

Meeting Minutes

API Standard 670 Machinery Protection Systems

Fifth Edition Task Force
Meeting No. 16
26-27 April 2009



I. Meeting Location and Time

Meeting Type: In person at API Spring Refining Meeting, Denver, CO
Sunday, 26 April and Monday, 27 April 2009

II. Attendees

See the official roster at <http://committees.api.org/standards/cre/some/tf/670/670hm.html> containing a list of attendees at this and all previous meetings. The roster and subgroup listings are updated as needed and include a date to identify version/revision.

III. Agenda Items and Dispositions

Sunday 26-Apr-09 (Notes taken by Walt McNutt)

CONDITION MONITORING ANNEX: Raymond McKinney

Ray McKinney – Clarification that the CM annex is not a purchasing specification, it is a tutorial.

API-670 is defined as a continuous protection standard and the team doesn't feel it is appropriate to deviate from this. This is in response to Cort Johnsen's question concerning Section 6 about non-continuous protection availability.

This group used the word "Implemented" when the questions/comments from the committee were changed in the CM annex.

Paragraph 9.3.8 work on the whirl and whip figure to improve the text location. Currently the graphic has blanks in the x-axis of some of the plots.

The figure numbers will be added after the annexes are ordered. For example, if your annex is Annex C, then your figures will be numbered C-1, C-2.... This numbering will be one of the last items to address.

We need to modify all of our graphics for the printed black & white documents. The electronic version can have color and will be linked to the API website. We will work with Gordon on this item.

SURGE DETECTION ANNEX: Richard Hall

Purpose of appendix K is to be informational for less-experienced Engineers. It is a tutorial about surge, surge detection and anti-surge controls. Question of how much is already in API-617 and if API-617 is still open for edits. Is this annex going to become a specification of surge detection/protection.

Dr. Blotenberg has suggested a new definition of surge to address one of the questions/comments, but that rewrite has not been approved or reviewed by the surge detection team yet. Because of this lack of review by the team, the rewrite will not be presented to the SOME.

Different guidelines are showing up with the different team. Decision was made that for tutorial-type annexes, we will use the word "should" instead of "shall". Need to discuss with Tim Hattenbach for further clarification since the comment was initiated by him.

SIL ANNEX: Dr. Wilfred Blotenberg

Section 5.1 Functional Safety section deals with personnel safety and environmental protection. It is not intended to cover loss production or machinery damage. The SIL team will add some wording to assist defining the functional safety portion of the annex. Spurious (false) trips are a concern by the users.

Reference to “Normative” is to the main body of API-670.

Decision to not present the graphic that Dr. Blotenberg developed on system of coordinates of Functional Safety due to the complexity, since the members of SOME have not reviewed it yet. Also, it needs to be developed so it will print out in black & white. It was also discussed that for tomorrow’s presentation, our teams will focus on addressing the questions/comments that have already been received from the SOME and not present new information. New items will be sent out for the next review.

Section 6.6.1 third paragraph need to be reviewed and define when a certificate is required (shall versus should be issued by a certified body. There are different requirements for SIL 1, 2 versus SIL 3.

WIRELESS ANNEX: Sjur Holm

Wireless is not approved for protection systems.

All of the definitions will be put in the main body of API-670 and not kept in any of the annexes.

RECIPROCATING COMPRESSOR: Steve Sabin

Steve reviewed the list from George Lentek. We are not sure if the sub-group has reviewed these comments. With Lynn Fulton’s retirement, this section may need to wait until the Fall meeting for SOME review.

CONTROL SYSTEM INTEGRATION: Steve Sabin

This will not be presented at the Spring meeting. It will be in the Fall.

API-612 Special Purpose Steam Turbines – Tim Pieszchala

Update from API-612 team for the API-670 team.

Section 12 Controls and Instrumentation – Changed the requirement so that it now does not require a dedicated system for the EOST. The standard still has the requirements for performance and is important to verify if it is added with another system.

This standard references API-670 and API-614.

The API-612 is equivalent to ISO 10438.

