

API Ballot Summary Sheet

3/23/2005

Ballot: 27-05: 653-204, Similar Service Assessment

AMS ID: 614

Start Date: 1/24/05

Closing Date: 3/21/05

Associate: Roland Goodman

Coordinator: Valeen Young

Proposal:

<u>Voter</u>	<u>Company</u>	<u>Comments</u>	<u>Vote Results</u>			
			<u>Affirmative</u>	<u>Negative</u>	<u>Abstain</u>	<u>Did Not Vote</u>
134629	Nelson Acosta	HMT Inspection	Yes	X		
138021	Moraya Al-Gahtani	Saudi Aramco	No			X
79326	Gregory Alvarado	Equity Engineering Group, Inc., The	No			X
131617	Joel Andreani	Equity Engineering Group, Inc., The	Yes	X		
38921	Robert Annett	Alyeska Pipeline	No			X
73074	Ronald Bailey	American Tank & Vessel, Inc.	No	X		
136219	Mark Baker	Baker Consulting Group, Inc.	Yes		X	
142888	Chris Bashor	Minnesota Pollution Control Agency	Yes		X	
134681	Ernie Blanchard	IMC-Phosphates	Yes		X	
109375	Jerry Boldra		No			X
22200	Dan Boley	DJA Inspection Services	No	X		
135851	David Bryan	Marathon Ashland Petroleum, LLC	No	X		
130397	Jerry Burke	GE Panametrics	No			X
134782	Steve Caruthers	Tank Consultants, Inc.	Yes		X	
7127	Earl Crochet	Kinder Morgan	Yes	X		
132217	Dwayne Davis	Stone & Webster, Inc	No			X
142685	Domingo de Para	ExxonMobil	Yes		X	
133403	Jeffrey DeArmond	BP p.l.c. Whiting Refinery	No	X		
146748	Terry Delong	Terasen Pipelines (USA) Inc.	No	X		
133429	Robert Dolejs	UOP LLC	No			X
128480	Wayne Elliott	Elliott Services, Inc.	No			X
135965	Kenneth Erdmann	Matrix Service Company	No	X		
128483	Robert Ferrell	The National Board of Boiler & Pressure	No	X		
133207	John Fiore	FTS, Inc.	No	X		
105011	David Flight	Dow Chemical Company	No			X
134870	Laurence Foster	Marathon Ashland Petroleum LLC	No	X		
134880	John Fumbanks	Pond and Company Inc.	No			X

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133538	Frank Furillo	ExxonMobil Corp.	No				X
115033	Alan Geis	Colonial Pipeline Company	No	X			
84365	Mark Geisenhoff	Flint Hills Resources, LP	Yes		X		
83689	Ty Hagen	Hagen Engineering International, Inc.	No	X			
133668	Gary Heath	All Tech Inspection	No	X			
136619	Robert Hendrix	Voridian Engineering & Construction	No	X			
70596	Marty Herlevic	James Machine Works, Inc.	No				X
91812	Peter Hunt	Shell Chemical Company	Yes		X		
89501	N. Jones	Pro-Inspect Inc.	No				X
93133	Randy Kissell	TGB Partnership	Yes	X			
26542	Morris Kline	HMT Inspection	Yes	X			
135705	Owen Konski	Syncrude Canada Ltd.	No				X
75330	Dennis Layman	BP p.l.c.	No	X			
81918	Manfred Lengsfeld		No				X
135014	John Lieb	Tank Industry Consultants, Inc.	Yes	X			
136274	Thomas Lorentz	AEC Engineering, Inc.	No				X
128476	John Ludman	DuPont Engineering Technology	Yes	X			
135072	Francis Maitland	Quense LLC	Yes		X		
78399	David Martin	Conservatek Industries, Inc.	No	X			
113545	James McBride	Petrex, Inc.	Yes	X			
138401	John McMillan	Mechanical Integrity Inc.	No	X			
139443	James McVay	Tesoro Petroleum	Yes		X		
139045	Craig Meier	ConocoPhillips	No				X
137255	Carl Mikkola	Enbridge Energy Partners. L.P.	No	X			
131185	Douglas Miller	Chicago Bridge & Iron Company(CB&I)	No	X			
114038	Ron Miller	Physical Acoustics Corporation	No				X
69609	Bhana Mistry	TIW Steel Platework	No				X
83736	John Mooney		Yes		X		
92212	George Morovich	TEMCOR	No	X			
136286	Philip Myers	ChevronTexaco Corporation	Yes	X			
132210	David Nasab	Kellogg Brown & Root	No			X	

