Record of Letter Ballot Review by TC Chapter for Procedural Review

Region/Locale: North America
Global Technical Committee: Liquid Chemicals
TC Chapter Cochairs: David Kandiyeli (Exentec), Per Nelson (Daikin America), Don Hadder (Intel), Laura Ledenbach (Evonik)

Standards Staff: Laura Nguyen

	Scheduled in Background Statement	Actual
Date	02/10/2026	02/10/2026
Location	OVTCCM	OVTCCM
Reason for Change of Date and/or Location (if changed)		

Note: Refer to *Regulations* ¶ 9.5 Exceptions for allowable reason to change.

I. Document Number and Title

Document Number	Document Title
7086A	Revision to SEMI F61–0521, Guide for Design and Operation of a Semiconductor Ultrapure Water System, with title change to: Guide for Design, Construction, Installation, and Operation of a Semiconductor Ultrapure Water System

II. Tally

Voting Tally: As-cast tally after close of voting period

Note: A minimum of 60% of the Voting Interests that have TC Members within the global technical committee that issued the Letter Ballot must return Votes. (*Regulations* ¶ 9.6.2.1.1)

Note: Refer to *Regulations* § 3.2.1 for definition of Voting Interest.

Voting Interest:	Returned Votes		Distribution		Return Rate	
Letter Ballot	59	÷	95	=	62.11%	≥60%
Intercommittee Ballot	41					
Voting Interest Reject(s)	1		Total Voters with Rejects		1	
Voting Interest Accept(s)	61					

III. Rejects

Voting Interest Reject 1 (Voting Interest Name: **Safety Guru, LLC**)
Voter Reject 1 (Voter: **Eric Sklar / Safety Guru, LLC**)

Note to A&R: the voter submitted negatives via comments and tracked changes within a MS Word file. The referenced § / ¶ from the voter is provided in either yellow highlights or blue text. Staff also included notes and/or additional balloted text, where appropriate, for each negative.

Negative 1

Negative	**Referenced § / ¶**	Entire ballot			
	Negative Text	**SG001:** Make each of the Tracked Changes shown in this file that is not associated with an MSWord Comment. As of this writing, there are a total of 715 (2908 insertions, 334 deletions, 48 moves, and 41 formatting changes) Tracked Changes. These counts include the changes I've marked as suggestions in response to the technical items described in MSWord Comments, but most are corrections of grammar or style. I've combined them into this single Negative to avoid burdening the Liquid Chemicals Technical Committee with adjudicating the additional hundreds of items ad seriatim. For comparison, I've embedded the analogous comment from the Doc 7086 response. **Response SG001 to Doc. 7086**: Make each of the Tracked Changes shown in this file that is not associated with an MSWord Comment. As of this writing, there are a total of 1646 (750 insertions, 795 deletions, 44 moves, and 57 formatting changes) Tracked Changes. These counts include the changes I've marked as suggestions in response to the technical items described in MSWord Comments, but most are corrections of grammar or style. I've combined them into this single Negative to avoid burdening the Liquid Chemicals Technical Committee with adjudicating the additional hundreds of items *ad seriatim*.		
Withdrawal (check one)		**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**	
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**	
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**		
			Reason	The TF appreciates the review from the voter, but there are no clear suggestions of which ones are Type 1 or Type 2 editorial changes, and some suggestions may be deemed as technical. As such, since the voter stated that "*most are corrections of grammar or style*," the TF will consider these in the next revision.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%	**GO TO "Final" subsection → (C)**	
Final	**(check if applicable)**	**X**	**(C)**	Related and not persuasive (significant)	

This table is needed for each Negative.

Negative 2

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. 1.2 This Guide describes the engineering and component recommendations for a UPW system used in semiconductor manufacturing. It is intended to establish a common foundation for the design, construction, installation, and operation of UPW and hot ultrapure water (HUPW) systems.		
		1.2 … design, construction, installation, and operation of UPW and hot ultrapure water (HUPW) systems.		
	Negative Text	**SG002:** Reconcile the list here, the list in the title, and the contents of the Document. Note: This was SG003 in the response to Doc 7086,		
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	GO TO "Related" subsection
Related	**Motion and Reason** (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
Persuasive	**Motion and Reason** (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	The title appropriately reflects the system and lifecycle phases addressed by this Guide. The Purpose and Scope sections provide detailed clarification of topics within those phases. SEMI titles are descriptive rather than exhaustive, and no inconsistency exists between the title and the Scope. If titles were required to list all scope elements, they would become unusable.
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer		
	Discussion	None		
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.		
		X	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection
Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)			
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".	GO TO "Final" subsection → (D)
Final	(check if applicable)	X	(D)	Not significant (counted under j in disposition)

Negative 3

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. 2.6 This Guide provides guidance on the maintenance, operations, safety, and redundancy of the UPW systems.			
		2.6 … qualification, and commissioning…			
	Negative Text	**SG003:** These are not listed in the Title or Purpose.			
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.		GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. **(Needs no motion.)**		GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**		
			Reason	The title appropriately reflects the system and lifecycle phases addressed by this Guide. The Purpose and Scope sections provide detailed clarification of topics within those phases. SEMI titles are descriptive rather than exhaustive, and no inconsistency exists between the title and the Scope. If titles were required to list all scope elements, they would become unusable.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection	
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**				
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".		GO TO "Final" subsection → (D)
Final	(check if applicable)	X	(D)	Not significant **(counted under j in disposition)**	

Negative 4

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. 2.6 This Guide provides guidance on the maintenance, operations, safety, and redundancy of the UPW systems.			
		2.6… maintenance…			
	Negative Text	**SG004**: Not listed in Title or Purpose			
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.		GO TO "Related" subsection

Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)		GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)		
			Reason	The title appropriately reflects the system and lifecycle phases addressed by this Guide. The Purpose and Scope sections provide detailed clarification of topics within those phases. SEMI titles are descriptive rather than exhaustive, and no inconsistency exists between the title and the Scope. If titles were required to list all scope elements, they would become unusable.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection	
Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)				
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".		GO TO "Final" subsection → (D)
Final	(check if applicable)	X	(D)	Not significant (counted under j in disposition)	

Negative 5

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. 2.6 This Guide provides guidance on the maintenance, operations, safety, and redundancy of the UPW systems.			
		2.6… safety…			
	Negative Text	**SG005**: Not listed in Title or Purpose			
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.		GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)		GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)		
			Reason	The title appropriately reflects the system and lifecycle phases addressed by this Guide. The Purpose and Scope sections provide detailed clarification of topics within those phases. SEMI titles are descriptive rather than exhaustive, and no inconsistency exists between the title and the Scope. If titles were required to list all scope elements, they would become unusable.	

	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]	**GO TO "Not Significant Finding Option" subsection**	
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**				
	Use of "Not significant finding option" (check one)	**X**	It is mutually agreed upon to term the Negative "not significant".	**GO TO "Final" subsection → (D)**	
Final	**(check if applicable)**	**X**	**(D)**	Not significant **(counted under j in disposition)**	

Negative 6

Negative	**Referenced § / ¶**	**4 4 Referenced Standards and Documents** 4.1 *SEMI Standards and Safety Guidelines*			
	Negative Text	**SG006:** SEMI C82 and SEM C89 are both cited in this Document and are, therefore, required to be listed in this Section.			
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**	
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**	
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**		
			Reason	Editorial adding C82 and C89 to Referenced Standards and Documents section to comply with Style Manual, since both are cited in the document.	
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions			
	Discussion	None			
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.			
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%	**GO TO "Final" subsection → (C)**	
Final	**(check if applicable)**		**(A)**	Withdrawn **(counted under h in disposition)**	
			(B)	Not related **(counted under i in disposition)**	
		X	**(C)**	Related and not persuasive (significant)	
			(D)	Not significant **(counted under j in disposition)**	
	(check if applicable)	**X**	*Comment generated.* ***Refer to Section V-(ii) Comment # NC-1.***		

Negative 7

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary.			
		4 4 Referenced Standards and Documents 4.1 *SEMI Standards and Safety Guidelines*			
	Negative Text	**SG007**: I have moved several citations to this Section (from Related Documents) as they are cited in this Document			
Withdrawal (check one)		X	No Negative withdrawal made by Voter.		GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)		GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)		
			Reason	Editorial to move SEMI E49, C79, C93, and F40 to Referenced Standards and Documents section to comply with Style Manual, since they are cited within the document.	
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions			
	Discussion	None			
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.			
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%	GO TO "Final" subsection → (C)	
Final	(check if applicable)		(A)	Withdrawn (counted under h in disposition)	
			(B)	Not related (counted under i in disposition)	
		X	(C)	Related and not persuasive (significant)	
			(D)	Not significant (counted under j in disposition)	
			(E)	Related and persuasive and not addressed by technical change	DOCUMENT FAILS
			(F)	Addressed by technical change (counted under k disposition)	
	(check if applicable)	X	*Comment generated. **Refer to Section V-(ii) Comment #** NC-2.*		

Negative 8

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary.		
		4 4 Referenced Standards and Documents 4.1 **…** 4.2 *ASME Standards*[1] *ASME B31.3 — Process Piping*		
	Negative Text	**SG008**: MSWord found no reference to this in this Document. Only source to which a Document makes explicit reference may be listed in this Section. Other sources that the originating TF considers to be of use may be listed in the "Related Documents" Section. I have moved this item to that Section.		
Withdrawal (check one)		X	No Negative withdrawal made by Voter.	GO TO "Related" subsection

Related	**Motion and Reason (check one)**	X	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	X	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**	
			Reason	Editorial to move ASME B31.3 to Related Documents section to comply with Style Manual, since it is not cited within the body of the document.
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion	None		
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%	**GO TO "Final" subsection → (C)**
Final	**(check if applicable)**	X	**(C)**	Related and not persuasive (significant)
	(check if applicable)	X	*Comment generated.* ***Refer to Section V-(ii) Comment #*** *NC-3.*	

Negative 9

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.**		
		4.7 *OSHA Standards*[6] OSHA 29CFR 1910.140		
	Negative Text	**SG009:** MSWord found no reference to this in this Document. Only source to which a Document makes explicit reference may be listed in this Section. Other sources that the originating TF considers to be of use may be listed in the "Related Documents" Section. I have moved this item to that Section.		
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	X	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	X	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**	
			Reason	Editorial to move OSHA 29CFR 1910.140 to Related Documents to comply with Style Manual, since it is not cited within the body of the document.
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion	None		
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%	**GO TO "Final" subsection → (C)**
Final	**(check if applicable)**	X	**(C)**	Related and not persuasive (significant)
	(check if applicable)	X	*Comment generated.* ***Refer to Section V-(ii) Comment #*** *NC-4.*	

Negative 10

Negative	**Referenced § / ¶**	*TF/TC Chapter to fill in, including text in the ballot if necessary.					
		5.1.38 *PFA* — perfluoroalkoxy alkane polymer					
	Negative Text	**SG010**: For consistency, either all or none of the expansions of abbreviations of polymer names should contain “polymer’. I it should e deleted here, or added to each of the polymer names (e.g., “polytetrafluoroethylene).					
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.			GO TO “Related” subsection	
Related	**Motion and Reason (check one)**	X	‘Related’ is mutually agreed upon. **(Needs no motion.)**			GO TO “Persuasive” subsection	
Persuasive	**Motion and Reason (check one)**	X	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**				
			Reason	Delete "polymer" to make the expansions of polymer name abbreviations match in style.			
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions					
	Discussion	None					
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.					
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	X	Y	GO TO “Address by Technical Change Option” subsection

Address by Technical Change Option	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in “FROM” and “TO” fields.**		
	Technical Changes	**1**	**FROM: Section/Paragraph 5.1.38** 5.1.38 *PFA* — perfluoroalkoxy alkane polymer
			TO: Section/Paragraph 5.1.38 5.1.39 *PFA* — perfluoroalkoxy alkane ~~polymer~~
			Justification (If necessary) Delete "polymer" to make the expansions of polymer name abbreviations match in style.

Motion	Negative is addressed by the technical change(s).			
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc			
Discussion	None			
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.			
	X	2/3 ≤ [Negative is addressed by the technical change(s).]		GO TO “Incorporation of the Technical Change” subsection
Incorporation of **Motion**	To incorporate the technical change(s).			
Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)			
Discussion	None			

		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
			X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 11

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** 5.2 *Definitions* 5.2.1 *advanced (semiconductor manufacturing)* — pertaining to the manufacture of semiconductors with a node size of 32 nm and smaller.		
		5.2.1 *advanced ~~(~~semiconductor manufacturing~~)~~* ~~— pertaining to~~ the manufacture of semiconductors with a node size of 32 nm ~~and~~ or smaller.		
	Negative Text	**SG011:** Most of the instances of "advanced" in this Document are in the phrase "advanced semiconductor manufacturing", There are a few that appear to be intended to have that meaning, but are included in slightly different phrases, e.g., 'advanced semiconductor processing'). I have marked my recommendations for those. There are a couple of instances where 'advanced' is used in different context, which is why the ballotted definition appears not to work.		
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**	
			Reason	Replacing the word "advanced" with equivalent synonyms in the two instances in the document where this word is not used in the context of "advanced semiconductor manufacturing" to avoid confusion with the definition of "advanced" given in this document.
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion	None		
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.		
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)** **X** **Y** **GO TO "Address by Technical Change Option" subsection**
Address by Technical	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**			
	Technical	**1**	**FROM: Section/Paragraph 10.1** 10.1 *General Considerations* — UPW make-up system design has advanced over recent decades of semiconductor fab technology development.	

			TO: Section/Paragraph 10.1 10.1 *General Considerations* — UPW make-up system design has ~~advanced~~ been refined over recent decades of semiconductor fab technology development.			
			Justification (If necessary)			
		2	**FROM: Section/Paragraph A13-6.2.2** A13-6.2.2 *Data analysis* — The data is analyzed using advanced techniques and artificial intelligence (AI) such as machine learning, statistical analysis, and algorithms to identify patterns and trends that can indicate potential issues.			
			TO: Section/Paragraph A13-6.2.2 A13-6.2.2 *Data analysis* — The data is analyzed using ~~advanced~~ sophisticated techniques and artificial intelligence (AI) such as machine learning, statistical analysis, and algorithms to identify patterns and trends that can indicate potential issues.			
			Justification (If necessary)			
	Motion		Negative is addressed by the technical change(s).			
	Motion by/2nd by		By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc			
	Discussion		None			
	Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.			
			X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**	
	Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).			
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)			
		Discussion	None			
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.			
			X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**	
Final	**(check if applicable)**		**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 12

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary.				
		5.2.2 *deionized water (DI water)* — any purified water that has had most of the ionized substances removed. ~~Although a commonly used term, this quality of water is not applicable for advanced semiconductor manufacturing~~. NOTE 3: The term "deionized water" is commonly used to refer to water that has been deionized but can have a wide range of purity, as the term does not indicate what other purification has been done. Therefore, much of what is called "deionized water" is not suitable for advanced semiconductor manufacturing.				
	Negative Text	**SG012:** "Deionized" is not a "quality", it is the state of having most of the ions removed. To the best of my knowledge, all of the UPW used in our industry has been deionized, as well as having been purified in other ways.				
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.			GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)			GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and persuasive. (Needs >1/3 votes to pass.)			
			Reason	Accept voter's suggestion and clarified the term deionized water.		
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions				
	Discussion	None				
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.				
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	X Y	GO TO "Address by Technical Change Option" subsection

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes	1	**FROM: Section/Paragraph 5.2.2** 5.2.2 *deionized water (DI water)* — any purified water that has had most of the ionized substances removed. Although a commonly used term, this quality of water is not applicable for advanced semiconductor manufacturing.
		TO: Section/Paragraph 5.2.2 5.2.2 *deionized water (DI water)* — any purified water that has had most of the ionized substances removed. ~~Although a commonly used term, this quality of water is not applicable for advanced semiconductor manufacturing.~~ NOTE 3: The term "deionized water" is commonly used to refer to water that has been deionized but can have a wide range of purity, as the term does not indicate what other purification has been done. Therefore, much of what is called "deionized water" is not suitable for advanced semiconductor manufacturing.
		Justification (If necessary) clarified the term deionized water

Motion	Negative is addressed by the technical change(s).
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc

	Discussion		None			
	Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.			
			X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**
	Incorporation of the Technical	**Motion**	To incorporate the technical change(s).		
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
		Discussion	None		
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
			X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 13

Negative	**Referenced § / ¶**	*TF/TC Chapter to fill in, including text in the ballot if necessary.				
		5.2.11 *point of use (POU)* (when used to refer to a point of measurement) ~~point of measurement~~ at the UPW inlet to, or within, the manufacturing equipment near the entry to the process chamber.				
	Negative Text	**SG013:** Please clarify this. I can see how a POU sampling point can be "near the entry to the process chamber" if that POU sampling point is within the SME, but not how it can be at the "inlet" to the SME and, in many cases, also "near the entry to the process chamber".				
	Withdrawal (check one)		**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**		**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**		**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**		
				Reason	The definition of point of use (POU) as a point of measurement was clarified to distinguish between sampling at the equipment inlet and sampling within the manufacturing equipment near the process chamber, resolving ambiguity without changing technical intent.	
	Motion by/ 2nd by		By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions			
	Discussion		None			
	Result of Vote (check one)		9 **Y** 0 **N**; Motion passed.			
			X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X** **Y** **GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — **1**

FROM: Section/Paragraph 5.2.11

5.2.11 *point of use (POU)* (when used to refer to a point of measurement) — point of measurement at the UPW inlet to, or within, the manufacturing equipment near the entry to the process chamber.

TO: Section/Paragraph 5.2.11

5.2.11 *point of use (POU)* (when used to refer to a point of measurement) ~~— point of measurement~~ either at the UPW inlet to~~, or within,~~ the manufacturing equipment, or within the manufacturing equipment near the entry to the process chamber, where UPW quality is most directly relevant to the process.

Justification (If necessary)
This improves clarity without changing technical intent

Motion	Negative is addressed by the technical change(s).		
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc		
Discussion	None		
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.		
	X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**

Incorporation of the Technical

Motion	To incorporate the technical change(s).		
Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
Discussion	None		
Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
	X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**

Final

(check if applicable)	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 14

Negative

Referenced § / ¶

***TF/TC Chapter to fill in, including text in the ballot if necessary.**

5.2.5 *future isolation valve* — a pre-installed valve that currently has no downstream piping, equipment, or use point connected to it, but is intentionally included in the system design to facilitate a planned or anticipated future connection. A future isolation valve, or 'future valve~~,~~', is a type of terminating valve.
…
5.2.14 *terminating valve* — a valve at the end of a pipeline.

5.2.14 … at the end of a pipeline.

Negative Text

SG014: Please reconcile this with the statemen above that a "future isolating valve" is a "terminating valve.

Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**

Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**				**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**				
			Reason	Added information to the definition to clarify terminology relationships regarding "terminating valve" "...where no downstream piping is connected at the time of installation. Terminating valves can include valves installed for permanent isolation or for planned future system expansion."			
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions					
	Discussion	None					
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.					
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X**	**Y**	**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**		
	Technical Changes	**1**	**FROM: Section/Paragraph 5.1.38** 5.2.14 *terminating valve — a valve at the end of a pipeline*
			TO: Section/Paragraph 5.2.14 5.2.14 *terminating valve* — a valve at the end of a pipeline where no downstream piping is connected at the time of installation. Terminating valves can include valves installed for permanent isolation or for planned future system expansion.
			Justification (If necessary) clarify terminology relationships regarding "terminating valve"

	Motion	Negative is addressed by the technical change(s).		
	Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc		
	Discussion	None		
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**
	Incorporation of the Technical **Motion**	To incorporate the technical change(s).		
	Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
	Discussion	None		
	Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
		X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**

Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 15

Negative

Referenced § / ¶	***TF/TC Chapter to fill in, including text in the ballot if necessary.** 6.1.1 *Makeup System* — The portion of the UPW treatment system upstream of the permeate tank. The makeup system produces replacement water to supplement losses caused by fab consumption, maintenance, and normal operation such as reject streams from unit operations. 6.1.1 … fab consumption, maintenance, and normal operation …					
Negative Text	**SG015:** If there is a difference between "fab consumption" and "normal operation", explain it. If there is no difference, remove one of the terms. Note: This was SG018 in the response to Doc 7086,					
Withdrawal (check one)		X	No Negative withdrawal made by Voter.			**GO TO "Related" subsection**
Related — **Motion and Reason (check one)**		X	'Related' is mutually agreed upon. **(Needs no motion.)**			**GO TO "Persuasive" subsection**
Persuasive — **Motion and Reason (check one)**		X	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**			
			Reason	Clarify the difference between "fab consumption" and "normal operation"		
Motion by/ 2nd by		By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions				
Discussion		None				
Result of Vote (check one)		9 **Y** 0 **N**; Motion passed.				
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	X Y	**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — **1**

FROM: Section/Paragraph 6.1.1

6.1.1 *Makeup System* — The portion of the UPW treatment system upstream of the permeate tank. The makeup system produces replacement water to supplement losses caused by fab consumption, maintenance, and normal operation such as reject streams from unit operations.

TO: Section/Paragraph 6.1.1

6.1.1 *Makeup System* — The portion of the UPW treatment system upstream of the permeate tank. The makeup system produces replacement water to supplement losses ~~caused by~~ associated with routine and non-routine UPW system operation, including fab consumption, maintenance activities, and ~~normal operation such as~~ reject streams from unit operations.

Justification (If necessary)
Clarify the difference between "fab consumption" and "normal operation"

Motion	Negative is addressed by the technical change(s).			
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc			
Discussion	None			
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.			
	X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**

	Incorporation of the Technical	**Motion**	To incorporate the technical change(s).		
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
		Discussion	None		
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
			X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 16

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** 6.2.3 *Various Filters* — Filters to protect RO membranes from fouling and suspended solids include media filtration, cartridge filtration, microfiltration, and ultrafiltration.		
	Negative Text	**SG016:** Please clarify what is intended by "media" here. All filtration uses media, but media range from gravel beds to RO membranes.		
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason** (check one)	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason** (check one)	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**	
			Reason	Editorial to add the word "granular". In water treatment, it is well-known that "media filtration" refers to a filter bed composed of granular material.
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion	None		
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%	**GO TO "Final" subsection → (C)**
Final	**(check if applicable)**	**X**	**(C)**	Related and not persuasive (significant)
	(check if applicable)	**X**	*Comment generated.* ***Refer to Section V-(ii) Comment #*** *NC-5.*	

Negative 17

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** 6.2.4 *Oxidant Removal* — Oxidants such as free chlorine or monochloramine, commonly used as residual disinfectants by water suppliers, should be removed prior to RO, as these chemicals can cause oxidation damage. Other oxidants, such as ozone or peroxides, can also be present depending on the source of the water and should also be removed. Activated carbon filtration (ACF) is primarily used for the removal of oxidizing agents. Alternatively, reducing agents can be employed to neutralize oxidants. Under appropriate design and operating conditions, ACF can also be used to remove organic materials.			
		6.2.4 … Activated carbon filtration (ACF) is primarily used for the removal of oxidizing agents….			
	Negative Text	**SG017:** This sentence asserts that ACF is used to remove oxidizing agents more than ACF is used for any other purpose. It is not, however, obvious to me that that is what it was intended to mean. If it was intended to mean (as the next sentence implies) that ACF is used to remove oxidizing substances more than anything else is used to remove them, then rewrite it to "Oxidizing agents are removed primarily by activated carbon filtration (ACF).".			
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**		
			Reason	The sentence is meant to be interpreted as it is written and all statements are technically correct.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]		**GO TO "Not Significant Finding Option" subsection**
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**				
	Use of "Not significant finding option" (check one)	**X**	It is mutually agreed upon to term the Negative "not significant".		**GO TO "Final" subsection → (D)**
Final	**(check if applicable)**	**X**	**(D)**	Not significant **(counted under j in disposition)**	

Negative 18

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** 6.4.2 *UPW Tank* — The UPW tank provides equalization during peak consumption and sufficient water volume to perform system maintenance and troubleshooting activities during interruption in the water supply.			
	Negative Text	**SG018:** Please describe what is being "equalized" or remove this.			
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**		
			Reason	SEMI F61 is a Guide, not a Specification, intended for use by qualified professionals. The term "equalization" is a well-established engineering concept describing the buffering of upstream process variability, and its use here is intentional and non-prescriptive. Further definition is not required for correct application within the context of this Guide.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]	**GO TO "Not Significant Finding Option" subsection**	
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**				
	Use of "Not significant finding option" (check one)	**X**	It is mutually agreed upon to term the Negative "not significant".	**GO TO "Final" subsection → (D)**	
Final	**(check if applicable)**	**X**	**(D)**	Not significant **(counted under j in disposition)**	

Negative 19

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** 6.4.5 *Deionization* — New, single-use mixed bed ion exchange vessels remove remaining ions in the UPW polishing system, as well as TOC species ionized by 185 nm UV.		
		6.4.5 ….New, single-use…		
	Negative Text	**SG019:** Please explain what is meant here by "new" or remove the term. Is "new" intended, for example, to distinguish the mixed bed vessels here from mixed bed vessels that have been regenerated? From mixed bed vessels that have had their resin replaced?		
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**

Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**				**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**				
			Reason	Clarify that "new" is meant to indicate "virgin resin". Replaced "New" to "with virgin resin."			
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions					
	Discussion	None					
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.					
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X**	**Y**	**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**			
	Technical Changes	**1**	**FROM: Section/Paragraph 6.4.5** 6.4.5 *Deionization* — New, single-use mixed bed ion exchange vessels remove remaining ions in the UPW polishing system, as well as TOC species ionized by 185 nm UV.	
			TO: Section/Paragraph 6.4.5 6.4.5 *Deionization* — ~~New, s~~Single-use mixed bed ion exchange vessels with virgin resin remove remaining ions in the UPW polishing system, as well as TOC species ionized by 185 nm UV.	
			Justification (If necessary) Clarify that "new" is meant to indicate "virgin resin". Replaced "New" to "with virgin resin."	

	Motion	Negative is addressed by the technical change(s).			
	Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc			
	Discussion	None			
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.			
		X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**
	Incorporation of the Technical **Motion**	To incorporate the technical change(s).			
	Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)			
	Discussion	None			
	Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Agree to incorporate.]		**GO TO "Final" subsection → (F)**

Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 20

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary.		
		7.2 *Materials* — Components of the UPW system should be comprised of materials appropriate to the application and conform to the electrical, mechanical, and purity requirements of the UPW. Materials should also comply with the purity as specified by applicable SEMI Standards. Refer to for details on the material quality recommendations.		
	Negative Text	**SG020:** Insert the missing target.		
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	Editorial to add missing reference to Appendix 1.
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion	None		
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%	GO TO "Final" subsection → (C)
Final		X	(C)	Related and not persuasive (significant)
	(check if applicable)	X	*Comment generated.* ***Refer to Section V-(ii) Comment # NC-6.***	

Negative 21

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary.		
		7.5 *System Start-Up and Commissioning —…* It is further recommended that performance tests and initial verification sign-off hold points be listed in the startup and commissioning plan for each sub-system (Pretreatment, Makeup, Primary, Polishing, etc.).		
	Negative Text	**SG021:** Remove the ", etc.," or explain to what it refers. The only subsystems mentioned are the ones named explicitly.		
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	Editorial to add HUPW and CMP UPW to clarify that there are all kinds of subsystems that would be covered.

	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion	None		
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%	**GO TO "Final" subsection → (C)**
Final		**X**	**(C)**	Related and not persuasive (significant)
	(check if applicable)	**X**	*Comment generated.* ***Refer to Section V-(ii) Comment # NC-7.***	

Negative 22

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.**		
		9.3 *Specific Definitions for UPW Distribution System* 9.3.1 *Supply Components*— … 9.3.2 *Return Components* — …. 9.3.3 *Main Supply or Return Lines* — The largest diameter pipelines that deliver UPW to, or return UPW from, the sub-fab. The main supply lines ~~s~~ starts immediately downstream of the final filters and extends to ~~their~~ its first split into two or more pipelines. HVM facilities can have more than one distribution loop and therefore more than one supply and one return main. 9.3.4 *Sub-Main Piping* — The large diameter piping that connects the main line with the lateral piping. It is possible that sub-main piping does not exist if the lateral piping is connected directly to the main line. 9.3.5 *Lateral Piping* — Sections of the distribution lines commonly installed beneath equipment in the cleanroom bay and supporting UPW demand of that equipment. The lateral piping provides take-off valves (at POC) to connect the equipment to the UPW distribution. This connection is commonly referred to as 'tool hook-up piping~~.~~' . 9.3.4 ~~*Sub-Main Piping — The large diameter piping that connects the main line with the lateral piping. It is possible that sub-main piping does not exist if the lateral piping is connected directly to the main line.*~~	
	Negative Text	**SG022:** This appears incorrect, as it means that the main would end at the point it connects to the first submain or lateral. If that is what is intended, what is the piping that carries the water to subsequent submains or laterals called?		
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**	
			Reason	Re-worded §9.3 to achieve the intent-- to distinguish distribution piping by function and scale, not by a strict tree hierarchy: Main lines: highest-capacity headers serving the distribution loop Sub-mains: intermediate branches feeding groups of laterals Laterals: final branches serving tools
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion	None		

Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.						
	X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended?**	**X**	**Y**	**GO TO "Address by Technical Change Option" subsection**	

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes

1

FROM: Section/Paragraph 9.3

9.3 *Specific Definitions for UPW Distribution System*

9.3.1 *Supply* — …

9.3.2 *Return* — …

9.3.3 *Main Supply or Return Lines* — The largest diameter pipelines that deliver UPW to the sub-fab. The main lines start immediately downstream of the final filters and extend to their first split into two or more pipelines. HVM facilities can have more than one distribution loop and therefore more than one supply and return main.

9.3.4 *Lateral Piping* — Sections of the distribution lines commonly installed beneath equipment in the cleanroom bay and supporting UPW demand of that equipment. The lateral piping provides take-off valves (at POC) to connect the equipment to the UPW distribution. This connection is commonly referred to as 'tool hook-up piping.'

9.3.5 *Sub-Main Piping* — The large diameter piping that connects the main line with the lateral piping. It is possible that sub-main piping does not exist if the lateral piping is connected directly to the main line.

TO: Section/Paragraph 9.3

9.3 *Specific Definitions for UPW Distribution System*

9.3.1 *Supply* *Components* — …

9.3.2 *Return* *Components* — …

9.3.3 *Main Supply or Return Lines* — The largest diameter pipelines that deliver UPW to, or return UPW from, the sub-fab. ~~The m~~Main supply lines ~~start~~ originate immediately downstream of the final filters and extend through the distribution loop, feeding one or more sub-main or lateral connections. ~~to their first split into two or more pipelines.~~ HVM facilities can have more than one distribution loop and therefore more than one supply and one return main.

9.3.4 *Sub-Main Piping* — Intermediate diameter piping that branches from the main lines and distributes UPW to groups of laterals serving manufacturing equipment. ~~The large diameter piping that connects the main line with the lateral piping.~~ It is possible that sub-main piping does not exist if the lateral piping is connected directly to the main line.

~~9.3.4~~9.3.5 *Lateral Piping* — Sections of the distribution lines commonly installed beneath equipment in the cleanroom bay and supporting UPW demand of that equipment. The lateral piping provides take-off valves (at POC) to connect the equipment to the UPW distribution. This connection is commonly referred to as 'tool hook-up piping~~.~~'.

~~9.3.5 *Sub-Main Piping* — The large diameter piping that connects the main line with the lateral piping. It is possible that sub-main piping does not exist if the lateral piping is connected directly to the main line.~~

Justification (If necessary)

Re-worded §9.3 to achieve the intent-- to distinguish distribution piping by function and scale, not by a strict tree hierarchy:

Main lines: highest-capacity headers serving the distribution loop
Sub-mains: intermediate branches feeding groups of laterals
Laterals: final branches serving tools

	Motion		Negative is addressed by the technical change(s).		
	Motion by/2nd by		By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc		
	Discussion		None		
	Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**
	Incorporation of the Technical	**Motion**	To incorporate the technical change(s).		
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
		Discussion	None		
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
		X	90% ≤ [Agree to incorporate.]		**GO TO "Final" subsection → (F)**
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 23

Negative	**Referenced § / ¶**		***TF/TC Chapter to fill in, including text in the ballot if necessary.** 10.1.5.2 Different types of treated organic materials require different energies for their decomposition.		
			10.1.5.2 ….require different energies…		
	Negative Text		**SG023:** Please reconcile this with the claim that a single wavelength of UV light is used. (Energy is inversely proportional to wavelength.)		
Withdrawal (check one)		**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**		
			Reason	Change "energies" to "UV dosages or intensities" to correct an imprecise term that could be misinterpreted	
	Motion by/ 2nd by		By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion		None		
	Result of Vote (check one)		9 **Y** 0 **N**; Motion passed.		
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X** **Y** **GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**				
	Technical Changes	**1**	**FROM: Section/Paragraph 10.1.5.2** 10.1.5.2 Different types of treated organic materials require different energies for their decomposition.		
			TO: Section/Paragraph 10.1.5.2 10.1.5.2 Different types of treated organic materials require different ~~energies~~ UV dosages or intensities for their decomposition.		
			Justification (If necessary) Change "energies" to "UV dosages or intensities" to correct an imprecise term that could be misinterpreted		
	Motion		Negative is addressed by the technical change(s).		
	Motion by/2nd by		By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc		
	Discussion		None		
	Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.		
			X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**
	Incorporation of the Technical	**Motion**	To incorporate the technical change(s).		
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
		Discussion	None		
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
			X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 24

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.**		
		10.3.4 SEMI F63 recommends monitoring and controlling particles in final UPW quality at POC. The smallest critical size of the particles depends on the node size, but what can be monitored depends on the ~~and~~ best available metrology.		
	Negative Text	**SG024:** The "smallest critical size" does not depend on the "best available metrology".		
Withdrawal (check one)		**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**

Persuasive

Motion and Reason (check one)	X	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**					
		Reason	Clarify intent as suggested by the voter.				
Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions						
Discussion	None						
Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.						
	X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	X	Y	**GO TO "Address by Technical Change Option" subsection**	

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — 1

FROM: Section/Paragraph 10.3.4

10.3.4 SEMI F63 recommends monitoring and controlling particles in final UPW quality at POC. The smallest critical size of the particles depends on the node size and best available metrology.

TO: Section/Paragraph 10.3.4

10.3.4 SEMI F63 recommends monitoring and controlling particles in final UPW quality at POC. The smallest critical size of the particles depends on the node size, but what can be monitored depends on the ~~and~~ best available metrology.

Justification (If necessary)
Clarify intent as suggested by the voter.

Motion	Negative is addressed by the technical change(s).			
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc			
Discussion	None			
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.			
	X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**	

Incorporation of the Technical

Motion	To incorporate the technical change(s).		
Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
Discussion	None		
Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
	X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**

Final

(check if applicable)	X	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 25

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A1-1.3 The manufacturer should be able to certify that all materials are HP and traceable in accordance with applicable SEMI Standards. The manufacturer should be able to demonstrate that all materials (manufactured products and raw materials) are tested periodically, representing normal use of raw materials and equipment, using applicable SEMI standards.					
	Negative Text	SG025: There's no doubt in my mind that a manufacture is "able to certify" this, or anything else. Unfortunately, such certification has no inherent value. Please remove this criterion or replace it with something that is technically meaningful.					
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.			GO TO "Related" subsection	
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)			GO TO "Persuasive" subsection	
Persuasive	Motion and Reason (check one)	X	Negative is related and persuasive. (Needs >1/3 votes to pass.)				
			Reason	The term "certify" has been replaced with language requiring documented, reviewable evidence of material purity, traceability, and testing. This revision improves technical meaning and avoids reliance on self-certification statements.			
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions					
	Discussion	None					
	Result of Vote (check one)	9 Y 0 N; Motion passed.					
		X	[Negative is related and persuasive.] > 1/3	Is a technical change recommended? (check one)	X	Y	GO TO "Address by Technical Change Option" subsection

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — 1

FROM: Section/Paragraph A1-1.3

A1-1.3 The manufacturer should be able to certify that all materials are HP and traceable in accordance with applicable SEMI Standards. The manufacturer should be able to demonstrate that all materials (manufactured products and raw materials) are tested periodically, representing normal use of raw materials and equipment, using applicable SEMI standards.

TO: Section/Paragraph A1-1.3

A1-1.3 The manufacturer should maintain documented evidence demonstrating that materials used in polishing and post-polishing UPW systems meet high purity attributes in § A1-1.1 and are traceable to raw materials, production lots, and applicable SEMI Standards. The manufacturer should maintain records showing that raw materials and finished products are evaluated periodically using applicable SEMI test methods, with testing representative of normal production equipment, processes, and operating conditions. ~~The manufacturer should be able to certify that all materials are HP and traceable in accordance with applicable SEMI Standards. The manufacturer should be able to demonstrate that all materials (manufactured products and raw materials) are tested periodically, representing normal use of raw materials and equipment, using applicable SEMI standards.~~

Justification (If necessary)
The term "certify" has been replaced with language requiring documented, reviewable evidence of material purity, traceability, and testing. This revision improves technical meaning and avoids reliance on self-certification statements.

