Correspondence

Case No. 12897

June 2002

Ross, Stephen

From: Deborah Seligman [seligman@nmoga.org]
Sent: Thursday, June 27, 2002 11:14 AM
To: Phil Youngblood; Phil Youngblood; Dave Pavlich
Cc: Don Whaley; Ross, Stephen; WPrice@state.nm.us
Subject: RE: H2S Risk Regulated by EPA (via 1990 CAAA Section 112r)

please keep Stephen Ross cc'd on the H2S EPA info. I originally e-mailed the information provided to me to Stephen to reference. Thank you.

> Wayne,
> Phil Youngblood indicated that you would be interested in my providing you some information on the Risk Management Program (RMP) implemented pursuant to Section 112(r) of the 1990 Clean Air Act Amendments since
> OCD s Hydrogen Sulfide H2S Draft Rule as proposed does not seem to reflect industry comments expressing concern that the proposed rule would duplicate (or place overriding or conflicting requirements with) the existing EPA regulations for RMP. While the details of RMP are contained in the Federal Code of Regulations 40 CFR Part 68, a brief description follows.
> The RMP rules required facilities with more than a threshold amount of flammables or toxic substances (including H2S) onsite to do a hazard assessment and evaluate the potential for offsite impacts from releases, including worst-case scenarios. Impact radius distances were determined either using EPA look-up tables (based on conservative assumptions which are intended to predict endpoint distances on the high side) or by modeling (e.g., SLAB, EPA s dense gas model) the hypothetical releases using site-specific data. The Risk Management Plan submitted by these facilities included information on their chemical-specific (including H2S as applicable to each facility) safety record and risk prevention measures. These Plans must be kept up-to-date reflecting facility changes which affect the risk (i.e., increase the potential impacts). A key element of RMP was interaction with the community and the public presentation of each facility s findings in a public meeting (either specific to a facility, or as in Navajo s case, through exhibit and presentation at a RMP-dedicated meeting held by the Local Emergency Planning Committee). Notifications of these meetings were made through newspaper ads and radio announcements. Certification that this meeting was held had to be provided to the FBI.
> In summary, it seems reasonable to exclude the facilities subject to RMP from the proposed OCD H2S Draft Rule because they have already undertaken an extensive review of potential offsite consequences from releases of toxics (including H2S, as applicable) and flammables. [Note - New facilities or facilities adding a regulated subject above the threshold quantities are subject to the same requirements.]
>
> Don Whaley
> (505) 746-5398

Ross, Stephen

From: Price, Wayne
Sent: Tuesday, June 18, 2002 1:38 PM
To: Anderson, Roger; Ross, Stephen; Bayliss, Randy
Subject: FW: H2S Draft proposed rule.

New-H2S-Rule-dr-06-10-02 EWM.D...

-----Original Message-----
From: Gene_Montgomery@oxy.com [mailto:Gene_Montgomery@oxy.com]
Sent: Monday, June 17, 2002 2:32 PM
To: WPrice@state.nm.us
Subject: RE: H2S Draft proposed rule.

Wayne, the 6-10 draft rule looks good to me. We have reviewed it here at Oxy and I have annotated the draft (attached) with some comments for your consideration. Specifically, and in priority order, I would like to offer for you consideration:

1. In G.2.b the 300 ppm limit for H2S concentrations in the vapor space in tanks and vessels was changed to 500 ppm. I suspect this was an unintended change as we had talked in our last meeting about the need to keep this limit at 300 ppm. I definitely believe that the 300 pppm requirement here should not be changed.

yes

2. In K.1 the word "public" we offered prior to the word "exposure" is important because of the very real possibility that a PHV could occur in a facility and no public exposure potential exists and the concentration never reaches 50 ppm at the property line. This is in part why I think we added the property line requirement to be sure that public exposure risk exists before it is necessary to activate the plan. We do not want the plan activated when it isn't necessary.

no

3. In F.3.c.ii the sentence has conflict wording "shall" and "may" and I believe it is important that this paragraph should be permissive as it allows an alternative to a remote controlled choke but should not require that an alternative be used.

technical OK - yes

4. In C.13 the definition of ROE seems to be better but I hope this wording is not limiting. I presume that the Division can approve certain modeling and that an operator will not be required to seek approval every time dispersion modeling is used?

n/c

5. In C.11 and G.2.a.iii I continue to believe that the definition of public area is too broad in that the city limits can reach far beyond the area where the public may be present and for sure the fencing requirements should be related to the proximity to the public and not to the municipal boundary line. As written this will result in a significant expense for fencing that we do not believe is necessary.

no way to handle it better - not in a city - big departure

6. In E.7 I think that some reference is needed to section D.4 to recognize that small changes in H2S concentration do not necessitate plan review and amendment. I think this is clearly what we discussed and intended as evidenced in D.4 and in our discussions.