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140695	Richard Nichols	Roddey Engineering Services, Inc.	No			X	
139601	John O'Brien	Innovative Research Consultants	No				X
82544	John Oleyar	HMT, Inc.	No				X
82270	Robert Pechacek	General Electric Inspection Services	No	X			
5193	Richard Pinegar	Cargill Inc.	No	X			
102412	Roy Ralph	Petro-Canada	No				X
10929	John Reynolds	Shell Global Solutions (US) Inc.	Yes	X			
135169	Michael Richardson	International Paper	No	X			
102879	James Riley	ChevronTexaco Energy Technology Corr	No				X
73744	Bruce Roberts		Yes			X	
102884	Joe Don Sanders	Lyondell Citgo Refinery	No				X
77480	Clinton Schulz	Citgo Refining & Chemical Co.	No				X
138135	Michael Shallis	Longview Inspection, Inc.	No	X			
101360	Marilyn Shores	Sunoco Logistics	Yes	X			
145484	Ryan Sitton	Berwanger, Inc.	No				X
132992	Robert Smallwood	DNV USA	No	X			
78185	Kelly Smith	ConocoPhillips	Yes	X			
126019	Larry Speaks	Mass Technology Corporation	No	X			
73144	Kenneth Tam		No	X			
134314	Tearle Taylor	Flint Hills Resources	Yes			X	
134325	Donald Thain	Shell Global Solutions (US) Inc.	No				X
137459	Roland Valdes	Inspection Solutions, LLC	No				X
145034	Leith Watkins	Explorer Pipeline Company	No	X			
145896	Alan Watson	A.R. Watson, USA	Yes			X	
134558	John Watson	The Dow Chemical Company	No	X			
135619	Steven Wells	Capstone Engineering Services, Inc.	No				X
132209	Richard Whipple	Fluor, Inc.	No				X

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	<u>Affirmative</u>	<u>Negative</u>	<u>Abstain</u>	<u>Did Not Vote</u>
Balloting Totals:	40	12	3	30

Total Responses:	55			
Total Ballots:	85			
Response Rate :	47%		Must be > 50%	
Approval Rate:	77%		Must be > 67%	
Consensus:	NO			

API Template for Ballot Comments and Resolution

Ballot ID: 614	Date: March 23, 2005	Document: Ballot 27-05: 653-204
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#	(1) Voter/ Commenter	(2) Company	(3) Section No. (e.g. 3.1)	(4) Type of comment	(5) Comment (justification for change)	(6) Proposed Change	(7) Comment Resolution
1	John Mooney			Technical	Add one more variable - foundation type. Example, one tank has a ringwall foundation and the other is on a sand pad. Peripheral corrosion may be different for the 2 tanks. You could also mention in a discussion of the variables how important soil moisture is when the dike of one tank is always flooded up to the tank bottom after a rain and the other tank pad is dry. This is not a constant condition but one that is very important.		
2	Bruce Roberts			Technical	This needs more work.	<p>Comments on 653-204</p> <p>1) 4th sentence of H.3 is not clear. Rewrite to eliminate the confusion. Also, there is a need for a logic transition. Suggested wording is given below.</p> <p>Existing:</p> <p>This data includes direct and indirect examination such as MFL and UT inspection and product corrosivity, CP levels, soil pH, etc., respectively. These criteria are listed in the "Similar Service Assessment - Data Sheet". Typically, there will not be an exact match of all criteria.</p> <p>Suggested:</p> <p>This data should be obtained by using direct and indirect examination procedures such as MT and UT, evaluating product corrosivity, measuring CP levels and soil pH, etc. Refer to the "Similar Service Assessment - Data Sheet", which provides a place to record the required data (line ____). This data should be collected for each of the tank characteristics listed on the data sheet for the two tanks and an assessment made to determine if the services are similar. Typically, there will not be an exact match of all data, or some of the required data will not even be known.</p>	