Motion	Negative is addressed by the technical change(s).
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc

	Discussion		None		
	Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**	
	Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).		
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
		Discussion	None		
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
			X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 26

Negative	**Referenced § / ¶**	*TF/TC Chapter to fill in, including text in the ballot if necessary. A1-1.3.1 For filter cleanliness, use SEMI C79. A1-1.3.2 For components and subassemblies, use SEMI F40 and SEMI F104. A1-1.3.3 All tested HP polymer materials should meet SEMI E49 and SEMI F57. A1-1.3.4 All tested HP stainless steel components should meet SEMI F19		
	Negative Text	**SG026:** Please clarify what it means to "use" a SEMI Standard, as opposed to "meet" a standard, which is used in subsequent items.		
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**	
			Reason	Editorial to add the phrases "evaluation of" and "test methods" to add clarity to what it means to "use" a SEMI Standard.
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion	None		
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%	**GO TO "Final" subsection → (C)**
Final		**X**	**(C)**	Related and not persuasive (significant)
	(check if applicable)	**X**	*Comment generated.* ***Refer to Section V-(ii) Comment #*** *NC-8.*	

Negative 27

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A1-1.4 Components should be designed and manufactured for intended purposes, recognizing that not all material grades are suitable.			
		A1-1.4 Components should be used for the purposes for which they were designed and manufactured ~~for intended purposes~~, recognizing that not all material grades are suitable for UPW systems.			
	Negative Text	**SG027:** The purposes for which components are designed and manufactured *are* the "intended purposes".			
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.		GO TO "Related" subsection
Related	**Motion and Reason** (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)		GO TO "Persuasive" subsection
Persuasive	**Motion and Reason** (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)		
			Reason	The text is technically correct and the TF believes it is clear as-written.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection	
Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)				
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".	GO TO "Final" subsection → (D)	
Final	(check if applicable)	X	(D)	Not significant (counted under j in disposition)	

Negative 28

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A1-2.6 *UPW Service Isolation Valves* — These include all lateral isolation valves connected to the main, all equipment isolation valves connected to the lateral, and any future isolation valve. All valves should be HP grade. All of their wetted parts should be of the acceptable materials listed in § A1-1.		
	Negative Text	**SG028**: Define or replace "future (isolation) valve". My inference from the context is that it refers to a valve to which nothing is attached downstream at present, but the valve is provided to allow a foreseen connection at some future time. However, the literal meaning (likely to be the meaning that gets translated) is something that is not now, but will later be, a valve. Note: This was SG040 in the response to Doc 7086,		
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	GO TO "Related" subsection

Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**		
			Reason	"Future valve" and "terminating valve" are defined. Addressed by SG014.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]	**GO TO "Not Significant Finding Option" subsection**	
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**				
	Use of "Not significant finding option" (check one)	**X**	It is mutually agreed upon to term the Negative "not significant".		**GO TO "Final" subsection → (D)**
Final	**(check if applicable)**	**X**	**(D)**	Not significant **(counted under j in disposition)**	

Negative 29

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A1-2.6 *UPW Service Isolation Valves* — These include all lateral isolation valves connected to the main, all equipment isolation valves connected to the lateral, and any future isolation valve. All valves should be HP grade. All of their wetted parts should be of the acceptable materials listed in § A1-1. Valves should be tested at the manufacturer for bubble-tightness and be assembled without any grease or lubricant. It is strongly recommended that any terminating valve be a "lug body type" such that it can be installed without downstream piping or equipment. A blank flange or cap should be installed on the downstream side of any terminating valve to prevent UPW discharge or contamination in the event of accidental opening or leakage of the valve. All valves, particularly those designated as future isolation valves, should be properly supported to maintain mechanical integrity.
	Negative Text	**SG029:** Clarify what a "terminating valve" is and how it differs from a "future valve". My understanding is that the end of the supply main is not a valve, but is some backpressure or flow limiting device that connects the supply main to the return main. All of the valves to laterals and equipment have things downstream of them. Furthermore, if one acts in accordance with the last sentence of this paragraph, even the "future valves", which do appear to be "terminating" are to have blank flanges downstream of them. Note: This was SG041 in the response to Doc 7086,

	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**	
			Reason	The text is technically correct as written.

	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer				
	Discussion	None				
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.				
		X	90% ≤ [Negative is related and not persuasive.]		**GO TO "Not Significant Finding Option" subsection**	
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**					
	Use of "Not significant finding option" (check one)	**X**	It is mutually agreed upon to term the Negative "not significant".		**GO TO "Final" subsection → (D)**	
Final	**(check if applicable)**	**X**	**(D)**	Not significant **(counted under j in disposition)**		

Negative 30

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A1-3.1.2 Union joints should be made of HP components that are designed for high purity applications and avoid crevices, dead volumes, and unnecessary gaskets or O-rings. They should not be used for piping diameters greater than 50 mm (2 in). When required, they should include an HP grade O-ring. …				
	Negative Text	**SG030**: Please describe what criteria, other than those already stated in this paragraph, would "require" union joints. If there is nothing, then remove these two words.				
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**	
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**	
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**			
			Reason	Removed "when required" to improve clarity. Any unions used in HP systems should include an HP grade o-ring.		
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions				
	Discussion	None				
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.				
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X** **Y**	**GO TO "Address by Technical Change Option" subsection**
Address	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**					

Technical Changes	1	**FROM: Section/Paragraph A1-3.1.2** A1-3.1.2 Union joints should be made of HP components that are designed for high purity applications and avoid crevices, dead volumes, and unnecessary gaskets or O-rings. They should not be used for piping diameters greater than 50 mm (2 in). When required, they should include an HP grade O-ring. …				
		TO: Section/Paragraph A1-3.1.2 A1-3.1.2 Union joints should be made of HP components that are designed for high purity applications and avoid crevices, dead volumes, and unnecessary gaskets or O-rings. They should not be used for piping diameters greater than 50 mm (2 in). ~~When required, t~~They should include an HP grade O-ring….				
		Justification (If necessary) Removed "when required" to improve clarity. Any unions used in HP systems should include an HP grade o-ring.				
Motion		Negative is addressed by the technical change(s).				
Motion by/2nd by		By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc				
Discussion		None				
Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.				
		X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**	
Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).				
	Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)				
	Discussion	None				
	Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.				
		X	90% ≤ [Agree to incorporate.]		**GO TO "Final" subsection → (F)**	
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**		

Negative 31

Negative	**Referenced § / ¶**	A1-5.1 … Perfluoro (PFA, PTFE, ECTFE, and ETFE) compounds…		
	Negative Text	**SG031:** ECTFE and ETFE are not perfluoro compounds. I have not marked a suggested change because I do not know if you want to include all of these materials (which, except for ETFE, may be described as "fluorocompounds") or just the perfluorocompounds (PFA and PTFE).		
Withdrawal (check one)		**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
	Motion and Reason	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**	

Persuasive	(check one)		Reason	Editorial to change to " fluoropolymers " for clarity.	
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions			
	Discussion	None			
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.			
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%	GO TO "Final" subsection → (C)	
Final		X	(C)	Related and not persuasive (significant)	
	(check if applicable)	X	*Comment generated.* ***Refer to Section V-(ii) Comment #*** *NC-9.*		

Negative 32

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A1-5.2.3.1 FKM is the abbreviation for Fluorine Kautschuk Material. FKM (by ASTM D1418 standard) (equivalent to FPM by ISO/DIN 1629 standard) is the designation for about 80% of fluoroelastomers as defined in ASTM D1418. They provide additional heat and chemical resistance.			
	Negative Text	**SG032:** Please clarify what is being "defined" by ASTM D1418.			
Withdrawal (check one)		X	No Negative withdrawal made by Voter.	GO TO "Related" subsection	
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection	
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)		
			Reason	The text is technically correct and the TF believes it is clear as-written.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection	
Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)				
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".	GO TO "Final" subsection → (D)	
Final	(check if applicable)	X	(D)	Not significant (counted under j in disposition)	

Negative 33

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A1-5.2.3.3 Viton®[1] is a brand of synthetic rubber and fluoropolymer elastomer commonly used in O-rings, chemical-resistant gloves, and other molded or extruded goods. Viton fluoroelastomers are categorized under the ASTM D1418 and ISO 1629 designation of FKM. A1-5.2.4 Kalrez®[2] (FFKM) perfluoroelastomer contains proportionally more fluorine than standard FKM. It provides greater chemical resistance and high temperature stability up to 327°C.					
	Negative Text	**SG033:** Categorize by generic, not brand names. Do not give a separate (from "FKM") listing for "Viton", unless there is a technical reason to do so.					
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.				**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**				**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**				
			Reason	Remove the references to brand names and replace with their ASTM / ISO designations to comply with the Style Manual. Brand-specific elastomer names were removed and replaced with generic polymer family designations (e.g., FKM, FFKM)			
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions					
	Discussion	None					
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.					
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X**	**Y**	**GO TO "Address by Technical Change Option" subsection**
Address	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**						

[1] Viton trademark is owned by Chemours Company.

[2] Kalrez trademark is owned by DuPont de Nemours, Inc.

Technical Changes	1	**FROM: Section/Paragraph** A1-5.2.3 The fluoroelastomers are a category of elastomer materials made under many different brand names. They are referenced in ASTM D1418 and ISO 1629. A1-5.2.3.1 FKM is the abbreviation for Fluorine Kautschuk Material. FKM (by ASTM D1418 standard) (equivalent to FPM by ISO/DIN 1629 standard) is the designation for about 80% of fluoroelastomers as defined in ASTM D1418. They provide additional heat and chemical resistance. A1-5.2.3.2 FPM is the international abbreviation for the broad family of fluoroelastomers according to DIN/ISO. A1-5.2.3.3 Viton®[3] is a brand of synthetic rubber and fluoropolymer elastomer commonly used in O-rings, chemical-resistant gloves, and other molded or extruded goods. Viton fluoroelastomers are categorized under the ASTM D1418 and ISO 1629 designation of FKM. A1-5.2.4 Kalrez®[4] (FFKM) perfluoroelastomer contains proportionally more fluorine than standard FKM. It provides greater chemical resistance and high temperature stability up to 327°C. A1-5.2.5 **Error! Reference source not found.**gives recommendations for elastomer material compatibility in various applications in the typical UPW system.
		TO: Section/Paragraph A1-5.2.3 The fluoroelastomers are a category of elastomer materials ~~made~~ manufactured under various formulations and referenced by generic designations in ASTM D1418 and ISO 1629.~~many different brand names. They are referenced in ASTM D1418 and ISO 1629.~~ A1-5.2.3.1 FKM is the abbreviation for Fluorine Kautschuk Material. FKM (by ASTM D1418 standard) (equivalent to FPM by ISO/DIN 1629 standard) is the designation for about 80% of fluoroelastomers as defined in ASTM D1418. They provide additional heat and chemical resistance. A1-5.2.3.2 FPM is the international abbreviation for the broad family of fluoroelastomers according to DIN/ISO. ~~A1-1.1.1.1 Viton®[3] is a brand of synthetic rubber and fluoropolymer elastomer commonly used in O-rings, chemical-resistant gloves, and other molded or extruded goods. Viton fluoroelastomers are categorized under the ASTM D1418 and ISO 1629 designation of FKM.~~ A1-5.2.4 FFKM is the abbreviation for Fully Fluorinated Kautschuk Material. FFKM elastomers contain a higher fluorine content than standard FKM materials and provide enhanced chemical resistance and high temperature stability. ~~Kalrez®[4] (FFKM) perfluoroelastomer contains proportionally more fluorine than standard FKM. It provides greater chemical resistance and high temperature stability up to 327°C.~~ A1-5.2.5 **Error! Reference source not found.**gives recommendations for elastomer material compatibility in various applications in the typical UPW system.
		Justification (If necessary) Remove the references to brand names and replace with their ASTM / ISO designations to comply with the Style Manual. Brand-specific elastomer names were removed and replaced with generic polymer family designations (e.g., FKM, FFKM)

Motion	Negative is addressed by the technical change(s).
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc
Discussion	None
Result of Vote	10 **Y** 0 **N**; Motion passed.

~~[3] Viton trademark is owned by Chemours Company.~~

~~[4] Kalrez trademark is owned by DuPont de Nemours, Inc.~~

	(check one)		X	2/3 ≤ [Negative is addressed by the technical change(s).]	GO TO "Incorporation of the Technical Change" subsection
	Incorporation of the Technical Change	Motion	To incorporate the technical change(s).		
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
		Discussion	None		
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
			X	90% ≤ [Agree to incorporate.]	GO TO "Final" subsection → (F)
Final	(check if applicable)	X	(F)	Addressed by technical change (counted under k disposition)	

Negative 34

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary.		
		Perfluoro compounds PFA/PTFE/ECTFE/ECTFE (such as Teflon®[14], Halar®[15] etc.)		
	Negative Text	**SG034:** Correct this, either by changing the term to something that correctly describes the listed examples or by eliminating the examples that are not perfluoropolymers. ECTFE, for example, is not fully halogenated and some of the halogen isn't fluorine. Note: This was SG065 in the response to Doc 7086,		
Withdrawal (check one)		X	No Negative withdrawal made by Voter.	GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	Addressed by SG031, to change "perfluoro" to "fluoropolymers" and fix typo of duplicated "ECTFE" to "ETFE"
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion	None		
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%	GO TO "Final" subsection → (C)
Final		X	(C)	Related and not persuasive (significant)
	(check if applicable)	X	*Comment generated.* ***Refer to Section V-(ii) Comment #*** *NC-10.*	

Negative 35

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A1-7.1.3 If a cleanroom is not available, joining should be done in a clean area with hard walls and a sealed floor. As with cleanroom requirements, no particle- or vapor-generating activities should be allowed concurrently in the joining area.			
	Negative Text	**SG035:** Rewrite this to something that provides a reasonable excluded set. The current text precludes, for example, breathing			
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.		GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)		GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)		
			Reason	The text is intended to prohibit concurrent industrial or maintenance activities that generate particulate matter or chemical vapors during joining operations. The term "activities" is contextually defined by the examples provided and is not intended to preclude normal personnel presence or unavoidable background emissions. No technical inconsistency or ambiguity exists. This language is clearly intended to address industrial activities and work processes that introduce contamination risk. It is not written, nor could it reasonably be interpreted, as prohibiting normal human presence, breathing, or unavoidable background particle generation. In SEMI Guides, implicit professional judgment is assumed, especially in cleanroom and contamination-control contexts. No cleanroom-related SEMI document enumerates "breathing" as an allowed activity, nor is such enumeration expected.
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]		GO TO "Not Significant Finding Option" subsection
Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)				
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".		GO TO "Final" subsection → (D)
Final	(check if applicable)	X	(D)	Not significant (counted under j in disposition)	

Negative 36

Negative	Referenced § / ¶	A1-7.1.5 For prefabricated assemblies, completed pieces should be capped and bagged over the ends using a clean polyethylene sheet or bag and cleanroom-approved tape. Care should be taken in transport and handling to avoid ~~unintended~~ mechanical stress.			
	Negative Text	**SG036**: I do not see how stress having been intended could make it less deleterious.			
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**		
			Reason	The text is technically correct and the TF believes it is clear as-written.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]	**GO TO "Not Significant Finding Option" subsection**	
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**				
	Use of "Not significant finding option" (check one)	**X**	It is mutually agreed upon to term the Negative "not significant".		**GO TO "Final" subsection → (D)**
Final	**(check if applicable)**	**X**	**(D)**	Not significant **(counted under j in disposition)**	

Negative 37

Negative	Referenced § / ¶	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A1-7.2.1 All HP materials for UPW polishing and UPW distribution supply should be double-bagged and marked as certified for HP service by the manufacturer. All materials should be double-bagged with the part number clearly shown on both the inner and outer bag. All parts should be inspected for damage to the part or packaging.			
	Negative Text	**SG037**: Replace this phrase with one that has technical meaning. The ballotted text requires marking something as "certified" whether or not it has been certified. Also, a criterion of having the manufacturer "certify" something without providing an object8ve standard is calling for a marketting claim, not a technical assurance.			
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**

Persuasive

Motion and Reason (check one)	X	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**					
		Reason	Replaced "certified" with manufacturer identification language to avoid self-certification implications.				
Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions						
Discussion	None						
Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.						
	X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	X	Y	**GO TO "Address by Technical Change Option" subsection**	

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — **1**

FROM: Section/Paragraph A1-7.2.1

A1-7.2.1 All HP materials for UPW polishing and UPW distribution supply should be double-bagged and marked as certified for HP service by the manufacturer. All materials should be double-bagged with the part number clearly shown on both the inner and outer bag. All parts should be inspected for damage to the part or packaging.

TO: Section/Paragraph A1-7.2.1

A1-7.2.1 All HP materials for UPW polishing and UPW distribution supply should be double-bagged and identified by the manufacturer as suitable for HP service. ~~marked as certified for HP service by the manufacturer.~~ All materials should be double-bagged with the part number clearly shown on both the inner and outer bag. All parts should be inspected for damage to the part or packaging.

Justification (If necessary)
Replaced "certified" with manufacturer identification language to avoid self-certification implications.

Motion	Negative is addressed by the technical change(s).				
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc				
Discussion	None				
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.				
	X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**		

Incorporation of the Technical Change

Motion	To incorporate the technical change(s).				
Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)				
Discussion	None				
Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.				
	X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**		

Final

(check if applicable)	X	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 38

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A1-7.4.3 At the end of the fusion cycle, the welding machine should be able to record that the weld met the specified conditions and print out the calibration, operator, welding machine, and material information; weld quality; and the date and time for each weld. If all criteria were met, at the end of the fusion cycle a label should be printed providing traceability and indicate that the weld was acceptable. This information should also be stored in the welding machine.			
	Negative Text	**SG038**: If this "label" is not the "tag" mentioned elsewhere, explain the differences. If it is the same object, call it a "tag" in each instance.			
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**		
			Reason	The text is technically correct and the TF believes it is clear as-written.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]		**GO TO "Not Significant Finding Option" subsection**
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**				
	Use of "Not significant finding option" (check one)	**X**	It is mutually agreed upon to term the Negative "not significant".		**GO TO "Final" subsection → (D)**
Final	**(check if applicable)**	**X**	**(D)**	Not significant **(counted under j in disposition)**	

Negative 39

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A1-7.4.7 The person welding and the QA/QC person should inspect every weld. At the conclusion of the project, each weld should be labeled with the tag from the welding machine.			
	Negative Text	**SG039:** If this is not the "operator" in the previous paragraph, please clarify the difference. If it is the same person, remove these four words.			
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**

Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	The text is technically correct and the TF believes it is clear as-written.
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer		
	Discussion	None		
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.		
		X	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection
Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)			
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".	GO TO "Final" subsection → (D)
Final	(check if applicable)	X	(D)	Not significant (counted under j in disposition)

Negative 40

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A1-7.4.8 *Field Welds* — Due to operational, safety, and purity concerns, field welding outside of the controlled fabrication environment is recommended only when no other viable options exist. Any field weld should be approved in advance by the facility owner. During such operations, appropriate support for both the pipe and the welding machine is necessary to avoid mechanical stress.		
	Negative Text	**SG040:** Clarify "in advance" of what this approval is to be done and the criteria for it.		
Withdrawal (check one)		X	No Negative withdrawal made by Voter.	GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	The text is technically correct and the TF believes it is clear as-written.
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer		
	Discussion	None		
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.		
		X	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection

Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**				
	Use of "Not significant finding option" (check one)	**X**	It is mutually agreed upon to term the Negative "not significant".		**GO TO "Final" subsection → (D)**
Final	**(check if applicable)**	**X**	**(D)**	Not significant **(counted under j in disposition)**	

Negative 41

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A1-7.4.8 *Field Welds* — Due to operational, safety, and purity concerns, field welding outside of the controlled fabrication environment is recommended only when no other viable options exist. Any field weld should be approved in advance by the facility owner. During such operations, appropriate support for both the pipe and the welding machine is necessary to avoid mechanical stress.			
	Negative Text	**SG041**: Unless there is a technical reason this must be done by the "facility owner", do not specify, in commercial terms, who has approval authority.			
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**		
			Reason	The reference to "facility owner" was replaced with role-based language identifying the party responsible for facility design and operation, avoiding commercial specificity while preserving the technical intent of the guidance.	
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions			
	Discussion	None			
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.			
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)** **X** **Y**	**GO TO "Address by Technical Change Option" subsection**
Address by Technical Change	**Technical Changes**	**1**	**FROM: Section/Paragraph A1-7.4.8** A1-7.4.8 *Field Welds* — Due to operational, safety, and purity concerns, field welding outside of the controlled fabrication environment is recommended only when no other viable options exist. Any field weld should be approved in advance by the facility owner. During such operations, appropriate support for both the pipe and the welding machine is necessary to avoid mechanical stress.		