OK

7. In F.2.a as worded seems to be somewhat contradictory to F.2.c. Again, I don't think that is what was intended. We are especially concerned about when equipment and systems must be operational on drilling locations and at

the last meeting I think we all agreed that the equipment and systems should be operational when drilling within 500 feet of the zone anticipated to contain H2S.

Again, I think this rewrite looks great. Of my 7 comments, I think all but 2 & 5 are clarification comments. Comments 2 & 5 are policy considerations. The first comment I feel very strongly needs to be corrected back to 300 ppm.

I am as always at your disposal to discuss this with you. Thanks so much for all the hard work you and others at the OCD have put into this. I think we have a product that we can all be pleased with and will appropriately provide for the protection of the public.

-----Original Message-----
From: Price, Wayne [mailto:WPrice@state.nm.us]
Sent: Monday, June 10, 2002 3:02 PM
To: Bob Manthei (E-mail); Bruce Gantner (E-mail); Cal Wrangham (E-mail); Chavez, Frank; Dan Girand (E-mail); David Hooten (E-mail); David Parsons (E-mail); Deborah D. Seligman (E-mail); Dee Adams (E-mail); Denny Foust (E-mail); Don Cooper (E-mail); Foust, Denny; Gene Butler (E-mail); Gene Montgomery (E-mail); Gum, Tim; Harry Burgess; Johnson, Larry; Ken Houston; Leslie Theiss (E-mail); Max Johnson (E-mail); Mike La Monica; Mike Stubblefield; Misti McLurg; Paul Sheeley; Williams, Chris
Cc: Anderson, Roger; Ross, Stephen; Brooks, David K; Bayliss, Randy; Wrotenbery, Lori
Subject: H2S Draft proposed rule.

Please find attached the latest draft which we anticipate will go to hearing on July 19, 2002.

Sincerely:
<<...OLE_Obj...>>
Wayne Price
New Mexico Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, NM 87505
505-476-3487
fax: 505-476-3462
E-mail: WPRICE@state.nm.us

<<New-H2S-Rule-dr-06-10-02-cl_300_500.DOC>>

DISCUSSION DRAFT, 06-10-2002: RULE: 19.15.2.52 Hydrogen Sulfide Gas (Hydrogen Sulfide)

OUTLINE:

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B. Scope.
C. Definitions.
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    2. API.
    3. ASTM.
    4. Dispersion Technique.
    5. Escape Rate.
    6. GPA.
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    9. PPM.
    10. Potentially Hazardous Volume.
    11. Public Area.
    12. Public Road.
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D. Determination of Hydrogen Sulfide Risk.
    1. Determination of Hydrogen Sulfide Concentration.
    2. Tested Concentrations Below 100 ppm.
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    4. Recalculation.
E. H_2S Contingency Plan.
    1. In General.
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    3. Input of Emergency Response Authorities and the Division.
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    5. Submission.
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F. Protection from Hydrogen Sulfide During Drilling, Workover and Servicing Operations.
    1. API Standards.
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G. Protection from Hydrogen Sulfide at Crude Oil Pump Stations, Producing Wells, Tank Batteries Etc.
    1. API Standards.
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    3. Compliance Schedule.
H. Personnel Protection and Training.
I. Standards for Equipment That May Be Exposed to Hydrogen Sulfide.
J. Exemptions.
K. Release.
    1. Activation of the H_2S Contingency Plan.
    2. Notification of the Division.
L. Corrective Actions.

19.15.2.51 Hydrogen Sulfide Gas (Hydrogen Sulfide)

A. In General. Hydrogen sulfide gas (known by its chemical abbreviation " H_2S" or as "sulfurated hydrogen" or "hydrosulfuric acid") is a flammable, poisonous gas that may occurs 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. Scope. This Section provides for public safety in areas where hydrogen sulfide gas (H_2S) may exist in a potentially hazardous volume. 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 or 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.