NOTE Columns 1, 2, 4, 6 are compulsory.

API electronic balloting commenting template/version 2002-12

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						<p>2) Substitute “data” or “tank characteristic” for “criteria” in the paragraphs following H.3.</p> <p>[Note that the data sheet does not use the word “criteria” anywhere. “Tank characteristics” is on the data sheet, which should be used in the text of the Appendix for the sake of clarity.]</p> <p>3) H.3.1.3b</p> <p>Is the lining required to be on the shell, since this section seems to be addressing the shell? Most linings are on the bottom only.</p> <p>4) H.3.1</p> <p>When additional assessment is required because the value of an individual criterion characteristic does not match or does not exist, the table references the section describing additional factors characteristics that must be assessed. If the additional factors characteristics in the specified reference section are assessed to be sufficiently similar, the tanks are considered in similar service for that factor characteristic. If all additional provisions are satisfied, the tanks are considered in similar service.</p> <p>5) Suggestion: Refer to the initial set of characteristics as “basic characteristics”, to distinguish them from the additional characteristics that must be evaluated when a basic characteristic isn’t met. The above wording does not yet reflect this suggestion.</p> <p>6) H.3.12</p> <p>What is the reader supposed to do with this paragraph? No requirements are listed.</p>	

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						<p>7) H.4 Why is a remaining life example given? I expected to see an example or two that determine if a tank is in similar service.</p> <p>8) The scope indicates that the purpose is to provide guidance to determine similar service. Why do we need to include the inspection interval business in this appendix? Seems like that is already covered in 653. As-is, this appendix is addressing two subjects. Similar service is not the only parameter to consider when evaluating the inspection interval.</p>	
3	Alan Watson	A.R. Watson, USA		Technical	<p>I do not feel comfortable with H.3.1.8 Soil/Material in contact with Bottom Plates.</p> <p>I have seen welding rods stubs left under the floor, wooden levelling pegs left under the floor, clumps of clay mixed with the sand under the floor, stones left under the floor and wood all causing bottom side corrosion.</p> <p>Tanks sited at the low end of a compound may receive more moisture than the tank next to it. The area of corrosion may be a small section of the tank near the moisture.</p>	We could add under H.3 that Similar Service Assessment is only an assessment of the risk if left in service beyond any full inspection time.	
4	Mark Baker	Baker Consulting Group, Inc.		Technical	<p>API already makes reference to top-side corrosion and bottom-side corrosion. I recommend that either other references are changes to match this proposed definition or change the terminology in this appendix. I also recommend that the definitions are moved to the main body of the standard.</p> <p>There are several references to the Owner's Engineer. I believe another term should be used such as Tank Engineer or knowledgeable person.</p>		

