

API Ballot Comments Sheet

3/17/2008

Ballot: 653-226, Changes to API 653, Section 12 and Appendix G

AMS Ballot ID: 1,339

Start Date: 2/1/08

Closing Date: 3/14/08

Associate: Stephen Crimardo

Coordinator: Stephen Crimardo

Proposal: Make appropriate changes to existing text of Section 12 and Appendix G to correlate with proposed additions to Appendix G under Agenda Item 653-209.

135821 Steven Adolphsen

CB&I Services

Specification Section

Type

Comment

Suggested Change

12.1.1.5

Editorial

Affirmative with comment:
In 12.1.1.5, change "this code or addendum. " to read
"this Standard or addendum."

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134782 Steve Caruthers

Tank Consultants, Inc.

Specification Section

Type

Comment

Suggested Change

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134782 Steve Caruthers

Tank Consultants, Inc.

Specification Section

Type

Comment

Suggested Change

653-226

Technical

G.2.13 tank bottom scanning equipment: Tank bottom inspection tools with either electromagnetic (e.g. MFL or RFET) or ultrasonic sensor arrays.

This excludes permanent magnet units which are the most commonly used MFL tool.

G.4.1

Examiners Tank bottom examination personnel need only to be qualified for the work they do in the field. For example, scanning operators who only use the bottom scanning equipment and do not prove-up the flaw with a follow-up method need only to be qualified for the scanning operation, and UT operators need to be qualified for UT prove-up.

The MFL operator must be able to look at the actual sorrosion indication on the tank bottom so that he knows what he is dealing with when calibrating the MFL unit. This is the most important part of any inspection. No one will argue that an MFL inspection is volumetric, therefore a .100" deep pit .150" remaining wall on a .250" thick floor plate) can give you a weak response or a strong response depending on the volume loss and the shape of the pit, ie sharp corners or a more rounded pit. This is a known fact. If the MFL operator sets his threshold to a large .100" pit and believes that he is going to find all of the .100 deep pits he would be mistaken. He will miss all of the .100" deep pits that are smaller in volume and/or more gradual in corrosion. Therefore, we should be testing the MFL operator for both Ultrasonic A-scan L-wave inspection

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134782 Steve Caruthers

Tank Consultants, Inc.

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
		and MFL operations. Once the operator has calibrated his unit, which can take several attempts and over an hour of scanning and resetting the magnets, sensors and gain, a trained UT inspector can take over. This trained operator must stay in communication with the operator to make sure that the calibration is maintained and the unit is finding all the pits under the threshold and slightly over.	

45528 Donald Comire

Eastman Chemical Company

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
G.4.1	Editorial	The word "only" is not present after the words "UT operators need" in the proposed statement: "For example, scanning operators need only to be qualified for the scanning operation, and UT operators need to be qualified for UT prove-up."	If the intent is to allow folks to only be qualified for the portions of the work they will perform, then the word "only" should be added after "UT operators need"
G.4.3	Technical	Is the second "only" intentionally or accidentally missing? In the proposed wording, it states "...not necessarily valid..." Either the qualifications are valid or they are not. I think the word "necessarily" should be deleted from the sentence.	"Qualifications gained through one authorized inspection agency are not valid for any other authorized inspection agency."

133403 Jeff DeArmond

BP p.l.c. Whiting Refinery

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
G.2.2	Technical	The term 'locate', as it is used in this definition, does not accurately describe how the examiner determines what areas require UT follow up. It sort of implies that these areas are randomly selected.	Recommend replacing the term 'locate' with 'identify'.
G.5.1.2.2	Editorial	First sentence of proposed wording currently reads: "The owner/operator may establish his own guidelines for....."	In the first sentence, recommend changing the word 'his' to 'their'.

