key issues:

(1) timelines for determination / calculation and planning
   - one year instead of 180 days for determination / calculation (6 mo.)
   - one year instead of 180 days for plan submission (6 mo.) — may be OK

(2) "potentially significant release" vs. "that could produce a PHV" — E.I. & Z.

(3) grandfather provisions for signs and markers

(4) multiple jurisdictions

(5) electronic submission of contingency plans (PRRC Templates for plans)

(6) corrective action

(7) [illegible]

RL:

more stringent requirements -

(to protect ~~workers~~ the public from possible ~~long term~~ effect caused by H_2S exposure, with low levels of H_2S)

good!

H_2S II 9-20-02

14 Price pahcy drafterman. Division came up with Rule as a starting point. Formed workgroup. Price-Chair.

16. Ex. 2 - compares EB's recommendations w/ Comm'n draft

17 compares thresholds between drafts

19 PHV, radius of exposure, area of exposure defined

20 PHV explained in various permutations

22 100 ppm radius of exposure larger than 500 ppm radius

26 Comm'n draft requires secondary well controls in PHV/500 -but Division's recommendation that well controls be req'd only in PHV/100 public area only

27 Division's comments are Ex 1

28 Requests reinsertion of sentence that restricts applicability of rule where concentrations > 100 ppm exist

29 should be up front where everyone can see it

30 maybe testing, staff should be up front also

31 re: pipelines - intend to cover pipelines

32 transmission lines don't contain H_2S
high pressure or medium pressure lines that are prevalent

32 recommends covering these pipelines

33 F.2 should cover flow lines, gathering lines "and other pipelines" for purposes of signage when "cross public road"

34 H. (fencing) should not apply to pipelines

35 ... impossible to fence every pipeline

35 same w/ wind direction indicators

35 API stds. should apply to pipelines, H.1 should be revised to apply specifically to pipelines

37 signs necessary to prevent county road crews from digging where pipelines w/ H_2S present

38 where pipelines run down right-of-way, should also be intermediate signs as well as at beginning and end

38- re: Rule 711 facilities

40 surface waste mgt. facilities have the inherent ability to generate H_2S because of mixing of wastes al possibility of anaerobic / physical / chemical reactions can't be anticipated because of mixing —

40-41 H_2S can be generated if produced water in a tank or pond is mixed w/ a load of acid or H_2S-laden mud

43-4 why they should be regulated under both

45 this rule should apply to 711 facilities and should not preclude the Division from exercising its existing authority under Rule 711 to make facility-specific requirements as well... (Brooks)

★ 48 tanks might not be addressed under 711 permit conditions - where they would be under the proposed rule

51 some items should be regulated/required if a 100 ppm concentration is in the gas stream, including the API stds., egress routes, safety, detection & monitor equipment, wind indicators, flare systems, mud program, well testing, tanking, gates

55-6 personnel protection and training should be req'd whenever 100ppm or greater is present
if not trained could lose control of a well, or endanger yourself or others (100 ppm concentration health effects) - industry personnel must be trained so that they can protect the public

56-7 work group consensus on this point

57-8 Tex RR comm'n - same

58 should apply to 100 ppm concentration facilities - lots of public roads that are not near public areas...

59 ... and even if facility not in PA/U, would lose control of it and impact a public area - later —

59-60 a contractor could come to site and if workers are not trained, could be injured

judicial notice - overhead

60 would be ranchers tending cattle . . . , people hunting, fishing, camping

60-61 if lose control of situation, might not know how to alert people & protect public under those circumstances.

61 API stds.

62 industry practice, as reflected in API stds, to apply stds. whenever a 100 ppm concentration present

63 work group consensus on this

64 egress routes

64-5 need a safe egress route to get away from a situation and not be capable of providing public warning and public protection

66 Mr: Detection and Monitoring equip.

67-8 human sense of smell unreliable ~~to~~ beyond small concentrations of H_2S - plus dangerous

67 larger concentrations not detectable by human sense of smell, > 50 ppm

68 need detection equip. (same rationale)

68-9 when concentration in system is > 100 ppm

69 consensus of workgroup

69 detection of monitoring equip should be on side of working (?)

