United States Deorbit Vehicle (USDV)
DRFP Question and Answers Part I

Question #	File Name	Section Number	Page Number	Question	Answer
1	ISS Deorbit Concept of Operations (Conops) DRAFT B			Is the NASA Docking System Block 1 (NDSB1) offered as a type 1 or a type 2?	All NDSB1 flight units are Type II
2	ISS Deorbit Concept of Operations DRAFT B	2.0	1	Define vacuum perigee. How is this distinct from another perigee?	The vacuum perigee is defined as the perigee without considering atmospheric perturbations.
3	ISS Deorbit Concept of Operations DRAFT B	2.1	2	"The predicted maximum mass of the ISS at the time of deorbit activities is 450,000 kg". Is this number still excluding the mass of the USDV?	Yes, 450,000 kg excludes the mass of the USDV.
4	ISS Deorbit Concept of Operations DRAFT B	2.2	4	ISS Deorbit Concept of Operations DRAFT B" section 2.2 Table 1.1-1 lists the deorbit burn altitude as 170 x 150 km, but SSP 51101 introduction states "Once the reentry kick-off orbit, an 200x150km elliptical orbit, is reached…" Which orbit altitude is correct?	The SSP 51101 USDV Systems Requirement Document and Concept of Operations will be updated to reflect ~180-190 km.
5	ISS Deorbit Concept of Operations DRAFT B	2.4.1	b	Please confirm that up to 7-day re-rendezvous delay (as enumerated in SSP 51101 section 3.2.4) is not required for each rendezvous abort but only a single delay.	The 7-day re-rendezvous delay is only required for a single delay.
6	ISS Deorbit Concept of Operations DRAFT B	2.4.2	5	In the combined GNC functions that will be required of the USDV, would that include operating in a mode to perform a "desat" of the CMGs (e.g., like CMG TA mode) or is LoAC recovery the only CMG function expected?	The USDV is not required to perform Control Moment Gyroscope (CMG) Desaturations. If the CMGs saturate and the ISS-Russian Segment (RS) Motion Control System is unavailable, then the International Space Station (ISS) will enter into a Loss of Attitude Control scenario. At this point, USDV will be asked to recover

Question #	File Name	Section Number	Page Number	Question	Answer
					ISS to an approved attitude and null rates to less than 0.28 deg/sec, after which ISS attitude control can be transitioned to the CMGs. The governing requirement is 3.2.7 RECOVERY FROM LOSS OF ATTITUDE." No other interactions between the USDV and the CMGs are planned.
7	ISS Deorbit Concept of Operations DRAFT B	2.4.3	6	Text states "The RS is expected to keep two Progress vehicles docked through re-entry and be fully capable of performing a hot back-up deorbit burn using the Russian Service Module (SM) main engines and at least 2 Progress vehicles. " Would the USDV be expected to perform any maneuvers (e.g., flip) of the mated stack for this burn?	No, the USDV would not be expected to perform the maneuver (e.g., flip) of the mated stack in this contingency scenario.
8	ISS Deorbit Concept of Operations DRAFT B	2.4.3	6	In the 3rd paragraph, the sentence "At approximately 200km, the USDV..." but this conflicts with the value of 220km given elsewhere. Please clarify the altitude for the orbit shaping burn(s).	The orbit shaping burns will begin at approximately 220 km.
9	ISS Deorbit Concept of Operations DRAFT B	2.4.4	7	The final sentence indicates that ISS modules may be depressurized before reentry. What is the venting torque expected for these events? Does it fall within the requirements for 1500 ft lbf of torque per SSP 51101 requirement 3.3.4? Is this activity included within the 410kg of propellant of required propellant per SSP 51101 Requirement 3.3.2?	Torques resulting from pressurized module venting events are expected to stay within the capabilities of the CMGs and therefore are not included in any current propellant estimates.

Question #	File Name	Section Number	Page Number	Question	Answer
10	ISS Deorbit Concept of Operations DRAFT B	2.4.4	12	Can the ISS appendage featherings be trimmed in-flight to minimize torques experienced, or will they be fixed once set?	ISS appendages will be feathered prior to the final deorbit burn to minimize torques but will not be adjusted/trimmed during the final burn.
11	ISS Deorbit Concept of Operations DRAFT B	2.4.3, 2.4.4	6,7	At what altitude or stage of the Deorbit Preparation Phase will the ISS solar array orientation be fixed for the remainder of the mission? Will the ISS solar arrays track the sun during the entire Deorbit Preparation phase (2.4.3), or will they be moved to the feathered configuration stated in 2.4.4 when the CMGs can no longer perform attitude control?	Current strategy is to orient Solar Alpha Rotary Joints (SARJs) to roughly 0 deg once ISS altitude has dropped below roughly 260 km. This will extend the time that CMGs are able to provide attitude control down to about 220 km. Beta Gimbal Assemblies (BGAs) are expected to be in Auto all the way down to 150 km perigee, at which point BGAs will be trimmed for the final re-entry maneuver.
12	ISS Deorbit Concept of Operations DRAFT B	3.11	25	Is NASA requiring offerors to use a NASA Docking System?	No, NASA is not requiring offerors use the NASA Docking System. The NASA Docking System is listed in L.15 List of Available Property. Offerors may choose to request the NASA Docking System by completing Attachment J-33, Table J-33-1.
13	ISS Deorbit Concept of Operations DRAFT B	3.2.1	11	This ConOps section mentions that the contractor will provide acceptance rationale where two failure tolerance to a Catastrophic Hazard is not achieved. This does not seem to be reflected in SSP 51101 and SSP 50808. Can NASA clarify this and provide more detail on the acceptance process? What is the process and mechanism for waivers?	Per Statement of Work (SOW) 2.11.1.e, "The Contractor shall submit for NASA approval any Non-Compliance Reports (NCRs) identified via the Hazard Analysis. NCRs will be processed in accordance with Space Station Program (SSP) 30599, Safety Review Process and approved by the appropriate NASA control board(s)."

Question #	File Name	Section Number	Page Number	Question	Answer
14	ISS Deorbit Concept of Operations DRAFT B	3.4	12	The term "state of readiness for launch" seems to differ from the SOW. How does this ConOps words fit with the 12-month call-up period? Additional definition or correction is desired? Is the SOW correct?	The ConOps will be updated in the Final RFP to clarify that the USDV will be maintained to support an L-12 month call-up for launch in agreement with the SOW.
15	ISS Deorbit Concept of Operations DRAFT B	3.5.1	14	Previously it was stated that the USDV shall be able to perform at least 3 rendezvous attempts. Is it implied here that the C2V2 50s-time out constraint would not apply for the final attempt, if more than 3 are possible as opposed to the 3rd attempt regardless?	USDV must have the ability to disable breakout-related Fault, Detection, Isolation and Recovery (FDIR), including the C2V2 50s time-out constraint, on the final attempt. The USDV is required to have the capability to perform 3 re-rendezvous. Additional rendezvous attempts are not prohibited. The Loss of Communication requirement (System Requirement Document (SRD) 3.3.7.1.6) removal and the decision to inhibit an automatic breakout would be an operational decision depending on the reason for the space-to-space (C2V2) link failure, and the status of the rest of International Space Station (ISS) and USDV Vehicle including the USDV-Tracking and Data Relay Satellite (TDRS) link. This is a multiple-failure scenario where the response would be dependent on specific failures.

