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Attachment: Task Order Statement of Work (SOW)

Multi-Purpose Crew Vehicle Program Integration Contract (MPIC)

Contract Number: NNJ13TA03B Order Number: NNJ13TA10T

Program Management/Program Planning and Control (PP&C)

Technical Management Representative (TMR): Rodney Young

Period of Performance: April 1, 2013 to September 30, 2013

Scope of Work:

The Contractor shall perform the work necessary to provide the products and services identified below for an eighteen (18) month period of performance. Note that an eighteen month period of performance spans contract year 1 (April 2013 through September 2013) and contract year 2 (October 2013 through September 2014).

sow	SOW Paragraphs	Title: Program Management	Projected Quantity	DRD
1.1.1	А	Identification, documentation, and update of interdependencies	Note 1	N/A
	А	Program Integration Team Charter with integration tasks	Note 2	N/A
	А	Centralized data source to be developed under SOW 1.1.2.3.5	1	N/A
	А	Coordination Meetings	Weekly	N/A
	А	Performance Metrics and Process Improvement & Affordability Panel	Monthly	N/A
1.1.1	B.6	Government access to contractor's plans, procedures, and processes	On-going	N/A
	B.1	MPIC Management & Staffing Plan	Per DRD	PM-01
	B.2	Phase-In Plan	Per DRD	PM-02
	B.4	Total Compensation Plan	Per DRD	PM-04
	B.5	Organization Conflict of Interest Avoidance Plan	Per DRD	PM-05
1.1.1	C.2	NF533 Cost Reporting	Per DRD	BM-01
	C.3	Data Supporting PPBE	2	N/A

	C.4	Workforce Reporting	Per DRD	BM-02
1.1.1	D.1	Safety and Health Plan	Per DRD	SA-01
	D.2	Safety and Health Program Self Evaluation	Per DRD	SA-02

sow	SOW Paragraphs	Title: PP&C Planning Function	Projected Quantity	DRD
1.1.2.1	Α	Planning Data Set	Note 3	PC-01
1.1.2.1	A.1	Program Baseline & Program Baseline Attributes	Per DRD	PC-01
	A.2	Schedule products and analysis	Per DRD	PC-01
1.1.2.1	В	Maintain MPCV Program Plan, WBS Tree & Data Dictionary, and list of Technical requirements documents associated with the Program Baseline	Per DRD	PC-01
1.1.2.1	С	Assist in Cross Program activities and integration of products	Monthly	N/A
1.1.2.1	D.1	Strategic assessment of Program performance and alternatives	9	PC-01
	D.2	Fiscal and year end cost estimates, Life Cycle Cost estimates, EAC, and JCL products	3	PC-01
	D.3	Independent cost and schedule evaluations of change requests and risk mitigations	~4/month	PC-01
1.1.2.1	Е	JSC Quality Management System	Note 4	N/A
	E	MPCV Document Review	1	
	E	MPCV Internal Audit	1	
	E	MPCV Management Review	2	
	Е	Participate in JSC QMS forums and Surveillance Audits	2	
1.1.2.1	F	PPBE process input	~2/GFY	N/A
	F.1	Establish and Maintain Performance Management Baseline for EVM reporting	Per DRD	PC-01
1.1.2.1	G.1	Update Planning Data Products	As applicable	PC-01

	G.2 G.3	Revise Performance Management Baseline	Per DRD Annual	PC-01
		Integrated Baseline Review participation		
1.1.2.1	H.1, H.2, H.3	Process Improvement	Note 5	PC-01

sow	SOW Paragraphs	Title: PP&C Performance Management Function	Projected Quantity	DRD
1.1.2.2	Α	Performance Data Set	Note 6	PC-02
1.1.2.2	B, B.1	Supplier Data	Per DRD	PC-02
1.1.2.2	С	Data Mining	Per DRD	PC-02
1.1.2.2	D.1 – D.6	Technical, Schedule, and Cost Functional Data Products	Per DRD	PC-03
1.1.2.2	Е	Technical, Schedule, and Cost Forecasts	Per DRD	PC-03
1.1.2.2	F	Independent Assessments	Per DRD	PC-03
1.1.2.2	G	Integrated Analysis of Program Performance	Per DRD	PC-04
1.1.2.2	Н	Program Manager Feedback	Monthly	PC-04
1.1.2.2	1	Assist in Cross Program activities and integration of products	Monthly	N/A
1.1.2.2	J.1 – J.2	Data Packages	4/year	N/A
1.1.2.2	K.1 – K.3	Process Improvement	Note 5	PC-02

sow	SOW Paragraphs	Title: PP&C Professional Services Function	Projected Quantity	DRD
1.1.2.3.1		Process Improvement	Note 5	PC-05
1.1.2.3.2	А	Configuration Management Services	Note 7	PC-05
	В	Administrative Services	Note 8	N/A
1.1.2.3.3	A, B	Data Management	Note 9	PC-05
1.1.2.3.4	Α	Risk Management	N/A	N/A
1.1.2.3.5			Note 10	PC-05
	В	MPCV Program Office website(s) development, maintenance, and	Note 11	PC-05
	С	updates	Note 12	PC-05
	D, E, H	End user IT service support	Note 13	PC-05
 .1		Serve as IT Property Custodian and		PC-05

	F ×	manage NASA provided software to coordinate repair and maintain organization's unique software	Note 14	PC-05
		Manage the NASA Property System for MPCV		
1.1.2.3.6	A,B,C,D,E	Security Management	Note 15	PC-05
1.1.2.3.7	В	Supplier Management	N/A	N/A

sow	SOW Paragraphs	Title: Communication and Education Outreach	Projected Quantity	DRD
1.11	A, B, C, D	Maintain a program milestones document using data gathered by participation in Program status reviews.	Weekly	N/A
		Generation of a status report to NASA	Monthly	
			Monthly	
		Create a graphic program status newsletter		
		Coordinate, integrate, and update	2/year	
		Program presentations such as: - All Hands Presentations	As requested	
		 Legislative Executive Briefing presentations 	Monthly	
		- PM Briefings to JSC Center Director	Bimonthly	
		- MPCV Overview used by	Quarterly	
		public speakers - ESD Program Status	Monthly	
		Presentation	2/year	
		- Tile Progress Chart (data	Quarterly	
		supplied by MPCV Prime Contractor)	As requested	
		- AIAA Presentations for Orion VIP		
		 Award Presentations Update, maintain, and distribute Orion graphics / PowerPoint templates / 	As requested	
		Illustrations	Weekly	
		Manage the dry run activities and provide AV support for executive and	2 2	

large presentation events		
 Update the status portions of the Orion internal website and Maintain the Orion Internal Website Comm functions http://mpcv.jsc.nasa.gov 	Monthly	
Capture, edit, and retouch still and video imagery of Orion tests, progress, public outreach events, and special projects - Coordinate creation of still imagery and video programs through center support, other NASA resources, & external	Quarterly Monthly	N/A
vendor	Monthly	
 Coordinate with Orion ITAR officer to clear incoming imagery 	Weekly	
 Produce short feature videos as well as short outreach video material for online publication Produce b-roll products for 	Monthly	
distribution to media - Distribute approved imagery	Monthly	
and video to NASA Image of the Day, This Week @ NASA, social media properties	Monthly	
 Deliver 1080p high definition video and high res still imagery to the program for internal and external use Deliver video for archiving and distribution 	Quarterly	
- Capture/create immersive panoramic imagery of Orion facilities and progress	Note 16	
racilities alla brogress	Quarterly	
Coordinate & Participate in major event planning, including pre-event communication plans, staffing, schedules, and logistics with other	Quarterly As requested	
programs and centers - Create, update, and distribute products for print, exhibit,	As requested Quarterly	
and online use - Assemble multimedia		

material and display hardware for exhibits - Talk to visitors about MPCV - Post to social media properties in real time during activities - Design Outreach exhibits	# * # * * * * * * * * * * * * * * * * *	27
Compile post-event summary report and media tracking	2)	

Estir	mated Trav	el Requirements:	All Trave	el from l	Houston,	TX		
	sow	Location	# of Trips	# of Days	# of People	F Y 1	FY 14	Reason
1	1.1.2	Denver, CO	2	3	2	Х		Prime QPPR or site visits (EVM)
2	1.1.2	Denver, CO	1	5	2			Prime IBR
3	1.1.2	Clearwater, FL	1	3	1	Х		Subcontractor PMR
4	1.1.2	Clearwater, FL	2	3	1		Х	Subcontractor PMR
5	1.1.2	Windsor Locks, CT	1	3	1	Х		Subcontractor PMR
6	1.1.2	Windsor Locks, CT	2	3	1		Х	Subcontractor PMR
7	1.1.2	Glendale, AZ	1	3	1	Х		Subcontractor PMR
8	1.1.2	Glendale, AZ	2	3	1		Х	Subcontractor PMR
9	1.1.2	Italy	1	5	1		X	ESA Review
10	1.1.2.3	Denver, CO	1	5	1 .		Х	Security Audit
11	1.11	NASA Centers	3	3	2	Х		Outreach events
12	1.11	KSC	6	3	2		Х	Outreach events, MPCV progress
13	1.1.2	Washington, DC	1	3	2	X		ESD reviews
14	1.1.2	Washington, DC	2	3	2		Х	ESD reviews
15	1.11	Washington, DC	2	4	2		Х	Outreach events
16	1.11	Las Vegas, NV	1	3	1		Х	Outreach events
17	1.1.2.3	Reno, NV	1	3	2		Х	CM/DM Tech Training
18	1.1.2.3	NASA Centers	4	3	1		Х	IT Security
19	1.1.2	NASA Centers	1	3	1	Х		Risk Summit
20	1.1.2	NASA Centers	2	3	1		X	Risk Summit

Note 1: Identification and documentation of interdependencies shall include the work product, initial documentation 30 days after task order start, annual updates on or before end of the Government fiscal year. Monthly Process Improvement and Affordability Panel (PIAP) sessions incur no cost to the Government.

Note 2: Program Integration Team Charter shall be initially documented within 30 of task order start with annual updates on or before the end of the Government fiscal year. The Program Integration Team also serves as the single point of contact for authoritative data and information about the vehicle and program for use in external communications (SOW 1.11), internal planning and analysis, including facilitation of data mining (SOW 1.1.2.2.C).

Note 3: The contractor shall use the existing Planning Data Set and provide updates of existing data products and new data products as per DRD MPIC-PC-01 specifications

Note 4: Document Review, Internal Audit, and Management Review completed by September 30, 2013. The Government will take corrective action for audit findings. QMS Management Review will be conducted as an agenda item on a regularly scheduled PP&C management forum, such as the Monthly Orion Program Performance Review (MOPPR). The contractor will provide training to required MPCV personnel in preparation for JSC QMS audits, as applicable. The contractor will control records (SOW 1.1.2.1.E.4). Records inventory is updated approximately three (3) times per year. The center records audit occurs once every 2 years, last one completed Feb. 2012.

Note 5: The contractor shall report findings and recommendations for process improvement and certification not later than 120 days following contract award, then per DRD MPIC-PC-01, and DRD MPIC-PC-02, and DRD MPIC-PC-05 specifications.

Note 6: The contractor shall use the existing Performance Data Set and provide updates of existing data products and new data products as per DRD MPIC-PC-02, DRD MPIC-PC-03, and DRD MPIC-PC-04 specifications

Note 7: Configuration Management Services processes approximately fifteen (15) Change Requests (CRs) per month and two (2) Management Directives per year.

Note 8: Minutes are assigned actions, decisions made, directions provided by chair or lead, and bullets of discussions. Minutes are not required to be verbatim wording and are only required at MPCV Program Level Boards or major reviews (e.g. MPCB, VICB, JICB, JPCB, GEMCP, QPPR, SMCB). No recording of meetings is required. Assume eight (8) meetings/per work day, six (6) of which are set up and hand off to technical point of contact, two (2) requiring set up and meeting support.

Note 9: Data management requests are data integrations, structure, relationships, and reporting. Approximately five (5) requests per year which require IT and DM to analyze the problem, work with civil service technical representative on solutions, and implement approved solutions to automate PP&C processes. One example is the Change Request Look Ahead report.

Note 10: Approximately eight (8) SR's submitted into the ESD system per week.

Note 11: Approximately fifteen (15) updates per week on MPCV websites.

Note 12: Approximately three (3) walk ups per week.

Note 13: Manage twenty four (24) specific Orion software licenses with three hundred (300) licenses. Approximately five (5) requests per month.

Note 14: One hundred and fourteen (114) NASA tagged inventory items requiring a yearly audit with approximately ten (10) requests per year.

Note 15: The contractor shall perform the services as per the SOW and report user metrics as per DRD MPIC-PC-05 specifications and assume that one (1) additional security report will be required during the first twelve (12) months of the contract. Assume approximately three (3) security incidents per month which require resolution.

Note 16: Examples of products could include: Fact sheets, Orion Book, Traveling Exhibit Panels, Space Center Houston Exhibits, Patches/Logo designs, Interactive Content, Award Certificates, PowerPoint templates, internal motivational wall displays, Space Flight Awareness (SFA) support and coordination.