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5	Mark Baker	Baker Consulting Group, Inc.		Technical	After reviewing the agenda, I have confusion between the differences between "Similar Service" and Risk Based Inspection.		
6	Philip Myers	ChevronTexaco Corporation		Technical	<p>It's hard to use this ballot process to comment on this. But will try.</p> <p>Philosophically, this document implies that you must have a near, or exact match of variables to apply similar service. I believe that you must relax this. In addition, the ballot does not consider how many tanks have similar service. Statistically, the more the merrier and robust the case for similar service. Thus, I have changed definition of "control tank" to "reference tank" which can be a tank or TANKS which are the basis for establishing similar service.</p>	<p>1) H.2: Control Tank: Change it to "Reference Tank" The tank OR TANKS for which...</p> <p>2) H.3: Change "When there is not an exact match"...to "When most of the criteria match no further assessment is required. When few of the criteria match then additional evaluation will be necessary to determine wheter the tanks can be considered to be in similar service"</p> <p>H.3.1 Change last sentence from "if ALL ..." to "if the most significant provisions are satisfied..."</p> <p>H.3.1.1 Should separate year of tank and year of tank bottom erected - after all that is where similar service is usually required</p> <p>H.3.1.2 I believe that most steels can be lumped together as "mild steel" so that the user of similar service does not need to try to find out which astm grade there is.</p> <p>H.3.1.3 ditto for shell material and corrosion</p> <p>H.3.1.5 I think you must reference whether 3rd party nace inspection certified or not - that is the most important coating variable.</p>	
7	Domingo de Para	ExxonMobil		Technical	This document needs to be reviewed by the task group prior to balloting.		
8	Domingo de Para	ExxonMobil		Technical	<p>Comments from Larry Richardson:</p> <p>After reading completely through, I'm concerned about the data requested that has no direct bearing on bottom plate assessment. I expected the scope statement to include something on the order</p>		

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					<p>of "this appendix identifies the minimum variables for which values must be assigned to determine product and soil side corrosion" and some acknowledgement that a similar service assessment reflects the risk assessment practice noted in 6.*.</p> <p>H.3 "Control Tank" should be Tank(s). a comprehensive and thorough fashion should read like "in accordance with company risk assessment protocol." "not an exact match" should allow data capture from more than one tank</p> <p>H.3.1 Suggest these "categories" be lumped into Product Side and Soil Side Loss Rate Determining Variables</p> <p>H.3.1.1 Year Tank Erected - don't care when it was erected; want to know how long it's been in a comparable product service. Title should be more like "Comparative Service Life"</p> <p>H.3.1.2 Hopefully we won't be penalized for not recording all bottom plate material specs. I haven't seen a definitive loss rate difference respective to one carbon steel vs. another.</p> <p>H.3.1.3 Would prefer to gain product side CR from comparable tank; shell material spec not needed.</p> <p>H.3.1.4 Same premise for the shell CA.</p> <p>H. 3.1.5 This is a soft paragraph in referring to 652. Suggest capture appropriate concept here.</p> <p>H.3.1.8 Reason for allowing tank(s) to be used in sim service assessment. Soils in common plat/geography offer valid assessment criteria despite having differing product storage.</p>		

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					<p>H.3.1.9 Value of these two variables? appears to be none in sim service - you won't be attempting to apply assessment cata from Baton Rouge on Joliet - at least I hope not..</p> <p>H.3.1.10 Value questioned again. DOn't need it - hopefully not claiming that product storage has to be at these control tank values.</p> <p>H.3.1.12 Noted before in H.3.1.10 and questioned there.</p> <p>H.3.1.13 Would consider this data to be primary tool (not secondary) for supporting assessments.</p> <p>H.4 This is shell language - not applicable. Same comment applies to Figure 2</p> <p>Data Sheet: - would hope API doesn't start trending from "what" is recommended to "how" it's done. Believe this data sheet does that - too much non-essential information is requested. Would expect the sequence to be API determines what and companies develop internal standards for the how. EM system would probably create some factor based system that dictates probability and consequence on a data sheet. It is risk-based protocol.</p>		
9	Domingo de Para	ExxonMobil		Technical	<p>Comments from Andy Gysbers:</p> <p>3.1 Strongly support the comment that the assessments for topside and underside are separate. May even have different CONTROL Tanks defining topside and underside experience. Should this appendix not focus on floor anyway. (definitions seem to focus) Hence structurally this entire appendix needs to be reorganized with separate charts and criteria.</p> <p>(For completeness, if shell is to be</p>		