Question #	File Name	Section Number	Page Number	Question	Answer
16	ISS Deorbit Concept of Operations DRAFT B	3.5.1	19	For the paragraph beginning "For most ISSVVs…": please clarify if additional collision hazard fault-tolerance beyond regular visiting vehicles is required, or that breakout would be disabled for the final docking attempt regardless of faults taken?	USDV must have the ability to disable breakout-related Fault Detection Isolation and Recovery (FDIR) on the final attempt. The USDV is required to have the capability to perform three (3) re-rendezvous. The decision to inhibit automatic breakout functions would be an operational decision depending on the failure, and the status of the rest of ISS and USDV Vehicle. This is a multiple-failure scenario where the response would be dependent on specific failures. For all VV (including the USDV) two failure tolerance is required for the collision hazard. In the case of the USDV, breakouts are not allowed to be used as a hazard control on the final attempt (Per paragraph 3.5.1). If breakouts are used as a USDV design hazard control for the non-final rendezvous and docking attempts (regular VV solutions), then a valid substitute USDV design hazard control would be needed for the final rendezvous and docking attempt.
17	ISS Deorbit Concept of Operations DRAFT B	4.1.1	21	The USDV will be operated by the NASA Flight Operations Directorate in Mission Control Center Houston (MCC-H.)" Will FOD be the responsible USDV operator after LV integration? Or after LV separation? Or after attachment to the ISS? Please define the	Mission Control Center-Houston (MCC-H) will be the responsible USDV operator beginning with the Launch countdown sequence.

Question #	File Name	Section Number	Page Number	Question	Answer
				handover event when FOD becomes responsible.	
18	Cover Letter	N/A	N/A	Please clarify: SOW Section 7.0 describes CLIN 05 as LV/LV Integration, but Attachment L-01 refers to it as CLIN 04.	This comment references a pre-DRFP version of the SOW. The DRFP and SOW were consistent throughout in referring to CLIN 4 as LV Integration and Sustaining and CLIN 5 as Special Tasks & Studies.
19	Cover Letter	N/A	N/A	Can the Government clarify if the Critical Spares in the CLIN2A Option is identical to the Long Lead Parts being procured under CLIN2 (Milestone C2-1)?	The Critical Spares in CLIN2A Option is not necessarily identical to the Long Lead Parts being procured under CLIN2 (Milestone C2-1). The Critical Spares in CLIN2A Option are those long lead parts to meet a 2-year call-up delivery to launch site processing facility of a second USDV vehicle, whereas the Long Lead Parts procured under CLIN2 (Milestone C2-1) is for nominal USDV delivery, which doesn't include the 2-year call-up window.
20	Cover Letter	N/A	N/A	Can NASA clarify how many calendar days following each project-lifecycle review the RIDs/RFAs will be submitted, as well as the closure plans for action items and RIDs/RFAs.	Data Requirement Document (DRD) USDV-3 Project Life-Cycle Review Plan and Data Packages requires the Offeror to deliver a Project-Life-Cycle Review Plan, including the schedule and timing for data delivery and review. The proposed plan is required to ensure NASA has adequate time and

Question #	File Name	Section Number	Page Number	Question	Answer
					access to the data to perform meaningful technical reviews.
21	Cover Letter	N/A	N/A	Can industry propose the dwell milestone payment plan?	Dwell is ordered quarterly based on the Schedule B pricing. Payment of quarterly milestone is based on Government acceptance of Dwell activities, status, and reporting as part of the quarterly Program Management Reviews (PMRs)
22	Cover Letter			What liability for USDV damage does the USDV contractor have post-DD250 and prior to USDV launch?	Following NASA acceptance of the USDV, the Contractor will be responsible for Dwell ordered via Task Order on CLIN 3 and Launch Vehicle Integration and Sustaining through services ordered via Task Order on CLIN 4. In accordance with FAR 52.246-4 Inspection of Services—Fixed-Price, the Government has the right to inspect the services performed. If any of the services do not conform with contract requirements, the Government may require the Contractor to perform the services again in conformity with contract requirements, at no increase in contract amount.
23	Draft RFP	Throughout		The DRFP includes several references to R&D clauses, provisions, terms, etc. Is this truly an R&D contract? My understanding is that it is just a development/production contract.	The NASA FAR 1835, Research and Development Contract outlines prescription of clauses. The Contracting Officer has determined DRFP clauses

Question #	File Name	Section Number	Page Number	Question	Answer
				Recommend deleting these as this is a development contract, not R&D.	associated with FAR 1835 are appropriate based on the Government requirements. The Government expects some development required to meet the USDV requirements.
24	Draft RFP	Section B	B-2, B-3	Would the Government clarify how orders will be awarded under IDIQ CLINs 3 and 4? Will individual Task Orders awarded as SLINs under overarching IDIQ CLINs?	Task orders under CLIN 3-5 will be awarded utilizing Section I clause NFS 1852.216-80 TASK ORDERING PROCEDURE. (OCT 1996) ALTERNATE II (APR 2018) under the appropriate Contract Line Items 3-5.
25	Draft RFP	Section B, I	B-2, I-12	Would the Government confirm that the CLIN 2A PoP aligns with the CLIN 2 PoP or if the CLIN 2A PoP would be for two years at the completion of the CLIN 2 PoP?	The Contract Line Item Number (CLIN) 2A Period of Performance (POP) will start when the Government exercises the option and will end when the USDV is delivered in accordance with FAR 52.211-8 TIME OF DELIVERY.
26	Draft RFP	Section B, I	B-2, I-12	When would NASA plan on exercising CLIN 2A?	In accordance with clause I.7, the Government may order this Option at any time between contract award and two years after contract award.
27	Draft RFP	B.6	B-3	CLIN 4 IDIQ rates: Are the labor rates across the different functions for bidding purposes only?	Indefinite Delivery Indefinite Quantity (IDIQ) rates will be utilized during contract execution for Task Orders issued under CLIN 4 and CLIN 5. The firm fixed price rates during contract execution for CLINs 3-5 will not be adjusted based on Defense Contract Management Rates

Question #	File Name	Section Number	Page Number	Question	Answer
28	Draft RFP	B.6	B-3	B.6 CLIN 4 LAUNCH VEHICLE (LV) INTEGRATION AND SUSTAINING (IDIQ) CLIN 4 includes scope for LV integration and sustaining engineering and operations including final LV integration and testing, pre-launch preparation, flight execution preparation, launch and flight operations, and procurement of hardware. Please explain the rationale for procuring hardware in this CLIN. What is intended with the hardware procurement within CLIN 4, titled Parts?	Parts in CLIN 4 is included to give the Government flexibility during contract execution in the event the Government has a requirement to procure additional hardware/parts.
29	Draft RFP	B.6	B-3	CLIN 4 includes scope for LV integration and sustaining engineering and operations including final LV integration and testing, pre-launch preparation, flight execution preparation, launch and flight operations, and procurement of hardware. Would CLIN 4 account for unplanned dwell time after delivery to the launch site and acceptance of the vehicle? If a lengthy dwell time is needed after launch site delivery, is the USDV to be returned to the contractor's facility or would the dwell time be at the launch site PPF?	The approach to an unplanned dwell after shipment to the launch site Payload Processing Facility (PPF) will be dependent upon the situation that is causing the launch delay and addressed using IDIQ Task Orders.
30	Draft RFP	Section B	B-4	How will the Government award CLIN 5 Special Tasks and Studies? Will individual tasks be awarded as SLINs or will individual tasks be drawn down from a GFY total FFP value?	Task orders under CLIN 3-5 will be awarded utilizing Section I clause NFS 1852.216-80 TASK ORDERING PROCEDURE. (OCT 1996) ALTERNATE II (APR 2018) based on discrete requirements.

