plan to the operator. If it is apparent that a plan is defective, the Division has the authority under Exhibit A to require amendments to address the deficiency.

39. The consensus draft permits substitution of a hydrogen sulfide contingency plan prepared for another agency, such as the Bureau of Land Management. The concept has not been perpetuated in Exhibit A. While a plan prepared for another agency may, in fact, comply fully with the requirements under the proposed rule, in some cases it may not. The Division should be permitted to review the plan and determine whether it is acceptable before substitution is permitted.

40. There has been some controversy during the rulemaking process about the use of employee protection standards (OSHA and NIOSH), the argument being that double regulation could result. It should be very clear that Exhibit A is not a worker protection rule. It is a public safety rule. However, as several witnesses testified during the two public hearings in this matter, protection of workers is relevant to public safety. If workers are not protected from hydrogen sulfide gas, the public safety may suffer because it is the workers who are the first line of defense. Only the workers can contain or prevent a release of hydrogen sulfide gas. If the workers are alerted to a release, they can contain it or give a timely warning to permit evacuation.

41. The training requirements set forth in Exhibit A share the same rationale. Workers need to be trained to properly respond to hydrogen sulfide to protect themselves and the public from exposure. Well-trained workers can prevent releases in the first place. If a situation gets out of control, well-trained workers can provide necessary (and early) warning and evacuation. Well-trained workers will be able to provide a warning of the hazardous situation to those who happen on the situation.

42. The requirements that apply to tanks are somewhat different than for other facilities. Some tanks are incapable of generating a potentially hazardous volume of hydrogen sulfide gas. The vapor space above the liquid in a tank can nevertheless contain many times the concentration of hydrogen sulfide than the liquid. Therefore, it is hazard to anyone who opens the hatch and is exposed the vapor. The hatch must be secure from persons like children who might desire to open it. Therefore, Exhibit A requires that such facilities be made secure with chains and locks.

IT IS THEREFORE ORDERED:

1. A new regulation of the Oil Conservation Commission, to be codified at 19.15.2.52 NMAC (or elsewhere if necessary to meet requirements of the Commission of Public Records), copy attached as Exhibit A, is hereby adopted, effective as of the date of its publication in the New Mexico Register. Staff is instructed to forthwith seek publication of the new regulation in its entirety in the Register.

2. Staff of the Oil Conservation Division is instructed to examine the requirements of Rule 711 and determine whether changes to the hydrogen sulfide regime need to be reconsidered in light of this rulemaking.

3. Jurisdiction of this matter is retained for entry of such further orders as may be necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

LORI WROTENBERY, CHAIR

JAMI BAILEY, MEMBER

ROBERT LEE, MEMBER

S E A L

SCR working 10-16

19.15.2.52 Hydrogen Sulfide Gas (Hydrogen Sulfide)

A. In General. Hydrogen sulfide gas is a flammable, poisonous gas that may occur naturally as a component of crude petroleum and natural gas. The gas has a distinct and characteristic odor of rotten eggs but due to olfactory fatigue may not be sensed by the human sense of smell.

B. Applicability. This section applies to any person, operator or facility subject to the jurisdiction of the Division, including, but not limited to, any person, operator or facility engaged in drilling, stimulating, injecting into, completing, working over or producing any oil, natural gas or carbon dioxide well or any person, operator or facility engaged in gathering, transporting, storing, processing or refining of crude oil, natural gas or carbon dioxide. This section shall not act to exempt or otherwise excuse surface waste management facilities permitted by the division pursuant to 19 NMAC 15.I.711 from more stringent conditions on the handling of hydrogen sulfide required of such facilities by 19 NMAC 15.I.711 or more stringent conditions existing in permits issued thereunder, nor shall such facilities be exempt or otherwise excused from the requirements set forth in this section by virtue of permitting under 19 NMAC 15.I.711.

C. Definitions (specific to this section).

1. ANSI. The acronym "ANSI" means the american national standards institute.
2. API. The acronym "API" means the american petroleum institute.
3. Area of Exposure. The phrase "area of exposure" means the area within a circle constructed with the point of escape at its center and the radius of exposure as its radius.
4. ASTM. The acronym "ASTM" means the american society for testing and materials.
5. Dispersion Technique. A "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.
6. Escape Rate. The "escape rate" is the maximum volume (Q) that is used to designate the possible rate of escape of a gaseous mixture containing hydrogen sulfide. The escape rate is calculated using the maximum daily rate of the gaseous mixture produced or the best estimate thereof. For a natural gas well, the escape rate shall be calculated by using the current daily absolute open flow rate against atmospheric pressure or the best estimate of that rate or, if the well is not yet in existence, the escape rate shall be calculated using the maximum open flow rate of offset wells or the field average of current maximum open-flow rates. For an oil well, the escape rate shall be calculated by multiplying the producing gas/oil ratio by the maximum daily production rate or the best estimate thereof or, if the well is not yet in existence, the escape rate shall be determined by multiplying the producing gas/oil ratio by the maximum daily production rate of offset wells or the field average. For an oil or natural gas well drilled in a developed area, the escape rate may be determined by using data from offset wells completed in the interval in question, or using some other reasonable means to calculate the escape rate. For operations, systems or facilities that handle natural gas, the escape rate shall be calculated as the maximum anticipated flow rate through the operation, system or facility. For operations, systems or facilities not mentioned, the escape rate shall be calculated using the actual flow of the gaseous mixture through the facility or system ~~operation~~.
7. GPA. The acronym "GPA" means the gas processors association.
8. LEPC. The acronym "LEPC" means the local emergency planning committee established pursuant to the emergency planning and community right-to-know act, 42 U.S. C. § 11001.
9. NACE. The acronym "NACE" refers to the national association of corrosion engineers.
10. PPM. The acronym "ppm" means "parts per million" by volume.
11. Potentially Hazardous Volume ~~(hereinafter referred to as a "potentially hazardous volume")~~ means the volume of hydrogen sulfide gas of such concentration that:
    a. the 100-ppm radius of exposure includes any public area as defined herein;
    b. the 500-ppm radius of exposure includes any public road as defined herein; or
    c. the 100-ppm radius of exposure is equal to or in excess of 3,000 feet.

12. Public Area. A "public area" is any occupied building or structure that is not associated with the well, operation or system 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 any portion of a park, city, town, village or established school bus stop or other similar area where members of the public may reasonably be expected to be present.

13. Public Road. A "public road" is any federal, state, municipal or county road or highway ~~or postal route~~.

14. Radius of Exposure. The radius of exposure (hereinafter referred to as "radius of exposure" or "ROE") is that 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 may be approved by the division:

a. For determining the 100-ppm radius of exposure: $X= [(1.589)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

~~or~~

b. For determining the 500-ppm radius of exposure: $X=[(0.4546)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

c. 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 3,000 feet shall be assumed.

D. Determination of Hydrogen Sulfide Risk.

1. Testing. ~~Determination of Hydrogen Sulfide Concentration.~~

a. Each person, operator or facility to which this section applies shall determine the hydrogen sulfide concentration within each of its wells, operations or systems. A representative sample or process knowledge may be used in lieu of individual testing of wells, operations or systems provided that the person, operator or facility can demonstrate that the concentration derived from the representative sample or process knowledge is reasonably representative of the hydrogen sulfide concentration within the well, operation or system.

b. The tests used to make the determination referred to in the previous subparagraph shall be conducted in accordance with applicable ASTM or GPA standards or by other methods approved by the division.

c. If a valid and representative sample from a well, operation or system was tested at any time prior to ~~within one (1) year of~~ the effective date of this section, new testing shall not be required~~; provided, however, new testing shall not be required for a producing well that was tested at any time prior to the effective date of this section~~.

d. Retesting. If any change or alteration to a well, operation or system results in an increase in the concentration of hydrogen sulfide that may change the requirements that apply to the well, operation or system, the well, operation or system shall be retested.

2. Tested Concentrations Below 100 ppm. If the concentration of hydrogen sulfide in a given well, operation or system is less than 100 ppm, no further actions shall be required pursuant to this section.

3. Tested Concentrations Above 100 ppm~~; Calculation of the Radius of Exposure. a.~~ If the concentration of hydrogen sulfide in a given well, operation or system is 100 ppm or greater, then the person, operator or facility must calculate the radius of exposure and comply with other applicable requirements pursuant to this section.

4. Determination of Radius of Exposure.

a. Each well, operation or system where testing has demonstrated that the concentration of hydrogen sulfide in a given well, operation or system is 100 ppm or greater shall determine the radius of exposure.

b. If calculation of the radius of exposure reveals that a potentially hazardous volume is present, the person, operator or facility shall provide the results of the determination of the hydrogen sulfide concentration and the calculation of the radius of exposure to the division.

c. For a well, operation or system existing on the effective date of this section, the determination, calculation and submission required herein shall be accomplished within 365 ~~180~~ days of the effective date of this section; for any well, operation or system that commences operations after the effective date of this section, the determination, calculation and submission required herein shall be accomplished before operations begin if possible, but no later than sixty (60) days following the date operations begin or when production begins.

4. Recalculation. The person, operator or facility shall calculate or recalculate the radius of exposure if an operational change or production alteration causes the hydrogen sulfide concentration in a well, operation or system to increase to 100 ppm or greater or, if the hydrogen sulfide concentration in a well, operation or system was already 100 ppm or greater, causes a 25% or greater increase in the actual volume fraction of hydrogen sulfide. If calculation or recalculation of the radius of exposure reveals that a potentially hazardous volume is present, the person, operator or facility shall provide the results to the division within sixty ~~thirty~~ (60) days.

E. Hydrogen Sulfide Contingency Plan.

1. In General. A hydrogen sulfide contingency plan is a written document that provides a plan of action that will be used to alert and protect persons at risk in the event of a ~~potentially significant~~ release of hydrogen sulfide gas that could produce a potentially hazardous volume. **[I thought the existing wording was adequate for this introductory section]** The hydrogen sulfide contingency plan shall be developed with due consideration of API Standard RP-55, entitiled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide" but, at a minimum, shall ~~must~~ be developed in accordance with the following paragraphs.

2. When Required. A hydrogen sulfide contingency plan must be prepared whenever a potentially hazardous volume of hydrogen sulfide is present or may reasonably expected to be encountered.

~~3. Input of Emergency Response Authorities and the Division. The person, operator or facility shall develop a proposed hydrogen sulfide contingency plan and provide a copy to the division, the New Mexico department of public safety (*i.e.*, the New Mexico state police), and the local emergency planning committee. If the potential source of release is within a municipality, a copy shall be provided to the municipal police and fire department. If the potential source of the release is outside the boundaries of a municipality, a copy shall instead be provided to the county sheriff and the county fire department or departments. Input on the proposed plan shall be sought from each of the foregoing; if an emergency response authority provided with a copy of the proposed plan fails to provide input or fails to respond at all, that fact shall be stated in the final hydrogen sulfide contingency plan submitted to the division. The input provided by the emergency response authorities shall be considered when preparing the final plan for submission to the division but failure to include any specific suggestion shall not affect the validity of the plan or cause disapproval of the plan by the division.~~

~~4.~~ Elements.

~~a. Elements Required for Each Plan:~~

~~i. A detailed description of each action to be taken in the event of a release of hydrogen sulfide requiring activation shall be included in each hydrogen sulfide contingency plan, including provisions for alerting and accounting for personnel, controlling any release of hydrogen sulfide gas, eliminating possible ignition sources, alerting the public (directly or through appropriate government agencies), evacuating persons in the affected area, using the call list to alert company officials and emergency response authorities, making recommendations to public officials to block access to affected areas and conducting evacuations and coordinating emergency response with emergency response authorities. A plan that addresses the items described in paragraph 7.6 of the guidelines~~

published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, most recent edition, shall be adequate for this purpose;

ii. A call list including the following as applicable:

aa. local supervisory personnel;

bb. county sheriff;

cc. department of public safety and state police;

dd. city or municipal police;

ee. appropriate division district office; and

ff. other public agencies as appropriate;

iii. A plat or map detailing the area within the radius of exposure of a potentially hazardous volume; and

iv. A list of the names and telephone numbers of all personnel to be contacted when a release is reported or suspected.

b. Where the 500-ppm radius of exposure encompasses any public road, the person, operator or facility shall include the following additional elements in the hydrogen sulfide contingency plan:

i. A plat or map detailing the area of exposure, including the locations of public roads; and

ii. A plan to divert traffic and safely get existing traffic off the road and out of danger.

c. Where the 100-ppm radius of exposure encompasses any public area, the following additional elements shall be included in the hydrogen sulfide contingency plan:

i. A call list including all the persons set forth in Sub subparagraph E(4)(a)(ii), above, and the following:

aa. ambulance services;

bb. hospitals;

cc. county and city fire departments;

dd. doctors;

ee. contractors for supplemental or emergency equipment; and

ff. other public agencies as appropriate;

ii. A statement describing how emergency response actions will be coordinated with the division and the New Mexico state police, consistent with the New Mexico hazardous materials emergency response plan (HMER);

iii. A plat or map detailing the area of exposure, including the locations of public areas and public roads;

iv. The names and telephone numbers of all persons living within the area of exposure and contact persons for areas of public concentration such as churches, schools, hospitals, offices and places of business;

v. Provision for advance briefing of affected persons within the radius of exposure. Such advance briefing shall include the hazards and characteristics of hydrogen sulfide, the necessity for a hydrogen sulfide contingency plan, the possible sources of hydrogen sulfide within the radius of exposure, instructions for reporting a gas leak, the manner in which persons will be notified in the event of an emergency and steps to be taken in an emergency;

vi. In lieu of the provision for advance briefing of persons within the radius of exposure described in the previous subsubparagraph, a reaction-type plan may be prepared and submitted that provides for mass notification of a release of hydrogen sulfide and for evacuation of affected areas; and

vii. Additional support information, if applicable, such as the location of emergency evacuation routes, the location of safety and life-support equipment, the location of facilities containing hydrogen sulfide, the location of nearby telephones or other means of communication and

~~special instructions for conditions at a particular installation such as local terrain and the effect of various weather conditions.~~

~~d. Additional Requirements. The division may impose additional requirements or modify requirements based on site-specific conditions, population density or special circumstances.~~

5. Submission. The hydrogen sulfide contingency plan shall be submitted to the division ~~and a copy shall be submitted to the local emergency planning committee, if one exists~~. A hydrogen sulfide contingency plan for a well, system or operation existing on the effective date of this section shall be submitted within 365 ~~180~~ days from the effective date of this section. A hydrogen sulfide contingency plan for a new well, system or operation shall be submitted before operations commence if possible, but no later than sixty (60) days following the date operations begin or when production begins. **A hydrogen sulfide contingency plan shall be submitted within 180 days if a public area or public road is established that creates a potentially hazardous volume where none previously existed. [LORI: THE DRAFT PROPOSED TO ELIMINATE THE PRECEDING SENTENCE (ENCROACHMENT), BUT THIS WAS YOUR CONTRIBUTION AND SO I PROPOSE TO LEAVE IT IN UNLESS YOU'RE HAPPY ELIMINATING IT]** The hydrogen sulfide contingency plan for a drilling, completion, workover or well servicing operation may be submitted separately or along with the application for permit to drill (APD) but shall be on file before work commences. An inventory of the wells, systems and operations that are the subject of a contingency plan on file with the Division and a point of contact shall be filed with the local emergency planning committee and the state emergency response commission annually.