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Task Order Statement Of Work (SOW) Multi-Purpose Crew Vehicle Program Integration Contract (MPIC) Contract Number: NNJ13TA03B Order Number: NNJ13TA11T MPCV Systems Engineering and Integration (SE&I)

Contracting Officer Representative: Rodney Young

Period of Performance: April 1, 2013 to September 30, 2013

Scope of Work:

The Contractor shall perform the work necessary to provide the products and services identified below for an eighteen (18) month period of performance. Note that an eighteen month period of performance spans contract year 1 (April 2013 through September 2013) and contract year 2 (October 2013 through September 2014).

SOW	Title: Program Integration (Vehicle Integration Office)	SOW Paragrap hs	Projecte d Quantit y	DRD
1.2.3	Perform integration of Design Analysis Cycle (DAC) work, schedules, and products. Support development of the CoFR process. This is a FY14 task only.	A.1	2 DAC cycles per year	

SOW	Title: Systems and Integrated Analysis (Vehicle Integration Office)	SOW Paragrap hs	Projecte d Quantit y	DRD
1.2.4	Lead integrated vehicle systems performance trade studies involving Guidance, Navigation, and Control (GN&C), mission analysis, aerosciences, and other integrated vehicle disciplines. Support requirements and design development of the ESA SM and integration with the Orion spacecraft. Track analysis, trade studies, and test and verification plans of major mission separation events. Track technical risks and top issues in support of the vehicle systems performance & analysis team.	A.1	1 docume nt update / trade study per month	

SOW	Title: CSM Crew Cabin and Cockpit Layout Design Requirements (Vehicle Integration Office)	SOW Paragrap hs	Projecte d Quantit y	DRD
1.2.5	Development, prototype, simulation, and evaluation of crew displays and display concepts Create renderings of operational interactive cockpit displays in GL Studio® and IDATA® formats using concepts provided by NASA in Powerpoint, PDF, or other graphical formats. Develop functional models of display renderings in C++, MATLAB®, Microsoft Visual Studio, or Practical Extraction and Reporting Language (PERL) formats. Provide integration of Linux and Trick based simulation models provided by external sources with internally developed software models. Prepare software scripts for Orion cockpit display format crew evaluations Provide real-time support for Orion cockpit display format crew evaluations Provides and Support evaluations of displays for hand held iOS or Windows Tablet devices such as iPhones, iPads and Windows Surface Pro. Coordinate with users and Orion Prime Contractor (and subs) to determine display capabilities within and outside of scope, identify spacecraft software and hardware interfaces and dependencies for each prototype display, and document prototype display, and document prototype display capabilities and inputs/outputs in display format dictionaries	A.1-A.5		
	Specific Deliverables:			
	Develop new Orion display formats required for the EM2 Design Reference Mission (DRM), including any changes resulting from configuration differences between the Service Module provided by the Prime		10	

	contractor and the new ESA Service module.			
	Prepare software scripts and provide		7	
	support for Orion display format Crew		*	
	Evaluations.			
1.2.5	Development support of the Cockpit Rapid	A.1-A.5		
	Prototype Lab			
	Fabricate mockups of Orion Cockpit			
	components. Mockups may range in			
	complexity from non-functional foam core and plastic models to high			
	fidelity functional engineering			
	prototypes using flight-like materials.			
	 Develop 3D CAD models of legacy 			
	components in Alibre Design™			
	format			
	 Fabricate full-size models of legacy 			
	hardware components and new			
	functional hardware concepts using 3D printer technology.	1		
	Fabricate, assemble and integrate			
	full-size mockups of cockpit and crew			
	display components using various			
	materials and components including,			
	but not limited to, plastic, metal, and			
	various mechanical and electrical			
	components.Modify government provided legacy			
	hardware and assemble and			
	integrate with other components for			
	use in cockpit mockup components			
	 Manage procurement of government 			
	supplied materials, supplies,			
	equipment, and software needed to perform this activity using NASA			
	purchasing and property			
	management processes			
	Provide Information technology (IT)			
	support for any non-ACES crew and			
	cockpit display computer software			
, i	and hardware integration required by			
	this activity			
	 Provide integration support for incorporating the externally provided 			
	Socrates Windows emulator into			
	simulation systems			
	 Provide software distribution media 			
	for software products produced by			
	this activity. Ensure products are			

11	labeled in compliance with export control and other applicable regulations Provide local or phone support to end users for software installation issues involving distributed products	
	Specific Deliverables:	
	Assemble and integrate two sets of flight- like hand controller simulators consisting of a rotational hand controller (RHC) and a translational hand controller (THC).	2
	Construct an Orion three-display cockpit simulator.	1
	Develop, fabricate, and assist in testing an Orion Cursor Control Device.	1

SOW	Title: Flight and Ground Operations Integration (Vehicle Integration Office)	SOW Paragrap hs	Projecte d Quantit y	DRD
1.2.7	Lead the development of requirements and implementation for the interfaces between Orion and SLS. This includes development of IRDs and ICDs and the technical integration necessary to develop the technical content of these documents. Develop schedules for this work. This task will transition to NASA at the end of FY13 and is not applicable on this TO for FY14	A.1, A.2	1 formal update to IRD and ICD per 6 months Update schedul es monthly	
1.2.7	Lead development and implementation of an integrated operational concept for landing and recovery for EFT-1, EM-1, AA-2, and EM-2. This includes: Integration and development of technical agreements with GSDO, Department of Defense (DoD), and other internal and external partners involved in the development and implementation Assessment of trades and designs in systems across the MPCV and GSDO programs that support the implementation of the landing and recovery con ops Development and maintenance of schedules for this work.	A.3, A.4	~2/year 1 trade study / month Monthly	
1.2.7	Coordinate and track master measurement	A.4	1 formal	

	list development, allocations and changes for developmental flight instrumentation (DFI) for EFT-1, EM-1 and AA-2. Evaluate sensor priority changes for technical impact to flight test objective owners. Support mapping of all DFI sensors to higher level module development in support of DFI hardware development for testing and flights. Develop schedules for this work.		release/ 6 months for each mission	
1.2.7	Provide Computer Aided Drawing (CAD) integration support. This includes: • Transferring CAD models back and forth between the MPCV prime contractor, the MPCV non-prime team, and the GSDO, and SLS programs • Transferring CAD models between NASA and the ESA design teams Translating CAD models between Pro/Engineer and CATIA formats. Develop schedules for this work.	A.4	2 releases / Design Analysis Cycle (DAC)	

sow	Title: Crew and Service Module (CSM)	SOW Paragraphs	Projected Quantity	DRD
1.6.1.1 A	CSM Office Management and Administration	1, 5, 6, 7, 8	Notes 1, 2, 3	N/A
1.6.1.4.A	Government Furnished Equipment (GFE) Product Development and Integration	1, 2	Notes 1, 2, 3	N/A

SOW	Title: Integrated Spacecraft Testing and Verification Management	SOW Paragrap hs	Projected Quantity	DR D
1.10.2 A	Support development of post EFT-1 (i.e, EM-1+) Project Orion Environmental Test Tolerances and Margins (POETTM) document related to environmental qualification and acceptance test requirements for the MPCV Program. Also support Vehicle Engineering Working Group (VEWG) and other Program working groups, panels, and boards as required in implementation of POETTM requirements and assessments of risks related to deviations from POETTM requirements. Expertise in areas such as vibration, shock, thermal, climatic, and leak testing required.	A	1 MVP baseline doc and 1 POETTM doc review/ developme nt	N/A

sow	Title: Test & Verification (T&V) (Avionics Power & Software)	SOW Paragrap hs	Projecte d Quantit v	DRD
1.10.4 A	Facilities	1, 2, 3, 4	Note 4	N/A

sow	Title: Flight Test (Flight Test Management Office)	SOW Paragrap hs	Projecte d Quantit y	DRD
1.10.6 A	Flight Test Development, Integration, and Management			N/A
1.10.6 A	Program , Planning, Budget and Execution Management	1	Annually Note 5	N/A
1.10.6 A	Office Schedule and Risk Management	1	Monthly Note 6	N/A
1.10.6 A	Program National Environmental Protection Act Assistant	· 2	Note 7	N/A
1.10.6 A	Automated Requirements Support System Coordinator	3	Note 8	N/A
1.10.6 A	Program Service and Support Requirements Management	4	Weekly Note 9	N/A
1.10.6 A	Office Data Management	5	Note 10	N/A

Note 1: The contractor shall prepare Crew and Service Module (CSM) risk charts and presentation material in support of CSM and Orion risk boards and management meetings (monthly). The contractor shall participate in the Orion Project Office Risk Management Working Group (monthly). The contractor shall coordinate the reporting and tracking of Prime Top Program and System risks with the MPCV Prime Contractor.

Note 2: The contractor shall support the development and maintenance of the Government Furnished Equipment (GFE) and In-line hardware and task database required for tracking and reporting (monthly).

Note 3: The contractor shall maintain the CSM Wiki and associated Wiki and Windchill folders (approximately 8 Wiki pages and dozens of Windchill folders). This includes performing regular updates, and managing team access and Prime Contractor access. In addition, this includes data migration back and forth from the Prime Contractor's internal Windchill to the NASA Windchill.

Note 4: The contractor shall provide support during the period of performance on development, integration, and testing of NASA avionics and software Integration and Testing (I&T) labs by providing technical expertise for hardware and software integration with focus on developing test rig configurations that support I&T activities. The contractor shall provide particular focus on Communications and Tracking (C&T) functionality, including C&T system emulation and interface with applicable hardware assets using established protocols.

Note 5: The contractor shall use the previous year's Program Planning Budget Execution (PPBE) database and update the plan based on the Program PPBE guidance, develop guidance for the office based on changes in the plan, issue office guidance to all the Centers and Programs that provide services to the office, collect and manage submits from the providers, briefs management on the revised PPBE plan, and documents the approved plan via the Internal Task Agreement (ITA) database.

Note 6: The contractor shall update and maintain the office top-level schedule and cost, schedule, and technical risk database. In addition, the contractor shall coordinate, collect inputs, and present to office management a Technical, Cost, and Schedule Review on a monthly basis.

Note 7: The contractor shall have knowledge in the area of environmental management and will assist the office/program National Environmental Policy Act (NEPA) Manager to ensure NEPA compliance as required to successful execute the program plan.

Note 8: The contractor shall knowledge and experience with the Automated Requirements Support System (ARSS) in order to assist the office Operations Manager interface with the ARSS Database and Requirements and Response Managers.

Note 9: The contractor shall have a working knowledge of the Universal Documentations System and how it is managed in the ARSS in order to assist the office Operations Manager in tracking the mission support requirements needed to successfully execute all operational phases of the mission. The contractor shall support the weekly Mission Support Working Group meetings.

Note 10: The contractor shall administer the office team data management process to include tracking configuration changes and loan requests, scheduling the configuration management team meetings, recording minutes and actions, and ensure all change requests are closed out.

	sow	ravel Requiremer Location	# of	# of	# of	FY	FY	Reason
			Trips	Days	People	13	14	
1	1.2.4	Denver, CO	2	3	1	Х	Х	Technical Interchange Meetings with Prime Contractor
2	1.2.4	Bremen, Germany	2	5	1	Х	Х	Technical Interchange Meetings with ESA
3	1.2.7	Huntsville, AL	2	3	1	Х	18	SLS PDR
4	1.2.5	Denver, CO	2	3	2	Х	Х	Technical Interchange Meetings with Prime Contractor/subs
5	1.2.7	KSC	2	3	1		Х	GSDO PDR
6	1.2.7	Huntsville, AL	3	3	1	Х	Х	Technical Interchange Meetings with SLS
7	1.2.7	KSC	3	3	1	Х	Х	Technical Interchange Meetings with GSDO
8	1.2.7	Washington, DC	1	3	2		Х	ESD Checkpoint
9	1.2.7	Huntsville, AL	2	3	1	Х	Х	Hazard analysis Technical Interchange Meetings
10	1.10.6	San Diego, CA	2	3	1	Х		Technical Interchange Meetings with DoD and GSDO
11	1.10.6	Kennedy Space Center	2	3	1	Х	4	Technical Interchange Meetings with GSDO
12	1.10.6	Norfolk, VA	4	3	1	Х		Technical Interchange Meetings with DoD and GSDO
13	1.10.6	Langley Research Center	1	3	1	Х		Technical Interchange Meetings with GSDO and LaRC
14	1.10.6	Chandler, AZ	1	3	1	Х		AA-2 Quarterly Performance Review
15	1.10.6	Denver, CO	1	3	1	Х		AA-2 Quarterly Performance Review
16	1.10.6	Albuquerque, NM	1	3	1		Х	AA-2 Quarterly Performance Review
17	1.10.6	Cocoa Beach, FL	1	3	1		Х	AA-2 Quarterly Performance Review
18	1.10.6	Yuma, AZ	1	3	1		X	CPAS Drop Test
19	1.10.6	Kennedy Space Center	1	3	1		Х	Technical Interchange Meetings with GSDO
20	1.10.6	San Diego, CA	7	3	1		Х	Technical Interchange Meetings with DoD and GSDO

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Contracting Officer Representative: Rodney Young

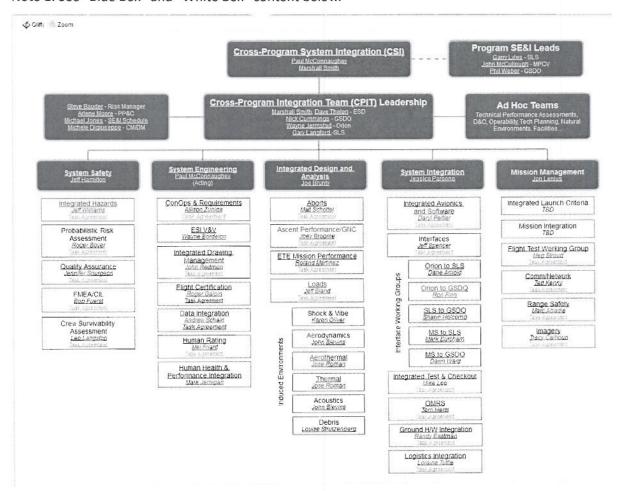
Period of Performance: July 18, 2013 to September 30, 2013

Scope of Work:

The Contractor shall perform the work necessary to provide the products and services identified below.