69-7 re: flare systems

70 when H_2S flared, it produces sulfur dioxide, but thermal agitation causes dispersion

70-1 flaring renders H_2S far less dangerous
Std. equip is a flare gun, to ignite H_2S to render it less dangerous

71 API recommends flare systems

71 should have flare systems where concentration > 100 ppm

72 consensus of work group on issue

72 re: mud program

72 mud program should be in place before drilling in an H_2S area - so that can respond to kicks as they occur

73 if mud program inadequate - could lose control of situation

work group consensus - should apply where 100 ppm or greater

73-4 current industry practice is consistent

74 secondary well control (equip to permit re-entry under pressure to kill well if necessary)

75 greatest concern exists at production facilities and during workovers (addressed elsewhere)

76 ?

76 secondary well control: equipment to shut a well in (either automatically, or by manual means)

77 automatic shutdown controls do this (↑) automatically

* 79-80 secondary well controls, automatic shutdown controls, & special blowout controls should only apply in ~~the~~ PHV/Public Areas

84-5 don't need this equip at a public road because the contingency plan would be activated if a release & the road could be blocked off

87 recommend alternative description of well control equipment (Division rec. @ 7, Ex. 1)

87-8 describes rig & substructure

88 extra ram that was recommended is impossible to fit under rigs

90 re: safety equip.

91 should require that appropriate safety equip be present

* 91-92 should require that safety equipment required by industry standards and good operating standards be included

92-93 necessary safety equip to implement contingency plan
API stds for "immediate action plan"
SCBAs, flare guns, communication equip.

94 Tex. R.R. Comm. and BLM 6 → similar generic language

94 activation levels
now set @ 20 ppm

95 balance between public safety and reliability

95 a maximum limit - co. could set lower —

96 mi: threshold for fencing

* 96-7 any facility that contains > 100 ppm and any tank that contains > 300 ppm - if a PHV/Public Area (and w/in 1/4 mi of Public area (97)) should be fenced

97 does not apply to drilling wells -
because personnel on site all the time

* 98 tank batteries need to be addressed differently -
→ they pose a danger even though they won't create a PHV because they don't flow - need special rules

99 risk that persons would intrude on site -
significant # of tank batteries

101 hazard posed by release from a tank low - (overall, greatest risk is someone opening the hatch)

* 101-102 workgroup consensus → >100 ppm if tank located w/in 1/4 mile of a public area
- should be fenced -

* 102-3 re: H.2.d. begins with "any well" - ~~should be stricken~~ should "or facility" after "wells"

103 automatic shutdown equipment used at production facilities, refineries, gas plants, compressor stations often w/in public areas

104 re: activation of contingency plan -

105 should have a specific trigger level previous draft 50 ppm @ property line

105-6 now recommends language specifying 50 ppm for ten minutes @ facility - or if ~~gas~~ personell required

108 50 ppm a more objective standard than the reference to a PHV, which represents a worst-case scenario

defining exact instances when plan is to be activated is very important

110 50 ppm trigger should apply to PH/V wells, not just public areas

123 produced water contains H_2S
rule of thumb that if the liquid has 1 ppm,
vapor could have 50 ppm
likely to be 5000 ppm

* 132 50 ppm for ten minutes is the level at which OSHA requires respiratory equip - it's the "PEL" or permissible exposure limit

R Bayliss
144-5 @ 100 ppm ...

* 145 IDLH is 100 ppm for 30 mins. - suffer irreversible health effects or die ... lose sense of smell ... dizziness ... inability to function

146 OSHA regs.

* 146 effects depend on body weight, previous exposure, whether taking medications, alcoholic, repeated exposure

147 the most lethal dose is 600 ppm / 10 mins.

147-8 between 50 ppm and 100 ppm - have to wear respirator

148 >100 ppm have to get out even if have a respirator

149 re: 50 ppm - must wear respirator
@ 50, coughing, eyes & throat irritation

150 NIOSH recommends respiratory gear @ 10 ppm

151 site-specific safety plans may trigger @ 10 ppm or 20 ppm - this would activate plan under

present language . . .