C. Definitions (specific to this Section).

1. ANSI. The acronym "ANSI" means the american national standard institute.
2. API. The acronym "API" means the american petroleum institute.
3. ASTM. The acronym "ASTM" means the american society for testing and materials.
4. Dispersion Technique. A "dispersion technique" is a mathematical representation of the physical and chemical transportation characteristics, dilution characteristics and transformation characteristics of H_2S gas in the atmosphere.
5. 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 H_2S. 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. For an oil well, the escape rate shall be calculated by multiplying the producing gas/oil ratio by the maximum daily production rate or best estimate thereof. For an oil or natural gas well drilled in an undeveloped area, a wildcat well, the escape rate may be determined by using 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 gaseous mixture through the facility or operation.
6. GPA. The acronym "GPA" means the gas processors association.
7. 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.
8. NACE. The acronym "NACE" refers to the national association of corrosion engineers.
9. PPM. The acronym "ppm" means "parts per million" by volume.
10. Potentially Hazardous Volume (hereinafter referred to as a "potentially hazardous volume" or by the acronym "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.
11. Public Area. A "public area" is any dwelling, office, place of business, church, school, hospital, school bus stop, government building, or any portion of a park, ~~city, town, village~~ or within any city, town, village or other similar area where members of the public may reasonably be expected to be present.

It is very important that we recognize that many municipal governments extent their boundaries for tax purposes far beyond where people are present. The purpose of this rule is to protect the public and as such the requirements for a public area should be based on proximity to the public and not whether an operator is being required to pay city taxes.

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

13. Radius of Exposure. The radius of exposure (hereinafter referred to as "radius of exposure" or "ROE") is an imaginary circle constructed around a point of escape the radius of which is calculated using the following Pasquill-Gifford derived equation, or by such other method as may be approved by the division:

The change has simplified this definition but it has also required that any dispersion modeling be approved by the division. This is fine if the division can approve certain modeling techniques by order or directive so that each use does not require an operator to seek approval before using an accepted method.

yes

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

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

Where: X= radius of exposure in feet: hydrogen sulfide concentration = decimal equivalent of the mole or volume fractions of hydrogen sulfide in the gaseous mixture; Q= maximum volume of gas determined to be available for escape in cubic feet per day (corrected for standard conditions of 14.73 psia and 60°F).

c. Where multiple sources of hydrogen sulfide are present (e.g. wells, treatment equipment, flow lines, etc.), the radius of exposure may encompass a larger area than would otherwise be calculated using a radius of exposure computation for each component part.

d. For a well being drilled in an area where insufficient data exits 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. 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 for each system or operation may be used for testing provided that the person, operator or facility can demonstrate that the concentration derived from a test of the representative sample is reasonably representative of the hydrogen sulfide concentration within the operation or system.

b. The tests 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 system or operation was tested 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. The Division may disapprove the test methodology and require additional testing if the testing methodology did not conform to the requirements of this Section.

2. Tested Concentrations Below 100 ppm. If the testing described in the previous Paragraph determines that the hydrogen sulfide concentration in a given operation or system is less than 100 ppm, no further actions are required pursuant to this Section.

3. Tested Concentrations Above 100 ppm; Calculation of the Radius of Exposure.

a. If the testing described in Paragraph 1 of this Subsection determines that the concentration of hydrogen sulfide in a gaseous mixture is 100 ppm or greater, then the person, operator or facility must calculate the radius of exposure pursuant to this Section.

b. If calculation of the radius of exposure reveals that a potentially hazardous volume may be present, the person, operator or facility shall provide the results of the testing and the resulting radius of exposure determinations to the division electronically in a generally accepted electronic format within 180 days of commencing operations or, for existing facilities, within 180 days of the effective date of this Section. An Operator may petition the Division for an extension of the 180-day reporting period pursuant to subsection K of this Section.

4. Recalculation. If operational or production alterations are made that, through application of generally accepted engineering principles and generally accepted operating practices, indicate that a 25% or greater increase in the hydrogen sulfide concentration may occur in a given operation or facility, the person, operator or facility shall recalculate the radius of exposure and submit the results to the division electronically in a generally accepted electronic format ~~form that is compatible with the division's systems~~.

Suggest that the terminology used in D.3.b be substituted as a more appropriate way to state this requirement.