Question #	File Name	Section Number	Page Number	Question	Answer
31	Draft RFP	Section B		Will NASA consider adding a re-opener clause such as an Economic Price Adjustment (EPA) clause due to the duration of this contract which could extend through 2035?	NASA will not utilize an Economic Price Adjustment Clause for USDV. NASA has reviewed this request. NASA purposefully selected a contract type for this acquisition based on industry feedback. Based on industry feedback on percent of non-recurring engineering required for the USDV, the firm fixed price production effort should be well-understood given the availability of flight proven systems. Furthermore, the bulk of the USDV design and production effort occurs in approximately 4-year period due to the USDV delivery requirement for Calendar Year 2028. The Calendar Year 2035 date mentioned in the question is achieved through option periods, which by design if executed, occur well after the firm fixed price production effort.

Question #	File Name	Section Number	Page Number	Question	Answer
32	Draft RFP	E.3	E-2	Perform surveillance, Product Assurance Action, Audits, Government mandatory inspections, process assessments, acceptance, procurement quality assurance and source inspections. Review and assessment of discrepancy reports, nonconformances, waivers, test preparation sheets, procedures, hazard reports, Failure Modes and Effects Analysis/Critical Items Lists (FMEA/CILs). For the FFP period, recommend keeping audits under the special study CLIN so we can create tasks as audits are being requested. DCMA insight/oversight is usually problematic as it's difficult forecast what DCMA plans to do. That, or specify the duration and frequency/number of audits.	Current approach for USDV is to perform PAAs based on an ongoing Risk-Based Assessment (RBA) methodology rather than GMIPs, though GMIPs may be required in exceptional cases. PAA activity will be embedded with Contractor processes utilizing the onsite NASA personnel at the Contractor facilities. Audits, surveillance, and other PAA activity will not be addressed under the special study CLIN.
33	Draft RFP	H.5	H-6	The limitation of funds clause indicates the schedule of funds is TBD. How will NASA establish the funding schedule? Recommend allowing Contractors to propose our funding needs.	NASA does not have a funding schedule. Offerors are to propose the funding needs.
34	Draft RFP	H.6(b)	H-7	Offeror Fill In - Are offerors supposed to list the key personnel by name?	Yes
35	Draft RFP	H.7	H-8	Will NASA be providing preferred templates for these progress reports, or are Contractors able to use their own formats as long as they include the listed requirements?	No. NASA will not be providing preferred templates as part of the RFP for these progress reports.
36	Draft RFP	H.8(c)	H-9	The DRFP indicates substantiating and/or correcting markings is not an allowable cost. What is the rationale behind it not being an	The contractor is required to properly mark each data deliverable in accordance with FAR 52.227-14, Rights in Data - General.

Question #	File Name	Section Number	Page Number	Question	Answer
				allowable cost? They are costs incurred directly as a result of contract performance that should be consider allowable just as correcting and resubmitting technical data deliverables is an allowable cost.	The Government will not reimburse contractors for fixing incorrect, unsubstantiated, or unauthorized markings. Contractor's correction of notices on data at the Contractor's expense is supported by 52.227-14, Rights in Data – General, section (f)(3)(i).
37	Draft RFP	H.10(a)	H-10	Please confirm that any additional ACAs as requested by NASA would be subject to equitable adjustment.	The Government makes no pre-determined decision on the reasonableness of an Equitable Adjustment before it is submitted or reviewed.
38	Draft RFP	H.11.(b)	H-12	(b) Costs and expenses associated with correction of an incorrect notice are unallowable costs. Recommend deleting this statement. What is the rationale behind them not being an allowable cost? They are costs incurred directly as a result of contract performance.	See answer to question 36 above
39	Draft RFP	H.12.(b)	H-12	(ii) costs and expenses associated with substantiating the markings are unallowable costs under this contract. The Contractor shall be responsible for substantiating the markings at its own expense regardless if the markings originate from the Contractor or from a subcontractor. What is the rationale behind them not being an allowable cost? They are costs incurred directly as a result of contract performance.	See answer to question 36 above
40	Draft RFP	H.20	H-17	The contractors shall transfer Contractor acquired property in CLIN 1 DESIGN, DEVELOPMENT, TEST AND EVALUATION	This is specific for Contractor Acquired Property purchased under CPIF which will be issued to the contractor during CLIN2

Question #	File Name	Section Number	Page Number	Question	Answer
				(DDT&E) THROUGH CRITICAL DESIGN REVIEW (CDR) ESTIMATED COST AND INCENTIVE FEE to the Government at the completion on CLIN 1 and subsequently issued to the contractor during CLIN 2 performance as GFP as an update to Attachment J-33, Government Furnished Property Facilities and Data/Information. Does this mean that we buy long leads on CLIN 1 and it transfers over at the start of CLIN 2? In the event material procurement must begin prior to CDR in order to meet the schedule, and long lead material cannot be procured on CLIN 1, where can it be procured? What is the plan for procurement of long lead hardware? Which CLIN will capture this material?	performance as Government Furnished Property. This is foreseen with development hardware (non-flight hardware) used to support the design reviews. In accordance with the provision L.25.2 Specific Cost Instructions, section Non-Labor Resources, paragraph (b)(6) Flight Hardware and Flight Hardware Ground Support Equipment shall only be priced in CLIN2 (FFP). In addition, in Attachment J-30, Work Plans, Milestone C2-1 long lead parts for Flight Hardware and Flight Hardware Ground Support Equipment is included as part of the first CLIN2 milestone. In accordance with the J-30 Work Plan instructions, the Offeror proposes via OFI the schedule for Milestone C2-1 completion.
41	Draft RFP	I	I-3	Does FAR 52.215-13 and -14 apply when Subcontractors will only be utilized under FFP CLINs?	FAR 52.215-13 and 52.215-14 will apply to FFP CLINs only.
42	Draft RFP	I.25	I-35	(a) In the performance of this contract, the Contractor shall use - (1) An Earned Value Management System (EVMS) … Please confirm EVMS is only required to be shared with NASA on CLIN 1.	Earned Value Management is only applicable to CPIF.

