1. **Q:** Please describe the blackout period's impact on Space Act Agreements (SAAs). Will all SAAs [Commercial Resupply Services (CRS)1 and CRS2] be shut down, or only those associated with CRS2? Many systems might want to have an SRR during the blackout between Request for Proposal (RFP) release and contract award. Does NASA have a mechanism to support these, or should SRRs proceed open loop?

   A: As part of the standard competitive process, JSC issues a notice regarding communications with industry. The notice sets forth a "communication blackout period" where communication and dialogue with industry regarding the CRS2 acquisition will only be conducted through the officially defined process described in the RFP, and the "blackout notice" including the date it goes into effect. Ongoing commitments will continue to be administered in accordance with the blackout notice. The blackout period should not affect any ongoing CRS1 work. For CRS2 work, NASA communications with industry during the blackout period will be conducted formally, with questions directed to the Contracting Officer and responses posted publically, as appropriate.

2. **Q:** How will NASA facilitate a 2 month Launch On Need (LON) given that missions are Authority To Proceed (ATP) on a mission-by-mission basis?

   A: NASA will request in the CRS2 RFP that each offeror identify its approach and payment schedule to achieve two month LON that considers offeror's manufacturing, production and integration schedules.

3. **Q:** Will the CRS2 RFP evaluation criteria factors, sub-factors and weighting be the same as CRS1? If not, what will be emphasized (or changed) on CRS2?

   A: The evaluation criteria will reflect the current needs of the International Space Station (ISS) Program for this procurement. The CRS2 RFP evaluation criteria will be published in the draft and final RFP. Industry will have an opportunity to provide comments on the draft RFP.

4. **Q:** You mentioned maximum requirements, would you consider providing thresholds? How much can we bring up maximum and/or minimum? Is there a minimum that we would always fly? Could there be a max and min for disposal, press, and unpressurized?

   A: Specific ranges and thresholds for these categories will be identified in the CRS2 RFP. It is NASA's desire to have these capabilities spread relatively evenly throughout the year for a number of reasons including on-orbit crew time impacts, response to on-orbit events, research timing and cadence, ground processing, supply chain management, and to maximize the on-orbit life of limited life cargo.

5. **Q:** What will be NASA's CRS2 contractual approach for insight and participation for any potential non-recurring development that might be required?

   A: The CRS2 RFP will specify details of the Contractor's responsibility, but the overall approach is planned to be similar to CRS1 (CRS1 RFP clause II.A.18, Insight and Approval) which is available in the CRS2 technical library. For special tasks added via the special studies CLIN, the insight and participation will depend upon the type of task and will be specified on a case-by-case basis.

6. **Q:** What schedule extension is possible? The proposed schedule is such that only incumbents can properly respond. Answering all the requirements and putting together a response for a 9 year contract of a billion dollars or more takes more time. Is this targeted to incumbents?

   A: The schedule for the procurement is in work and will be maintained and updated as required on the CRS2 website. The final schedule is being developed, taking into account feedback received from industry during industry day. NASA is conducting a full and open competition and is seeking industry input to have the maximum participation possible. The CRS2 procurement is not targeted to incumbents.

7. **Q:** What's the timeline to Draft RFP and update to final?

   A: The schedule for the procurement is in work and will be maintained and updated as required on the CRS2 website.

8. **Q:** Has consideration been given to awarding CRS2 at the same time as Commercial Crew Transportation Capability (CCtCap)?

   A: Yes, NASA has considered the schedules of both procurements and is actively working to ensure that the schedules for these two procurements are coordinated to allow the maximum participation from industry on both competitions. The schedule for the CRS2 procurement is in work and will be maintained and updated as required on the CRS2 website.

9. **Q:** Please describe the CRS1 $/kg by function approach for Contract Line Item Number (CLIN) structure? We don't know what this means. We need to understand the current approach to recommend alternative.