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					<p>considered (very rare but for completeness probably add) then add separate shell assessment(s).Product and External). (do we argue Shell external is separate since can be addressed externally (thinking here atmospheric or CUI corrosion similar service.)</p> <p>Organized in logical four separate assessments subsections complete with separate definitions, factors and process.</p> <p>3.1. If shell is included would have to add a shell corrosion definition.</p> <p>3.1.1. AGREE as further to Larry's comment : If we go to three assessments: Comparable Underside Floor Service Life, etc. Though what has age itself got to do as a main factor. It is a subfactor</p> <p>3.1.2. Also challenge how much material spec has any real role in corrosion rates. (how would anybody actually interpret this.) P1 carbon steel period should be treated as similar. (if somebody has some facts about this otherwise, they better bring this to table.) Get rid of this totally (lining factor each for topside or underside assessments.) or at worst a simple flag if floor plate other than P1.</p> <p>3.1.2. Subfactors are inconsistent with main factors. Linings to a separate factor, soil side corrosivity is a separate factor.</p> <p>3.1.3. Move to shell assessment but again what has material specification got to do with this assessment.</p> <p>I start to continue to comment but start to find that the factors really are poorly divided.</p> <p>Structurally should the entire section be geared to defining similar service CORROSION RATES for 1) Floor</p>		

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					<p>Underside, 2) Floor Topside and 3) Shell Product Side and 4) Shell External.</p> <p>It is these corrosion rates are then applied to candidate tanks that determine Or estimates based on candidate tank RCA.</p> <p>Can generate separate sources of CORROSION RATES from separate control tanks to handle various permeations and combinations of service exposures linings etc.</p> <p>FLOOR UNDERSIDE CORROSION RATE FACTORS.</p> <p>H3.1.6</p> <p>H3.1.7.</p> <p>H3.1.8. add subfactors, oil type for oiled sand, secondary containment (has direct potential for water retainment).</p> <p>Underside coating if any.</p> <p>Similar foundation and floor construction standard and age . (key subfactor here is that similar service can only apply to the SAME SITE.)</p> <p>Tank operating temperature. (key factor for underside rate particularly at peiphery.</p>		
10	Domingo de Para	ExxonMobil		Technical	<p>Comments from Andy Gysbers (continued)</p> <p>FLOOR TOPSIDE CORROSION RATE FACTORS.</p> <p>H3.1.10 (really product service exposure.) Yet I challenge the direction of subfactors defined.</p> <p>Is it not the amount and type/source of WATER that is probably the most significant factor in determining topside corrosivity.</p> <p>Subfactors that point toward how compariably wet similar products between</p>		

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					<p>the tanks should be better defined.</p> <p>Product water solubility</p> <p>Water content from source</p> <p>Roof type or inerting.</p> <p>(allowance for ingress of air moisture?)</p> <p>(similar ambient air conditions)</p> <p>Water drainage practices</p> <p>Subfactor to water drainage/removal is floor type (flat, cone up , cone down) and degree of floor settlement. (trapping water)</p> <p>Subfactors that point toward the corrosivity of the water between the tanks.</p> <p>Intermediate plant unit sources. (some units produce a water with corrodents, (HF, H2SO4, CL etc).</p> <p>Product sources. (different plants, different components, different grades)</p> <p>Crude Brine</p> <p>Operating Temperature</p> <p>Sulfur content (< 1 or > 1) (not sure how much of a real factor this is. SRB??)</p> <p>H3.1.11.</p> <p>H3.1.12. (do not really understand the oil type breakdown. Crude, Naphthas, Distillates, Gas Oils, Heavy Oils, Asphalt. (is S that important?)</p> <p>(Question here: Do we flag that product side assessment are usable from one site to the other if all factors above are similar?)</p> <p>SHELL PRODUCT CORROSION RATE FACTORS.</p>		

