ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 9

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: March 26, 2013
2. CONTRACT NO. (If any): NNJ13TA03B
3. ORDER NO.: NNJ13TA10T/Basic
4. REQUISITION/REFERENCE NO.: N/A
5. ISSUING OFFICE (Address correspondence to):
NASA Johnson Space Center
Attn: Anna Carter/BT
2101 NASA Pkwy
Houston, TX 77058-3696

6. SHIP TO:
a. NAME OF CONSIGNEE: Transportation Officer, Building 421
b. STREET ADDRESS: 2101 NASA Parkway
c. CITY: Houston
d. STATE: TX
e. ZIP CODE: 77058-3696
f. SHIP VIA:

7. TO:
a. NAME OF CONTRACTOR: ARES Technical Services Corporation
b. COMPANY NAME: Attn: Melba York, MPIC Program Manager
c. STREET ADDRESS: 1331 Gemini Street, Suite 120
d. CITY: Houston
e. STATE: TX
f. ZIP CODE: 77058-2729

8. TYPE OF ORDER
[ ] a. PURCHASE
REF YOUR: _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

[X] b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA:

10. REQUISITIONING OFFICE: NASA Johnson Space Center

11. BUSINESS CLASSIFICATION (Check appropriate box(es))
[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALL BUSINESS

12. F.O.B. POINT:

13. PLACE OF: a. INSPECTION: ; b. ACCEPTANCE:

14. GOVERNMENT B/L NO.:

15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date): September 30, 2013

16. DISCOUNT TERMS: NT30

17. SCHEDULE (See Page 2 for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The purpose of this task order is to authorize the contractor to perform the requirements described in the attached Program Management/Program Planning and Control (PP&C) Statement of Work (SOW). Estimated Cost: (b) (4) [redacted] Fixed Fee: $2,435,881.00 See page 2	1		$2,435,881	$2,435,881	

18. SHIPPING POINT:
19. GROSS SHIPPING WEIGHT:
20. INVOICE NO.:

SEE BILLING INSTRUCTIONS ON PAGE 2

21. MAIL INVOICE TO:
a. NAME: NASA Shared Services Center (NSSC), Financial Management Division (FMC) – Accounts Payable
b. STREET ADDRESS (or P.O. Box): Building 1111, C. Road
c. CITY: Stennis Space Center
d. STATE: MS
e. ZIP CODE: 39529

17(h) (Cont. pages):
$2,435,881
17(i) GRAND TOTAL

22. UNITED STATES OF AMERICA BY (Signature): Geraldine B. Mason

23. NAME OF CONTRACTING/ORDERING OFFICER: Geraldine B. Mason

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Previous edition not usable

OPTIONAL FORM 347 (REV. 4/2006)
Prescribed by GSA/FAR 48 CFR 53.213(e)

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	A	Identification, documentation, and update of interdependencies	Note 1	N/A
	A	Program Integration Team Charter with integration tasks	Note 2	N/A
	A	Centralized data source to be developed under SOW 1.1.2.3.5	1	N/A
	A	Coordination Meetings	Weekly	N/A
	A	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	A	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	B	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	C	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	E	JSC Quality Management System	Note 4	N/A
	E	MPCV Document Review	1	
	E	MPCV Internal Audit	1	
	E	MPCV Management Review	2	
	E	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 Integrated Baseline Review participation	Per DRD Annual	PC-01 N/A
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	A	Performance Data Set	Note 6	PC-02
1.1.2.2	B, B.1	Supplier Data	Per DRD	PC-02
1.1.2.2	C	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	E	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	H	Program Manager Feedback	Monthly	PC-04
1.1.2.2	I	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	A B	Configuration Management Services Administrative Services	Note 7 Note 8	PC-05 N/A
1.1.2.3.3	A, B	Data Management	Note 9	PC-05
1.1.2.3.4	A	Risk Management	N/A	N/A
1.1.2.3.5	A B C D, E, H	Coordinate and process Service Requests MPCV Program Office website(s) development, maintenance, and updates End user IT service support Serve as IT Property Custodian and	Note 10 Note 11 Note 12 Note 13	PC-05 PC-05 PC-05 PC-05 PC-05