Sunday 26-Apr-09 (Notes taken by Walt McNutt)

API-670 presentation to SOME included subgroup 2 (Condition Monitoring), subgroup 7 (SIL), subgroup 4 (surge), subgroup 3 (wireless), and subgroup 5 (recips).

Subgroup 2 - Condition Monitoring - Ray McKinney

Additional discussions during presentation:

- Roy - Check with Gordon Robertson on use of color graphics. What about paper version? Will it be in color or BW?
- Cliff Cook - Section 3.1 - Do not reference the standard paragraphs. Remove the 3.10 and 3.68 numbers from the standard paragraph reference. And remove comment about API SOME standard paragraphs.
- Cliff – This is the only Standard that has an annex that does not comply with the requirements of the base documents. Make sure everyone understands that this is an informative document. Tim – this is daisy chained to the protection system. Cliff – API-610 removed all the information referencing ANSI pumps. Ray – another example of non-compliance to base document is the wireless annex. The SOME recommended in New Orleans and Los Angeles that this be an annex and not a recommended practice.
- Cliff - Definition of Broadband, compare to API-616
- Tim - Section 10 – Title should be CONTINUOUSLY instead of CONTINUOUS.
- Walt - 10.5 Scaler was used. Are we changing that?
- Roy – Still having concerns about Condition Monitoring being an annex of API-670. It should be a recommended practice.
- API-693 is an open number for this breakout annex.
- Roy – two documents, one for API compliant and non-API compliant.
- Discussion in sub-team about the Section 6 Non API-670 Compliant vibration products for condition monitoring: Should we change title to: Condition Monitoring Inputs. Need to consider portable monitoring. This needs to support our table comparing API-670 versus Condition Monitoring. Editing of this section was performed by Ray McKinney during the meeting. Sub team needs to review and edit the Introduction section and the Section 6. Steve Sabin and Landon Boyer volunteered to rewrite Introduction. Robert Skeirik volunteered to rewrite or delete Section 6

Subgroup 7 - SIL - Dr. Wilfried Blotenberg

Additional discussions during presentation to SOME

- Should we limit the protection to people and environment or should it expand to cover machinery and financial losses too? Question to SOME - Roy – All users have different criteria for determining SIL levels. YES, it should cover machinery. John – machinery protection should not be raised to the level of safety and environmental. You have to consider the consequence of the machinery failure and how it may affect safety and environmental. Simply having machine damage is not a concern. SIL team will keep the safety items in one annex and another annex as a tutorial of various items related to SIL.
- Hans - Was Instrument SIL representatives on this taskforce? Tim – they were invited and a couple of people started and now are not active in the group.
- Functional Safety alone does not deal with spurious trips – question to SOME, should it be addressed. Cort – As a user, YES, it should be addressed. Tim – should it be addressed in the body of the standard or in the annex? Team agreed that it will go in the annex.
- It is ok to use words from other standards, just work through Gordon Roberson to obtain approval.
- Send this back out for review again, and have Gordon also send it to the Instrument. All members of subteams and SOME need to pass on to others in their companies to get as much as feedback as possible.

Subgroup 4 - Surge Detection – Jeff McWhirter

Additional discussions during presentation to SOME

- Rich Lewis: Compressor definition – do we need to say “axial” or “centrifugal”?
- Question: Are there any comments on enabling or disabling the surge detection from SOME. Roy – It is a scary topic to disable the surge detection. There should be a notification to Operations if the surge protection is disabled.
- Roy – Is the surge control system suppose to be a stand alone system? Jeff – currently the annex is not addressing surge control systems since it is addressed in API-617. Roy: The committee on API-617 expected API-670 to cover the majority of issues related to specifications for a surge control system. API-617 has very little in it about the surge control systems. We have a “hole” in the system right now. API-617 only states that you should have a surge control system. We would like it similar to overspeed trip systems with API-612 and API-670. Antisurge control and detection: Transducer specification and installation will be put in API-670 in normative portion of document.
- Tim: Richard Lewis’ comments (on comment review spreadsheet) on appendix K should be included into the tutorial portion of the annex.
- Next review we need to send it out to the controls systems representatives too.
- Was Instrument representatives on this taskforce? Tim – they were invited and a couple of people started and now are not active in the group.