153 activating plan at a lower level than rigid avoids confusion and procrastination

154 if you're suiting up, you've lost control of the situation . . .

155 language permits activation at lower levels - but doesn't require -

Gantner
157

10.25 12897 - H_2S

< timelines 180/360

< preparation of plan
activation levels

contradictory standards
→ add in 50ppm/10 mins.

✓ < Signs - give one year to comply of requirements
compliance period

> multiple jurisdiction issue - deferral - no
without multi-agency jurisdictions
plan - submitted for another agency may be
submitted

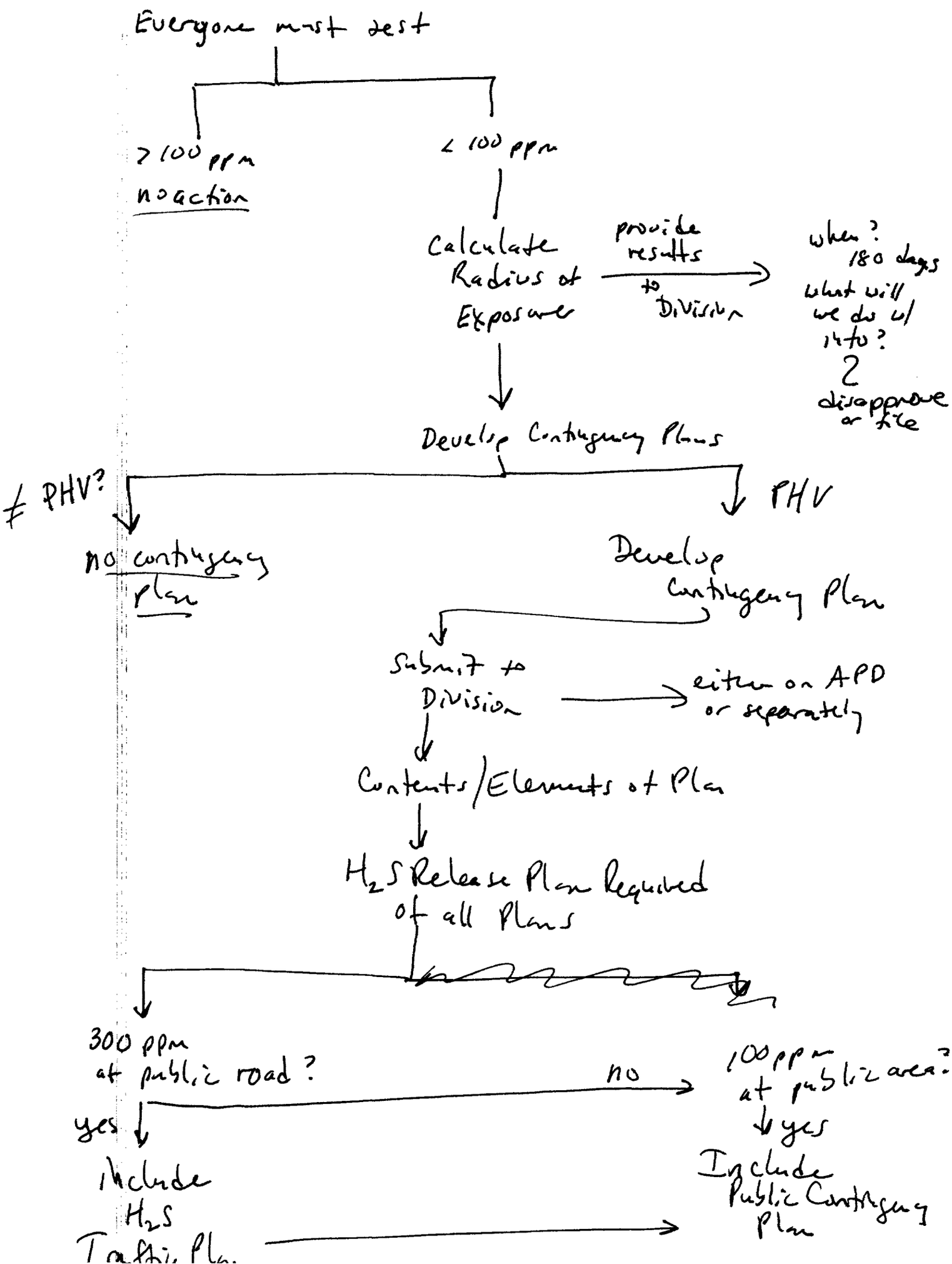
✓ > electronic submission -
- make language so that
submittal by many electronic media
→ threshold → above smaller operators →
↳ 100 wells
(Jami: consistency)