	F	manage NASA provided software to coordinate repair and maintain organization's unique software 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	B	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 HQ	Monthly	
		Create a graphic program status newsletter	Monthly	
		Coordinate, integrate, and update Program presentations such as:	2/year	
		- All Hands Presentations	As requested	
		- Legislative Executive Briefing presentations	Monthly	
		- PM Briefings to JSC Center Director	Bimonthly	
		- MPCV Overview used by public speakers	Quarterly Monthly	
		- ESD Program Status Presentation	2/year	
		- Tile Progress Chart (data supplied by MPCV Prime Contractor)	Quarterly As requested	
		- AIAA Presentations for Orion VIP		
		- Award Presentations	As requested	
		- Update, maintain, and distribute Orion graphics / PowerPoint templates / Illustrations	Weekly	
		▪ Manage the dry run activities and provide AV support for executive and		

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

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

Estimated Travel Requirements: All Travel from Houston, TX								
	SOW	Location	# of Trips	# of Days	# of People	FY 13	FY 14	Reason
1	1.1.2	Denver, CO	2	3	2	X		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	X		Subcontractor PMR
4	1.1.2	Clearwater, FL	2	3	1		X	Subcontractor PMR
5	1.1.2	Windsor Locks, CT	1	3	1	X		Subcontractor PMR
6	1.1.2	Windsor Locks, CT	2	3	1		X	Subcontractor PMR
7	1.1.2	Glendale, AZ	1	3	1	X		Subcontractor PMR
8	1.1.2	Glendale, AZ	2	3	1		X	Subcontractor PMR
9	1.1.2	Italy	1	5	1		X	ESA Review
10	1.1.2.3	Denver, CO	1	5	1		X	Security Audit
11	1.11	NASA Centers	3	3	2	X		Outreach events
12	1.11	KSC	6	3	2		X	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		X	ESD reviews
15	1.11	Washington, DC	2	4	2		X	Outreach events
16	1.11	Las Vegas, NV	1	3	1		X	Outreach events
17	1.1.2.3	Reno, NV	1	3	2		X	CM/DM Tech Training
18	1.1.2.3	NASA Centers	4	3	1		X	IT Security
19	1.1.2	NASA Centers	1	3	1	X		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.

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 9

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: March 27, 2013	2. CONTRACT NO. (If any): NNJ13TA03B
3. ORDER NO.: NNJ13TA11T/Basic	4. REQUISITION/REFERENCE NO.: N/A

5. ISSUING OFFICE (Address correspondence to):
NASA Johnson Space Center
Attn: Anna Carter/BT
2101 NASA Pkwy
Houston, TX 77058-3696

6. SHIP TO:
a. NAME OF CONSIGNEE: Transportation Officer, Building 421
b. STREET ADDRESS: 2101 NASA Parkway
c. CITY: Houston | d. STATE: TX | e. ZIP CODE: 77058-3696
f. SHIP VIA:

7. TO:
a. NAME OF CONTRACTOR: ARES Technical Services Corporation
b. COMPANY NAME: Attn: Melba York, MPIC Program Manager
c. STREET ADDRESS: 1331 Gemini Street, Suite 120
d. CITY: Houston | e. STATE: TX | f. ZIP CODE: 77058-2729

8. TYPE OF ORDER
[ ] a. PURCHASE
REF YOUR: _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

[X] b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA

10. REQUISITIONING OFFICE: NASA Johnson Space Center

11. BUSINESS CLASSIFICATION (Check appropriate box(es))
[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALL BUSINESS

12. F.O.B. POINT

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
a. INSPECTION	b. ACCEPTANCE		September 30, 2013	NT30

17. SCHEDULE (See Page 2 for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The purpose of this task order is to authorize the contractor to perform the requirements described in the attached MPCV Systems Engineering and Integration (SE&I) Statement of Work (SOW). Estimated Cost: (b) (4) [redacted] Fixed Fee: $783,628.00 See page 2	1		$783,628	$783,628	

SEE BILLING INSTRUCTIONS ON PAGE 2	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.	17(h) (Cont. pages)
	21. MAIL INVOICE TO: a. NAME: NASA Shared Services Center (NSSC), Financial Management Division (FMC) – Accounts Payable b. STREET ADDRESS (or P.O. Box): Building 1111, C. Road c. CITY: Stennis Space Center | d. STATE: MS | e. ZIP CODE: 39529		$783,628	17(i) GRAND TOTAL