Statement of Work	SOW Paragraphs	Title: Cross-Program System Integration	Projected Quantity	DRD
1.1.2.1	С	Support the development and maintenance of the Integrated Design & Analysis (ID&A) "White Box" schedules and "Blue Box" Summary Schedule to include key milestones, milestone phasing and significant program-to-program integration activities and key interdependencies.	5/week See Note 1	N/A
	С	Support development and production of recurring schedule status, analyses, and assessments, to include schedule estimates, risk assessments, and critical path identification.		N/A
	С	Support development and recurring submittals of ID&A Integrated Test Team (ITT) Summary Schedules for Cross-Program System Integration (CSI) Systems Engineering and Integration (SE&I) schedule integration.		N/A

Note 1: See "Blue Box" and "White Box" content below.



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Task Order Statement of Work (SOW) Contract Number: NNJ13TA03B Task Order: NNJ13TA19T

Exploration Development Integration (EDI) Support

Contracting Officer Representative: Rodney Young

Period of Performance: October 1, 2013 to September 30, 2014

Scope of Work:

The contractor shall perform the work necessary to provide the products and services identified below.

sow	Title: Information Technology (IT) Management (Human Exploration Development Systems Office)	SOW Paragraphs	Projected Quantity	DRD
1.1.2.3.5	 Provide support to HEDS in the following areas: Development, management and maintenance of HEDS office website(s) Provide IT assistance to assess end user issue and determine appropriate resolutions, such as reporting issues to the NASA IT contractor, and replacing or repairing user-maintained items Manage and administer the NASA provided software available for employees use at home under NASA licensing agreements Maintain HEDS organization's unique software Serve as HEDS representative to the NASA Integrated Collaborative Environment (ICE) forum Serve as the IT property custodian, maintaining the HEDS office IT inventory, the shared equipment pool, and tracking the shared hardware and software equipment pool Provide IT support for any ESD level reviews (Design-To, Build-To Sync's) 	A - H	3 weekly IT mtgs. Bi- monthly ICE mtg.	

SOW	Title: Information Technology (IT) Management Exploration Development Integration Office	SOW Paragraphs	Projected Quantity	DRD
1.1.2.3.5	Provide execution/data competency by facilitating management and integration of data by utilizing the CRADLE Tool Set: • Validation of data mapping for data exchange between CRADLE and other tools and assist in discerning Mandatory Authoritative Data Objects required for Program Level Integration	C, E, G	Major Tool Update: 1 per year Minor Tool update: 2	

 Provide Program Level Integration Schema definition, associated processes/procedures, 	per year
and Wiki development/maintenance of	Bi-weekly
same	CRADLE
Provide Program Level Integration database	CoP mtg
administration of the CRADLE Tool Set:	
 Help Desk and support 	
 Scripting necessary to support auditing 	
(engineering and administrative data) via	
CRADLE Data Cache	
 CRADLE Web User Interface 	
development/maintenance	
Data-centric generic Report generation	
(documentation template maintenance as necessary)	
 Project Administer Training and Support 	
 ICE/CRADLE Procedure Training and Support 	

SOW	Title: VI Management and Integration (Exploration Development Integration office)	SOW Paragraphs	Projected Quantity	DRD
1.2.1	Provide technical and systems engineering expert to: Develop documentation, review documentation, provide technical assessments, identify technical issues with the government, and complete any action items assigned by the government to resolve those issues associated with technical reviews, meetings and technical assessments and integration in support of ESD Division for combined MPCV, Space Launch System and Ground Systems Development and Operations Program-to-Program work Participate as an integrator on various Integrated Technical Teams (ITTs). Participation will facilitate data integration to support the Mission Analysis Cycle (MAC) assessment	1.2	2 ITT mtgs per week ~2 doc reviews per month	

Est	stimated Travel Requirements: All Travel from Houston, TX								
	sow	Location	# of Trips	# of Days	# of People	FY 13	FY 14	Reason	
1	1.2.1	Huntsville, AL	1	3	1		Х	Technical Interchange Meetings with SLS	
2	1.2.1	KSC	1	3	1		Х	Technical Interchange Meetings with GSDO	
3	1.1.2.3.5	KSC	1	4	1		Х	ESD Design-To Sync	

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Program Management/Program Planning and Control (PP&C) TASK ORDER NNJ15TA01T, Basic

The Contractor shall perform the work necessary to provide the products and services identified below for a twelve (12) month period of performance. Note that this twelve month period of performance aligns with Government Fiscal Year 15 (October 2014 through September 2015).

Statement	sow	Title: Program Management	Projected	DRD
of Work	Paragraphs		Quantity	
1.1.1	A	Identification, documentation, and update of interdependencies	Note 1	N/A
	А	Program Integration Team Charter with integration tasks	Note 2	N/A
	А	Centralized data source to be developed under Statement of Work (SOW) 1.1.2.3.5	1	N/A
	А	Coordination Meetings	Weekly	N/A
	А	Performance Metrics and Process Improvement & Affordability Panel (PIAP)	Monthly	N/A
1.1.1	B.6	Government access to contractor's plans, procedures, and processes	On-going	N/A
	B.1	MPIC Management & Staffing Plan	Per DRD	PM-01
	B.2	Phase-In Plan	Per DRD	PM-02
	B.4	Total Compensation Plan	Per DRD	PM-04
	B.5	Organization Conflict of Interest (OCI)Avoidance Plan	Per DRD	PM-05
1.1.1	C.2	NASA Form 533 (NF533) Cost Reporting	Per DRD	BM-01
	C.3	Data supporting Program Planning Budget Exercise (PPBE)	~2	N/A
	C.4	Workforce Reporting	Per DRD	BM-02
1.1.1	D.1	Safety and Health Plan	Per DRD	SA-01
	D.2	Safety and Health Program Self Evaluation	Per DRD	SA-02

Statement	sow	Title: PP&C Planning Function	Projected	DRD
of Work	Paragraphs		Quantity	
1.1.2.1	A	Planning Data Set	Note 3	PC-01
	A 1	Drogram Pasalina & Dragram Pasalina	Dow DDD	DC 01
	A.1	Program Baseline & Program Baseline Attributes	Per DRD	PC-01
		Attributes		
	A.2	Schedule products and analysis	Per DRD	PC-01
1.1.2.1	В	Maintain MPCV Program Plan, Work	Per DRD	PC-01
		Breakdown Structure (WBS) Tree & Data		
		Dictionary, and list of Technical requirements		
		documents associated with the Program		
4404		Baseline		
1.1.2.1	С	Assist in Cross Program activities and	Monthly	N/A
1.1.2.1	D.1	integration of products Strategic assessment of Program performance	~9	PC-01
1.1.2.1	D.1	and alternatives	9	PC-01
		and dicernatives		
	D.2	Fiscal and year end cost estimates, Life Cycle	~3	PC-01
		Cost (LCC) estimates, Estimate at Complete		
		(EAC), Basis of Estimates (BOEs), and Joint Cost		
		and Schedule Likelihood (JCL) products		
	2.2			20.04
	D.3	Independent cost and schedule evaluations of	~4/month	PC-01
1.1.2.1	Е	change requests and risk mitigations Johnson Space Center (JSC) Quality	Note 4	N/A
1.1.2.1	_	Management System (QMS)	Note 4	IN/A
		management system (Qivis)		
	E	MPCV Document Review	1	
	E	MPCV Internal Audit	1	
	E	MPCV Management Povious	2	
		MPCV Management Review	2	
	Е	Participate in JSC QMS forums and	2	
		Surveillance Audits		
1.1.2.1	F	PPBE process input	~2/GFY	N/A
	200 as		(m) (m)	
	F.1	Establish and Maintain Performance	Per DRD	PC-01
		Management Baseline (PMB) for Earned Value		
1.1.2.1	G.1	Management (EVM) reporting	As applicable	PC-01
1.1.2.1	0.1	Update Planning Data Products	As applicable	PC-01
	G.2	Revise Performance Management Baseline	Per DRD	PC-01
	0.0	The management baseline	. 3. 55	
	G.3	Integrated Baseline Review (IBR) participation	Annual	N/A
1.1.2.1	H.1,H.2,H.3	Process Improvement	Note 5	PC-01

Statement of Work	SOW Paragraphs	Title: PP&C Performance Management Function	Projected Quantity	DRD
1.1.2.2	Α	Performance Data Set	Note 6	PC-02
1.1.2.2	B, B.1	Supplier Data	Per DRD	PC-02
1.1.2.2	С	Data Mining	Per DRD	PC-02
1.1.2.2	D.1 – D.6	Technical, Schedule, and Cost Functional Data Products	Per DRD	PC-03
1.1.2.2	Е	Technical, Schedule, and Cost Forecasts	Per DRD	PC-03
1.1.2.2	F	Independent Assessments	Per DRD	PC-03
1.1.2.2	G	Integrated Analysis of Program Performance	Per DRD	PC-04
1.1.2.2	Н	Program Manager Feedback	Monthly	PC-04
1.1.2.2	1	Assist in Cross Program activities and integration of products	Monthly	N/A
1.1.2.2	J.1 – J.2	Data Packages	~4/year	N/A
1.1.2.2	K.1 – K.3	Process Improvement	Note 5	PC-02

Statement of Work	SOW Paragraphs	Title: PP&C Professional Services Function	Projected Quantity	DRD
1.1.2.3.1		Process Improvement	Note 5	PC-05
1.1.2.3.2	Α	Configuration Management Services	Note 7	PC-05
	В	Administrative Services	Note 8	N/A
1.1.2.3.3	А, В	Data Integration and Management	Note 9	PC-05
		MPCV Program Office website(s)	Note 11	PC-05
		development, maintenance, and updates		
1.1.2.3.4	Α	Risk Management	N/A	N/A
1.1.2.3.5	А	Coordinate and process Service Requests	Note 10	PC-05
	С	End user IT service support	Note 12	PC-05
	D, E, H	Assist the MPCV IT Property Custodian in managing NASA provided software to	Note 13	PC-05
		coordinate repair and maintain organization's unique software		PC-05
	F	Manage the NASA Property System for MPCV	Note 14	PC-05
1.1.2.3.6	A,B,C,D,E	Security Management	Note 15	PC-05
1.1.2.3.7	В	Supplier Management	N/A	N/A

Statement	sow	Title: Communication and Education	Projected	DRD
of Work 1.11	Paragraphs A, B, C, D	Outreach Maintain a program milestones document	Quantity Weekly	N/A
		using data gathered by participation in Program status reviews.		
		Generation of a status report to NASA HQ	Monthly	
		Create a graphic program status newsletter	Monthly	
		Coordinate, integrate, and update Program presentations such as:		
		 All Hands Presentations Legislative Executive Briefing presentations 	~2/year As requested	
		- Program Manager Briefings to JSC Center Director	Monthly	
		 MPCV Overview used by public speakers 	Bimonthly	
		 ESD Program Status Presentation Tile Progress Chart (data supplied 	Quarterly Monthly	
		by MPCV Prime Contractor)	IVIOITCITY	
		 American Institute of Aeronautics and Astronautics (AIAA) Presentations for Orion Very Important Person (VIP) 	~2/year	
		 Award Presentations Update, maintain, and distribute 	Quarterly As requested	
		Orion graphics / PowerPoint templates / Illustrations		
		Manage the dry run activities and provide Audio Visual (AV) support for executive and	As requested	
		large presentation events		
		Update the status portions of the Orion internal website and Maintain the Orion	Weekly	
		Internal Website Communication functions		
		http://mpcv.jsc.nasa.gov		
		Capture, edit, and retouch still and video imagery of Orion tests, progress, public		
		outreach events, and special projects	30000	
		 Coordinate creation of still imagery and video programs 	Monthly	
		through center support, other		
		NASA resources, & external vendor		
		venuor		