Question #	File Name	Section Number	Page Number	Question	Answer
43	Draft RFP	Attachment J-01	J01-4, J-01-6	Page 4 identifies 45 calendar days to incorporate NASA comments to DR where page 6 has 30 workdays for similar activity.	The Final RFP Attachment J-01 will be updated to use 45 calendar days in both locations.
44	Draft RFP	AtchJ-04, TRL 9 Definition and M.4 Past Performance Eval	J04-7 & M-92	The Preproposal charts mention that "flight Proven" is part of the Evaluation Criteria, but only the M.4 Past Performance Evaluation mentions flight proven systems.	The following information is requested in Section L concerning flight proven hardware: L.27.1 Technical Approach (TA) - Mission Suitability Subfactor 1 --TA.2: "The Offeror shall describe the extent of use of flight-proven components and systems designs..." --TA.3: "The Offeror shall describe the approach to the delta-qualification, re-qualification, and acceptance of flight-proven systems/component used in the design..." Additionally, Flight heritage features are addressed in TA.3 in the submission of the Design Development, Test and Evaluation (DDT&E) Plan (DRD USDV-25) and the TRL Assessment and Technology Maturation Plan (DRD USDV-23). The information provided on flight proven hardware will be evaluated in Section M.3.1 Technical Approach (TA) - Mission

Question #	File Name	Section Number	Page Number	Question	Answer
					Suitability Subfactor 1 for overall demonstrated understanding, reasonableness, feasibility, completeness, and effectiveness and any ensuing impacts and risk to the Government.
45	Draft RFP	Attachment J-01	J01-9	USDV-27 SEMP is shown as Type 2. Will NASA consider changing to Type 3?	USDV-27 System Engineering Management Plan (SEMP) will remain as a Type 2 DRD to retain NASA approval authority for the USDV effort.
46	Draft RFP	Attachment J-01	J01-9	The DRD title is missing the word "Plan".	DRD USDV-23 includes 3 parts: Part 1 TRL Assessment, Part 2 Technology Applicability, and Part 3 Technology Maturation Plan. DRD title is now Technology Readiness Level (TRL) Assessment and Technology Maturation Plan.
47	Draft RFP	Attachment J-01	J01-9	USDV-34 Mass Properties Report is shown as Type 2. What is intent of NASA approval of the report? What does disapproval mean since the data is typically a lagging status of the design process?	Mass Properties are required for ISS Guidance, Navigation and Control (GNC) and Structural Loads analyses. Disapproval of the Mass Properties DRDs would most likely represent a rejection of incorrect, incomplete, or incompatible data submissions.
48	Draft RFP	Attachment J-01	J01-10	USDV-35 CAD Models are entities of fact and are the geometrical depiction of the exterior of the vehicle. What does having as Type 2 represent to the process?	Engineering Computer-Aided Design (CAD) Models are critical to USOS Visiting Vehicle Operations, including Collision, Clearance, Comm Margin and other analyses.

Question #	File Name	Section Number	Page Number	Question	Answer
					Disapproval of the CAD Model DRDs would most likely represent a rejection of incorrect, incomplete, or incompatible data submissions.
49	Draft RFP	DRD No.: USDV-6	J01-32	The DRD notes: "The WBS shall be in a chart format showing element relationships, arranged in the same order as the WBS provided in the Request for Proposal (RFP)." Where is the WBS provided?	Provision L.27.1 TA1 will be updated to include delivery of the WBS and WBS Dictionary with the proposal.
50	Draft RFP	USDV-6		In the DRD document, the instructions for the WBS/WBS Dictionary, DRD USDV-6, state that the initial version shall be delivered with the proposal, however we did not find instructions in DRFP Section L regarding USDV-6 or where it should be included in the proposal. Will NASA please provide direction?	See answer to question 49 above.
51	Draft RFP	USDV-3 Content item b; DRFP PART B. CLIN 2 (FIRM-FIXED PRICE) WORK PLAN	J01-23; J30-6	USDV-3 and PART B. CLIN 2 (FIRM-FIXED PRICE) WORK PLAN both specify development of Joint Integration Plans (JIP) to be jointly developed with NASA for Project Life-Cycle Review Reviews and Contractor proposed interim milestones in CLIN 2. How will NASA prevent driving additional work scope to the reviews in joint development of the JIP under a FFP contract structure?	The SOW provides overall expectations for each project life-cycle review, which will guide the development of the Joint Integration Plan.
52	Draft RFP	Attachment J-30	Part B. CLIN 2	The individual milestone percentages when compared to cumulative NTE percentages do not align when using the minimum value for	NASA will update the Final RFP to change the CLIN2 SAR milestone from 25% to 30%.

Question #	File Name	Section Number	Page Number	Question	Answer
				C2-5. Minimum total for C2-4 and C2-5 is 35% leaving 65% for prior milestones; however, the cumulative NTE at C2-3 is stated as 60%. If the Contractor chooses 10% as the value for C2-5, is NASA assuming that the Contractor will add an additional milestone after C2-3 with a value of 5%? Will NASA clarify the intent and values?	
53	Draft RFP	Attachment J-32	J-32	Standard labor categories are usually required for T&M contracts, not cost type contracts where time is billed using actual salaried rates. Can NASA clarify why this is needed for this contract?	Standard Labor Categories are utilized to ensure consistent labor categories among offerors and to ensure minimum labor qualifications are met in performance of the contract.
54	Draft RFP	Section L	General	Will the Government accept Cover Letters as part of Volume I - Cost and Price?	Section L Provision PROPOSAL FORMATTING INSTRUCTIONS (DEC 2019) Paragraph (a)(4) outlines the instructions on title pages in reference to the page count.
55	Draft RFP	L.3	L-3	What specific DO rating is this contract, e.g., DO-C9?	Currently, the Defense Priority and Allocation System (DPAS) rating for the requirement is DO-C9.
56	Draft RFP	Section L Table L23-1	L-19	What is intent of Table identifies "MA3 Project Life-Cycle and Milestone Review Plan (DRD USDV-3) Paragraph a only" where the USDV-3 is shown as "Project Life-Cycle Review Plan" (DRD USDV-3) in the SOW and draft Attachment J-01. There is no "Milestone" content in the J-01. Also, USDV-3 appears to have two different titles in L23-1 and MA.3 work plan instructions. Which title is correct?	Table 23-1 will be updated in the Final RFP to use the correct DRD USDV-3 title.

Question #	File Name	Section Number	Page Number	Question	Answer
57	Draft RFP	Section L	L-21, L-56	Are Business System Adequacy determinations and CAS Compliance required for non-traditional offerors?	Yes, the Business System Adequacy and associated CAS compliance is required as part of the Responsibility determination and is applicable to CPIF only
58	Draft RFP	Section L	L-24 & L-34	The major subcontractor threshold is defined as $50M on page L-24 and $30M on page L-34. Which value is correct, $50M or $30M?	The Final RFP, section L pricing instructions will be updated to define major subcontractor as a team member and/or subcontractor that has a subcontract with a total proposed period value (GFY2024-2031) threshold greater than $50 million or proposing contract required major critical element. Major critical element is defined as the following major propulsion components: thrusters, valves, regulators, and tanks.
59	Draft RFP	Section L	L-24 & L-34	Page L-24 of the Draft RFP classifies Major subcontractors as having a proposed period value threshold of greater than $50M, whereas page L-34 indicates the threshold is $30M. Please confirm which threshold is correct.	See answer to question 58 above.
60	Draft RFP	L.26	L-38	c) The offeror shall provide, at the beginning of this volume a detailed compliance matrix that cross-references the offeror's numbering structure and corresponding volume page number with all requirements associated with each subfactor delineated in paragraph (d) below. The offeror may utilize its own unique numbering structure provided the compliance matrix provides clear traceability to each of the subfactor	The Final RFP will be updated to ensure paragraph (d) clearly outlines a compliance matrix.