22. UNITED STATES OF AMERICA BY (Signature): Geraldine B. Mason

23. NAME OF CONTRACTING/ORDERING OFFICER
Geraldine B. Mason

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OPTIONAL FORM 347 (REV. 4/2006)
Prescribed by GSA/FAR 48 CFR 53.213(e)

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 Paragraphs	Projected Quantity	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 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 (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	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 support for Orion display format Crew Evaluations.		7	
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 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 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	A.1-A.5		

	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 Paragraphs	Projected Quantity	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 schedules 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 Monthly	
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 Paragraphs	Projected Quantity	DRD
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/ development	N/A

SOW	Title: Test & Verification (T&V) (Avionics Power & Software)	SOW Paragraphs	Projected Quantity	DRD
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	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.

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

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 3

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: July 18, 2013	2. CONTRACT NO. (If any): NNJ13TA03B
3. ORDER NO.: NNJ13TA18T/Basic	4. REQUISITION/REFERENCE NO.: N/A

5. ISSUING OFFICE (Address correspondence to):
NASA Johnson Space Center
Attn: Jennifer Ariens/BT
2101 NASA Pkwy
Houston, TX 77058-3696

6. SHIP TO:
a. NAME OF CONSIGNEE: Transportation Officer, Building 421
b. STREET ADDRESS: 2101 NASA Parkway
c. CITY: Houston | d. STATE: TX | e. ZIP CODE: 77058-3696

7. TO:
a. NAME OF CONTRACTOR: ARES Technical Services Corporation
b. COMPANY NAME: Attn: Melba York, MPIC Program Manager
c. STREET ADDRESS: 1331 Gemini Street, Suite 120
d. CITY: Houston | e. STATE: TX | f. ZIP CODE: 77058-2729

f. SHIP VIA:

8. TYPE OF ORDER
[ ] a. PURCHASE
REF YOUR: _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

[X] b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA:

10. REQUISITIONING OFFICE: NASA Johnson Space Center

11. BUSINESS CLASSIFICATION (Check appropriate box(es))
[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALL BUSINESS

12. F.O.B. POINT:

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
a. INSPECTION	b. ACCEPTANCE		September 30, 2013	NT30

17. SCHEDULE (See Page 2 for Rejections)

ITEM NO (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The purpose of this task order is to authorize the contractor to perform the requirements described in the attached Program Management/Program Planning and Control (PP&C) Statement of Work (SOW). Estimated Cost: $ (b) (4) [redacted] Fixed Fee: $12,047 See page 2	1		$12,047	$12,047	

SEE BILLING INSTRUCTIONS ON PAGE 2	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.	17(h) (Cont. pages)
	21. MAIL INVOICE TO: a. NAME: NASA Shared Services Center (NSSC), Financial Management Division (FMC) – Accounts Payable b. STREET ADDRESS (or P.O. Box): Building 1111, C. Road c. CITY: Stennis Space Center | d. STATE: MS | e. ZIP CODE: 39529		$12,047	17(i) GRAND TOTAL

22. UNITED STATES OF AMERICA BY (Signature): Geraldine B. Mason

23. NAME OF CONTRACTING/ORDERING OFFICER: Geraldine B. Mason

AUTHORIZED FOR LOCAL REPRODUCTION

OPTIONAL FORM 347 (REV. 4/2006)

Task Order Statement of Work (SOW)
Contract Number: NNJ13TA03B
Order Number: NNJ13TA18T
Exploration Systems Integration (ESI)