Subgroup 3 - Wireless – Sjur Holm

Additional discussions during presentation to SOME

- Comment: Different suppliers of wireless systems and the concern of equipment becoming obsolete rapidly. Sjur: The table in the annex can address some of the concerns.
- Is this designed for a tankfield application or is it for off-shore platforms? It is basically designed to applications where you would normally run a wire. This annex is not defining remote monitoring systems.
- Roy : How do you deal with the different vendors and how they can be used on the same network. Sjur – this would be handled by your local IT.
- Terry - Long distance transmission – questions to help the user with the IT issues.
- Terry – Is wire in line of sight, and is it affected by environmental conditions. Robert – It does not have to be line of sight. It can be affected by environmental conditions. You should be able to transmit through most objects (not metal) and most weather conditions. Sjur: The annex does cover the items you need to consider when installing a wireless system.

Subgroup 5 - Reciprocating Compressor Monitoring - George Lentek

Additional discussions during presentation to SOME

- Jacket Coolant System - comment that you can have pressure indication and no flow. You should add a flow indicator in the coolant system. George – the temperature should cover this issue if you have a plugged system. There are local indicators for flow and the team doesn't feel it is needed for a flow monitoring system.
- Cliff – have you compared this to API-614 chapter 3, API-618? Taskforce will follow up on this comparison.
- Concern about consistency between the various standards, e.g. API-618 and API-670. see above comment.
- Definitions should be consistent with standard paragraphs to ensure consistency.
- Tim: 5.3.5, 5.3.6, 5.3.8 should these items be moved to the normative section of the document. The sub-team needs to review items and see if it fits into the normative portion of API-670 or API-618. Or does this go into API-693?
- Tim: how close is this annex to being completed and Lynn's vision. George: yes it is close to being completed.
- Roy: Rod reversal – how are you going to monitor degrees of rod reversal? This is listed in the table. George – you are not going to measure it directly. Systems can calculate the rod reversal.

SIL and Surge Detection will be sent out for review again.

Cliff Cook (notes given after presentations) –

Include definition of “should” from standard paragraphs.

All definitions, use standard paragraph format

TF review definition of Broadband from API-616

API 670 Sub-Committees need to determine if we are going to use all of these as annexes or as a Recommended Practice.

Tentative Appendix names:

- **Appendix J** (existing overspeed appendix) will have changes due to the changes in API-612 rewrite. Tim Pieszchala will handle this review. He has also volunteered to be on the ambiguity team.
- **Appendix K – Anti-surge control and Surge Detection methods** New paragraph 5.4.9 surge detection logic. The sensors required from 5.4.9 will be after 5.3
- **Appendix L – Introduction to Functional Safety and Safety Integrity Levels (SIL)** referenced in normative 5.4.1.3 (b) and in appendix M
- **Appendix M – Spurious trips and economic considerations of SIL** referenced in normative 5.4.1.3 (b) and in appendix L
- **Appendix N – Condition Monitoring** New paragraph in normative section 5.4.1.4.g to provide when specified option for condition monitoring software interface. Also mentioned in appendix O
- **Appendix O – Wireless data transmission** Table of inputs/outputs which will be put in the normative new section 4.8. Also mentioned in appendix N
- **Appendix P – Reciprocating Compressor Monitoring** 5.4 Monitor Systems - we could list the various parameters and indicate protection versus monitoring. 5.4.6 may have to re-label to be Bearing Temperature Monitoring and then add paragraphs for the various temperature measurements for reciprocating compressor monitoring. 6.1.3 currently has piston rod drop probes. 6.2 is mounting instructions. 5.4.10, 5.4.11.... new section for different measurement types.

The next meeting of the full Task Force will be a teleconference on 27 May 2009 from 10AM – 11 AM CST. Webex and call-in details will follow separately via e-mail to all 670 TF members.

Respectfully Submitted,



Steve Sabin

Secretary, API 670 5th Edition Task Force

cc: All 670 T/F members per roster
API CRE Secretary

NOTE: There are no technical or supplemental notes to accompany these minutes.