Question #	File Name	Section Number	Page Number	Question	Answer
				requirements described below. Paragraph (d) does not have requirements - please clarify what requirements should be in the matrix.	
61	Draft RFP	L.26	L-38	In paragraphs (b) and (c), there are references to paragraph (d). These appear to be incorrect. Are they actually referring to the list at the end of paragraph(c)?	See answer to question 60 above
62	Draft RFP	TA.2	L-46	The paragraph at the top of page L-46, describes where portions of the System Architecture narrative are to be submitted in the proposal. The paragraph references preceding items a (system architecture) and b (flight-proven systems, whereas the Attachment J-08 refers to the system architecture and concept of operations. Was the paragraph intended to reference items a and b, as written, or a and d, which is concept of operations?	Attachment J-08 has two parts, Part A and Part B. --Part A is composed of items a and b from TA.2 USDV System Architecture. --Part B is composed of DRD USDV-4 *Concept of Operations*.
63	Draft RFP	TA3 (e), USDV-33	L-46	Will NASA say more about the NASA process for adjudicating use of alternative standards and approved variances to heritage flight hardware? Might there be a streamlined review/acceptance process for standards previously approved by NASA for use on existing vehicles for other missions?	Alternate and tailored standards that were used on prior programs will not be pre-approved and will need to follow the full adjudication process. Use of the alternate or tailored standard on prior programs will be taken into consideration during the adjudication process as supporting rationale. Offerors are required to submit proposed alternate and tailored standards with the proposal as DRD USDV-33.

Question #	File Name	Section Number	Page Number	Question	Answer
64	Draft RFP	L.26.2 TA.5	L-47	There are several source cross reference links broken on page L-47. Ex: Launch Vehicle Performance requirements (Medium or High as defined by Error! Reference source not found. of the USDV Launch Vehicle Information Summary). What is being referenced?	The Final RFP will remove this reference error.
65	Draft RFP	L.26.2, TA. 3 (d)	L-46	In this paragraph, was it NASA's intent to preclude use of analysis entirely in favor of only integrated testing? Can analysis be used?	The Final RFP will be updated to include analysis.
66	Draft RFP	L.27	L-52	For all work performed during the past three (3) years, offerors shall provide the following:… We assume this means for our operating business unit level only, which is most applicable to this solicitation.	Yes, this is specific to the relevant business unit performing the proposed contracted effort.
67	Draft RFP	Section L	L-59	Will the Government provide the SF 33 for the Model Contract at time of Final RFP?	Yes, the Final RFP will contain the SF33.
68	Draft RFP			According to Attachment J-02 DRD Submission Matrix, DRD USDV-6 WBS is required to be submitted with the initial proposal. However, Section L of the RFP does not mention where this should go in the proposal. We assume we should include it in Vol 2 MS, TA-1 L-02 BOEs and L-03	Reference to USDV-6 Work Breakdown Structure (WBS) and WBS Dictionary has been added to TA.1.

Question #	File Name	Section Number	Page Number	Question	Answer
				Technical Resource Templates. Can NASA confirm where in the proposal we should include DRD USDV-6 WBS?	
69	Draft RFP			The Draft RFP, Attachment L-08 Government Task Agreement Instructions, states that the NASA Center POCs are TBD at this time. It is assumed they will be provided with the Final RFP. Would NASA be willing to release these POCs sooner rather than later so we can start engaging?	Yes. Slide 32 of the Pre-Solicitation Conference charts posted to SAM.gov provided the NASA POC as Kristi Duplichen (kristi.m.duplichen@nasa.gov). Offerors are encouraged to engage with Ms. Duplichen as soon as possible to ensure timely coordination of GTA requests.
70	Attachment L-01 USDV Hybrid Cost Price Template		CLIN 2	The CLIN 2 tab calls for cost or pricing data other than certified cost or pricing data. Such data is typically utilized in procurements that do not require certified cost or pricing data, but additional data is needed to determine a fair and reasonable price when there is not adequate price competition. Can NASA provide clarity on its determination that there won't be adequate price competition in this solicitation? We believe there will be adequate price competition to determine a fair and reasonable price, therefore Contractors should only be required to provide a firm fixed price for CLIN 2 with no insights into our elements of cost and fee.	NASA cannot determine if there is adequate price competition before proposal receipt. If there is not adequate price competition, none of the exemptions for Certified Cost and Pricing Data (CCPD) apply and the proposal would require CCPD. FAR 15.403, Prohibition on obtaining certified cost or pricing data, Paragraph b(1) states that certified cost and pricing data is not required if there is adequate price competition. FAR 15.403 paragraph (c)(1)(i) states “A price is based on adequate price competition when—(A) Two or more responsible offerors, competing independently, submit priced offers that satisfy the Government’s expressed requirement”. If NASA does not receive two responsive offerors, the CCPD

Question #	File Name	Section Number	Page Number	Question	Answer
					exemption does not apply and CCPD would be required.
71	Launch Vehicle Summary	5	4	How long after USDV contract start will an LV be selected? Does NASA intend to select an LV during the CLIN 1 period?	As shown in the Launch Vehicle Summary, the launch vehicle selection process could start during the CLIN 1 period, however launch vehicle selection will likely occur after the CLIN 1 period ends. The NASA Launch Services Program will work with the USDV contractor shortly after the USDV contract is awarded to ensure all USDV launch service requirements are adequately captured.
72	Launch Vehicle Summary	6.1	6	Figure 6-1 shows Medium performance of roughly 16,000 kg. The ConOps (section 2.3.2) states Medium performance can be as high as 20,000 kg. Which is correct?	ConOps will be updated to no longer mention the type of launch vehicle.
73	Launch Vehicle Summary	6.1	7	An 1194mm separation system is mentioned as a mass reference. Is this meant to specify an 1194mm separation system as a requirement or just that other separation systems may incur a mass penalty on the USDV payload?	An 1194 mm separation system is not required. The mass of an 1194 mm separation system was used for the performance curves. A different separation system may incur a mass penalty on the USDV payload.
74	Launch Vehicle Summary	6.2	7	Is flying with a fairing a requirement? Is launching without a fairing a possibility?	Flying with a fairing is not a requirement. Launching without a fairing is a possibility. The Launch Vehicle Summary has been updated to clarify.

Question #	File Name	Section Number	Page Number	Question	Answer
75	Launch Vehicle Summary	6.2	7	If required to use a fairing, we would prefer a fairing with a static envelope diameter of greater than 4.6m. Are larger fairings a possibility?	Flying with a fairing is not a requirement. Larger fairings are a possibility.
76	Launch Vehicle Summary	6.2	7	Is the static fairing envelope different for a high-performance launch vehicle? If so, what is it?	While a fairing is not a requirement, payload fairing static envelopes for medium-performance and high-performance launch vehicles are the same.
77	SOW	Throughout		Can NASA provide an assumed frequency and duration of Govt audits?	Audits, surveillance, and other PAA activity will be based on an ongoing Risk-Based Assessment (RBA) methodology.
78	SOW	1.1	C-3	"The primary objective of this contract is to procure safe, reliable and cost-effective deorbit services to meet NASA's International Space Station (ISS) end-of-life mission requirements. This will require the Contractor to design, develop, manufacture, test, integrate, achieve NASA certification and operate its United States Deorbit Vehicle (USDV) such that it can perform the final deorbit of the International Space Station." This paragraph seems contrary to the Deorbit CONOPS which indicates that NASA plans to operate the USDV. This SOW paragraph indicates that the offeror would be responsible for operating the USDV. Please clarify NASA's intent.	The comment references a pre-DRFP version of the SOW. The SOW now uses "Sustain" instead of "Operate."

