

Ballot		Name	API 17R 2nd Edition	Report Date:	5/10/2021	Closing Date	6/23/2021						
		Proposal											
Sort Key	Sort by Clause	Vote	Clause Subclause Number	Paragraph	Type of Comments	Comments	Proposed Change	Comment Resolution	Attachment	Company	Email Address	Open/Closed	
	1	1 NonVoter		1	1	General	No material and quality control requirements are given in the RP. The design verification requirements in Section 5.4 assumes that the mechanical properties have been achieved through-thickness and that ductile materials are used, i.e. material toughness is sufficient to prevent brittle fracture. See comments given to API 17TR8, uploaded file to the comment given to Section 5.5.	Consider including reference to API 17G with respect to manufacturing requirements or state explicit minimum requirements to materials. The uploaded document provides material and quality control data applicable for carbon and low alloy steels.	Accepted in principal. 17G specified as a normative reference. Added statements in Section 5.1 referencing 17A for materials selection.		Equinor	fkir@equinor.com	Closed
	2	2 AffirmativeWithComment		1	first paragraph	Technical	introduction section is missing	add introduction section	Not accepted. Existing Section 1 covers introductory content.		Doris Inc.	cewhite1008@yahoo.com	Closed
	3	3 Negative	1 Scope	1st bullet	Technical	Include wet-mate umbilical connectors. These won't have production fluid but are often the same type of multi-bore connector.	add in scope "infield umbilical wet-mate end terminations"	Not accepted. Scope and non-scope as listed are sufficiently detailed.		BP	roy.chan@bp.com	Closed	
	4	347 Negative	10.1 General Installation and Recovery...	list	Technical	Installation speed	add "- maximum installation speed for the jumper"	Not accepted. "Limits" term in statement encompasses both max and min speeds.		BP	roy.chan@bp.com	Closed	
	5	348 AffirmativeWithComment	10.2.1		9	Technical	In addition to tugger lines, methods to attach tag lines should be included in the jumper/spreader beam assembly.	Include requirements for methods to attach tag lines should be included in the jumper/spreader beam assembly.	Accepted in principle. Captured in update to comment 133		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
	6	349 AffirmativeWithComment	10.2.1			Technical	Rigging should be designed to allow for one end of the jumper to land prior to the other. Typically this is the manifold side that lands first and then XT side second	Include requirements for designing the rigging to allow for one end of the jumper to be landed prior to the other. Include details that in the case of a well jumper the manifold end is to be installed first before the XT end second.	Not accepted Requirement captured in section 10.6.1		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
	7	350 AffirmativeWithComment	10.2.1			Technical	A method to adjust the length of the slings/chains should be included in order to prevent any slack in the lines.	Include requirements with regards to a method to adjust the length of the slings/chains should be included in order to prevent any slack in the lines.	Accepted in principle. Added requirement to have adjustability in sling length will be added to the RP.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
	8	351 Negative	10.2.1 Spreader Beam Assembly	list	Technical	flexible connector orientation	add "- for flexibles, the gooseneck connector must be able to be lifted and oriented for connection and installation and the load carried independent of the flexible pipe loads"	Not accepted; note similar statement may be incorporated into another relevant section addressing installation considerations for flexible jumpers (7.6, etc.).		BP	roy.chan@bp.com	Closed	
	9	352 AffirmativeWithComment	10.2.2		1	Editorial	refrain from stating detailed sections of the API document as these might change when that document is revised making the reference incorrect. Just state in accordance with the API document.	delete "Annex K"	Accepted		NOV	roy.whiteman@nov.com	Closed
	10	353 Negative	10.2.2 Lifting Clamps	1st para	Editorial	flexible lift clamps	add "For flexibles, lift clamp on the flexible pipe is a collar that interface to a groove on the end fitting."	Not accepted. Comment too prescriptive and section as-is sufficiently addresses lifting clamps.		BP	roy.chan@bp.com	Closed	
	11	355 AffirmativeWithComment	10.2.3			Technical	Transportation stands should not energize the gasket or require the jumper to be locked onto the stand (especially if this locking mechanism is to be accessed at heights offshore). Any offshore operations to prepare the jumper for installation should be limited to the deck such that personnel are not required to work at heights.	Include requirement that transportation stands are not require the connector to be locked onto them or energize the gasket. Also, include requirements that any offshore operations to prepare the jumper for installation should be limited to the deck such that personnel are not required to work at heights.	Accepted in principle. Changed the word "locked" to "secure" in statement.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
	12	357 AffirmativeWithComment	10.2.4		1	Editorial	refrain from stating detailed sections of the API document as these might change when that document is revised making the reference incorrect. Just state in accordance with the API document.	delete "Annex K"	Accepted.		NOV	roy.whiteman@nov.com	Closed
	13	358 AffirmativeWithComment		10.4		9	Technical	Welding shall not be done in the vicinity of subsea electronic equipment on the jumper. All welding shall be completed prior to brining the jumper onboard due to concern with damaging subsea electronics on the jumper during welding operations.	Not Accepted. Adequately addressed in section 10.4.3. "All welding should be completed prior to bringing the jumper onboard the vessel."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
	14	359 AffirmativeWithComment		10.5		3	Editorial	Remove the use of 'his' in the following statement 'All deck crane operations should be through the deck supervisor, or his nominated personnel. Once a load has passed through the water column, all communications should be through the installation supervisor or his nominated personnel.'	Accepted		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed

15	360	AffirmativeWithComment	10.6.2	3	Technical	Guidance on seal test pressure and acceptance criteria to be supplied for the backseal test.	Include requirements for the required minimum backseal test pressures and acceptance criteria (e.g., 3%/hr per API 6A). The following is our requirements for seal test pressures which can be discussed and aligned on. The test pressure shall be the greater of the following and the test shall last for a minimum of 15 minutes. i) A gauge pressure of 1.25 times ambient subsea hydrostatic pressure (absolute) less the minimum anticipated bore pressure (absolute) ii) The pressure required to ensure that the primary seal is properly installed, energized, and capable of containing full working pressure of the equipment upon which it is mounted iii) 1000 psig (69 barg)	Not accepted Redundant - see comment #47		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
16	361	AffirmativeWithComment	10.6.2	1	Editorial	Remove the use of terms like 'if practical' since they weaken the requirement which already incorporates a should (not shall) statement.	Remove the 'if practical' from the following statement 'The seal test hydraulic line should be purged of air, such as by pumping hydraulic fluid through the line before locking the jumper connector onto the inboard hub if practical.'	Not Accepted. Wording appropriate as is.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
17	362	AffirmativeWithComment	10.6.3	1	General	An external seal test is nice to have and may be useful to help find problems, but it is the internal pressure leak test that counts.	Set the expectation that there will be an internal pressure test regardless.	Not accepted. As-is statement is sufficient in 10.6.3.		Oxy	Tim_Dean@oxy.com	Closed
18	363	AffirmativeWithComment	10.6.4	1	Technical	The section on wetparking implies that the jumper connections do not need to be made up (i.e., locked). Thus electrical continuity with the host structure which contains the jumpers CP protection is not guaranteed.	Include a statement to consider the affect of wetparking the jumper on the overall life span of the jumper. Modify statement that end connections can be made up later to provide guidance that end connections should be made up at least on one side to achieve CP protection while wet parked.	Accepted in principle. "If the jumper may be wet parked for an extended time, consideration should be given to the effects of corrosion as the jumper may not be protected by the cathodic protection system of the host structures."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
19	364	AffirmativeWithComment	10.7	1	Technical	Due to the complexity of the operation and safety concerns, jumpers are rarely recovered fully to deck after being installed subsea. These jumpers are either abandoned subsea or cut up and recovered in pieces to the supply vessel deck.	Update jumper recovery section to provide warning about potential issues with recovery of a full jumper back to the deck of a vessel. Include details about cutting up a jumper and bringing up the components in manageable pieces or getting regulatory approval to abandon in place.	Accepted in principle. "A contingency plan should be made for a jumper recovery, and should include flushing of the pipeline before jumper removal, a method to capture residual hydrocarbons in the pipeline, capping of exposed hubs, and surface handling and transfer of the flooded jumper."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
20	4	Negative	2. Normative References	list	Technical	missing specification for assessment of products for reliability and technical risk.	Add API 17N For Reliability, Technical Risk, and Integrity Management	Accepted.		BP	roy.chan@bp.com	Closed
21	5	Negative	2. Normative References	list	Technical	missing specification for guidance on qualification of new connector products.	Add API 17Q For Subsea Equipment Qualification	Accepted.		BP	roy.chan@bp.com	Closed
22	6	Negative	2. Normative References	list	Technical	missing specification for design of pipe for external pressure	Add API RP 1111 For Design, construction, Operation, and Maintenance of Offshore Hydrocarbon Pipelines (limit state design)	Accepted.		BP	roy.chan@bp.com	Closed
23	7	Negative	2. Normative References	list	Technical	missing specification for design of fittings for jumpers and connectors	Add ASME B16.9 Factory-Made Wrought Buttwelding Fittings	Accepted in principal. Added to Normative references. ASME B16.9 Included in first sentence of section 6.3. "Components manufactured from forgings and welded directly to jumper pipe should comply with industry accepted standards such as ASME B16.9 as well as with the end user's material specification(s) and regional regulatory requirements. "		BP	roy.chan@bp.com	Closed
24	8	Negative	2. Normative References	list	Technical	missing specification for fatigue design of jumpers	Add DNV-RP-C203, Fatigue Design of Offshore Steel	Accepted.		BP	roy.chan@bp.com	Closed

25	9	Negative	2. Normative References	list	Technical	missing specification for design of cathodic protection systems	Add DNV-RP-B401, Cathodic Protection Design	Accepted.		BP	roy.chan@bp.com	Closed
26	10	Negative	2. Normative References	list	Technical	missing specification for design for sea fastening	add DNV-RP-C205 and/or DNVGL-ST-N001 Marine Operations	Accepted.		BP	roy.chan@bp.com	Closed
27	11	Negative	2. Normative References	list	Technical	missing specification for design of super duplex components in contact with CP	add DNV-RP-F112, Design of Duplex Stainless Steel Subsea Equipment Exposed to Cathodic Protection	Accepted.		BP	roy.chan@bp.com	Closed
28	12	Negative	2. Normative References	list	Technical	missing specification for design of free spanning jumpers	add DNVGL-RP-F105 Free Spanning Pipelines	Accepted.		BP	roy.chan@bp.com	Closed
29	13	Negative	2. Normative References	list	Technical	missing specification for avoidance of vibration induced fatigue failure	add AVIFF	Accepted.		BP	roy.chan@bp.com	Closed
30	14	Negative	2. Normative References	list	Technical	missing specification for fluid cleanliness for multibore connectors containing hydraulic lines.	add SAE AS4059 Aerospace Fluid Power - Cleanliness Classification for Hydraulic Fluids	Accepted in principal. Added following bullet to section 5.6: "Following FAT, multibore connectors should be flushed to meet cleanliness requirements of SAE AS4059. The class of cleanliness shall be as agreed between the manufacture and the user/purchaser."		BP	roy.chan@bp.com	Closed
31	15	Negative	2. Normative References	list	Technical	BP advocates for use of a standard welding procedure DNV-RP-B204	add DNVGL-RP-B204 Welding of subsea production system equipment	Accepted.		BP	roy.chan@bp.com	Closed
32	16	Negative	2. Normative References	list	Technical	BP advocates for use of an industry standard forging specification	add DNVGL-RP-0034 Steel forgings for subsea applications	Not accepted. Specification cannot be added to Normative references as it is not included in the body of the document. Material guidance has been added to section 5.3 which references API 17A. API 17A refers to DNVGL-RP-0034.		BP	roy.chan@bp.com	Closed
33	17	AffirmativeWithComment		3 ALL	General	Hub End Closures and Pressure Caps are not defined in this list. These terms seem to be used interchangeably through the document.	Update definitions to include Hub End Closures and Pressure Caps. Recommend to select one of these terms to use throughout the document and remove the other term altogether.	Accepted in principal. Removed 'end closure' from 'pressure cap/end closure' and replaced 'end closure' with 'pressure cap'. Also added definition of Pressure Cap.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
34	18	Negative	3.1.6 Connector	1st para	Technical	The connector should consist of the retrieved have of the connection system	Add "The connector shall be designed to be retrieved with the outboard hub."	Accepted in principal. Added statement as proposed, but changed "shall" for "should".		BP	roy.chan@bp.com	Closed
35	32	AffirmativeWithComment		4 ALL	Technical	Selection drivers for jumper type is not pertinent to design and qualification of jumpers and does not belong in this document. This type of teaching material is not typically included in other API 17 series documents (e.g., 17D, 17P) and thus should be removed.	Remove Section 4 in entirety or alternatively keep as an informative annex.	Not accepted. As this is a Recommended Practice (RP), "guidance" as to options and selection considerations (Pros & Cons) are helpful to first time or new users.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
36	34	AffirmativeWithComment		4.2 Entire Section	General	API typically does not discuss financial matters, only technical issues.	Remove the commentary about value comparisons, cost savings and the like.	Accepted in principle. Removed references to cost.		NOV	roy.whiteman@nov.com	Closed
37	35	AffirmativeWithComment	4.2.1		10 General	API typically does not discuss financial matters, only technical issues.	Delete g) in its entirety. This is also obvious and therefore does not need to be said.	Accepted in principle. Removed references to cost.		NOV	roy.whiteman@nov.com	Closed
38	36	AffirmativeWithComment	4.2.1		5 Editorial	Word should be PUMPED not PUMP	(NOW) If buffer fluids are required, they can be pumped before production chemicals and displaced into the production system.	Not accepted. Incorrect section referenced.		NOV	roy.whiteman@nov.com	Closed
39	41	Negative	4.2.1.2 Flexible	disadvantages	Editorial	bend restrictors	Add "flexible jumper require bend restrictors, and cathodic protection for metal bend restrictors that is usually facilitated via grounding straps/cables that run the length of the bend restrictor string."	Accepted.		BP	roy.chan@bp.com	Closed
40	42	Negative	4.2.1.2 Flexible	disadvantages	Editorial	Lifting and connector orientation	Add "The subsea connector shall be designed to allow lifting and orienting of the connector through the splashzone and water column that facilitates lifting the flexible load which is usually facilitated via a hang-off/lift collar attached to the end termination. The subsea connector/gooseneck lifting design shall also be able to orient the connector after deployment in order to make up a connector."	Accept in principle. Added supplemental statements in Section 4.5.		BP	roy.chan@bp.com	closed
41	43	Negative	4.2.1.2 Flexible	disadvantages	Editorial	Installation vessel	add "Flexible installation vessel requires: - either reel drive system or carousel - lay tensioner - hang-off platform - enough downlines that reach depth for orienting the connector(s) subsea"	Not accepted. Comment too prescriptive for explicit vessel requirements.		BP	roy.chan@bp.com	Closed