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158498 Eric Ellis

Lyondell Houston Refining, LP

Specification Section	Type	Comment	Suggested Change
General comment applies throughout document	Editorial	General Comment: terms such as examiner, scanner operator, UT operator, examination personnel, etc. are not used consistently.	If we are going to define a term such as examiner, then we should consistently use that term to identify that person/group of persons instead of switching to other terms.
12.1.1.5 & 12.1.1.5.1	Technical	MFL testing and other electromagnetic tool scanning seems to be the same thing unless the intent is to only require qualification of MFL. Suggest editing and recombining the paragraphs so they flow better.	12.1.1.5 Appendix G provides additional guidance in qualifying personnel and procedures when magnetic flux leakage (MFL) tools scanning equipment is used to examine tank bottoms. Owner/operators should determine specific requirements to meet their tank bottom integrity needs. 12.1.1.5.1 When electrognagnetic tools are used to scan tank bottoms, UT personnel involved in setting the sensitivity level and conducting UT prove-up of the MFL scanning tool indications shall be qualified as described in Appendix G (section 2.7). The requirement for use of industry-qualified UT prove-up examiners becomes effective one year after publication in this code or addendum.
G.1.1	Editorial	Reword G.1.1 to be more descriptive, with more emphasis on the value of tank bottom inspection.	G.1.1 This Appendix provides guidance for qualifying both examination procedures and individuals that perform tank bottom examinations. Except as indicated in 12.1.1.5 or 12.1.1.5.1, owner/operators may elect to either apply this appendix as written or modify it to meet their own applications and needs. Tank bottom examination is the most essential component of tank internal inspection; therefore, it is important that qualified
G.2.2	Technical	Based on usage, should this say examiner or scanning operator or should the term examiner be eliminated altogether as a defined term and replaced with something like 'scanning equipment technician' or 'scanning equipment operator'? The definition should also be enhanced.	G.2.2 examiner: An operator of tank bottom scanning equipment that has been trained per G.4.4. and has demonstrated proficiency in use of scanning equipment for examination of tank bottoms. An examiner must have passed a performance demonstration test and holds one or more TBEQ and may only perform scanning as identified under the TBEQ.

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158498 Eric Ellis

Lyondell Houston Refining, LP

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
G.2.6	Technical	Based on the usage later in the document, "qualification test" should be changed to "performance demonstration test"	G.2.6 performance qualification test: A test that proves that a procedure, Examiner, or UT Technician is qualified by demonstrating that the procedure or individual can successfully find and or prove-up tank bottom metal loss.
G.2.7	Editorial	"UT Operator" sounds odd and is easily confused with other operators especially when scanning operator was previously used and still seems to be used. Suggested rewording provided.	G.2.7 UT technician: An individual who has demonstrated proficiency in the API Ultrasonic Test Examiner Qualification (UTEQ) examination or an equivalent performance demonstration test as described in this Appendix and either proves-up bottom indications identified by a tank examiner and/or employs UT to assist in setting scanner sensitivity.

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158498 Eric Ellis

Lyondell Houston Refining, LP

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
G.3.1, G.4.1, G.4.2, G.4.3, G.4.4, G.4.6, G.4.9	Technical	If prior roles are edited, include them in the sections where they are used.	<p>G.3.1 Each authorized inspection agency performing tank bottom examinations is responsible to have and use tank bottom examination procedure(s) (TBP). These procedures provide direction for examiners and UT technicians performing tank bottom examinations. A procedure also allows the owner/operator or authorized inspector to verify whether the examiners or UT technicians are correctly performing the examinations.</p> <p>G.4 Tank Bottom Examiners Examination Personnel G.4.1 Examiners Tank bottom examination personnel need only to be qualified for the work they do in the field. For example, scanning examiners/operators who only use the bottom scanning equipment and do not prove-up the flaw with a follow-up method only need only to be qualified for the scanning operation, and UT operators technicians only need to be qualified for UT prove-up.</p> <p>G.4.2 The purpose of qualifying the tank bottom examiner or UT operator technician is to determine establish if that the examiner or UT technician is capable of satisfactorily using a qualified procedure to determine the condition of the tank bottom.</p> <p>G.4.3 Each authorized inspection agency is responsible to train, test and qualify the scanning and UT operators and examiners they employ using follow-up techniques. Qualifications gained through one authorized inspection agency are not necessarily valid for any other authorized inspection agency (see G.4.4 and G.4.9(f)).</p> <p>G.4.4 The authorized inspection agency is responsible for training each scanning or UT operator they employ. Each scanning examiner or UT operator technician should</p>

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158498 Eric Ellis

Lyondell Houston Refining, LP

Specification Section

Type

Comment

Suggested Change

receive a minimum of 40 hours of training. This training should include:

- a. Instruction on the NDE principles/methods used by the bottom scanner, limitations and application of the specific scanning equipment and procedure, scanning equipment calibration and operation, key scanning equipment operating variables, etc.
- b. Hands-on operation of the specific inspection equipment bottom scanner under the direct supervision of a qualified user of the specific inspection equipment who is either an scanning eexaminer or UT technician.