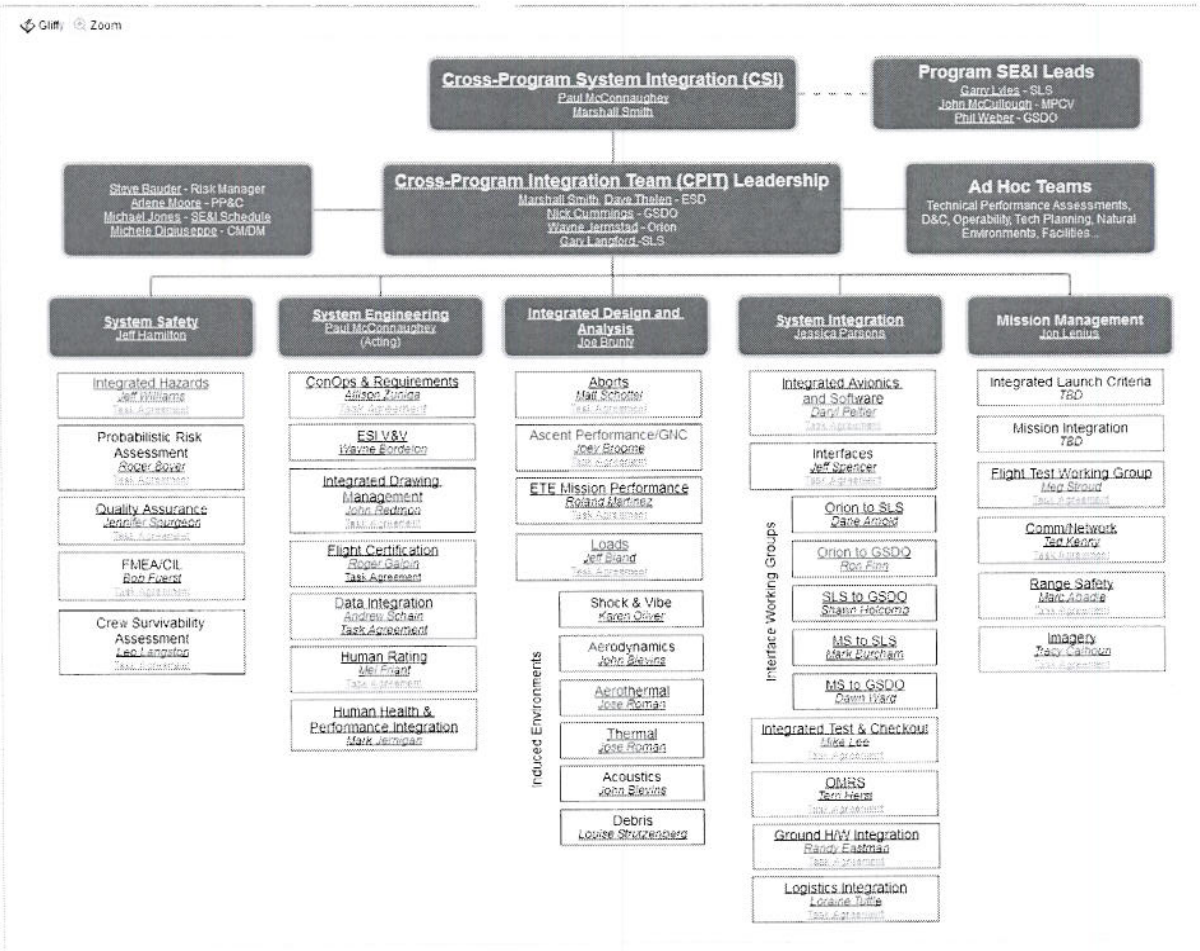
Contracting Officer Representative: Rodney Young

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	C	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
	C	Support development and production of recurring schedule status, analyses, and assessments, to include schedule estimates, risk assessments, and critical path identification.		N/A
	C	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.



ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 3

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: August 22, 2013	2. CONTRACT NO. (If any): NNJ13TA03B
3. ORDER NO.: NNJ13TA19T/Basic	4. REQUISITION/REFERENCE NO.: N/A

5. ISSUING OFFICE (Address correspondence to):
NASA Johnson Space Center
Attn: Jennifer Ariens/BT
2101 NASA Pkwy
Houston, TX 77058-3696

6. SHIP TO:
a. NAME OF CONSIGNEE: Transportation Officer, Building 421
b. STREET ADDRESS: 2101 NASA Parkway
c. CITY: Houston | d. STATE: TX | e. ZIP CODE: 77058-3696
f. SHIP VIA:

7. TO:
a. NAME OF CONTRACTOR: ARES Technical Services Corporation
b. COMPANY NAME: Attn: Melba York, MPIC Program Manager
c. STREET ADDRESS: 1331 Gemini Street, Suite 120
d. CITY: Houston | e. STATE: TX | f. ZIP CODE: 77058-2729