6. Failure to Submit Plan. Failure to submit a hydrogen sulfide contingency plan when required may result in denial of an application for permit to drill that well, cancellation of an allowable or other appropriate enforcement action.

7. Annual Review, Amendment. The person, operator or facility shall review the hydrogen sulfide contingency plan on an annual basis, or more frequently if activation of a plan reveals a deficiency ~~or,~~ if changes to processes, concentrations of hydrogen sulfide or other circumstances occur, or if a new public area and/or a new public road is established that creates a potentially hazardous volume. The person, operator or facility shall submit any amendments to the division and to the local emergency planning committee. Reasonable efforts shall be taken to update on an annual basis the lists of names and telephone numbers in the hydrogen sulfide contingency plan. **[LORI: THEY PROPOSE TO DELETE THIS ENTIRE PARAGRAPH AND REPLACE IT WITH A SENTENCE THAT SAYS THE PLAN WILL BE UPDATED "ANY TIME ITS PROVISIONS OR COVERAGE MATERIALLY CHANGE", BUT SOME OF THIS MATERIAL DEAL WITH THE ENCROACHMENT ISSUE YOU RAISED]**

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

F. Specific Requirements for Wells, Operations or Facilities Containing a Hydrogen Sulfide Concentration of 100 ppm or Greater. For every well, operation or system to which this section applies that contains a concentration of hydrogen sulfide of 100 ppm or greater, the person, operator or facility must provide the following ~~signage as set forth herein~~.

1. Signage. Each well, operation or system containing a concentration of hydrogen sulfide of 100 ppm or greater shall provide and maintain signage. The sign or marker shall conform with the current ANSI standard Z53.1 or some other standard approved by the Division. The sign or marker shall contain sufficient information to warn that a potential danger exists and shall contain the words "Poison Gas." A sign or marker that complies with applicable regulations (e.g., the federal department of transportation, occupation safety and health administration) shall satisfy the requirements of this section, provided that the sign or marker explicitly indicates the presence of a potential hazard. For any drilling, workover, completion and recompletion operation, additional warning measures (e.g. red flags, signs, etc.) shall be prominently posted whenever an imminent danger situation exists. **[LORI: THIS IS A MAJOR DEPARTURE FROM THAT PREVIOUSLY ADOPTED BY THE DIVISION AND A SIGNIFICANT DEPARTURE FROM THE TESTIMONY]**

~~Drilling, Completion, Workover, and Well Servicing Operations. A danger or caution sign shall be displayed at each drilling, completion, workover and well servicing operation along each point of access to the site. The signs shall read "DANGER - POISON GAS, HYDROGEN SULFIDE PRESENT" or, as appropriate, "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT" or use equivalent language approved by the division, and shall state in smaller lettering: "Do Not Approach If Red Flag is Flying" or use equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration, or in another color approved by the division. The signs shall be legible and large enough to be read by all persons entering the well site and shall be placed a minimum of 200 feet but no more than 500 feet from the well site and at a location that allows vehicles to turn around at a safe distance prior to reaching the site.~~

~~2. Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Refineries, Gas Plants and Compressor Stations. A danger sign or signs shall be posted within 50 feet of each crude oil pump station, producing well, tank battery and associated production facility, refinery, gas plant and compressor station to alert the public of the potential hydrogen sulfide danger. If fenced, a danger sign at the gates shall suffice. The signs shall read "DANGER - POISON GAS - HYDROGEN SULFIDE PRESENT," or, as appropriate, "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT" or use equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration, or in another color approved by the division. The signs shall be legible and large enough to be read by all persons entering the site. A sign shall be placed at each point where a flow line or gathering line crosses a public road; each sign shall be legible and shall contain the name of the owner or operator and an emergency telephone number.~~

~~3. Tanks or Vessels. A danger sign or signs shall be posted on or within 50 feet of any storage tank to alert persons of the potential hydrogen sulfide danger. For any storage tank for which fencing is required, a danger sign posted at the locked gates shall suffice. The signs shall read "DANGER - POISON GAS - HYDROGEN SULFIDE PRESENT," or, as appropriate "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT," or equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration or another color approved by the division. The sign(s) shall be legible and large enough to be read by all persons entering the site.~~

2. Drilling, Completion, Re-completion, Workover, and Well Servicing.

a. API Standards. All drilling, completion, re-completion, workover and well servicing operations ~~where it is reasonably expected that a potentially hazardous volume of hydrogen sulfide will be encountered~~ shall be conducted with due consideration to the guidelines published by the API entitled "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 ~~of~~ Wells Containing Hydrogen Sulfide," RP-49, most recent edition.

~~2. Minimum Standards. At a minimum, each drilling, completion, workover and well servicing operation where a potentially hazardous volume of hydrogen sulfide may reasonably be expected to be encountered shall be conducted in accordance with the following:~~

~~a. Before Commencing Operations. Hydrogen sulfide training shall be completed and warning systems shall be operational before commencement of operations. Detection and monitoring equipment is not required for drilling from the surface to within 500 feet of the zone anticipated to contain hydrogen sulfide.~~

~~b. Egress Routes. The person, operator or facility shall maintain passable egress routes at all times during operations.~~

b. Detection and Monitoring Equipment. The person, operator or facility shall provide hydrogen sulfide detection and monitoring equipment as follows:

i. Each drilling and completion site shall have a hydrogen sulfide detection and monitoring system that automatically activates visible and audible alarms when the ambient air concentration of hydrogen sulfide reaches a predetermined value, not to exceed 20 ppm. There shall be a sensing point located 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.

~~ii. The detection system shall be calibrated and tested and the results recorded monthly. Each test of the hydrogen sulfide monitoring system shall be recorded on the driller's log or its equivalent.~~

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

iii. Hydrogen sulfide detection and monitoring equipment must be provided and must be made operational 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.

i. Equipment to indicate wind direction shall be present and visible at all times. At least two devices to indicate wind direction shall be installed at separate elevations and visible from all principal working areas at all times.

ii. When a sustained concentration of hydrogen sulfide is detected in excess of 20 ppm at any detection point, red flags shall be displayed.

d. Mud Program. A mud program capable of handling hydrogen sulfide conditions and hydrogen sulfide well control shall be used. The program shall include de-gassing.

e. Well Testing. Except with prior approval of the division, drill stem testing of a zone that contains hydrogen sulfide shall be conducted only during daylight hours and formation fluids shall not be permitted to flow to the surface (closed-chamber only).

3. Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Refineries, Gas Plants and Compressor Stations.

a. API Standards. Operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations ~~containing a potentially hazardous volume of hydrogen sulfide~~ shall be conducted with due consideration to the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, latest edition.

~~2. Minimum Standards. At a minimum, operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations containing a potentially hazardous volume of hydrogen sulfide shall also be conducted in accordance with the following subparagraphs and subsubparagraphs.~~

b. Wind Direction Indicators. Wind direction indicators shall be required.

c. Secondary Well Control. Any well shall possess a secondary means of immediate well control through the use of appropriate christmas tree or downhole completion equipment. Such equipment shall allow downhole accessibility (reentry) under pressure for permanent well control operations.

d. Automatic Safety Valve or Shutdown. Any well shall possess an automatic safety valve or shutdown at the facility or wellhead or other appropriate shut-in control. The automatic safety valve shall be set to activate upon a release of a volume of hydrogen sulfide that may create a concentration of hydrogen sulfide of 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.

3. Tanks or vessels. Each stair or ladder leading to the top of any tank or vessel containing 300 ppm or more of hydrogen sulfide in the gaseous mixture shall be chained or marked to restrict entry. ~~Any tank or tank battery that requires fencing pursuant to this section may substitute a danger sign posted at the gates for chaining and signs.~~

4. Compliance Schedule. Each existing crude oil pump station and producing well, tank battery and associated production facility, refinery, gas plant and compressor station not currently meeting the

requirements and minimum standards set forth herein shall be brought into compliance within one year of the effective date of this section. Each crude oil pump station and producing well, tank battery and associated production facility constructed following the effective date of this section shall be designed, constructed and operated to meet the requirements set forth herein.

PHV:

Flare System. A flare system shall be installed that will safely gather and burn hydrogen sulfide-bearing gas. Flare outlets shall be located at least 150 feet from the well bore. Flare lines shall be as straight as practical. The flare system shall be equipped with a suitable and safe means of ignition. Where noncombustible gas is to be flared, the system shall be provided with supplemental fuel to maintain ignition.

~~e. Flare System. For drilling and completion operations, the person, operator or facility shall install a flare system to safely gather and burn hydrogen sulfide-bearing gas. Flare outlets shall be located at least 150 feet from the well bore. Flare lines shall be as straight as practical. The flare system shall be equipped with a suitable and safe means of ignition. Where noncombustible gas is to be flared, the system shall be provided supplemental fuel to maintain ignition.~~

Wind Direction Indicators. Equipment to indicate wind direction shall be present and visible at all times. At least one device to indicate wind direction shall be installed and visible form all principal working areas at all times.

J. Standards for Equipment That May Be Exposed to Hydrogen Sulfide. ~~Persons, operators and facilities shall choose~~ equipment with consideration for both the hydrogen sulfide working environment and anticipated stresses. NACE Standard MR0175 (latest edition) or some other standard approved by the division shall be used for selection of metallic equipment or, if applicable, adequate protection by chemical inhibition or other methods that control or limits the corrosive effects of hydrogen sulfide shall be used.

PHV + Public Area:

Drilling. A remote controlled choke shall be installed and operational at all times beginning when drilling is within 500 feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The control system must include, at a minimum, a pressure and hydrogen sulfide rated well control choke and kill system including a manifold and blowout preventer that meets or exceeds the specifications of API-16C and API-RP 53 or other specifications approved by the division. Mud-gas separators shall also be used. These systems shall be tested and maintained according to the specifications referenced or as otherwise approved by the division.

Workover, completion, recompletion or well servicing. A remote controlled pressure and hydrogen sulfide rated well control system that meets or exceeds API specifications or other specifications approved by the division shall be installed and operational at all times before commencing work.

3. Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Refineries, Gas Plants and Compressor Stations.

b. Security ~~Fencing~~. ~~Fencing and gates shall be required when crude oil pump stations and producing wells, tank batteries and associated production facilities are located in a public area or within a 1/4 mile of a building or structure used as a dwelling, office, place of business, church, school, hospital or government building or within 1/4 mile of a park, playground or school bus stop. The fence shall consist~~

~~of a 5-foot chain link topped by two stands of barbed wire or other design approved by the division. Gates shall be locked when unattended.~~ Unattended crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations shall be secured from public access when the location is within one quarter mile of a public area. Security measures shall include fencing and locking, as appriportae. **A surface pipeline shall not be considered as a fixed surface facility for purposes of this section. [What does that mean?]**

d. Special Requirements. In addition, safety devices such as automtic shut-down devices shall be installed and maintained in good operta9ing vcondition. Alternatively, safety procedures shall be established designed to prevent the undetected release of hydrogen sulfide. Any well shall possess a secondary means of immediate well control through the use of an appropriate christas tree or downhole completion equipment. Such equipment shall permit the downhole accessibility (re-entry) under pressure for immediate well control. **[THIS SEEMS TO PERTAIN MORE TO WELLS THAN THESE TYPES OF FACILITIES - PROBABLY SHOULD BE MOVED UNDER WELLS]**

TEXT CONTINUES:::

~~f. Use of Well Control Equipment.~~

~~i. Drilling. A remote controlled choke and accumulator shall be installed and operational at all times beginning when drilling is within 500 feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The remote controlled choke must 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 API 16C and API RP 53 or other specifications approved by the division. The blowout preventer stack shall have at least one spool for the kill and choke lines, two pipe rams, one blind ram, one annular device and a rotating head. Mud gas separators shall also be used. These systems shall be tested and maintained pursuant to the specifications refereneed, according to the requirements of this part, or otherwise as approved by the division.~~

~~ii. Completion, Workover and Well Servicing. If feasible, the equipment described in the previous subsubparagraph shall be installed and operational at all times during completion, workover and well servicing of a well. If not feasible, a suitable alternative to a remote choke such as a remote controlled valve or blow out preventer with remote accumulator may be used, so long as the alternative equipment will be protective of public safety.~~

~~g. Mud Program. A mud program, including de-gassing and flaring, capable of handling hydrogen sulfide conditions and well control shall be used.~~

~~h. Well Testing. Except with prior approval by the division, drill stem testing of a zone that contains hydrogen sulfide shall be closed chamber only, in that formation fluids shall not be permitted to flow to the surface.~~

3. If Hydrogen Sulfide Encountered During Operations.

Encountering Hydrogen Sulfide During Drilling. If hydrogen sulfide is encountered during drilling when not anticipated, drilling must cease immediately and the division notified within twenty-four hours. Drilling may continue only upon verbal approval of the division.

[missing concepts: what about immediate control of the well? What about complying with the provisions of this section with respect to well control equipment, api stds., etc.?]

~~a. 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 in the gaseous mixture, the operator shall immediately ensure control of the well, suspend drilling operations unless detrimental to well control, take whatever measures are necessary under the circumstances to assure public safety, calculate the radius of exposure and, if a potentially hazardous volume is present, prepare a hydrogen sulfide contingency plan and obtain materials and equipment to bring operations into compliance with this section. The operator shall notify the division of the event and the mitigating steps that have or are being taken as soon as possible, but no later than 24 hours following discovery.~~

~~b. If Hydrogen Sulfide Is Encountered During Use of Air, Gas, Mist or Other Non-Mud Circulating Media. If hydrogen sulfide gas in excess of 100 ppm is encountered while drilling with air, gas, mist or other non-mud circulating mediums, the well shall be killed with a water- or oil-based mud, and mud shall be used thereafter as the circulating medium for continued drilling. An alternate drilling method may be used if specifically approved by the division.~~ **[MAJOR CAVE-IN HERE]**

I. Personnel Protection and Training. All persons responsible for the implementation of any hydrogen sulfide contingency plan shall be provided training in hydrogen sulfide hazards, detection, personal protection and contingency procedures.