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					<p>Pretty well the same as FLOOR TOPSIDE. SHELL EXTERNAL CORROSION RATE FACTORS</p> <p>H.3.1.9. (Do not understand the lowest one day mean factor in any of this. Not a corrosion factor.)</p> <p>Similar external coating/insulation/weatherproofing/age.</p> <p>Comment on H3.1.13</p> <p>I have no idea what this has got to do with the comparison assessment. As Larry points out these are all factors used to gather data on a tank but have no direct basis in the assessment.</p> <p>Once you have provide similar service assessments basis for application to the candidate tank, then you can do Operating period assessment by calculating the Candidate RCA basis and using the similar service Corrosion Rate Factors.</p>		
11	Earl Crochet	Kinder Morgan		Technical	<p>While I agree totally with the intent, I think Table 1.0 is unclear. Where would gasoline or diesel fall on the table? Refined products need to be added for gasoline, diesel, kerosne, etc.</p>		

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	Voter/ Commenter	Company	Section No. (e.g. 3.1)	Type of comment	Comment (justification for change)	Proposed Change	Comment Resolution
12	Chris Bashor	Minnesota Pollution Control Agency		Technical	I am voting negative because this item has not yet followed any ordinary procedure for being brought to ballot. Even if there were an official procedure, having a ballot on an item of this size and controversy, with only a minimal amount of meeting, email, teleconference or other interactive time, with no opportunity for review and discussion of a document that represents the first complete draft, and without a vote on the part of the Task Group that it is ready to go to ballot, does not seem wise. I will review this draft proposal separately and submit comments to the TG chair for distribution to the group.		
13	Francis Maitland	Quense LLC		Technical	1. The list of similar products should include finished products such as gasoline and #2 fuel oil. 2. There should be a required mechanism to track the original tank in case anything happens to the tank that the similar service is based upon. This is because the original tank may have been inspected by RBI, robotic means, statistical analysis or any other method. If the base tank has a problem, it should be immediately known which tanks are subject to the same problem.		
14	Francis Maitland	Quense LLC		Technical	3. Maintenance of the tank, especially cleaning, should at least be considered. Two tanks, erected at the same time, similar in all manners except that one was cleaned every 5 years compared to once in 20 years, may not be similar.		

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15	Steve Caruthers	Tank Consultants, Inc.		Technical	H.3 states that "If the criteria for the Control Tank and Candidate Tank match, the Candidate Tank may be considered in similar service..." However, for those Data Sheet items which do not match, the referenced paragraphs do not adequate directions to determine if the differences are acceptable or not. For instance, how do you know if the shell materials are adequate similar in corrosion resistance to be considered to be similar?		
16	Mark Geisenhoff	Flint Hills Resources, LP		Technical	The work done on this appendix is impressive and does a great job in clarifying the appropriate steps necessary to conduct a similar service assessment. However, I believe the most pressing need is to clarify when and if a similar service assessment can be made as opposed to how to make it. The wording in sections 6.4.2 needs to be debated and addressed prior to the issuance of this appendix.		
17	Peter Hunt	Shell Chemical Company		Technical	Sections H.3.1.8-9 & H.3.1.13 Reference to "assessed by the tank owner's engineer" is too restrictive	Should read "assessed by the authorized inspector or tank engineer".	
18	James McVay	Tesoro Petroleum		Technical	I think the need is there and the concept is great but I am concerned about the quality of review that may result from this checklist approach, at least in its present form. I don't think the checklists developed for internal and soil-side corrosion characterization are comprehensive enough. I don't think the determination of service similarity can be made without special experience and technical expertise, in many cases.	Build the checklists to be more comprehensive. Offer more technical guidelines in each category to determine similarity. Recommend the qualifications of personnel reviewing the assembled information and making recommendations.	

NOTE Columns 1, 2, 4, 6 are compulsory.