E. H_2S Contingency Plan.

1. In General. An H_2S 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 Plan must be developed in accordance with the following paragraphs.

2. When Required. An H_2S contingency plan must be prepared whenever a potentially hazardous volume of hydrogen sulfide may be present.

3. Input of Emergency Response Authorities and the Division. The person, operator or facility shall seek input on the proposed H_2S contingency plan from the division, the New Mexico department of public safety (and as appropriate the New Mexico state police), the local emergency planning committee, the county sheriff, city or municipal police, and/or police and fire departments.

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 a potentially hazardous volume of hydrogen sulfide, including an immediate action plan that substantially conforms to paragraph 7.6 of 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;

ii. A call list including the following as applicable:

aa. local supervisory personnel;
bb. county sheriff;
cc. the department of public safety and state police;
dd. city or municipal police;
ee. the 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 H_2S contingency plan:

i. Instructions and procedures for alerting and coordinating with emergency response authorities in the event of a release of a potentially hazardous volume of hydrogen sulfide at any public road;

ii. A plat or map detailing the area of exposure, including the locations of public roads within the radius of exposure of a potentially hazardous volume;

iii. 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 H_2S contingency plan:

i. detailed plans of action to alert and protect persons in the event of a release of a potentially hazardous volume of hydrogen sulfide, including instructions and procedures for

D.4

alerting persons at risk and emergency response authorities in the event of a release of a potentially hazardous volume of hydrogen sulfide;

ii. 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.

iii. 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);

iv. a plat or map detailing the area of exposure, including the locations of private dwellings or residences, public facilities such as schools, businesses, public roads or other similar areas where the public may be reasonably expected to be present within the radius of exposure;

v. the names and telephone numbers of all persons living within the radius of exposure of 100 ppm hydrogen sulfide and contact persons for each public area, such as churches, schools and businesses;

vi. provisions for advance briefing of affected and responsible persons within the radius of exposure. Such advance briefing shall include the hazards and characteristics of hydrogen sulfide, the necessity for an H_2S 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; and

vii. in lieu of the previous subparagraph, a reaction-type plan may be prepared and submitted that provides for mass notification of a hydrogen sulfide leak and for an evacuation of affected areas;

viii. additional support information, if applicable, such as the location of emergency evacuation routes, the location of safety and life support equipment, the location of hydrogen sulfide containing facilities, 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 H_2S contingency plan shall be submitted to the division electronically in a generally accepted electronic format ~~form that is compatible with the division's systems~~ and to the local emergency planning committee no later than 180 days following submission of the radius of exposure required in Subsection D of this Section. The H_2S contingency plan may be submitted separately or along with the application for permit to drill (APD) and may be submitted to the division electronically in a generally accepted electronic format.

Suggest that the terminology used in D.3.b be substituted as a more appropriate way to state this requirement (actually appears in two different versions in this same paragraph).

6. Failure to Submit Plan. Failure to submit an H_2S 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 H_2S contingency plan on an annual basis, if activation of a plan reveals a deficiency or, if changes to processes, concentrations of hydrogen sulfide as specified in section D.4 or other circumstances occur. The person, operator or facility shall submit any amendments to the division electronically in a generally accepted electronic format ~~form that is compatible with the division's systems~~ and to the local emergency

subparagraph?

planning committee. Reasonable efforts shall be taken to update on an annual basis the names and telephone numbers of persons living within the 100 ppm radius of exposure.

The change in H2S concentration needs to be quantified so that insignificant changes do not require a plan change. Suggest adding a reference to the requirements already set out in D.4.

OK

Again, suggest that the terminology used for electronic format requirements in D.3.b and E.5 be substituted as a more appropriate way to state this requirement.

8. Retention and On-Site Inspection. An H_2S 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. Activation Levels. The H_2S contingency plan shall be activated in the event of a release of a potentially hazardous volume of H_2S above the respective thresholds (i.e. 500 ppm radius at any public road, 100 ppm radius at any public area, etc.) or if a sustained concentration of H_2S exceeds 50 ppm at the property line of any facility, well or operation.

F. Protection from Hydrogen Sulfide During Drilling, Workover and Servicing Operations.

1. 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 Safe Drilling of Wells Containing Hydrogen Sulfide," RP-49, most recent edition.