   A: The CLIN structure for CRS1 can be reviewed by reading the RFP from CRS1, Section I.A.4 Contract Line Items (CLINs), which is available in the CRS2 technical library. For CRS1, a cost per kilogram by type of service was requested for pressurized upmass, unpressurized upmass, disposal, and return capabilities. Additionally, a cost per mission was requested. NASA is seeking inputs from industry on the optional ways to structure

key terms, including how to structure the CLINs and pricing while considering evaluating offerors in a competitive environment.

10. **Q:** You made reference to the current operating environment (insight, oversight, clauses, payment structure). How will you inform current non-incumbents of this information?

    A: The current operating environment can be understood by reading the current contracts clauses, including clause II.A.18, NASA Insight and Approval, in the CRS1 RFP which is available in the CRS2 technical library.

11. **Q:** Please describe the current Milestone payment structure. We need to understand current approach to effectively recommend alternatives.

    A: The current milestone payment structure is contained in the CRS1 RFP which is available in the CRS2 technical library. In the CRS1 RFP, required milestones were defined as Authority to Proceed (ATP), Vehicle Baseline Review (VBR), Mission Integration Review (MIR), Cargo Integration Review (CIR) and post-launch. Offerors were requested to identify additional milestones and milestone payment amounts in the contract.

12. **Q:** For CRS2, why has NASA decided to create higher total upmass cargo delivery requirements, per launch, versus the original contracted delivery capabilities of the two incumbent launch service providers for CRS1? Seems like this could be viewed as limiting the possible launch vehicle systems to compete for CRS2.

    A: There have been three major changes in upmass needs since CRS1 was awarded. First, the upmass requirements have increased for research and supporting a fourth crew member. Second, some of the upmass requirements provided as part of the contribution by our international partner vehicles have been met. No additional vehicles are currently scheduled from these international partners. Third, the stockpile of supplies that were put on orbit before Shuttle retirement have been consumed and the ISS program now has to fly all the supplies needed in a timely fashion. Therefore, in comparison to the CRS1 requirements, a higher total upmass delivery is required by the ISS program for the CRS2 procurement. The higher upmass per launch is necessary to insure that the additional required cargo can be brought to orbit on about the same number of cargo flights per year as the CRS1 contract requires. Each docking/berthing operation is a big impact to crew time and therefore research on ISS. Today, with crew flights and cargo flights necessary for both U.S. and Russian segment operations, an average of 14 flights come to the ISS each year. More than this will be a major impact to operations. Therefore the desire to transport the identified upmass on no more than 5 cargo flights per year. NASA is conducting a full and open competition and is seeking

inputs from industry to determine the final requirements to enable the best value for the government in meeting the ISS resupply needs.

13. **Q:** Has consideration been given in using the same companies for commercial crew and cargo?

    A: The CRS2 competition will be a full and open competition and is independent of the commercial crew competition.

14. **Q:** Please clarify in the RFP if visiting vehicle software will be required to follow NPR 7150.2A, NASA Software Engineering Requirements.

    A: The CRS2 RFP will provide direction on software engineering requirements as they apply to visiting vehicle software.

15. **Q:** Define if there are any Parts Grade requirements for visiting vehicles?

    A: The CRS2 RFP will identify if any specific reliability part grade requirements for visiting vehicles exist.

16. **Q:** Is demonstration of ISS integration required before a proposer can be considered for award? What is needed for certification of new entrants?

    A: No, demonstration of ISS integration is not required before award. An initial ISS integration certification must be completed before any initial flight to ISS and the CRS2 RFP will define the requirements to be met for any potential offeror selected for award. An initial flight to ISS may allow limitations on types of cargo and mass carried and may entail the demonstration and/or verification of capabilities prior to approaching the ISS.

17. **Q:** Provide clarification of late loads swapping with a scrub? What are the sub tiers to late load as opposed to a hard requirement?

    A: Launch scrub turnaround is an important and necessary component to fulfilling the ISS program's objective as a world class research platform. For any cargo with a 24-hour scrub turnaround requirement, a replacement cargo item will be available to support a one-for-one swap for a launch attempt on the following day. For launch scrubs longer than 24 hours, it is anticipated that the Launch-minus (L-) clock resets and that the affected cargo is returned to the cargo provider and redelivered to the CRS provider at L-24 hours for the new launch date. Launch scrub turnaround requirements will be identified in each mission cargo manifest.