G.4.6 The authorized inspection agency is responsible for qualifying all Eexaminers and UT Technicians they employ. All examiners (scanning scanning operatorsexaminers and UT operators technicians and examiners performing prove-up on the indications) shall be qualified by performing an examination on test plates as specified in G.5. Only third-party companies such as API, having no conflict of interest in tank bottom examination applications, or owner/operator companies may facilitate qualification tests. The examiner shall be considered qualified if the acceptance criteria specified in G.5.3 has been met. Examiners performing prove-up of indications using ultrasonic testing methods should be qualified in accordance with API Std 650 and supplemental requirements given in this Appendix.

G.4.9 The bottom-scanning Ttank bottom examination personnel examiners (operators and/or UT examiners) should be re-qualified when any of the following apply:

- c. When the operator eexaminer or UT technicianoperator has not performed a tank bottom scan in 6 months.

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158498 Eric Ellis

Lyondell Houston Refining, LP

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
G.5.1	Editorial	Introduction sentence under title for G.5.1 does not seem necessary. The title seems to provide sufficient explanation	d. When the operator eexaminer or UT operator technician has not used the specific procedure (TBP) for 12 months. Delete the entire sentence
G.5.2.2.3.1	Technical	As stated, this requirement seems destined to result in inadvertent removal or damage of perfectly good internal coatings. If a UT operator is not qualified on coated plates, then he/she shall not perform work on a tank with a coated floor. The tank floor coating shall not be removed without the express permission of the owner/operator of the tank.	G.5.2.2.3.1 If a UT operator is not qualified on coated plates, then he/she shall not perform work on a tank with a coated floor. If a UT operator has not met the acceptance criteria for coated plates and performs inspections on a coated floor, UT prove-up in tank inspections shall be conducted only after the coating has been removed, and the onwer operator grants permission to remove the coating.

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134870 Laurence Foster

Marathon Petroleum Company LLC

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
12.1.1.5	Technical	<p>1. Second sentence: An optional appendix shouldn't have "shall". The second sentence seems to require UT qualifications for all MFL scanned tanks.</p> <p>2. Third sentence: 1) This is an optional appendix, there shouldn't be any "requirement", and 2) API documents become effective 6 months from publication as stated in the forward. This statement conflicts with API, and will have be deleted one year after publication anyway.</p>	<p>1. Change shall to should.</p> <p>2. Delete the third sentence.</p>
G.1.1	Technical	Again, the "except where noted in 12.1.1.5 or 12.1.1.5.1" seems to imply that this optional appendix is mandatory.	delete "except where noted in 12.1.1.5 or 12.1.1.5.1"
	Technical	The requirements of G.4.1, G.4.2, G.4.3, G.4.4, and G.4.9 are good stuff, and I would like to see these in the standard.	
	Technical	<p>What happened to G.4.7 and G.4.8?</p> <p>Just a general comment...</p> <p>The requirements proposed for Appendix G are more extensive that those stated in Appendix U, and I think that is a lot more critical than taking bottom plate measurements.</p>	

136619 Robert Hendrix

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
General	Other	I an accept this.	

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91812 Peter Hunt

Suncor Energy, Inc.

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
G.2.6	Technical	Proper terminology for "qualification test". In G.2.7 you describe the test as a performance demonstration test-this is the correct term. This what API calls it "API Qualification of Ultrasonic Examiners Certification Program is a performance demonstration program"	G.2.6 Performance Demonstration Test
G.2.7	Editorial	The term API Ultrasonics Test Examiner Qualifications is incorrect terminology Insert after proficiency in the ...	"API QUTE (Qualification of Ultrasonic Examiners Certification Program)" or an equivalent ...

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26542 Morris Kline

HMT Inspection

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
G.2.7	Editorial	Incorrect title of API certification program	API - QUTB Tank Bottom Thickness Measurement Qualification Program
G.4.6	Technical	Please review language in G.4.1 and compare to G.4.6 - They are somewhat in conflict or at least G.4.6 should re-state only having to qualify for what you are actually doing.	
G.4.3	Technical	The above section mentions G.4.9(f) yet (f) doesn't exist or isn't on ballot	
G.4.6	Technical	Please site API Std 650 ultrasonic testing methods location (chapter & section)	
G.5.2.2.3	Technical	<p>This section is my main objection and why I cast a negative ballot. This needs to be reworked completely to overcome my objection. For example, thin film coating and thick film reinforced coatings can't be lumped together for qualification purposes.</p> <p>Additionally, some scanners don't use UT to handle metal thickness measurements on thick coatings and I would contend that UT cannot be reliably done on thick reinforced coatings, so since UT cannot be used this document only offers a owner the option of removing the coating. A vendor should be able to demonstrate this additional capability and not be subject to G.5.2.2.3.1</p>	

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135014 John Lieb

Tank Industry Consultants, Inc.

