MEMORANDUM

TO: NFPA Technical Committee on Explosion Protection Systems
FROM: Elena Carroll, Administrator, Technical Projects
DATE: October 12, 2011
SUBJECT: NFPA 67 ROP TC FINAL Ballot Results (F2012)

The Final Results of the NFPA 67 ROP Letter Ballot are as follows:

28 Members Eligible to Vote
5 Not Returned (Davis, Floyd, Gillis, Guaricci, and Penno)
19 Affirmative on All
4 Negatives (Dimopoulos, Febo, Morrison, and Ural) (on one or more proposals as noted in the attached report)
0 Abstentions

There are two criteria necessary to pass ballot [(1) affirmative \(\frac{2}{3}\) vote and (2) simple majority].

(1) The number of affirmative votes needed for the proposal to pass is 15.

\[
(28 \text{ eligible to vote} - 6 \text{ not returned} - 0 \text{ abstentions} = 22 \times 0.66 = 14.52)
\]

(2) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required. This is the calculation for simple majority:

\[
[28 \text{ eligible} \div 2 = 14 + 1 = (15)]
\]

Reasons for negative votes, etc. from alternate members are not included unless the ballot from the principal member was not received.

According to the final ballot results, all ballot items received the necessary \(\frac{2}{3}\) required affirmative votes to pass ballot.
Paragraph 10.4 and Figure 10.4.1:
The protective strategy for carbon adsorption systems noted in paragraph 10.4 and figure 10.4.1 promotes the concept that the primary method for mitigation of the risk is dilution of the flammable gas to less than 50%. This design strategy is impractical for many applications including hydrocarbon adsorption/absorption (ADAB) systems commonly used for hydrocarbon recovery in fuel terminal loading operations. Additionally the flame and detonation arrester configurations promoted by figure 10.4.1 could not be applied as noted in an ADAB system as the pressure drop associated with the multiple Flame and Detonation arresters would make the operation of ADAB systems technically infeasible. Equivalent protection is provided through instrumentation and inherent design features which prevent excessive adsorption heat release and the selective use of Flame and Detonation arresters. These systems have a long record of safe operation. The committee should add additional language to section 10.4.1 to emphasize that the strategy to control explosion hazards in carbon absorption units is application specific and can include concentration control, Flame and Detonation Arresters, instrumented interlocks, equipment which can contain explosion overpressures, etc. The protective strategy highlighted in section 10.4 and figure 10.4.1 is applicable to a specific application and may not be suitable for all industrial applications.

Paragraph 10.2:
The applications of Flame Arresters and Detonation Arresters should be risk based considering the possibility that the application flame and detonation arresters introduce new hazards in process equipment (e.g. plugged vent, process lines) which could present a far greater risk to a facility than the explosion risk.

Febo, Jr., H. A number of intelligent people have contributed interesting material relating to the science of pipe explosions but the entire package is disjointed, overlapping and I find little useful information that can be used by the ordinary practitioner.

Some of the information in this document seems to duplicate other NFPA sources, for example 68 & 69.

Affirmative with Comment

Morrison, L. I agree with approval of this document except Chapter 10 which should be sent back to committee for rework (see reason for negative vote on CP10). The content of Chapter 10 when improved could be included in a later edition of the standard.
Chapter 2 (Log # CP2)

Not Returned
Davis, T.
Floyd, L.
Gillis, J.
Guaricci, D.
Penno, S.

Affirmative with Comment
Febo, Jr., H. A number of references in the proposal need to be brought into chapter 2.
Penno, S.

Negative

Febo, Jr., H.  Sections 5.4.3 and 5.4.4 look like they cover the same phenomena. 5.4.4 also throws in the term 'galloping detonation' and then seems to leave the reader hanging for more details or even an explanation of what this might be. Section 7.4 covers this phenomena.

Section 5.5 lists several references by number (1, 3, 9 and 24) but I don't think they are provided in this document.

Ural, E.  Large body of cell size data are published in Shepherds web site. We should either include the data in tables or incorporate the web site as a reference.

Eligible To Vote: 28  Affirmative: 22  Negative: 1  Abstain: 0  Not Returned: 5

Chapter 6 (Log # CP6)

Not Returned

Davis, T.

Floyd, L.

Gillis, J.

Guaricci, D.

Penno, S.