2. Minimum Standards. At a minimum, and possibly in addition to the foregoing API standards, each drilling, completion, workover and well servicing operation shall also be conducted in accordance with the following:

a. Before Commencing Operations. The person, operator or facility shall complete an H_2S contingency plan, where required, before commencement of operations. In addition, hydrogen sulfide training shall be completed and all related safety equipment and warning systems shall be operational before commencement of operations ~~as defined in F.2.c below~~.

2 But detection of monitoring equipment is not

Paragraphs a and c seem to be somewhat contradictory and I believe that everyone agreed that it was not necessary to incur the expense of having all equipment operational on a drilling rig until the drilling approaches the zone where H2S is anticipated to be present. We had originally recommended that the phrase "and all related safety equipment and warning systems shall be operational" be deleted as paragraph F.2.c enumerated the specific requirements. If the phrase is kept it is important to clarify when they apply.

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

c. Safety, 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 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, 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. 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. Hydrogen sulfide detection, safety and monitoring equipment must be provided and the prescribed safety equipment must be made operational during drilling when drilling is within 500 feet of the zone anticipated to contain hydrogen sulfide and continuously thereafter through all subsequent drilling. (Detection and monitoring equipment is not required for drilling from the surface to within 500 feet of the zone anticipated to contain hydrogen sulfide.)

d. Wind Indicators and Signs.

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. Danger or caution signs shall be displayed along all accesses 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 equivalent language approved by the division, and in smaller lettering: "Do Not Approach If Red Flag is Flying" 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. 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 which allows vehicles to turn around at a safe distance prior to reaching the site.

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

e. If Hydrogen Sulfide Encountered During Operations. If hydrogen sulfide was not anticipated at the time the division approved the APD but is encountered during drilling in excess of 100 ppm in the gaseous mixture, the operator shall immediately ensure control of the well, suspend drilling operations unless detrimental to well control, and obtain materials and safety equipment to bring the 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.

3. Operating Practices In Hydrogen Sulfide Concentrations of 100 ppm or Greater. Operating practices in areas known to contain a concentration of hydrogen sulfide gas of 100 ppm or greater in the gaseous mixture shall be subject to the following requirements:

a. 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 for aerated mud, 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 after encountering hydrogen sulfide in excess of 100 ppm, but only if the alternative method is specifically approved by the Division.

b. 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, unless exempted pursuant to Subsection K. Flare outlets shall be located as far from the well bore as feasible but not less than 150 feet from the well. 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.

c. Remote Controlled Choke. When a potentially hazardous volume of H_2S may be present in any public area, the following measures shall be taken:

i. The person, operator or facility shall install a remote controlled choke during drilling and during completion and well servicing operations when the 100-ppm H_2S radius of exposure includes a public area, unless exempted pursuant to Subsection K;

ii. For completion or workover operations, the person, operator or facility may use ~~shall install~~ a suitable alternative to a remote choke (i.e. a remote controlled valve, blow out preventer with remote accumulator, etc.) ~~may be used~~; or

OK

This provision should be permissive as it is allowing, but not requiring, an acceptable alternative to a remote control choke.

iii. For drilling operations, the person, operator or facility shall install a remote controlled choke or remote controlled valve that includes, at a minimum, a pressure and hydrogen sulfide-rated well control choke and kill system including manifold and blowout preventer pursuant to specifications API-16C and API-RP 53. 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 or other division rules, if more stringent. Variations to blowout preventer stack arrangements may be granted by the division for good cause shown.

d. Mud Program. A mud program, including de-gassing and flaring, capable of handling H_2S conditions and well control shall be used.

e. Well Testing. Except with prior approval by the division, the drill-stem testing shall be conducted only during daylight hours and formation fluids shall not be permitted to flow to the surface (closed chamber only). An operator shall notify the division 24 hours in advance of a drill-stem test if an H_2S contingency plan is required pursuant to this Section.

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

1. API Standards. Operations at crude oil pump stations and producing wells, tank batteries and associated production facilities shall be conducted according 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.

The phrase "with due consideration" has been replaced with "according". This does not recognize the operator decision making flexibility that we suggested but on balance is probably acceptable.