42	44	Negative	4.2.1.2 Flexible	disadvantages	Editorial	Flooding	Add: normally, flexibles cannot be installed dry, so either they are pre-filled or free-flooded and in case of water injection well, may required special screens to be installed on the connectors to filter seawater. Screens must be able to be removed subsea."	Not accepted. Comment too prescriptive for explicit vessel requirements.		BP	roy.chan@bp.com	Closed
43	46	AffirmativeWithComment	4.2.1.3	second bullet	Editorial	reword sentence for clarity "ability to pig when use for flowline jumpers including operational and maintenance pigging"	reword to "ability to pig when use for flowline jumpers including operational and maintenance pigging"	Accepted in principle. "—Ability to pig (wax, intelligent, and others) when used for flowline jumpers, including operational and maintenance pigging"		Doris Inc.	cewhite1008@yahoo.com	Closed
44	47	AffirmativeWithComment	4.2.1.3	fourth bullet	Editorial	reword bullet for clarity	reword to "availability of a wide range of pipeline size and pipe wall thickness to allow for flow rates and pressure range"	Accepted in principle. "—Availability of a wide range of pipeline material, sizes and pipe wall thicknesses to allow for flow rates and pressure range (internal and external pressure);"		Doris Inc.	cewhite1008@yahoo.com	Closed
45	48	AffirmativeWithComment	4.2.1.3	disadvantages bullet 3	Editorial	reword bullet for clarity	reword to "susceptible to FIV, but mitigation techniques such as VSD, jumper configuration are available"	Accepted in principle. "—Susceptible to FIV, which may be mitigated by alternate jumper designs/configurations, restricting flow rates, or use of vibration suppression devices (VSDs);"		Doris Inc.	cewhite1008@yahoo.com	Closed
46	49	AffirmativeWithComment	4.2.1.3	disadvantages bullet 4	Editorial	reword bullet for clarity	reword to "susceptible to VIV, but mitigation techniques such as strakes can be used"	Accepted in principle. "—Susceptible to VIV, but may be mitigated by alternate jumper designs/configurations or by use of strakes"		Doris Inc.	cewhite1008@yahoo.com	Closed
47	50	AffirmativeWithComment	4.2.1.3	2	Technical	Statement about getting to claim local content does not belong in API documents as it is not a technical topic.	delete bullet - fabrication is possible in a wide variety of working locations allowing incorporation of local content;	Not accepted. Section is intended to be informative.		NOV	roy.whiteman@nov.com	Closed
48	51	Negative	4.2.1.3 Rigid	bullet #7	Technical	make firmer requirement	modify "should be welded directly to the connector thus eliminating a leak path."	Not accepted. This section is not a requirement section of 17R.		BP	roy.chan@bp.com	Closed
49	58	AffirmativeWithComment	4.2.2.1	bullet 2	Editorial	change the word "shorter" to "limited"	Lifting height at quayside and on installation vessel may be limited	Accepted.		Doris Inc.	cewhite1008@yahoo.com	Closed
50	59	AffirmativeWithComment	4.2.2.1	bullet 5	Editorial	remove the word "also" from the bullet text	reword to "Horizontal connections may be installed on subsea support structures prior to the installation of the host structure (manifold, trees)"	Accepted in principal. "Tie-in porches may support horizontal jumpers in a parked or disconnected state prior to the installation or retrieval of the host structure (such as a manifold or tree), depending on subsea foundation."		Doris Inc.	cewhite1008@yahoo.com	Closed
51	60	AffirmativeWithComment	4.2.2.1	bullet 1	Editorial	remove and/or from bullet #1, not needed	Horizontal jumpers are useful where the project requires self-draining jumpers, low profile jumpers for protection in shallow water depths from fishing activities, trawling boards, or icebergs	Not accepted. Statement as-is encompasses horizontal jumpers that may require all listed considerations.		Doris Inc.	cewhite1008@yahoo.com	Closed
52	61	AffirmativeWithComment	4.2.2.1	bullet 7	Editorial	remove the words "horizontal jumpers are" text is not needed	reword to "less susceptible to VIV due to lower profile and seabed support."	Accepted.		Doris Inc.	cewhite1008@yahoo.com	Closed
53	62	AffirmativeWithComment	4.2.2.1	Bullet 8	Editorial	remove the words "horizontal jumper are typically"	reword to "designed to lie on the seabed, which reduces loads applied to the inboard hubs"	Accepted.		Doris Inc.	cewhite1008@yahoo.com	Closed
54	63	AffirmativeWithComment	4.2.2.1	bullet 9	Editorial	remove the word "horizontal"	reword to "jumpers (both rigid and flexible) with considerable seabed support and limited free spans are easier to engineer for seismically active areas than free-spanning vertical jumpers."	Accepted		Doris Inc.	cewhite1008@yahoo.com	Closed
55	64	AffirmativeWithComment	4.2.2.1	disadvantage bullet 3	Editorial	remove the words "horizontal jumpers"	reword to "typically designed in multiple planes and therefore stress (tension) may be left in a rigid jumper after making up the connections, depending on the design of the jumper."	Accepted		Doris Inc.	cewhite1008@yahoo.com	Closed
56	65	AffirmativeWithComment	4.2.2.1	2 last bullet	Technical	It is not just installation risk and it is not just drill cuttings. Suggest.	Horizontal seabed supported jumpers may incur more installation and operational risk from seabed changes caused by other field activities (e.g. drill cuttings deposits, excess well cement outflows and dropped objects) which may interfere with the installation or bury the jumper.	Accepted		Oxy	Tim_Dean@oxy.com	Closed
57	68	AffirmativeWithComment	4.2.3.1	1	Technical	Suggest adding a bullet about service support required.	Integral mechanical connectors do not require as many vendor service personnel to support the installation campaign.	Accepted in principal. "—May not require as many service personnel to support the installation campaign;"		Oxy	Tim_Dean@oxy.com	Closed
58	69	AffirmativeWithComment	4.2.3.1	7	Technical	Discussion of cost is not appropriate for API documents. Reword to state the requirement, the technical requirement.	delete bullet - higher hardware cost per connection, but lower tooling rental cost;	Accepted. Cost information removed.		NOV	roy.whiteman@nov.com	Closed

59	70	AffirmativeWithComment	4.2.3.2		5	Technical	Discussion of cost is not appropriate for API documents. Reword to state the requirement, the technical requirement.	Delete bullet - cost increases can be minimized by utilizing connector designs with nonproprietary or simplified ROV tools (e.g. clamp connectors) or by renting the tools.	Accepted. Cost information removed.		NOV	roy.whiteman@nov.com	Closed
60	71	AffirmativeWithComment	4.2.3.2		2	Technical	Discussion of cost is not appropriate for API documents. Reword to state the requirement, the technical requirement.	Delete the statement about reducing hardware cost - cost is not a requirement. Consider stating that the complexity of the equipment is reduced	Accepted. Cost information removed.		NOV	roy.whiteman@nov.com	Closed
61	72	AffirmativeWithComment	4.2.3.2		2	Technical	Suggest adding a bullet about service personnel support required.	Typical tooling setup and preinstallation testing requires more vendor service personnel on installation support vessel for the installation campaign.	Accepted in principal. "—Typical tooling setup and preinstallation testing may require more service personnel on installation support vessel for the installation campaign;"		Oxy	Tim_Dean@oxy.com	Closed
62	73	AffirmativeWithComment	4.3	Figure 2		Editorial	The Figure's Nontraditional "Three-Dimensional" jumper is my traditional vertical "Z" jumper and is not so uncommon. It is a simple variation of an "M" with more flexibility. It can be fabricated in kit form horizontally like an "M". And I have never seen a half "M".	Recommend swapping locations for these two jumpers and re-labeling the 3D jumper as a "Z". If you look in plan view it is clearly a "Z".	Accepted in principal. Figure updated accordingly, swapping "Half M" in first row with traditional vertical "Z" jumper from row 3.		Oxy	Tim_Dean@oxy.com	Closed
63	74	AffirmativeWithComment	4.3	Figure 2		Editorial	If the vertical "U" is an "inverted U", then a horizontal "U" is a "horizontal U" This overly complicated.	The "inverted U" should just be called a "U". There can be a vertical U and a horizontal U.	Not accepted. Figure descriptions are sufficiently prescriptive.		Oxy	Tim_Dean@oxy.com	Closed
64	78	Negative	4.4 Drill Center Layout Guidance		2	Technical	50 ft on the low end is a short jumper that in our experience will often result in a z-shape to achieve the required flexibility.	Recommend increasing the lower end of the length range to 60 ft.	Not accepted. Lower bound range is appropriate given pipe size range includes 6" pipe.		BP	roy.chan@bp.com	Closed
65	79	Negative	4.4 Drill Center Layout Guidance		2	Technical	add guidance to perform a preliminary engineering work to confirm jumper design is feasible for the selected location and target boxes for subsea structures.	A preliminary jumper analysis should be performed to confirm the jumper design is feasible given the location of structures and seabed topography.	Not accepted. Drill center guidance sufficient in first sentence and does not imply excluding "optioneering" or feasibility analysis that projects may undertake at their discretion.		BP	roy.chan@bp.com	Closed
66	80	Negative	4.5 Requirements during Installation		1	Technical	State minimum requirements with a "shall"	Change to....Jumper configurations "shall" be designed for the installed sea state....	Not accepted. Document is recommended practice and excludes use of "shall" statements.		BP	roy.chan@bp.com	Closed
67	81	Negative	4.5 Requirements during Installation		1	Technical	the word "significant" is ambiguous	remove the word "significant" and state that jumper shall descend under its own self weight without causing slack in the supporting rigging equipment.	Accepted in principle (replaced "shall" with "should" as proposed); "The jumper configuration should descend under its own self weight without causing slack in the supporting rigging equipment."		BP	roy.chan@bp.com	Closed
68	82	Negative	4.5 Requirements during Installation		1	Technical	changed should to shall to state a minimum requirement	restate as...Each jumper connector "shall" be supplemented with the necessary hardware...	Not accepted. Document is recommended practice and excludes use of "shall" statements.		BP	roy.chan@bp.com	Closed
69	83	Negative	4.5 Requirements during Installation		3	Technical	this is an odd statement about what to do if the pipe is bent beyond the manufacturers minimum bend radius. Instead an installation procedure shall be designed to prevent bending the pipe below the manufacturers bend radius.	restate...For flexible jumpers, the installation method shall be design to prevent bending of the pipe below the manufacturers stated minimum bend radius.	Accepted in principle (replaced "shall" with "should" as proposed); For flexible jumpers, the minimum bend radius identifies the smallest degree of the curvature the flexible can experience at any one time. The installation method should be designed to prevent bending of the pipe below the manufacturers stated minimum bend radius. Fitting bend restrictors on the flexible jumper outer coating can increase the installation time, specifically important for end connections where production shut-in may be required. In the event the minimum bend radius is exceeded, the flexible pipe should be evaluated for long-term performance effects.		BP	roy.chan@bp.com	Closed
70	85	AffirmativeWithComment	4.6	first paragraph		Editorial	add a sentence with requirements from API 17H	ROV interfaces shall comply with the requirements of API 17H.	Not accepted - avoid use of "shall" statements in this RP.		Doris Inc.	cewhite1008@yahoo.com	Closed
71	86	Negative	4.6 ROV/ROT Aspects	Paragraph #1		Technical	make necessary requirements	modify "The connector manufacturer shall reference API 17H when designing the connectors in order to use standard ROV tooling where possible, to ensure all interfaces are ROV friendly and accessible, and to ensure all interfaces are able to withstand incidental ROV loadings. Any additional components to the pipe spool and connectors, such as isolation valves or subsea flow meters, shall be included in an ROV accessibility study to confirm clash checks with the surrounding subsea hardware.	Not accepted - avoid use of "shall" statements in this RP.		Doris Inc.	cewhite1008@yahoo.com	Closed

72	87	Negative	4.6 ROV/ROT Aspects	1	Technical	Recommend reworking this section to state the minimum requirements here for ROV interfaces and subsea markings.	Add the following requirements: 1. ROV intervention fixtures should be designed in accordance with the requirements of API 17H	Noted. Specific points as suggested are noted in other sections of 17R.		BP	roy.chan@bp.com	Closed
73	89	AffirmativeWithComment		4.7 second paragraph	Editorial	reword the paragraph for clarity	reword to "Multibore jumpers may incorporate production, chemical, and hydraulic lines in a bundle. This can result in decreased installation time, as a multibore connector allows these lines to be installed and connected simultaneously, and allow for enhanced protection of the individual lines."	Accepted.		Doris Inc.	cewhite1008@yahoo.com	Closed
74	90	AffirmativeWithComment		5.1 first section	Technical	add a Material Selection Reference	add the following section 5.1 "Material Selection Material selection for individual components, including all seal materials, should meet the requirements of API 17A concerning: - Production, injection fluids, and completion fluids for wetted areas; - Exposure to chemical injection and service fluids; - Environmental conditions"	Accepted in principal. Added as new bullet point in Section 5.1: "Material selection for individual components, including all seal materials, should meet the requirements of API 17A concerning: - Production, injection fluids, and completion fluids for wetted areas; - Exposure to chemical injection and service fluids; - Environmental conditions"		Doris Inc.	cewhite1008@yahoo.com	Closed
75	91	AffirmativeWithComment		5.1 10, Bullet 10	Technical	This is good but this also seems to suggest that an external low pressure seal test actually verifies the connector to seal to flowline MAOP. I don't think anything less than an internal pressure test to MAOP gives this assurance. One exception to this is if there are two process seals and a leak test is performed to MAOP between the seals, then the outer seal has been adequately tested and the inner seal is virtually a test seal.	delete the part about it "verifying" the seal. It shows that it is probably good only.	Accepted in principal. "—The connection should allow for a post-installation pressure test for initial verification that the wet-mated seal has been made without having to pressurize the bore of the connector. Typically this is accomplished by a low volume annular test external to the primary seal."		Oxy	Tim_Dean@oxy.com	Closed
76	214	AffirmativeWithComment	5.10.	ALL	Technical	Typically specialized subsea baskets are developed to house this tooling and ease ROV interaction with retrieving this tooling from the basket.	Include a section within 5.10 about ROV Tooling Baskets for connector tooling.	Accepted in principle. "A means to carry the tools subsea tools should be considered."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
77	215	AffirmativeWithComment	5.10.	ALL	Technical	Contingency tooling should be supplied to pull in a connector that may be sitting outside the allowable locking misalignment range. These are typically available for clamp type vertical connectors to pull down one side of the connector while the clamp connection is actuated to a locked state.	Include additional requirements about contingency tooling required to pull in a connector that is outside the allowable misalignment range.	Not accepted. Pull in tools addressed in section 5.10.2.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
78	216	Negative	5.10.1 General	1st paragraph	Technical	make necessary requirement	modify "All tooling utilized subsea shall be designed with ROV interfaces conforming to API 17H. Additionally, these tools shall undergo qualification to ensure that they function within applicable loading and misalignments associated with the connection system."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
79	217	AffirmativeWithComment	5.10.2		1 Technical	The description of connector actuation tools seem to be more inline with collet type connections. However, a torque tool used to drive a clamp closed could be considered a connector actuation tool.	Review the requirements listed for Connector Actuation Tools and for completeness include details about actuation for a clamp connection system.	Accepted in principal. "ROV operated torque tools are typically used to actuate clamp connectors."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
80	218	AffirmativeWithComment	5.10.2		1 Technical	Typically the locking feature of the connector actuation tool is referred to as a latch to not confuse it with the locking mechanism used to actuate/lock the connector to the hub.	Update the last sentence to state "These tools should have a latching feature to positively secure them to the connector during installation."	Accepted in principal. "Connector actuation tools should have a set of latching features to positively secure them to both the connector and inboard hub during installation."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
81	219	AffirmativeWithComment	5.10.4		1 Technical	The seal replacement tool needs to protect the retrieved gasket for inspection upon retrieval on deck.	Include the following requirement to this section, 'Seal replacement tool(s) shall protect the extracted seal so that it may be inspected upon retrieval.'	Not accepted. Comment is too prescriptive		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
82	220	AffirmativeWithComment	5.10.4		1 Technical	The text within this section seems to contradict with the requirement in Section 5.2 that the gasket should be replaceable subsea using ROV deployed tooling.	Update section to be in line with the requirements within Section 5.2. State that the gasket shall be ROV replaceable via tooling subsea.	Not accepted. Requirement is aligned with Section 5.2. See Comment 88.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
83	221	Negative	5.10.4 Seal Replacement Tools	1st paragraph	Technical	make necessary requirement	modify "Seal replacement tools used subsea shall be designed to be easily handled and operated by an ROV."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
84	222	Negative	5.10.5 Hub Cleaning Tools	1st paragraph	Technical	add requirement to clean all sealing surfaces	add "The hub cleaning tooling shall clean both the primary and secondary sealing surfaces of the inboard hub prior to connector installation. Separate tools may be supplied to clean separate sealing surfaces."	Not accepted. Already addressed in existing text. Second point (separate tooling) unnecessary.		BP	roy.chan@bp.com	Closed
85	223	Negative	5.10.5 Hub Cleaning Tools	1st paragraph	Technical	add requirement to protect hub bore from debris	add "The hub cleaning tool design shall minimize the risk of losing bolts and nuts from the tool into the inboard hub bore on vertical systems."	Accept in principle. Adding "The hub cleaning tool design should minimize risk of HCT components (egg bolts, nuts) falling into hub bore on vertical systems."		BP	roy.chan@bp.com	closed