8. TYPE OF ORDER
[ ] a. PURCHASE REF YOUR: _____ Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.
[X] b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA:

10. REQUISITIONING OFFICE: NASA Johnson Space Center

11. BUSINESS CLASSIFICATION (Check appropriate box(es))
[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALL BUSINESS

12. F.O.B. POINT:

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
a. INSPECTION	b. ACCEPTANCE		September 30, 2014	NT30

17. SCHEDULE (See Page 2 for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The purpose of this task order is to authorize the contractor to perform the requirements described in the attached MPCV Exploration Development Integration (EDI) Support Statement of Work (SOW). Estimated Cost: (b) (4) Fixed Fee: $478,921 See page 2	1		$478,921	$478,921	

SEE BILLING INSTRUCTIONS ON PAGE 2	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.	17(h) (Cont. pages)
	21. MAIL INVOICE TO: a. NAME: NASA Shared Services Center (NSSC), Financial Management Division (FMC) – Accounts Payable			
	b. STREET ADDRESS (or P.O. Box): Building 1111, C. Road		$478,921	17(i) GRAND TOTAL
	c. CITY: Stennis Space Center	d. STATE: MS	e. ZIP CODE: 39529	

22. UNITED STATES OF AMERICA BY (Signature): Geraldine B. Mason

23. NAME OF CONTRACTING/ORDERING OFFICER: Geraldine B. Mason

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Previous edition not usable

OPTIONAL FORM 347 (REV. 4/2006)
Prescribed by GSA/FAR 48 CFR 53.213(e)

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, and Wiki development/maintenance of same Provide Program Level Integration database 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		per year Bi-weekly CRADLE CoP mtg	

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	

Estimated 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		X	Technical Interchange Meetings with SLS
2	1.2.1	KSC	1	3	1		X	Technical Interchange Meetings with GSDO
3	1.1.2.3.5	KSC	1	4	1		X	ESD Design-To Sync

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 9

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: September 4, 2014	2. CONTRACT NO. (If any): NNJ13TA03B
3. ORDER NO.: NNJ15TA01T/Basic	4. REQUISITION/REFERENCE NO.: N/A

5. ISSUING OFFICE (Address correspondence to):
NASA Johnson Space Center
Attn: BT/Jennifer Ariens
2101 NASA Pkwy
Houston, TX 77058-3696

6. SHIP TO:
a. NAME OF CONSIGNEE: Transportation Officer, Building 421
b. STREET ADDRESS: 2101 NASA Parkway
c. CITY: Houston | d. STATE: TX | e. ZIP CODE: 77058-3696
f. SHIP VIA:

7. TO:
a. NAME OF CONTRACTOR: ARES Technical Services Corporation
b. COMPANY NAME: Attn: Melba York, MPIC Program Manager
c. STREET ADDRESS: 1331 Gemini Street, Suite 120
d. CITY: Houston | e. STATE: TX | f. ZIP CODE: 77058-2729

8. TYPE OF ORDER
[ ] a. PURCHASE
REF YOUR: _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

[X] b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA:

10. REQUISITIONING OFFICE: NASA Johnson Space Center

11. BUSINESS CLASSIFICATION (Check appropriate box(es))
[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALL BUSINESS

12. F.O.B. POINT:

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
a. INSPECTION	b. ACCEPTANCE		September 30, 2013	NT30

17. SCHEDULE (See Page 2 for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The purpose of this task order is to authorize the contractor to perform the requirements described in the attached Program Management/Program Planning and Control (PP&C) Statement of Work (SOW). Estimated Cost: (b) (4) Fixed Fee: See pages 2 – 9.	1		(b) (4)	(b) (4)	

SEE BILLING INSTRUCTIONS ON PAGE 2	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.	17(h) (Cont. pages)
	21. MAIL INVOICE TO: a. NAME: NASA Shared Services Center (NSSC), Financial Management Division (FMC) – Accounts Payable			
	b. STREET ADDRESS (or P.O. Box): Building 1111, C. Road		$4,822,682	17(i) GRAND TOTAL
	c. CITY: Stennis Space Center	d. STATE: MS	e. ZIP CODE: 39529	