K. Exemptions. Any person, operator or facility may petition the director for an exemption to any requirements of this section. Any such petition shall provide specific information as to the circumstances that warrant approval of the exemption requested and how the public safety will be protected. A safety plan required by other governmental agencies may accompany the petition for exemption. The director, after considering all relevant factors, may approve an exemption if the circumstances warrant an exemption. **[this was deleted in the consensus draft and replaced with a bizarre paragraph entitiled "multiple jurisdiction"]**

~~L. Release. Upon a release of hydrogen sulfide the following actions must be taken:~~

~~1. Activation of the Hydrogen Sulfide Contingency Plan. The hydrogen sulfide contingency plan shall be activated in the event of a release that may create a concentration of hydrogen sulfide of 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.~~

2. Notification of the Division. The person, operator or facility shall notify the division upon a release of hydrogen sulfide requiring activation of the hydrogen sulfide contingency plan, ~~preferably within one hour of discovery of the release,~~ but as soon as possible and in no event no more than four (4) hours following the release ~~in cases where prompt response should supercede notification~~. The person, operator or facility shall submit a full report of the incident to the division on Form C-141 no later than fifteen (15) days following the release.

M. Electronic Submission. Any submission to the division required by this section shall be made electronically in a generally accepted format that is compatible with the division's systems. **[this is deleted in the consensus draft]**

N. Corrective Actions. The division may require corrective actions if necessary to maintain control of a well or any other facility or to safeguard public safety.

October 15, 2002

New Mexico Oil Conservation Commission
c/o Hon. Lori Wrotenbery, Chairman
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Re: Proposed Hydrogen Sulfide Rule

Dear Chairman Wrotenbery and Honorable Commissioners:

Pursuant to the direction of the Commission, the Hydrogen Sulfide Work Group met on October 9, 2002. The following persons were in attendance:

Wayne Price	Oil Conservation Division
Gene Montgomery	Oxy Permian
David Brooks	Oil Conservation Division
Roger Anderson	Oil Conservation Division
Bob Manthei	BP-America
Bruce Gantner	Burlington Resources
Ed Martin	Oil Conservation Division
Mike Stubblefield	Oil Conservation Division
Jeff Harvard	Harvard Petroleum
Dan Girand	Mack Energy
John Bramhall	U.S. Bureau of Land Management
Juan P. Ontiveros	New Mexico Department of Public Safety
Max Johnson	New Mexico Department of Public Safety
Deborah Seligman	Mew Mexico Oil and Gas Association

We are pleased to inform the Commission that, with minor exceptions hereinafter noted, the work group reached a consensus on all outstanding issues. Although the consensus was not unanimous on every point, in each instance a majority of the industry representatives and the Division concurred. The Department of Public Safety representatives concurred on all issues with respect to which they participated.

The only exception to the consensus achieved related to the proposed insertion of the word "reasonable" in Subsections J, authorizing the Division to order changes is warning signs, contingency plans or compliance procedures, and the insertion of the word "reasonably" in Subsection L, authorizing the Division to require actions to address particular safety concerns. The Division does not agree with these insertions. The

Division concedes that it cannot be arbitrary and capricious, and, in that sense, its requirements must be reasonable. However, the operator always has the option of challenging Division action through the hearing process if it can demonstrate that a particular requirement is unreasonable, or to request an exception by the procedure provided. The Division's enforcement authority would be impaired if the operator could simply refuse to comply because of its belief that the Division's requirement was unreasonable and force the Division to affirmatively demonstrate the reasonableness of the requirement as a predicate to enforcement.

Attached is the currently proposed workgroup draft in color-coded form and in clean copy form. On the color-coded draft, the changes recommended by the industry protesters at the September 20 workshop are shown in red, and the changes emanating from the October 9 work group meeting are shown in pink. The insertions proposed by the industry representatives that are non acceptable to the Division are highlighted in yellow. The clean copy represents the work group's final recommendation, in which the Division concurs except for the aforementioned insertions.

Also attached is a summary of the principal substantive changes recommended by the work group from the August 30 draft prepared by Commission counsel,

Should you have any questions, please call me at (505)-476-3450.

Very truly yours,

David K. Brooks
Assistant General Counsel

cc:

19.15.2.52 Hydrogen Sulfide Gas (Hydrogen Sulfide)

~~A. In General. Hydrogen sulfide gas is a flammable, poisonous gas that may occur naturally as a component of crude petroleum and natural gas. The gas has a distinct and characteristic odor of rotten eggs but due to olfactory fatigue may not be sensed by the human sense of smell.~~

~~B~~A. Applicability. This section is a public safety ~~standard~~ rule that applies to any person, operator or facility subject to the jurisdiction of the Division, including, but not limited to, any person, operator or facility engaged in drilling, stimulating, injecting into, completing, working over or producing any oil, natural gas or carbon dioxide well or any person, operator or facility engaged in gathering, transporting, storing, processing or refining of crude oil, natural gas or carbon dioxide. This section shall not act to exempt or otherwise excuse surface waste management facilities permitted by the division pursuant to 19 NMAC 15.I.711 from more stringent conditions on the handling of hydrogen sulfide required of such facilities by 19 NMAC 15.I.711 or more stringent conditions existing in permits issued thereunder, nor shall such facilities be exempt or otherwise excused from the requirements set forth in this section by virtue of permitting under 19 NMAC 15.I.711.

~~C~~B. Definitions (specific to this section).

1. ANSI. The acronym "ANSI" means the american national standards institute.
2. API. The acronym "API" means the american petroleum institute.
3. Area of Exposure. The phrase "area of exposure" means the area within a circle constructed with the point of escape at its center and the radius of exposure as its radius.
4. ASTM. The acronym "ASTM" means the american society for testing and materials.
5. Dispersion Technique. A "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.
6. ~~6.~~ Escape Rate. The "escape rate" is the maximum volume (Q) that is used to designate the possible rate of escape of a gaseous mixture containing hydrogen sulfide.
   a) For existing gas operations and facilities, t~~T~~he escape rate is calculated using the maximum daily rate of the gaseous mixture produced, handled, or the best estimate thereof. For an existing natural gas well, the escape rate shall be calculated by using the current daily absolute open flow rate against atmospheric pressure or the best estimate of that rate.
   b) For new gas operations and facilities, the escape rate will be calculated as the maximum anticipated flow rate through the system. For a new natural gas well, the escape rate shall be calculated using the maximum open-flow rate of off set wells, or the field average of current maximum open-flow rates.
   c) For ~~an~~ existing oil wells and facilities, the escape rate shall be calculated by multiplying the producing gas/oil ratio by the maximum daily production rate or the best estimate thereof.
   d) For a new oil well, the escape rate shall be determined by multiplying the producing gas/oil ratio by the maximum daily production rate of offset wells or the field average of current wells. ~~For an oil or natural gas well drilled in a developed area, the escape rate may be determined by using data from offset wells completed in the interval in question, or using some other reasonable means to calculate the escape rate. For facilities or operations not mentioned, the escape rate shall be calculated using the actual flow of the gaseous mixture through the facility or operation.~~
   e) For facilities or operations not mentioned, the escape rate shall be calculated using the actual flow, or a reasonable estimate thereof, of the gaseous mixture through the facility or operation.
7. GPA. The acronym "GPA" means the gas processors association.

8. LEPC. The acronym "LEPC" means the local emergency planning committee established pursuant to the emergency planning and community right-to-know act, 42 U.S. C. § 11001.

9. NACE. The acronym "NACE" refers to the national association of corrosion engineers.

10. PPM. The acronym "ppm" means "parts per million" by volume.

11. Potentially Hazardous Volume (hereinafter referred to as a ~~"potentially hazardous volume"~~PHV) means the volume of hydrogen sulfide gas of such concentration that:

a. the 100-ppm radius of exposure includes any public area as defined herein;

b. the 500-ppm radius of exposure includes any public road as defined herein; or

c. the 100-ppm radius of exposure is ~~equal to or~~ in excess of 3,000 feet.

12. Public Area. A "public area" is any occupied building or structure that is not associated with the well, operation or system for which the radius of exposure is being calculated and that is used as a dwelling, office, place of business, church, school, ~~school bus stop,~~ hospital, or government building, or any portion of a park, city, town, village or ~~or~~ an ~~school bus stop or~~ established school bus stop or other similar area where members of the public may reasonably be expected to be present.

13. Public Road. A "public road" is any federal, state, municipal or county road or highway ~~or postal route~~.

14. Radius of Exposure. The radius of exposure (hereinafter referred to as "radius of exposure" or "ROE") is that 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 may be approved by the division:

a. For determining the 100-ppm radius of exposure: $X= [(1.589)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

~~or~~

b. For determining the 500-ppm radius of exposure: $X=[(0.4546)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

c. 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 3,000 feet shall be assumed.

~~D~~C. ~~Determination of Hydrogen Sulfide Risk~~Testing for Presence of Hydrogen Sulfide.

1. Determination of Hydrogen Sulfide Concentration.

a. Each person, operator or facility to which this section applies shall determine the hydrogen sulfide concentration within each of its ~~wells.~~ operations or systems. A representative sample or process knowledge may be used in lieu of individual testing of wells~~wells,~~ operations or systems provided that the person, operator or facility can demonstrate that the concentration derived from the representative sample or process knowledge is reasonably representative of the hydrogen sulfide concentration within the well~~well,~~ operation or system.

b. The tests used to make the determination referred to in the previous subparagraph shall be conducted in accordance with applicable ASTM or GPA standards or by other methods approved by the division.

c. If a valid, representative sample from an ~~well,~~ operation or system was tested at any time prior to the effective date of this section, ~~within one (1) year of the effective date of this~~

~~section,~~ new testing shall not be required~~: provided, however, new testing shall not be required for a producing well that was tested at any time prior to the effective date of this section~~.

2. Tested Concentrations Below 100 ppm. If the concentration of hydrogen sulfide in a given ~~well.~~ operation or system is less than 100 ppm, no further actions shall be required pursuant to this section.

3. Tested Concentrations Above 100 ppm~~: Calculation of the Radius of Exposure. a.~~ If the concentration of hydrogen sulfide in a given ~~well,~~ operation or system is 100 ppm or greater, then the person, operator or facility must calculate the radius of exposure and comply with other applicable requirements of this rule. ~~pursuant to this section~~Paragraph D and ~~comply with the signage requirements outlined in paragraph F.~~

~~.~~4. Retesting. If any change or alteration to an operation or system can materially increase the concentration of hydrogen sulfide, then the operator must retest that operation or system.

D. Determination of Radius of Exposure

1. For all operations subject to this section, the radius of exposure (ROE) shall be determined ~~by following the definition given in B.14.~~

~~b~~2. If calculation of the radius of exposure reveals that a potentially hazardous volume is present, the person, operator or facility shall provide the results of the determination of the hydrogen sulfide concentration and the calculation of the radius of exposure to the division.

3. For an ~~well~~, operation or system existing on the effective date of this section, the determination, calculation and submission required herein shall be accomplished within ~~180~~360 days of the effective date of this section; for any ~~well,~~ operation or system that commences operations after the effective date of this section, the determination, calculation and submission required herein shall be accomplished, preferably before operations begin but no later than 60 days after initial production~~before operations begin~~.

4. Recalculation. The person, operator or facility shall ~~calculate or~~ recalculate the radius of exposure if an operational change or production alteration causes the hydrogen sulfide concentration in an ~~well,~~ operation or system to increase to 100 ppm or greater or, if the hydrogen sulfide concentration in a well, operation or system was already 100 ppm or greater, causes a 25% or greater increase in the actual volume fraction of hydrogen sulfide. If calculation or recalculation of the radius of exposure reveals that a potentially hazardous volume is present, the person, operator or facility shall provide the results to the division ~~within thirty (30) days~~~~as soon as possible, but no later than~~within sixty (60) days.

E. Hydrogen Sulfide Contingency Plan.

1. In General. A hydrogen sulfide contingency plan is a written document that provides a plan of action that will be used to alert and protect persons at risk in the event of a ~~potentially~~ ~~significant~~ release of hydrogen sulfide gas that could produce a PHV. The hydrogen sulfide contingency plan ~~should~~shall be ~~developed with~~developed with due consideration of API Standard RP-55 entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide" but, as a minimum ,~~must~~ shall be developed in accordance with the following paragraphs.

2. When Required. A hydrogen sulfide contingency plan must be prepared whenever a potentially hazardous volume of hydrogen sulfide is present or , in the case of a well being drilled, deepened, or re-entered, may reasonably expected to be encountered.

~~3. Input of Emergency Response Authorities and the Division. The person, operator or facility shall develop a proposed hydrogen sulfide contingency plan and provide a copy to the division, the New Mexico department of public safety (*i.e.*, the New Mexico state police), and the local emergency~~

~~planning committee. If the potential source of release is within a municipality, a copy shall be provided to the municipal police and fire department. If the potential source of the release is outside the boundaries of a municipality, a copy shall instead be provided to the county sheriff and the county fire department or departments. Input on the proposed plan shall be sought from each of the foregoing; if an emergency response authority provided with a copy of the proposed plan fails to provide input or fails to respond at all, that fact shall be stated in the final hydrogen sulfide contingency plan submitted to the division. The input provided by the emergency response authorities shall be considered when preparing the final plan for submission to the division but failure to include any specific suggestion shall not affect the validity of the plan or cause disapproval of the plan by the division.~~

3. Plan Contents ~~4. Elements~~.

The contingency plans shall contain, but not be limited to, information on the following subjects, as appropriate for the operation or system to which it applies:

a. Emergency Procedures
   1. Responsibilities of personnel
   ~~2.~~ Immediate Action plan
   ~~3.~~ Telephone numbers and communication methods for public agencies, emergency response organizations, and public authorities as appropriate
   ~~4.~~ Locations of nearby residences, businesses, parks, schools, churches, roads, medical facilities, etc.
   ~~5.~~ Evacuation routes and road block locations
   ~~6.~~ Procedures for public notification (lists or reaction plans)
   ~~7.~~ A statement describing how emergency response actions will be coordinated with the division and the New Mexico state police, consistent with the New Mexico hazardous materials emergency response plan (HMER).
   ~~8.~~ Location and availability of necessary safety equipment and supplies.

b. Characteristics of Hydrogen Sulfide and Sulfur Dioxide

c. Maps, and Drawings
   1. Plats or maps detailing the areas affected by the ROE, specifically delineating any affected public areas and public roads

d. Training and Drills
   1. Responsibilities and duties of essential personnel
   2. On-site or classroom drills
   3. Informing nearby residents on protective measures in emergency situations as appropriate
   4. Training and attendance documentation
   5. Briefing of public officials on issues such as evacuation or shelter-in-place plans

4. Plan Activation. The hydrogen sulfide contingency plan shall address the activation threshold and the events that could lead to that threshold. ~~be activated in the event of a significan release of hydrogen sulfide gas that could produce a PHV.~~ Minimum criteria for activation shall include an event that could result in: a 100-ppm in any public area, a 500 ppm at any public road, 100 ppm 3000 feet from the site of the release, or 50 ppm for 10 minutes at the boundary of the facility.