Negative

Febo, Jr., H.  There are two different 6.2.1 sections. The second should be "6.2.2 Passive intervention methods" Section 6.2.2.3 - improper term for 'explosion proof' enclosure which is an electrical equipment term. Advantages and disadvantages clearly pointed out for inerting. Similar comparisons ought to be clearly highlighted for the various other active and passive methods so failure modes can be clearly understood.

Affirmative with Comment

Morrison, L.  Clause 6.2.2.3 and Figure 6.2.2.3 use the term "explosion-proof" and "pressure-proof". These terms are misleading. Suggest changing to "explosion-resistant" and "pressure-resistant".

Eligible To Vote: 28  Affirmative: 22  Negative: 1  Abstain: 0  Not Returned: 5

Chapter 7 (Log # CP7)

Not Returned

Davis, T.

Floyd, L.

Gillis, J.

Guaricci, D.

Penno, S.

Negative
Febo, Jr., H.  7.1.2 - there is indication of design guidance provided in section 6. Is that chapter 6 or section 7.6? Section 7.6 is 'reserved'; no guidance is provided.
7.2 brings up a new CJ code (Gordon-McBride) which was not mentioned in Chapter 5 and no references to the codes in chapter 6.
This whole chapter seems to address material again or in a different way from chapter 5 and therefore is duplicative.

Affirmative with Comment
McCoy, S. Section 7.5 includes pipe diameter (DN) and pipe pressure class (PN) that may not be familiar to all document users. Additional description should be included to clarify the nomenclature.

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67-9 Eligible To Vote:28 Affirmative: 22 Negative: 1 Abstain: 0 Not Returned: 5
Chapter 8 (Log # CP8)

Not Returned
Davis, T.
Floyd, L.
Gillis, J.
Guaricci, D.
Penno, S.

Negative
Febo, Jr., H. 8.3.1 seems to represent the same detonation cell size/pipe diameter ratio in a different set of terms than used in 5.2. Duplicate information like this is confusing and unnecessary.
This chapter is short and it seems most of it could be used to expand on material in chapter 5.

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67-10 Eligible To Vote:28 Affirmative: 22 Negative: 1 Abstain: 0 Not Returned: 5
Chapter 9 (Log # CP9)

Not Returned
Davis, T.
Floyd, L.
Gillis, J.
Guaricci, D.
Penno, S.

Negative
Febo, Jr., H. Some of this duplicates information in chapter 6.
Sections 9.2 and 9.3 duplicate/rehash information in chapter 6.
Section 9.4 Water Sprays, provides new information but belongs in chapter 6.

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67-11 Eligible To Vote:28 Affirmative: 22 Negative: 1 Abstain: 0 Not Returned: 5
Chapter 10 (Log # CP10)
Not Returned

Davis, T.
Floyd, L.
Gillis, J.
Guaricci, D.
Penno, S.

Negative

Morrison, L.  The chapter appears to be recommending/requiring detonation arrestors in systems (underground and aboveground flammable liquid tanks) which have a reasonably good loss history. This would place an unnecessary burden on the cost of common flammable liquid tank installations. An AHJ without detailed knowledge of this subject could require protection for installations where there is no need for this protection.

Affirmative with Comment

Febo, Jr., H.  This chapter finally provides something useful for the ordinary user.

Zalosh, R.  This chapter needs revision to better establish the conditions under which detonation and in-line deflagration arresters are recommended, and to caution the reader on the pressure drops associated with these arresters. Since the NFPA primary responsibility for liquid storage tanks and for carbon bed adsorption units lies with the Flammable Liquids Committee, I suggest that a joint task group be established with NFPA Flammable Liquids Committee and Explosion Protection Committee membership in order to develop requirements and guidelines for these applications that are compatible in NFPA 30 and NFPA 67.

67-12  Eligible To Vote:28  Affirmative: 23  Negative: 0  Abstain: 0  Not Returned: 5
Chapter 11  (Log # CP11)

Not Returned

Davis, T.
Floyd, L.
Gillis, J.
Guaricci, D.
Penno, S.

67-13  Eligible To Vote:28  Affirmative: 23  Negative: 0  Abstain: 0  Not Returned: 5
Chapter 12  (Log # CP12)

Not Returned

Davis, T.
Floyd, L.
Gillis, J.
Guaricci, D.
Penno, S.

Affirmative with Comment

Febo, Jr., H.  Helpful information but what is GTE in 12.7.2?