- Coordinate with Orion ITAR officer	Quarterly	N/A
to clear incoming imagery - Produce short feature videos as well as short outreach video	Monthly	
 material for online publication Produce b-roll products for distribution to media 	Monthly	
 Distribute approved imagery and video to 'NASA Image of the Day', 'This Week @ NASA', and other social media properties 	Weekly	
- Deliver 1080p high definition video and high resolution still imagery to the program for internal and external use	Monthly	
 Deliver video for archiving and distribution 	Monthly	
- Capture/create immersive panoramic imagery of Orion facilities and progress	Monthly	
Coordinate & Participate in major event planning, including pre-event communication plans, staffing, schedules, and logistics with other programs and centers	Quarterly	
- Create, update, and distribute products for print, exhibit, and online use	Note 16	
 Assemble multimedia material and display hardware for exhibits 	Quarterly	
- Talk to visitors about MPCV	Quarterly	
 Post to social media properties in real time during activities 	As requested	
- Design Outreach exhibits Compile post-event summary report and media tracking	As requested Quarterly	

Esti	Estimated Travel Requirements: All Travel from Houston, TX							
	sow	Location	# of	# of	# of	Reason		
			Trips	Days	People			
1	1.1.2.1	Denver, CO	1	3	4	Schedule TIM		
2	1.1.2.1	TBD-Various	4	3	1	Quarterly EVM Working Group		
3	1.1.2.1	Denver, CO	1	5	4	LM Integrated Baseline Review		
4	1.1.2.1	Dallas, TX	1	4	1	Deltek Insight		
5	1.1.2.1	New Orleans, LA	1	5	1	EVM World		
6	1.1.2.1	San Diego, CA	1	5	1	ICEAA Conference		
7	1.1.2.2	Langley, VA	1	5	1	NASA Cost Symposium		
8	1.1.2.2	Denver, CO	1	4	4	LM Financial TIM		
9	1.1.2.3	Michoud, NOLA	1	5	1	ICMWG		
10	1.1.2.3	DC/HQ	1	5	1	ICMWG		
11	1.1.2.3	MSFC	1	5	1	iPIT F2F		
12	1.1.2.3	KSC	1	5	1	iPIT F2F		
13	1.1.2.3	San Jose, CA	1	5	1	Confluence Wiki Development		
14	1.1.2.3	Denver, CO	1	5	1	LM Security Audit		
15	1.1.2.3	KSC	2	5	1	Export Control Support Trip		
16	1.1.2.3	KSC	1	5	1	NASA/LM Joint Review		
17	1.1.2.3	Denver, CO	1	5	1	NASA/LM Joint Review		
18	1.1.2.3	TBD	3	4	1	iPIT Risk TIM		
19	1.1.2.3	TBD	3	4	1	iPIT Schedule TIM		
20	1.1.2.3	Denver, CO	2	4	1	Risk Summit		
21	1.1.2.3	Boston, MA	1	5	3	PTC Global Event Conference 2015		
22	1.1.2.3	San Jose, CA	1	5	2	Atlassian Summit 2015		
23	1.11	Rockford, Illinois	1	3	1	Recognition event		
24	1.11	Ames (ARC), CA	1	3	2	Open House		
25	1.11	KSC, FL	1	3	1	CSM transport to pad		
26	1.11	KSC, FL	1	5	2	EFT-1 Launch		
27	1.11	ARC, CA	1	3	1	Recognition event		
28	1.11	KSC, FL	1	3	1	Recognition event		
29	1.11	GRC, OH	1	3	1	Recognition event		
30	1.11	MSFC, AL	1	3	1	Recognition event		
31	1.11	NASA HQ, DC	1	3	1	Recognition event		
32	1.11	AFRC, CA	1	3	1	Recognition event		
33	1.11	GSFC, MD	1	3	1	Recognition event		
34	1.11	JPL, CA	1	3	1	Recognition event		
35	1.11	LaRC, VA	1	3	1	Recognition event		
36	1.11	SSC, MS	1	3	1	Recognition event		
37	1.11	WSTF, NM	1	3	1	Recognition event		
38	1.11	Austin, TX	1	2	1	Space Day Texas		
39	1.11	Austin, TX	1	6	1	South by Southwest		
40	1.11	KSC, FL	1	3	1	EM-1 documentation		
41	1.11	KSC, FL	1	3	1	EM-1 documentation		
42	1.11	KSC, FL	1	3	1	EM-1 documentation		
43	1.11	Aerojet, Redmond, WA	1	3	1	Supplier recognition event		

44	1.11	Lockheed Martin, Denver, CO	1	3	1	Supplier recognition event
45	1.11	Honeywell, Phoenix, AZ	1	3	1	Supplier recognition event
46	1.11	ATK, UT	1	3	1	Supplier recognition event
47	1.11	GRC, OH	1	3	2	F2F mtg
48	1.11	MSFC, AL	1	3	2	F2F mtg
49	1.11	ARC, CA	1	3	2	F2F mtg

Note 1: Identification and documentation of interdependencies shall include the work product, annual updates on or before end of the Government fiscal year. Monthly Process Improvement and Affordability Panel (PIAP) sessions incur no cost to the Government.

Note 2: Program Integration Team Charter shall be updated within 30 of task order start with annual updates on or before the end of the Government fiscal year. The Program Integration Team also serves as the single point of contact for authoritative data and information about the vehicle and program for use in external communications (SOW 1.11), internal planning and analysis, including facilitation of data mining (SOW 1.1.2.2.C).

Note 3: The contractor shall use the existing Planning Data Set and provide updates of existing data products and new data products as per DRD MPIC-PC-01 specifications

Note 4: Document Review, Internal Audit, and Management Review completed by September 30, 2015. The Government will take corrective action for audit findings. Quality Management System (QMS) Management Review will be conducted as an agenda item on a regularly scheduled PP&C management forum, such as the Monthly Orion Program Performance Review (MOPPR). The contractor will provide training to required MPCV personnel in preparation for JSC QMS audits, as applicable. The contractor will control records (SOW 1.1.2.1.E.4). Records inventory is updated approximately three (3) times per year. The center records audit occurs once every 2 years, last one completed in 2012.

Note 5: The contractor shall report findings and recommendations for process improvement and certification per DRD MPIC-PC-01, and DRD MPIC-PC-02, and DRD MPIC-PC-05 specifications.

Note 6: The contractor shall use the existing Performance Data Set and provide updates of existing data products and new data products as per DRD MPIC-PC-02, DRD MPIC-PC-03, and DRD MPIC-PC-04 specifications

Note 7: Configuration Management Services processes approximately fifteen (15) Change Requests (CRs) per month and two (2) Management Directives per year.

Note 8: Minutes are assigned actions, decisions made, directions provided by chair or lead, and bullets of discussions. Minutes are not required to be verbatim wording and are only required at MPCV Program Level Boards or major reviews (e.g. MPCV Control Board (MPCB), Vehicle Integration Control Board (VICB), Joint Integration Control Board (JICB), Joint Program Control Board (JPCB), Government Equipment and Materials Control Panel (GEMCP), Quarterly Program Performance Review (QPPR), Service Module Control Board (SMCB)). No recording of meetings is required.

Approximately eight (8) meetings/per work day, five (5) of which are set up and hand off to technical point of contact, three (3) requiring set up and meeting support.

Note 9: Data integration and management (DM) requests are data integrations, structure, relationships, and reporting. Approximately seven (7) requests per year which require Information Technology (IT) and DM to analyze the problem, work with civil service technical representative on solutions, and implement approved solutions to automate Program Planning and Control (PP&C) processes. One example is the Change Request (CR) Look Ahead report.

Note 10: Approximately ten (10) System Requests (SRs) submitted into the Enterprise Service Desk (ESD) system per week.

Note 11: Approximately fifteen (15) updates per week on MPCV websites.

Note 12: Approximately ten (10) walk ups per week.

Note 13: Manage twenty four (24) specific Orion software licenses with three hundred (300) licenses. Approximately one (1) request per month.

Note 14: One hundred and fourteen (114) NASA tagged inventory items requiring a yearly audit with approximately ten (10) requests per year.

Note 15: The contractor shall perform the services as per the Statement of Work (SOW) and report user metrics as per DRD MPIC-PC-05 specifications and assume that one (1) additional security report will be required during the task order period. Assume approximately three (3) security incidents per month which require resolution.

Note 16: Examples of products could include: Fact sheets, Orion Book, Traveling Exhibit Panels, Space Center Houston Exhibits, Patches/Logo designs, Interactive Content, Award Certificates, PowerPoint templates, internal motivational wall displays, Space Flight Awareness (SFA) support and coordination.

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MPCV Systems Engineering and Integration TASK ORDER NNJ15TA02T, Basic

The Contractor shall perform the work necessary to provide the products and services identified below for a twelve (12) month period of performance. Note that this twelve month period of performance aligns with Government Fiscal Year 15 and spans contract year 3 (October 2014 through September 2015).

sow	Title: Program Integration (Vehicle Integration Office)	SOW Paragraphs	Projected Quantity	DRD
1.2.3	Perform integration of Design Analysis Cycle (DAC) work, schedules, and products. Support planning for and execution of (as applicable) major milestone reviews for MPCV, ESA, SLS, GSDO, and ESD. Support development of the CoFR process. Support the Cross-Program data interdependency and Bilateral Exchange Agreement process. Maintain the MPCV VIO schedule. Develop and maintain the MPCV Systems Engineering Plan (SEMP). Support development and review of MPCV Prime Contract changes associated with Design Analysis Cycle content, milestone planning, schedule changes, and deliverable products.	A.1, A.3, A.4, A.5	2 DAC cycles per year, 1 MPCV and 3 Cross- Program design reviews per year, 1 SEMP update	

sow	Title: Systems and Integrated Analysis (Vehicle Integration Office)	SOW Paragraphs	Projected Quantity	DRD
1.2.4	Lead integrated vehicle systems performance trade studies involving Guidance, Navigation, and Control (GN&C), mission analysis, aerosciences, and other integrated vehicle disciplines. Support requirements and design development of the ESA SM and integration with the Orion spacecraft. Track analysis, trade studies, and test and verification plans of major mission separation events. Track technical risks and top issues in support of the vehicle systems performance & analysis team.	A.1	1 document update / trade study per month	

sow	Title: CSM Crew Cabin and Cockpit Layout Design Requirements (Vehicle Integration Office)	SOW Paragraphs	Projected Quantity	DRD
1.2.5	 Development, prototype, simulation, and evaluation of crew displays and display concepts Create renderings of operational interactive cockpit displays in GL Studio® and IDATA® formats using concepts provided by NASA in Powerpoint, PDF, or other graphical formats. Develop functional models of display renderings in C++, MATLAB®, Microsoft 	A.1-A.5		

	Visual Studio, or Practical Extraction and Reporting Language (PERL) formats. Provide integration of Linux and Trick based simulation models provided by external sources with internally developed software models. Prepare software scripts for Orion cockpit display format crew evaluations Provide real-time support for Orion cockpit display format crew evaluations Develop and support evaluations of displays for hand held iOS or Windows Tablet devices			
	such as iPhones, iPads and Windows Surface Pro. Coordinate with users and Orion Prime Contractor (and subs) to determine display capabilities within and outside of scope, identify spacecraft software and hardware interfaces and dependencies for each prototype display, and document prototype display capabilities and inputs/outputs in			
	display format dictionaries			
	Specific Deliverables: Develop new Orion display formats required for the		11	
	EM2 Design Reference Mission (DRM), including any changes resulting from configuration differences between the Service Module provided by the Prime contractor and the new ESA Service module.		11	
	Prepare software scripts and provide support for Orion display format Crew Evaluations.		8	
1.2.5	Development support of the Cockpit Rapid Prototype Lab • Fabricate mockups of Orion Cockpit components. Mockups may range in complexity from non-functional foam core and plastic models to high fidelity functional engineering prototypes using flight-like materials. • Develop 3D CAD models of legacy components in Alibre Design™ format • Fabricate full-size models of legacy hardware components and new functional hardware concepts using 3D printer technology. • Fabricate, assemble and integrate full-size mockups of cockpit and crew display components using various materials and	A.1-A.5		

	components including, but not limited to,		
	plastic, metal, and various mechanical and		
	electrical components.		
	 Modify government provided legacy 		
	hardware and assemble and integrate with		
	other components for use in cockpit mockup		
	components		
	 Manage procurement of government 		
	supplied materials, supplies, equipment, and		
	software needed to perform this activity		
	using NASA purchasing and property		
	management processes	1	
	 Provide Information technology (IT) support 		
	for any non-ACES crew and cockpit display		
	computer software and hardware		
	integration required by this activity		
	 Provide integration support for incorporating 		
	the externally provided Socrates Windows		
	emulator into simulation systems		
	Provide software distribution media for		
	software products produced by this activity.		
	Ensure products are labeled in compliance		
	with export control and other applicable		
	regulations		
	 Provide local or phone support to end users 		
	for software installation issues involving		1
	distributed products		
	Specific Deliverables:		
	Assemble and integrate two sets of flight-like hand	2	
	controller simulators consisting of a rotational hand		
	controller (RHC) and a translational hand controller		
	(THC).		
	Construct an Orion three-display cockpit simulator.	1	
	Develop, fabricate, and assist in testing an Orion	1	
	Cursor Control Device.		
L	Cursor Control Device.		