~~a. Elements Required for Each Plan:~~

~~i. A detailed description of each action to be taken in the event of a release of hydrogen sulfide requiring activation shall be included in each hydrogen sulfide contingency plan, including provisions for alerting and accounting for personnel, controlling any release of hydrogen~~

sulfide gas, eliminating possible ignition sources, alerting the public (directly or through appropriate government agencies), evacuating persons in the affected area, using the call list to alert company officials and emergency response authorities, making recommendations to public officials to block access to affected areas and conducting evacuations and coordinating emergency response with emergency response authorities. A plan that addresses the items described in paragraph 7.6 of the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, most recent edition, shall be adequate for this purpose;

ii. A call list including the following as applicable:

aa. local supervisory personnel;

bb. county sheriff;

cc. department of public safety and state police;

dd. city or municipal police;

ee. appropriate division district office; and

ff. other public agencies as appropriate;

iii. A plat or map detailing the area within the radius of exposure of a potentially hazardous volume; and

iv. A list of the names and telephone numbers of all personnel to be contacted when a release is reported or suspected.

b. Where the 500-ppm radius of exposure encompasses any public road, the person, operator or facility shall include the following additional elements in the hydrogen sulfide contingency plan:

i. A plat or map detailing the area of exposure, including the locations of public roads; and

ii. A plan to divert traffic and safely get existing traffic off the road and out of danger.

c. Where the 100-ppm radius of exposure encompasses any public area, the following additional elements shall be included in the hydrogen sulfide contingency plan:

i. A call list including all the persons set forth in Sub subparagraph E(4)(a)(ii), above, and the following:

aa. ambulance services;

bb. hospitals;

cc. county and city fire departments;

dd. doctors;

ee. contractors for supplemental or emergency equipment; and

ff. other public agencies as appropriate;

ii. A statement describing how emergency response actions will be coordinated with the division and the New Mexico state police, consistent with the New Mexico hazardous materials emergency response plan (HMER);

iii. A plat or map detailing the area of exposure, including the locations of public areas and public roads;

iv. The names and telephone numbers of all persons living within the area of exposure and contact persons for areas of public concentration such as churches, schools, hospitals, offices and places of business;

v. Provision for advance briefing of affected persons within the radius of exposure. Such advance briefing shall include the hazards and characteristics of hydrogen sulfide, the necessity for a hydrogen sulfide contingency plan, the possible sources of hydrogen sulfide within the radius of exposure, instructions for reporting a gas leak, the manner in which persons will be notified in the event of an emergency and steps to be taken in an emergency;

vi. In lieu of the provision for advance briefing of persons within the radius of exposure described in the previous subsubparagraph, a reaction-type plan may be prepared and

~~submitted that provides for mass notification of a release of hydrogen sulfide and for evacuation of affected areas; and~~

~~vii. Additional support information, if applicable, such as the location of emergency evacuation routes, the location of safety and life-support equipment, the location of facilities containing hydrogen sulfide, the location of nearby telephones or other means of communication and special instructions for conditions at a particular installation such as local terrain and the effect of various weather conditions.~~

~~d. Additional Requirements. The division may impose additional requirements or modify requirements based on site-specific conditions, population density or special circumstances.~~

5. Submission. ~~The hydrogen sulfide contingency plan shall be submitted to the division and a copy shall be submitted to the local emergency planning committee, if one exists.~~ A hydrogen sulfide contingency plan for a ~~well,~~ system or operation existing on the effective date of this section shall be submitted to the Division within ~~180~~360 days from the effective date of this section. A hydrogen sulfide contingency plan for a new ~~well,~~ system or operation shall be submitted, preferably before operations begin, but no later than 60 days of commencing ~~before~~ operations ~~commence~~. ~~A hydrogen sulfide contingency plan shall be submitted within 180 days if a public area or public road is established that creates a potentially hazardous volume where none previously existed. The hydrogen sulfide contingency plan~~ ~~I~~For a drilling, completion, workover or well servicing operation, the hydrogen sulfide contingency plan must be on-file with the division prior to commencing work. The plan may be submitted separately or along with the application for permit to drill (APD) or must be on-file from a previous submittal. On an annual basis, the operator shall file with the applicable local emergency planning committee, and the state emergency response commission, an inventory of the operations and systems where contingency plans are on file with the division and a point of contact

6. Failure to Submit Plan. Failure to submit a hydrogen sulfide contingency plan when required may result in denial of an application for permit to drill that well, cancellation of an allowable or other appropriate enforcement action.

7. ~~Annual Review, Amendment~~Updating Provisions. The ~~person, operator or facility shall review the hydrogen sulfide contingency plan on an annual basis, or more frequently if activation of a plan reveals a deficiency or, if changes to processes, concentrations of hydrogen sulfide or other circumstances occur, or if a new public area and/or a new public road is established that creates a potentially hazardous volume. The person, operator or facility shall submit any amendments to the division and to the local emergency planning committee. Reasonable efforts shall be taken to update on an annual basis the lists of names and telephone numbers in the hydrogen sulfide contingency plan~~Contingency Plan shall be periodically reviewed and updated any time its provisions or coverage materially change.

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

9. Plan Adequacy. Additional requirements may be required in the contingency plan if it has been determined inadequate by the division to protect public safety.

F. Signage at ~~Wells~~, Facilities or Operations. ~~For every well, operation or system to which this section applies that contains a concentration of hydrogen sulfide of 100 ppm or greater, the person, operator or facility must provide signage as set forth herein.~~

1. Where required. For every operation, or system to which this section applies that is determined to contain a hydrogen sulfide concentration of 100 ppm or greater, signs or markers meeting the requirements outlined below must be installed and maintained.
2. Signs and Markers Specifications. The sign or marker shall conform with the current ANSI standard Z53.1 and shall contain sufficient information and be readily readable by the public to warn that a potential danger exists and shall contain the words "Poison Gas". Signs or markers that have been installed prior to the effective date of

this section and that are in compliance with other applicable regulations (Department of Transportation, OSHA, etc.) shall satisfy the requirements of this section. Other signs and markers that have been installed prior to the effective date of this section shall be acceptable provided that they indicate the presence of a potential hazard. For drilling, workover, completion, and recompletion operations, additional warning measures (e.g., red flags, signs, etc) shall be prominently posted whenever an imminent danger situation exists.

3. Location. Signs and/or markers shall be prominently posted at appropriate locations (e.g., entrance points) for facilities and operations subject to this section.

~~Drilling, Completion, Workover, and Well Servicing Operations. A danger or caution sign shall be displayed at each drilling, completion, workover and well servicing operation along each point of access to the site. The signs shall read "DANGER - POISON GAS, HYDROGEN SULFIDE PRESENT" or, as appropriate, "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT" or use equivalent language approved by the division, and shall state in smaller lettering: "Do Not Approach If Red Flag is Flying" or use equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration, or in another color approved by the division. The signs shall be legible and large enough to be read by all persons entering the well site and shall be placed a minimum of 200 feet but no more than 500 feet from the well site and at a location that allows vehicles to turn around at a safe distance prior to reaching the site.~~

~~2. Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Refineries, Gas Plants and Compressor Stations. A danger sign or signs shall be posted within 50 feet of each crude oil pump station, producing well, tank battery and associated production facility, refinery, gas plant and compressor station to alert the public of the potential hydrogen sulfide danger. If fenced, a danger sign at the gates shall suffice. The signs shall read "DANGER - POISON GAS - HYDROGEN SULFIDE PRESENT," or, as appropriate, "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT" or use equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration, or in another color approved by the division. The signs shall be legible and large enough to be read by all persons entering the site. A sign shall be placed at each point where a flow line or gathering line crosses a public road; each sign shall be legible and shall contain the name of the owner or operator and an emergency telephone number.~~

~~3. Tanks or Vessels. A danger sign or signs shall be posted on or within 50 feet of any storage tank to alert persons of the potential hydrogen sulfide danger. For any storage tank for which fencing is required, a danger sign posted at the locked gates shall suffice. The signs shall read "DANGER - POISON GAS - HYDROGEN SULFIDE PRESENT," or, as appropriate "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT," or equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration or another color approved by the division. The sign(s) shall be legible and large enough to be read by all persons entering the site.~~

G. Compliance Requirements

1. Protection from Hydrogen Sulfide During Drilling, Completion, Workover, and Well Servicing Operations.

a. API Standards. All drilling, completion, workover and well servicing operations ~~where it is reasonably expected that a potentially hazardous volume of hydrogen sulfide will be encountered~~ shall be conducted with due consideration to the guidelines published by the API entitled "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 ~~of~~ Wells Containing Hydrogen Sulfide," RP-49, most recent edition.

~~2. Minimum Standards. At a minimum, each drilling, completion, workover and well servicing operation where a potentially hazardous volume of hydrogen sulfide may reasonably be expected to be encountered shall be conducted in accordance with the following:~~

~~a. Before Commencing Operations. Hydrogen sulfide training shall be completed and warning systems shall be operational before commencement of operations. Detection and monitoring equipment is not required for drilling from the surface to within 500 feet of the zone anticipated to contain hydrogen sulfide.~~

~~b. Egress Routes. The person, operator or facility shall maintain passable egress routes at all times during operations.~~

b. Detection and Monitoring Equipment. The person, operator or facility shall provide hydrogen sulfide detection and monitoring equipment as follows:

i. Each drilling and completion site shall have an accurate and precise hydrogen sulfide detection and monitoring system that is capable of automatically activate~~s~~ing visible and audible alarms when the ambient air concentration of hydrogen sulfide ~~reaches~~reaches a predetermined value set by the operator, not to exceed 20 ppm ~~is equal to or less than 20 ppm~~. There shall be a sensing point located 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.

~~ii. The detection system shall be calibrated and tested and the results recorded monthly. Each test of the hydrogen sulfide monitoring system shall be recorded on the driller's log or its equivalent.~~

~~iii~~ii. For workover and well servicing operations, one operational sensing point shall be located as close to the well bore as practical. Additional sensing points may be necessary for large or long-term operations.

~~iv~~iii. Hydrogen sulfide detection and monitoring equipment must be provided and must be made operational 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.

i. Equipment to indicate wind direction shall be present and visible at all times. At least two devices to indicate wind direction shall be installed at separate elevations and visible from all principal working areas at all times.

ii. When a sustained concentration of hydrogen sulfide is detected in excess of 20 ppm at any detection point, red flags shall be displayed.

d. Special Requirements. Where drilling, workover, completion, and recompletion operations occur in areas where the 100 ppm ROE includes a public area, the following additional measures are required:

~~i. The operator shall install a choke manifold, mud gas separator, and flare line and provide a suitable method for lighting the flare.~~

~~ii. A remote controlled choke and accumulator shall be installed and operational.~~

i. Drilling. A remote controlled well control system shall be installed and operational at all times beginning when drilling is within 500 feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The control system must 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 API-16C and API-RP 53 or other specifications approved by the division. ~~The blowout preventer stack shall have at least one spool, or integral BOP spool for the kill and choke lines, one dual BOP with one pipe and one blind ram, one annular device and a rotating head. Operators may be required to have available float valves, internal BOP's, stabbing valves, drill stem valves, etc. and other additional~~

~~equipment in order to provide for public safety.~~ Mud-gas separators shall also be used. These systems shall be tested and maintained pursuant to the specifications referenced, according to the requirements of this part, or otherwise as approved by the division.

ii. Completion, Workover and Well Servicing. A remote controlled pressure and hydrogen sulfide rated well control system that meets or exceeds API specifications or other specifications approved by the division shall be installed and operational at all times before commencing work.

e. Flare System. For drilling and completion operations in an area where it is reasonably expected that a PHV of hydrogen sulfide will be encountered, the person, operator or facility shall install a flare system to safely gather and burn hydrogen sulfide bearing gas. Flare outlets shall be located at least 150 feet from the well bore. Flare lines shall be as straight as practical. The flare system shall be equipped with a suitable and safe means of ignition. Where noncombustible gas is to be flared, the system shall be provided supplemental fuel to maintain ignition.

f. If hydrogen sulfide was not anticipated but is encountered during drilling operations the requirements of this rule must be satisfied, and OCD notified within 24 hours, before drilling operation continues. The OCD may grant verbal approval pending contingency plan preparation.

g. Mud Program. A mud program, including de-gassing, capable of handling hydrogen sulfide conditions and well control shall be used.

h. Well Testing. Except with prior approval of the division, drill stem testing of a zone that contains hydrogen sulfide shall be conducted only during daylight hours, and formation fluids shall not be permitted to flow to the surface (closed-chamber only).

~~e. Flare System. For drilling and completion operations, the person, operator or facility shall install a flare system to safely gather and burn hydrogen sulfide bearing gas. Flare outlets shall be located at least 150 feet from the well bore. Flare lines shall be as straight as practical. The flare system shall be equipped with a suitable and safe means of ignition. Where noncombustible gas is to be flared, the system shall be provided supplemental fuel to maintain ignition.~~

~~f. Use of Well Control Equipment.~~

~~i. Drilling. A remote controlled choke and accumulator shall be installed and operational at all times beginning when drilling is within 500 feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The remote controlled choke must 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 API 16C and API RP 53 or other specifications approved by the division. The blowout preventer stack shall have at least one spool for the kill and choke lines, two pipe rams, one blind ram, one annular device and a rotating head. Mud-gas separators shall also be used. These systems shall be tested and maintained pursuant to the specifications referenced, according to the requirements of this part, or otherwise as approved by the division.~~

~~ii. Completion, Workover and Well Servicing. If feasible, the equipment described in the previous subsubparagraph shall be installed and operational at all times during completion, workover and well servicing of a well. If not feasible, a suitable alternative to a remote choke such as a remote controlled valve or blow out preventer with remote accumulator may be used, so long as the alternative equipment will be protective of public safety.~~

~~g. Mud Program. A mud program, including de-gassing and flaring, capable of handling hydrogen sulfide conditions and well control shall be used.~~

~~h. Well Testing. Except with prior approval by the division, drill stem testing of a zone that contains hydrogen sulfide shall be closed chamber only, in that formation fluids shall not be permitted to flow to the surface.~~

~~3. If Hydrogen Sulfide Encountered During Operations.~~

~~a. 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 in the gaseous mixture, the operator shall immediately ensure control of the well, suspend drilling operations unless detrimental~~

~~to well control, take whatever measures are necessary under the circumstances to assure public safety, calculate the radius of exposure and, if a potentially hazardous volume is present, prepare a hydrogen sulfide contingency plan and obtain materials and equipment to bring operations into compliance with this section. The operator shall notify the division of the event and the mitigating steps that have or are being taken as soon as possible, but no later than 24 hours following discovery.~~

~~b. If Hydrogen Sulfide Is Encountered During Use of Air, Gas, Mist or Other Non-Mud Circulating Media. If hydrogen sulfide gas in excess of 100 ppm is encountered while drilling with air, gas, mist or other non-mud circulating mediums, the well shall be killed with a water- or oil-based mud, and mud shall be used thereafter as the circulating medium for continued drilling. An alternate drilling method may be used if specifically approved by the division.~~

2. Protection from Hydrogen Sulfide at Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Refineries, Gas Plants and Compressor Stations.

a. API Standards. Operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations containing ~~a potentially hazardous volume of~~ hydrogen sulfide shall be conducted with due consideration to the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, latest edition.