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

			TO: Section/Paragraph A1-7.4.8 A1-7.4.8 *Field Welds* — Due to operational, safety, and purity concerns, field welding outside of the controlled fabrication environment is recommended only when no other viable options exist. Any field weld should be approved in advance by the designated engineering authority for the facility's design and operation~~facility owner~~. During such operations, appropriate support for both the pipe and the welding machine is necessary to avoid mechanical stress.		
			Justification (If necessary) The reference to "facility owner" was replaced with role-based language identifying the party responsible for facility design and operation, avoiding commercial specificity while preserving the technical intent of the guidance.		
	Motion		Negative is addressed by the technical change(s).		
	Motion by/2nd by		By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc		
	Discussion		None		
	Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**
	Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).		
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
		Discussion	None		
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
		X	90% ≤ [Agree to incorporate.]		**GO TO "Final" subsection → (F)**
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 42

Negative	**Referenced § / ¶**		***TF/TC Chapter to fill in, including text in the ballot if necessary.** A3-2.6 Typical Raw Water Quality Analytical Profile — Table A3-1 is an example of a complete analytical profile that should be completed for each source of raw water to a UPW system.	
	Negative Text		**SG042:** For this to be "an example of a complete analytical profile" of a "Typical raw water" sample, it must contain typical values. Without values, this is a form listing analytes the units in which they are to be reported. Either provide data or relabel this table.	
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
	Motion and Reason	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**	

Persuasive	(check one)		Reason	The text is technically correct and the TF believes it is clear as-written.
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer		
	Discussion	None		
	Result of Vote (check one)	14 Y 0 N; Motion passed.		
		X	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection
Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)			
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".	GO TO "Final" subsection → (D)
Final	(check if applicable)	X	(D)	Not significant (counted under j in disposition)

Negative 43

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A3-2.11 The municipal or public utility owner can have the data from its own analysis. Municipal/public owner water source data is generally very average in results. Peak variations will not be available. It gives a general idea of the water makeup and is the first basis for pretreatment design.		
	Negative Text	SG043: Explain or replace the phrase "very average". It is not clear what is objectionable about averaging, as the average is among the statistics to be reported according the preceding paragraph. I also do not see how there can be different degrees of averaging in this context.		
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	The text is technically correct and the TF believes it is clear as-written.
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer		
	Discussion	None		
	Result of Vote (check one)	14 Y 0 N; Motion passed.		
		X	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection

Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)			
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".	GO TO "Final" subsection → (D)
Final	(check if applicable)	X	(D)	Not significant (counted under j in disposition)

Negative 44

Negative	**Referenced § / ¶**	*TF/TC Chapter to fill in, including text in the ballot if necessary.		
	Negative Text	**SG044:** This is awfully straight for a snake. ;o} Please re-arrange the equipment so that the main is shown as being serpentine. (Yes, this is a graphical, not hydraulic, distinction, but I believe it would be less confusing with that change.)		
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	GO TO "Related" subsection
Related	**Motion and Reason** (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
Persuasive	**Motion and Reason** (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	The text is technically correct and the TF believes it is clear as-written.
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer		
	Discussion	None		
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.		
		X	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection

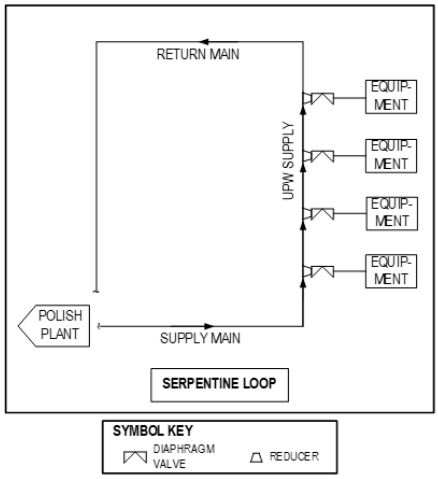

Figure A4-2

Figure A4-3Typical Serpentine Loop Configuration

Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)				
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".		GO TO "Final" subsection → (D)
Final	(check if applicable)	X	(D)	Not significant (counted under j in disposition)	

Negative 45

Negative	**Referenced § / ¶**	*TF/TC Chapter to fill in, including text in the ballot if necessary. A4-2.1.4.4 Disadvantages of the serpentine loop configuration are reduced system flexibility for expansion or adding new equipment or consumers, and when any part of the serpentine loop is shut down for work, the entire loop should be shut down.					
	Negative Text	**SG045**: Another disadvantage of this configuration is that there are no returns from anything but the main, so the takeoffs either are deadlegs when the equipment is not using water, or UPW is being sent to drain when the equipment isn't using it.					
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.				GO TO "Related" subsection
Related	**Motion and Reason** (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)				GO TO "Persuasive" subsection
Persuasive	**Motion and Reason** (check one)	X	Negative is related and persuasive. (Needs >1/3 votes to pass.)				
			Reason	Added a disadvantage to make the list more complete.			
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions					
	Discussion	None					
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.					
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended?** (check one)	X	Y	GO TO "Address by Technical Change Option" subsection
Address by Technical Change Option	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**						
	Technical Changes	1	**FROM: Section/Paragraph A4-2.1.4.4** A4-2.1.4.4 Disadvantages of the serpentine loop configuration are reduced system flexibility for expansion or adding new equipment or consumers, and when any part of the serpentine loop is shut down for work, the entire loop should be shut down.				
			TO: Section/Paragraph A4-2.1.4.4 A4-2.1.4.4 Disadvantages of the serpentine loop configuration are reduced system flexibility for expansion or adding new equipment or consumers, and when any part of the serpentine loop is shut down for work, the entire loop should be shut down. Serpentine loops also lack UPW return from any locations except the UPW main, so points of connection are either deadlegs or UPW is routed to drain when the equipment is not using water.				

			Justification (If necessary) Added a disadvantage to make the list more complete.		
	Motion		Negative is addressed by the technical change(s).		
	Motion by/2nd by		By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc		
	Discussion		None		
	Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**
	Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).		
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
		Discussion	None		
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
		X	90% ≤ [Agree to incorporate.]		**GO TO "Final" subsection → (F)**
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 46

Negative	**Referenced § / ¶**		***TF/TC Chapter to fill in, including text in the ballot if necessary.** A4-3.4.1 … The EOR PCV maintains consistent backpressure in the UPW return main. The EOR valve modulates based on the signal from the UPW main pressure sensor at the EOS.	
	Negative Text		**SG046** Explain or correct these two sentences, as they appear to contradict each other. IF the EOR PCV is to maintain constant pressure in the return, Doesn't it need to be controlled based on the pressure in the return, not in the supply?	
Withdrawal (check one)		**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason** (check one)	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason** (check one)	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**	
			Reason	Added a Note 12 and deleted "consistent" and added "EOR or" to clarify the sentence.
	Motion by/ 2nd by		By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions	
	Discussion		None	
			9 **Y** 0 **N**; Motion passed.	

	Result of Vote (check one)	X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended?** (check one)	X	Y	**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — **1**

FROM: Section/Paragraph A4-3.4.1

A4-3 Pressure Control

…

A4-3.4.1 The EOR PCV is installed in the return main between the last lateral return and the UPW tank. The EOR PCV maintains consistent backpressure in the UPW return main. The EOR valve modulates based on the signal from the UPW main pressure sensor at the EOS. …

TO: Section/Paragraph A4-3.4.1

A4-3 Pressure Control

NOTE 12: This section provides a high-level overview of common pressure control concepts, terms, and best practices applicable to UPW distribution systems. Detailed design, analysis, and implementation of UPW pressure control require consideration of system-specific factors such as hydraulic layout, dynamic demand, control strategy, materials, and operational constraints. These details are beyond the scope of this Guide. Users are expected to apply professional engineering judgment and consult equipment suppliers, design manuals, and other relevant technical references when developing or evaluating UPW pressure control systems.

…

A4-3.4.1 The EOR PCV is installed in the return main between the last lateral return and the UPW tank. The EOR PCV maintains ~~consistent~~ backpressure in the UPW return main. The EOR valve modulates based on the signal from the UPW main pressure sensor at the EOR or EOS. …

Justification (If necessary)
Added a Note 12 and deleted "consistent" and added "EOR or" to clarify the sentence.

Motion	Negative is addressed by the technical change(s).			
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc			
Discussion	None			
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.			
	X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**

Incorporation of the Technical Change

Motion	To incorporate the technical change(s).			
Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)			
Discussion	None			
Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.			
	X	90% ≤ [Agree to incorporate.]		**GO TO "Final" subsection → (F)**

Final

(check if applicable)	X	(F)	Addressed by technical change **(counted under k disposition)**

Negative 47

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A4-3.4.1 … As UPW consumption increases, the EOS pressure decreases and the PCV begins to close.				
	Negative Text	**SG047:** Identify to which PCV this refers.				
Withdrawal (check one)		**X**	No Negative withdrawal made by Voter.			**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**			**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**			
			Reason	Add "EOR" to identify to which the PCV refers to.		
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions				
	Discussion	None				
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.				
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X** **Y**	**GO TO "Address by Technical Change Option" subsection**
Address by Technical Change Option	**Technical Change Recommendations**					
	Technical Changes **1**	**FROM: Section/Paragraph A4-3.4.1** A4-3.4.1 … As UPW consumption increases, the EOS pressure decreases and the PCV begins to close.				
		TO: Section/Paragraph A4-3.4.1 A4-3.4.1 … As UPW consumption increases, the EOS pressure decreases and the EOR PCV begins to close.				
		Justification (If necessary) Add "EOR" to identify to which the PCV refers to.				
	Motion	Negative is addressed by the technical change(s).				
	Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc				
	Discussion	None				
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.				
		X	2/3 ≤ [Negative is addressed by the technical change(s).]			**GO TO "Incorporation of the Technical Change" subsection**
	Incorporation of the Technical **Motion**	To incorporate the technical change(s).				
	Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)				
	Discussion	None				
	Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.				
		X	90% ≤ [Agree to incorporate.]			**GO TO "Final" subsection → (F)**
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**		

Negative 48

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A4-5.2.2 Piping material contamination can be reduced when high purity material is compliant with SEMI F57.			
	Negative Text	**SG048:** If material is not compliant with SEMI F57, is it necessarily "high purity"? Conversely, are there "high purity" materials that do not comply with SEMI F57? If so, are they suitable for use in UPW systems?			
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	GO TO "Related" subsection	
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection	
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)		
			Reason	The text is technically correct and the TF believes it is clear as-written.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 Y 0 N; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection	
Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)				
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".	GO TO "Final" subsection → (D)	
Final	(check if applicable)	X	(D)	Not significant (counted under j in disposition)	

Negative 49

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A5-1.3 In all cases, a thermal balance should be done as part of system design. This includes the design stage when choosing between centralized and POU heating, and when making the decision between an open-return ("integrated") and closed-return ("independent") centralized HUPW system configuration.		
	Negative Text	**SG049**: Based on the Figures, this is a misnomer. The HUPW system shown in Figure A5-2 is not "independent" of the UPW system, it gets all of the UPW it heats and distributes from that system. What differs is whether the returned HUPW is returned to the UPW tank or to a separate HUPW tank.		
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	GO TO "Related" subsection

Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**				**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**				
			Reason	The terms "independent" and "integrated" were used in the text of the document to match the terminology used in the referenced paper, from where the drawings were adapated, by Neuber and McIntosh. These terms have been moved to footnotes under the drawings.			
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions					
	Discussion	None					
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.					
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X**	**Y**	**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — **1**

FROM: Section/Paragraph A5-1.3

A5-1.3 In all cases, a thermal balance should be done as part of system design. This includes the design stage when choosing between centralized and POU heating, and when making the decision between an open-return ("integrated") and closed-return ("independent") centralized HUPW system configuration.

…

Figure A5-1
Open-Return Configuration of a Central HUPW System (adapted from Neuber and McIntosh, 2023[16])

…

Figure A5-2
Closed-Return Configuration of a Central HUPW System (adapted from Neuber and McIntosh, 2023)

TO: Section/Paragraph A5-1.3

A5-1.3 In all cases, a thermal balance should be done as part of system design. This includes the design stage when choosing between centralized and POU heating, and when making the decision between an open-return ~~("integrated")~~ and closed-return ~~("independent")~~ centralized HUPW system configuration.

…

#1 The open-return configuration is called the "integrated" system by Neuber and McIntosh.

Figure A5-1
Open-Return Configuration of a Central HUPW System (adapted from Neuber and McIntosh, 2023[21])

…

#1 The closed-return configuration is called the "independent" system by Neuber and McIntosh.

Figure A5-2
Closed-Return Configuration of a Central HUPW System (adapted from Neuber and McIntosh, 2023)

Justification (If necessary)
The terms "independent" and "integrated" were used in the text of the document to match the terminology used in the referenced paper, from where the drawings were adapated, by Neuber and McIntosh. These terms have been moved to footnotes under the drawings.

	Motion			Negative is addressed by the technical change(s).		
	Motion by/2nd by			By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc		
	Discussion			None		
	Result of Vote (check one)			10 **Y** 0 **N**; Motion passed.		
			X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**	
	Incorporation of the Technical Change	**Motion**		To incorporate the technical change(s).		
		Motion by/2nd by		By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
		Discussion		None		
		Result of Vote (check one)		11 **Y** 0 **N**; Motion passed.		
			X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**	
Final	**(check if applicable)**		**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 50

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A5-1.4 Depending on the physical location of the UPW polishing treatment system, the HUPW equipment can be fed from the location either upstream or downstream of the UPW polishing final filters. When the polishing system is located in the fab building, feeding the HUPW system from upstream to the final filters reduces the load and the cost of the final filters.			
	Negative Text	**SG050**: Please clarify how the building in which the polishing system is located determines whether bypassing its final filters results in cost savings.			
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**	
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**	
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**		
			Reason	Clarified the intent of the text.	
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions			
	Discussion	None			
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.			
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)** **X** **Y**	**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — **1**

FROM: Section/Paragraph A5-1.4

A5-1.4 Depending on the physical location of the UPW polishing treatment system, the HUPW equipment can be fed from the location either upstream or downstream of the UPW polishing final filters. When the polishing system is located in the fab building, feeding the HUPW system from upstream to the final filters reduces the load and the cost of the final filters.

TO: Section/Paragraph A5-1.4

A5-1.4 Depending on system configuration and physical layout, the HUPW system can be supplied from the UPW system either upstream or downstream of the UPW polishing final filters. Because centralized HUPW systems typically include their own final filtration, supplying the HUPW system from upstream of the UPW final filters can allow the UPW final filters to be sized for reduced flow, potentially lowering capital and operating cost. Similar considerations can apply to other equipment that is duplicated between UPW and HUPW systems, provided that required UPW and HUPW quality, pressure, and reliability targets are maintained. ~~Depending on the physical location of the UPW polishing treatment system, the HUPW equipment can be fed from the location either upstream or downstream of the UPW polishing final filters. When the polishing system is located in the fab building, feeding the HUPW system from upstream to the final filters reduces the load and the cost of the final filters.~~

Justification (If necessary)
Clarified the intent of the text.

Motion	Negative is addressed by the technical change(s).		
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc		
Discussion	None		
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.		
	X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**

Incorporation of the Technical Change

Motion	To incorporate the technical change(s).		
Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
Discussion	None		
Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
	X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**

Final

(check if applicable)	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 51

Negative

Referenced § / ¶	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A5-1.5 … HUPW is expected to be in compliance with SEMI F63 or facility-specific UPW quality parameters as well.
Negative Text	**SG051**: Please state by whom it is "expected" do this, and on what that expectation is based.

Withdrawal (check one)		**X**	No Negative withdrawal made by Voter.					**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**					**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**					
			Reason	Changed "is expected to be" to "should".				
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions						
	Discussion	None						
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.						
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X**	**Y**		**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — **1**

FROM: Section/Paragraph A5-1.5

A5-1.5 … HUPW is expected to be in compliance with SEMI F63 or facility-specific UPW quality parameters as well.

TO: Section/Paragraph A5-1.5

A5-1.5 … HUPW ~~is expected to~~ should be in compliance with SEMI F63 or facility-specific UPW quality parameters as well.

Justification (If necessary)
Changed "is expected to be" to "should".

Motion	Negative is addressed by the technical change(s).			
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc			
Discussion	None			
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.			
	X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**

Incorporation of the Technical Change

Motion	To incorporate the technical change(s).			
Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)			
Discussion	None			
Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.			
	X	90% ≤ [Agree to incorporate.]		**GO TO "Final" subsection → (F)**

Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 52

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A5-1.5 … HUPW is expected to be in compliance with SEMI F63 or facility-specific UPW quality parameters as well.					
	Negative Text	**SG052**: Please remove "as well" or state "as well" as what that compliance is expected.					
Withdrawal (check one)		X	No Negative withdrawal made by Voter.				**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	X	'Related' is mutually agreed upon. **(Needs no motion.)**				**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	X	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**				
			Reason	Delete "as well".			
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions					
	Discussion	None					
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.					
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	X	Y	**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option	**Technical Change Recommendations**		
	Technical Changes	**1**	**FROM: Section/Paragraph A5-1.5** A5-1.5 … HUPW should be in compliance with SEMI F63 or facility-specific UPW quality parameters as well.
			TO: Section/Paragraph A5-1.5 A5-1.5 … HUPW should be in compliance with SEMI F63 or facility-specific UPW quality parameters ~~as well~~.
			Justification (If necessary) Delete "as well".