sow	Title: Flight and Ground Operations Integration (Vehicle Integration Office)	SOW Paragraphs	Projected Quantity	DRD
1.2.7	Lead development and implementation of an integrated operational concept for landing and recovery for EFT-1, EM-1, AA-2, and EM-2. This includes: • Integration and development of technical agreements with GSDO, Department of Defense (DoD), and other internal and external partners involved in the development and implementation	A.3, A.4	~2/year	

	 Assessment of trades and designs in systems 		1 trade	
	across the MPCV and GSDO programs that		study /	
	support the implementation of the landing		month	
	and recovery con ops			
	Development and maintenance of schedules for this		Monthly	
	work.			
1.2.7	Coordinate and track master measurement list	A.4	1 formal	
	development, allocations and changes for		release/6	
	developmental flight instrumentation (DFI) for EFT-		months	
	1, EM-1 and AA-2. Evaluate sensor priority changes		for each	
	for technical impact to flight test objective owners.		mission	
	Support mapping of all DFI sensors to higher level			
	module development in support of DFI hardware			
	development for testing and flights.			
	 Develop schedules for this work. 		Monthly	
1.2.7	Provide Computer Aided Drawing (CAD) integration	A.4	2 releases	
	support. This includes:	(5.000.5)	/ Design	
	Transferring CAD models back and forth		Analysis	
	between the MPCV prime contractor, the		Cycle	
			(DAC)	
	MPCV non-prime team, and the GSDO, and		(BAC)	
	SLS programs			
	Transferring CAD models between NASA and			
	the ESA design teams			
	Translating CAD models between Pro/Engineer and			
	CATIA formats. Develop schedules for this work.			
1.2.7	Lead the development of the integrated Orion-GSDO	A.1 – A.4	2 each IRD	
	prelaunch operational concept. Lead the Orion-		and ICD	
	GSDO Interface Working Group to update the Orion-		per year	
	GSDO IRD and to develop the Orion-GSDO ICD.			
	Support MPCV and GSDO major milestone reviews.			
	Support regular interface discussions between GSDO			
	and MPCV to identify and resolve cross-program			
	issues. Support the cross program OMRS ITT.			
	Support the cross program Ground Hardware			
	Integration ITT. Support the cross program Logistics			
	ITT. Develop an MPCV Logistics Plan in coordination			
	with the MPCV Prime Contractor and CPIT. Develop			
	schedules for this work. (This change is effective for			
	GFY14 only)			
1.2.7	Lead the Mission and Performance Analysis group		2 con ops	
	responsible for maintaining oversight of integrated		release/	
	vehicle performance analyses (power, thermal,		year,	
	trajectory, etc.), developing of concepts of		Review of	
	operations, and supporting development of mission		timelines	
		I	1	
	timelines. Provide NASA management with		each DAC,	
	timelines. Provide NASA management with awareness of integrated vehicle level performance		each DAC, Review of	

ar	nalysis work, resource concerns, and integration of	products	
pe	erformance studies between NASA, ESA, and SLS.	each DAC	

SOW	Title: Crew and Service Module (CSM)	SOW Paragraphs	Projected Quantity	DRD	
1.6.1.1 A	CSM Office Management and Administration	1, 5, 6, 7, 8	Notes 1, 2, 3	N/A	
1.6.1.4.A	Government Furnished Equipment (GFE) Product Development and Integration	1, 2	Notes 1, 2, 3	N/A	

SOW	Title: Integrated Spacecraft Testing and Verification Management	SOW Paragraphs	Projected Quantity	DRD
1.10.2 A	Support the development of the Master Verification Plan (MVP). Support the development of MVP Volume #2 post EFT-1 (i.e, EM-1+) Environmental Test Tolerances and Margins related to environmental qualification and acceptance test requirements for the MPCV Program. Support Vehicle Engineering Working Group (VEWG) and other Program working groups, panels, and boards as required in implementation of Verification requirements and assessments of risks related to deviations from verification requirements. Expertise in areas such as vibration, shock, thermal, climatic, and leak testing required. Provide coordination and data management for the MPCV Test and Verification (T&V) team, using the Windchill and Wiki tools within the ICE environment. Review cross program T&V documents in support of major milestone reviews. Provide expertise to the planning and execution of the EFT-1 mission Assembly, Integration, and Production (AI&P) testing, including test definition and anomaly resolution.	A	1 MVP baseline doc review/ developm ent	N/A

sow	Title: Test & Verification (T&V) (Avionics Power &	sow	Projected	DRD	
	Software)	Paragraphs	Quantity		
1.10.4 A	Facilities	1, 2, 3, 4	Note 4	N/A	

sow	Title: Flight Test (Flight Test Management Office)	SOW Paragraphs	Projected Quantity	DRD
1.10.6 A	Flight Test Development, Integration, and Management			N/A
1.10.6 A	Program , Planning, Budget and Execution Management	1	Annually Note 5	N/A
1.10.6 A	Office Schedule and Risk Management	1	Monthly	N/A

			Note 6	
1.10.6 A	Program National Environmental Protection Act Assistant	2	Note 7	N/A
1.10.6 A	Automated Support Requirements System (ASRS) Coordinator	3	Note 8	N/A
1.10.6 A	Program Service and Support Requirements Management	4	Weekly Note 8	N/A
1.10.6 A	Office Data Management	5	Note 9	N/A

Note 1: The contractor shall prepare Crew and Service Module (CSM) risk charts and presentation material in support of CSM and Orion risk boards and management meetings (monthly). The contractor shall participate in the Orion Project Office Risk Management Working Group (monthly). The contractor shall coordinate the reporting and tracking of Prime Top Program and System risks with the MPCV Prime Contractor.

Note 2: The contractor shall support the development and maintenance of the Government Furnished Equipment (GFE) and In-line hardware and task database required for tracking and reporting (monthly).

Note 3: The contractor shall maintain the CSM Wiki and associated Wiki and Windchill folders (approximately 8 Wiki pages and dozens of Windchill folders). This includes performing regular updates, and managing team access and Prime Contractor access. In addition, this includes data migration back and forth from the Prime Contractor's internal Windchill to the NASA Windchill.

Note 4: The contractor shall provide support during the period of performance on development, integration, and testing of NASA avionics and software Integration and Testing (I&T) labs by providing technical expertise for hardware and software integration with focus on planning, developing, and executing test rig configurations that support I&T activities. The contractor shall provide particular focus on Communications and Tracking (C&T) functionality, including C&T system emulation and interface with applicable hardware assets using established protocols.

Note 5: The contractor shall use the previous year's Program Planning Budget Execution (PPBE) database and update the plan based on the Program PPBE guidance, develop guidance for the office based on changes in the plan, issue office guidance to all the Centers and Programs that provide services to the office, collect and manage submits from the providers, briefs management on the revised PPBE plan, and documents the approved plan.

Note 6: The contractor shall update and maintain the office top-level schedule and cost, schedule, and technical risk database. In addition, the contractor shall coordinate, collect inputs, and present to office management a Technical, Cost, and Schedule Review on a monthly basis.

Note 7: The contractor shall have knowledge in the area of environmental management and will assist the office/program National Environmental Policy Act (NEPA) Manager to ensure NEPA compliance as required to successful execute the program plan.

Note 8: The contractor shall have a working knowledge of the Universal Documentations System and how it is managed in the Automated Support Requirements System (ASRS) in order to assist the office Operations Manager in tracking the mission support requirements needed to successfully

execute all operational phases of the mission. The contractor shall support the weekly Mission Support Working Group meetings.

Note 9: The contractor shall administer the office team data management process to include tracking configuration changes and loan requests, scheduling the configuration management team meetings, recording minutes and actions, and ensure all change requests are closed out.

	sow	Location	# of	# of	# of	Reason
			Trips	Days	People	
1	1.2.3	Denver, CO	3	3	1	CDR meetings
2	1.2.3	Denver, CO	1	3	1	CDR Planning
3	1.2.4	Denver, CO	1	3	1	Technical Interchange Meetings with Prime Contractor
4	1.2.4	Bremen, Germany	1	5	1	Technical Interchange Meetings with ESA
5	1.2.5	Denver, CO	5	3	1	Technical Interchange Meetings with Prime Contractor/subs
6	1.2.7	Huntsville, AL	1	3	1	Technical Interchange Meetings with SLS
7	1.2.7	KSC	1	3	1	Technical Interchange Meetings with GSDO
8	1.2.7	Huntsville, AL	1	3	1	Hazard Analysis Technical Interchange Meetings
9	1.2.7	KSC	1	3	1	GHITT F2F
10	1.2.7	KSC	1	3	1	Operations Interface coordination
11	1.2.7	KSC	1	5	1	EFT-1 Mission Support
12	1.10.4.A	Denver, CO	1	4	1	Communication & Tracking (C&T) TIM
13	1.10.6	KSC, FL	1	5	1	URT Closeout & Chief Eng Meetings
14	1.10.6	KSC, FL	2	5	1	EFT-1 Recovery Preparation w/ DOD &GSDO
15	1.10.6	San Diego, CA	3	5	1	EFT-1 Recovery Preparation w/ DOD & GSDO
16	1.10.6	San Diego, CA	1	14	1	EFT-1 Recovery Operations
17	1.10.6	Chandler, AZ	1	3	1	AA-2 Quarterly Performance Review
18	1.10.6	Denver, CO	1	3	1	AA-2 Quarterly Performance Review
19	1.10.6	Albuquerque, NM	1	3	1	AA-2 Quarterly Performance Review
20	1.10.6	KSC	1	3	1	AA-2 Quarterly Performance Review
21	1.10.6	Yuma, AZ	1	3	1	CPAS Drop Test
22	1.10.6	Langley Research Center	1	3	1	Technical Interchange Meetings with GSDO and LaRC
23	1.10.6	Norfolk, VA	4	3	1	Technical Interchange Meetings with DoD and GSDO
24	1.10.6	KSC	3	3	1	Technical Interchange Meetings with GSDO

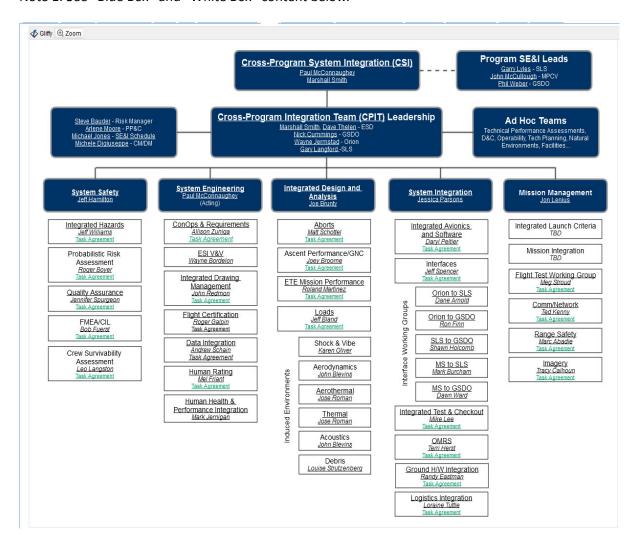
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Task Order Statement of Work (SOW) Contract Number: NNJ13TA03B Order Number: NNJ15TA03T Exploration Systems Integration (ESI)

Statement of Work	SOW Paragraphs	Title: Cross-Program System Integration	Projected Quantity	DRD
1.1.2.1	С	Support the development and maintenance of the Mission Management (MM) "White Box" schedules and "Blue Box" Summary Schedule to include key milestones, milestone phasing and significant program-to-program integration activities and key interdependencies.	5/week See Note 1	N/A
	С	Support development and production of recurring schedule status, analyses, and assessments, to include schedule estimates, risk assessments, and critical path identification.		N/A
	С	Support development and recurring submittals of MM Integrated Test Team (ITT) Summary Schedules for Cross-Program System Integration (CSI) Systems Engineering and Integration (SE&I) schedule integration.		N/A

Note 1: See "Blue Box" and "White Box" content below.