Question #	File Name	Section Number	Page Number	Question	Answer
79	SOW	1.2	C-5	The scope of CLIN 1 includes SOW Section 2.0, General Requirements required to support CLIN 1, Design, Development, Test and Evaluation (DDT&E) Through Critical Design Review (CDR) activities and will conclude when Review Item Discrepancy/Request for Action (RID/RFAs) from CDR and previous reviews are jointly dispositioned and forward actions are jointly identified and agreed to. Does the costs to close RIDs/RFAs get absorbed into the FFP CLIN or will those be completed under CPIF CLIN?	Closure of RIDs/RFAs from CDR and prior reviews is included in the CLIN 2 Firm Fixed Price.
80	SOW	2.6.b	C-12	The Contractor shall provide access for all aspects of manufacture and processes, assembly, integration, test, evaluation, verification, training, sustaining, and operations of the USDV, including, upon request, those used on non-NASA missions of similar systems. This section should be scope under a special task as it is unclear what non-NASA missions this pertains to, and the requirement "upon request" is undefined/ unbounded. The contractor may not be able to satisfy this requirement depending on the classified nature of a contract, for example.	NASA will work with the contractor for situations regarding access to data in classified non-NASA missions. The data would be limited to performance and anomaly resolution data on non-NASA missions that utilize hardware and software similar to USDV. The SOW was updated to clarify such. These requests will not be addressed under the special study CLIN.
81	SOW	2.5	C-12	The Contractor shall establish cooperative relationships with ISS International Partners (IP) and ISS IP related entities to support the implementing arrangement between NASA	The Final RFP will be updated to include Roscosmos, ESA, JAXA, and CSA.

Question #	File Name	Section Number	Page Number	Question	Answer
				and IPs for the decommissioning of the ISS. f. The Contractor shall perform technical interactions with IPs and IP related entities that are necessary for exchange of data, hardware, and software. It shall be the responsibility of the Contractor to seek and obtain Technical Assistance Agreements for technical interactions with any international partners as required. The ISS IPs should be explicitly identified in the contract so that we can estimate the costs to set up and perform these relationships & Technical Assistance Agreements	
82	SOW	2.5.f	C-12	Contractor is required to establish Technical Assistance Agreement (TAA) (export license) with ISS International Partners (IP). Does NASA have a workaround planned in the event that an International Partner is not open to establishing such an agreement?	The SOW in the RFP will be updated to read "In the event a Contractor is unable to establish the required Technical Assistance Agreement with an ISS International Partner, the Contractor shall notify the NASA Contracting Officer with what steps and timeline the Contractor has taken and the documented responses received by the ISS International Partner." Disposition of this notice by NASA will be dependent on the particular situation.
83	SOW	2.6.f	C-13	The Contractor shall provide advanced notice of and allow Government attendance at all activities (e.g., tests, audits, test readiness reviews, pre-ship reviews (PSRs) of flight hardware). Does this mean all tests are	No, allowing government attendance at an activity does not automatically imply that government attendance is mandatory or that the government needs to approve some step(s) in the activity's process (i.e.,

Question #	File Name	Section Number	Page Number	Question	Answer
				MIPs? That will drive costs - need clarification.	Government Mandatory Inspection Point (GMIP)).
84	SOW	2.6	C-13	Subparagraph e discusses a government resident office - how many government individuals must this office support? Does this also include any major subs?	The SOW will be updated in the final RFP that the NASA resident office requirement is for a maximum capability of two (2) personnel at the contractor's facility.
85	SOW	2.6.g	C-13	g. The Contractor shall allow International Partner/Participant personnel attendance at designated events, when requested. International Partners should be identified in this SOW so that the appropriate export licenses are in place. If not, adding International Partners should be subject to contract change.	SOW updated to include Roscosmos, ESA, JAXA, and CSA.
86	SOW	2.8.b	C-16	b. The Contractor shall allow NASA participation in the Contractor's, subcontractors' and vendors' technical meetings, boards, reviews, tests related to the design, development, testing, verification, certification, integration, and operations of the USDV. This obligates Contractors to invite NASA to our subcontractors' technical meetings as requested, which is overreaching. Suggest limiting to major reviews, or as requested by Contractor, or subject to Contractor approval.	The verbiage does not require that NASA participate in all of the technical meetings, it requires the Contractor to allow NASA participation. NASA will determine participation on a risk-based approach.

Question #	File Name	Section Number	Page Number	Question	Answer
87	SOW	2.9.6 (a)(8)	C-21	Is flight-like harnessing, particularly length a requirement in all cases?	The Final RFP will be updated to provide additional guidance and some flexibility with respect to cable lengths: The HITL harnesses, cables and connectors shall be flight-like: lengths (where necessary to maintain electrical similarity to flight cables, i.e., where nominal length contributes significantly to signal impairment), wire-types, production breaks, connector locations, pinouts, and flight configuration.
88	SOW	2.10.c	C-22	The Contractor shall perform Independent Verification and Validation (IV&V) … - The Attachment J-01 states a third party IV&V requirement but SOW does not call out third party.	The Final RFP will specify "third-party" in agreement with DRDs.
89	SOW	2.11.9	C-25	Resolving "in flight anomalies" should be scope under the LV integration and sustaining CLIN. Please confirm.	The scope of CLIN 4 includes both SOW 2.0 and SOW 6.0 scope. Therefore 'in flight anomalies' is included as part of CLIN 4 Launch Vehicle Integration and Sustaining.
90	SOW	2.14	C-27	Subparagraph a says "support "various" analysis, and subparagraph b says perform analysis "including but not limited to:" Subparagraph b says "multiple iterations" but does not define even an approximate number of iterations. This needs to be more precise so the contractor can estimate the effort needed for all analysis required to perform the scope of the contract.	The ISS is a complex, flexible, fragile structure with hundreds of joints susceptible to structural loads violations. In order to verify structural integrity of each of these joints, the ISS Program will complete an integrated analysis that takes into account the entire USDV Propulsion design, including the USDV Pulse Train. The USDV pulse train design potentially requires multiple iterations to balance controllability with structural loads.