~~2. Minimum Standards. At a minimum, operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations containing a potentially hazardous volume of hydrogen sulfide shall also be conducted in accordance with the following subparagraphs and subsubparagraphs.~~

b. Security Provisions~~Fencing. Fencing and gates shall be required when crude oil pump stations and producing wells, tank batteries and associated production facilities are located in a public area or within a 1/4 mile of a building or structure used as a dwelling, office, place of business, church, school, hospital or government building or within 1/4 mile of a park, playground or school bus stop. The fence shall consist of a 5-foot chain link topped by two stands of barbed wire or other design approved by the division. Gates shall be locked when unattended~~Well sites or other unattended fixed surface facilities shall be protected from public access when the location is within ¼ mile of a public area. This provision shall be provided by fencing and locking, as appropriate. A surface pipeline shall not be considered as a fixed surface facility for this section.

c. Wind Direction Indicators. ~~Wind direction indicators shall be required.~~ Equipment to indicate wind direction shall be present and visible at all times. At least ~~two devices~~one device to indicate wind direction ~~shall be installed at separate elevations~~ shall be installed and visible from all principal working areas at all times

d. Special Requirements. For operations or systems occur in areas where the 100 ppm ROE includes a public area, the following additional measures are required:

i. Operators shall install safety devices (e.g. automatic shut-down devices) and maintain them in an operable condition or shall establish safety procedures designed to prevent the otherwise ~~undetected~~ undetected- continuing escape of hydrogen sulfide.

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

~~c. Secondary Well Control. Any well shall possess a secondary means of immediate well control through the use of appropriate christmas tree or downhole completion equipment. Such equipment shall allow downhole accessibility (reentry) under pressure for permanent well control operations.~~

~~d. Automatic Safety Valve or Shutdown. Any well shall possess an automatic safety valve or shutdown at the facility or wellhead or other appropriate shut-in control. The automatic~~

~~safety valve shall be set to activate upon a release of a volume of hydrogen sulfide that may create a concentration of hydrogen sulfide of 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.~~

e. Tanks or vessels. Each stair or ladder leading to the top of any tank or vessel containing 300 ppm or more of hydrogen sulfide in the gaseous mixture shall be chained or marked to restrict entry. ~~Any tank or tank battery that requires fencing pursuant to this section may substitute a danger sign posted at the gates for chaining and signs.~~

f. Compliance Schedule. Each existing crude oil pump station and producing well, tank battery and associated production facility, refinery, gas plant and compressor station not currently meeting the requirements and minimum standards set forth herein shall be brought into compliance within one year of the effective date of this section. Each crude oil pump station and producing well, tank battery and associated production facility constructed following the effective date of this section shall be designed, constructed and operated to meet the requirements set forth herein.

3. Personnel Protection and Training. All persons responsible for the implementation of any hydrogen sulfide contingency plan shall be provided training in hydrogen sulfide hazards, detection, personal protection and contingency procedures.

~~J. Standards for Equipment That May Be Exposed to Hydrogen Sulfide. Persons, operators and facilities shall choose equipment with consideration for both the hydrogen sulfide working environment and anticipated stresses. NACE Standard MR0175 (latest edition) or some other standard approved by the division shall be used for selection of metallic equipment or, if applicable, adequate protection by chemical inhibition or other methods that control or limits the corrosive effects of hydrogen sulfide shall be used.~~

~~K. Exemptions. Any person, operator or facility may petition the director for an exemption to any requirements of this section. Any such petition shall provide specific information as to the circumstances that warrant approval of the exemption requested and how the public safety will be protected. A safety plan required by other governmental agencies may accompany the petition for exemption. The director, after considering all relevant factors, may approve an exemption if the circumstances warrant an exemption.~~

~~L.~~ ~~Release. Upon a release of hydrogen sulfide the following actions must be taken:~~

~~1. Activation of the Hydrogen Sulfide Contingency Plan. The hydrogen sulfide contingency plan shall be activated in the event of a release that may create a concentration of hydrogen sulfide of 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.~~

~~4.~~H. Notification of the Division. The person, operator or facility shall notify the division upon a release of hydrogen sulfide requiring activation of the hydrogen sulfide contingency plan, ~~preferably within one hour of discovery of the release, but~~ as soon as possible, but not more than 4 hours after plan activation, recognizing that a ~~in cases where~~ prompt response should supercede notification. The person, operator or facility shall submit a full report of the incident to the division on Form C-141 no later than fifteen (15) days following the release.

~~5.~~I. Standards of Equipment that May be Exposed to Hydrogen Sulfide. ***(Keep the wording that was in "J" of the commission draft, but specify that this applies to PHV areas only).***

~~M. Electronic Submission. Any submission to the division required by this section shall be made electronically in a generally accepted format that is compatible with the division's systems.~~

J. Multiple Jurisdiction. Where an existing operation or facility is subject to multiple jurisdictions (e.g., federal, tribe, transportation) and is in compliance with the respective hydrogen sulfide rules of that jurisdiction, it shall be presumed that the operation or facility is also in compliance with this rule. For a new operation or facilty that is subject to multiple jurisdictions, the operation or facility must comply with the most stringent requirements of the respective hydrogen sulfide rules and submit a copy of the contingency plan to the division. At the time that the division requests the operator to make reasonable changes in signage, the contingency plan or other compliance requirements, the operator shall either make those changes within a reasonable time period or petition the division for an exemption.~~H. Reciprocity. Any facility or operation, that is subject to~~

~~another jurisdiction with respect to hydrogen sulfide regulations (e.g., Bureau of Land Management Onshore Order 6) and is in compliance with those regulations, shall be deemed in compliance with this section.~~

~~N. Corrective Actions. The division may require corrective actions if necessary to maintain control of a well or any other facility or to safeguard public safety.~~

~~J.~~K. Exemptions. Any person, operator or facility may petition the director, or the director's designee, for an exemption to any requirements of this section. Any such petition shall provide specific information as to the circumstances that warrant approval of the exemption requested and how the public safety will be protected. A safety plan required by other governmental agencies may accompany the petition for exemption. The director, or the director's designee, after considering all relevant factors, may approve an exemption if the circumstances warrant an exemption.

L. Corrective Actions. The division may require an operator to investigate a public safety concern within its operation and where necessary to safeguard public safety, may require the operator to implement the controls required by this rule or other controls (e.g., repair equipment), if reasonably necessary to contain an uncontrolled release of hydrogen sulfide.

19.15.2.52 Hydrogen Sulfide Gas (Hydrogen Sulfide)

A. Applicability. This section is a public safety rule that applies to any person, operator or facility subject to the jurisdiction of the Division, including, but not limited to, any person, operator or facility engaged in drilling, stimulating, injecting into, completing, working over or producing any oil, natural gas or carbon dioxide well or any person, operator or facility engaged in gathering, transporting, storing, processing or refining of crude oil, natural gas or carbon dioxide. This section shall not act to exempt or otherwise excuse surface waste management facilities permitted by the division pursuant to 19 NMAC 15.I.711 from more stringent conditions on the handling of hydrogen sulfide required of such facilities by 19 NMAC 15.I.711 or more stringent conditions existing in permits issued thereunder, nor shall such facilities be exempt or otherwise excused from the requirements set forth in this section by virtue of permitting under 19 NMAC 15.I.711.

B. Definitions (specific to this section).

1. ANSI. The acronym "ANSI" means the american national standards institute.
2. API. The acronym "API" means the american petroleum institute.
3. Area of Exposure. The phrase "area of exposure" means the area within a circle constructed with the point of escape at its center and the radius of exposure as its radius.
4. ASTM. The acronym "ASTM" means the american society for testing and materials.
5. Dispersion Technique. A "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.
6. Escape Rate. The "escape rate" is the maximum volume (Q) that is used to designate the possible rate of escape of a gaseous mixture containing hydrogen sulfide.
   a) For existing gas operations and facilities, the escape rate is calculated using the maximum daily rate of the gaseous mixture produced, handled, or the best estimate thereof. For an existing natural gas well, the escape rate shall be calculated by using the current daily absolute open flow rate against atmospheric pressure or the best estimate of that rate.
   b) For new gas operations and facilities, the escape rate will be calculated as the maximum anticipated flow rate through the system. For a new natural gas well, the escape rate shall be calculated using the maximum open-flow rate of off set wells, or the field average of current maximum open-flow rates.
   c) For existing oil wells and facilities, the escape rate shall be calculated by multiplying the producing gas/oil ratio by the maximum daily production rate or the best estimate thereof.
   d) For a new oil well, the escape rate shall be determined by multiplying the producing gas/oil ratio by the maximum daily production rate of offset wells or the field average of current wells. .
   e) For facilities or operations not mentioned, the escape rate shall be calculated using the actual flow, or a reasonable estimate thereof, of the gaseous mixture through the facility or operation.
7. GPA. The acronym "GPA" means the gas processors association.
8. LEPC. The acronym "LEPC" means the local emergency planning committee established pursuant to the emergency planning and community right-to-know act, 42 U.S. C. § 11001.
9. NACE. The acronym "NACE" refers to the national association of corrosion engineers.
10. PPM. The acronym "ppm" means "parts per million" by volume.
11. Potentially Hazardous Volume (hereinafter referred to as a PHV) means the volume of hydrogen sulfide gas of such concentration that:

a. the 100-ppm radius of exposure includes any public area as defined herein;

b. the 500-ppm radius of exposure includes any public road as defined herein; or

c. the 100-ppm radius of exposure is in excess of 3,000 feet.

12. Public Area. A "public area" is any occupied building or structure that is not associated with the well, operation or system 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 any portion of a park, city, town, village or an established school bus stop or other similar area where members of the public may reasonably be expected to be present.

13. Public Road. A "public road" is any federal, state, municipal or county road or highway.

14. Radius of Exposure. The radius of exposure (hereinafter referred to as "radius of exposure" or "ROE") is that 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 may be approved by the division:

a. For determining the 100-ppm radius of exposure: $X= [(1.589)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

~~or~~

b. For determining the 500-ppm radius of exposure: $X=[(0.4546)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

c. 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 3,000 feet shall be assumed.

C. Presence of Hydrogen Sulfide.

1. Determination of Hydrogen Sulfide Concentration.

a. Each person, operator or facility to which this section applies shall determine the hydrogen sulfide concentration within each of its operations or systems. A representative sample or process knowledge may be used in lieu of individual testing of wells operations or systems provided that the person, operator or facility can demonstrate that the concentration derived from the representative sample or process knowledge is reasonably representative of the hydrogen sulfide concentration within the well operation or system.

b. The tests used to make the determination referred to in the previous subparagraph shall be conducted in accordance with applicable ASTM or GPA standards or by other methods approved by the division.

c. If a valid, representative sample from an operation or system was tested at any time prior to the effective date of this section, new testing shall not be required.

2. Tested Concentrations Below 100 ppm. If the concentration of hydrogen sulfide in a given operation or system is less than 100 ppm, no further actions shall be required pursuant to this section.

3. Tested Concentrations Above 100 ppm If the concentration of hydrogen sulfide in a given operation or system is 100 ppm or greater, then the person, operator or facility must calculate the radius of exposure and comply with other applicable requirements of this rule.

4. Retesting. If any change or alteration to an operation or system can materially increase the concentration of hydrogen sulfide, then the operator must retest that operation or system.

D. Determination of Radius of Exposure

1. For all operations subject to this section, the radius of exposure (ROE) shall be determined .

2. If calculation of the radius of exposure reveals that a potentially hazardous volume is present, the person, operator or facility shall provide the results of the determination of the hydrogen sulfide concentration and the calculation of the radius of exposure to the division.

3. For an, operation or system existing on the effective date of this section, the determination, calculation and submission required herein shall be accomplished within 360 days of the effective date of this section; for any operation or system that commences operations after the effective date of this section, the determination, calculation and submission required herein shall be accomplished, preferably before operations begin but no later than 60 days after initial production.

4. Recalculation. The person, operator or facility shall recalculate the radius of exposure if an operational change or production alteration causes the hydrogen sulfide concentration in an operation or system to increase to 100 ppm or greater or, if the hydrogen sulfide concentration in a well, operation or system was already 100 ppm or greater, causes a 25% or greater increase in the actual volume fraction of hydrogen sulfide. If calculation or recalculation of the radius of exposure reveals that a potentially hazardous volume is present, the person, operator or facility shall provide the results to the division within sixty (60) days.

E. Hydrogen Sulfide Contingency Plan.

1. In General. A hydrogen sulfide contingency plan is a written document that provides a plan of action that will be used to alert and protect persons at risk in the event of a release of hydrogen sulfide gas that could produce a PHV. The hydrogen sulfide contingency plan shall be developed with due consideration of API Standard RP-55 entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide" but, as a minimum ,shall be developed in accordance with the following paragraphs.

2. When Required. A hydrogen sulfide contingency plan must be prepared whenever a potentially hazardous volume of hydrogen sulfide is present or , in the case of a well being drilled, deepened, or re-entered, may reasonably expected to be encountered.

3. Plan Contents.

The contingency plans shall contain, but not be limited to, information on the following subjects, as appropriate for the operation or system to which it applies:

a. Emergency Procedures
   1. Responsibilities of personnel
   ~~2.~~ Immediate Action plan
   ~~3.~~ Telephone numbers and communication methods for public agencies, emergency response organizations, and public authorities as appropriate
   ~~4.~~ Locations of nearby residences, businesses, parks, schools, churches, roads, medical facilities, etc.
   ~~5.~~ Evacuation routes and road block locations
   ~~6.~~ Procedures for public notification (lists or reaction plans)
   ~~7.~~ A statement describing how emergency response actions will be coordinated with the division and the New Mexico state police,

consistent with the New Mexico hazardous materials emergency response plan (HMER).

~~8.~~ Location and availability of necessary safety equipment and supplies.

b. Characteristics of Hydrogen Sulfide and Sulfur Dioxide

c. Maps, and Drawings

1. Plats or maps detailing the areas affected by the ROE, specifically delineating any affected public areas and public roads

d. Training and Drills

1. Responsibilities and duties of essential personnel
2. On-site or classroom drills
3. Informing nearby residents on protective measures in emergency situations as appropriate
4. Training and attendance documentation
5. Briefing of public officials on issues such as evacuation or shelter-in-place plans

4. Plan Activation. The hydrogen sulfide contingency plan shall address the activation threshold and the events that could lead to that threshold. Minimum criteria for activation shall include an event that could result in: a 100-ppm in any public area, a 500 ppm at any public road, 100 ppm 3000 feet from the site of the release, or 50 ppm for 10 minutes at the boundary of the facility.

5. Submission. A hydrogen sulfide contingency plan for a system or operation existing on the effective date of this section shall be submitted to the Division within 360 days from the effective date of this section. A hydrogen sulfide contingency plan for a new system or operation shall be submitted, preferably before operations begin, but no later than60 days of commencing operations . For a drilling, completion, workover or well servicing operation, the hydrogen sulfide contingency plan must be on-file with the division prior to commencing work. The plan may be submitted separately or along with the application for permit to drill (APD) or must be on-file from a previous submittal. On an annual basis, the operator shall file with the applicable local emergency planning committee, and the state emergency response commission, an inventory of the operations and systems where contingency plans are on file with the division and a point of contact

6. Failure to Submit Plan. Failure to submit a hydrogen sulfide contingency plan when required may result in denial of an application for permit to drill that well, cancellation of an allowable or other appropriate enforcement action.