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Task Order Statement of Work (SOW) Contract Number: NNJ13TA03B Task Order: NNJ15TA04T Exploration Development Integration (EDI) Support

Contracting Officer Representative: Rodney Young

Period of Performance: October 1, 2013 to September 30, 2014

sow	Title: Information Technology (IT) Management (Human Exploration Development Systems Office)	SOW Paragraphs	Projected Quantity	DRD
1.1.2.3.5	 Provide support to HEDS in the following areas: Development, management and maintenance of HEDS office website(s) Provide IT assistance to assess end user issue and determine appropriate resolutions, such as reporting issues to the NASA IT contractor, and replacing or repairing user-maintained items Manage and administer the NASA provided software available for employees use at home under NASA licensing agreements Maintain HEDS organization's unique software Serve as HEDS representative to the NASA Integrated Collaborative Environment (ICE) forum Serve as the IT property custodian, maintaining the HEDS office IT inventory, the shared equipment pool, and tracking the shared hardware and software equipment pool Provide IT support for any ESD level reviews (Design-To, Build-To Sync's) 	A - H	3 weekly IT mtgs. Bi- monthly ICE mtg.	

sow	Title: Information Technology (IT) Management Exploration Development Integration Office	SOW Paragraphs	Projected Quantity	DRD
1.1.2.3.5	Provide execution/data competency by facilitating management and integration of data by utilizing the CRADLE Tool Set: • Validation of data mapping for data exchange between CRADLE and other tools and assist in discerning Mandatory Authoritative Data Objects required for Program Level Integration	C, E, G	Major Tool Update: 1 per year Minor Tool update: 2	

Provide Program Level Integration Schema definition, associated processes/procedures,	per year
and Wiki development/maintenance of	Bi-weekly
same	CRADLE
Provide Program Level Integration database	CoP mtg
administration of the CRADLE Tool Set:	****
Help Desk and support	
 Scripting necessary to support auditing (engineering and administrative data) via CRADLE Data Cache 	
CRADLE Web User Interface development/maintenance	
 Data-centric generic Report generation (documentation template maintenance as necessary) 	
 Project Administer Training and Support 	
 ICE/CRADLE Procedure Training and Support 	

sow	Title: VI Management and Integration (Exploration Development Integration office)	SOW Paragraphs	Projected Quantity	DRD
1.2.1	Provide technical and systems engineering expert to: • Develop documentation, review documentation, provide technical assessments, identify technical issues with the government, and complete any action items assigned by the government to resolve those issues associated with technical reviews, meetings and technical assessments and integration in support of ESD Division for combined MPCV, Space Launch System and Ground Systems Development and Operations Program-to-Program work • Participate as an integrator on various Integrated Technical Teams (ITTs). Participation will facilitate data integration to support the Mission Analysis Cycle (MAC) assessment	1.2	2 ITT mtgs per week ~2 doc reviews per month	

Esti	Estimated Travel Requirements: All Travel from Houston, TX										
	SOW Location # of # of # of Reason										
			Trips	Days	People						
1	1.2.1	Huntsville, AL	1	3	1	Technical Interchange Meetings with SLS					
2	1.2.1	KSC	1	3	1	Technical Interchange Meetings with GSDO					
3	1.1.2.3.5	KSC	1	4	1	ESD Design-To Sync					

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Program Management/Program Planning and Control (PP&C) TASK ORDER NNJ16TA01T

Statement	sow	Title: Program Management	Projected	DRD
of Work	Paragraphs		Quantity	
1.1.1	А	Identification, documentation, and update of interdependencies	Note 1	N/A
	А	Program Integration Team Charter with integration tasks	Note 2	N/A
	А	Centralized data source to be developed under Statement of Work (SOW) 1.1.2.3.5	1	N/A
	Α	Coordination Meetings	Weekly	N/A
	Α	Performance Metrics and Process Improvement & Affordability Panel (PIAP)	Monthly	N/A
1.1.1	B.6	Government access to contractor's plans,	On-going	N/A
	B.1	procedures, and processes MPIC Management & Staffing Plan	Per DRD	PM-01
	B.2	Phase-In Plan	Per DRD	PM-02
	B.4	Total Compensation Plan	Per DRD	PM-04
	B.5	Organization Conflict of Interest (OCI)Avoidance Plan	Per DRD	PM-05
1.1.1	C.2	NASA Form 533 (NF533) Cost Reporting	Per DRD	BM-01
	C.3	Data supporting Program Planning Budget Exercise (PPBE)	~2	N/A
	C.4	Workforce Reporting	Per DRD	BM-02
1.1.1	D.1	Safety and Health Plan	Per DRD	SA-01
2,2,2	D.2	Safety and Health Program Self Evaluation	Per DRD	SA-02

Statement of Work	SOW Paragraphs	Title: PP&C Planning Function	Projected Quantity	DRD
1.1.2.1	Α	Planning Data Set	Note 3	PC-01
	A.1	Program Baseline & Program Baseline Attributes	Per DRD	PC-01

	1			
	A.2	Schedule products and analysis	Per DRD	PC-01
1.1.2.1	В	Maintain MPCV Program Plan, Work	Per DRD	PC-0:
		Breakdown Structure (WBS) Tree & Data		
		Dictionary, and list of Technical requirements		
		documents associated with the Program		
		Baseline	11/23	
1.1.2.1	С	Assist in Cross Program activities and	Monthly	N/A
		integration of products		
1.1.2.1	D.1	Strategic assessment of Program performance	~ 9 12	PC-0
		and alternatives		
	D 2	Final and many death artification tife Code	~~	DC 0
	D.2	Fiscal and year end cost estimates, Life Cycle	~3	PC-0
		Cost (LCC) estimates, Estimate at Complete		
		(EAC), Basis of Estimates (BOEs), and Joint Cost		
		and Schedule Likelihood (JCL) products		
	D.3	Independent cost and schedule evaluations of	~4/month	PC-0
	0.5	change requests and risk mitigations	4/111011111	100
1.1.2.1	E	Johnson Space Center (JSC) Quality	Note 4	N/A
1.1.2.1	F-1	Management System (QMS)	Note 4	14//-
		Wallagement System (QWS)		
	E	MPCV Document Review	1	
	E	MPCV Internal Audit	1	
	E	MPCV Management Review	2	
	E	Participate in JSC QMS forums and	2	
		Surveillance Audits		
1.1.2.1	F	PPBE process input	~2/GFY	N/A
	F.1	Establish and Maintain Performance	Per DRD	PC-0
	tections/co	Management Baseline (PMB)for Earned Value		80.000
		Management (EVM) reporting		
1.1.2.1	G.1	Update Planning Data Products	As applicable	PC-0
	G.2	Revise Performance Management Baseline	Per DRD	PC-0
		ı		I
	G.3	Integrated Baseline Review (IBR) participation	Annual	N/A

Statement of Work	SOW Paragraphs	Title: PP&C Performance Management Function	Projected Quantity	DRD
1.1.2.2	Α	Performance Data Set	Note 6	PC-02
1.1.2.2	B, B.1	Supplier Data	Per DRD	PC-02
1.1.2.2	С	Data Mining	Per DRD	PC-02
1.1.2.2	D.1 – D.6	Technical, Schedule, and Cost Functional Data Products	Per DRD	PC-03

1.1.2.2	1 -	Technical, Schedule, and Cost Forecasts	Per DRD	PC-03
	E .			
1.1.2.2	F	Independent Assessments	Per DRD	PC-03
1.1.2.2	G	Integrated Analysis of Program Performance	Per DRD	PC-04
1.1.2.2	Н	Program Manager Feedback	Monthly	PC-04
1.1.2.2	1	Assist in Cross Program activities and	Monthly	N/A
		integration of products		
1.1.2.2	J.1 – J.2	Data Packages	~4/year	N/A
1.1.2.2	K.1 – K.3	Process Improvement	Note 5	PC-02

Statement	sow	Title: PP&C Professional Services Function	Projected	DRD
of Work	Paragraphs		Quantity	
1.1.2.3.1		Process Improvement	Note 5	PC-05
1.1.2.3.2	Α	Configuration Management Services	Note 7	PC-05
	В	Administrative Services	Note 8	N/A
1.1.2.3.3	А, В	Data Integration and Management	Note 9	PC-05
		MPCV Program Office website(s)	Note 11	PC-05
		development, maintenance, and updates		
1.1.2.3.4	Α	Risk Management	N/A	N/A
1.1.2.3.5	Α	Coordinate and process Service Requests	Note 10	PC-05
	С	End user IT service support	Note 12	PC-05
	D, E, H	Assist the MPCV IT Property Custodian in managing NASA provided software to	Note 13	PC-05
		coordinate repair and maintain organization's unique software		PC-05
	F	Manage the NASA Property System for MPCV	Note 14	PC-05
1.1.2.3.6	A,B,C,D,E	Security Management	Note 15	PC-05
1.1.2.3.7	В	Supplier Management	N/A	N/A

Statement of Work	SOW Paragraphs	Title: Communication and Education Outreach	Projected Quantity	DRD
1.11	A, B, C, D	Maintain a program milestones document using data gathered by participation in Program status reviews.	Weekly	N/A
		Generation of a status report to NASA HQ	Monthly	
		Create a graphic program status newsletter	Monthly	
		Coordinate, integrate, and update Program presentations such as: - All Hands Presentations - Legislative Executive Briefing presentations	~2/year As requested	

- Program Manager Briefings to JSC	Monthly	
Center Director	IVIOITETHY	
- MPCV Overview used by public speakers	Bimonthly	
- ESD Program Status Presentation	Quarterly	
- Tile Progress Chart (data supplied	Monthly	
by MPCV Prime Contractor)		
- American Institute of Aeronautics and Astronautics (AIAA) Presentations for Orion Very Important Person (VIP)	~2/year	
- Award Presentations	Quarterly	
- Update, maintain, and distribute Orion graphics / PowerPoint templates / Illustrations	As requested	
Manage the dry run activities and provide Audio Visual (AV) support for executive and large presentation events	As requested	
Update the status portions of the Orion internal website and Maintain the Orion Internal Website Communication functions http://mpcv.jsc.nasa.gov	Weekly	
Capture, edit, and retouch still and video imagery of Orion tests, progress, public outreach events, and special projects - Coordinate creation of still imagery and video programs through center support, other NASA resources, & external vendor	Monthly	
- Coordinate with Orion ITAR officer to clear incoming imagery	Quarterly	N/A
- Produce short feature videos as well as short outreach video	Monthly	
material for online publication - Produce b-roll products for distribution to media	Monthly	
- Distribute approved imagery and video to 'NASA Image of the Day', 'This Week @ NASA', and web stories	Weekly	
- Deliver 1080p high definition video and high resolution still imagery to the program for internal and external use	Monthly	
- Deliver video for archiving and distribution	Monthly	
- Capture/create immersive	Monthly	

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panoramic imagery of Orion facilities and progress	
Coordinate strategy, images and content for Orion's social media presence on all social media properties; monitor and post. Work with NASA Headquarters and all NASA Centers for visibility of Orion's major milestones and deliverables	Daily
Coordinate & Participate in major event planning, including pre-event communication plans, staffing, schedules, and logistics with other programs and centers	Quarterly
 Prepare comprehensive supplier outreach plan, including working with NASA HQ, Legislative Affairs, Astronaut Office, other programs, 	Quarterly
and subcontractors - Create, update, and distribute products for print, exhibit, and online use - Assemble multimedia material and display hardware for exhibits	Note 16 Quarterly
 Talk to visitors about MPCV Post to social media properties in real time during activities Design Outreach exhibits 	Quarterly As requested
Compile post-event summary report and media tracking	As requested Quarterly

Es	Estimated Travel Requirements: All travel from Houston, TX								
	sow	Destination	# Trips	# Days	# People	Reason			
1	1.1.2.1/1.1.2.2	Denver, CO	1	5	2	NSO 130 (ESA Integration) IBR (Oct)			
2	1.1.2.1/1.1.2.2	Denver, CO	1	5	1	NASA Cost Symposium (Sep)			
3	1.1.2.1/1.1.2.2	Denver, CO	1	5	1	EVM World (June)			
4	1.1.2.1/1.1.2.2	KSC	1	3	1	EVM Working Group			
5	1.1.2.1/1.1.2.2	KSC	1	3	1	EVM Working Group			
6	1.1.2.1/1.1.2.2	KSC	1	3	1	EVM Working Group			
7	1.1.2.1/1.1.2.2	KSC	1	3	1	EVM Working Group			
8	1.1.2.1/1.1.2.2	KSC	1	4	1	Risk Working Group			
9	1.1.2.1/1.1.2.2	KSC	1	4	1	Risk Summit			
10	1.1.2.1/1.1.2.2	Denver, CO	1	3	4	Scheduling TIM / F2F			
11	1.1.2.1/1.1.2.2	Denver, CO	1	3	4	Scheduling TIM / F2F			