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
G.2.11	Technical	The definition of "scanning operator" has been deleted but the term is still used in several sections, e.g., G.2.11, G.4.3, G.4.6, G.5.1.	Suggest definition of "scanning operator" be retained (to distinguish from "scanning examiner").
G.2.13	Technical	What is "RFET"? This term should be defined.	Define RFET.
G.5.1.2.2	Editorial	"Minimum" is misspelled.	Correct spelling of "minimum".
G.5.1.2.3	Technical	A figure illustrating acceptable and unacceptable (i.e., flat bottom and conical) pit profiles would help to use the standard properly and to prevent arguments over what is an acceptable simulated pit.	Include a figure showing acceptable and unacceptable simulated pits.

134120 David Martinez

Hovensa, LLC

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
	Technical	I agree with the proposal as-written.	

69609 Bhana Mistry

TIW Steel Platework

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
	Technical	Abstain from voting as I am not qualified on subject matter.	

92212 George Morovich

TEMCOR

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
G.5.2.2.1	Technical	Last sentence seems to be in conflict: The following acceptance criteria must be met when qualifying an examiner. If all the acceptance criteria are met, the examiner shall be considered qualified. Owner/operators may substitute alternative acceptance criteria, either more or less conservative, based on their specific needs and requirements.	The following acceptance criteria must be met when qualifying an examiner. If all the acceptance criteria are met, the examiner shall be considered qualified.

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154428 Nick Sowa

Conam Inspection & Engineering Services

Specification Section

Type

Comment

Suggested Change

Technical

This ballot item seems to be incomplete specifically with reference to G 5.1.1 Tank Botto Qualifications.

134314 Tearle Taylor

Flint Hills Resources

Specification Section

Type

Comment

Suggested Change

Para 5.5.1.2.1

Technical

It is my experience that a vast majority of the indications found during a bottom scan, particularly soil side, by MFL are smaller than a 4" X 4" area. So why specify that the grading areas be a minimum size of 4"X4". As an owner I require the MFL Scan Personnel I bring in to show that they can find areas smaller than a 4" X 4" area.

Delete 4" X 4" from paragraph G.5.1.2.1 such that it reads: The qualification test will be performed on sample tank bottom plates with designed or real flaws. The qualification plate(s) should contain a minimum of thirty-two grading areas with a distribution of minimum remaining bottom thicknesses within the grading areas (i.e. Flaw Categories). A suggested distribution for the minimum remaining bottom thickness of grading areas is shown in G.5.1.2.3.

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131316 David Wang

Shell Oil Company

<u>Specification Section</u>	<u>Type</u>	<u>Comment</u>	<u>Suggested Change</u>
Section 12 and Appendix G	Technical	General comments: I am pleased to see the addition of UT operator qualification, since UT prove-up is an important part of tank bottom examination and the UT operators should be qualified. Let's keep in mind, however, that it is equally if not more important to qualify tank bottom scanning operators. If we wanted to mandate UT operator qualification, we should mandate scanning operator qualification as well. It does not make sense to state in the document that UT operators "shall" be qualified, when there is no "shall" for scanning operator qualification.	See suggested changes under individual sections.
12.1.1.5	Technical	Rewrite 12.1.1.5, for reasons given previously in my general comments.	Appendix G may be used to provide additional guidance in qualifying personnel and procedures when scanning equipment is used to examine tank bottoms. When magnetic flux leakage (MFL) testing of the tank bottom is conducted, ultrasonic testing (UT) personnel involved in setting the sensitivity level and conducting UT prove-up of the MFL scanning tool indications should be qualified as described in G.2.7. Owner/operators should determine specific requirements to meet their tank bottom integrity needs.
12.1.1.5.1	Technical	Change "shall" to "should", for reasons given previously in my general comments.	When other electromagnetic tools are used to scan tank bottoms, UT personnel involved in setting the sensitivity level and conducting UT prove-up of the MFL scanning tool should also be qualified as described in G.2.7.
12.1.7.4	Technical	Delete section 12.1.7.4. It doesn't fit in section 12.1.7, which is about weld examination, visually and/or with PT, MT or leak tests. UT prove-up of indications identified by tank bottom scanning is not even part of the examination discussed in the section. Why point out UT operator qualification when there is no mention of qualification requirements for personnel performing weld examinations actually discussed in section 12.1.7?	Delete the proposed section 12.1.7.4.
G.1.1	Technical	Delete "except where noted in 12.1.1.5 or 12.1.1.5.1", for reasons given previously in my general comments.	Delete "except where noted in 12.1.1.5 or 12.1.1.5.1".