22. UNITED STATES OF AMERICA BY (Signature): Geraldine B. Mason

23. NAME OF CONTRACTING/ORDERING OFFICER: Geraldine B. Mason

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 of Work	SOW Paragraphs	Title: Program Management	Projected Quantity	DRD
1.1.1	A	Identification, documentation, and update of interdependencies	Note 1	N/A
	A	Program Integration Team Charter with integration tasks	Note 2	N/A
	A	Centralized data source to be developed under Statement of Work (SOW) 1.1.2.3.5	1	N/A
	A	Coordination Meetings	Weekly	N/A
	A	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 of Work	SOW Paragraphs	Title: PP&C Planning Function	Projected Quantity	DRD
1.1.2.1	A	Planning Data Set	Note 3	PC-01
	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	B	Maintain MPCV Program Plan, Work Breakdown Structure (WBS) Tree & Data Dictionary, and list of Technical requirements documents associated with the Program Baseline	Per DRD	PC-01
1.1.2.1	C	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 (LCC) estimates, Estimate at Complete (EAC), Basis of Estimates (BOEs), and Joint Cost and Schedule Likelihood (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	E	Johnson Space Center (JSC) Quality Management System (QMS)	Note 4	N/A
	E	MPCV Document Review	1	
	E	MPCV Internal Audit	1	
	E	MPCV Management Review	2	
	E	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 (PMB)for Earned Value Management (EVM) reporting	Per DRD	PC-01
1.1.2.1	G.1	Update Planning Data Products	As applicable	PC-01
	G.2	Revise Performance Management Baseline	Per DRD	PC-01
	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	A	Performance Data Set	Note 6	PC-02
1.1.2.2	B, B.1	Supplier Data	Per DRD	PC-02
1.1.2.2	C	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	E	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	H	Program Manager Feedback	Monthly	PC-04
1.1.2.2	I	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	A	Configuration Management Services	Note 7	PC-05
	B	Administrative Services	Note 8	N/A
1.1.2.3.3	A, B	Data Integration and Management	Note 9	PC-05
		MPCV Program Office website(s) development, maintenance, and updates	Note 11	PC-05
1.1.2.3.4	A	Risk Management	N/A	N/A
1.1.2.3.5	A	Coordinate and process Service Requests	Note 10	PC-05
	C	End user IT service support	Note 12	PC-05
	D, E, H	Assist the MPCV IT Property Custodian in managing NASA provided software to coordinate repair and maintain organization's unique software	Note 13	PC-05 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	B	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	~2/year	
		- Legislative Executive Briefing presentations	As requested	
		- Program Manager Briefings to JSC Center Director	Monthly	
		- MPCV Overview used by public speakers	Bimonthly	
		- ESD Program Status Presentation	Quarterly	
		- Tile Progress Chart (data supplied by MPCV Prime Contractor)	Monthly	
		- 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 material for online publication	Monthly	
		- 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	As requested	
		Compile post-event summary report and media tracking	Quarterly	

Estimated Travel Requirements: All Travel from Houston, TX						
	SOW	Location	# of Trips	# of Days	# of People	Reason
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.

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 9

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: September 18, 2014	2. CONTRACT NO. (If any): NNJ13TA03B
3. ORDER NO.: NNJ15TA02T/Basic	4. REQUISITION/REFERENCE NO.: N/A

5. ISSUING OFFICE (Address correspondence to):
NASA Johnson Space Center
Attn: BT/Jennifer Ariens
2101 NASA Pkwy
Houston, TX 77058-3696

6. SHIP TO:
a. NAME OF CONSIGNEE: Transportation Officer, Building 421
b. STREET ADDRESS: 2101 NASA Parkway
c. CITY: Houston | d. STATE: TX | e. ZIP CODE: 77058-3696
f. SHIP VIA:

7. TO:
a. NAME OF CONTRACTOR: ARES Technical Services Corporation
b. COMPANY NAME: Attn: Melba York, MPIC Program Manager
c. STREET ADDRESS: 1331 Gemini Street, Suite 120
d. CITY: Houston | e. STATE: TX | f. ZIP CODE: 77058-2729