✓ > corrective action - @
concerns draft contrary -

delete entirely →

✓505 622-8996 (Girard)
✓505-622-8004 (Howard)
984-0128 (Nance)
Fax ✓505 623-9332 (Nibert)
✓713-985-1240 (Montgomery)
✓505-983-6043 (Eddleman) 281-552-1383
✓505-477-2128 (Maloney)
✓505-986-1094 (Deborah)
✓915-687-8287 (Marathon)
✓505-746-2523 (Marbob)
Tom Nance 22
✓915-368-1507 (Koppinod)

H_2S Flow


Everyone must test
> 100 ppm
no action
< 100 ppm
Calculate Radius of Exposure
provide results to Division
when? 180 days
what will we do w/ info?
2 disapprove or file
Develop Contingency Plans
≠ PHV?
PHV
no contingency plan
Develop Contingency Plan
Submit to Division
either on APD or separately
Contents/Elements of Plan
H_2S Release Plan Required of all Plans
300 ppm at public road?
yes
Include H_2S Traffic Plan
no
100 ppm at public area?
yes
Include Public Contingency Plan

Retain Plan on Site
Submit to Division for approval?

↓

annual review

↓

Change in procedure/systems? → yes → retest, recalculate radius of exposure

↓ no

7-19
H_2S Rule, hearing
Case No. 12897

David Brooks, OCD — 3 witnesses — Jim Ball, Phillips
Rick Foppiano, OXY
Tom Nance, IPAN
Bill Carr, CRI, supports rule as drafted
Deborah Seligman, NMOGA
(Larry Sanders, Phillips)

Roger Anderson

Qualifications

assigned to review 118
gathered stds. all determined
that Rule 118 not adequate
Bureau performed air dispersion
models
set up workgroup
open dialog

proposed rule is a public safety
rule, not a public health rule
eg air quality bureau - so ED
not included, Division does not
have jurisdiction over air quality
State has ambient air stds through
ED; ED stds more stringent

H_2S not a criteria air pollutant

Randy Bayliss

Hydrologist, P.E.
Chemical, Civil, Environmental
16 years State emp. > air/water pollution
14 years consultant
H_2S review, reviewed H_2S Rule

H_2S - leading cause of sudden death in workplace (NIOSH)
very toxic - as toxic as hydrogen sulfide

ppm -
toxicity depends on concentration
easily detected at low concentrations
produced by decomposition in absence of O_2
concentration of 100 ppm deadens sense of smell
50 ppm - depends on time of exposure - 50 ppm for a few minutes severe headache, fuzzy thinking - in industrial setting everyone goes home

100 ppm - difficulty breathing after a few minutes - in workplace, evacuations occur (OSHA)

Ex. 3 — 500 ppm - known level, 2 breaths, pass out

Ex. 3, looks at duration of exposure and concentrations

results from accidents at animal research

Wayne Price — Environmental Engineer discharge plans, ...