Question #	File Name	Section Number	Page Number	Question	Answer
					Integrated Loads Analysis will require a USDV Flex Model along with details of the Motion Control System design and associated Forcing Functions.
91	SOW	2.14	C-27	What are "Bilateral Data Exchange Agreements, Lists, and Schedules (BDEALS)"? Are they defined in the contract?	BDEALS are defined in Space Station Program 51105 USDV Integration Plan.
92	SOW	2.15	C-28	Are "Flight Operations" part of the LV integration and sustaining CLIN?	The scope of CLIN 4 includes both SOW 2.0 and SOW 6.0 scope. Therefore 'Flight Operations' is included as part of CLIN 4 Launch Vehicle Integration and Sustaining.
93	SOW	3.1.b	C-30	Is the criteria for the Integration Baseline Review (IBR) defined, or should it be in the Contractors format?	The IBR requirements are defined in Electronic Industries Alliance (EIA) - 748 Standard, Industry Guidelines for Earned Value Management Systems standard and NFS 1852.234-2 EARNED VALUE MANAGEMENT SYSTEM. In addition, the NASA IBR Handbook provides additional detail and will be added to the Technical Library. The NASA IBR Handbook can be found at the following location: https://ntrs.nasa.gov/api/citations/20210026420/downloads/IBR_Handbook-1_19_22.pdf
94	SOW	3.3.f	C-31	Are the frequency and duration of the working groups defined?	The Mission System Working Group meetings are typically one hour in duration and occur once every 2-4 weeks earlier in the project life-cycle and increase to once per week ahead of the Flight Operations Review.

Question #	File Name	Section Number	Page Number	Question	Answer
95	SOW	3.4.c	C-31	Is the criteria for the USDV Avionics & Software Simulation and Test Bed specification review defined, or should it be in the Contractors format?	Additional clarification/definition listing the review criteria for USDV Avionics & Software Simulation and Test Bed specification will be provided in SOW 3.4.c and SOW 4.2.3. Yes, it can be in the Contractor's format.
96	SOW	3.8.d.1.v	C-38	Is the "Technical Resource Management Plan" a DRD? If it is not a deliverable, recommend removing it as a requirement.	No, this is not a DRD. It is a data item delivered in the review data packages in accordance with DRD USDV-3 Project Life-Cycle Review Plan and Data Packages.
97	SOW	4.2.1	C-51	Should Launch Vehicle Integration tasks be under CLIN 4?	Launch Vehicle integration tasks occur throughout the life of the contract as detailed in Section 2.0. Additionally specific scope for launch vehicle integration tasks is identified in CLIN 1, 2, and 4 based on where the USDV is in the project life cycle.
98	SOW	4.2.3.e	C-52	"e. The Contractor shall develop and lead, with NASA as an approving co-chair, a USDV Avionics & Software Simulation and Test Bed Readiness and Finalization review prior to the SIR. The review will consider the Test bed requirements and plan readiness status of software and test labs to proceed to the SIR." Is the criteria for this review defined in the contract? It should be, if not.	The Final RFP will include additional clarification/definition in SOW 4.2.3.
99	SOW	4.4.1	C-56	Should Launch Vehicle Integration tasks be under CLIN 4?	See answer to question 97 above.

Question #	File Name	Section Number	Page Number	Question	Answer
100	SOW	4.4.2	C-57	Paragraph (l) states the contractor will participate in two joint integrated sims (JISs) in support of the USDV mission. Section 6.2.3 and 6.3.2 states the contractor will participate in three JISs in support of the USDV mission. Which is correct?	The number of joint simulations is scoped within each CLIN based on the expected project lifecycle. A total of 10 joint simulations are required in the SOW. Two joint simulations are required in CLIN 2 prior to System Acceptance Review. Eight joint simulations are required in CLIN 4. The joint simulations in CLIN 4 are broken out into 2 joint simulations including the Launch Services Program (LSP) prior to launch, 3 additional joint simulations without LSP prior to launch, and 3 joint simulations post launch and prior to deorbit.
101	SOW	4.5, 4.5.1	C-62-64	Is delivery to the SSPF required prior to entering the dwell state? What is the purpose of SSPF visit? What are the exit criteria? What is the readiness process with NASA for the move to the dwell facility? Is the SOW assuming that the SSPF is the dwell facility?	Space Station Processing Facility (SSPF) is being offered to Offerors for USDV and NASA is requesting feedback on proposed use and cost-benefits for NASA to provide this facility for non-hazardous operations and Dwell Offerors could choose to utilize SSPF before, during or after Dwell in lieu of the USDV contractor providing an equivalent facility. NASA has not set a requirement on the utilization of SSPF during any phase of the USDV effort. The USDV Contractor is required to complete System Acceptance Review (SAR) and Shipment to Acceptance Destination milestones prior to entering Dwell. The USDV Contractor is required to

Question #	File Name	Section Number	Page Number	Question	Answer
					complete the Dwell Release Review (SOW 4.5.2) prior to exiting Dwell.
102	SOW	6.2.2	C-71	SOW seems to imply that the USDV contractor will be responsible for (1) performing USDV fueling (2) at the LSP facility. Are we reading this correctly? If the USDV provider is responsible for fueling the USDV, can it be done at a different (non-LSP) facility?	LSP will provide the fuel, however, the Contractor is responsible for executing the fueling operations. The SOW will be updated in the Final RFP to clarify that the fueling will be performed at the NASA-designated launch site processing facility.
103	SOW	7.2.a	C-77	"…for studies that are on task order but have not yet been given Authority to Proceed, and related tasks or support" When will we have task orders that have yet to receive ATP?	Final RFP will be updated to remove "for studies that are on task order but have not yet been given Authority to Proceed."
104	SOW	4.3.2.d	Multiple	This requirement establishes the FOR Data Package (USDV-48) (SAR-12 months) and seems inconsistent with requirement 4.4.4 FOR which is SAR - 6 months. Possibly this belongs under Section 4.4 or removed entirely.	The reference to DRD USDV-48 in Section 4.3.2 is intended to cover scope required to develop inputs required for eventual delivery of DRD-48 in Section 4.4.4. The delivery is indeed due at Flight Operations Review (FOR) minus 30 days in section 4.4.4, however the Contractor shall perform work during the C2-3 Assembly Integration, and Test Progress Review (APR) timeframe.

Question #	File Name	Section Number	Page Number	Question	Answer
105	SOW	5.0	Multiple	Is corrective maintenance during the Dwell period covered in CLIN 3 or CLIN 4?	Per SOW Section 5.0 Dwell, corrective maintenance during dwell is included in CLIN 3. C.5.0.h. The Contractor shall perform all preventative and corrective maintenance for hardware and software to maintain the USDV in a state of readiness that supports the mission.
106	SSP 51101	3.3.7		Does this requirement to "STANDBY TO PERFORM ATTITUDE CONTROL ON COMMAND" now mean that the USDV should be ready to take control without notice? Previously the requirement required 2-hour notification.	Yes. The USDV is required to be kept in a ready state to take over attitude control upon command per 3.3.7. The two-hour notification seen in SSP 51101 USDV SRD released with RFI#3 has been removed from the latest version of SSP 51101.
107	SSP 51101			Please confirm that Design for Minimum Risk (DFMR) practices will be allowed/applicable for handling mechanical failures. Recommend putting this within the requirement set. For the requirement that the spacecraft must be two fault tolerant does that mean the spacecraft has to work with both solar arrays not deploying?	3.3.11.1.1.3 DFMR is marked as an applicable requirement in the SSP 50808 USDV Applicability and Tailoring Matrix. The inability to dock is considered a catastrophic hazard for USDV. Support systems that enable this capability need to meet the applicable safety requirements 2 Failure Tolerant or DFMR.
108	SSP 51101	2.1	12	Please confirm if certification requirements for the USDV program can be met by	Alternate and tailored standards that were used on prior programs will not be pre-approved and will need to follow the full

Question #	File Name	Section Number	Page Number	Question	Answer
				showing prior certification to approved alternate standards.	adjudication process (SOW 2.9.1). Use of the alternate or tailored standard in prior applications will be taken into consideration during the adjudication process and could be used as rationale for acceptance for USDV, if applicable. Offerors are required to submit proposed alternate and tailored standards with the proposal in accordance with DRD USDV-33. All requirements will be verified using the full verification process. Verification data that was used in prior programs for equivalent environments and application can be used as supporting data in the verifications for USDV. The SSP 51101 USDV SRD contains additional functional and performance requirements, tailored interface requirements, and additional standards beyond SSP 50808. Any deviations and/or waivers to requirements, standards, etc., would need to follow the full configuration management process and/or standard adjudication process for approval. Emphases on applicability to the USDV mission (e.g. highly reliable, one-time use) and flight heritage will be considered.