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#	(1) Voter/ Commenter	(2) Company	(3) Section No. (e.g. 3.1)	(4) Type of comment	(5) Comment (justification for change)	(6) Proposed Change	(7) Comment Resolution
19	Morris Kline	HMT Inspection		Editorial	<p>We are going down a slippery slope with this approach. Regulators are uneasy with anything that doesn't include an actual inspection.</p> <p>We have seen enough examples of soil side corrosion that does not reflect an adjoining tank. This will set up abuse and finally regulatory overreaction.</p>		
20	John Lieb	Tank Industry Consultants, Inc.	Figure 1.0	Technical	The box entitled "Determine if the additional inspection..." may be more appropriately placed to the right of the box entitled "Establish the next internal inspection..."	Consider changing per comments above.	
21	John Lieb	Tank Industry Consultants, Inc.	General	Technical	This item needs further development to be more complete and user-friendly.		
22	Tearle Taylor	Flint Hills Resources	General	Editorial	<p>Some of the reasons I am voting negative on this ballot are both question and commentary. At the last meeting it appeared that there was great discussion around this and not all the questions or concerns were answered. I believe this went to ballot too early. Below are some examples:</p> <ol style="list-style-type: none"> 1. How to determine the soil side of the candiate tank. 2. Coatings need to be better explained and to what parameters. 3. The shell of a tank very rarely has the same corrosion rates as the floor. 4. Products - there is a great difference in corrosion rates. Example: Terminal Crude Tanks store different type Crudes from sour to sweet and the origin is not always the same. The crude content changes constantly even if you are using only sour or sweet such as the tan #, sulfur, chlorides etc. 	<p>The details of this appendix need to be worked through. Clean up paragraph API 653 para 6.4.2. Go into more detail on how you determine the parameters, give a pass/fail determination. Add other parameters such as water draws, type of roof (IFR, EFR or fixed cone). Define tank owners engineer.</p>	

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	Voter/ Commenter	Company	Section No. (e.g. 3.1)	Type of comment	Comment (justification for change)	Proposed Change	Comment Resolution
					<p>5. There is nothing stating the if water draws are being used on a tank - The element of where the product comes from: ship, barge, pipeline etc also that makes a difference. There is a great difference in gasoline's - they will have the same spec gravity, vapor pressure, temp but again it depends on if it is finished or raw, where it comes from and how.</p> <p>6. There is nothing about mixers and that to is a component that should be included - how much they are run and where they are located.</p> <p>7. The type of roof: fixed cone, IFR or EFR also make a difference in corrosion rates of a shell and floor.</p> <p>8. This does not specify whether the candidate tank has to have or had an internal inspection.</p> <p>9. There appears that different parameters can be "assumed" (linings or coatings, bottom material specifications, CP, service conditions etc) Note: tanks usually over ten years old generally do not have adequate or concise records or data</p> <p>10. Corrosion on tank bottoms is not always linear.</p> <p>11. Need a better definition of "tank owners engineer".</p> <p>12. What is the acceptable number of yes's / no's. What are the guidelines - how many yes / no have to be the same and are they weighted the same.</p>		

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	Voter/ Commenter	Company	Section No. (e.g. 3.1)	Type of comment	Comment (justification for change)	Proposed Change	Comment Resolution
23	Kelly Smith	ConocoPhillips	H.1 or H.3	Technical	It is not clear who would be eligible or authorized to make and/or approve the similar service assessment.	Use language similar to what is in 6.4.3 as noted below: "The initial similar service assessment shall be reviewed and approved by an authorized inspector and an engineer(s) knowledgeable and experienced in tank design (including tank foundations) and corrosion." FD-HM	
24	Kelly Smith	ConocoPhillips	H.2 Definitions	Technical	Need to define product corrosivity.	Product corrosivity should be defined as the corrosivity of the liquid that is against the surface being evaluated. I believe this distinction is important as most tanks have at least two different "products". An example would be our diesel tanks that have bottoms in a water environment, the shell that is in oil service and the underside of the cone roof that is in vapor service. FD-HM	
25	Randy Kissell	TGB Partnership	Table 1.0	Technical	I suggest changing "Sweet" for categories C and D to "Low" and "High", respectively.		
26	Nelson Acosta	HMT Inspection	H.3 / H. 4 / Table 1.0 / Data Sheet	Technical	Suggested wording changes as below.	H.3 Delete word "etc." in 4th sentence and replace with "and other factors". H.3.1.2.b delete the word "suitable" and define with another term such as "similar" or "equal" or something else more precise than "suitable". H.3.1.3.b delete the word "suitable" and define with another term such as "similar" or "equal" or something else more precise than "suitable". H.3.1.13.a delete "MFE or" at the beginning of this wording. H.4 word "illustrated" in 1st sentence should be "illustrates". Table 1.0 I would like to see a better	