12	1.1.2.1/1.1.2.2	Denver, CO	1	3	3	EVM Process Discussion
13	1.1.2.1/1.1.2.2	Denver, CO	1	3	3	Additional LM data dive
14	1.1.2.1/1.1.2.2	Denver, CO	1	4	1	SM PMR – quarterly
15	1.1.2.1/1.1.2.2	Boston, MA	1	4	1	Textron PMR – quarterly
16	1.1.2.1/1.1.2.2	Boston, MA	1	4	1	Textron PMR – quarterly
17	1.1.2.1/1.1.2.2	Winsor Locks	1	4	1	UTAS PMR - quarterly
18	1.1.2.1/1.1.2.2	Winsor Locks	1	4	1	UTAS PMR - quarterly
19	1.1.2.1/1.1.2.2	Seattle	1	4	1	Aerojet PMR - quarterly
20	1.1.2.1/1.1.2.2	Seattle	1	4	1	Aerojet PMR - quarterly
21	1.1.2.1/1.1.2.2	Clearwater, FL	1	4	1	Honeywell PMR –quarter
22	1.1.2.1/1.1.2.2	Clearwater, FL	1	4	1	Honeywell PMR –quarter
23	1.1.2.1/1.1.2.2	KSC	1	3	2	ATLO Check-In – HW at the Cape includes CM / SM / APW HW
24	1.1.2.1/1.1.2.2	KSC	1	3	2	ATLO Check-In – HW at the Cape includes CM / SM / APW HW
25	1.1.2.3	Denver	1	4	1	Security Audit
26	1.1.2.3	KSC	1	3	1	Export Control support trips
27	1.1.2.3	KSC	1	3	1	Export Control support trips
28	1.1.2.3	KSC	1	3	1	Export Control support trips
29	1.1.2.3	San Francisco	1	5	2	Atlassian Summit (Nov.) (Airfare FY15)
30	1.1.2.3	MSFC	1	5	1	ICMWG F2F (Oct) (Airfare FY15)
31	1.1.2.3	KSC	1	5	1	ICMWG F2F (Feb)
32	1.1.2.3	KSC	1	5	1	ICMWG F2F (Apr)
33	1.1.2.3	KSC	1	5	1	ICMWG F2F (Jun)
34	1.1.2.3	KSC	1	5	1	ICMWG F2F (Aug)
35	1.1.2.3	KSC	1	5	2	PCA / FCA support
36	1.1.2.3	KSC	1	5	2	PCA / FCA support
37	1.1.2.3	KSC	1	5	2	PCA / FCA support
38	1.1.2.3	Glenn	1	3	2	CM F2F
		Boston				PTC Conference (Windchill, CAD
39	1.1.2.3		1	6	2	tool)
40	1.11	Cleveland, OH	1	3	2	Com Team F2F (Plum Brook) (Oct)
41	1.11	Cincinnati, OH	1	2	1	Supplier Visit - Metalex (Oct)
40	4 44	San Francisco,	1	11	2	One NASA - Bay Area Science Fest
42	1.11	CA	1	11	2	(Oct 23-Nov.1) Texas Astronomical Society of
43	1.11	Dallas, TX	1	3	1	Dallas presentation, b-roll shoot at Lockheed (Oct)
		Los Angeles,				One NASA - Calif. Science Ctr,
44	1.11	CA	1	7	2	possible supplier visits
45	1.11	Yuma, AZ	1	3	1	PTV-10 drop test (Nov)
		New Orleans,				EM-1 closeout weld shoot at MAF
46	1.11	LA	1	3	2	(Nov)
47	1.11	Sandusky, OH	1	3	1	SA Cone installed at Plum Brook (Dec)

		New Orleans,				
48	1.11	LA	1	3	2	EM-1 CM completed at MAF (Jan)
49	1.11	KSC, FL	1	3	2	EM-1 CM on-dock at KSC (Jan)
50	1.11	Austin, TX	1	7	2	SXSW (Mar)
						One NASA - 100th Running of Indy
51	1.11	Indianapolis, IN	1	3	2	500, supplier visits TBD (May)
52	1.11	Layton, UT	1	3	1	Supplier Visit - Janicki
		Los Angeles,				
53	1.11	CA	1	3	2	Supplier Visit - Votaw/AMRO
						Supplier Visit - Aero Pacific /
54	1.11	San Diego, CA	1	3	2	Rayotek
55	1.11	Cleveland, OH	1	3	2	Supplier Visit - Plum Brook
56	1.11	Denver, CO	1	3	2	Supplier Visit - Lockheed
		Buffalo, New				
57	1.11	York	1	3	1	Supplier Visit - Moog (with SLS)
						Supplier Visit - Parker Hannifin /
58	1.11	Louisville, KY	1	3	1	American Synthetic (with SLS)
59	1.11	Boise, ID	1	2	1	TBD/Geyer school
60	1.11	New Orleans	1	3	2	Com Team F2F - MAF
61	1.11	Cleveland, OH	1	3	2	Com Team F2F - Plum Brook
		Cape				
62	1.11	Canaveral, FL	1	3	2	Com Team F2F - KSC
63	1.11	Huntsville, AL	1	3	2	Com Team F2F - MSFC

Note 1: Identification and documentation of interdependencies shall include the work product, annual updates on or before end of the Government fiscal year. Monthly Process Improvement and Affordability Panel (PIAP) sessions incur no cost to the Government.

Note 2: Program Integration Team Charter shall be updated within 30 of task order start with annual updates on or before the end of the Government fiscal year. The Program Integration Team also serves as the single point of contact for authoritative data and information about the vehicle and program for use in external communications (SOW 1.11), internal planning and analysis, including facilitation of data mining (SOW 1.1.2.2.C).

Note 3: The contractor shall use the existing Planning Data Set and provide updates of existing data products and new data products as per DRD MPIC-PC-01 specifications

Note 4: Document Review, Internal Audit, and Management Review completed by September 30, 2015. The Government will take corrective action for audit findings. Quality Management System (QMS) Management Review will be conducted as an agenda item on a regularly scheduled PP&C management forum, such as the Monthly Orion Program Performance Review (MOPPR). The contractor will provide training to required MPCV personnel in preparation for JSC QMS audits, as applicable. The contractor will control records (SOW 1.1.2.1.E.4). Records inventory is updated approximately three (3) times per year. The center records audit occurs once every 2 years, last one completed in 2012.

Note 5: The contractor shall report findings and recommendations for process improvement and certification per DRD MPIC-PC-01, and DRD MPIC-PC-02, and DRD MPIC-PC-05 specifications.

Note 6: The contractor shall use the existing Performance Data Set and provide updates of existing data products

and new data products as per DRD MPIC-PC-02, DRD MPIC-PC-03, and DRD MPIC-PC-04 specifications

Note 7: Configuration Management Services processes approximately fifteen (15) Change Requests (CRs) per month and two (2) Management Directives per year.

Note 8: Minutes are assigned actions, decisions made, directions provided by chair or lead, and bullets of discussions. Minutes are not required to be verbatim wording and are only required at MPCV Program Level Boards or major reviews (e.g. MPCV Control Board (MPCB), Vehicle Integration Control Board (VICB), Joint Integration Control Board (JICB), Joint Program Control Board (JPCB), Government Equipment and Materials Control Panel (GEMCP), Quarterly Program Performance Review (QPPR), Service Module Control Board (SMCB)). No recording of meetings is required. Approximately eight (8) meetings/per work day, five (5) of which are set up and hand off to technical point of contact, three (3) requiring set up and meeting support.

Note 9: Data integration and management (DM) requests are data integrations, structure, relationships, and reporting. Approximately seven (7) requests per year which require Information Technology (IT) and DM to analyze the problem, work with civil service technical representative on solutions, and implement approved solutions to automate Program Planning and Control (PP&C) processes. One example is the Change Request (CR) Look Ahead report.

Note 10: Approximately ten (10) System Requests (SRs) submitted into the Enterprise Service Desk (ESD) system per week.

Note 11: Approximately fifteen (15) updates per week on MPCV websites.

Note 12: Approximately ten (10) walk ups per week.

Note 13: Manage twenty four (24) specific Orion software licenses with three hundred (300) licenses. Approximately one (1) request per month.

Note 14: One hundred and fourteen (114) NASA tagged inventory items requiring a yearly audit with approximately ten (10) requests per year.

Note 15: The contractor shall perform the services as per the Statement of Work (SOW) and report user metrics as per DRD MPIC-PC-05 specifications and assume that one (1) additional security report will be required during the task order period. Assume approximately three (3) security incidents per month which require resolution.

Note 16: Examples of products could include: Fact sheets, Orion Book, Traveling Exhibit Panels, Space Center Houston Exhibits, Patches/Logo designs, Interactive Content, Award Certificates, PowerPoint templates, internal motivational wall displays, Space Flight Awareness (SFA) support and coordination.

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Exploration Systems Engineering and Integration (SE&I) TASK ORDER NNJ16TA02T

sow	Title: Program Integration (Vehicle Integration	sow	Projected	DRD
	Office)	Paragraphs	Quantity	
1.2.3	Perform integration of Verification Analysis Cycle	A.1, A.3,	2 analysis	
	(VAC) work, schedules, and products. Support	A.4, A.5	cycles per	
	planning for and execution of (as applicable) major		year, 1	
	milestone reviews for MPCV, ESA, SLS, GSDO, and		MPCV and	
	ESD. Support development of the CoFR process.		3 Cross-	
	Support the Cross-Program data interdependency		Program	
	and Bilateral Exchange Agreement process. Provide		design	
	MPCV representation to the Data Integration ITT.		reviews	
	Maintain the MPCV VIO schedule. Develop and		per year, 1	
	maintain the MPCV Systems Engineering Plan		SEMP	
	(SEMP). Support development and review of MPCV		update	
	Prime Contract changes associated with -Analysis		103	
	Cycle content, milestone planning, schedule			
	changes, and deliverable products. Provide SE&I			
	support to the definition of interface requirements			
	and implementation of these requirements into			
	ICDs.			

sow	Title: Systems and Integrated Analysis (Vehicle Integration Office)	SOW Paragraphs	Projected Quantity	DRD
1.2.4	Lead integrated vehicle systems performance trade studies involving Guidance, Navigation, and Control (GN&C), mission analysis, aerosciences, and other integrated vehicle disciplines. Support requirements and design development of the ESA SM and integration with the Orion spacecraft. Track analysis, trade studies, and test and verification plans of major mission separation events. Track technical risks and top issues in support of the vehicle systems performance & analysis team.	A.1	1 document update / trade study per month	

sow	Title: CSM Crew Cabin and Cockpit Layout Design Requirements (Vehicle Integration Office)	SOW Paragraphs	Projected Quantity	DRD
1.2.5	Development, prototype, simulation, and evaluation of crew displays and display concepts • Create renderings of operational interactive cockpit displays in GL Studio® and IDATA® formats using concepts provided by NASA in Powerpoint, PDF, or other graphical formats. • Develop functional models of display renderings in C++, MATLAB®, Microsoft Visual Studio, or Practical Extraction and Reporting Language	A.1-A.5		

	 (PERL) formats. Provide integration of Linux and Trick based simulation models provided by external sources with internally developed software models. Prepare software scripts for Orion cockpit display format crew evaluations Provide real-time support for Orion cockpit display format crew evaluations Develop and support evaluations of displays for hand held iOSor Windows Tablet devices such as iPhones, iPads and Windows Surface Pro. Coordinate with users and Orion Prime Contractor (and subs) to determine display capabilities within and outside of scope, identify spacecraft software and hardware interfaces and dependencies for each prototype display, and document prototype display capabilities and inputs/outputs in display format dictionaries Specific Deliverables: Develop new Orion display formats required for the EM2 		11	
	Design Reference Mission (DRM), including any changes			
	resulting from configuration differences between the Service Module provided by the Prime contractor and the			
	new ESA Service module.	80		
	Prepare software scripts and provide support for Orion		8	
4.2.5	displayformat Crew Evaluations.			
1.2.5	 Development support of the Cockpit Rapid Prototype Lab Manage procurement of government supplied materials, supplies, equipment, and software needed to perform this activity using NASA purchasing and property management processes Provide Information technology (IT) support for any non-ACES crew and cockpit display computer software and hardware integration required by this activity Provide integration support for incorporating the externally provided Socrates Windows emulator into simulation systems Provide software distribution media for software products produced by this activity. Ensure products are labeled in compliance with export control and other applicable regulations Provide local or phone support to end users for software installation issues involving distributed products Assist in testing an Orion Cursor Control Device. 	A.1-A.5		

sow	Title: Flight and Ground Operations Integration (Vehicle Integration Office)	SOW Paragraphs	Projected Quantity	DRD
1.2.7	Lead development and implementation of an integrated operational concept for landing and recovery for EFT-1, EM-1, AA-2, and EM-2. This includes: • Integration and development of technical agreements with GSDO, Department of Defense	A.3, A.4	~2/year	