7. Updating Provisions. The Contingency Plan shall be periodically reviewed and updated any time its provisions or coverage materially change.

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

9. Plan Adequacy. Additional requirements may be required in the contingency plan if it has been determined inadequate by the division to protect public safety.

F. Signage at , Facilities or Operations.

1. Where required. For every operation, or system to which this section applies that is determined to contain a hydrogen sulfide concentration of 100 ppm or greater, signs or markers meeting the requirements outlined below must be installed and maintained.
2. Signs and Markers Specifications. The sign or marker shall conform with the current ANSI standard Z53.1 and shall contain sufficient information and be readily readable by the public to warn that a potential danger exists and shall contain the words "Poison Gas". Signs or markers that have been installed prior to the effective date of

this section and that are in compliance with other applicable regulations (Department of Transportation, OSHA, etc.) shall satisfy the requirements of this section. Other signs and markers that have been installed prior to the effective date of this section shall be acceptable provided that they indicate the presence of a potential hazard. For drilling, workover, completion, and recompletion operations, additional warning measures (e.g., red flags, signs, etc) shall be prominently posted whenever an imminent danger situation exists.

3. Location. Signs and/or markers shall be prominently posted at appropriate locations (e.g., entrance points) for facilities and operations subject to this section.

G. Compliance Requirements

1. Protection from Hydrogen Sulfide During Drilling, Completion, Workover, and Well Servicing Operations.

a. API Standards. All drilling, completion, workover and well servicing operations shall be conducted with due consideration to the guidelines published by the API entitled "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 ~~of~~ Wells Containing Hydrogen Sulfide," RP-49, most recent edition.

b. Detection and Monitoring Equipment. The person, operator or facility shall provide hydrogen sulfide detection and monitoring equipment as follows:

i. Each drilling and completion site shall have an accurate and precise hydrogen sulfide detection and monitoring system that is capable of automatically activating visible and audible alarms when the ambient air concentration of hydrogen sulfide reaches a predetermined value set by the operator, not to exceed 20 ppm . There shall be a sensing point located 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.

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

iii. Hydrogen sulfide detection and monitoring equipment must be provided and must be made operational 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.

i. Equipment to indicate wind direction shall be present and visible at all times. At least two devices to indicate wind direction shall be installed at separate elevations and visible from all principal working areas at all times.

ii. When a sustained concentration of hydrogen sulfide is detected in excess of 20 ppm at any detection point, red flags shall be displayed.

d. Special Requirements. Where drilling, workover, completion, and recompletion operations occur in areas where the 100 ppm ROE includes a public area, the following additional measures are required:

i. Drilling. A remote controlled well control system shall be installed and operational at all times beginning when drilling is within 500 feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The control system must 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 API-16C and API-RP 53 or other specifications approved by

the division. Mud-gas separators shall also be used. These systems shall be tested and maintained pursuant to the specifications referenced, according to the requirements of this part, or otherwise as approved by the division.

ii. Completion, Workover and Well Servicing. A remote controlled pressure and hydrogen sulfide rated well control system that meets or exceeds API specifications or other specifications approved by the division shall be installed and operational at all times before commencing work.

e. Flare System. For drilling and completion operations in an area where it is reasonably expected that a PHV of hydrogen sulfide will be encountered, the person, operator or facility shall install a flare system to safely gather and burn hydrogen sulfide bearing gas. Flare outlets shall be located at least 150 feet from the well bore. Flare lines shall be as straight as practical. The flare system shall be equipped with a suitable and safe means of ignition. Where noncombustible gas is to be flared, the system shall be provided supplemental fuel to maintain ignition.

f. If hydrogen sulfide was not anticipated but is encountered during drilling operations the requirements of this rule must be satisfied, and OCD notified within 24 hours, before drilling operation continues. The OCD may grant verbal approval pending contingency plan preparation.

g. Mud Program. A mud program, including de-gassing, capable of handling hydrogen sulfide conditions and well control shall be used.

h. Well Testing. Except with prior approval of the division, drill stem testing of a zone that contains hydrogen sulfide shall be conducted only during daylight hours, and formation fluids shall not be permitted to flow to the surface (closed-chamber only).

2. Protection from Hydrogen Sulfide at Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Refineries, Gas Plants and Compressor Stations.

a. API Standards. Operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations containing hydrogen sulfide shall be conducted with due consideration to the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, latest edition.

b. Security Provisions Well sites or other unattended fixed surface facilities shall be protected from public access when the location is within ¼ mile of a public area. This provision shall be provided by fencing and locking, as appropriate. A surface pipeline shall not be considered as a fixed surface facility for this section.

c. Wind Direction Indicators. Equipment to indicate wind direction shall be present and visible at all times. At least one device to indicate wind direction shall be installed and visible from all principal working areas at all times

d. Special Requirements. For operations or systems occur in areas where the 100 ppm ROE includes a public area, the following additional measures are required:

i. Operators shall install safety devices (e.g. automatic shut-down devices) and maintain them in an operable condition or shall establish safety procedures designed to prevent the otherwise undetected continuing escape of hydrogen sulfide.

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

e. Tanks or vessels. Each stair or ladder leading to the top of any tank or vessel containing 300 ppm or more of hydrogen sulfide in the gaseous mixture shall be chained or marked to restrict entry.

f. Compliance Schedule. Each existing crude oil pump station and producing well, tank battery and associated production facility, refinery, gas plant and compressor station not currently meeting the requirements and minimum standards set forth herein shall be brought into compliance within one year of the effective date of this section. Each crude oil pump station and producing well, tank battery and associated production facility constructed following the effective date of this section shall be designed, constructed and operated to meet the requirements set forth herein.

3. Personnel Protection and Training. All persons responsible for the implementation of any hydrogen sulfide contingency plan shall be provided training in hydrogen sulfide hazards, detection, personal protection and contingency procedures.

H. Notification of the Division. The person, operator or facility shall notify the division upon a release of hydrogen sulfide requiring activation of the hydrogen sulfide contingency plan, as soon as possible, but not more than 4 hours after plan activation, recognizing that a prompt response should supercede notification. The person, operator or facility shall submit a full report of the incident to the division on Form C-141 no later than fifteen (15) days following the release.

I Standards of Equipment that May be Exposed to Hydrogen Sulfide. ***(Keep the wording that was in "J" of the commission draft, but specify that this applies to PHV areas only).***

J. Multiple Jurisdiction. Where an existing operation or facility is subject to multiple jurisdictions (e.g., federal, tribe, transportation) and is in compliance with the respective hydrogen sulfide rules of that jurisdiction, it shall be presumed that the operation or facility is also in compliance with this rule. For a new operation or facility that is subject to multiple jurisdictions, the operation or facility must comply with the most stringent requirements of the respective hydrogen sulfide rules and submit a copy of the contingency plan to the division. At the time that the division requests the operator to make reasonable changes in signage, the contingency plan or other compliance requirements, the operator shall either make those changes within a reasonable time period or petition the division for an exemption.

.K Exemptions. Any person, operator or facility may petition the director, or the director's designee, for an exemption to any requirements of this section. Any such petition shall provide specific information as to the circumstances that warrant approval of the exemption requested and how the public safety will be protected. A safety plan required by other governmental agencies may accompany the petition for exemption. The director, or the director's designee, after considering all relevant factors, may approve an exemption if the circumstances warrant an exemption.

L. Corrective Actions. The division may require an operator to investigate a public safety concern within its operation and where necessary to safeguard public safety, may require the operator to implement the controls required by this rule or other controls (e.g., repair equipment), if reasonably necessary to contain an uncontrolled release of hydrogen sulfide.

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Betty Rivera
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

October 15, 2002

New Mexico Oil Conservation Commission
c/o Hon. Lori Wrotenbery, Chairman
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Re: Proposed Hydrogen Sulfide Rule

Dear Chairman Wrotenbery and Honorable Commissioners:

Pursuant to the direction of the Commission, the Hydrogen Sulfide Work Group met on October 9, 2002. The following persons were in attendance:

Wayne Price	Oil Conservation Division
Gene Montgomery	Oxy Permian
David Brooks	Oil Conservation Division
Roger Anderson	Oil Conservation Division
Bob Manthei	BP-America
Bruce Gantner	Burlington Resources
Ed Martin	Oil Conservation Division
Mike Stubblefield	Oil Conservation Division
Jeff Harvard	Harvard Petroleum
Dan Girand	Mack Energy
John Bramhall	U.S. Bureau of Land Management
Juan P. Ontiveros	New Mexico Department of Public Safety
Max Johnson	New Mexico Department of Public Safety
Deborah Seligman	Mew Mexico Oil and Gas Association

We are pleased to inform the Commission that, with minor exceptions hereinafter noted, the work group reached a consensus on all outstanding issues. Although the consensus was not unanimous on every point, in each instance a majority of the industry representatives and the Division concurred. The Department of Public Safety representatives concurred on all issues with respect to which they participated.

The only exception to the consensus achieved related to the proposed insertion of the word "reasonable" in Subsections J, authorizing the Division to order changes is warning signs, contingency plans or compliance procedures, and the insertion of the word "reasonably" in Subsection L, authorizing the Division to require actions to address particular safety concerns. The Division does not agree with these insertions. The

Division concedes that it cannot be arbitrary and capricious, and, in that sense, its requirements must be reasonable. However, the operator always has the option to challenge Division action through the hearing process if it can demonstrate that a particular requirement is unreasonable, or to request an exception by the procedure provided. The Division's enforcement authority would be impaired if the operator could simply refuse to comply because of its belief that the Division's requirement was unreasonable and force the Division to affirmatively demonstrate the reasonableness of the requirement as a predicate to enforcement.

Attached is the currently proposed workgroup draft in color-coded form and in clean copy form. On the color-coded draft, the changes recommended by the industry protesters at the September 20 workshop are shown in red, and the changes emanating from the October 9 work group meeting are shown in pink. The insertions proposed by the industry representatives that are non acceptable to the Division are highlighted in yellow. The clean copy represents the work group's final recommendation, in which the Division concurs except for the aforementioned insertions.

Most of the changes proposed in the attached draft were proposed either by the Division or the industry protestors prior to the September 20 workshop meeting of the Commission. The reasons for these changes are identified in the testimony of Wayne Price and Bruce Gantner at that meeting. The Division is prepared to offer additional evidence in support of the changes it is currently recommending if requested by the Commission.

Should you have any questions, please call me at (505)-476-3450.

Very truly yours,

David K. Brooks

David K. Brooks
Assistant General Counsel

ec: Steve Ross, Commission Counsel
Roger Anderson, Environmental Bureau Chief
Wayne Price, Work Group Chair

FINAL 10-11-02

19.15.2.52 Hydrogen Sulfide Gas (Hydrogen Sulfide)

~~A. In General. Hydrogen sulfide gas is a flammable, poisonous gas that may occur naturally as a component of crude petroleum and natural gas. The gas has a distinct and characteristic odor of rotten eggs but due to olfactory fatigue may not be sensed by the human sense of smell.~~

~~B~~A. Applicability. This section is a public safety standard rule that applies to any person, operator or facility subject to the jurisdiction of the Division, including, but not limited to, any person, operator or facility engaged in drilling, stimulating, injecting into, completing, working over or producing any oil, natural gas or carbon dioxide well or any person, operator or facility engaged in gathering, transporting, storing, processing or refining of crude oil, natural gas or carbon dioxide. This section shall not act to exempt or otherwise excuse surface waste management facilities permitted by the division pursuant to 19 NMAC 15.I.711 from more stringent conditions on the handling of hydrogen sulfide required of such facilities by 19 NMAC 15.I.711 or more stringent conditions existing in permits issued thereunder, nor shall such facilities be exempt or otherwise excused from the requirements set forth in this section by virtue of permitting under 19 NMAC 15.I.711.

~~C~~B. Definitions (specific to this section).

1. ANSI. The acronym "ANSI" means the american national standards institute.
2. API. The acronym "API" means the american petroleum institute.
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4. ASTM. The acronym "ASTM" means the american society for testing and materials.
5. Dispersion Technique. A "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.
6. ~~6.~~ Escape Rate. The "escape rate" is the maximum volume (Q) that is used to designate the possible rate of escape of a gaseous mixture containing hydrogen sulfide.
   a) For existing gas operations and facilities, t~~T~~he escape rate is calculated using the maximum daily rate of the gaseous mixture produced, handled, or the best estimate thereof. For an existing natural gas well, the escape rate shall be calculated by using the current daily absolute open flow rate against atmospheric pressure or the best estimate of that rate.
   b) For new gas operations and facilities, the escape rate will be calculated as the maximum anticipated flow rate through the system. For a new natural gas well, the escape rate shall be calculated using the maximum open-flow rate of off set wells, or the field average of current maximum open-flow rates.
   c) For an existing oil wells and facilities, the escape rate shall be calculated by multiplying the producing gas/oil ratio by the maximum daily production rate or the best estimate thereof.
   d) For a new oil well, the escape rate shall be determined by multiplying the producing gas/oil ratio by the maximum daily production rate of offset wells or the field average of current wells. ~~For an oil or natural gas well drilled in a developed area, the escape rate may be determined by using data from offset wells completed in the interval in question, or using some other reasonable means to calculate the escape rate. For facilities or operations not mentioned, the escape rate shall be calculated using the actual flow of the gaseous mixture through the facility or operation~~.
   e) For facilities or operations not mentioned, the escape rate shall be calculated using the actual flow, or a reasonable estimate thereof, of the gaseous mixture through the facility or operation.
7. GPA. The acronym "GPA" means the gas processors association.

8. LEPC. The acronym "LEPC" means the local emergency planning committee established pursuant to the emergency planning and community right-to-know act, 42 U.S. C. § 11001.

9. NACE. The acronym "NACE" refers to the national association of corrosion engineers.

10. PPM. The acronym "ppm" means "parts per million" by volume.

11. Potentially Hazardous Volume (hereinafter referred to as a ~~"potentially hazardous volume"~~PHV) means the volume of hydrogen sulfide gas of such concentration that:

a. the 100-ppm radius of exposure includes any public area as defined herein;

b. the 500-ppm radius of exposure includes any public road as defined herein; or

c. the 100-ppm radius of exposure is ~~equal to or~~ in excess of 3,000 feet.

12. Public Area. A "public area" is any occupied building or structure that is not associated with the well, operation or system for which the radius of exposure is being calculated and that is used as a dwelling, office, place of business, church, school, ~~school bus stop,~~ hospital, or government building, or any portion of a park, city, town, village or or an ~~school bus stop or~~ established school bus stop or other similar area where members of the public may reasonably be expected to be present.