18. **Q:** Define the quantities of the following requirements. Water? Mid-deck locker #s? Total number of and Flight Releasable Attach Mechanisms (FRAMs) that will be needed per year and over the life of ISS? Brine waste? Is there a need for "fuel" or "reboost" resupply?

    A: The specific requirements for middeck lockers, water resupply, brine disposal, and FRAMs are still being finalized, and will be identified in the CRS2 RFP. No requirements for fuel resupply or reboost capability are anticipated at this time.

19. **Q:** Clarify the science processing facilities available as described at Industry Day.

    A: Science processing requirements will be defined in the CRS2 RFP. Current capabilities provided in offline laboratories at Kennedy Space Center (KSC) are in the Space Station Processing Facility (SSPF) and provide a footprint for principal investigators to conduct preflight (2+ weeks before launch) science activities and science-to-hardware integration in preparation for installation of payloads into the launch vehicle, ground control activities (during flight, ~ 3 months for rodent experiments), and post-flight activities for experiments returning from orbit. (Total: 19 labs - 13 Science Labs / 6 Hardware Labs). The offline laboratories can be re-configured to accommodate science experiment disciplines from cell culture science to plant physiology to protein crystal growth. Additionally, SSPF offers environmental control chambers to provide a capability to conduct ground control tests using real-time ISS telemetry control variables and an experiment monitoring area to provide the capability to support on-orbit payload monitoring and control via the Payloads Operations Integration Center (POIC). These facilities are typical of what is needed to support pre-flight science processing and will be made available as government furnished facilities if launching out of KSC.

20. **Q:** Will a company proposing a docking cargo system be disadvantaged compared to one that proposes a berthing cargo system? How much cargo going up would be limited for docking vs berthing?

    A: As stated in the Request for Information (RFI), there is a preference for berthing due to the dimensional limitations of the International Docking Adapter (IDA). There are ISS cargo items that must be transferred through an ISS berthing port and, as such, vehicles using the ISS berthing ports will be an integral part of the CRS2 resupply strategy. However, both docking and berthing are acceptable approaches. The CRS2 RFP will define the cargo that is limited to transfer through a berthing port.

21. **Q:** Does the 6 hours or less from gravity field to dissection drive your landing location? Clarify the importance of landing on land or water?

    A: The requirement will be clearly defined in an update to SSP 50833, International Space Station Cargo Transport Interface Requirements Document, which is expected to be available at CRS2 RFP release. Typical animal care and dissection capabilities would

need to be available such that they could be reached in time to perform the dissections required within the 6 hour total timeframe.

22. **Q:** Is there a limitation on location of launch sites? United States (U.S.) only?

    A: There is no statutory limitation on location of launch sites. However, payload processing facilities required must be available in close proximity to any launch site. Additional costs to NASA for processing payloads at various launch sites will be taken into account in the evaluation process. The CRS2 RFP will define the payload processing needs and evaluation approach.

23. **Q:** Will CRS2 be open to international parties participating? Provide clarity on what the limits will be for foreign involvement, Canadian International Traffic in Arms Regulation (ITAR) provisions? ISS International Partners (IPs)?

    A: A company proposing must qualify as a United States Commercial Provider of space transportation services as defined in 51 U.S.C. § 50101. The Commercial Space Act of 1998 requires the Federal Government to acquire space transportation services from United States Commercial Providers whenever such services are required in the course of its activities. Companies proposing will also be required to follow and perform the work of the contract in compliance with all applicable export regulations and restrictions. Other policies to be taken into consideration are the National Space Policy of the United States and The National Space Transportation Policy. The limits on foreign involvement are dependent on the parties considered and levels of participation. Consideration should be taken to the Laws and Policies directly related to contemplated parties (e.g. Iran, North Korea, and Syria Nonproliferation Act [INKSNA]).