Motion	Negative is addressed by the technical change(s).			
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc			
Discussion	None			
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.			
	X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**

Incorporation of the Technical	**Motion**	To incorporate the technical change(s).
	Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)
	Discussion	None
	Result of Vote	11 **Y** 0 **N**; Motion passed.

X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**
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Final	**(check if applicable)**	X	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 53

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A5-1.6.2 A closed-return HUPW system (as shown in Figure A5-2) can include a HUPW tank, which receives makeup from the ambient UPW polishing system.			
	Negative Text	**SG053:** It appears not only possible, but necessary for there to be an HUPW tank.			
Withdrawal (check one)		X	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	X	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	X	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**		
			Reason	It is indeed possible to build and operate such a HUPW system without a tank. More than one TF member has seen it successfully done in the field.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]		**GO TO "Not Significant Finding Option" subsection**
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**				
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".		**GO TO "Final" subsection → (D)**
Final	**(check if applicable)**	X	**(D)**	Not significant **(counted under j in disposition)**	

Negative 54

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A5-2.1.8 Vibration isolation and expansion joints should each account for physical properties of the materials involved. As indicated in Figure A5-3, for each expansion loop or vibration isolation device, an evaluation is necessary of the Fixed Points (FP), Guide Locations (GL) and the anticipated extent of the expansion or vibration (ΔL) associated with each length (L) between Fixed Points in the piping system. The length of flexible section (LBS) necessary to prevent excess pipe stress is calculated using guidance from the piping manufacturer. The geometry of expansion loop design should also account for the available space by considering axial dimensions SA and Amin. For comprehensive details, refer to the manufacturer's literature.
	Negative Text	**SG054:** Reconcile these references to "fixed points" with the instruction above that all of the supports points are to allow pipe movement. Note: This was SG115 in the response to Doc. 7086.

Withdrawal (check one)		**X**	No Negative withdrawal made by Voter.					**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**					**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**					
			Reason	add phrase "expansion and vibration control rely on intentional definition of fixed points (FP), which serve as designed axial anchors, and guide locations (GL), which permit axial movement while controlling lateral displacement." For better clarity.				
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions						
	Discussion	None						
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.						
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X**	**Y**		**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — **1**

FROM: Section/Paragraph A5-2.1.8

A5-2.1.8 Vibration isolation and expansion joints should each account for physical properties of the materials involved. As indicated in Figure A5-3, for each expansion loop or vibration isolation device, an evaluation is necessary of the Fixed Points (FP), Guide Locations (GL) and the anticipated extent of the expansion or vibration (ΔL) associated with each length (L) between Fixed Points in the piping system. The length of flexible section (LBS) necessary to prevent excess pipe stress is calculated using guidance from the piping manufacturer. The geometry of expansion loop design should also account for the available space by considering axial dimensions SA and Amin. For comprehensive details, refer to the manufacturer's literature.

TO: Section/Paragraph A5-2.1.8

A5-2.1.8 Vibration isolation and expansion joints should each account for physical properties of the materials involved. As indicated in **Error! Reference source not found.**, expansion and vibration control rely on intentional definition of fixed points (FP), which serve as designed axial anchors, and guide locations (GL), which permit axial movement while controlling lateral displacement. ~~f~~For each expansion loop or vibration isolation device, an evaluation is necessary of the Fixed Points (FP), Guide Locations (GL) and the anticipated extent of the expansion or vibration (ΔL) associated with each length (L) between Fixed Points in the piping system. The length of flexible section (L_{BS}) necessary to prevent excess pipe stress is calculated using guidance from the piping manufacturer. The geometry of expansion loop design should also account for the available space by considering axial dimensions SA and $A_{min.}$ For comprehensive details, refer to the manufacturer's literature.

Justification (If necessary)
add phrase "expansion and vibration control rely on intentional definition of fixed points (FP), which serve as designed axial anchors, and guide locations (GL), which permit axial movement while controlling lateral displacement." For better clarity.

Motion	Negative is addressed by the technical change(s).
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc
Discussion	None
Result of Vote	10 **Y** 0 **N**; Motion passed.

	(check one)		X	2/3 ≤ [Negative is addressed by the technical change(s).]	GO TO "Incorporation of the Technical Change" subsection
	Incorporation of the Technical Change	Motion	To incorporate the technical change(s).		
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
		Discussion	None		
		Result of Vote (check one)	11 Y 0 N; Motion passed.		
			X	90% ≤ [Agree to incorporate.]	GO TO "Final" subsection → (F)
Final	(check if applicable)	X	(F)	Addressed by technical change (counted under k disposition)	

Negative 55

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary.			
	Negative Text	SG055: Please explain how "operator response time" determines whether a spare raw water tank is needed.			
Withdrawal (check one)		X	No Negative withdrawal made by Voter.		GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)		GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and persuasive. (Needs >1/3 votes to pass.)		
			Reason	Changed "operator response time" to "Stored volume should provide sufficient operating time to allow operator response to supply interruptions" for better explanation of existing engineering logic	
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions			
	Discussion	None			
	Result of Vote (check one)	9 Y 0 N; Motion passed.			
		X	[Negative is related and persuasive.] > 1/3	Is a technical change recommended? (check one) X Y	GO TO "Address by Technical Change Option" subsection

Table A6-1 UPW System Reliability Scheme

System/Unit Operations /Equipment	*Frequent Maintenance Needed[#1]*	*Minimum Recommended Redundancy*	*Rationale*
		Make-Up System	
Raw Water Tank	No	N	Operator response time

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — 1

FROM: Section/Paragraph Table A6-1

Table A6-1 UPW System Reliability Scheme

System/Unit Operations /Equipment	*Frequent Maintenance Needed[#1]*	*Minimum Recommended Redundancy*	*Rationale*
		Make-Up System	
Raw Water Tank	No	N	Operator response time

TO: Section/Paragraph Table A6-1

Table A6-1 UPW System Reliability Scheme

System/Unit Operations /Equipment	*Frequent Maintenance Needed[#1]*	*Minimum Recommended Redundancy*	*Rationale*
		Make-Up System	
Raw Water Tank	No	N	~~Operator response time~~ Stored volume should provide sufficient operating time to allow operator response to supply interruptions.

Justification (If necessary)
Changed "operator response time" to "Stored volume should provide sufficient operating time to allow operator response to supply interruptions" for better explanation of existing engineering logic

Motion			Negative is addressed by the technical change(s).	
Motion by/2nd by			By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc	
Discussion			None	
Result of Vote (check one)			10 **Y** 0 **N**; Motion passed.	
		X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**
Incorporation of the Technical Change	**Motion**		To incorporate the technical change(s).	
	Motion by/2nd by		By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)	
	Discussion		None	
	Result of Vote (check one)		11 **Y** 0 **N**; Motion passed.	
		X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**

Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 56

Negative

Referenced § / ¶

*TF/TC Chapter to fill in, including text in the ballot if necessary.

Table A6-1

Polishing System					
UPW Tank	No	N+1	Operator response time	N/A	Nitrogen ON; minimum recommended storage volume is 1 hour of outflow.

Negative Text

SG056: Please remove “Nitrogen ON; “ or explain what it is intended to mean here.

Withdrawal (check one)	X	No Negative withdrawal made by Voter.	**GO TO “Related” subsection**
Related **Motion and Reason (check one)**	X	‘Related’ is mutually agreed upon. **(Needs no motion.)**	**GO TO “Persuasive” subsection**

Persuasive

Motion and Reason (check one)	X	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**	
		Reason	Change "Nitrogen ON" to "blanketed" to improve clarity
Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
Discussion	None		
Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.		
	X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)** X **Y** — **GO TO “Address by Technical Change Option” subsection**

Address by Technical Change Option

Technical Change Recommendations

Original section/paragraph number and at least one full sentence are required in “FROM” and “TO” fields.

Technical Changes — **1**

FROM: Section/Paragraph Table A6-1

Polishing System					
UPW Tank	No	N+1	Operator response time	N/A	Nitrogen ON; minimum recommended storage volume is 1 hour of outflow.

TO: Section/Paragraph Table A6-1

Polishing System					
UPW Tank	No	N+1	Operator response time	N/A	Nitrogen blanketed~~ON;~~ minimum recommended storage volume is 1 hour of outflow.

Justification (If necessary)

Change "Nitrogen ON" to "blanketed" to improve clarity

	Motion		Negative is addressed by the technical change(s).		
	Motion by/2nd by		By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc		
	Discussion		None		
	Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**
	Incorporation of the Technical Change **Motion**		To incorporate the technical change(s).		
	Motion by/2nd by		By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
	Discussion		None		
	Result of Vote (check one)		11 **Y** 0 **N**; Motion passed.		
		X	90% ≤ [Agree to incorporate.]		**GO TO "Final" subsection → (F)**
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 57

Negative	**Referenced § / ¶**		***TF/TC Chapter to fill in, including text in the ballot if necessary.** A7-1.1.1 Cartridge filters (CF) equipment consists of two essential parts: disposable filter cartridges and housings. Filter cartridges for use in UPW are constructed of polymeric media, which is corrugated or pleated to allow a larger filter media surface to fit in a cylindrical shaped format. Filter housings for the POD will have to accommodate multiple filter cartridges, sometimes in a stacked version. Flanges and construction materials can be adapted for customized requirements. A7-1.1.2 Ultrafilters (UF) consist of polymeric filter media, but the optimal format here is a hollow fiber config-uration, where a bundle of several thousands of hollow fibers is integrated into a housing, which is considered as one unit. A7-1.2 Both cartridge filters and ultrafilters can be used at POU or POD; details of their purpose are listed in the following chapters.	
	Negative Text		**SG057**: "Cartridge filters" and "ultrafilters" are not complementary sets, i.e, there are filters that are both "cartridge filters" and "ultrafilters" and filters that are neither "cartridge filters" or "ultrafilters". I suspect that what "cartridge filters" is being used here to mean is "microfilters", but I am not confident enough to invest the time and energy to markup that change, as this error is repeated throughout this Appendix. If the TF confirms my suspicion and would like me to markup the change, please let me know.	
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
	Motion and Reason	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**	

Persuasive	(check one)		Reason	The distinction between cartridge filters (CF) and ultrafilters (UF) in this Appendix is intentional and based on flow configuration and module construction, not solely on nominal pore size or molecular weight cutoff. Cartridge filters operate in a dead-end configuration with a single inlet and outlet, while ultrafilters operate in a tangential-flow configuration with separate permeate and concentrate outlets. These categories are complementary in the context of UPW polishing practice, and the text does not equate cartridge filters with microfiltration. No technical error exists.
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer		
	Discussion	None		
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.		
		X	90% ≤ [Negative is related and not persuasive.]	**GO TO "Not Significant Finding Option" subsection**
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**			
	Use of "Not significant finding option" (check one)	**X**	It is mutually agreed upon to term the Negative "not significant".	**GO TO "Final" subsection → (D)**
Final	(check if applicable)	**X**	**(D)**	Not significant **(counted under j in disposition)**

Negative 58

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A7-1.1.2 Ultrafilters (UF) consist of polymeric filter media, but the optimal format here is a hollow fiber config-uration, where a bundle of several thousands of hollow fibers is integrated into a housing, which is considered as one unit.		
	Negative Text	**SG058**: Please remove this claim (which may well be commercially prejudicial) or provide the technical basis for it.		
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**	
			Reason	Change "optimal" to "most common" to remove perceived technical bias toward hollow fiber UF configuration.
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion	None		
		9 **Y** 0 **N**; Motion passed.		

	Result of Vote (check one)	X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended?** (check one)	X	Y	**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — **1**

FROM: Section/Paragraph A7-1.1.2

A7-1.1.2 Ultrafilters (UF) consist of polymeric filter media, but the optimal format here is a hollow fiber configuration, where a bundle of several thousands of hollow fibers is integrated into a housing, which is considered as one unit.

TO: Section/Paragraph A7-1.1.2

A7-1.1.2 Ultrafilters (UF) consist of polymeric filter media, but the ~~optimal~~ most common format here is a hollow fiber configuration, where a bundle of several thousands of hollow fibers is integrated into a housing, which is considered as one unit.

Justification (If necessary)
Change "optimal" to "most common" to remove perceived technical bias toward hollow fiber UF configuration.

Motion	Negative is addressed by the technical change(s).			
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc			
Discussion	None			
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.			
	X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**

Incorporation of the Technical Change

Motion	To incorporate the technical change(s).			
Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)			
Discussion	None			
Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.			
	X	90% ≤ [Agree to incorporate.]		**GO TO "Final" subsection → (F)**

Final

(check if applicable)	X	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 59

Negative

Referenced § / ¶	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A7-2.2.3 To provide efficient particle capture and not allow particle shedding, nor leaching of harmful contaminants from the final filter into the UPW stream.
Negative Text	**SG059:** These are not "purposes" of final filtration,; they are performance criteria for final filtration. These criteria can be served better by not having final filtration than they can by having final filtration.

	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**		
			Reason	The text is technically correct and the TF believes it is clear as-written.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]	**GO TO "Not Significant Finding Option" subsection**	
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**				
	Use of "Not significant finding option" (check one)	**X**	It is mutually agreed upon to term the Negative "not significant".		**GO TO "Final" subsection → (D)**
Final	**(check if applicable)**	**X**	**(D)**	Not significant **(counted under j in disposition)**	

Negative 60

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A7-2.5 *Other Considerations* A7-2.5.1 Filtration system design and type selection should balance the risk of system component failure with high particle excursions versus cost of over design and redundancy.			
	Negative Text	**SG060**: Please explain "over design". I don't see how too much designing can be done.			
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**		
			Reason	The phrase "over design" is a commonly accepted and understood term. To avoid the use of vernacular, replace "over-design" with "excessive conservatism"	
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions			
	Discussion	None			
		9 **Y** 0 **N**; Motion passed.			

	Result of Vote (check one)	X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended?** (check one)	X	Y	**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — 1

FROM: Section/Paragraph A7-2.5.1

A7-2.5 *Other Considerations*

A7-2.5.1 Filtration system design and type selection should balance the risk of system component failure with high particle excursions versus cost of over design and redundancy.

TO: Section/Paragraph A7-2.5.1

A7-2.5 *Other Considerations*

A7-2.5.1 Filtration system design and type selection should balance the risk of system component failure with high particle excursions versus cost of ~~over design~~ excessive conservatism and redundancy.

Justification (If necessary)
The phrase "over design" is a commonly accepted and understood term. To avoid the use of vernacular, replace "over-design" with "excessive conservatism"

Motion		Negative is addressed by the technical change(s).	
Motion by/2nd by		By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc	
Discussion		None	
Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.	
	X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**

Incorporation of the Technical Change

Motion		To incorporate the technical change(s).	
Motion by/2nd by		By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)	
Discussion		None	
Result of Vote (check one)		11 **Y** 0 **N**; Motion passed.	
	X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**

Final

(check if applicable)	X	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 61

Negative

Referenced § / ¶	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A7-3.2.3 To provide efficient particle capture and not allow particle shedding, nor leaching of harmful contaminants from the POU filter.
Negative Text	**SG061**: These are not "purposes" of POU filters, they are performance criteria for them.

Withdrawal (check one)	X	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**

Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)		GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)		
			Reason	The text is technically correct and the TF believes it is clear as-written.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 Y 0 N; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]		GO TO "Not Significant Finding Option" subsection
Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)				
	Use of "Not significant finding option"	X	It is mutually agreed upon to term the Negative "not significant".		GO TO "Final" subsection → (D)
Final	(check if applicable)	X	(D)	Not significant (counted under j in disposition)	

Negative 62

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A8-1.1 Ion exchange processes using resins are batch operations and require regeneration of the ion exchange resin at prescribed intervals to prevent breakthrough of the species being removed.			
	Negative Text	SG062: In my (admittedly dated) experience in water purification for the semiconductor industry, IX processes are not "batch", they are continuous, i.e., they occur as water is pumped through resin beds. That resin beds require regeneration doesn't make their use "batch" any more than that filters require replacement makes the use of filters "batch".			
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.		GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)		GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)		
			Reason	Editorial to change the word "batch" to "cyclic" for clarity.	
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions			
	Discussion	None			
	Result of Vote (check one)	10 Y 0 N; Motion passed.			
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%		GO TO "Final" subsection → (C)
Final		X	(C)	Related and not persuasive (significant)	
	(check if applicable)	X	*Comment generated. Refer to Section V-(ii) Comment # NC-11.*		

Negative 63

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. **A8-2 Ion Exchange Applications** A8-2.1 *Pretreatment ion exchange* — These resin beds are installed upstream of the first pass RO. They remove species such as hardness, organic materials, or carbonate species/CO2 that would adversely affect the operation of the RO system, e.g., prevent efficient recovery. Different types of resin beds are employed depending on the raw water quality and expectations of the RO system recovery.		
	Negative Text	**SG063:** "Recovery" does not appear to be the appropriate word here. If it is, then please explain either what the RO system is to recover or from what the RO system is to recover. If it is not the correct word, please replace it with whatever is.		
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	Editorial to add "rate" at the end of "RO recover" for clarity. "RO recovery rate" is a commonly used and universally understood term in water treatment.
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion	None		
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is related and not persuasive.] < 90%	GO TO "Final" subsection → (C)
Final		X	(C)	Related and not persuasive (significant)
	(check if applicable)	X	*Comment generated.* ***Refer to Section V-(ii) Comment # NC-12.***	

Negative 64

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A8-2.2 *Primary ion exchange* — Installed downstream of the second pass of RO, these remove the bulk of ionized species remaining in the RO product. Primary ion exchange should be designed and operated to prevent premature breakthrough of the polishing ion exchange. In the primary system, continuous electrodeionization can be used in place of or in addition to resin ion exchange beds.		
	Negative Text	**SG064**: Please correct or explain this. I don't see how IX in the primary system can prevent breakthrough in IX beds in the polishing system.		
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
	Motion and Reason	X	Negative is related and persuasive. (Needs >1/3 votes to pass.)	

Persuasive

(check one)		Reason	Replaced "prevent" with "limit ionic loading to the downstream polishing ion exchange, thereby reducing the likelihood of" - This change explicitly states the engineering mechanism (ionic load reduction) - Removes the appearance of a direct or active control relationship - Aligns with accepted UPW system design principles - Preserves original intent and system architecture
Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
Discussion	None		
Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.		
X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	X **Y** GO TO "Address by Technical Change Option" subsection

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — **1**

FROM: Section/Paragraph A8-2.2

A8-2.2 *Primary ion exchange* — Installed downstream of the second pass of RO, these remove the bulk of ionized species remaining in the RO product. Primary ion exchange should be designed and operated to prevent premature breakthrough of the polishing ion exchange. In the primary system, continuous electrodeionization can be used in place of or in addition to resin ion exchange beds.