13. Public Road. A "public road" is any federal, state, municipal or county road or highway ~~or postal route~~.

14. Radius of Exposure. The radius of exposure (hereinafter referred to as "radius of exposure" or "ROE") is that 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 may be approved by the division:

a. For determining the 100-ppm radius of exposure: $X= [(1.589)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

~~or~~

b. For determining the 500-ppm radius of exposure: $X=[(0.4546)(\text{hydrogen sulfide concentration})(Q)]^{(0.6258)}$, 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 psia and 60°F).

c. 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 3,000 feet shall be assumed.

~~D~~C. ~~Determination of Hydrogen Sulfide Risk~~Testing for Presence of Hydrogen Sulfide.

1. Determination of Hydrogen Sulfide Concentration.

a. Each person, operator or facility to which this section applies shall determine the hydrogen sulfide concentration within each of its ~~wells,~~ operations or systems. A representative sample or process knowledge may be used in lieu of individual testing of wells~~wells,~~ operations or systems provided that the person, operator or facility can demonstrate that the concentration derived from the representative sample or process knowledge is reasonably representative of the hydrogen sulfide concentration within the well~~well,~~ operation or system.

b. The tests used to make the determination referred to in the previous subparagraph shall be conducted in accordance with applicable ASTM or GPA standards or by other methods approved by the division.

c. If a valid, representative sample from an ~~well,~~ operation or system was tested at any time prior to the effective date of this section, ~~within one (1) year of the effective date of this~~

~~section,~~ new testing shall not be required~~; provided, however, new testing shall not be required for a producing well that was tested at any time prior to the effective date of this section~~.

2. Tested Concentrations Below 100 ppm. If the concentration of hydrogen sulfide in a given ~~well,~~ operation or system is less than 100 ppm, no further actions shall be required pursuant to this section.

3. Tested Concentrations Above 100 ppm~~; Calculation of the Radius of Exposure.~~ ~~a.~~ If the concentration of hydrogen sulfide in a given ~~well,~~ operation or system is 100 ppm or greater, then the person, operator or facility must calculate the radius of exposure and comply with other applicable requirements of this rule pursuant to ~~this section~~Paragraph D and comply with the signage requirements outlined in paragraph F.

~~4~~. Retesting. If any change or alteration to an operation or system can materially increase the concentration of hydrogen sulfide, then the operator must retest that operation or system.

D. Determination of Radius of Exposure

1. For all operations subject to this section, the radius of exposure (ROE) shall be determined ~~by following the definition given in B 14~~.

~~b~~2. If calculation of the radius of exposure reveals that a potentially hazardous volume is present, the person, operator or facility shall provide the results of the determination of the hydrogen sulfide concentration and the calculation of the radius of exposure to the division.

3. For an ~~well~~, operation or system existing on the effective date of this section, the determination, calculation and submission required herein shall be accomplished within ~~180~~360 days of the effective date of this section; for any ~~well,~~ operation or system that commences operations after the effective date of this section, the determination, calculation and submission required herein shall be accomplished, preferably before operations begin but no later than 60 days after initial production~~before operations begin~~.

4. Recalculation. The person, operator or facility shall ~~calculate or~~ recalculate the radius of exposure if an operational change or production alteration causes the hydrogen sulfide concentration in an ~~well,~~ operation or system to increase to 100 ppm or greater or, if the hydrogen sulfide concentration in a well, operation or system was already 100 ppm or greater, causes a 25% or greater increase in the actual volume fraction of hydrogen sulfide. If calculation or recalculation of the radius of exposure reveals that a potentially hazardous volume is present, the person, operator or facility shall provide the results to the division ~~within thirty (30) days~~as soon as possible, but no later than within sixty (60) days.

E. Hydrogen Sulfide Contingency Plan.

1. In General. A hydrogen sulfide contingency plan is a written document that provides a plan of action that will be used to alert and protect persons at risk in the event of a ~~potentially~~ ~~significant~~ release of hydrogen sulfide gas that could produce a PHV. The hydrogen sulfide contingency plan ~~shouldsh~~ be ~~developed with~~developed with due consideration of API Standard RP-55 entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide" but, as a minimum ,~~must~~ shall be developed in accordance with the following paragraphs.

2. When Required. A hydrogen sulfide contingency plan must be prepared whenever a potentially hazardous volume of hydrogen sulfide is present or , in the case of a well being drilled, deepened, or re-entered, may reasonably expected to be encountered.

~~3. Input of Emergency Response Authorities and the Division. The person, operator or facility shall develop a proposed hydrogen sulfide contingency plan and provide a copy to the division, the New Mexico department of public safety (*i.e.*, the New Mexico state police), and the local emergency~~

~~planning committee. If the potential source of release is within a municipality, a copy shall be provided to the municipal police and fire department. If the potential source of the release is outside the boundaries of a municipality, a copy shall instead be provided to the county sheriff and the county fire department or departments. Input on the proposed plan shall be sought from each of the foregoing; if an emergency response authority provided with a copy of the proposed plan fails to provide input or fails to respond at all, that fact shall be stated in the final hydrogen sulfide contingency plan submitted to the division. The input provided by the emergency response authorities shall be considered when preparing the final plan for submission to the division but failure to include any specific suggestion shall not affect the validity of the plan or cause disapproval of the plan by the division.~~

3. Plan Contents ~~4. Elements.~~

The contingency plans shall contain, but not be limited to, information on the following subjects, as appropriate for the operation or system to which it applies:

a. Emergency Procedures
   1. Responsibilities of personnel
   ~~2.~~ Immediate Action plan
   ~~3.~~ Telephone numbers and communication methods for public agencies, emergency response organizations, and public authorities as appropriate
   ~~4.~~ Locations of nearby residences, businesses, parks, schools, churches, roads, medical facilities, etc.
   ~~5.~~ Evacuation routes and road block locations
   ~~6.~~ Procedures for public notification (lists or reaction plans)
   ~~7.~~ A statement describing how emergency response actions will be coordinated with the division and the New Mexico state police, consistent with the New Mexico hazardous materials emergency response plan (HMER).
   ~~8.~~ Location and availability of necessary safety equipment and supplies.

b. Characteristics of Hydrogen Sulfide and Sulfur Dioxide

c. Maps, and Drawings
   1. Plats or maps detailing the areas affected by the ROE, specifically delineating any affected public areas and public roads

d. Training and Drills
   1. Responsibilities and duties of essential personnel
   2. On-site or classroom drills
   3. Informing nearby residents on protective measures in emergency situations as appropriate
   4. Training and attendance documentation
   5. Briefing of public officials on issues such as evacuation or shelter-in-place plans

4. Plan Activation. The hydrogen sulfide contingency plan shall address the activation threshold and the events that could lead to that threshold. ~~be activated in the event of a significan release of hydrogen sulfide gas that could produce a PHV.~~ Minimum criteria for activation shall include an event that could result in: a 100-ppm in any public area, a 500 ppm at any public road, 100 ppm 3000 feet from the site of the release, or 50 ppm for 10 minutes at the boundary of the facility.

~~a. Elements Required for Each Plan:~~

~~i. A detailed description of each action to be taken in the event of a release of hydrogen sulfide requiring activation shall be included in each hydrogen sulfide contingency plan, including provisions for alerting and accounting for personnel, controlling any release of hydrogen~~

sulfide gas, eliminating possible ignition sources, alerting the public (directly or through appropriate government agencies), evacuating persons in the affected area, using the call list to alert company officials and emergency response authorities, making recommendations to public officials to block access to affected areas and conducting evacuations and coordinating emergency response with emergency response authorities. A plan that addresses the items described in paragraph 7.6 of the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, most recent edition, shall be adequate for this purpose;

ii. A call list including the following as applicable:

aa. local supervisory personnel;

bb. county sheriff;

cc. department of public safety and state police;

dd. city or municipal police;

ee. appropriate division district office; and

ff. other public agencies as appropriate;

iii. A plat or map detailing the area within the radius of exposure of a potentially hazardous volume; and

iv. A list of the names and telephone numbers of all personnel to be contacted when a release is reported or suspected.

b. Where the 500-ppm radius of exposure encompasses any public road, the person, operator or facility shall include the following additional elements in the hydrogen sulfide contingency plan:

i. A plat or map detailing the area of exposure, including the locations of public roads; and

ii. A plan to divert traffic and safely get existing traffic off the road and out of danger.

c. Where the 100-ppm radius of exposure encompasses any public area, the following additional elements shall be included in the hydrogen sulfide contingency plan:

i. A call list including all the persons set forth in Sub subparagraph E(4)(a)(ii). above, and the following:

aa. ambulance services;

bb. hospitals;

cc. county and city fire departments;

dd. doctors;

ee. contractors for supplemental or emergency equipment; and

ff. other public agencies as appropriate;

ii. A statement describing how emergency response actions will be coordinated with the division and the New Mexico state police, consistent with the New Mexico hazardous materials emergency response plan (HMER);

iii. A plat or map detailing the area of exposure, including the locations of public areas and public roads;

iv. The names and telephone numbers of all persons living within the area of exposure and contact persons for areas of public concentration such as churches, schools, hospitals, offices and places of business;

v. Provision for advance briefing of affected persons within the radius of exposure. Such advance briefing shall include the hazards and characteristics of hydrogen sulfide, the necessity for a hydrogen sulfide contingency plan, the possible sources of hydrogen sulfide within the radius of exposure, instructions for reporting a gas leak, the manner in which persons will be notified in the event of an emergency and steps to be taken in an emergency;

vi. In lieu of the provision for advance briefing of persons within the radius of exposure described in the previous subsubparagraph, a reaction-type plan may be prepared and

~~submitted that provides for mass notification of a release of hydrogen sulfide and for evacuation of affected~~ areas; ~~and~~

~~vii. Additional support information, if applicable, such as the location of emergency evacuation routes, the location of safety and life-support equipment, the location of facilities containing hydrogen sulfide, the location of nearby telephones or other means of communication and special instructions for conditions at a particular installation such as local terrain and the effect of various weather conditions.~~

~~d. Additional Requirements. The division may impose additional requirements or modify requirements based on site-specific conditions, population density or special circumstances.~~

5. Submission. ~~The hydrogen sulfide contingency plan shall be submitted to the division and a copy shall be submitted to the local emergency planning committee, if one exists.~~ A hydrogen sulfide contingency plan for a ~~well,~~ system or operation existing on the effective date of this section shall be submitted to the Division within ~~180~~360 days from the effective date of this section. A hydrogen sulfide contingency plan for a new ~~well,~~ system or operation shall be submitted, preferabley before operations begin, but no later than-60 days of commencing ~~before~~ operations ~~commence.~~ ~~A hydrogen sulfide contingency plan shall be submitted within 180 days if a public area or public road is established that creates a potentially hazardous volume where none previously existed. The hydrogen sulfide contingency plan f~~For a drilling, completion, workover or well servicing operation, the hydrogen sulfide contingency plan must be on-file with the division prior to commencing work. The plan **may be submitted separately or along with the application for permit to drill (APD)** or must be on-file from a previous submittal. On an annual basis the operator shall file with the applicable local emergency planning committee, and the state emergency response commission, an inventory of the operations and systems where contingency plans are on file with the division and a point of contact

6. Failure to Submit Plan. Failure to submit a hydrogen sulfide contingency plan when required may result in denial of an application for permit to drill that well, cancellation of an allowable or other appropriate enforcement action.

7. ~~Annual Review, Amendment~~Updating Provisions. The ~~person, operator or facility shall review the hydrogen sulfide contingency plan on an annual basis, or more frequently if activation of a plan reveals a deficiency or, if changes to processes, concentrations of hydrogen sulfide or other circumstances occur, or if a new public area and/or a new public road is established that creates a potentially hazardous volume. The person, operator or facility shall submit any amendments to the division and to the local emergency planning committee. Reasonable efforts shall be taken to update on an annual basis the lists of names and telephone numbers in the hydrogen sulfide contingency plan~~Contingency Plan shall be periodically reviewed and updated any time its provisions or coverage materially change.

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

9. Plan Adequacy. Additional requirements may be required in the contingency plan if it has been determined inadequate by the division to protect public safety.

F. Signage at ~~Wells~~, Facilities or Operations. ~~For every well, operation or system to which this section applies that contains a concentration of hydrogen sulfide of 100 ppm or greater, the person, operator or facility must provide signage as set forth herein.~~

1. Where required. For every operation, or system to which this section applies that is determined to contain a hydrogen sulfide concentration of 100 ppm or greater, signs or markers meeting the requirements outlined below must be installed and maintained.
2. Signs and Markers Specifications. The sign or **marker shall** conform with the current ANSI standard Z5[illegible] 1 and shall **contain sufficient information and be readily readable** by the public to warn that a potential danger exists and shall contain the words "Poison Gas". Signs or markers that have been installed prior to the effective date of

this section and that are in compliance with other applicable regulations (Department of Transportation, OSHA, etc.) shall satisfy the requirements of this section. Other signs and markers that have been installed prior to the effective date of this section shall be acceptable provided that they indicate the presence of a potential hazard. For drilling, workover, completion, and recompletion operations, additional warning measures (e.g., red flags, signs, etc) shall be prominently posted whenever an imminent danger situation exists.

3. Location. Signs and/or markers shall be prominently posted at appropriate locations (e.g., entrance points) for facilities and operations subject to this section.

~~Drilling, Completion, Workover, and Well Servicing Operations. A danger or caution sign shall be displayed at each drilling, completion, workover and well servicing operation along each point of access to the site. The signs shall read "DANGER - POISON GAS, HYDROGEN SULFIDE PRESENT" or, as appropriate, "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT" or use equivalent language approved by the division, and shall state in smaller lettering: "Do Not Approach If Red Flag is Flying" or use equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration, or in another color approved by the division. The signs shall be legible and large enough to be read by all persons entering the well site and shall be placed a minimum of 200 feet but no more than 500 feet from the well site and at a location that allows vehicles to turn around at a safe distance prior to reaching the site.~~

~~2. Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Refineries, Gas Plants and Compressor Stations. A danger sign or signs shall be posted within 50 feet of each crude oil pump station, producing well, tank battery and associated production facility, refinery, gas plant and compressor station to alert the public of the potential hydrogen sulfide danger. If fenced, a danger sign at the gates shall suffice. The signs shall read "DANGER - POISON GAS - HYDROGEN SULFIDE PRESENT," or, as appropriate, "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT" or use equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration, or in another color approved by the division. The signs shall be legible and large enough to be read by all persons entering the site. A sign shall be placed at each point where a flow line or gathering line crosses a public road; each sign shall be legible and shall contain the name of the owner or operator and an emergency telephone number.~~

~~3. Tanks or Vessels. A danger sign or signs shall be posted on or within 50 feet of any storage tank to alert persons of the potential hydrogen sulfide danger. For any storage tank for which fencing is required, a danger sign posted at the locked gates shall suffice. The signs shall read "DANGER - POISON GAS - HYDROGEN SULFIDE PRESENT," or, as appropriate "CAUTION - POISON GAS - HYDROGEN SULFIDE MAY BE PRESENT," or equivalent language approved by the division. Each sign shall be painted in colors that satisfy Table 1 of ANSI standard Z53.1-1967 or regulations of the federal occupational safety and health administration or another color approved by the division. The sign(s) shall be legible and large enough to be read by all persons entering the site.~~

G. Compliance Requirements

1. Protection from Hydrogen Sulfide During Drilling, Completion, Workover, and Well Servicing Operations.

a. API Standards. All drilling, completion, workover and well servicing operations ~~where it is reasonably expected that a potentially hazardous volume of hydrogen sulfide will be encountered~~ shall be conducted with due consideration to the guidelines published by the API entitled "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 ~~of~~ Wells Containing Hydrogen Sulfide," RP-49, most recent edition.