24. **Q:** Would NASA consider 1 award?

    A: The Government intends to award one or more contracts as a result of the CRS2 RFP to ensure assured access for cargo to the ISS. A decision to award to a single source will not be able to be determined until all offers are evaluated.

25. **Q:** Can you assume unpressurized will always be part of a mission? Unpressurized downmass, is that something that will be needed?

    A: The ISS Program adopted a “build and burn” strategy with regard to unpressurized ORUs and payloads at the completion of the Space Shuttle. The CRS2 RFP will provide the requirements for unpressurized cargo. As detailed in the RFI, there is no plan to include a requirement for unpressurized return in the CRS2 RFP at this time.

26. **Q:** Provide information for better understanding of what the payloads are.

    A: Information of payloads that typically fly to the ISS can be found at http://www.nasa.gov/mission_pages/station/research

27. **Q:** Will NASA be open to capabilities that were not specifically requested?

    A: If there is an option for an offeror to propose additional or individual capabilities, the specifics for proposing those will be provided in the CRS2 RFP. If there are certain aspects NASA needs to consider in the final solicitation, NASA is requesting that feedback from industry prior to the final RFP.

28. **Q:** Will C2V2 be Government Furnished Equipment (GFE)? Will the Visiting Vehicle (VV) Docking or Berthing mechanisms be GFE?

    A: In the CRS2 RFP, NASA will provide design and interface information for the portions of Common Communications for Visiting Vehicles (C2V2) that reside on an offeror's spacecraft, but not the systems themselves. The information is sufficient for offerors to build/have built the spacecraft-side systems.

    Also in the CRS2 RFP, NASA will provide design and interface information for the portions of the ISS VV Docking or Berthing mechanisms that reside on an offeror's spacecraft. The information is sufficient for offerors to build/have built the spacecraft-side systems. For VV docking mechanism, NASA may elect to make spacecraft-side VV docking mechanisms available.

    For berthing, which entails grapple by ISS Remote Manipulator System (SSRMS), NASA will provide Flight Releasable Grapple Fixtures (FRGFs); however, powered grapple fixtures would be the responsibility of the offeror(s).

    Government Furnished Equipment and Government Supplied Hardware provided to the contractors will be defined in the CRS2 RFP.

29. **Q:** Will external dependencies be used as an evaluation factor?

    A: The CRS2 RFP will define the evaluation factors.

30. **Q:** Is there an error in the RFI for the unpressurized cargo requirement (28 Volt [V] requirement versus 120V)?

    A: Yes, unpressurized cargo will utilize 120V power and will be defined in an updated version of SSP 50833, International Space Station Cargo Transport Interface Requirements Document, which is expected to be available at CRS2 RFP release.

31. **Q:** Provide more details on maximum requirements for power? Per mission or cargo allocation of double middeck locker powered payload? What are the minimum/maximum/average needs?

    A: Power and power sharing requirements for pressurized, powered cargo will be defined in an updated version of SSP 50833, International Space Station Cargo Transport Interface Requirements Document, which is expected to be available at CRS2 RFP release. Total power requirements for a basic mission will be defined in the CRS2 RFP. Power and power sharing requirements for unpressurized cargo will be defined in an updated version of SSP 50833 available at RFP release.

32. **Q:** Can you clarify power allocation/sharing for pressurized cargo between the RFI (55 to 120 W) and SSP 50833 rev A (3.1.1.3)?

    A: The numbers in the RFI were used to solicit feedback. The CRS2 RFP will defer detailed power requirements to SSP 50833, International Space Station Cargo Transport Interface Requirements Document. SSP 50833 currently requires 150W to double Mid-deck Lockers (MDLs). The 150W is to be shared by 2 single MDLs with a worst case of 150W for 1 single MDL (0 to the other single MDL). Across multiple double MDL locations, the 150W per double MDL is to be shared between the two double MDLs with a worst case of 200W for 1 double MDL (leaving 100W to the other double MDL).