TO: Section/Paragraph A8-2.2

A8-2.2 *Primary ion exchange* — Installed downstream of the second pass of RO, ~~these~~ this step removes the bulk of ionized species remaining in the RO product. Primary ion exchange should be designed and operated to limit ionic loading to the downstream polishing ion exchange, thereby reducing the likelihood of ~~prevent~~ premature breakthrough of the polishing ion exchange. In the primary system, continuous electrodeionization can be used in place of or in addition to resin ion exchange beds.

Justification (If necessary)
Replaced "prevent" with "limit ionic loading to the downstream polishing ion exchange, thereby reducing the likelihood of"
- This change explicitly states the engineering mechanism (ionic load reduction)
- Removes the appearance of a direct or active control relationship
- Aligns with accepted UPW system design principles
- Preserves original intent and system architecture

Motion	Negative is addressed by the technical change(s).
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc
Discussion	None
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.
X	2/3 ≤ [Negative is addressed by the technical change(s).] — GO TO "Incorporation of the Technical Change" subsection

Incorporation of the Technical Change

Motion	To incorporate the technical change(s).
Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)
Discussion	None
	11 **Y** 0 **N**; Motion passed.

		Result of Vote (check one)	**X**	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 65

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** **A9-5 Pipe Stress Analysis for Thermoplastics** A9-5.1 *Application* — if any of the following conditions are met, a stress analysis is recommended on the system as part of the design process. Existing systems can be made more robust by performing a stress analysis and implementing improvements that address potential weaknesses. … A9-5.1.7 Seismic loading is foreseen.					
	Negative Text	**SG065**: Please explain how, other than by negligence, seismic loading would not be foreseen. If seismic loading is always foreseen, then the condition in A9-5.1 is always met and there's no reason to have the condition or this list.					
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.				**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**				**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**				
			Reason	Revised the seismic item to reference site seismic design criteria, eliminating ambiguity associated with the phrase "foreseen" while preserving the guidance intent.			
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions					
	Discussion	None					
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.					
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended?**	**X**	**Y**	**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — **1**

FROM: Section/Paragraph A9-5.1.7

A9-5.1.7 Seismic loading is foreseen.

TO: Section/Paragraph A9-5.1.7

A9-5.1.7 ~~Seismic loading is foreseen.~~The project seismic design basis or facility criteria call for seismic evaluation of utility piping.

Justification (If necessary)

Revised the seismic item to reference site seismic design criteria, eliminating ambiguity associated with the phrase "foreseen" while preserving the guidance intent.

		2	**FROM: Section/Paragraph A9-5.1** **A9-5 Pipe Stress Analysis for Thermoplastics** A9-5.1 *Application* — if any of the following conditions are met, a stress analysis is recommended on the system as part of the design process. Existing systems can be made more robust by performing a stress analysis and implementing improvements that address potential weaknesses.			
			TO: Section/Paragraph A9-5.1 **A9-5 Pipe Stress Analysis for Thermoplastics** A9-5.1 *Application* — A stress analysis can improve robustness for thermoplastic piping systems. Conditions that commonly warrant consideration of a stress analysis include the following:~~if any of the following conditions are met, a stress analysis is recommended on the system as part of the design process. Existing systems can be made more robust by performing a stress analysis and implementing improvements that address potential weaknesses.~~			
			Justification (If necessary)			
	Motion		Negative is addressed by the technical change(s).			
	Motion by/2nd by		By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc			
	Discussion		None			
	Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.			
			X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**	
	Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).			
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)			
		Discussion	None			
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.			
			X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**	
Final	**(check if applicable)**		**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 66

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A10-3.1.3 If there are dual reliable municipal water supplies, the UPW system raw water tank (when installed) is recommended to have minimum storage volume of 1 hour of outflow.		
	Negative Text	**SG066:** Unless there is a recommendation for the size of a tank that is not installed, this parenthetical phrase adds nothing.		
Withdrawal (check one)		**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**

Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)		
			Reason	The text is technically correct and the TF believes it is clear as-written.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection	
Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)				
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".	GO TO "Final" subsection → (D)	
Final	(check if applicable)	X	(D)	Not significant (counted under j in disposition)	

Negative 67

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A10-3.2.2 Minimum capacity for sizing EPS and UPS should provide for uninterrupted operation of the polishing loop and the critical control systems. During a normal power outage, it is assumed the fab will not have significant power consumption, but recirculation of the UPW polishing system and distribution piping will be critical to preserve high purity of UPW and UPW polishing/distribution system. At minimum, several of the polishing distribution pumps, the system PLC network, and the analytical cabinets should be fed from the EPS sources, UPS sources, or both.		
	Negative Text	**SG067:** Please justify or change this assumption in consideration of the increased popularity of backup power supplies for other fab equipment and systems.		
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and persuasive. (Needs >1/3 votes to pass.)	
			Reason	Clarified to make the recommendations more facility- and project- specific rather than making general assumptions about backup power.
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
	Discussion	None		
		9 **Y** 0 **N**; Motion passed.		

	Result of Vote (check one)	X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended?** (check one)	X	Y	**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — **1**

FROM: Section/Paragraph A10-3.2.2

A10-3.2.2 Minimum capacity for sizing EPS and UPS should provide for uninterrupted operation of the polishing loop and the critical control systems. During a normal power outage, it is assumed the fab will not have significant power consumption, but recirculation of the UPW polishing system and distribution piping will be critical to preserve high purity of UPW and UPW polishing/distribution system. At minimum, several of the polishing distribution pumps, the system PLC network, and the analytical cabinets should be fed from the EPS sources, UPS sources, or both.

TO: Section/Paragraph A10-3.2.2

A10-3.2.2 Minimum capacity for sizing EPS and UPS should provide for uninterrupted operation of the polishing loop and the critical control systems. During a normal power outage, the extent of fab power consumption will be facility-specific. Regardless of production load, ~~it is assumed the fab will not have significant power consumption, but~~ recirculation of the UPW polishing system and distribution piping ~~will be~~is critical to preserve high purity of UPW and UPW polishing/distribution system. At minimum, several of the polishing distribution pumps, the system PLC network, and the analytical cabinets should be fed from the EPS sources, UPS sources, or both. Facilities that maintain additional production or utility loads during power outages may require expanded EPS or UPS capacity beyond the minimum functions identified here.

Justification (If necessary)
Clarified to make the recommendations more facility- and project- specific rather than making general assumptions about backup power.

Motion	Negative is addressed by the technical change(s).		
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc		
Discussion	None		
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.		
	X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**

Incorporation of the Technical Change

Motion	To incorporate the technical change(s).		
Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
Discussion	None		
Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
	X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**

Final

(check if applicable)	X	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 68

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. Table A10-2					
	Negative Text	**SG068:** For each row, explain what is to be entered in the second n and third columns. The usage rates are stated in the fifth and sixth columns. Note: This was SG137 in the response to Doc 7086,					
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.				GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)				GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and persuasive. (Needs >1/3 votes to pass.)				
			Reason	A clarifying note was added to explain that the Value and Units columns are used to document defining utility characteristics (e.g., pressure, temperature, voltage, concentration), while average and peak usage rates are documented separately.			
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions					
	Discussion	None					
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.					
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended?** (check one)	X	Y	GO TO "Address by Technical Change Option" subsection
Address	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**						

Technical Changes

1

FROM: Section/Paragraph Table A10-2

Table A10-2 Typical Utility Matrix

Utility[#1]	*Value*	*Units*	*Allowable Deviation*	*Average Usage*	*Peak Load*	*Comments*
Raw Water Flow[#2]						
Raw Water Pressure[#2]						
Normal Power[#3]						
Emergency Power[#3]						
Uninterruptable Power Supply						
Hot Water Supply						
Hot Water Return						
Steam Supply						
ondensed Steam Return						
Chilled Water Supply						
Chilled Water Return						
$NaHSO_3$						
NaOCl						
NaOH						
H_2SO_4						
HCl						
H_2O_2						
Other Chemicals						
Nitrogen (Utility)						
Nitrogen (High Purity)						
Compressed Dry Air						
Instrument Air						
Oxygen						
Other Gas						
Vacuum[#4]						
Exhaust[#5]						
Waste Drain						
Other Drain						
Controls Network						
LSS Network						

#1 If there is more than one source for any of the utilities, the conditions of each source should be characterized separately. For example, if there are several different regional liquid chemical vendors which can supply the same chemical, but in different forms or concentrations and with varying delivery methodologies, the different vendors should be listed separately.

#2 The raw water capacity and pressure recommendations are included here to document the utility connection to the UPW system. The quality parameters for the raw water itself are more thoroughly addressed in **Error! Reference source not found.**, 'Incoming Water Quality'.

#3 Some semiconductor facilities will have more than one incoming normal power feed to the UPW system. In those cases, the UPW system loads will be split across those different sources. For example, a triplex pump skid can have pumps 1, 2 and 3 being fed by Normal Power A, Normal Power B and Emergency Power, respectively.

#4 UPW systems requiring a vacuum connection will typically discharge a saturated vapor containing water and carbonic acid. If the UPW system vacuum loads are connected to the facilities house or process vacuum connection, it is imperative that the provider of the vacuum system be provided the projected vapor load and composition.

#5 Several of the unit processes within the UPW system use nitrogen, ozone gas, or both. As these systems are typically installed indoors, exhaust connection(s) are necessary to prevent the dangerous accumulation of those gases in habitable spaces. An ambient oxygen/ozone monitor is strongly recommended for the indoor ozone gas system. If the UPW system exhaust loads are connected to any facilities exhaust connection(s), it is imperative that the projected load and composition of those exhaust loads be conveyed to the exhaust system provider.

TO: Section/Paragraph Table A10-2

Table A1-1 Typical Utility Matrix

Utility[#1]	*Value*[#2]	*Units*[#2] *(Value)*	*Allowable Deviation*	*Average Usage*	*Peak Load*	*Units (Average and Peak Load)*	*Comments*
Raw Water Flow[#3]							
Raw Water Pressure[#3]							
Normal Power[#4]							
Emergency Power[#4]							
Uninterruptable Power Supply							
Hot Water Supply							
Hot Water Return							
Steam Supply							
Condensed Steam Return							
Chilled Water Supply							
Chilled Water Return							
$NaHSO_3$							
NaOCl							
NaOH							
H_2SO_4							
HCl							
H_2O_2							
Other Chemicals							
Nitrogen (Utility)							
Nitrogen (High Purity)							
Compressed Dry Air							
Instrument Air							
Oxygen							
Other Gas							
Vacuum[#5]							
Exhaust[#6]							
Waste Drain							
Other Drain							
Controls Network							
LSS Network							

#6 If there is more than one source for any of the utilities, the conditions of each source should be characterized separately. For example, if there are several different regional liquid chemical vendors which can supply the same chemical, but in different forms or concentrations and with varying delivery methodologies, the different vendors should be listed separately.

#7 The Value and Units columns are intended to capture the primary defining characteristics of each utility required by the UPW system, such as pressure, temperature, voltage, phase, frequency, concentration, purity, or similar parameters, as applicable. These entries describe the quality or condition of the utility at the point of connection. Average and peak usage rates are captured separately in the Average Usage and Peak Load columns.

#7#8 The raw water capacity and pressure recommendations are included here to document the utility connection to the UPW system. The quality parameters for the raw water itself are more thoroughly addressed in **Error! Reference source not found.**, 'Incoming Water Quality'.

#8#9 Some semiconductor facilities will have more than one incoming normal power feed to the UPW system. In those cases, the UPW system loads will be split across those different sources. For example, a triplex pump skid can have pumps 1, 2 and 3 being fed by Normal Power A, Normal Power B and Emergency Power, respectively.

#9#10 UPW systems requiring a vacuum connection will typically discharge a saturated vapor containing water and carbonic acid. If the UPW system vacuum loads are connected to the facilities house or process vacuum connection, it is imperative that the provider of the vacuum system be provided the projected vapor load and composition.

			~~#10~~#11 Several of the unit processes within the UPW system use nitrogen, ozone gas, or both. As these systems are typically installed indoors, exhaust connection(s) are necessary to prevent the dangerous accumulation of those gases in habitable spaces. An ambient oxygen/ozone monitor is strongly recommended for the indoor ozone gas system. If the UPW system exhaust loads are connected to any facilities exhaust connection(s), it is imperative that the projected load and composition of those exhaust loads be conveyed to the exhaust system provider.			
			Justification (If necessary) A clarifying note was added to explain that the Value and Units columns are used to document defining utility characteristics (e.g., pressure, temperature, voltage, concentration), while average and peak usage rates are documented separately.		
	Motion		Negative is addressed by the technical change(s).		
	Motion by/2nd by		By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc		
	Discussion		None		
	Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**
	Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).		
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
		Discussion	None		
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
			X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**	

Negative 69

Negative	**Referenced § / ¶**		***TF/TC Chapter to fill in, including text in the ballot if necessary.** A12-2.2 If the tank or vessel is identified as a confined space, confined space entry safety protocols should be followed in accordance with applicable local safety standards. Continuous oxygen monitoring is recommended to ensure that an asphyxiation risk is not present.	
	Negative Text		**SG069:** This is not logically consistent with either the management of a vessel as a confined space or the use of nitrogen blanketting. Any nitrogen blanketted tank is going to present an asphyxiation hazard. What matters, from a safety perspective, is that being enters it without being trained and equipped to work in such a location or the tank atmosphere having been changed to being breathable. "Continuous oxygen monitoring" of a nitrogen blanket strikes me as the source of "continuous alarms", which aren't helpful.	
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.	**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**	**GO TO "Persuasive" subsection**
	Motion and Reason	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**	

Persuasive

(check one)		Reason	The text was revised to clarify that nitrogen-blanketed tanks present an inherent asphyxiation hazard and that confined space entry safety depends on isolation of inert gas supplies and verification of a breathable atmosphere, rather than continuous oxygen monitoring during normal operation.
Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions		
Discussion	None		
Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.		
X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	X Y — **GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option

Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes — 1

FROM: Section/Paragraph A12-2.2

A12-2.2 If the tank or vessel is identified as a confined space, confined space entry safety protocols should be followed in accordance with applicable local safety standards. Continuous oxygen monitoring is recommended to ensure that an asphyxiation risk is not present.

TO: Section/Paragraph A12-2.2

A1-1.2 If the tank or vessel is identified as a confined space, confined space entry safety protocols should be followed in accordance with applicable local safety standards. Where tanks are blanketed with nitrogen ~~blanketed~~ or ~~otherwise inerted~~another inert gas during normal operation, entry activities should include appropriate lockout and isolation of the inert gas supply, atmospheric testing, and any required purging or ventilation to establish a breathable atmosphere prior to entry. Oxygen monitoring should be applied as required by applicable confined space procedures. ~~Continuous oxygen monitoring is recommended to ensure that an asphyxiation risk is not present.~~

Justification (If necessary)
The text was revised to clarify that nitrogen-blanketed tanks present an inherent asphyxiation hazard and that confined space entry safety depends on isolation of inert gas supplies and verification of a breathable atmosphere, rather than continuous oxygen monitoring during normal operation.

Motion	Negative is addressed by the technical change(s).	
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc	
Discussion	None	
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.	
X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**

Incorporation of the Technical Change

Motion	To incorporate the technical change(s).	
Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)	
Discussion	None	
Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.	
X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**

Final

(check if applicable)	X	(F)	Addressed by technical change **(counted under k disposition)**

Negative 70

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A12-3.8 If not specifically required by local safety authorities having jurisdiction, the use of flange wraps/guards and splash protection should be considered around chemical pump skids. …					
	Negative Text	**SG070:** Please clarify this sentence. As ballotted, it implies that these things need not be considered if they are required.					
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.				**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	X	'Related' is mutually agreed upon. **(Needs no motion.)**				**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	X	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**				
			Reason	Delete "If not specifically required by local safety authorities having jurisdiction" to clarify that it is always recommended to consider flange wraps and splash protection.			
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions					
	Discussion	None					
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.					
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	X	Y	**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**		
	Technical Changes	**1**	**FROM: Section/Paragraph A12-3.8** A12-3.8 If not specifically required by local safety authorities having jurisdiction, the use of flange wraps/guards and splash protection should be considered around chemical pump skids. … **TO: Section/Paragraph A12-3.8** A12-3.8 ~~If not specifically required by local safety authorities having jurisdiction, t~~The use of flange wraps/guards and splash protection should be considered around chemical pump skids. There should be adequate berms around chemical areas for containment. **Justification (If necessary)** Delete "If not specifically required by local safety authorities having jurisdiction" to clarify that it is always recommended to consider flange wraps and splash protection.

Motion	Negative is addressed by the technical change(s).			
Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc			
Discussion	None			
Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.			
	X	2/3 ≤ [Negative is addressed by the technical change(s).]		**GO TO "Incorporation of the Technical Change" subsection**

	Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).			
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)			
		Discussion	None			
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.			
			X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**	
Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**		

Negative 71

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A12-4.5 A proper Standard Operating Procedure for pressurization and de-pressurization of the system, addressing air pockets in the system should be developed. Before start-up of any pressurized portion of the system, a detailed checklist should be prepared including inspection of isolation valves (fail open or closed by design), avoidance of dead head and proper bleeding of air pockets in the system should be completed. Valve operation, where applicable, should be done in a controlled manner during start up and shut down of the system to avoid a surge of pressure in the system during those operations. Operators should be trained to perform such tasks.				
	Negative Text	**SG071:** I see no reason that valve operation should be done in an uncontrolled manner at other times.				
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**	
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**	
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**			
			Reason	Delete "where applicable", "during start-up and shut-down of the system" and "during those operations" to improve clarity.		
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions				
	Discussion	None				
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.				
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X** **Y**	**GO TO "Address by Technical Change Option" subsection**
Address	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**					

Technical Changes	1	**FROM: Section/Paragraph A12-4.5** A12-4.5 A proper Standard Operating Procedure for pressurization and de-pressurization of the system, addressing air pockets in the system should be developed. Before start-up of any pressurized portion of the system, a detailed checklist should be prepared including inspection of isolation valves (fail open or closed by design), avoidance of dead head and proper bleeding of air pockets in the system should be completed. Valve operation, where applicable, should be done in a controlled manner during start up and shut down of the system to avoid a surge of pressure in the system during those operations. Operators should be trained to perform such tasks.	
		TO: Section/Paragraph A12-4.5 A12-4.5 A proper Standard Operating Procedure for pressurization and de-pressurization of the system, addressing air pockets in the system, should be developed. Before start-up of any pressurized portion of the system, a detailed checklist should be prepared including inspection of isolation valves (fail open or closed by design), avoidance of dead head and proper bleeding of air pockets in the system should be completed. Valve operation~~, where applicable,~~ should be done in a controlled manner ~~during start up and shut down of the system~~ to avoid ~~a~~ surges of pressure in the system ~~during those operations~~. Operators should be trained to perform such tasks.	
		Justification (If necessary) Delete "where applicable", "during start-up and shut-down of the system" and "during those operations" to improve clarity.	