Question #	File Name	Section Number	Page Number	Question	Answer
109	SSP 51101	3.1.6	3-4	Why does the verification for this requirement include so many shall statements? These should be included in the requirement text.	The structure of the verification language is consistent with SSP 50808, where the verification includes "shall" statements within the verification.
110	SSP 51101	3.2.2	22	Please confirm if the requirement is to budget for a single 90 minute contingency hold OR 1x contingency hold per rendezvous (4x 90 minute holds total).	SSP 51101 3.2.2 CONTINGENCY HOLD is to protect for one 90 minute contingency hold at a distance within the approach ellipsoid, and 3.2.3 PERFORM RE-RENDEZVOUS is to protect for three re-rendezvous attempts after aborting to outside of the approach ellipsoid and coming back to the start of integrated operations.
111	SSP 51101	3.2.4	22	Please confirm that up to 7-day re-rendezvous delay (3.2.4) is not required for each rendezvous abort but only a single delay.	The 7-day re-rendezvous delay is only required for a single delay.
112	SSP 51101	3.2.4	22	Please confirm that the contingency rendezvous delay would back out of proximity operations (reducing pointing requirements). In other words: the procedure would be to abort a docking attempt and phase to re-rendezvous 7 days later, not hold within the approach ellipsoid for 7 days. Is this the correct interpretation?	Yes.
113	SSP 51101	3.2.7	24	Please confirm that the propellant required for LoAC recovery is included in the >220 km attitude control budget (per Section 3.3.2).	Loss of Attitude Control (LoAC) Recovery is included in the propellant budget for attitude control above 220 km

Question #	File Name	Section Number	Page Number	Question	Answer
114	SSP 51101	3.4.2 and 3.4.3	3-22 and 3-23	Requirements 3.4.2 and 3.4.3 conflict with respect to the axial loads. Clarify which requirement is applicable.	Both requirements apply: Requirement 3.4.2 (OPERATE WITHIN FORCE AND MOMENT LIMIT OF MATING INTERFACE) protects the USDV to ISS Docking Interface. Requirement 3.4.3 (TRANSLATIONAL MANEUVER MAXIMUM THRUST) protects joints on the rest of ISS.
115	SSP 51101	3.4.4 and 3.4.5	3-23 and 3-24	Multiple requirements indicate that a joint analysis shall be completed to verify a requirement. Can NASA provide an estimate of the effort to complete such joint analyses? Or at least a sense of the limits for these requirements?	The ISS is a complex, flexible, fragile structure with hundreds of joints susceptible to structural loads violations. In order to verify structural integrity of each of these joints, the ISS Program will complete an integrated analysis that takes into account the entire USDV Propulsion design, including the USDV Pulse Train. The USDV pulse train design potentially requires multiple iterations to balance controllability with structural loads. Integrated Loads Analysis will require a USDV Flex Model along with details of the Motion Control System design and associated Forcing Functions.

Question #	File Name	Section Number	Page Number	Question	Answer
116	SSP 51101	3.4.3		Can NASA provide a curve that better defines the maximum thrust vs duration that ISS can tolerate?	No, a curve cannot be provided. However, to provide more context into the origin of the SSP 51101 USDV SRD 3.4.3 TRANSLATIONAL MANEUVER MAXIMUM THRUST, the thrust limit was based on an integrated Loads assessment involving both Translational Thrust and Attitude Control Loads.
117	SSP 51101	3.4.9		Is NASA prohibiting the use of non-reprogrammable logic devices on USDV under SSP 51101 3.4.9?	No. Requirement SSP 51101 3.4.10 and SOW 2.9.2 (b) requires a trade study with results provided in accordance with DRD USDV-24 to be approved by NASA that the choice of reprogrammable / non-reprogrammable devices took into account mission suitability.
118	SSP 51101	3.5.1	3-57	50808 paragraphs 3.3.7.4.2.6.1 - 3.3.7.4.2.6.3 call for docking centerline camera/video at 1Hz max latency. So that heritage systems could be used, would NASA be opened to tailoring this requirement to allow solutions that provide equivalent docking video but not on the centerline and solutions that have slightly slower update rates?	NASA evaluated acceptable tailoring to SSP 50808 and included the tailoring in SSP 51101. NASA did not tailor SSP 50808 paragraphs 3.3.7.4.2.6.1 - 3.3.7.4.2.6.3.
119	SSP 51101	Table 3.5.1-1		Seeking confirmation that the USDV will be exempt from aborting when the system is no longer in a failsafe configuration during the final rendezvous attempt (4th). In other words, the USDV will be allowed to take a fail-operational stance instead of fail-safe	See answer to question 15 above.

Question #	File Name	Section Number	Page Number	Question	Answer
				stance after two failures (i.e., can proceed with one remaining leg of control - 1 of 3 remaining docking sensors for example).	
120	SSP 51101	3.7	97	Please confirm if prior approval of alternate standards can be leveraged when tailoring standards for the USDV program.	DRD USDV 33 Part e) considers "justification for the suitability of using industry non-equivalent standards and specifications to meet or exceed the NASA standard including relevant data on past usage and other supplemental information that allows NASA to adequately assess the risk associated with their usage."
121	SSP 51105	5.11	5-15	A Post Verification Review is mentioned in the document but does not appear in the DFRP or SOW. Will NASA clarify?	The Final RFP SOW has been updated to include a Post Verification Review.
122	SSP 51105	5.18	5-16	Section does not specify if/how provider is tied to IMMT. Other reviews/meetings in previous sections have: The Contractor is expected to participate in a supporting role of this review. Does this mean the provider is not required to support the IMMT other than as a MER connection function?	The SSP 51105 USDV Integration Plan IMMT section will be updated to provide the following clarification: "The Contractor is expected to participate in a supporting role of this NASA-led meeting for USDV readiness reviews, as well as special topics or anomalous conditions related to USDV."
123	Attachment J-01 - Data Requirements Deliverable Draft	USDV-1	J01-13	Paragraph g requires offerors to provide qualifications for Offeror's proposed key personnel. Is the Government seeking resumes of Offeror's proposed key personnel in this solicitation?	The Government is not requesting resumes of the Offeror's key personnel as part of their proposal. This requirement is to document the qualifications required for the Offeror's key personnel. It is expected the individuals proposed as key personnel will meet these qualifications for the proposal as well as change of key

Question #	File Name	Section Number	Page Number	Question	Answer
					personnel which may occur during contract execution.