86	224	Negative	5.10.6 Connector Override Tools	1st paragraph	Technical	make necessary requirement	add "These override tools shall have sufficient capacity to unlock a connector assuming highest required unsetting force."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
87	92	AffirmativeWithComment	5.2	15	Technical	Additional details as to standard methods to validate soft landing of a gasket would be valuable to this specification.	Develop a standard validation testing to validate that the connector system does not damage the connector during landing testing. Include details into this document.	Not accepted. Validation including landing is covered in Section 5.5.4.6		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
88	93	AffirmativeWithComment	5.2	14	Technical	The gasket should be replaceable with solely the use of tooling and not rely on a downline to lift the jumper. This is a safety item to ensure that the vessel is not connected to the subsea equipment longer than necessary, as well as an ease of execution in case a seal needs to be replaced later when downline may not be available.	Clarify requirement to state that 'The gasket should be replaceable subsea using ROV deployed tooling without the assistance of a downline on the jumper/connector system.'	Not accepted. Work group accepted to no change to 1st ed. (7-22-20) on the basis that it may not be practical for some connector systems and jumpers to rely only on ROV tooling without downlines for gasket change out.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
89	94	AffirmativeWithComment	5.2	13	Technical	Unlike the integral connector, an unlock factor is not specified for the non-integral connector.	Develop an unlock factor and specify for the non-integral connector accordingly.	Not accepted. Covered in 5.3. Need ability/access to a secondary release method for a clamp style connector in the requirements in section 5.3 which is linked to 5.10.6 Connector Override Tools.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
90	95	AffirmativeWithComment	5.2	12	Technical	The secondary unlock force of 2.0X may be excessive and is not in line with the XT connector unlock force of 1.25X in API 17D.	Verify with vendors that the 2.0X unlock force is achievable in their current system designs. Also review requirements within API 17D for wellhead connector secondary unlock. Update requirement accordingly based on review of the state of the art in connection systems.	Not accepted. Section 5.3 already states as a requirement for primary unlocking.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
91	96	AffirmativeWithComment	5.2	12	Technical	The phrase 'if applicable' creates a great degree of interpretation into this requirement. Which types of connectors or scenarios warrant this requirement to NOT be applicable?	Further specify which cases are applicable and which cases that are not applicable.	Not accepted. Work group accepted to no change to 1st ed. 7-22-20		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
92	97	AffirmativeWithComment	5.2	10, 11	Technical	The connector 'backseal' annular test should be equipped with an isolation valve and a means of compensation to ensure that trapped fluid pressure does not increase past rated pressures during startup (heating) of the produced fluids.	Update document to include these requirements.	Not accepted. Not all circuits will be subjected to this, thus it is not a recommendation under all situations. A note has been added to consider if compensation is necessary.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
93	98	AffirmativeWithComment	5.2	4	Technical	The phrase 'landed' in this context implies a vertical connection system.	Generalize statement to apply to both vertical and horizontal connection systems. For example, '....outboard hub is correctly positioned relative to the inboard hub before locking.'	Accepted		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
94	99	AffirmativeWithComment	5.2	2	Technical	The phrase 'At the conclusion of FAT' is extraneous and not required.	Modify requirement to be only 'The Connector should be interchangeable on all hubs designed for the connector without requiring adjustment.'	Accepted.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
95	100	AffirmativeWithComment	5.2	bullet	Technical	add a bullet describing alignment requirements	add the text "- the connection system should provide for multi-levels of alignment which are capable of aligning the two hubs to within manufacturer requirements"	Not accepted. Bullets 7, 8 and 9 adequately address alignment		Doris Inc.	cewhite1008@yahoo.com	Closed
96	101	Negative	5.2 Functional requirements	bullet #2	Technical	make requirement necessary and include interchangeability for caps	add "...the connector and all caps shall be interchangeable..."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
97	102	Negative	5.2 Functional requirements	first sentence	Technical	make necessary requirement	modify "The connection system shall have the following functional requirements."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
98	103	Negative	5.2 Functional requirements	Bullet #1	Technical	make necessary requirement	modify "The connector shall be self-contained..."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
99	104	Negative	5.2 Functional requirements	Bullet #2	Technical	make necessary requirement	modify "At the conclusion of FAT, the connector shall be interchangeable on all hubs designed for the connector without requiring adjustment."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
100	105	Negative	5.2 Functional requirements	Bullet #3	Technical	make necessary requirement	modify "The connection system shall accommodate the capability to allow for hub cleaning tools and gasket replacement tools, as well as visual inspection tools when direct observation by ROV is not possible."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
101	106	Negative	5.2 Functional requirements	Bullet #4	Technical	make necessary requirement	modify "The connection system shall include visual indication to confirm the outboard hub is correctly positioned relative to the inboard hub before locking."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed

102	107	Negative	5.2 Functional requirements	Bullet #5	Technical	make necessary requirement	modify "The connection system shall include visual indication of lock and unlock (make and unmake)."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
103	108	Negative	5.2 Functional requirements	Bullet #6	Technical	make necessary requirement	modify "The connector shall provide for gasket retention and protection during installation."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
104	109	Negative	5.2 Functional requirements	Bullet #7	Technical	make necessary requirement	modify "The gasket shall not be used to align the connector and hub."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
105	110	Negative	5.2 Functional requirements	Bullet #8	Technical	make necessary requirement	modify "The connector and inboard hub shall accommodate and overcome radial, angular, and axial misalignment..."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
106	111	Negative	5.2 Functional requirements	Bullet #9	Technical	make necessary requirement	modify "The connector or connector actuation tool (as applicable) shall have sufficient capacity to overcome jumper misalignments and pull-in loads..."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
107	112	Negative	5.2 Functional requirements	Bullet #10	Technical	make necessary requirement	modify "The connection shall allow for a post-installation pressure test to verify the seal has been made without having to pressurize the bore of the connector."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
108	113	Negative	5.2 Functional requirements	Bullet #11	Technical	make necessary requirement	modify "When using a wet-mated seal with a primary and secondary seal for bore fluid containing purposes, both elements shall be capable of being tested in order to ensure seal integrity. If the test circuit is subject to bore fluid, then the circuit shall be closed off with a mechanism that is sustainable for the bore fluid in question."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
109	114	Negative	5.2 Functional requirements	Bullet #12	Technical	make necessary requirement	modify "If the primary unlocking mechanism is a permanent part of the connector, a secondary method of unlocking the connector shall be available..."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
110	115	Negative	5.2 Functional requirements	Bullet #13	Technical	make necessary requirement	modify "Connectors without integral unlock features shall be designed to accommodate a secondary method to unlock the connector..."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
111	116	Negative	5.2 Functional requirements	Bullet #16	Technical	make necessary requirement	modify "The horizontal connector and/or connector actuation tool (as applicable) shall be designed to withstand the manufacturer's rated shear force in all directions during final alignment imparted during guidance."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
112	117	Negative	5.2 Functional requirements	Bullet #14	Technical	make necessary requirement	modify "The gasket shall be replaceable subsea using ROV deployed tooling."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
113	118	Negative	5.2 Functional requirements	Bullet #17	Technical	make necessary requirement	modify "Connections shall have the means to protect the gasket during installation through the use of a soft land system, dampening system, or other means. This method shall be validated during validation testing or other means of physical testing."	Not accepted. Avoiding use of "Shall" in this RP		BP	roy.chan@bp.com	Closed
114	122	AffirmativeWithComment	5.2.2	4	Editorial	refrain from stating detailed sections of the API document as these might change when that document is revised making the reference incorrect. Just state in accordance with the API document.	Delete specific section references to other API documents: Delete Section 5.1.7.2 and Section F.1.2	Accepted in principal. Deleted references to specific sections		NOV	roy.whiteman@nov.com	Closed

115	123	AffirmativeWithComment	5.3	ALL	Technical	The back seal test line pressure requirement is not defined within this document.	Include requirements for the backseal test line pressure requirements within Section 5.3. As an example, our requirements for this backseal line are as follows: Withstand a minimum external seal test pressure to the greater of: i) A gauge pressure of 1.25 times ambient subsea hydrostatic pressure (absolute) less the minimum anticipated bore pressure (absolute), ii) The pressure required to ensure that the primary seal is properly installed, energized, and capable of containing full working pressure of the equipment upon which it is mounted iii) 1000 psig (69 barg)	Not accepted. Work group accepted to no change to 1st ed. 7-22-20		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
116	124	AffirmativeWithComment	5.3	15	Technical	Reference to test procedure/acceptance requirements are missing from the hydraulic test requirement of 1.5X RWP. Furthermore, this testing is further defined later in Section 5.5.2.	Remove 'and test them to 1.5X RWP' since this is a test requirement which is covered later within Section 5.5.2.	Not accepted. Statement is appropriate in general design section.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
117	125	AffirmativeWithComment	5.3	ALL	Technical	The connectors shall have adequate ROV access points (near the base of the connector funnel) to aid in guidance/landing via ROV.	Include requirements for the connectors to have adequate ROV access points (near the base of the connector funnel) to aid in guidance/landing via ROV.	Accepted in principal. "—The connector system should have adequate ROV access points to aid in guiding/landing and locking/unlocking the jumper via ROV during installation."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
118	126	AffirmativeWithComment	5.3	14	Technical	Mechanical connector' is not defined in the definition section and seems to be used interchangeably with integral connector.	Define 'Mechanical Connector' in Section 3 and ensure proper usage throughout the document	Accepted in principal. Connector definition provided in section 3 and used properly throughout document.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
119	127	AffirmativeWithComment	5.3	9b	Technical	Torsional slippage validation testing should be accepted upon and standardized within the API 17R task force. This will allow the manufacturers to perform this validation testing independent of the project. Furthermore, this testing is specified later in Section 5.5.4.3.	Remove the statement 'The end user should review and accepted on validation requirements based on the application of the product.' since this validation testing requirement is described later in Section 5.5.4.3.	Not accepted. Balloted 2nd edition draft addresses this comment as it applies to 1st edition.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
120	128	AffirmativeWithComment	5.3	1	Technical	More definition around when a secondary lock mechanism is required would help to ensure consistency across industry for when this requirement is invoked.	Develop and include text which indicates for which connection types a secondary locking mechanism is required (e.g., clamp screw, tapered hydraulic lock, flat to flat hydraulic lock).	Not accepted. Work group accepted to no change to 1st ed. 7-22-20		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
121	129	AffirmativeWithComment	5.3	ALL	Technical	Based on previous experience with certain pressure cap/connector designs, the use of the taper on the hub is not allowed to retract the dogs/collets for a connector or pressure cap. Instead a mechanical means to retract the dogs/collets is required for these caps types.	Include requirement to ensure the collets/dogs are retracted by a mechanical device other than the taper of the inboard hub. As an example, our requirement for this is as follows: For collet or locking dog designs, the connector shall incorporate a mechanism to retract the collets/dogs and not rely on a hub taper to push the collets/dogs out.	Not accepted. Comment too prescriptive and should be addressed in end client/owner specifications.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
122	130	AffirmativeWithComment	5.3	16	Technical	The phrase 'Consideration should be made...' is too vague and will not influence vendors to include this design feature in their design.	Reword to be more affirmative or remove altogether. For example, 'The connector should be designed to also accept a contingency gasket which will seal on a different sealing area and may be metal and/or resilient sealing type.'	Accepted in principal. "—The connector should be designed to accept a primary metal sealing gasket. The connector should be designed to also accept a contingency gasket, which may be metal and/or resilient sealing type and may seal on a different sealing surface."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
123	131	AffirmativeWithComment	5.3	20	Technical	Wording of this paragraph is not comparable to other similar requirements. Furthermore, the pull-in capacity is not defined within this document.	Develop and include definition of connector pull in capacity. Modify wording of this requirement to match other similar statements. For example, 'The manufacturer should rate the connector pull-in capacity. Connector pull-in capacity should be defined as....'	Accepted in principal. "The pull-in capacity of a connector should be provided by the manufacturer, as validated through testing. Connector pull-in capacity should be defined as the maximum combination of pitch and yaw loads that may be overcome by the connector system to bring the hubs together or bring the hubs within a connector capture zone such that the connector may be actuated, without the hub faces together, to fully energize the connector seal." 7-22-20		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
124	132	Negative	5.3 Design Requirements	first sentence	Technical	make necessary requirement	modify "The connection system shall have the following design requirements."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
125	133	Negative	5.3 Design Requirements	bullet #1	Technical	make necessary requirement	modify "The connector shall be designed to maintain a locked position without external forces or pressures being maintained."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed

126	134	Negative	5.3 Design Requirements	bullet #2	Technical	make necessary requirement	Modify "The connector primary locking mechanism and secondary locking mechanism (if applicable) shall be designed so as not to be affected by vibration."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
127	135	Negative	5.3 Design Requirements	bullet #3	Technical	add caps and make necessary requirement	modify "The manufacturer shall state the design life of the connector or cap..."	Accepted in principle. No change in "should" statement. Incorporated "manufacturer should state the design life of the pressure cap" into Section 5.8.2 and 5.8.3.		BP	roy.chan@bp.com	Closed
128	136	Negative	5.3 Design Requirements	bullet #4	Technical	make necessary requirement	modify "The manufacturer shall rate the seawater depth capability of the connection based on the external capacity of the primary seal..."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
129	137	Negative	5.3 Design Requirements	bullet #8	Technical	make necessary requirement	modify "No leakage shall be allowed during validation testing."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
130	138	Negative	5.3 Design Requirements	bullet #9	Technical	make necessary requirement	modify "The connector torsion capacity shall be documented by the manufacturer."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
131	139	Negative	5.3 Design Requirements	bullet #14	Technical	add tooling to this requirement	modify "The connector or tool design unlocking force should be..."	Not accepted. Comment already addressed in Section 5.10.		BP	roy.chan@bp.com	Closed
132	140	Negative	5.3 Design Requirements	bullet #14	Technical	make necessary requirement	modify "All components in the unlocking mechanism shall be designed for the design unlocking force in both integral and non-integral connectors."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
133	141	Negative	5.3 Design Requirements	bullet #15	Technical	make necessary requirement	modify "The manufacturer shall state the RWP of the integral hydraulic chambers and ports, and should test them to 1.5 times RWP."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
134	142	Negative	5.3 Design Requirements	bullet #16	Technical	make necessary requirement	modify "The connector shall be designed to accept a primary metal sealing gasket."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
135	143	Negative	5.3 Design Requirements	bullet #18	Technical	make necessary requirement	modify "The connector system shall be designed for a rated temperature range as specified in API 6A and API 17D or for other specified minimum and maximum operating temperatures."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
136	144	Negative	5.3 Design Requirements	bullet #19	Technical	Add lifting requirement for caps	Add "Pressure caps shall have lift interface points suitable for onshore handling and offshore installation and retrieval, as applicable. Caps shall be capable of sustaining overpull loads to facilitate removal of a stuck cap."	Accepted in principle. Added new bullet point under Section 5.8.2: "Pressure caps should have lift interface points suitable for onshore handling and offshore installation and retrieval, as applicable. DUPLICATE 17D WORDING FROM CONNECTOR SECTION		BP	roy.chan@bp.com	Closed
137	145	Negative	5.3 Design Requirements	bullet #20	Technical	add tooling and make necessary requirement	modify "The pull-in capacity of a connector or tool shall be provided by the manufacturer, as validated through testing."	Not accepted. Comment already addressed in Section 5.10.2.		BP	roy.chan@bp.com	Closed
138	146	Negative	5.3 Design Requirements	bullet #21	Technical	make necessary requirement	modify "The connector system shall have adequate ROV access points to aid in guiding/landing the jumper via ROV during installation."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
139	147	AffirmativeWithComment	5.4.1	ALL	Technical	Applicable codes are not defined. Making a broad reference to 'applicable codes' is a weak requirement that doesn't provide much guidance.	Define the applicable codes within the text of this requirement.	Not accepted, codes referenced in following section (5.4.2).		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
140	148	Negative	5.4.1 General	1st sentence	Technical	make necessary requirement	modify "The connector system design verification shall meet the following requirements..."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
141	149	AffirmativeWithComment	5.4.2	4f, 4g	Technical	Phrases like 'when applicable' and 'if relevant' lead to confusion due to varying interpretation of what these mean. Also the use of 'should' implies an ability to select if the requirement is applicable.	Remove the use of words like 'when applicable' and 'if relevant' from the document	Accepted in principal. Removed instances throughout document to avoid superfluous terms.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
142	150	AffirmativeWithComment	5.4.2	4e	Technical	The phrase 'significant' can lead to multiple interpretations. Guidance needs to be provided to understand what is meant by significant.	Update requirement to state what is to be defined as significant effect from tolerance and erosion/corrosion allowances. Suggest that this be defined as either 5% or 10% variance in outcome for the full effect of the tolerance or allowances.	Not accepted. Balloted 2nd edition draft addresses this comment as it applies to 1st edition.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
143	151	AffirmativeWithComment	5.4.2	4b	Editorial	Comma is missing between 'tension' and 'shear'.	Include comma between 'tension' and 'shear'.	Accepted		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
144	152	AffirmativeWithComment	5.4.4.2		1 Editorial	refrain from stating detailed sections of the API document as these might change when that document is revised making the reference incorrect. Just state in accordance with the API document.	delete (, Section 4.)	Accepted in principal. Deleted references to specific sections		NOV	roy.whiteman@nov.com	Closed
145	153	Negative	5.4.4.2 Linear Elastic Analysis	item a)	Technical	make necessary requirement	modify "The design stress intensity shall be two thirds of minimum specified strength."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed

146	154	Negative	5.4.4.2 Linear Elastic Analysis	item a)	Technical	This requirement is written per requirements of API 6X, but this doesn't comply with the design requirements of API 6A, which is also listed in section 5.4.2.	modify "The maximum allowable general primary membrane stress intensity at hydrostatic test shall meet the design code requirement, e.g., 90% of minimum specified yield strength per API 6X.	Accepted in principal. Deleted sub-points a to c.		BP	roy.chan@bp.com	Closed
147	155	Negative	5.4.4.2 Linear Elastic Analysis	item b)	Technical	make necessary requirement	modify "Localmembrane + primary bending stress intensity shall not exceed 1.0 times specifiedminimimumyield strength."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
148	156	AffirmativeWithComment	5.4.4.3		6	Editorial	refrain from stating detailed sections of the referenced document as these might change when that document is revised making the reference incorrect. Just state in accordance with the document number or list the revision of the document you are referring to.	Delete (Article KD-4) or state ASME Section VIII, Division 3, X revision (this standard is typically used for HPHT applications and when using this standard for structural capacity it should be performed in conjunction with Article KD-4).	Accepted in principal. Added statement as proposed: "this standard is also typically used for HPHT applications and when using this standard for structural capacity it should be performed in conjunction with Article KD-4".	NOV	roy.whiteman@nov.com	Closed
149	157	AffirmativeWithComment	5.4.4.3		5	Editorial	refrain from stating detailed sections of the referenced document as these might change when that document is revised making the reference incorrect. Just state in accordance with the document number or list the revision of the document you are referring to.	Delete (Part 5) or state ASME Section VIII, Division 2, x revision, Part 5	Accepted in principal. Added "Part 5" to code reference.	NOV	roy.whiteman@nov.com	Closed
150	158	Negative	5.5.1 General	1st par	Technical	include all pressure caps, please remove "primary".	modify "This section also applies to pressure caps that are to be utilized as containment barriers for production fluid."	Not accepted. Pressure caps (or fluid retention caps) may be surface use only, thus have different testing/validation requirements.		BP	roy.chan@bp.com	Closed
151	159	Negative	5.5.1 General	1st par	Technical	make necessary requirement	modify "The following section provides the minimum required testing for connector system qualification."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
152	160	AffirmativeWithComment	5.5.2	ALL	Technical	Guidance on whether change in material selection warrants a new qualification is not included	include requirements clarifying if connector requalification is required if new material selection is performed on the connector components (e.g., gasket, lock mechanism, drive screw, collets, etc.)	Accepted in principal. Referenced 17D for when requalification is required.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
153	161	Negative	5.5.2 General testing requirements	1st para	Technical	Testing should be more firmly tied to 6A/17D requirements.	Add All connection equipment shall meet the requirements of API 6A / ISO 10423 and API 17D / ISO 16328-4 PSL-3 or higher. Equipment for gas service shall be tested to PSL-3G.	Accepted in principal: Added statement to 5.5.1: "Testing requirements should meet PSL-3 requirements or higher. Equipment for gas service should be tested to PSL-3G."		BP	roy.chan@bp.com	Closed
154	162	Negative	5.5.2 General testing requirements	1st par	Technical	make necessary requirement	modify "Validation testing shall include the following actions."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
155	163	Negative	5.5.2 General testing requirements	bullet #1	Technical	make necessary requirement	modify "Validation testing shall be performed on a full scale connector. All critical geometries of the test components should be representative of the production connector."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
156	164	Negative	5.5.2 General testing requirements	bullet #5	Technical	make necessary requirement	modify "The maintenance performed on prototype connectors shall not exceed maintenance performed on production connectors."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
157	165	Negative	5.5.2 General testing requirements	bullet #6	Technical	make necessary requirement	modify "Testing shall demonstrate that the connector design is capable of generating enough locking force to achieve the required preload in the field."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
158	166	Negative	5.5.2 General testing requirements	bullet #7	Technical	make necessary requirement	modify "Pressure cycling and pressure hold acceptance criteria shall conform to API 17D and API 6A Annex F requirements for PR2 other end connectors."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
159	167	Negative	5.5.2 General testing requirements	bullet #9	Technical	make necessary requirement	modify "During connector design validation testing, the connector primary lock shall not be energized..."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
160	168	Negative	5.5.2 General testing requirements	bullet #10	Technical	make necessary requirement	modify "If a secondary lock is included in the connector design, it shall undergo a separate test from the primary lock without the use of external force or pressure being maintained."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed

161	169	AffirmativeWithComment	5.5.3		1	Editorial	Period is missing between first and second sentences. After '...PR2 other end connectors' and before 'Acceptance criteria...'	Update to include additional period as follows: 'Connector seals should be tested for the rated internal working pressure and maximum external pressure. In addition, minimum and maximum temperature testing at the rated internal working pressure should be performed in conformance with API 6A Annex F requirements for PR2 other end connectors. Acceptance criteria for all seal testing should conform to API 6A Annex F acceptance criteria for external closures. This testing should also apply to connector contingency seals. Seal testing should include the following actions.'	Not accepted. Balloted 2nd edition draft addresses this comment as it applies to 1st edition.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
162	170	AffirmativeWithComment	5.5.3	whole section		Editorial	refrain from stating detailed sections of the API document as these might change when that document is revised making the reference incorrect. Just state in accordance with the API document.	delete reference to Annex F. Keep the reference to PR2 as this will lead the reader where they need to go and is not defined by a location in the document	Accepted.		NOV	roy.whiteman@nov.com	Closed
163	171	Negative	5.5.3 Seal Testing	1st para		Technical	make necessary requirement	modify "Connector seals shall be tested for the rated internal working pressure and maximum external pressure. In addition, minimum and maximum temperature testing at the rated internal working pressure shall be performed in conformance with API 6A Annex F requirements for PR2 other end connectors. Acceptance criteria for all seal testing shall conform to API 6A Annex F acceptance criteria for external closures... Seal testing shall include the following actions"	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
164	172	Negative	5.5.3 Seal Testing	bullet #1		Technical	make necessary requirement	modify "A representative test fixture shall use identical geometries where critical and should be constructed of the same material types and yields as the production connector. Test fixtures shall also adequately apply the same preload as seen with a production connector."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
165	173	Negative	5.5.3 Seal Testing	bullet #4		Technical	make necessary requirement	modify "Testing shall include an annulus test such that the primary seal can be tested to the external pressure rating of the gasket."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
166	174	Negative	5.5.3 Seal Testing	bullet #5		Technical	make necessary requirement	modify "If the connector seal contains a secondary seal, both seals shall be tested individually for external pressure resistance."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
167	175	Negative	5.5.3 Seal Testing	bullet #7		Technical	make necessary requirement	modify "Gaskets that have secondary seals or multiple seals used for a common barrier shall have each seal tested individually per Annex F thermal cycling in order to be classified as a true secondary seal."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
168	176	Negative	5.5.3 Seal Testing	last para		Technical	make necessary requirement	modify "...these seals shall be subjected to thermal testing as applicable... Testing parameters shall conform to API 17D requirements. Additionally, these seals shall be exposed to the maximum and minimum temperatures seen during production in order to prove that the seals are fit for purpose."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
169	177	AffirmativeWithComment	5.5.4	whole section		Technical	The entire section could be deleted and state that connector shall be qualified to API 17 TR7	consider rewriting the document to use API 17TR7	Not accepted. API 17TR7 intended for vertical well access connectors.		NOV	roy.whiteman@nov.com	Closed
170	178	Negative	5.5.4.1 General	1st para		Technical	make necessary requirement	modify "Load and cycle testing shall be performed to prove the design... The manufacturer shall state the rated capacity of combined loading, and test to this rating."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed

171	179	NonVoter	5.5.4.3	Item c)	Technical	Reference is made to ASME VIII-2 and ASME VIII-3. The acceptance criteria in these pressure vessel codes are based on pressure design of equipment. The load factors in the referred ASME codes above, API 17TR7, API 17TR8, API 6X and API 17G (plastic collapse method not yielding method) is applicable for pressure design. For bending moment design, the load factors should be increased to predict similar capacities as for elastic analysis (for cylindrical shells). Elastic analysis failure criteria through-thickness yielding while elastic-plastic analysis (maximum load only) criteria is cross section failure.	Limit elastic-plastic analysis method to API 17G Yielding method and API 6X and API 17G elastic method. Note that ASME and API 17G starts derating material strength for temperature greater than 40 C (104 F). This requirements should also be included. This applies specifically for 22 Cr (Duplex stainless steels) and 25 Cr (Super Duplex stainless steels.)	Not Accepted. The design methodology of elastic-plastic analysis with plastic collapse in ASME Div.2 and Div.3 and the load factors required by these codes are acceptable as they are industry accepted and referenced in other API design standards. Limiting the elastic-plastic analysis method to the API 17G yielding method or restricting the acceptance criteria to elastic analysis per API 6X or API 17G is not considered necessary or consistent with industry practices and is not required. With regard to temperature derating, derating of materials other than duplex and super duplex stainless steel below 250 F is not required as this is not consistent with industry practice and is not required in other API design standards. Temperature derating of duplex and super duplex above room temperature is recommended in accordance with DNV-RP-F112. This document is referenced in Section 7.3, design analysis deliverables for jumper design.	https://eballotprodstorage.blob.core.windows.net/eballotscontainer/Comments%20to%20API%2017TR8.docx	Equinor	fkir@equinor.com	Closed
172	180	Negative	5.5.4.3 Bending and Torsions Testing	1st para	Technical	make necessary requirement	modify "The connector shall be subjected to bending moment loads to verify the connector's capacity. The connector shall be tested in a test fixture which simulates actual internal pressure, tension, torsion, shear (if applicable), and bending loads to be applied in the field."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
173	181	AffirmativeWithComment	5.6	14	Technical	Function Testing of the insulated jumper connections should not hinder the function or ROV access of the existing visual position indicators	Add: Insulation does not prohibit the function of or ROV access for functional visual indication verification.	Not accepted. Balloted 2nd edition draft addresses this comment as it applies to 1st edition.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
174	182	AffirmativeWithComment	5.6	14	Technical	The FAT tests to be done before and after insulation should be specified within this document	Break out which tests need to be performed before insulation and which tests need to be done again after insulation to confirm the functionality of the connector post-insulation.	Not accepted. All the requirements listed in this section are to be met but it will be left to the equipment manufacturer to decide whether these tests are performed before or after insulation.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
175	183	AffirmativeWithComment	5.6	10	Technical	The manufacturers can perform both a 1.5X test for the connector and then a test at 1.25X for a jumper kit with pipe attached. This however creates an additional test with more associated cost and time.	Clarify what the minimum internal pressure test requirements of the connector is at the FAT level. Suggest to reword to the following 'The connector and hub should be hydrostatically tested to a minimum pressure in accordance to the pipe to which the connector will be attached (e.g., 1.25X per ASME B31.8). The test duration and acceptance criteria shall be per API 17D and 6A.'	Accepted in principal. "—The connector and hub should be hydrostatically tested to 1.5 times RWP unless limited by attached components that are governed by a different code, e.g. a pipeline code allowing for a hydrotest of 1.25 x RWP. The test duration and acceptance criteria shall be per API 6A and 17D."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
176	184	AffirmativeWithComment	5.6	ALL	Technical	Electrical continuity checks to be performed during connector FAT to ensure connection with the CP system. Any components not electrically connected will need to have their own anodes or another means to make the electrical connection.	Include requirements for electrical continuity checks to be performed during connector FAT to ensure connection with the CP system. Any components not electrically connected will need to have their own anodes or another means to make the electrical connection.	Accepted. "—The electrical continuity of the connector system components should be verified during FAT. Any components not electrically connected should have their own anodes or other means to establish electrical continuity."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
177	185	AffirmativeWithComment	5.6	ALL	Technical	Previously, there have been instances where the ports of a connector were not properly machined through and were not able to release hydraulic lock subsea.	Include requirements for connector FAT to perform a fluid continuity check through any ports prior to performing any hydrotests through those functions. These include but not limited to the pressure relief/flushing port into the main bore of the cap as well as the annulus seal test area.	Accepted in principal. "—Prior to hydrotesting connector hydraulic chambers and associated hydraulic circuits, a fluid continuity check should be performed through any such chambers or circuits. These include, but are not limited to, the pressure relief/flushing port into the main bore of the cap as well as the annulus seal test area."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
178	187	Negative	5.6 Factory Acceptance Testing of Connectors	bullet #14	Technical	make necessary requirement	modify "Following FAT, a visual inspection shall be performed on all accessible connector surfaces for damage."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
179	188	Negative	5.6 Factory Acceptance Testing of Connectors	bullet #15	Technical	make necessary requirement	modify "The factory acceptance testing program for insulated connectors shall confirm the following requirements."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed

180	189	Negative	5.6 Factory Acceptance Testing of Connectors	1st para	Technical	make necessary requirement	modify "Factory acceptance testing shall include the following actions."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
181	190	Negative	5.6 Factory Acceptance Testing of Connectors	bullet #3	Technical	make necessary requirement	modify "All factory acceptance testing shall be completed using a production seal or a metal to metal seal which is representative of a production seal."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
182	191	Negative	5.6 Factory Acceptance Testing of Connectors	bullet #4	Technical	make necessary requirement	modify "Connector lock, unlock, secondary unlock, and other connector specific functions shall be tested per API 17D."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
183	192	Negative	5.6 Factory Acceptance Testing of Connectors	bullet #10	Technical	make necessary requirement	modify "The connector and hub shall be hydrostatically tested to 1.5 times RWP unless limited by attached components that are governed by a different code..."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
184	193	Negative	5.6 Factory Acceptance Testing of Connectors	bullet #13	Technical	make necessary requirement	modify "The electrical continuity of the connector system components shall be verified during FAT."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
185	194	AffirmativeWithComment	5.8	ALL	General	The terms 'pressure cap' and 'end closure' seem to be used interchangeably throughout the document.	Select one of these terms to use throughout the document and update document to use this term consistently throughout.	Accepted in principal. Reviewed and updated document for use of both terms.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
186	195	AffirmativeWithComment	5.8	Section	General	A more important distinction for pressure caps is whether they are for just testing or hydrocarbon service. In the past simple large "O" ring sealing pressure caps have been installed in hydrocarbon service as a second barrier. A cap that that is being used in a producing system should be qualified for hydrocarbon service.	The subject of short term/testing caps vs long term hydrocarbon service caps should be addressed.	Accepted in principal. Added "The manufacturer should state the design life of the cap considering all applicable limiting factors including, but not limited to, service, temperature, fatigue, cathodic protection, and elastomeric seals."		Oxy	Tim_Dean@oxy.com	Closed
187	196	AffirmativeWithComment	5.8.1	first paragraph	Technical	add requirements for pressure caps to inject preservation fluid and pressure equalization	- subsea pressure caps shall include the ability to equalize pressure for subsea removal - subsea pressure caps shall include the ability to inject a preservation fluid in the void between the pressure cap and valve sealing element	Accepted in principal. " Have supply and bleed ports to allow venting of trapped pressure before removal and injection of chemicals (very important if hydrate formation below cap may occur); ☒ the ability to inject a intervention chemicals or preservation fluid"		Doris Inc.	cewhite1008@yahoo.com	Closed
188	197	AffirmativeWithComment	5.8.2	Design Features	Technical	Replace -have a contingency release	Replace with: have a secondary release mechanism that permits disengagement of the cap in the event of a malfunction which prevents normal retrieval.	Not accepted. Proposed wording is overly perspective.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
189	198	AffirmativeWithComment	5.8.2	ALL	Technical	Pressure cap section is missing a design overpull requirement. Even if the cap is truly ROV removable (w/o downline), it is necessary to make sure the caps are able to withstand this pull force to get them removed from the structure. This is typically 15 Tons above the estimated removal force of the cap (e.g., weight/seal friction).	Include a requirement to design the pressure caps to withstand an overpull force during recovery. This applies to vertical caps. A similar requirement for horizontal caps should also be included (e.g., stroking force of XX Tons for cap removal tool).	Not accepted Overpull requirements are not typical requirements for all vertical caps. The RP states requirement for "contingency release" which covers overpull or alternate release features.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
190	199	AffirmativeWithComment	5.8.2	ALL	Technical	Pressure caps should have markings included to assist with the metrology method being performed. For taut-wire method, this may require markings on the top of the cap in all 360 degrees of direction.	Update pressure cap requirements to include metrology interface markings.	Not accepted. Requirements for metrology interfaces captured in section 8.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
191	200	Negative	5.8.2 Inboard Hub Pressure Caps	first paragraph	Technical	make necessary requirement	modify "They shall also serve to protect the inboard hub sealing surfaces against mechanical damage as well as from marine/calcareous growth."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
192	201	Negative	5.8.2 Inboard Hub Pressure Caps	second paragraph	Technical	make necessary requirement of basic PC features	modify "Other design features for pressure caps shall include but are not limited to"	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
193	202	Negative	5.8.2 Inboard Hub Pressure Caps	2nd par, bullet 4	Technical	make necessary requirement of basic PC features	modify "have a contingency release, if required for the cap connector"	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed

194	203	Negative	5.8.2 Inboard Hub Pressure Caps	1st para	Technical	caps to meet connector requirements	add "Pressure cap connectors shall meet the same design and testing requirements as jumper connectors."	Accepted in principal: Added statement to 5.5.1: "Testing requirements should meet PSL-3 requirements or higher. Equipment for gas service should be tested to PSL-3G."		BP	roy.chan@bp.com	Closed
195	204	Negative	5.8.2 Inboard Hub Pressure Caps	second paragraph	Technical	add design life requirement for temporary caps	add "Temporary or short-term caps should have a design life of three years."	Accepted in principle. Added bullet point to Section 5.8.2: —The manufacturer should state the design life of the cap considering all applicable limiting factors including, but not limited to, service, temperature, fatigue, cathodic protection, and elastomeric seals.		BP	roy.chan@bp.com	Closed
196	205	AffirmativeWithComment	5.8.3	first paragraph	Editorial	reword the sentences for clarity	High pressure caps have the same interfacing geometry as the inboard hub and be retained by the actuation of the connector, or have an alternate locking and sealing system. High pressure caps should have porting to allow for flooding and pressure testing of the jumper.	Accepted in principal. "High pressure caps have the same interfacing geometry as the inboard hub and are retained by the actuation of the connector, or have an alternate locking and sealing system. High pressure caps should have porting to allow for flooding and pressure testing of the jumper. Connector body/outboard hub low pressure caps may also be supplied, which allow a jumper to be filled at the surface with a preservation fluid and lowered to the seabed. Cap(s) should be designed to be disengaged and removed by ROV and the jumper connected to the inboard hubs on the subsea structures. "		Doris Inc.	cewhite1008@yahoo.com	Closed
197	206	AffirmativeWithComment	5.8.3	second paragraph	Editorial	reword the second sentence	reword to "Connector body/outboard hub low pressure caps allow a jumper to be filled with preservation fluid at the surface prior to being installed subsea. "	Accepted in principal. "High pressure caps have the same interfacing geometry as the inboard hub and are retained by the actuation of the connector, or have an alternate locking and sealing system. High pressure caps should have porting to allow for flooding and pressure testing of the jumper. Connector body/outboard hub low pressure caps may also be supplied, which allow a jumper to be filled at the surface with a preservation fluid and lowered to the seabed. Cap(s) should be designed to be disengaged and removed by ROV and the jumper connected to the inboard hubs on the subsea structures. "		Doris Inc.	cewhite1008@yahoo.com	Closed
198	207	AffirmativeWithComment	5.8.3	first bullet	Editorial	reword the bullet for clarity	Surface pressure caps - These pressure caps typically consist of a blind hub and a clamp for pressure testing of the piping. They are typically designed with elastomeric sealing elements.	Accepted in principal. "Inboard hub pressure caps may be categorized as follows. —Surface use only. These pressure caps typically consist of a blind hub and a split clamp or other means of retaining the blind hub to the inboard hub and sustaining the pressure end load. They may be metal or elastomeric sealing. —Surface installed, subsea removable. These pressure caps are typically disengaged from the inboard hub by a simple ROV operable mechanism. —Subsea installable and removable. These pressure caps are fully operable by ROV."		Doris Inc.	cewhite1008@yahoo.com	Closed

199	208	AffirmativeWithComment	5.8.3	second bullet	Editorial	reword for clarity	Surface Installed Low Pressure Cap - These pressure caps are typically installed on the surface for removal subsea using standard ROV interfaces. They are typically designed with elastomeric sealing elements.	Accepted in principal. "Inboard hub pressure caps may be categorized as follows. —Surface use only. These pressure caps typically consist of a blind hub and a split clamp or other means of retaining the blind hub to the inboard hub and sustaining the pressure end load. They may be metal or elastomeric sealing. —Surface installed, subsea removable. These pressure caps are typically disengaged from the inboard hub by a simple ROV operable mechanism. —Subsea installable and removable. These pressure caps are fully operable by ROV."		Doris Inc.	cewhite1008@yahoo.com	Closed
200	209	AffirmativeWithComment	5.8.3	third bullet	Editorial	reword for clarity	Subsea Pressure Cap - These pressure caps are rated for low pressure and are designed for subsea installation and removal. These pressure caps are typically designed with elastomeric sealing elements.	Accepted in principal. "Inboard hub pressure caps may be categorized as follows. —Surface use only. These pressure caps typically consist of a blind hub and a split clamp or other means of retaining the blind hub to the inboard hub and sustaining the pressure end load. They may be metal or elastomeric sealing. —Surface installed, subsea removable. These pressure caps are typically disengaged from the inboard hub by a simple ROV operable mechanism. —Subsea installable and removable. These pressure caps are fully operable by ROV."		Doris Inc.	cewhite1008@yahoo.com	closed
201	210	Negative	5.8.3 Connector Body/Outboard Hub Pressure Caps	1st paragraph	Technical	make necessary requirement	modify "Connector body/outboard hub high pressure caps shall be provided to facilitate hydrostatic testing of the jumper after fabrication."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
202	211	Negative	5.8.3 Connector Body/Outboard Hub Pressure Caps	4th paragraph	Technical	make necessary requirement	modify "Design features of connector body/outboard hub pressure caps shall include but are not limited to"	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
203	212	Negative	5.9 Debris Caps	1st paragraph	Technical	make necessary requirement	modify "...and shall be designed to prevent hydraulic lock...Debris caps shall be designed for ease of installation and removal by an ROV. Debris caps which are installed at the surface shall be secured in position to prevent inadvertent release during offshore operations and subsea installation."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
204	213	Negative	5.9 Debris Caps	1st paragraph	Technical	add design life requirement	add "Debris caps should have a design life of six months."	Accepted in principle. Added bullet point to Section 5.9: —The manufacturer should state the design life of the cap considering all applicable limiting factors including, but not limited to, service, temperature, fatigue, cathodic protection, and elastomeric seals.		BP	roy.chan@bp.com	closed

205	225	Negative	6 Jumper components	add	Technical	add subsection for bolting	<p>a. Bolting activities shall follow a documented procedure, specifying torques, patterns, lubricants, etc.</p> <p>b. If coatings that are not specified in API Spec 17D are used for bolt torque make-up, the coefficient of friction values shall be established by qualification testing.</p> <p>c. For bolted connections, a quality process shall be implemented for marking bolts upon proper makeup</p>	<p>Accepted in principle. ". Particular care should be taken in the design and assembly of the flange connections' fasteners including, but not limited to:</p> <ul style="list-style-type: none"> •Pre-tensioning of each bolt in accordance with the appropriate flange design code and gasket selection •Risk of Stress Corrosion Cracking (SCC) •Risk of trapped pressure during disassembly •Electrical continuity with Cathodic Protection System •Environmental effects on material and coating selection (e.g. temperature, Hydrogen Induced Stress Cracking or HISC, etc.) •Use of a qualified and traceable bolting procedure that oConsiders material, coating, and lubrication combinations for the derivation of required torques. The coefficient of friction values for the selected lubrication should be validated and documented. oSpecifies acceptable torque patterns and associated incremental torque recommendations oSpecifies flange alignment requirements during make-up •Minimum and/or maximum thread protrusion •Documentation of required make-up torque vs. actual torque during assembly •Consideration of bolt marking for visual indication 		BP	roy.chan@bp.com	Closed
206	226	AffirmativeWithComment	6.1	1	Editorial	The term 'Connector System' is capitalized indicating it is a defined term, however, the term 'Jumper' is not capitalized, even though it seems like it should also be a defined term.	Consider the way Connector System is used within the document and update accordingly. Consider defining 'Jumper System' as the collection of pipe, connector system, and other items.	Accepted in principal. Use lower case for "connector system" and document checked for consistency in use of "Jumper" and "Jumper system"		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
207	227	NonVoter	6.2	1st	Technical	Mention of DNV-OS-F101 - name changed to DNV-ST-F01	Suggest to rename to DNV-ST-F101	Accepted.			irspre@gmail.com	Closed
208	228	Negative	6.2 Pipe	2	Technical	make requirement necessary	change to....The design of rigid jumper pipe shall conform to the requirements of ASME B31.8, Chapter VIII, API 1111, DNV-OS-F101or other approved design code.	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
209	229	Negative	6.2 Pipe	2	Technical	make requirement necessary	change to...The design of flexible pipe "shall be in conformance with...	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
210	230	Negative	6.3 Flanges, Forgings and Elbows	1	Technical	make requirement necessary	change to...Components..."shall" comply with the end user's material specifications....	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
211	231	Negative	6.3 Flanges, Forgings and Elbows	second paragraph	Technical	establish a minimum firm requirement for design and manufacture of induction bends	reword as...Where induction bends are used, pipe shall be sized with sufficient wall thickness and clad thickness (if applicable) to account for wall thinning due to bending. Induction bends shall conform to ASME B16.49 or ISO 15590-1.	<p>Accepted in principle.</p> <p>"If bends are used, the selected pipe should have sufficient wall thickness and bore clad thickness (if applicable) to account for wall thinning due to bending."</p>		BP	roy.chan@bp.com	closed
212	232	Negative	6.3 Flanges, Forgings, and Elbows	n/a	Technical	add a requirement for design of super duplex fittings	add the following...The design of Duplex and Super Duplex components shall follow DNV RP F112 and shall be submitted to COMPANY for approval as per Duplex and Super Duplex piping.	Not accepted. Already addressed in existing text, Section 7.3.		BP	roy.chan@bp.com	Closed
213	233	Negative	6.3 Flanges, Forgings, and Elbows	4	Technical	establish a minimum requirement for performing an erosion analysis	reword as...The jumper piping configuration shall consider the effects of erosion caused by turbulent flow through piping and fittings. An erosion analysis shall be performed to show that all elements of the piping system meet accepted erosion limits for the full life of the jumper.	<p>Accepted in principal. From 17P - 5.3.4 Erosion Critical flow velocity introducing erosion in the piping can be calculated as given in ANSI/API RP 14E or DNVGL-RP-0501. These calculations can be used to determine critical production rates and/or to calculate the required erosion allowance for the manifold piping. The contractor should identify critical areas in the piping exposed to erosion. Increased bend radius and fitting design can be used to mitigate erosion effects. Materials with higher PREN can be selected to mitigate erosion effects. Designated inspection areas may be added to the piping system to allow for subsea inspection measurements of the production piping wall thickness.</p>		BP	roy.chan@bp.com	closed

214	234	Negative	6.3 Flanges, Forgings, and Elbows	3	Technical	state a necessary requirement for the design of flanged connections	restate as follows: Bolted flanges shall be designed to API 6A and API 17D or other standard as approved by the end user.	Noted. Duplicate comment; see #205.		BP	roy.chan@bp.com	Closed
215	235	Negative	6.3 Flanges, Forgings, and Elbows	n/a	Technical	state a requirement for bend radius for piggable jumpers	add...For piggable jumpers, pipe bends shall allow the passage of pigs as required for the project.	Accepted. "For piggable jumpers, pipe bends must not restrict the passage of pigs. "		BP	roy.chan@bp.com	closed
216	236	AffirmativeWithComment	6.4	1	Technical	Additional requirements are needed in order to define the required coverage area of a jumper for VIV suppression devices.	Include requirements about the minimal percentage of length (horizontal and/or vertical) of the jumper is required to be covered by strakes in order to mitigate VIV. Also, include any requirements about the OD-Pipe/OD-Strake ratios required for the strakes. The following is some guidance used internally with regards to strakes on jumpers: If used, the VIV suppression devices (e.g., strakes) shall: a) Be pre-molded triple helical strakes with a height of 25% of diameter and a pitch of 15–17% of diameter. b) Cover the maximum available jumper pipe length (at least 75% of the straight pipe runs, exclusive of bends, clamps, connectors, and ROV panels).	Not accepted The RP section describes general requirements for components. Analysis methodology requirements are covered in Section 7.5.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
217	237	Negative	6.4 VIV Suppression	1	Technical	add a necessary requirement for suppression devices when justified by VIV analysis	VIV suppression devices such as strakes shall be provided when analysis demonstrates VIV risks.	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
218	238	AffirmativeWithComment	6.5	1	Technical	Guidance about the split of CP protection from each of the attached structures is not included.	Include requirements for the percentage of CP protection that each attached structure should handle (e.g., 50/50%).	Not accepted. Comment is outside scope of 17R.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
219	239	AffirmativeWithComment	6.5	3	Editorial	Terms like 'where required' weaken the strength of the requirements	Remove 'where required' such that the statement only reads 'The electrical continuity of the system components should be verified prior to installation'	Accepted in principal to remove "where required" but add "as applicable" and additional requirement added for isolated components.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
220	240	Negative	6.5 Cathodic Protection	1	Technical	Recommend reworking this section to state the minimum requirements for design for protection against external corrosion.	Change the title of this section to "External Corrosion Protection" and reword to state minimum requirements as follows: 1. All equipment shall be protected from external corrosion using a combination of external corrosion coating and sacrificial anodes designed in accordance with DNVGL-RP-B401. 2. Cathodic protection for jumper assemblies may be provided through electrical continuity to the subsea structures (e.g. trees, manifolds, and PLEMs) to which they are attached. c. Equipment clamped over insulation/coating that are designed for the life of field shall be protected by life-of-field CP. d. When located on a jumper, anode placement should allow a visual CP survey by ROV to be performed in-situ, as far as practical. e. Provision should be made for measuring the CP potential by ROV probe.	Accepted in principle; wording may or may not be used as proposed. No "shall" statements. 1. All equipment should be protected from external corrosion using a combination of external corrosion coating and sacrificial anodes designed in accordance with DNVGL-RP-B401. 2. Cathodic protection for jumper assemblies may be provided through electrical continuity to the subsea structures (e.g. trees, manifolds, and PLEMs) to which they are attached. 3. Equipment clamped over insulation/coating that are designed for the life of field should be protected by life-of-field CP. 4. When located on a jumper, anode placement should allow a visual CP survey by ROV to be performed in-situ, as far as practical.		BP	roy.chan@bp.com	closed
221	241	Negative	6.6 Instrumentation	1	Technical	add requirement for positioning of sensors	add... a. for piggable jumpers, fittings for sensors shall be designed such that the sensor does not protrude into the bore of pipe. b. Intrusive sensors should be positioned to allow draining of fluids into pipe bore for avoidance of hydrates.	Accepted in principle; wording may or may not be used as proposed. No "shall" statements. a. for piggable jumpers, fittings for sensors should be designed such that the sensor does not protrude into the bore of pipe. b. Intrusive sensors should be positioned to allow draining of fluids into pipe bore for avoidance of hydrates.		BP	roy.chan@bp.com	closed
222	242	Negative	6.6 Instrumentation	1	Technical	make requirement necessary	Flanged or threaded outlets.....shall conform to the requirements...	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
223	243	AffirmativeWithComment	6.7	1	Technical	Reference to appropriate documents for thermal insulation of subsea equipment is missing.	Include appropriate references to industry code associated with thermal insulation of subsea equipment.	Accepted. Add API 17U in reference section.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed

224	244	Negative	6.7 thermal Insulation		1	Technical	add requirements for insulation systems	b. Insulation shall perform with the corrosion coating as an integrated system that is fully bonded at all interfaces under anticipated exposure conditions. c. Insulation shall be qualified against both temperature and water depth requirements in conjunction with the coating system. d. All field joints shall be coated with a corrosion coat and thermal insulation system that achieves the same U-value as the parent system.	Not accepted; referenced 17U which addresses comment.		BP	roy.chan@bp.com	Closed	
225	245	AffirmativeWithComment		7	ALL	Technical	Jumper seafastening/tie down boundary conditions need to be better defined	Include requirements that the jumper seafastening/tie downs for the transportation load case are to be modelled accurately. Include any details about how these boundary conditions are to be modeled.	Not accepted. Requirement captured in Table -1 to account for transportation loads.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed	
226	246	AffirmativeWithComment		7	ALL	Technical	Jumper wall thickness for analysis needs to account for any erosion/corrosion allowances, minimum mill tolerances and bend thinning.	Include requirements for the jumper pipe analysis to account for erosion/corrosion allowances, minimum mill tolerances and bend thinning. Also state that cladding is not to be considered within the jumper strength calculation.	Accepted. Addressed in previous ballot.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed	
227	247	AffirmativeWithComment		7.1		1	Editorial	The terms 'well, flowline and pipeline' are used to refer to various jumper types in the first sentence. However, throughout the document, it seems that all jumpers are defined as 'flowline jumpers'.	Verify use of 'well, flowline and pipeline' jumpers throughout the document and ensure consistency in how the jumper system is referenced. Suggest to define the jumper as 'Jumper System' and then state in definition that these can be well jumpers - XT to MFLD, flowline jumpers - MFLD to FL or pipeline jumpers - MFLD to PL.	Accepted.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
228	248	AffirmativeWithComment		7.1	ALL	Technical	Any components requiring ROV interventions (e.g., lift points) need to be located a minimum distance of the seabed to prevent disturbance.	Include requirement for any ROV intervention point on the jumper (e.g., lift points) to be a minimum distance. Include appropriate minimum distance (i.e., 1.5m) or reference to other code (i.e., API 17H) where this is defined.	Accepted in principle. Reference to API 17H to be made in section 7.1.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed	
229	249	Negative	7.1 General	first sentence		Editorial	the first sentence defining a subsea jumper is redundant to everything stated before in section 4.0	Restate the first sentence as follows: Subsea jumpers/spools shall be designed with consideration for the following: - stresses imparted from dead loads including self weight, tooling, internal fluids etc. - attachment points and loading during offshore transport - loading during lifting and offshore installation - operation loads from pressure and temperature fluxuations - remote operation and intervention by ROV - effects of external loading by workover equipment, settlement of connecting structures, seismic loads, etc. - accidental loading by ROV or dropped objects - tolerances of target locations of connecting structures prior to installation - effects of erosion and corrosion over the life of the field - physical clearance with adjacent structures and temporary equipment (e.g tooling, BOP, etc.,) - accomodation for mounting equipment and sensors - fabrication and metrology tolerances - seabed clearance	Not accepted; should vs. shall. Section 7.2 addresses all other points.		BP	roy.chan@bp.com	Closed	
230	250	AffirmativeWithComment		7.2	ALL	Technical	Jumper loading due to current drag is not addressed within Section 7.2	Include a section within 7.2 to address current drag loads on the jumper.	Not accepted Covered in section 7.2.14		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed	
231	251	AffirmativeWithComment		7.2	ALL	Technical	Jumper loading due to soft-land or pull-in stroking is not addressed within Section 7.2	Include a section within 7.2 to address jumper loads due to displacement of the jumper from connector softland/pullin stroking.	Not accepted Covered in last line of section 7.2.4		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed	
232	252	Negative	7.2 Design requirements	new section		Technical	Need a new subsection for Erosion	add... 1. A project erosion analysis shall be performed which confirms allowable erosion rates. 2. The calculated erosion for the field life shall not exceed clad thicknesses in clad systems. The remaining clad thickness at end of design life should be at least 1.0 mm. 3. Sufficient clad thickness shall be required at end of design life to achieve a max allowable iron dilution of 10%.	Not accepted. Addressed in components section.		BP	roy.chan@bp.com	Closed	

233	253	Negative	7.2 Primary Design Requirements for	title	Editorial	Recommend removing the word "Primary" since there is no section for "Secondary" Design requirements. In fact, there is no real need for this sub section since it isn't really distinct from the main section 7.0 Jumper design.	rename section....Design Requirements for Rigid Jumpers and Spools	Accepted.		BP	roy.chan@bp.com	closed
234	254	Negative	7.2.1 General	entire section	Technical	The identification of inputs as "primary" isn't necessary. Re-write this section to include general design requirements.	2. Vertical jumper assemblies should be free spanning between connection points without seabed support. Jumpers shall be designed to allow for disconnection of lift rigging prior making up the end connections. e. For jumpers connected to subsea trees, the jumper gooseneck shall be below the top of the re-entry mandrel to avoid potential collision with a BOP stack during workover operations without removing the jumper. f. Seabed clearance of the jumper shall meet projects requirements regarding seabed slopes and the build-up of debris over the life of the field. g. The design of Duplex and Super Duplex components shall follow DNV RP F112 and shall be submitted to COMPANY for approval as per Duplex and Super Duplex piping.	Not accepted. Addressed in other sections.		BP	roy.chan@bp.com	Closed
235	271	Negative	7.2.10 Buoyancy		1 Technical	make requirement necessary	reword as a shall statement	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
236	272	Negative	7.2.11 Insulation		1 Technical	add a necessary requirement for performing jumper cooldown analysis	add...A thermal cool-down analysis shall be performed to confirm the insulation provides the required cool-down times in accordance with the overall hydrate mitigation strategy.	Not accepted. Avoid use of "shall" statements in RP. Section 6.7 and 7.2 address all other points.		BP	roy.chan@bp.com	closed
237	273	Negative	7.2.12 Seabed soil condition		1 Technical	make requirement necessary	change shoulds to shalls	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
238	274	Negative	7.2.12 Seabed soil condition		1 Technical	add requirement for seabed clearance of vertical jumpers	add the following requirement: Seabed clearance of free spanning jumpers shall meet projects requirements regarding seabed slopes and the build-up of debris over the life of the field.	Accepted in principle; "For free-spanning jumpers, the jumper design should consider any necessary clearances while crossing other infrastructure (pipelines, flying leads, etc.)."		BP	roy.chan@bp.com	Closed
239	275	AffirmativeWithComment	7.2.13		1 Technical	Guidance is not provided on how to apply dropped object or ROV impact loading on a jumper pipe.	Provide details about how to apply dropped object and ROV loading to a jumper. For example, is the ROV impact full speed or partial speed and is it applied at the middle of the belly or ROV panel only? For the dropped object, the same questions apply of what load to use and where to apply it on the jumper (if at all).	Not accepted. Comment is too prescriptive.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
240	276	AffirmativeWithComment	7.2.13	ALL	Technical	Applicable codes are not defined for these various accidental load conditions.	Include reference to appropriate industry codes for seismic load, trawling loads, dropped object.	Accepted in principle. Added reference to API 2EQ.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
241	277	AffirmativeWithComment	7.2.13	third bullet	Editorial	reword for clarity, also API 17H section references are not correct for the third edition	ROV impact and snag loads as described in API RP 17H. Jumper pipe shall not exceed stress limits per the relevant design code when interfaces experience incidental impacts, of API RP 17H, by a heavy work class ROV;	Accepted in principal. Changed "shall" to "should".		Doris Inc.	cewhite1008@yahoo.com	Closed
242	278	Negative	7.2.13 Accidental Loads		1 Technical	add necessary requirements	Jumper shall be evaluated for dropped object impact loads Jumpers shall be verified for ROV impact and snag loads per.... Jumper shall be evaluated for fishing loads per DNV and local fishing studies.	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
243	279	AffirmativeWithComment	7.2.14		2 Technical	Details about how to perform VIV analysis are not included. This analysis is covered in an appendix in our jumper system specification documents.	Include details or references on how the VIV analysis is to be performed.	Not accepted Reference specifications for VIV design included in RP Section 7.5.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed

244	280	AffirmativeWithComment	7.2.15		1	Technical	Details about how to perform FIV analysis are not included. This analysis is covered in an appendix in our jumper system specification documents.	Include details or references on how the FIV analysis is to be performed.	Accepted. Incorporated reference to AVIFF guidelines.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
245	281	Negative	7.2.15 Flow Induced Vibration	full section		Technical	we don't use the term "singing" within BP. suggest removing this from the title of this section. State minimum requirements for analyzing for FIV.	A screening assessment shall be performed to determine the likelihood of FIV per AVIFF. Pipe and components should be selected to minimize the development and excitation of FIV and pass a screening assessment.	Accepted in principle. Removed "singing" term. FIV screening may be performed in accordance with Energy Institute, "Guidelines for the avoidance of vibration-induced fatigue failure in subsea systems" or other similar codes that address flow-induced vibrational loading in a subsea environment.		BP	roy.chan@bp.com	Closed
246	282	AffirmativeWithComment	7.2.16		1	Technical	Details about how to perform fatigue analysis are not included. This analysis is covered in a full sections within our jumper system specification documents.	Include details or references on how the fatigue analysis is to be performed, including safety factors (100X), definition of S _N curves (per BSI BS 7608 or DNV-RP-C203 single slope) and how welds are to be fatigue tested (if required).	Not accepted DNV RP C203 referenced in Section 7.5 for fatigue analysis.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
247	283	Negative	7.2.16 Fatigue Analysis	3rd bullet		Technical	add reference for performing FIV analysis	add a requirement...FIV should be evaluated per DNVGL-RP-F105, using a safety factor of 20 for fatigue.	Not accepted; recommendation of specific factors is outside the scope/intent of this document.		BP	roy.chan@bp.com	closed
248	255	Negative	7.2.2 Connection Systems-Orientation	entire section		Editorial	This section is informational in nature and not related to design requirements. The information here is already contained in section 4.	delete this section and the content.	Not accepted. Connector system orientation is a jumper design requirement/consideration.		BP	roy.chan@bp.com	Closed
249	256	AffirmativeWithComment	7.2.3		1	Technical	Typical values for installation tolerances are not provided.	Include typical installation tolerances for equipment that can be used if not specified by end user. Typical values may be +/- 5ft for location and +/-5 degrees for heading.	Not accepted. Comment is outside scope of 17R.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
250	257	Negative	7.2.3 Systems and Installation tolerances	full section		Technical	State minimum functional requirement	a. For jumpers designed prior to installation of connecting structures, the jumper design analysis should be performed on the maximum and minimum lengths as determined by the nominal position and installation tolerances for the host structures. b. clash checks with structures and other jumpers shall be performed with installation tooling in place for all potential jumper departure angles and structure headings.	Not accepted; already addressed in document.		BP	roy.chan@bp.com	closed
251	258	AffirmativeWithComment	7.2.4		1	Technical	The first two sentences are not needed to define a requirement. Delete teaching language.	Delete A jumper will be welded out at a fabrication yard, transported out to location, and lowered through the splash zone down to the seabed. The jumper will then be landed onto vertical hubs, or in the case of a horizontal jumper onto porches or other structures, in order to be connected.	Accepted.		NOV	roy.whiteman@nov.com	closed
252	259	Negative	7.2.4 Installation loads		1	Technical	add requirement for analyzing worst case jumper configuration.	add... Lifting analysis shall assess the longest and most critical jumper configurations. The analysis shall define the dimensional envelope of acceptable jumper geometries including length and height.	Accepted in principle. "Lifting analysis should assess the longest and most critical jumper configurations, defining the dimensional envelope of acceptable jumper geometries."		BP	roy.chan@bp.com	closed
253	260	Negative	7.2.4 Installation loads		1	Technical	make requirement necessary	Installation loads "shall" include weight of preinstalled tools, dynamic loads....	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
254	261	AffirmativeWithComment	7.2.5		1	Technical	Typical values for fabrication and metrology tolerances are not provided.	Include typical fabrication/metrology tolerances to be used in detailed analysis of the jumper system if not specified by end use as something different. Typical values could be +/- 1.5 in.	Not accepted. Comment is outside the scope of 17R.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
255	262	Negative	7.2.5 Fabrication and Metrology Tolerances		1	Technical	make requirement necessary	The design of rigid jumpers shall consider stresses due to worst case tolerances on measurements taken by subsea metrology and onshore survey	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed

256	263	AffirmativeWithComment	7.2.6		3	Technical	Subsea thermal expansion of the wellhead is typically considered insignificant and ignored for analysis.	Remove the reference to wellhead thermal expansion or state that the thermal expansion of the wellhead is typically defined as 0m. If another value is used by other Operators/Vendors, this value can be further discussed and aligned on.	Not accepted. As-worded is sufficiently generic for scenarios where non-negligible wellhead thermal growth should be considered.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	closed
257	264	AffirmativeWithComment	7.2.6		1	Technical	Typical values for flowline thermal expansion are not provided.	Include typical flowline thermal expansion tolerances to be used in detailed analysis of the jumper system if not specified by end use as something different.	Not accepted. Comment is outside the scope of 17R.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
258	265	Negative	7.2.6 thermal and Pressure Loading Expansion	full section		Technical	make requirement necessary	The rigid jumper shall be designed to accommodate the following thermal and pressure expansion loads: - motion of the pipeline end structure due to thermal and pressure growth in the flowline/manifold piping. - direct thermal and pressure expansion in the jumper itself - thermal growth of subsea wellheads	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
259	266	AffirmativeWithComment	7.2.7		1	Technical	The use of external pressure for design will likely make it not possible to perform a full rated working pressure test of the equipment onshore.	Provide guidance as to what pressures the onshore hydrotest is to be performed. For example, if you have a 10ksi jumper with 2ksi external pressure and design to 8ksi differential pressure, is the onshore test per 831.8 to be to 1.25X10ksi or 1.25X8ksi?	Not accepted. Balloted 2nd edition draft addresses this comment as it applies to 1st edition.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
260	269	Negative	7.2.8 Misalignment Effects	full section		Technical	Consider renaming this section "External Loads" Recommended requirements are provided.	1. Rigid jumpers shall be designed to accommodate movements of the tree inboard hub due to loads imparted by the BOP on the tree during a workover drive-off scenario. 2. Rigid jumper shall be designed to accommodate movement of the PLET or manifold inboard hub due to foundation settlement. 3.. For seismically active regions, jumpers shall be analyzed for stresses from seismic loads in accordance with API RP 2EQ.	Not accepted. Avoid use of "shall" statements in RP. Section 7.2 addresses all other points.		BP	roy.chan@bp.com	Closed
261	270	Negative	7.2.9 Jumper Body Loads		1	Technical	make requirement necessary	The jumper analysis shall include loads imparted by jumper self weight, internal fluid, and any attached equipment such as ROV panels and flow meters.	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
262	284	AffirmativeWithComment	7.3	ALL		Technical	Fatigue analysis deliverables are not listed.	Include fatigue analysis deliverables to this list.	Accepted in principle Add low cycle high stress fatigue to Section 7.3/Table-1 and update Section 7 to include description of the load case		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
263	285	Negative	7.3 Design Analysis Deliverables	full section		Editorial	This section title is not descriptive of the information contained in this section. The information should be moved to design requirements.	Delete this entire moving some spec references elsewhere as covered under different ballot comments.	Accepted in principle; first paragraph relocated.		BP	roy.chan@bp.com	Closed
264	286	AffirmativeWithComment	7.4	Table 2		Editorial	remove informal language for clarity	Change "As-Laid" to "As-Installed"	Accepted.		NOV	roy.whiteman@nov.com	Closed
265	287	AffirmativeWithComment	7.4	Table 1		Technical	Jumper Load Case Bullet 7 remove the parentheses and state the requirement	— Proper sea state for installation including slamming loads in accordance with DNV-RP-C205 and DNV Marine Operations or other similar offshore codes that address dynamic loading in an offshore construction environment	Accepted.		NOV	roy.whiteman@nov.com	Closed
266	290	Negative	7.5 Analysis Methodology	full section		Technical	make mention of methodology for design of fittings	this content should be located within the relevant sections of sections 7.4 to avoid spreading information about a single subject throughout co	Not accepted; covered in Section 6. Specific design requirements for fittings are outside the scope of this RP.		BP	roy.chan@bp.com	closed
267	291	AffirmativeWithComment	7.6.4	ALL		Technical	In order to take out residual torsion in a flexible jumper, swivels are typically used in the connectors.	Include requirement to include a swivel within the connectors for flexible jumpers.	Accepted in principle. Add as proposed, with exception to "requirement" - a consideration, not a requirement.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	closed
268	292	AffirmativeWithComment	7.6.4	ALL		Technical	Details about the connection between the flexible and hard pipe is not detailed within this document	Include details about the connection between the hard pipe and flexible including acceptable types of connections, provisions for external seal testing of these connections.	Not accepted RP addresses details as it is currently worded.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
269	293	Negative	7.6.5 Thermal Insulation	full section		Technical	establish minimum functional requirements for design and performance of insulation	a. Insulation shall be applied with sufficient thickness to meet the operating requirements for cooldown duration.	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed

270	294	Negative	7.6.5 Thermal Insulation	full section	Technical	establish minimum functional requirements for design and performance of insulation	In addition to those above, include the following requirements in this section: e. A thermal cooldown analysis shall be performed to confirm the thermal performance of the equipment provides the required cooldown times in accordance with the overall hydrate mitigation strategy. f. Thermal insulation shall not affect ROV access. Insulation doghouses, if provided, should not hinder access to ROV interfaces outside the enclosure. g. Thermal insulation systems used should accommodate gross deflections and temperature variations of the jumper during assembly, handling, installation, and operation without cracking, disbonding, or other failure.	Accepted in principle with proposed comment 'f'. Updated "shall" to "should" statement.		BP	roy.chan@bp.com	Closed
271	295	AffirmativeWithComment	7.7	1	Technical	More details about transitions between different pipe diameters could be included.	Include details about pipe transitions within the jumper pipe. A slope of 1:5 for transitions is recommended.	Not accepted. Geometry details for transitions sufficiently addressed in references.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
272	296	Negative	7.7 Piggability	First sentence	Technical	make requirement necessary	modify "The following geometry issues shall be investigated..."	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
273	297	Negative	7.7 Piggability	First bullet	Technical	add requirement to gaskets	add "...and at gasket locations."	Accepted in principle. - bore diameter changes between line pipe and any other component in the flowpath (for example, erosion monitors, valves, flowmeters, etc.);		BP	roy.chan@bp.com	Closed
274	298	AffirmativeWithComment	8.2	2	Technical	State the requirement and remove the example as this is teaching	Delete5/28/2021 For example, INS metrology measurements should be made with a system configured for subsea deployment, using the latest generation IMU aided by DVL and USBL sensors. Subsea metrology with LiDAR requires the use of high-resolution subsea LiDAR equipment capable of being deployed on a stable platform and performing in-situ conditions (water clarity, water depth, etc.).	Accepted in principle. Statements in question to be relegated to annotated note.		NOV	roy.whiteman@nov.com	Closed
275	299	Negative	8.2 Jumper Metrology	all	General	consider whether this is the right document for detailed information on metrology and survey methods and requirements. While informative, it may be misplaced.	consider whether the requirement that jumpers be designed to account for the accuracy tolerance in the metrology and survey methods is sufficient for this document.	Not accepted. Section as-is identifies that design tolerances may differ based on the selected metrology method.		BP	roy.chan@bp.com	Closed
276	300	Negative	8.5 Post-fabrication Survey	1	Technical	restate as a requirement	After jumper fabrication is complete a post-fabrication survey should be performed to verify....	Accepted.		BP	roy.chan@bp.com	Closed
277	301	Negative	8.6 Survey and Metrology Deliverables	1	Editorial	consider whether this is too much information about content of metrology drawings, coordinate system, and survey reports. can we replace by a simple statement regarding final fabrication being performed to the dimensions	Recommend removing this section given the information contained in 9.3 Jumper Assembly.	Not accepted. No current RP or standard addresses these aspects which are recognized as 'best practice' in the industry.		BP	roy.chan@bp.com	Closed
278	302	NonVoter	9.1	3rd	Technical	DNVGL-RP-B204 applies to welding of subsea production system equipment. This document has been developed as a JIP with the following companies: Agility subsea fabrication, Aker Solutions, Baker Hughes, BP, C&J Cladding, Chevron, Equinor, ExxonMobil, Lundin, OneSubsea, TechnipFMC and Total. No reference is given to this document.	Include reference to DNVGL-RP-B204 as an alternative for welding of subsea production system equipment.	Accepted.		Equinor	fkir@equinor.com	Closed
279	303	Negative	9.1 Applicable welding codes	1	Technical	make requirement necessary	change should to shall and add:and Company Requirements.	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
280	304	Negative	9.1 Applicable welding codes	2	Technical	make requirement necessary	change should to shall	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
281	305	Negative	9.1 Applicable welding codes	3	Technical	make requirement necessary	change all shoulds to shall	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
282	306	Negative	9.2 Welding and Pipe fitup consideration	1	Technical	make requirement necessary	change should to shall	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed

283	307	Negative	9.2 Welding and Pipe fitup consideration		2	Technical	add requirement for grinding clad pipe	add...Where internal grinding of clad pipe is required to assist with alignment of pipes for fabrication welds, NDE shall be performed to confirm minimum clad thickness is maintained after grinding.	Accepted in principle. Updated "shall" to "should"		BP	roy.chan@bp.com	Closed
284	308	Negative	9.2 Welding and Pipe fitup consideration	n/a		Technical	add requirements for weld transitionals and distance between welds	add the following: Thickness transitions in weld (as allowed by some pipeline design codes) shall not be used. The distance between pipe welds shall be of sufficient length to allow for performing NDE after completing closure welds.	Not accepted; weld design at the discretion of the designer's selected code.		BP	roy.chan@bp.com	closed
285	309	Negative	9.3 Jumper Assembly		1	Editorial	make up of flexible terminations by installation contractors	Add "Flexible jumpers commonly have the gooseneck connectors installed offshore. When the installation contractor performs assembly activities, the same care should be taken prior to the start of work as for the fabrication site."	Accepted in principle. Section added. "For flexible jumpers, gooseneck connector assemblies shall be lift tested to confirm they can be lifted so the connecting flange is properly oriented for connection offshore. The jumper connectors shall be locked after slacking off on the lift slings."		BP	roy.chan@bp.com	closed
286	310	Negative	9.3 Jumper Assembly		1	Technical	add requirements for jumper kits	add... a.The jumper pipe kit shall contain all subsea hardware required to fabricate and assemble a complete jumper. Enough pipe shall be included in the kit to fabricate a jumper in the maximum material configuration as defined by the field layout. b. The design of the jumper kit shall minimize the number of welds required to fabricate the final geometry of the jumper while still allowing adjustments to the connector hub locations in all six degrees of freedom at both ends as well as final seabed location relative to the end connections. c. If insulation is required, it shall be pre-applied to pieces of the kit to minimize the amount of time required to insulate the jumper after FAT. d. Welded pieces of the jumper kit shall be submitted to full NDE, unless otherwise accepted with the COMPANY. e. Kits shall be drift tested per project requirements.	Not accepted. Proposed comment is overly prescriptive. (d) and (e) addressed in 9.2 and 9.6.		BP	roy.chan@bp.com	Closed
287	311	Negative	9.3 Jumper Assembly		2	Technical	make requirement necessary	add this requirement...The use of mitres, as defined in ASME B31.3 and B31.8, within the piping system shall not be allowed.	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
288	312	Negative	9.3 Jumper Assembly		3	Technical	make requirement necessary	change shoulds to shalls	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
289	313	Negative	9.3 Jumper Assembly	Paragraph #3		Technical	Add anti-vibration requirement for tube fittings	g. Test hubs in fabrication stands shall be provided with ports for filling, venting, flushing and hydrotest of jumper bores.	Accepted.		BP	roy.chan@bp.com	Closed
290	314	Negative	9.3 Jumper Assembly	Paragraph #3		Technical	Make necessary requirement	h. Test hubs should have test circuits for verifying the gasket secondary seal.	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
291	315	AffirmativeWithComment	9.4	ALL		Technical	Details about the test/flushing ports on the test hubs are not included in this document.	Develop a standard test/flush interface for the hubs (e.g., minimum 9/16" fitting or 2" BX connection to allow for flow testing) and include details in Section 9.4.	Not accepted. Comment too prescriptive. Section addresses test/flushing requirements.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
292	316	AffirmativeWithComment	9.4	ALL		Technical	Fabrication stands need to accommodate all jumper ranges and not require additional blocks/supports to raise the jumper hub to the correct height.	Include a requirement that fabrications stands should be designed to account for all ranges of jumper geometries required for the project.	Not accepted. Proposed wording is too perscriptive.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
293	317	Negative	9.4 Onshore Fabrication Tooling	first bullet		Technical	add necessary requirements for fabrication stands	e. Fabrication stands shall provide a stable support base for the jumper and landed connection tools. f. Design of the fabrication stands shall allow for coarse adjustment of height of the test hubs and support structures and fine adjustment of all six degrees of freedom to simulate the actual orientation of offshore hubs. l. The design pressure of the test hub shall be at least equal to the test pressure of the jumper. m. The rigidity of fabrication stands with test hub shall be at least as rigid as the connected subsea structures.	Accepted in principle; incorporated comment as-is, except changed "shall" to "should" Add clarification point for yaw as applicable to horizontal hubs.		BP	roy.chan@bp.com	Closed

294	318	Negative	9.4 Onshore Fabrication Tooling	first bullet	Technical	add necessary requirements for fabrication stands	add the following requirements as follows: 1. Fabrication stands shall be designed to allow the full jumper to be fabricated in its final fabricated and insulated (if applicable) condition. 2. Fabrication stands shall be provided with test hubs and hub support structures that simulate the geometry of offshore connecting structures and defined metrology points for jumper fabrication yard set-up. 3. For free spanning jumpers, fabrication stands shall be designed to support the full weight of the jumper including test fluid, insulation, and connector actuation tools without assistance from mid-span supports, including dynamic loads from jumper lift tests.	Accepted in principal. Incorporated comment as suggested, with exception to "shall" wording.		BP	roy.chan@bp.com	Closed
295	319	Negative	9.5 Insulation Considerations	all bullets	Technical	need to reconcile the three sections in this document that address insulation requirements.	Recommend moving all these requirements into the following sections: to 7.2.11: Component Design 1, 2, 7, 8, 9, 10, 14, 15 to 7.6.5: Analysis 3,4, 5, 6 to 9.3 Jumper Assembly: 11, 13, to 9.6: FAT: 12,	Accepted. Moved as suggested.		BP	roy.chan@bp.com	Closed
296	320	AffirmativeWithComment		9.6 ALL	Technical	Function testing of the jumper connectors to be performed during FAT. This may be implicit as part of the jumper fabrication and testing, however, needs to be explicitly covered in this section.	Include explicit details about the function tests of the connectors during jumper FAT including soft land, latch, lock, unlock, etc.	Not accepted RP Section 9.6 has requirements to verify interface between jumper, connector and actuator tooling.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
297	321	AffirmativeWithComment		9.6 ALL	Technical	Function testing of jumper attached instrumentation to be performed during FAT	Include requirements about performing function tests of jumper mounted instrumentation including a flow test for incorporated flow meters.	Not accepted. Comment is outside scope of 17R.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
298	322	AffirmativeWithComment		9.6 ALL	Technical	Baseline wall thickness measurement (if applicable) to be performed during FAT.	Include a requirement to perform a function test and baseline wall thickness measure of the jumper during FAT if a wall thickness measurement device is part of the design.	Accepted		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
299	323	AffirmativeWithComment		9.6	13 Technical	There have been issues in the past of performing the lift test and then landing jumper back down on stands and locking the gaskets down prior to loadout later on. This caused grit to get in between the seals and cause damage to the sealing surfaces.	Include guidance that after the lift test, the test gaskets are to be removed prior to relocking onto the test stands. Alternatively, the gaskets could be remove, gasket replaced/cleaned, seal surfaces cleaned and gasket reinstalled prior to locking again.	Accepted in principal. "—The jumper connector gaskets and sealing surfaces should be clean and free of debris prior to making up connections during jumper fabrication and testing."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
300	324	AffirmativeWithComment		9.6	11 Technical	In conjunction with this requirement for removing trapped air, the test stands/hubs need to be designed to allow for these methods safely.	Update test stands/hub requirements to accommodate these methods of removing trapped air. For example, test stands shall have full bore access for installing and removing pigs. Or a large enough (e.g., greater than 2") connection to allow for filling.	Not accepted. Proposed wording too prescriptive.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
301	325	AffirmativeWithComment		9.6	11 Technical	Jumper to be tested in the position intended for its use.	Remove the following statement 'Vertical jumpers of a coplanar design may benefit from hydrotesting in a horizontal or other non-vertical orientation to simplify filling with test fluid.' This can be discussed and accepted upon with end user but shouldn't be an allowable option within this RP.	Not accepted. No technical reason why jumper has to be hydrotested in position of intended use.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
302	326	AffirmativeWithComment		9.6	8 Technical	Clarification required about if the applicable design pressure rating of the control tubing is for the pressure of the backseat test or the internal pressure.	Clarifying in the text if the control tubing should only be rated to the pressure of the line required for testing (e.g., backseat) or the full bore pressure (e.g., backseat test circuit acts as second barrier for produced fluid).	Not accepted. Current statement is sufficient "—Control tubing which may be subjected to contained fluid, including post-installation (backseat) testing of the connector gasket, should be rated for the applicable design pressure, and should be tested in accordance with the applicable design code for the jumper."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
303	327	AffirmativeWithComment		9.6	5 Technical	References to appropriate codes for design of the pigging drift test are to be included in this specification	Include details about the requirements of the pigging drift test or appropriate reference to code that contains this information (e.g. 95% nom ID at XX length spacing)	Not accepted; comment too prescriptive.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
304	328	AffirmativeWithComment		9.6	1 Technical	Include reference to Section 5.6 for FAT requirements of connectors.	Modify text to 'The jumper connectors should have undergone a factory acceptance test by the manufacturer, in accordance to Section 5.6, prior to fabrication of the jumper.'	Accepted. "—All major sub-assemblies, including, but not limited to valves, connectors and sensors, shall be single unit tested prior to assembly into the jumper or jumper kit."		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
305	329	Negative	9.6 Factory Acceptance Testing	bullet #9	Technical	make necessary requirement and change design code to B31.3	e. Fabrication stands shall provide a stable support base for the jumper and landed connection tools.	Not accepted; RP uses "should" statements over "shall". Statement adequately addresses design code as-is.		BP	roy.chan@bp.com	Closed

306	330	Negative	9.6 Factory Acceptance Testing	1st sentence	Technical	remove the should statement and allow each bullet to specify shoulds/shalls individually	reword as follows: The following are the requirements for jumper factory acceptance testing:	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
307	331	Negative	9.6 Factory Acceptance Testing	first bullet	Technical	reword as follows to include other mounted equipment besides connectors	All major sub-assemblies, including, but not limited to valves, connectors and sensors, shall be single unit tested prior to assembly into the jumper or jumper kit.	Accepted.		BP	roy.chan@bp.com	Closed
308	332	Negative	9.6 Factory Acceptance Testing	add bullet	Technical	add requirement for testing jumper prior to insulation	During jumper hydrostatic testing, flanged connections shall not be covered by insulation. After completion of pressure testing performed during FAT, verify and document the torque of each bolt in any flanged end connections. Re-torque as required. Valve bonnet bolting is not required to be re-verified.	Not accepted. Comment not always applicable to some approaches to jumper FAT		BP	roy.chan@bp.com	Closed
309	333	Negative	9.6 Factory Acceptance Testing	bullet 3	Technical	delete this statement. It is covered by a requirement later for performing function testing of all jumper mounted controls and hardware.	Delete this statement	Not accepted; statements both unique and applicable.		BP	roy.chan@bp.com	Closed
310	334	Negative	9.6 Factory Acceptance Testing	bullet 4	Technical	make necessary requirement	change shoulds to shall	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
311	335	Negative	9.6 Factory Acceptance Testing	bullet 5	Technical	make necessary requirement	change shoulds to shall	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
312	336	Negative	9.6 Factory Acceptance Testing	bullet 5	Technical	add specific requirement for drift test	add the following requirements for drift test of piggable jumpers: All piggable circuits shall be drift tested. Drift tests shall use one of the following: 1. A drift sphere equal to 95% of the minimum ID of the header. 2. A gauge-plate assembly equal to 97% of the minimum ID of the header. 3. A COMPANY-supplied pig.	Not accepted; comment is overly prescriptive.		BP	roy.chan@bp.com	Closed
313	337	Negative	9.6 Factory Acceptance Testing	bullet 6	Technical	make this statement generic to cover all jumper mounted equipment	Jumper mounted controls equipment and hardware shall be function tested during jumper FAT.	Accepted in principle. "Jumper mounted controls equipment and hardware should, where possible, be function tested during jumper FAT."		BP	roy.chan@bp.com	Closed
314	338	Negative	9.6 Factory Acceptance Testing	bullet 7	Technical	make necessary requirement	change should to shall	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
315	339	Negative	9.6 Factory Acceptance Testing	bullet 8	Technical	make necessary requirement	change should to shall	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
316	340	Negative	9.6 Factory Acceptance Testing	bullet 9	Technical	make necessary requirement	change should to shall	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
317	341	Negative	9.6 Factory Acceptance Testing	10th bullet	Technical	reword as follows	Jumpers shall be tested with inhibited potable water or other test fluid with suitable corrosion inhibitor.	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
318	342	Negative	9.6 Factory Acceptance Testing	bullet 11	Technical	make necessary requirement	change should to shall	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
319	343	Negative	9.6 Factory Acceptance Testing	bullet 13	Technical	make necessary requirement	change should to shall	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
320	344	Negative	9.6 Factory Acceptance Testing	bullet 14	Technical	make necessary requirement	change should to shall. also add the following statement to this requirement: "For flexible jumpers, gooseneck connector assemblies shall be lift tested to confirm they can be lifted so the connecting flange is properly oriented for connection offshore. The jumper connectors shall be locked after slacking off on the lift slings."	Accepted in principle; added to new section 9.3.1 for assembly of flexible jumpers. Incorporated comment as-is with exception to "shall" statement.		BP	roy.chan@bp.com	Closed
321	345	Negative	9.6 Factory Acceptance Testing	bullet 15	Technical	make necessary requirement	change should to shall	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
322	346	Negative	9.6 Factory Acceptance Testing	bullet 16	Technical	make necessary requirement	change wording to...shall by visibly verified as clean and free of debris...	Not accepted. Avoid use of "shall" statements in RP.		BP	roy.chan@bp.com	Closed
323	365	AffirmativeWithComment	ALL	ALL	General	Customer' and 'end user' are used throughout the document.	Verify the use of 'customer' and 'end user' throughout the document. Align on one use if possible and incorporate throughout.	Accepted in principal. Updated document throughout to align such terms.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed

324	366	AffirmativeWithComment	ALL	ALL	Editorial	The use of pronouns like 'they' within a technical document should be minimized.	Update the use of 'they' throughout the document. For example, in section 5.10.2, use 'These tools' instead of 'they'.	Accepted in principal. Updated document throughout to remove such terms.		ExxonMobil	matthew.j.obernuefemann@exxonmobil.com	Closed
325	367	Abstain	NA	NA	Editorial	Page numbers restart in the Annex.	Correct the headers to ensure that they are linked properly to each other.	Accepted in principal. Submit to API for formatting.		Helix ESG	dlauer@helixesg.com	Closed
326	368	Negative	New section	3	Technical	recommend guidance be provided for assessing technology readiness and new technology risk.	Add new section for Reliability and Qualification with the following requirements: 1. The CONTRACTOR shall perform TRL assessment on their proposed connection system technology per the requirements of API 17Q. 2. Where new technology is proposed, the CONTRACTOR shall perform qualification testing in line with requirements of API 17Q. 3. Where new technology is proposed, the CONTRACTOR shall assess the technology risk in line with requirements of API 17N. 4. The CONTRACTOR shall perform FMECA for new technologies where required by API 17N for the technical risk categorization.	Accepted in principal. 17Q and 17N added as normative references. API 17Q added to section 5.5.1. API 17N added to section 5.3: "Where new technology is being proposed a technology risk assessment and FMECA should be performed in line with API 17N."		BP	roy.chan@bp.com	Closed
327	354	AffirmativeWithComment	Section 10.2.2	Last Sentence	Editorial	The reference to API 17D Appendix K has already been stated in section 5.3.	Suggest deleting the last two sentences that reference API 17D , Appendix K and regulatory statement.	Not accepted. Section 5.3 states requirement for connection system and section 10.2.2 states requirement for jumper.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
328	356	AffirmativeWithComment	Section 10.2.4	Entire Section	Editorial	The reference to API 17D Appendix K has already been stated in section 5.3.	Delete section as this has already been covered	Accepted		Shell International Exploration and Production	John.Smiley@shell.com	Closed
329	19	AffirmativeWithComment	Section 3.1.11	Main Statement	General	Gasket Separation is mentioned in the document, would be good to add a Note	Add Note 1 Gasket separation which is the separation of the inboard and outboard hub faces at the gasket location will occur prior to hub separation	Not accepted. Gasket separation term not used in document.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
330	20	AffirmativeWithComment	Section 3.1.15transfer of fluids.	Technical	Statement and Note missing that multibore connectors can also include control signals	add "& control signals" to the end of the sentence and in the Note	Not accepted. RP excludes electrical or FO components.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
331	21	AffirmativeWithComment	Section 3.1.17	Main Statement	Editorial	The word "generally" isn't correct as the document has defined inboard as on the structure thus the outboard is always on the jumper.	Remove "generally"	Not accepted. Hub on flowline could be either/or (PLET/pigtail).		Shell International Exploration and Production	John.Smiley@shell.com	Closed
332	22	AffirmativeWithComment	Section 3.1.18	Note 1	Technical	The first sentence isn't correct, as parking a vertical jumper isn't the same as installing it on the indented hub but keeping it in the raised position.	Change to "...the connector is generally parked on a temporary parking frame in the raised position.	Accepted in principle. "NOTE 1 For a vertical flowline jumper, the connector is generally in the raised position directly above or adjacent to the vertical inboard hub on the same or separate structure. For a horizontal flowline jumper, the connector is generally in line with and retained in the retracted or pushed back position from the horizontal inboard hub."		Shell International Exploration and Production	John.Smiley@shell.com	Closed
333	23	AffirmativeWithComment	Section 3.1.18	Main Statement	Technical	The statement park is solely focused on parking on the subsea structure is misleading on vertical jumpers.	Change to "...on the subsea structure / temporary parking frame in the disconnected position"	See response to Comment 332		Shell International Exploration and Production	John.Smiley@shell.com	Closed

334	24	AffirmativeWithComment	Section 3.1.25	Main Statement	Technical	Need to add a note that the structural capacity of the connection system typically has one prior to locking the connector and one after	Add "Note 1 The structural capacity of the connection system typically has a rating prior to the connector being locked and one after it is locked"	Not accepted. Definition encompasses both conditions.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
335	25	AffirmativeWithComment	Section 3.1.26	Main Statement	Editorial	The document has already stated that the jumper includes many different components	Change to "...in the subsea jumper assembly at start-up and/or shutdown..."	Not accepted. Statement applies to inboard/outboard side of jumpers.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
336	26	AffirmativeWithComment	Section 3.1.3	The Flowline geometry	General	Use of the word "flowline"	Change to "The jumper geometry, external loads, containing fluid.....to define the jumper at any point along its length"	Accepted. "The jumper geometry, external loads, contained fluid and contained fluid flow conditions, metocean conditions, and other parameters required to define the jumper at any point along its length."		Shell International Exploration and Production	John.Smiley@shell.com	Closed
337	27	AffirmativeWithComment	Section 3.1.7	Note 1	Editorial	Description of the connection guidance structure is wordy doesn't cover the entire subsea scope	Change to "connector alignment structure located on subsea structures"	Not accepted. Comment insufficient to capture intent of note for wider inclusion of system.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
338	28	AffirmativeWithComment	Section 3.1.7	Note 1	Technical	Why is line pipe referenced here as if it applies then you also need to add, the other jumper piping kit components	Remove "Line Pipe"	Accepted in principle. Removed "line", keep "pipe"		Shell International Exploration and Production	John.Smiley@shell.com	Closed
339	29	AffirmativeWithComment	Section 3.1.7	Note 1	Technical	The reference to a "secondary seal" isn't correct as it maybe interpreted as required.	Remove "Secondary Seal" or add "(If required by end user)" after	Not accepted; section is for generic definition of terms.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
340	30	AffirmativeWithComment	Section 3.1.8	Note Statement	Technical	Missing that the contingency seal may / may not use the same sealing profile as the primary seal	Add "The contingency seal may / may not utilize the same profile as the primary metal seal" to Note 1 or add a Note 2	Accepted in principle; added "The contingency seal may utilize the same profile as the primary metal seal"		Shell International Exploration and Production	John.Smiley@shell.com	Closed
341	31	AffirmativeWithComment	Section 3.1.9	Main Statement	Technical	Definition solely references cool down in reference to a pipeline shut down, which discounts a well shut down	Change to "Time period during which the operating temperature of the produced fluid decreases due to a partial or full field shut down"	Not accepted; term definition is sufficiently generic: "due to a pipeline flow decrease or stoppage." Stoppage may refer to shut down condition of any duration.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
342	33	AffirmativeWithComment	Section 4.1	2nd paragraph	Technical	need to make sure that the reader understands that the variables is not all inclusive	Change to "This section will outline several of the variables that can drive and includes subsea...."	Accepted in principle; added "several" variables.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
343	37	AffirmativeWithComment	Section 4.2.1.2	6th bullet under Disadvantages	Technical	should not that longer flexibles (typically greater than 120ft) require a flex-lay vessel	Add "...may be needed for long flexible pipe installation"	Accepted.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
344	38	AffirmativeWithComment	Section 4.2.1.2	9th bullet under Disadvantages	Editorial	Statement could be reworded to better show that the flexible will have an interface to a gooseneck	Change to "flexible pipe will utilize a flanged or clamp end connection to interface with the outboard connector resulting in additional potential leak path"	Not accepted. Statement as-is sufficiently covers additional leak paths at pipe-to-gooseneck interface, and gooseneck connector to hub interface.		Shell International Exploration and Production	John.Smiley@shell.com	Closed

345	39	AffirmativeWithComment	Section 4.2.1.2	Potential addition	Technical	One of the biggest disadvantages to flexible is the lack of available space to put controls equipment, parking panels, valves, etc.	Add "Difficult to integrate controls equipment, valves"	Accepted. Added " Typically difficult to integrate controls or ancillary equipment (e.g. valves, sand detectors);"		Shell International Exploration and Production	John.Smiley@shell.com	Closed
346	40	AffirmativeWithComment	Section 4.2.1.2	Potential addition	Technical	Another aspect that is should be listed is the on-land preservation, storage and monitoring that is sometimes needed for flexible pipe	Add "More onerous storage and preservation requirements"	Not accepted; comment too general.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
347	45	AffirmativeWithComment	Section 4.2.1.3	7th bullet under advantages	Editorial	It should be understood, but to be complete need to clarify that the "welded directly to" is the outboard connector	Change to "can be welded directly to the outboard connector...."	Accepted.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
348	52	AffirmativeWithComment	Section 4.2.2.1	8th bullet point, under advantages	Technical	This is a very broad statement that should be written to give the reader a little more consideration	Change to "Loading on the inboard hubs can be reduced if seabed support can be leveraged"	Accepted in principle; added "may" to second part of statement.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
349	53	AffirmativeWithComment	Section 4.2.2.1	7th bullet point, under advantages	Technical	This is a very broad statement that should be written to give the reader a little more consideration	Change to "Horizontal jumper can be less susceptible to VIV depending on the spool geometry and whether it has seabed support"	Accepted in principle; " Horizontal jumpers can be less susceptible to VIV depending on the spool geometry and whether it has seabed support."		Shell International Exploration and Production	John.Smiley@shell.com	Closed
350	54	AffirmativeWithComment	Section 4.2.2.1	5th bullet point, under advantages	Editorial	This bullet can be removed if the 3rd bullet is rewritten to be all including as noted in a previous comment	Delete	Accepted in principle; merged points 3 and 5.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
351	55	AffirmativeWithComment	Section 4.2.2.1	3rd bullet point, under advantages	Editorial	This bullet can be rewritten to cover the full functionality of the horizontal tie-in porch	Change to "Tie-in porch may support horizontal jumpers in the parked / disconnected state while installing / retrieving the host structure (such as manifold / Tree), depending on the subsea foundation design.	Accepted in principle; merged points 3 and 5.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
352	56	AffirmativeWithComment	Section 4.2.2.1	New Bullet, under disadvantages	Technical	One of the biggest disadvantages to horizontal x horizontal short jumpers is the consideration (field layout or jumper design) to accommodate the stroking of the connectors	Add "Jumper Design can be prohibited due to horizontal connector actuation stroke for short jumpers if the field layout is congested"	Accepted in principle. " Horizontal jumper design can be prohibited due to horizontal connector actuation stroke for shorter length jumpers if the field layout is congested."		Shell International Exploration and Production	John.Smiley@shell.com	Closed
353	57	AffirmativeWithComment	Section 4.2.2.1	New Bullet, under disadvantages	Technical	Disadvantage to horizontal jumpers is the additional complexity during jumper fabrication (heading component)	Add "More complex fabrication setup due to the need to factor in the specific inboard heading of the subsea tie-in point"	Accepted in principal: " A rigid horizontal jumper requires more complex fabrication setup due to the need to factor in the specific inboard heading of the subsea tie-in point."		Shell International Exploration and Production	John.Smiley@shell.com	Closed
354	66	AffirmativeWithComment	Section 4.2.2.2	2nd bullet, under advantages	Editorial	Clarify that the benefit of a vertical connector is that gravity is assisting the make up	Change to "Gravity assisted, minimal pipe deflection / pull-in required when making up the connection"	Accepted		Shell International Exploration and Production	John.Smiley@shell.com	Closed
355	67	AffirmativeWithComment	Section 4.2.2.2	2nd bullet, under disadvantages	Technical	Not accepted with this statement as we have done this in the past	Change to "Requires the use of a temporary wet parking stand in order to retrieve the subsea structure (if module is separate of the foundation)"	Accepted in principle " Typically cannot be parked without the use of a temporary wet parking stand in order to retrieve the host structure;"		Shell International Exploration and Production	John.Smiley@shell.com	Closed

356	75	AffirmativeWithComment	Section 4.3	3rd Paragraph, last sentence	Technical	This has caused a lot of issues in the GOM and would suggest being more specific on soil deposition	Change to "Seabed support design should also consider the effects of bottom currents and scour, as well as soil deposition (Drilling spoils) for long-term validation	Accepted in principle "Seabed support design should also consider the effects of bottom currents and scour, as well as material deposition (mudflow, drilling spoils, etc.) for long-term validation."		Shell International Exploration and Production	John.Smiley@shell.com	Closed
357	76	AffirmativeWithComment	Section 4.3	5th Paragraph	Technical	Statement is only focused on commissioning which is missing the larger operation plan	Change to "Field commissioning & operating plans should...."	Accepted.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
358	77	AffirmativeWithComment	Section 4.4	Last Paragraph	Technical	Crossing of permitted segments needs to also account of regulatory requirements	Add to sentence "as well as any regulatory requirements for crossing permitted segments"	Accepted.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
359	84	AffirmativeWithComment	Section 4.6	1st Paragraph	Technical	Statement could be taken that the ROV accessibility study was only needed for "additional components" when in reality connector actuation is the biggest area to focus on	Rewrite "The connector manufacturer should reference API 17H when designing the connectors in order to use standard ROV tooling and to ensure that all interfaces are able to withstand the prescribed ROV loading. ROV accessibility study shall be completed on all jumpers to ensure that interfaces for both connector actuation as well as access to additional components within the pipe kit, i.e. isolation valves, MPFMs, etc., are ROV friendly and accessible.	Accepted in principle. "ROV accessibility study should be completed to ensure that interfaces for both connector actuation as well as access to additional components within the pipe kit, i.e. isolation valves, MPFMs, etc., are ROV friendly and accessible."		Shell International Exploration and Production	John.Smiley@shell.com	Closed
360	88	AffirmativeWithComment	Section 4.7	1st Paragraph / 1 sentence	Technical	Missing that control signals are also included in multi-bore connectors	change to "production, chemical, hydraulic and control lines in the same bundle"	Accepted in principle; addressed in second bullet point.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
361	119	AffirmativeWithComment	Section 5.2	8th bullet point	Technical	Statement is written to solely have the connector on the jumper side.	Change to "The connector and hub should accommodate and overcome...."	Accepted.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
362	120	AffirmativeWithComment	Section 5.2	8th bullet point	Technical	Not sure why "flowline" is included in this statement	Change "flowline / jumper" to just "jumper"	Not accepted. Statement as-is implies direct connections of flowlines (not always just a "jumper" on the outboard side).		Shell International Exploration and Production	John.Smiley@shell.com	Closed
363	121	AffirmativeWithComment	Section 5.2	10th bullet point	Editorial	to be consistent with the bullet further done, should state this is a wet-mated	Change to "The connection should allow for a post-installation pressure test to verify the wet-mated seal..."	Accepted.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
364	186	AffirmativeWithComment	Section 5.6	1st paragraph	Technical	Missing the "unlocking force"	Change to "Factory acceptance testing includes the lock force or pressure setting, unlocking force..."	Accepted in principle. Add "unlock" to first sentence and 9th bullet		Shell International Exploration and Production	John.Smiley@shell.com	Closed
365	267	AffirmativeWithComment	Section 7.2.7	Section Title	Technical	The title of the section is not correct as the section is solely about external pressure design approach, which we don't allow.	Change title to "Pressure Design (External Pressure Considerations)?"	Accepted in principal. Updated to "Internal and External Pressure Loads"		Shell International Exploration and Production	John.Smiley@shell.com	Closed
366	268	AffirmativeWithComment	Section 7.2.8	Section Title / Content	Technical	Section title is not correct, as Misalignments are historically used to describe parameters that are seen when landing / locking a connector as the two parts are "misaligned" during initial make up.	Change title to "Subsea Structure Movement" and remove "Misalignment effects" from 1st sentence	Accepted in principal. Updated section header to "displacement effects"		Shell International Exploration and Production	John.Smiley@shell.com	Closed

367	288	AffirmativeWithComment	Section 7.4	Table 1	Technical	The Operational Phase 1, 2 and 3 are very specific and are hard to follow. "feed-in load" would need to be defined if this layout is kept.	Since this is just an example, would suggest simplifying the Operation phase to a single load case that covers the phase of the project several years after start	Not accepted. Example cases are meant to illustrate load case considerations/options for operational cases.		Shell International Exploration and Production	John.Smiley@shell.com	Closed
368	289	AffirmativeWithComment	Section 7.4	Paragraph after Table	Technical	"minimum mill tolerance" is missing the code statement	Add "(As applicable by design code)" after mill tolerance	Accepted in principal. "minimum mill tolerances (where dictated by pipe design code) "		Shell International Exploration and Production	John.Smiley@shell.com	Closed