25 years experience, primarily as environmental engineer

Goodyear (design controls) Environmental controls), superintendent at power plant, oilfield chemical industry

Slide 1 (ex. 2) p. 4
inadequacies of 118

3 inadequacies identified

IOGCC Model Rule

use of word "should" lessens or eliminates ability to enforce

50 to 1
if liquid contains a certain concentration, then head space concentration would be 50 times greater

>10 mct not regulated ~~NOT~~ irrespective of concentration

Slide 2, worst case scenario
ROE, 200' 500 ppm, 450' 100 ppm

ROE - long discussion
set up to protect public, mathematical model predicts concentrations at certain distances

high volume pipelines carry sour gas to plants - intermediate gathering lines to gas plant

ROE - used to calculate ~~PHV~~ circles for determination of PHV

uses Pasquill-Gifford; but operators may use another method

subsection D requires operators to determine H_2S risk (slide 7) and recalculation in the event of a 25% change (increase)

plans (slides 9-10, 11-12, 13)

activation -

Contacting plan closely correlate w/ onshore order 6 - no requirement of two plans

etc

necessary for protection of public safety

Exs. 1 + 2 admitted

Rizk Foppiano

Jim Ball

Supports rule
① Question about Activation levels
② electronic filing

Tom Nance

opposed –
no problems have arisen –
add'l unnecessary onerous burden on small producers
conflicts between OSHA and BLM onshore orders
voluminous testimony – wants 30 days for comments

D. Seligman

NMOGA "commends" –
process – workgroup – 99% of suggestions incorporated and considered

3

W

drafting issues – by 7-26
request for written comments
staff work @ drafting
make changes at mtg
avail. by end of month
add'l time for comments
written comments –
leave record open – until 8-16

100 PPM

signage
*fencing at the risk a public area

PHV/Public Area

Drilling, completion workover
API RP-49
training completed/warning system operational
detection al monitoring
egress routes
wind indicators/red flags
flare system
well control*
mud program
well testing
Production facilities et al.
API RP-55
fencing
wind direction indicators
well control*
automatic safety valve or shutdown
stairs/ ladders chained

PHV / Public Area
**?

Dec. 4-5 Farmington - Produced

Comments:

Division, Brooks, Price, Bayliss

NMOGA
- Gene Montgomery, OXY
- Bruce Gantner, Burlington Resources

Dan Brand, Mack, IPANM
Deborah Seligman, NMOGA
Bob Manchec - BP
Pick Holoney, Loco Hills Water Disposal
John Prather, Safety Consulting & Training Patricia
Roger Anderson, Division
Ed Martin
Michael Feldewert, Holland & Hart
Ken Marsch, CRI
Jack Ford, Division
Mary Anaya, OCD

Division comments:

Wayne Price:

Work group formed:
- NMOGA
- IPANM
- Municipalities
- BLM

re: "consensus" of the work group -

threshhold or trigger level -

100 ppm
300 ppm in tanks
PHV / Public road
PHV / Public area
1/4 mile of public area

how thresholds interrelate

500 ppm always larger

Chart shows how workgroup recommendation vs commission draft compare:

personnel protection vs training - no change in Com'n draft

API stds. -

OCD Comments, Ex. 1

Pipelines: intent was to cover pipelines,

covered under applicability

transmission & H_2S

medium pressure H_2S sour gas lines

contingency plans

Pipeline crossings need signs - highway road crews need to know where pipelines are to prevent digging

Pipelines that run in ROW - not required for signage (should we in some cases require a periodic marking?)

711 facilities:

drafts treat 711 facilities differently than other facilities?

- permitted under Rule 711
- requirements in some cases more stringent than proposed rule
- surface waste mgt. facilities can generate H_2S themselves
  - mixing, anerobic reactions
  - unanticipated, can't be calculated
  - produced water - acid or mud mixed (chemical reaction)
- emerging vs. public health
  - shouldn't exclude 711 facilities
    - both public safety (Rule 52) & long term health (Rule 711) should apply

Lee: H_2S comes from bacteria — very slow —

Lee: revisit 711

Signage —

thresholds for other safeguards should be 100
- API
- egress routes
- safety -
- wind indicators
- flare system
- mud program
- well testing
- personnel protection al

*personnel protection al training should be req'd

have to protect industry workers so as to protect public - even in outlying areas

workgroup: 100 ppm threshold on this

Lori: difficulty of training outside of public areas

* API standards
  - Industry std – to apply API stds. above 100 ppm
  - available over website
  - available in SF office
* egress routes
  - in 100 ppm areas to give warning of problems
* detection and monitoring equipment –
  - <u>sense of smell not well suited to determine</u> concentrations of H_2S – sense of smell works @ low concentrations – but not so well at higher concentration
  - needed in 100 ppm areas to assist with warning — <u>workgroup consensus</u>