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	Voter/ Commenter	Company	Section No. (e.g. 3.1)	Type of comment	Comment (justification for change)	Proposed Change	Comment Resolution
						<p>breakdown of products of a definition of low sulphur light oils such that "refined products" would either be a separate category or be clearly defined as part of one of the existing categories listed.</p> <p>Data Sheet - my concern with current set-up is what happens when "No" choice is marked on Data Sheet. Reference is given to other "Additional Assessment" paragraphs but there is no tie-in back to the Data Sheet. Documentation will get lost or not be included in the record, then the only thing available will be the Data Sheet marked "No". I think this needs to be a better format for documentation purposes.</p>	
27	John Ludman	DuPont Engineering Technology	H.3.1.10	Technical	The "product classification" factor is too broad. This is a very important factor in simialr service assessments. The Table (1.0) lumps all chemicals, all solvents,.....into the same category. There needs to be more detail on what the product is and what potential damage mechanisms go along with the product.	I would drop reference to Table 1.0 since it could be mis-used in a non-conservative way. I would change H.3.1.10 (a) to "product being stored" . In the data sheet (H.5.b) you would require a a review of any additional damage mechanisms if the service was not identical	
28	James McBride	Petrex, Inc.	H.3.1.6.c	Technical	I do not believe that H.3.1.6.c is necessary since it addresses similar, and functional cathodic protection systems in both the control and canidate tanks. Per the data sheet you only need to refer to H.3.1.6 if there is no match between the systems in both tanks.	Eliminate H.3.1.6.c	
29	Marilyn Shores	Sunoco Logistics	H.3.1.7	Technical	Great job on producing this needed document! Due to the number of faulty designs of double bottoms, I do not agree that only the product side corrosion needs to be considered.	I would like to add wording about the similar type of double bottom (concrete filled vs. inert gas). Also, if a double bottom candidate tank is being compared to a single bottom control tank, the elements of attack on the double bottoms needs to be identified. (Granted, if a double bottom tank fails, we would have the secondary bottom to keep it from impacting the environment, but we would still have a failure to address.)	

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30	Randy Kissell	TGB Partnership	H.3.1.7	Technical	Could we clarify whether the "tank" mentioned here is the control tank or the candidate tank?		
31	John Reynolds	Shell Global Solutions (US) Inc.	H.3.1.8, .9, .10 & .13	Technical	These sections require some assessment by the tank owner's engineer. I think that the authorized inspector can and should be involved in these assessments, especially item 13.	Suggest that the assessments be made by the "tank owners engineer and/or the authorized tank inspector", similar to what is required in 6.1.4 for RBI assessments.	
32	John Lieb	Tank Industry Consultants, Inc.	H.4	Editorial	First sentence, "illustrated" should be "illustrates".	Change "illustrated" to "illustrates".	
33	Joel Andreani	Equity Engineering Group, Inc., The	H.4 and Figure 2	Technical	Editorially, I believe that general terms "damage", "degradation" or specifically "metal loss" would be better than "deterioration" (in H.4 and Figure 2). For consistency, "degradation" is used in API 653 paragraph 1.1.6 referring to API 579. Also, API 579 uses the general term "damage" or "degradation." This comment would also apply to current paragraph 4.3.1.1 (and any other uses of the term deterioration).	Use "damage" or "metal loss" in place of "deterioration" in H.4 and Figure 2 (and "damage" in place of "deterioration" in 4.3.1.1).	

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