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131316 David Wang

Shell Oil Company

Specification Section	Type	Comment	Suggested Change
G.2.2	Technical	Examiners include scanning and UT operators.	G.2.2 examiners: Scanning operators who locate tank bottom areas for follow-up UT assessment, and UT operators who prove up bottom indications.
G.2.7	Technical	Keep definition for "scanning operator" since the term is used at quite a few places in Appendix G, but delete "(or operator)" behind "scanning operator". Remove "qualified" and related qualifying statement, since "UT operator" is used at many places in Appendix G without "qualified" attached to it.	G.2.7 scanning operator: The individual that operates bottom-scanning equipment. G.2.8 UT operator: An NDE technician who proves-up bottom indications identified by a tank bottom scanning operator.
G.3.1	Technical	Change the "examiners" in the last sentence to "scanning".	A procedure also allows the owner/operator or authorized inspector to verify whether the scanning or UT operators are correctly performing the examinations.
G.4.2	Technical	Use "scanning and UT operators", instead of "examiner or UT operator".	The purpose of qualifying the tank bottom scanning and UT operators is to determine if they are capable of satisfactorily using qualified procedures to determine the condition of the tank bottom.
G.4.6	Technical	Rewrite the 4th sentence, "The examiner shall be considered qualified if the acceptance criteria specified in G.5.3 has been met." G.5.2 is where the acceptance criteria are, not G.5.3. Owner/users should have the option to impose additional qualification requirements and not be forced to consider an operator qualified if he/she can meet only the G.5.2 criteria but not their additional requirements.	Qualified examiners shall meet the acceptance criteria specified in G.5.2.
G.4.9	Technical	Change "examiner or UT operator" to "scanning or UT operator", and renumber the two listed items to a and b, instead of c and d. The 6 and 12 month limits seem unnecessarily stringent and will make the requirements more difficult to implement. Suggest changing them to 12 and 24 months, respectively.	a. When the scanning or UT operator has not performed a tank bottom scan in 12 months. b. When the scanning or UT operator has not used the specific procedure (TBP) for 24 months.
G.5.2	Technical	Change "ACCEPTANCE STANDARD" to "ACCEPTANCE CRITERIA".	G.5.2 PERFORMANCE DEMONSTRATION TEST ACCEPTANCE CRITERIA
G.5.2.1	Technical	Change "SCANNING ACCEPTANCE STANDARD" to "SCANNING ACCEPTANCE CRITERIA".	G.5.2.1 TANK BOTTOM SCANNING ACCEPTANCE CRITERIA

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131316 David Wang

Shell Oil Company

Specification Section	Type	Comment	Suggested Change
G.5.2.2	Technical	Change "ACCEPTANCE STANDARD" TO "ACCEPTANCE CRITERIA".	G.5.2.2 TANK BOTTOM UT ACCEPTANCE CRITERIA
G.5.2.2.1	Technical	Change "examiner" to "UT operator", and "shall be" to "is".	G.5.2.2.1 The following acceptance criteria must be met when qualifying an UT operator. If all the acceptance criteria are met, the UT operator is considered qualified. Owner/operators may substitute alternative acceptance criteria, either more or less conservative, based on their specific needs and requirements.
G.5.2.2.2	Technical	Change "Detect . . ." to "Detect and size . . ."	a) Detect and size all Category B flaws . . . or b) Detect and size 90 % of all Flaw Categories . . . T/G to provide recommended numbers after review.
G.5.2.2.2	Technical	What was the technical basis for 4% and 0.015 inch? Are they just a desire, or necessary and proven practical? Suggest T/G review of the technical basis.	
G.5.2.2.3	Editorial	Change "he" to "he/she".	. . . if he/she can . . .

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