* signs
* flare systems
  - flaring (burning) of H_2S – makes it less dangerous – generates SO_2, SO_3, NO_x, CO_2
    - SO_2 readily disperses because of convection of burning – also combines w/ H_2O to form an acid (less immediately dangerous)
  - API recommends use of flare system
  - workgroup consensus on this point

* Mud program
  H_2S comes out of mud - when >100ppm
  inadequate mud program - loose control of well
  harm workers

  workgroup consensus
* drill stem
  not concerned

PHV/public area

*secondary well control - equipment that can shut down a well
  should be apply only in PHV public area

automatic shut down equip - equipment shuts itself down

blowout = g(z)(t)
control a blowout
Conn's draft - PHV - should be PHV/public area

Safety equip p. 8

safety equipment includes...
staff to implement contingency plan
SCBAs — API manual
flare gun
ignition devices
communication equip.

fencing:
now under a section using PHV — should be under 100 ppm

workgroup — 600 ppm if w/in 1/4 mile of public area

activation

workgroup consensus — 50 ppm

* need to set a real trigger not a theoretical trigger -

- difficult to assess whether theoretical trigger is reached — a real trigger will help

Feldewert questions:

$ order — 100 ppm threshold developed as a result of industry standards (federal regs & state), and provide uniformity, & address public health

unknown wastes mixed together - could create unknown problems -

this is protective of public safety - in a gross sense, Rule 711 covers public health

liquid / vapor about 50 ppm] engineering rule of thumb

Bayliss

100 ppm - for 30 mins.
① time of exposure - IDLH - Immediately dangerous life & health
② protection
respirator - between 100 ppm & 200 ppm

irreversible health effects
600 ppm / 10 mins.
Lethal

adverse health effects increase as time passes

OSHA 50 ppm - 10 minutes
requires personal protection equip.
other & thereafter ventilation

NIOSH 10 ppm - respiratory aids

NMOGA/IPANM
Bruce Gantner -
Environmental Health + Safety
25 years - experience
Registered -

complete re-write -

activation levels - address in plan
- have global limits -

put last sentence of 5
to ROE?
(p. 5)

John Prather

100/300 ppm levels inadequate
current NIOSH is NO 100 ppm
(3½ years)

prior NIOSH was 300 ppm
9 fatalities from H_2S (in New Mexico?)

believes should not base triggers
on IDLH

recommends 50 ppm or less

stds based on 150 lb. adult
child can not withstand as much

[redacted]

line failures, etc.

signage: Danger - Warning - Caution
2 "possibility moderate injury"

doesn't meet
ANSI/OSHA
stds.

New Mexico has direct OSHA enforcement power – concerned about dilution, State requirements

Texas going to revisit rule next year –

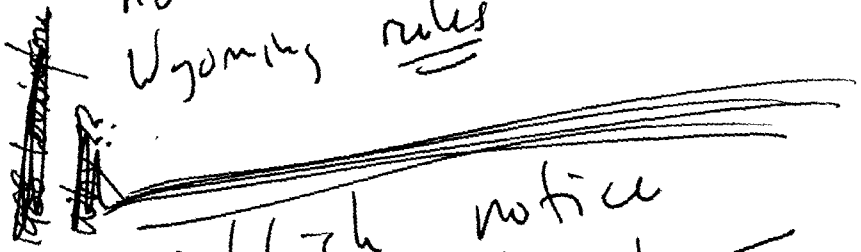
test equipment to detect 500 ppm
takes 15 minutes to use

electronic detectors don't work!

★ recommends automatic release detectors –
require auto detectors on phone system

no OSHA regulations on H_2S ????

Wyoming rules



Publish notice
Oct. 25 hearing –
★ Report by 15th – October 15
Record open until 15th – to receive repo
Report from work group –
→ identifies areas of agreement
Record now closed