2. Minimum Standards. At a minimum, production from crude oil pump stations and producing wells, tank batteries and associated production facilities shall also be conducted in accordance with the following Subparagraphs and Sub subparagraphs. Where API standards referred to in the previous paragraph are less stringent than the following, the more stringent standards shall apply.

a. Gaseous Mixtures Containing 100 ppm or more. Producing wells containing 100 ppm or more of hydrogen sulfide in the gaseous mixture, crude oil pump stations, tank batteries and associated production facilities, refineries, gas plants and compressor stations, shall be subject to the following:

i. H_2S Contingency Plan. If a potentially hazardous volume of H_2S exists, an H_2S contingency plan shall be required.

ii. Signage. A danger sign or signs shall be posted within 50 feet of each facility to alert the public of the potential hydrogen sulfide danger. If fenced, a danger sign at the gates shall suffice. Danger signs shall be posted at each flow line and gathering line on the well pad that contains hydrogen sulfide gas. 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. The signs shall be legible and large enough to be read by all persons entering the well site and shall be placed on or within 50 feet of 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.

iii. 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 residence, school, church, park, playground, school bus stop or place of

business. The fence shall consist of a 5-foot chain link topped by two stands of barbed wire or other designs approved by the division. Gates shall be locked when unattended.

The inclusing of the phrase "in a public area" is not appropriate here if the OCD insists on including "city, town, village" in the definition of public area. Again, the need for fencing is dictated by the proximity of the public and not by some tax boundary. Fencing should be required when facilities are near people!

iv. Wind Direction Indicators. Wind direction indicators shall be required at every crude oil pump station, producing well, tank battery and associated production facility where the H_2S concentration in a gaseous state exceeds 100 PPM.

v. Secondary Well Control. Wells where the 100-ppm H_2S radius of exposure incorporates a public area 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.

vi. Automatic Safety Valve or Shutdown. If the 100-ppm radius of exposure involves a public area, the person, operator or facility shall install an automatic safety valve or shutdown at the facility or wellhead or shall install other appropriate shut-in control. The automatic safety valve shall be set to activate upon a release of a potentially hazardous volume of hydrogen sulfide.

b. Tanks or vessels containing ~~500~~ 300 ppm or more of hydrogen sulfide in the gaseous mixture shall be subject to the following additional requirements:

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This requirement is appropriated fixed at 300 ppm and should not have been changed.

i. Each stair or ladder leading to the top of any storage tank shall be chained or marked to restrict entry. For any tank battery that requires fencing pursuant to this Section, a danger sign posted at the gates may be substituted for chaining and signs.

ii. The person, operator or facility shall post a danger sign 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. The sign(s) shall be legible and large enough to be read by all persons entering the site and shall be placed on or within 50 feet of the site.

3. Compliance Schedule. Each existing crude oil pump station and producing well, tank battery and associated production facility 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.

H. Personnel Protection and Training. All persons responsible for the implementation of any H_2S contingency plan shall be provided training in hydrogen sulfide hazards, detection, personal protection and contingency procedures.

I. Standards for Equipment That May Be Exposed to Hydrogen Sulfide. Persons, operators and facilities shall chose equipment with consideration for both the H_2S working environment and anticipated stresses. NACE Standard MR0175 (latest edition) shall be used for selection of metallic equipment or, if applicable, adequate protection by chemical inhibition or other methods that controls or limits the corrosive effects of H_2S shall be used.

J. Exemptions. An exemption to the requirements of this Section may be granted by petitioning the director. 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, after

considering all relevant factors, may approve an exemption if the circumstances warrant an exemption, if the requirements of this Section are met, and public safety will be protected.

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

1. Activation of the H_2S Contingency Plan. The person, operator or facility shall activate the H_2S contingency plan immediately upon an H_2S release where the potential exists for public exposure to a potentially hazardous volume of H_2S, or where a sustained concentration of H_2S greater than 50 ppm exists at the property line of any well, facility or operation.

This is a rule for public safety. It is possible that a release within a facility would not be a PHV and activation of the H2S Contingency Plan would not be warranted. The deletion of the word "public" greatly expands the consequences of this requirement beyond the intent of the rule. I thought that we had also agreed to include the word "sustained" recognizing that 50 ppm is a very low number and we do not want to have the plan activated a very brief event.

2. Notification of the Division. The person, operator or facility shall notify the division upon a release of hydrogen sulfide requiring activation of the H_2S contingency plan as soon as practicable, preferably within one hour of discovery of the release or as soon as possible 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.

L. 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.