	 (DoD), and other internal and external partners involved in the development and implementation Assessment of trades and designs in systems across the MPCV and GSDO programs that support the implementation of the landing and recovery con ops Development and maintenance of schedules for this work. 		1 trade study / month Monthly	
1.2.7	Coordinate and track master measurement list development, allocations and changes for developmental flight instrumentation (DFI) for EFT-1, EM-1 and AA-2. Evaluate sensor priority changes for technical impact to flight test objective owners. Support mapping of all DFI sensors to higher level module development in support of DFI hardware development for testing and flights. • Develop schedules for this work.	A.4	1 formal release/6 months for each mission	
1.2.7	Provide Computer Aided Drawing (CAD) integration support. This includes: • Transferring CAD models back and forth between the MPCV prime contractor, the MPCV nonprime team, and the GSDO, and SLS programs • Transferring CAD models between NASA and the ESA design teams Translating CAD models between Pro/Engineer and CATIA formats. Develop schedules for this work.	A.4	2 releases/ Design Analysis Cycle (DAC)	

sow	Title: Crew and Service Module (CSM)	SOW Paragraphs	Projected Quantity	DRD
1.6.1.1 A	CSM Office Management and Administration	1, 5, 6, 7, 8	Notes 1, 2, 3, 3b	N/A
1.6.1.4.A	Government Furnished Equipment (GFE) Product Development and Integration	1, 2	Notes 1, 2, 3	N/A

sow	Title: Integrated Spacecraft Testing and Verification	sow	Projected	DRD
	Management	Paragraphs	Quantity	
1.10.2 A	Support the development of the Master Verification	Α	1 MVP	N/A
	Plan (MVP).		baseline	
	Support the development of MVP Volume #2 post		doc	
	EFT-1 (i.e, EM-1+) Environmental Test Tolerances and		review/	
	Margins related to environmental qualification and		developm	
	acceptance test requirements for the MPCV		ent	
	Program.			
	Support Vehicle Engineering Working Group (VEWG)			
	and other Program working groups, panels, and			
	boards as required in implementation of Verification			
	requirements and assessments of risks related to			
	deviations from verification requirements. Expertise			
	in areas such as vibration, shock, thermal, climatic,			
	and leak testing required.			
	Provide coordination and data management for the			

Windchill and Wiki tools within the ICE	
environment.	
Review cross program T&V documents in support of major milestone reviews.	

sow	Title: Test & Verification (T&V) (Avionics Power &	sow	Projected	DRD
	Software)	Paragraphs	Quantity	
1.10.4 A	Facilities	1, 2, 3, 4	Note 4	N/A

sow	Title: Flight Test (Flight Test Management Office)	SOW Paragraphs	Projected Quantity	DRD
1.10.6 A	Flight Test Development, Integration, and Management			N/A
1.10.6 A	Program , Planning, Budget and Execution Management	1	Annually Note 5	N/A
1.10.6 A	Office Schedule and Risk Management	1	Monthly Note 6	N/A
1.10.6 A	Program National Environmental Protection Act Assistant	2	Note 7	N/A
1.10.6 A	Program Service and Support Requirements Management	4	Weekly Note 8	N/A
1.10.6 A	Office Data Management	5	Note 9	N/A

Note 1: The contractor shall prepare Crew and Service Module (CSM) risk charts and presentation material in support of CSM and Orion risk boards and management meetings (monthly). The contractor shall participate in the Orion Project Office Risk Management Working Group (monthly). The contractor shall coordinate the reporting and tracking of Prime Top Program and System risks with the MPCV Prime Contractor.

Note 2: The contractor shall support the development and maintenance of the Government Furnished Equipment (GFE) and In-line hardware and task database required for tracking and reporting (monthly).

Note 3: The contractor shall maintain the CSM Wiki and associated Wiki and Windchill folders (approximately 8 Wiki pages and dozens of Windchill folders). This includes performing regular updates, and managing team access and Prime Contractor access. In addition, this includes data migration back and forth from the Prime Contractor's internal Windchill to the NASA Windchill /Wiki. Prime data includes engineering drawings, Qnotes/Praca data, and meeting/technical presentations. The contractor shall also facilitate CSM Non-Prime access/accounts to the Lockheed CSAR/Windchill system.

Note 3b: The contractor shall maintain the CSM Non-Prime In-line Task Database. This includes monthly coordination with the CSM System Managers for updates. It also includes creating monthly summary reports for the CSM iTCSR and Orion Quarterly reviews.

Note 4: The contractor shall provide support during the period of performance on development, integration, and testing of NASA avionics and software Integration and Testing (I&T) labs by providing technical expertise for hardware and software integration with focus on planning, developing, and executing test rig configurations that support I&T activities. The contractor shall provide particular focus on Communications and Tracking (C&T) functionality, including C&T system emulation and interface with applicable hardware assets using established protocols.

Note 5: The contractor shall use the previous year's Program Planning Budget Execution (PPBE) database and update the plan based on the Program PPBE guidance, develop guidance for the office based on changes in the

plan, issue office guidance to all the Centers and Programs that provide services to the office, collect and manage submits from the providers, briefs management on the revised PPBE plan, and documents the approved plan.

Note 6: The contractor shall update and maintain the office top-level schedule and cost, schedule, and technical risk database. In addition, the contractor shall coordinate, collect inputs, and present to office management a Technical, Cost, and Schedule Review on a monthly basis.

Note 7: The contractor shall have knowledge in the area of environmental management and will assist the office/program National Environmental Policy Act (NEPA) Manager to ensure NEPA compliance as required to successful execute the program plan.

Note 8: The contractor shall have a working knowledge of the Universal Documentations System and how it is managed in the Automated Support Requirements System (ASRS) in order to assist the office Operations Manager in tracking the mission support requirements needed to successfully execute all operational phases of the mission. The contractor shall support the weekly Mission Support Working Group meetings.

Note 9: The contractor shall administer the office team data management process to include tracking configuration changes and loan requests, scheduling the configuration management team meetings, recording minutes and actions, and ensure all change requests are closed out.

Es	Estimated Travel Requirements: All travel from Houston, TX									
	sow	Destination	# Trips	# Days	# People	Reason				
1	1.2.3	Denver	1	4	1	Review Planning				
2	1.2.3	Denver	1	4	1	Review Planning				
3	1.2.3	KSC	1	5	1	DT ITT Face to Face				
4	1.2.3	KSC	1	5	1	Agreements Face to Face				
5	1.2.3	MSFC	1	5	1	SLS Interface Working Group				
6	1.2.4	Denver	1	4	1	Sep Analysis Tim (Nov. 2015)				
7	1.2.4	KSC	1	4	1	Cross Program TIM on Integrated separations				
8	1.2.4	Denver	1	4	1	Mass Checkpoint				
9	1.2.5	Owego, NY	1	4	1	Crew Display Coordination Mtg				
10	1.2.7	San, Diego	1	5	1	EM Recovery Plan With Navy (Oct)				
11	1.2.7	KSC	1	5	1	GSDO CDR Support (Nov)				
12	1.2.7	KSC	1	5	1	Recovery & Rescue WG (Feb)				
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13	1.2.7	KSC	1	5	1	(Apr)				
14	1.2.7	Galveston	1	5	1	At Sea Egress Test (May)				
15	1.2.7	San, Diego	1	5	1	Underway Recovery Planning Meeting (Jun)				
16	1.2.7	Galveston	1	10	1	CMUS At Sea Uprighting Test (Aug)				
17	1.2.7	San, Diego	1	5	1	Underway Recovery Planning Meeting (Sep)				
18	1.2.7	KSC	1	4	1	GSDO Interface Working Group				
19	1.2.7	MSFC	1	4	1	DFI ITT Mtg				
20	1.2.7	Denver	1	4	1	DFI Coordination				
21	1.2.7	KSC	1	5	1	GSDO CDR K/O				
22	1.2.7	KSC	1	4	1	GSDO ITT WE				
23	1.10.2.A	MSFC	1	3	2	EV&V Mtg				
24	1.10.6	Denver	1	4	1	FTMO QPPR				

25	1.10.6	Langley	1	4	1	FTMO Mtg
26	1.10.6	KSC	1	4	1	FTMO Mtg
27	1.10.6	Denver	1	4	1	AA-2 QPPR
28	1.10.6	Chandler, AZ	1	4	1	AA-2 QPPR

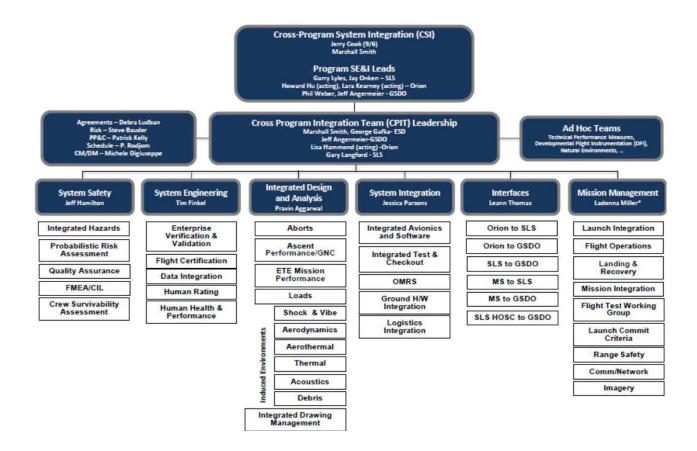
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Exploration System Integration (ESI) Support TASK ORDER NNJ16TA03T

Statement of Work	SOW Paragraphs	Title: Cross-Program System Integration	Projected Quantity	DRD
1.1.2.1	C	Support the development and maintenance of the Mission Management (MM) "White Box" schedules and "Blue Box" Summary Schedule to include key milestones, milestone phasing and significant program-to-program integration activities and key interdependencies.	5/week See Note 1	N/A
	С	Support development and production of recurring schedule status, analyses, and assessments, to include schedule estimates, risk assessments, and critical path identification.		N/A
	С	Support development and recurring submittals of MM Integrated Test Team (ITT) Summary Schedules for Cross-Program System Integration (CSI) Systems Engineering and Integration (SE&I) schedule integration.		N/A

Est	Estimated Travel Requirements: All Travel from Houston, TX										
	sow	Location	# of Trips	# of Days	# of People	Reason					
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Note 1: See "Blue Box" and "White Box" content below.



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Exploration Development Integration (EDI) Support TASK ORDER NNJ16TA04T

sow	Title: Information Technology (IT) Management	sow	Projected	DRD
	(Exploration Development Integration and	Paragraphs	Quantity	
	Exploration Mission Planning Office)			
1.1.2.3.5	Provide support to EDI and EMPO in the following	A - H	3 weekly	
	areas:		IT mtgs.	
	 Development, management and 			
	maintenance of EDI and EMPO website(s)		Bi-	
	 Provide IT assistance to assess end user 		monthly	
	issue and determine appropriate		ICE mtg.	
	resolutions, such as reporting issues to the			
	NASA IT contractor, and replacing or			
	repairing user-maintained items			
	 Manage and administer the NASA provided 			
	software available for employees use at			
	home under NASA licensing agreements			
	 Maintain EDI and EMPO organization's 			
	unique software			
	 Serve as EDI and EMPO representative to 			
	the NASA Integrated Collaborative			
	Environment (ICE) forum			
	 Serve as the IT property custodian, 			
	maintaining the EDI and EMPO IT			
	inventory, the shared equipment pool, and			
	tracking the shared hardware and software			
	equipment pool			
	 Provide IT support for any ESD level reviews 			
	(Design-To, Build-To Sync's)			

sow	Title: Information Technology (IT) Management Exploration Development Integration Office	SOW Paragraphs	Projected Quantity	DRD
1.1.2.3.5	Provide execution/data competency by facilitating management and integration of data by utilizing the CRADLE Tool Set: • Validation of data mapping for data exchange between CRADLE and other tools and assist in discerning Mandatory Authoritative Data Objects required for Program Level Integration • Provide Program Level Integration Schema definition, associated processes/procedures, and Wiki development/maintenance of	C, E, G	Major Tool Update: 1 per year Minor Tool update: 2 per year	

same	CRADLE
Provide Program Level Integration database	CoP mtg
administration of the CRADLE Tool Set:	
Help Desk and support	
 Scripting necessary to support auditing (engineering and administrative data) via CRADLE Data Cache 	
CRADLE Web User Interface development/maintenance	
Data-centric generic Report generation (documentation template maintenance as necessary)	
Project Administer Training and Support	
ICE/CRADLE Procedure Training and Support	

sow	Title: VI Management and Integration (Exploration	sow	Projected	DRD
	Development Integration office)	Paragraphs	Quantity	
1.2.1	Provide technical and systems engineering expert to: • Develop documentation, review documentation, provide technical assessments, identify technical issues with the government, and complete any action items assigned by the government to resolve those issues associated with technical reviews, meetings and technical assessments and integration in support of ESD Division for combined MPCV, Space Launch System and Ground Systems Development and Operations Program-to-Program work • Participate as an integrator on various Integrated Technical Teams (ITTs). Participation will facilitate data integration	Paragraphs 1.2	Quantity 2 ITT mtgs per week ~2 doc reviews per month	
	Participation will facilitate data integration to support the Exploration Mission Assessment (EMA).			

Es	Estimated Travel Requirements: All travel from Houston, TX									
	sow	Destination	# Trips	# Days	# People	Reason				
1	1.2.1	KSC	1	5	1	ICAN Face to Face to Face (SLS downlinked video, NEN/KSC/GSDO interfaces) 1st Quarter				
2	1.2.1	KSC	1	5	1	JETI Face to Face, 4 nights (KSC Camera and Video interfaces) 2nd Quarter				
3	1.2.1	White Sands	1	5	1	ICAN Face to Face, 4 nights (Network updates) 3rd Quarter				
4	1.2.1	MSFC	1	5	1	(SESC and NASA Integrated Imagery Database interfaces) 4th Quarter				