~~2. Minimum Standards. At a minimum, each drilling, completion, workover and well servicing operation where a potentially hazardous volume of hydrogen sulfide may reasonably be expected to be encountered shall be conducted in accordance with the following:~~

~~a. Before Commencing Operations. Hydrogen sulfide training shall be completed and warning systems shall be operational before commencement of operations. Detection and monitoring equipment is not required for drilling from the surface to within 500 feet of the zone anticipated to contain hydrogen sulfide.~~

~~b. Egress Routes. The person, operator or facility shall maintain passable egress routes at all times during operations.~~

b. Detection and Monitoring Equipment. The person, operator or facility shall provide hydrogen sulfide detection and monitoring equipment as follows:

i. Each drilling and completion site shall have an accurate and precise hydrogen sulfide detection and monitoring system that is capable of automatically activatesing visible and audible alarms when the ambient air concentration of hydrogen sulfide ~~reaches~~reaches a predetermined value set by the operator, not to exceed 20 ppm ~~is equal to or less than~~ 20 ppm. There shall be a sensing point located 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.

~~ii. The detection system shall be calibrated and tested and the results recorded monthly. Each test of the hydrogen sulfide monitoring system shall be recorded on the driller's log or its equivalent.~~

~~iiii~~ii. For workover and well servicing operations, one operational sensing point shall be located as close to the well bore as practical. Additional sensing points may be necessary for large or long-term operations.

~~iv~~iii. Hydrogen sulfide detection and monitoring equipment must be provided and must be made operational 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.

i. Equipment to indicate wind direction shall be present and visible at all times. At least two devices to indicate wind direction shall be installed at separate elevations and visible from all principal working areas at all times.

ii. When a sustained concentration of hydrogen sulfide is detected in excess of 20 ppm at any detection point, red flags shall be displayed.

d. Special Requirements. Where drilling, workover, completion, and recompletion operations occur in areas where the 100 ppm ROE includes a public area, the following additional measures are required:

~~i. The operator shall install a choke manifold, mud-gas separator, and flare line and provide a suitable method for lighting the flare.~~

~~ii. A remote controlled choke and accumulator shall be installed and operational.~~

i. Drilling. A remote controlled well control system shall be installed and operational at all times beginning when drilling is within 500 feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The control system must 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 API 16C and API-RP 53 or other specifications approved by the division. ~~The blowout preventer stack shall have at least one spool, or integral BOP spool for the kill and choke lines, one dual BOP with one pipe and one blind ram, one annular device and a rotating head. Operators may be required to have available float valves, internal BOP's, stabbing valves, drill stem valves, etc. and other additional~~

equipment in order to provide for public safety. Mud-gas separators shall also be used. These systems shall be tested and maintained pursuant to the specifications referenced, according to the requirements of this part, or otherwise as approved by the division.

ii. Completion, Workover and Well Servicing. A remote controlled pressure and hydrogen sulfide rated well control system that meets or exceeds API specifications or other specifications approved by the division shall be installed and operational at all times before commencing work.

e. Flare System. For drilling and completion operations in an area where it is reasonably expected that a PHV of hydrogen sulfide will be encountered, the person, operator or facility shall install a flare system to safely gather and burn hydrogen sulfide bearing gas. Flare outlets shall be located at least 150 feet from the well bore. Flare lines shall be as straight as practical. The flare system shall be equipped with a suitable and safe means of ignition. Where noncombustible gas is to be flared, the system shall be provided supplemental fuel to maintain ignition.

f. If hydrogen sulfide was not anticipated but is encountered during drilling operations the requirements of this rule must be satisfied, and OCD notified within 24 hours, before drilling operation continues. The OCD may grant verbal approval pending contingency plan preparation.

g. Mud Program. A mud program, including de-gassing, capable of handling hydrogen sulfide conditions and well control shall be used.

h. Well Testing. Except with prior approval of the division, drill stem testing of a zone that contains hydrogen sulfide shall be conducted only during daylight hours, and formation fluids shall not be permitted to flow to the surface (closed-chamber only).

e. Flare System. For drilling and completion operations, the person, operator or facility shall install a flare system to safely gather and burn hydrogen sulfide-bearing gas. Flare outlets shall be located at least 150 feet from the well bore. Flare lines shall be as straight as practical. The flare system shall be equipped with a suitable and safe means of ignition. Where noncombustible gas is to be flared, the system shall be provided supplemental fuel to maintain ignition.

f. Use of Well Control Equipment.

i. Drilling. A remote controlled choke and accumulator shall be installed and operational at all times beginning when drilling is within 500 feet of the formation believed to contain hydrogen sulfide and continuously thereafter during drilling. The remote controlled choke must 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 API-16C and API-RP 53 or other specifications approved by the division. The blowout preventer stack shall have at least one spool for the kill and choke lines, two pipe rams, one blind ram, one annular device and a rotating head. Mud-gas separators shall also be used. These systems shall be tested and maintained pursuant to the specifications referenced, according to the requirements of this part, or otherwise as approved by the division.

ii. Completion, Workover and Well Servicing. If feasible, the equipment described in the previous subsubparagraph shall be installed and operational at all times during completion, workover and well servicing of a well. If not feasible, a suitable alternative to a remote choke such as a remote-controlled valve or blow out preventer with remote accumulator may be used, so long as the alternative equipment will be protective of public safety.

g. Mud Program. A mud program, including de-gassing and flaring, capable of handling hydrogen sulfide conditions and well control shall be used.

h. Well Testing. Except with prior approval by the division, drill-stem testing of a zone that contains hydrogen sulfide shall be closed chamber only, in that formation fluids shall not be permitted to flow to the surface.

3. If Hydrogen Sulfide Encountered During Operations.

a. 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 in the gaseous mixture, the operator shall immediately ensure control of the well, suspend drilling operations unless detrimental

to well control, take whatever measures are necessary under the circumstances to assure public safety, calculate the radius of exposure and, if a potentially hazardous volume is present, prepare a hydrogen sulfide contingency plan and obtain materials and equipment to bring operations into compliance with this section. The operator shall notify the division of the event and the mitigating steps that have or are being taken as soon as possible, but no later than 24 hours following discovery.

b. If Hydrogen Sulfide Is Encountered During Use of Air, Gas, Mist or Other Non-Mud Circulating Media. If hydrogen sulfide gas in excess of 100 ppm is encountered while drilling with air, gas, mist or other non-mud circulating mediums, the well shall be killed with a water- or oil-based mud, and mud shall be used thereafter as the circulating medium for continued drilling. An alternate drilling method may be used if specifically approved by the division.

2. Protection from Hydrogen Sulfide at Crude Oil Pump Stations, Producing Wells, Tank Batteries and Associated Production Facilities, Refineries, Gas Plants and Compressor Stations.

a. API Standards. Operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations containing a potentially hazardous volume of hydrogen sulfide shall be conducted with due consideration to the guidelines published by the API in its publication entitled "Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide," RP-55, latest edition.

2. Minimum Standards. At a minimum, operations at crude oil pump stations and producing wells, tank batteries and associated production facilities, refineries, gas plants and compressor stations containing a potentially hazardous volume of hydrogen sulfide shall also be conducted in accordance with the following subparagraphs and subsubparagraphs.

b. Security ProvisionsFencing. Fencing and gates shall be required when crude oil pump stations and producing wells, tank batteries and associated production facilities are located in a public area or within a 1/4 mile of a building or structure used as a dwelling, office, place of business, church, school, hospital or government building or within 1/4 mile of a park, playground or school bus stop. The fence shall consist of a 5-foot chain link topped by two stands of barbed wire or other design approved by the division. Gates shall be locked when unattendedWell sites or other unattended fixed surface facilities shall be protected from public access when the location is within ¼ mile of a public area. This provision shall be provided by fencing and locking, as appropriate. A surface pipeline shall not be considered as a fixed surface facility for this section.

c. Wind Direction Indicators. Wind direction indicators shall be required. Equipment to indicate wind direction shall be present and visible at all times. At least two devicesone device to indicate wind direction shall be installed at separate elevations shall be installed and visible from all principal working areas at all times

d. Special Requirements. For operations or systems occur in areas where the 100 ppm ROE includes a public area, the following additional measures are required:

i. Operators shall install safety devices (e.g. automatic shut-down devices) and maintain them in an operable condition or shall establish safety procedures designed to prevent the otherwise undetected undetected continuing escape of hydrogen sulfide.

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

c. Secondary Well Control. Any well shall possess a secondary means of immediate well control through the use of appropriate christmas tree or downhole completion equipment. Such equipment shall allow downhole accessibility (reentry) under pressure for permanent well control operations.

d. Automatic Safety Valve or Shutdown. Any well shall possess an automatic safety valve or shutdown at the facility or wellhead or other appropriate shut-in control. The automatic

~~safety valve shall be set to activate upon a release of a volume of hydrogen sulfide that may create a concentration of hydrogen sulfide of 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.~~

e. Tanks or vessels. Each stair or ladder leading to the top of any tank or vessel containing 300 ppm or more of hydrogen sulfide in the gaseous mixture shall be chained or marked to restrict entry. ~~Any tank or tank battery that requires fencing pursuant to this section may substitute a danger sign posted at the gates for chaining and signs.~~

f. Compliance Schedule. Each existing crude oil pump station and producing well, tank battery and associated production facility, refinery, gas plant and compressor station not currently meeting the requirements and minimum standards set forth herein shall be brought into compliance within one year of the effective date of this section. Each crude oil pump station and producing well, tank battery and associated production facility constructed following the effective date of this section shall be designed, constructed and operated to meet the requirements set forth herein.

3. Personnel Protection and Training. All persons responsible for the implementation of any hydrogen sulfide contingency plan shall be provided training in hydrogen sulfide hazards, detection, personal protection and contingency procedures.

~~J. Standards for Equipment That May Be Exposed to Hydrogen Sulfide. Persons, operators and facilities shall choose equipment with consideration for both the hydrogen sulfide working environment and anticipated stresses. NACE Standard MR0175 (latest edition) or some other standard approved by the division shall be used for selection of metallic equipment or, if applicable, adequate protection by chemical inhibition or other methods that control or limits the corrosive effects of hydrogen sulfide shall be used.~~

~~K. Exemptions. Any person, operator or facility may petition the director for an exemption to any requirements of this section. Any such petition shall provide specific information as to the circumstances that warrant approval of the exemption requested and how the public safety will be protected. A safety plan required by other governmental agencies may accompany the petition for exemption. The director, after considering all relevant factors, may approve an exemption if the circumstances warrant an exemption.~~

~~L. Release. Upon a release of hydrogen sulfide the following actions must be taken:~~

~~1. Activation of the Hydrogen Sulfide Contingency Plan. The hydrogen sulfide contingency plan shall be activated in the event of a release that may create a concentration of hydrogen sulfide of 100 ppm in any public area, 500 ppm at any public road or 100 ppm 3,000 feet from the site of release.~~

~~4.~~ H. Notification of the Division. The person, operator or facility shall notify the division upon a release of hydrogen sulfide requiring activation of the hydrogen sulfide contingency plan, ~~preferably within one hour of discovery of the release, but~~ as soon as possible, but not more than 4 hours after plan activation recognizing that a ~~in cases where~~ prompt response should supercede notification. The person, operator or facility shall submit a full report of the incident to the division on Form C-141 no later than fifteen (15) days following the release.

~~5.~~ I. Standards of Equipment that May be Exposed to Hydrogen Sulfide. *(Keep the wording that was in "[illegible] of the commission draft, but specify that this applies to PHV areas only).*

~~M. Electronic Submission. Any submission to the division required by this section shall be made electronically in a generally accepted format that is compatible with the division's systems.~~

J. Multiple Jurisdiction. Where an existing operation or facility is subject to multiple jurisdictions (e.g., federal, tribe, transportation) and is in compliance with the respective hydrogen sulfide rules of that jurisdiction, it shall be presumed that the operation or facility is also in compliance with this rule. For a new operation or facilty that is subject to multiple jurisdictions, the operation or facility must comply with the most stringent requirements of the respective hydrogen sulfide rules and submit a copy of the contingency plan to the division. At the time that the division requests the operator to make **reasonable** changes in signage, the contingency plan or other compliance requirements, the operator shall either make those changes within a reasonable time period or petition the division for an exemption.~~H. Reciprocity. Any facility or operation, that is subject to~~

~~another jurisdiction with respect to hydrogen sulfide regulations (e.g., Bureau of Land Management Onshore Order 6) and is in compliance with those regulations, shall be deemed in compliance with this section.~~

~~N. Corrective Actions. The division may require corrective actions if necessary to maintain control of a well or any other facility or to safeguard public safety.~~

~~I.~~K Exemptions. Any person, operator or facility may petition the director, or the director's designee, for an exemption to any requirements of this section. Any such petition shall provide specific information as to the circumstances that warrant approval of the exemption requested and how the public safety will be protected. A safety plan required by other governmental agencies may accompany the petition for exemption. The director, or the director's designee, after considering all relevant factors, may approve an exemption if the circumstances warrant an exemption.

L. Corrective Action. The division may require an operator to investigate a public safety concern within its operation and where necessary to safeguard public safety, may require the operator to implement the controls required by this rule or other controls (e.g., repair equipment), if **reasonably** necessary to contain an uncontrolled release of hydrogen sulfide.

LOCO HILLS WATER DISPOSAL CO.
P. O. Box 68
Loco Hills, NM 88255

October 1, 2002

Commissioners
State of New Mexico
Energy, Minerals and Natural Resources Dept.
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Re: Rule 19.15.2.52 Hydrogen Sulfide Gas Case No. 12897

Gentlemen,

Loco Hills Water Disposal Company is again expressing our disapproval of the surface waste management facilities exemption pursuant to 19NMAC 15.I.711.

If the surface waste management facilities must adhere to the 1.0 ppm requirement of this ruling, it could cause a "Cry Wolf" situation. If these facilities must report a reading of 1.0 ppm, we may see the reaction to a serious problem either delayed or ignored.

Loco Hills Water Disposal Company is located in a rural, unpopulated area and is no danger to public health.

Loco Hills Water Disposal Company is asking for your re-consideration of this unfair ruling.

Sincerely,
Loco Hills Water Disposal Company

James R Maloney

James R. Maloney
Vice-President

JRM:jb