Motion		Negative is addressed by the technical change(s).		
Motion by/2nd by		By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc		
Discussion		None		
Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.		
		X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**
Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).		
	Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)		
	Discussion	None		
	Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.		
		X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**

Final	(check if applicable)	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 72

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** A12-4.8 To avoid accidental opening or closing of manual valves that can result in surge of pressures, control of hazardous energy (CoHE) should be performed.
	Negative Text	SG072: This usage of this phrase is not consistent with its usage in my experience in industrial safety. I suspect that this phrase got here in an attempt to update a reference to locking valves. What ever the intended meaning, replace this phrase with one that does not have a specific meaning other than what is meant here.

Withdrawal (check one)		**X**	No Negative withdrawal made by Voter.					**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**					**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**					
			Reason	Replace CoHE with Lockout-Tagout.				
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Lindsey Sullivan / FTD Solutions						
	Discussion	None						
	Result of Vote (check one)	9 **Y** 0 **N**; Motion passed.						
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X**	**Y**		**GO TO "Address by Technical Change Option" subsection**

Address by Technical Change Option	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**							
	Technical Changes	**1**	**FROM: Section/Paragraph A12-4.8** A12-4.8 To avoid accidental opening or closing of manual valves that can result in surge of pressures, control of hazardous energy (CoHE) should be performed.					
			TO: Section/Paragraph A12-4.8 A12-4.8 To avoid accidental opening or closing of manual valves that can result in surge of pressures, ~~control of hazardous energy (CoHE)~~ Lockout-Tagout should be performed.					
			Justification (If necessary) Replace CoHE with Lockout-Tagout.					
	Motion	Negative is addressed by the technical change(s).						
	Motion by/2nd by	By: Lindsey Sullivan / FTD Solutions Second: Gary Van Schooneveld / CT Associates, Inc						
	Discussion	None						
	Result of Vote (check one)	10 **Y** 0 **N**; Motion passed.						
		X	2/3 ≤ [Negative is addressed by the technical change(s).]					**GO TO "Incorporation of the Technical Change" subsection**
	Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).					
		Motion by/2nd by	By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)					
		Discussion	None					
		Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.					
			X	90% ≤ [Agree to incorporate.]				**GO TO "Final" subsection → (F)**

Final	**(check if applicable)**	**X**	**(F)**	Addressed by technical change **(counted under k disposition)**

Negative 73

Negative	**Referenced § / ¶**	***TF/TC Chapter to fill in, including text in the ballot if necessary.** **A13-3 Elements of a Maintenance Program** A13-3.1 A well-run maintenance program should have at least the following elements. A three-tiered approach is used to ensure safe, reliable, predictable output of the work.			
	Negative Text	**SG073:** "Tiers" are hierarchical, but I don't see the hierarchy here. Either explain it or use some word other than "tier". Note: This was SG148 in the response to Doc 7086,			
	Withdrawal (check one)	**X**	No Negative withdrawal made by Voter.		**GO TO "Related" subsection**
Related	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**		**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**		
			Reason	We believe the text is clear as written when read by the intended audience.	
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer			
	Discussion	None			
	Result of Vote (check one)	14 **Y** 0 **N**; Motion passed.			
		X	90% ≤ [Negative is related and not persuasive.]		**GO TO "Not Significant Finding Option" subsection**
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**				
	Use of "Not significant finding option" (check one)	**X**	It is mutually agreed upon to term the Negative "not significant".		**GO TO "Final" subsection → (D)**
Final	**(check if applicable)**	**X**	**(D)**	Not significant **(counted under j in disposition)**	

Negative 74

Negative	Referenced § / ¶	*TF/TC Chapter to fill in, including text in the ballot if necessary. A13-7.2 *Examples* A13-7.2.1 *Example Evaluation of RO Membranes for Critical Spares Strategy* A13-7.2.1.1 RO membrane considerations: • The example UPW system has six RO units. Five are required for production and one is in standby • A failed RO membrane results in downtime • RO unit cleanings are required at a frequency of every three months. With five RO units in service, this results in a cleaning every three weeks. During cleaning, the RO unit is removed from service for a minimum of 12 hours, requiring the redundant sixth RO unit to be put into service. • Lead-time of RO membranes is 12 weeks from placement of purchase order. • Historical data indicates a mean time between failures of approximately 24 months for RO membranes under normal operating conditions. A13-7.2.1.2 Conclusion: The system does not have adequate redundancy to operate without a critical spare set of RO membranes. It is recommended to stock at least one set of RO membranes. A13-7.2.2 *Example Evaluation of UV Lamps for Critical Spares Strategy* A13-7.2.2.1 UV lamp considerations: • The system has 100 lamps and 75% are required to maintain equipment performance. • UV lamp maintenance is performed once every 12 to 15 months. • In the event of one failed UV lamp, no impact is expected to the UPW system. • The lead-time of UV lamps is less than two weeks from placement of purchase order. • Historical data indicates a low likelihood of early lamp failure, with fewer than 2% of lamps failing before scheduled replacement. A13-7.2.2.2 Conclusion: The system has adequate redundancy to operate with the expected number of failed UV lamps. It is not necessary to stock any critical spares for operations.		
	Negative Text	**SG074**: Modify this example (and the one below) to include a foreseen failure rate or explain how the conclusion is correctly drawn without considering the failure rate. Consider, for example, the building housing the UPW plant. Typically, there are no spares and no need to shut down the building for periodic maintenance, but the lead time for a replacement building is substantially more than 16 weeks. By the logic in the RO example, though, there is insufficient redundancy. It seems unlikely to me that this revelation will cause a spate of building of duplicate UPW plants. Note: This was SG150 in the response to Doc 7086,		
	Withdrawal (check one)	X	No Negative withdrawal made by Voter.	GO TO "Related" subsection
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	The failure rate is already included in the examples.
	Motion by/ 2nd by	By: Lindsey Sullivan / FTD Solutions Second: Soren Allebes / Georg Fischer		
	Discussion	None		
		14 **Y** 0 **N**; Motion passed.		

	Result of Vote (check one)	X	90% ≤ [Negative is related and not persuasive.]	**GO TO "Not Significant Finding Option" subsection**
Not Significant	**This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (*Regulations* ¶ 9.6.1.4.5.2)**			
	Use of "Not significant finding option" (check one)	X	It is mutually agreed upon to term the Negative "not significant".	**GO TO "Final" subsection → (D)**
Final	(check if applicable)	X	**(D)**	Not significant **(counted under j in disposition)**

Disposition of Voting Interest Reject 1

Check only when the Document has not been failed.

74	Original number (#) of Negatives		**(g)**
0	Number of Negatives withdrawn		**(h)**
0	Number of Negatives found not related		**(i)**
27	Number of Negatives found not significant		**(j)**
35	Number of Negatives addressed by technical change **(Negative becomes not significant)**		**(k)**
Final		**g** - (**h** + **i** +**j** + **k**) = 0	**Reject is Not Valid and is not included in the denominator of § VI. *Approval Conditions Check***
	X	**g** - (**h** + **i** +**j** + **k**) >0	**Reject is included in the denominator of § VI. *Approval Conditions Check***
		Reject without a Negative	**Not Valid**

Note: If all of the Negatives included with a Reject Vote are withdrawn, determined to be not related, or determined to be not significant, the Reject Vote is not valid. (*Regulations* ¶ 9.4.3.3)
Note: A Negative addressed by a technical change is automatically considered to be not significant. (*Regulations* ¶ 9.6.1.4.5.2)

IV. Other Technical Issues

Note: TC Chapter may choose to address a technical issue that is not part of a Negative received on a Letter Ballot (i.e., a Comment or a reason not addressed by a Vote response) by handling it as a Negative and finding it related and technically persuasive. The TC Chapter may then fail the Document or address such technical issue by using the procedure defined in *Regulations* § 9.6.1.4.3 to make a technical change to the Document. (*Regulations* ¶ 9.6.1.4.2.5)

Technical Issue	**Origin**	***TF/TC Chapter to choose** A reason not addressed by a Vote response
	Referenced Section/ Paragraph	***TF/TC Chapter to fill in including text in the ballot as appropriate.**
		Table A1-1

	Reason	***Original Comment text, if applicable, and problem statement, including justification and suggestion, should be copied.**				
		In response to other negatives surrounding the table, changes were brought to the TF that led to including additional changes to the table during the ballot review. Changes included: --Removed the rows related to chemical compatibility -- for every specific chemical, the engineer should consult the manufacturer instead. This Appendix is not about chemicals, it's about UPW. --Consolidated the two columns referencing FFKM and harmonized the compatibility with HUPW. --Removed the recommendation to use EPDM in HUPW.				
Handle technical issue identified above as a Negative.						
Rela ted	**Motion and Reason (check one)**	**X**	'Related' is mutually agreed upon. **(Needs no motion.)**			**GO TO "Persuasive" subsection**
Persuasive	**Motion and Reason (check one)**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**			
	Motion by/ 2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Soren Allebes / Georg Fischer				
	Discussion	None				
	Result of Vote (check one)	11 **Y** 0 **N**; Motion passed.				
		X	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	**X** **Y**	**GO TO "Address by Technical Change Option" subsection**
			[Negative is related and not persuasive.] < 2/3		**N**	**GO TO "Final" subsection → (E)**
Address by Technical Change Option	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**					
	Technical Changes	**1**	**FROM: Section/Paragraph Table A1-1**			

Table A1-1 Elastomer Material Compatibility

	Nitrile Rubber	*Neoprene Rubber*	*EPDM Rubber*	*Fluoroelastomers FKM/FPM (such as Viton)*	*Silicone*	*Clear Silicone (such as Silastic®[13] Clear medical grade)*	*Perfluoroelastomers / FFKM (such as Kalrez)*	*Perfluoro- and fluoro- compounds PFA/PTFE/ECTFE/ECTFE (such as Teflon®[14], Halar®[15] etc.)*	*FFKM elastomers (such as Chemraz®[16])*	
Pretreatment System	A	A	R	A	A	A	A	A	A	
Primary System	N/A	N/A	A	R	A	A	A	A	A	
Polishing System and Polished UPW	N/A	N/A	N/A	A	A	R	A	R	A	
Ozonated UPW or Under UV Exposure	N/A	N/A	N/A	N/A	A	N/A	A	R	A	
Hot UPW	N/A	N/A	A	N/A	N/A	R	N/A	R	N/A	
Acid (HCl)	N/A	N/A	N/A	R	N/A	N/A	N/A	R	R	
Caustic	N/A	N/A	A	N/A	N/A	N/A	N/A	A	R	

#1 N/A = Not Acceptable. A = Acceptable. R = Recommended.

#2 PTFE, ETFE, ECTFE, etc. should be used only in the modified version (expanded PTFE or as encapsulating material over a resilient material).

TO: Section/Paragraph Table A1-1

Table A1-1 Elastomer Material Compatibility

	Nitrile Rubber	*Neoprene Rubber*	*EPDM Rubber*	*Fluoroelastomers FKM/FPM (such as Viton®[13])*	*Silicone*	*Clear Silicone (such as Silastic®[14] Clear medical grade)*	*Perfluoroelastomers / FFKM (such as Kalrez®[15] or Chemraz®[16])*	*Perfluoro- and fluoro- compounds PFA/PTFE/ECTFE/ECTFE (such as Teflon®[17], Halar®[18] etc.)*	~~*FFKM elastomers (such as Chemraz®[16])*~~	
Pretreatment System	A	A	R	A	A	A	A	A	~~A~~	
Primary System	N/A	N/A	A	R	A	A	A	A	~~A~~	
Polishing System and Polished UPW	N/A	N/A	N/A	A	A	R	A	R	~~A~~	
Ozonated UPW or Under UV Exposure	N/A	N/A	N/A	N/A	A	N/A	A	R	~~A~~	
Hot UPW	N/A	N/A	N/A~~A~~	~~N~~/A	N/A	R	R~~N/A~~	R	~~N/A~~	
~~Acid (HCl)~~	~~N/A~~	~~N/A~~	~~N/A~~	~~R~~	~~N/A~~	~~N/A~~	~~N/A~~	~~R~~	~~R~~	
~~Caustic~~	~~N/A~~	~~N/A~~	~~A~~	~~N/A~~	~~N/A~~	~~N/A~~	~~N/A~~	~~A~~	~~R~~	

#1 N/A = Not Acceptable. A = Acceptable. R = Recommended.

#2 PTFE, ETFE, ECTFE, etc. should be used only in the modified version (expanded PTFE or as encapsulating material over a resilient material).

Justification (If necessary)

Removed the rows related to chemical compatibility -- for every specific chemical, the engineer should consult the manufacturer instead. This Appendix is not about chemicals, it's about UPW.

Consolidated the two columns referencing FFKM and harmonized the compatibility with HUPW.

Removed the recommendation to use EPDM in HUPW.

Motion		Negative is addressed by the technical change(s).	
Motion by/2nd by		By: Lindsey Sullivan / FTD Solutions Second: Bob McIntosh / GF Piping Systems	
Discussion		None	
Result of Vote (check one)		10 **Y** 0 **N**; Motion passed.	
	X	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**
		[Negative is not addressed by the technical change(s).] < 2/3	**GO TO "Final" subsection → (E)**
Incorporation of the Technical Change			
Motion		To incorporate the technical change(s).	
Motion by/2nd by		By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Jim Cannon / Mettler Toledo Thornton	
Discussion		None	
Result of Vote (check one)		12 **Y** 0 **N**; Motion passed.	
	X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**
		[Disagree to incorporate.] >10%	**GO TO "Final" subsection → (E)**
Final	**(check one)**	**X**	**(F)** Addressed by technical change

V. Comments

V- (i) Voters' Comments

Commenter 1 (Yu-Chun Yeh / Individual Participant) - Comment 1

Comment	***TF/TC Chapter to fill in section/paragraph #, if necessary.**	
	The document is technically sound. I suggest adding a note on coordination of chemical purity specifications (such as TOC, trace metals, and oxidizer residuals) between UPW system integrators and chemical compliance requirements used in downstream process modules. This may help align UPW specifications with material compliance expectations and ensure consistent quality across suppliers. I support the ballot.	
Action	**The TC Chapter agreed to do one of the following actions.**	
	***No motion is required in this step.**	
		Already addressed by Commenter #, Comment #
	X	No further action was taken by the TC Chapter. *Discussion: Although this is a great comment, the TF/SEMI will provide feedback to the voter that this doesn't apply to F61, rather to refer to F63 and suggest to attend UPW TF if there are further questions.*
		Refer to the TF for more consideration.
		New Business
		Editorial Change

This table is needed for each Comment accompanied a Vote

V-(ii) Comments Created by Handling Negative

Comment (Created by Handling Negative) NC – 1

Comment	**SG006:** SEMI C82 and SEM C89 are both cited in this Document and are, therefore, required to be listed in this Section.		
Action	**The TC Chapter agreed to do one of the following actions.**		
	X	Editorial change	
	Options for editorial change	**X**	**Case 2: Voted in this section:**
			Original section number and at least one full sentence are required in "FROM" and "TO" fields.

Editorial Changes	1	**FROM: Section/Paragraph** **4 Referenced Standards and Documents** 4.1 *SEMI Standards and Safety Guidelines* SEMI F19 — Specification for the Surface Condition of the Wetted Surfaces of Stainless Steel Components SEMI F51 — Guide for Elastomeric Sealing Technology SEMI F57 — Specification for Polymer Materials and Components Used in Ultrapure Water and Liquid Chemical Distribution Systems SEMI F63 — Guide for Ultrapure Water System Used in Semiconductor Processing SEMI F75 — Guide for Quality Monitoring of Ultrapure Water Used in Semiconductor Manufacturing SEMI F104 — Test Method for Evaluation of Particle Contribution of Components Used in Ultrapure Water and Liquid Chemical Distribution Systems SEMI F121 — Guide for Evaluating Metrology for Particle Precursors in Ultrapure Water
		TO: Section/Paragraph **4 Referenced Standards and Documents** 4.1 *SEMI Standards and Safety Guidelines* SEMI C82 — Test Method for Particle Removal Performance of Liquid Filter Rated 20 to 50 nm With Liquid-Borne Particle Counter SEMI C89 — Test Method for Particle Removal Performance of Liquid Filter Rated Below 30 nm with Inductively Coupled Plasma – Mass Spectroscopy (ICP-MS) SEMI F19 — Specification for the Surface Condition of the Wetted Surfaces of Stainless Steel Components SEMI F51 — Guide for Elastomeric Sealing Technology SEMI F57 — Specification for Polymer Materials and Components Used in Ultrapure Water and Liquid Chemical Distribution Systems SEMI F63 — Guide for Ultrapure Water System Used in Semiconductor Processing SEMI F75 — Guide for Quality Monitoring of Ultrapure Water Used in Semiconductor Manufacturing SEMI F104 — Test Method for Evaluation of Particle Contribution of Components Used in Ultrapure Water and Liquid Chemical Distribution Systems SEMI F121 — Guide for Evaluating Metrology for Particle Precursors in Ultrapure Water
		Justification (If necessary) Editorial adding C82 and C89 to Referenced Standards and Documents section to comply with Style Manual. SEMI C82 and SEM C89 are both cited in this Document and are, therefore, required to be listed in this Section.

Motion	To approve above editorial change(s)
Motion by/2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems
Discussion	None
Vote	11 **Y** 0 **N**; Motion passed.

This table is needed for each Comment created by handling Negative.

Comment (Created by Handling Negative) NC – 2

Comment	**SG007**: I have moved several citations to this Section (from Related Documents) as they are cited in this Document			
Action	**The TC Chapter agreed to do one of the following actions.**			
	X	Editorial change		
		Options for editorial change	**X**	**Case 2: Voted in this section:**
				Original section number and at least one full sentence are required in "FROM" and "TO" fields.
Editorial Changes	**1**	**FROM: Section/Paragraph**		

4 Referenced Standards and Documents

4.1 *SEMI Standards and Safety Guidelines*

SEMI C82 — Test Method for Particle Removal Performance of Liquid Filter Rated 20 to 50 nm With Liquid-Borne Particle Counter

SEMI C89 — Test Method for Particle Removal Performance of Liquid Filter Rated Below 30 nm with Inductively Coupled Plasma – Mass Spectroscopy (ICP-MS)

SEMI F19 — Specification for the Surface Condition of the Wetted Surfaces of Stainless Steel Components

SEMI F51 — Guide for Elastomeric Sealing Technology

SEMI F57 — Specification for Polymer Materials and Components Used in Ultrapure Water and Liquid Chemical Distribution Systems

SEMI F63 — Guide for Ultrapure Water System Used in Semiconductor Processing

SEMI F75 — Guide for Quality Monitoring of Ultrapure Water Used in Semiconductor Manufacturing

SEMI F104 — Test Method for Evaluation of Particle Contribution of Components Used in Ultrapure Water and Liquid Chemical Distribution Systems

SEMI F121 — Guide for Evaluating Metrology for Particle Precursors in Ultrapure Water

…

20 Related Documents

20.1 *SEMI Standards and Safety Guidelines*

SEMI C79 — Guide to Evaluate the Efficacy of Sub-15 nm Filters Used in Ultrapure Water (UPW) Distribution Systems

SEMI C93 — Guide for Ultrapure Water System Used in Semiconductor Processing

SEMI E49 — Guide for High Purity and Ultrahigh Purity Piping Performance, Subassemblies, and Final Assemblies

SEMI F31 — Guide for Bulk Chemical Distribution Systems

SEMI F40 — Practice for Preparing Liquid Chemical Distribution Components and Neat Polymers for Chemical Testing

SEMI S2 — Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment

TO: Section/Paragraph

4 Referenced Standards and Documents

4.1 *SEMI Standards and Safety Guidelines*

SEMI C79 — Guide to Evaluate the Efficacy of Sub-15 nm Filters Used in Ultrapure Water (UPW) Distribution Systems

SEMI C82 — Test Method for Particle Removal Performance of Liquid Filter Rated 20 to 50 nm With Liquid-Borne Particle Counter

SEMI C89 — Test Method for Particle Removal Performance of Liquid Filter Rated Below 30 nm with Inductively Coupled Plasma – Mass Spectroscopy (ICP-MS)

SEMI C93 — Guide for Ultrapure Water System Used in Semiconductor Processing

SEMI E49 — Guide for High Purity and Ultrahigh Purity Piping Performance, Subassemblies, and Final Assemblies

SEMI F19 — Specification for the Surface Condition of the Wetted Surfaces of Stainless Steel Components

SEMI F40 — Practice for Preparing Liquid Chemical Distribution Components and Neat Polymers for Chemical Testing

SEMI F51 — Guide for Elastomeric Sealing Technology

SEMI F57 — Specification for Polymer Materials and Components Used in Ultrapure Water and Liquid Chemical Distribution Systems

SEMI F63 — Guide for Ultrapure Water System Used in Semiconductor Processing

SEMI F75 — Guide for Quality Monitoring of Ultrapure Water Used in Semiconductor Manufacturing

SEMI F104 — Test Method for Evaluation of Particle Contribution of Components Used in Ultrapure Water and Liquid Chemical Distribution Systems

SEMI F121 — Guide for Evaluating Metrology for Particle Precursors in Ultrapure Water

…

20 Related Documents

20.1 *SEMI Standards and Safety Guidelines*

~~SEMI C79 — Guide to Evaluate the Efficacy of Sub-15 nm Filters Used in Ultrapure Water (UPW) Distribution Systems~~

~~SEMI C93 — Guide for Ultrapure Water System Used in Semiconductor Processing~~

~~SEMI E49 — Guide for High Purity and Ultrahigh Purity Piping Performance, Subassemblies, and Final Assemblies~~

SEMI F31 — Guide for Bulk Chemical Distribution Systems

~~SEMI F40 — Practice for Preparing Liquid Chemical Distribution Components and Neat Polymers for Chemical Testing~~

SEMI S2 — Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment

Justification (If necessary)
Editorial to move SEMI E49, C79, C93, and F40 to Referenced Standards and Documents section to comply with Style Manual, since they are cited within the document and should be in this section.

Motion	To approve above editorial change(s)
Motion by/2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems
Discussion	None
Vote	11 **Y** 0 **N**; Motion passed.

Comment (Created by Handling Negative) NC – 3

Comment	**SG008**: MSWord found no reference to this in this Document. Only source to which a Document makes explicit reference may be listed in this Section. Other sources that the originating TF considers to be of use may be listed in the "Related Documents" Section. I have moved this item to that Section			
Action	**The TC Chapter agreed to do one of the following actions.**			
	X	Editorial change		
		Options for editorial change	**X**	**Case 2: Voted in this section:** **Original section number and at least one full sentence are required in "FROM" and "TO" fields.**
Editorial Changes	**1**	**FROM: Section/Paragraph** 4.2 *ASME Standards*[1] 4.2.1 ASME B31.3 — Process Piping ASME SA240 — Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications … **20 Related Documents** 20.1 *SEMI Standards and Safety Guidelines* …		
		TO: Section/Paragraph 4.2 *ASME Standards*[1] ~~4.2.1 ASME B31.3 Process Piping~~ ASME SA240 — Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications … **20 Related Documents** 20.1 *SEMI Standards and Safety Guidelines* … 20.2 *ASME Standards* ASME B31.3 — Process Piping		
		Justification (If necessary) Editorial to move ASME B31.3 to Related Documents section to comply with Style Manual, since it is not cited within the body of the document.		

Motion	To approve above editorial change(s)
Motion by/2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems
Discussion	None
Vote	11 **Y** 0 **N**; Motion passed.

Comment (Created by Handling Negative) NC – 4

Comment	**SG009:** MSWord found no reference to this in this Document. Only source to which a Document makes explicit reference may be listed in this Section. Other sources that the originating TF considers to be of use may be listed in the "Related Documents" Section. I have moved this item to that Section.			
Action	**The TC Chapter agreed to do one of the following actions.**			
	X	Editorial change		
		Options for editorial change	**X**	**Case 2: Voted in this section:**
				Original section number and at least one full sentence are required in "FROM" and "TO" fields.
Editorial Changes	**1**	**FROM: Section/Paragraph** 4.7 *OSHA Standards*[6] OSHA 29CFR 1910.140 … **20 Related Documents** 20.1 *SEMI Standards and Safety Guidelines* … 20.2 *ASME Standards* ASME B31.3 — Process Piping		
		TO: Section/Paragraph ~~4.7 *OSHA Standards*[6]~~ ~~OSHA 29CFR 1910.140~~ … **20 Related Documents** 20.1 *SEMI Standards and Safety Guidelines* … 20.2 *ASME Standards* ASME B31.3 — Process Piping 20.3 *OSHA Standards*[6] OSHA 29CFR 1910.140		
		Justification (If necessary) Editorial to move OSHA 29CFR 1910.140 to Related Documents to comply with Style Manual, since it is not cited within the body of the document.		

Motion	To approve above editorial change(s)
Motion by/2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems
Discussion	None
Vote	11 **Y** 0 **N**; Motion passed.

Comment (Created by Handling Negative) NC – 5

Comment	**SG016:** Please clarify what is intended by “media” here. All filtration uses media, but media range from gravel beds to RO membranes.		
Action	**The TC Chapter agreed to do one of the following actions.**		
	X	Editorial change	
	Options for editorial change	**X**	**Case 2: Voted in this section:** **Original section number and at least one full sentence are required in “FROM” and “TO” fields.**
Editorial Changes	**1**	**FROM: Section/Paragraph 6.2.3** 6.2.3 *Various Filters* — Filters to protect RO membranes from fouling and suspended solids include media filtration, cartridge filtration, microfiltration, and ultrafiltration.	
		TO: Section/Paragraph 6.2.3 6.2.3 *Various Filters* — Filters to protect RO membranes from fouling and suspended solids include granular media filtration, cartridge filtration, microfiltration, and ultrafiltration.	
		Justification (If necessary) Editorial to add “granular”. In water treatment, it is well-known that "media filtration" refers to a filter bed composed of granular material.	
Motion		To approve above editorial change(s)	
Motion by/2nd by		By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems	
Discussion		None	
Vote		11 **Y** 0 **N**; Motion passed.	

Comment (Created by Handling Negative) NC – 6

Comment	**SG020:** Insert the missing target.		
Action	**The TC Chapter agreed to do one of the following actions.**		
	X	Editorial change	
	Options for editorial change	**X**	**Case 2: Voted in this section:** **Original section number and at least one full sentence are required in “FROM” and “TO” fields.**
Editorial	**1**	**FROM: Section/Paragraph 7.5** 7.2 *Materials* — Components of the UPW system should be comprised of materials appropriate to the application and conform to the electrical, mechanical, and purity requirements of the UPW. Materials should also comply with the purity as specified by applicable SEMI Standards. Refer to for details on the material quality recommendations.	

		TO: Section/Paragraph 7.5 7.2 *Materials* — Components of the UPW system should be comprised of materials appropriate to the application and conform to the electrical, mechanical, and purity requirements of the UPW. Materials should also comply with the purity as specified by applicable SEMI Standards. Refer to Appendix 1 for details on the material quality recommendations.
		Justification (If necessary) Editorial to add HUPW and CMP UPW to clarify that there are all kinds of subsystems that would be covered.

Motion	To approve above editorial change(s)
Motion by/2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems
Discussion	None
Vote	11 **Y** 0 **N**; Motion passed.

Comment (Created by Handling Negative) NC – 7

Comment			**SG021:** Remove the ", etc.," or explain to what it refers. The only subsystems mentioned are are the ones named explicitly.
Action			**The TC Chapter agreed to do one of the following actions.**
	X		Editorial change
	Options for editorial change	**X**	**Case 2: Voted in this section:** **Original section number and at least one full sentence are required in "FROM" and "TO" fields.**
Editorial Changes	**1**		**FROM: Section/Paragraph 7.5** 7.5 *System Start-Up and Commissioning* — … It is further recommended that performance tests and initial verification sign-off hold points be listed in the startup and commissioning plan for each sub-system (Pretreatment, Makeup, Primary, Polishing, etc.).
			TO: Section/Paragraph 7.5 7.5 *System Start-Up and Commissioning* — … It is further recommended that performance tests and initial verification sign-off hold points be listed in the startup and commissioning plan for each sub-system (Pretreatment, Makeup, Primary, Polishing, HUPW, CMP UPW, etc.).
			Justification (If necessary) Editorial to add HUPW and CMP UPW to clarify that there are all kinds of subsystems that would be covered.

Motion	To approve above editorial change(s)
Motion by/2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems
Discussion	None
Vote	11 **Y** 0 **N**; Motion passed.

Comment (Created by Handling Negative) NC – 8

Comment	**SG026:** Please clarify what it means to “use” a SEMI Standard, as opposed to “meet” a standard, which is used in subsequent items.			
Action	**The TC Chapter agreed to do one of the following actions.**			
	X	Editorial change		
	Options for editorial change	**X**	**Case 2: Voted in this section:**	
			Original section number and at least one full sentence are required in “FROM” and “TO” fields.	
Editorial Changes	**1**	**FROM: Section/Paragraph** A1-1.3.1 For filter cleanliness, use SEMI C79. A1-1.3.2 For components and subassemblies, use SEMI F40 and SEMI F104.		
		TO: Section/Paragraph A1-1.3.1 For evaluation of filter cleanliness, use the test methods in SEMI C79. A1-1.3.2 For evaluation of components and subassemblies, use test methods in SEMI F40 and SEMI F104.		
		Justification (If necessary) Editorial to add the phrases "evaluation of" and "test methods" for clarity		

Motion	To approve above editorial change(s)
Motion by/2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems
Discussion	None
Vote	11 **Y** 0 **N**; Motion passed.

Comment (Created by Handling Negative) NC – 9

Comment	**SG031:** ECTFE and ETFE are not perfluoro compounds. I have not marked a suggested change because I do not know if you want to include all of these materials (which, except for ETFE, may be described as “fluorocompounds”) or just the perfluorocompounds (PFA and PTFE).			
Action	**The TC Chapter agreed to do one of the following actions.**			
	X	Editorial change		
	Options for editorial change	**X**	**Case 2: Voted in this section:**	
			Original section number and at least one full sentence are required in “FROM” and “TO” fields.	

Editorial Changes	1	**FROM: Section/Paragraph A1-5.1** A1-5.1 …This consideration is particularly important for expanded perfluoro compounds that are non-resilient. Perfluoro (PFA, PTFE, ECTFE, and ETFE) compounds can be used as a coating of an elastomer or lining in other system components, such as tanks, vessels, pumps, valves, etc…. **TO: Section/Paragraph A1-5.1** A1-5.1 …This consideration is particularly important for expanded perfluoro compounds that are non-resilient. ~~Perfluoro~~ Fluoropolymers (PFA, PTFE, ECTFE, and ETFE) compounds can be used as a coating of an elastomer or lining in other system components, such as tanks, vessels, pumps, valves, etc…. **Justification (If necessary)** Editorial to change to " fluoropolymers " for clarity.

Motion	To approve above editorial change(s)
Motion by/2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems
Discussion	None
Vote	11 **Y** 0 **N**; Motion passed.

Comment (Created by Handling Negative) NC – 10

Comment			**SG034:** Correct this, either by changing the term to something that correctly describes the listed examples or by eliminating the examples that are not perfluoropolymers. ECTFE, for example, is not fully halogenated and some of the halogen isn't fluorine. Note: This was SG065 in the response to Doc 7086,
Action			**The TC Chapter agreed to do one of the following actions.**
	X		Editorial change
	Options for editorial change	**X**	**Case 2: Voted in this section:** **Original section number and at least one full sentence are required in "FROM" and "TO" fields.**
Editorial Changes	1		**FROM: Section/Paragraph Table A1-1** *Perfluoro compounds PFA/PTFE/ECTFE/ECTFE (such as Teflon®[14], Halar®[15] etc.)* **TO: Section/Paragraph Table A1-1** *~~Perfluoro~~Fluoropolymers compounds PFA/PTFE/E~~C~~TFE/ECTFE (such as Teflon®[12], Halar®[13] etc.)* **Justification (If necessary)** Editorial to add the phrases "evaluation of" and "test methods" for clarity

Motion	To approve above editorial change(s)
Motion by/2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems
Discussion	None
Vote	11 **Y** 0 **N**; Motion passed.

Comment (Created by Handling Negative) NC – 11

Comment	**SG062:** In my (admittedly dated) experience in water purification for the semiconductor industry, IX processes are not "batch", they are continuous, i.e., they occur as water is pumped through resin beds. That resin beds require regeneration doesn't make their use "batch" any more than that filters require replacement makes the use of filters "batch".		
Action	**The TC Chapter agreed to do one of the following actions.**		
	X	Editorial change	
	Options for editorial change	**X**	**Case 2: Voted in this section:** **Original section number and at least one full sentence are required in "FROM" and "TO" fields.**
Editorial Changes	**1**	**FROM: Section/Paragraph A8-1.1** A8-1.1 Ion exchange processes using resins are batch operations and require regeneration of the ion exchange resin at prescribed intervals to prevent breakthrough of the species being removed.	
		TO: Section/Paragraph A8-1.1 A8-1.1 Ion exchange processes using resins are ~~batch~~ cyclic operations and require regeneration of the ion exchange resin at prescribed intervals to prevent breakthrough of the species being removed.	
		Justification (If necessary) Editorial to change the word "batch" to "cyclic" for clarity.	

Motion	To approve above editorial change(s)
Motion by/2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems
Discussion	None
Vote	11 **Y** 0 **N**; Motion passed.

Comment (Created by Handling Negative) NC – 12

Comment	**SG063:** "Recovery" does not appear to be the appropriate word here. If it is, then please explain either what the RO system is to recover or from what the RO system is to recover. If it is not the correct word, please replace it with whatever is.	
Action	**The TC Chapter agreed to do one of the following actions.**	
	X	Editorial change

	Options for editorial change	X	**Case 2: Voted in this section:** **Original section number and at least one full sentence are required in "FROM" and "TO" fields.**
Editorial Changes	1	**FROM: Section/Paragraph A8-2.1** **A8-2 Ion Exchange Applications** A8-2.1 *Pretreatment ion exchange* — These resin beds are installed upstream of the first pass RO. They remove species such as hardness, organic materials, or carbonate species/CO2 that would adversely affect the operation of the RO system, e.g., prevent efficient recovery. Different types of resin beds are employed depending on the raw water quality and expectations of the RO system recovery.	
		TO: Section/Paragraph A8-2.1 **A8-2 Ion Exchange Applications** A8-2.1 *Pretreatment ion exchange* — These resin beds are installed upstream of the first pass RO. They remove species such as hardness, organic materials, or carbonate species/CO2 that would adversely affect the operation of the RO system, e.g., prevent efficient recovery. Different types of resin beds are employed depending on the raw water quality and expectations of the RO system recovery rate.	
		Justification (If necessary) Added "rate" for clarity. "RO recovery rate" is a commonly used and universally understood term in water treatment.	

Motion	To approve above editorial change(s)
Motion by/2nd by	By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems
Discussion	None
Vote	11 **Y** 0 **N**; Motion passed.

VI. Editorial Changes Other than Those Voted on in § V

None

VII. Approval Conditions Check

VII. - (i). Approval Rate

APPROVAL CONDITION 1: All Negatives have been discussed and were withdrawn, found not related, found not persuasive, or addressed by a technical change. (*Regulations* ¶ 9.6.2.1.2)

APPROVAL CONDITION 2: At least 90% of the sum of valid Voting Interest Accept and Voting Interest Reject Votes must be Accept. (*Regulations* ¶ 9.6.2.1.3)

Note: If both approval conditions are not satisfied, the Document fails.

		Accepts		(Accepts + Valid Rejects)			
Approval Rate	=	**61**		**62**	=	**98%**	**?90%**

VII. – (ii) Approval Level (check one)

Note: Refer to *Regulations* § 9.6.2 for further information.

X	**Need a Ratification Ballot:** **The Letter Ballot meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.**

VIII. Safety Check

Note: Refer to *Regulations* § 15 for further information.

Motion	X	**This is not a Safety Document**, when all safety-related information is removed, the Document is still technically sound and complete. (*Regulations* ¶ 8.7.1)
		This is a Safety Document, when all safety-related information is removed, the Document is not technically sound and complete. (*Regulations* ¶ 8.7.2)
		Safety Checklist (*Regulations* ¶ 15.3) is complete and has been included with the Document throughout the balloting process. (*Regulations* ¶ 15.1.2)
Motion by/2nd by		By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG) Second: Bob McIntosh / GF Piping Systems
Discussion		None
Vote		9 **Y** 0 **N**; Motion passed.

IX. Intellectual Property (IP) Check

Note: This Letter Ballot may cover all or part of a Standard or Safety Guideline. Regardless of the coverage, this IP check applies to the entire Standard or Safety Guideline*. Refer to *Regulations* § 16 for further information.

X	The TC Chapter meeting chair asked those participating, if they were aware of any patented technology that might be relevant (refer to *Regulations* ¶ 16.3.1.1) to the Standard or Safety Guideline; or, any copyrighted items or trademarks that are used/reproduced (refer to *Regulations* ¶ 16.4.1.2) in the Standard or Safety Guideline. (Also refer to *Regulations* § 8.8)		
	X	The question is NOT answered in affirmative (No potentially material patented technology or use/reproduction of copyrighted items/trademarks is known.)	**GO TO SECTION X.**

X. Action for This Document

Motion	X	This Document passed TC Chapter review with technical changes and with or without editorial changes and will be forwarded to the ISC A&R SC for procedural review. A Ratification Ballot will be issued to verify the technical changes.
Motion by/ 2nd by		By: Bob McIntosh / GF Piping Systems Second: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)
Discussion		None
Vote		10 **Y** 0 **N**
Final Action	X	Motion passed
		Motion failed

Note: If the use of PMPT or copyrighted item is justified by the TC Chapter, LOA or release form must be received before publication can proceed.