8. TYPE OF ORDER
[ ] a. PURCHASE
REF YOUR: _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

[X] b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA:

10. REQUISITIONING OFFICE: NASA Johnson Space Center

11. BUSINESS CLASSIFICATION (Check appropriate box(es))
[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALL BUSINESS

12. F.O.B. POINT:

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
a. INSPECTION	b. ACCEPTANCE		September 30, 2015	NT30

17. SCHEDULE (See Page 2 for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The purpose of this task order is to authorize the contractor to perform the requirements described in the attached MPCV Systems Engineering and Integration (SE&I) Statement of Work (SOW). Estimated Cost: Fixed Fee: See pages 2 – 9.	1		(b) (4)		

SEE BILLING INSTRUCTIONS ON PAGE 2	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.	17(h) (Cont. pages)
	21. MAIL INVOICE TO: a. NAME: NASA Shared Services Center (NSSC), Financial Management Division (FMC) – Accounts Payable			
	b. STREET ADDRESS (or P.O. Box): Building 1111, C. Road		$2,906,829	17(i) GRAND TOTAL
	c. CITY: Stennis Space Center	d. STATE: MS	e. ZIP CODE: 39529	

22. UNITED STATES OF AMERICA BY (Signature): GERALDINE MASON

23. NAME OF CONTRACTING/ORDERING OFFICER: Geraldine B. Mason

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 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 • 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			
	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 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 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 Monthly	
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)	
1.2.7	Lead the development of the integrated Orion-GSDO prelaunch operational concept. Lead the Orion-GSDO Interface Working Group to update the Orion-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)	A.1 – A.4	2 each IRD and ICD per year	
1.2.7	Lead the Mission and Performance Analysis group responsible for maintaining oversight of integrated vehicle performance analyses (power, thermal, trajectory, etc.), developing of concepts of operations, and supporting development of mission timelines. Provide NASA management with awareness of integrated vehicle level performance technical issues, modeling tools, schedules for		2 con ops release/ year, Review of timelines each DAC, Review of analysis	

	analysis work, resource concerns, and integration of performance studies between NASA, ESA, and SLS.		products 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/ development	N/A

SOW	Title: Test & Verification (T&V) (Avionics Power & Software)	SOW Paragraphs	Projected Quantity	DRD
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.

Estimated Travel Requirements: All Travel from Houston, TX						
	SOW	Location	# of Trips	# of Days	# of People	Reason
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

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 3

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER	September 9, 2014
2. CONTRACT NO. *(If any)*	NNJ13TA03B
3. ORDER NO.	NNJ15TA03T/Basic
4. REQUISITION/REFERENCE NO.	N/A

5. ISSU NG OFFICE *(Address correspondence to)*

NASA Johnson Space Center
Attn: Jennifer Ariens/BT
2101 NASA Pkwy
Houston, TX 77058-3696

6. SHIP TO:

a. NAME OF CONSIGNEE: Transportation Officer, Building 421

b. STREET ADDRESS: 2101 NASA Parkway

c. CITY	d. STATE	e. ZIP CODE
Houston	TX	77058-3696

7. TO:

a. NAME OF CONTRACTOR: ARES Technical Services Corporation

b. COMPANY NAME: Attn: Melba York, MPIC Program Manager

c. STREET ADDRESS: 1331 Gemini Street, Suite 120

d. CITY	e. STATE	f. ZIP CODE
Houston	TX	77058-2729

f. SHIP VIA

8. TYPE OF ORDER

[ ] a. PURCHASE
REF YOUR: _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

[X] b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA

10. REQUISITION NG OFFICE: NASA Johnson Space Center

11. BUSINESS CLASS FICATION *(Check appropriate box(es))*

[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALL BUSINESS

12. F.O.B. POINT

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
a. NSPECTION	b. ACCEPTANCE		September 30, 2015	NT30

17. SCHEDULE *(See Page 2 for Rejections)*

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The purpose of this task order is to authorize the contractor to perform the requirements described in the attached Exploration Systems Integration (ESI) Statement of Work (SOW). Estimated Cost: (b) (4) Fixed Fee: (b) (4) $47,427 See page 2 and 3.	1		$47,427	(b) (4)	

SEE BILLING INSTRUCTIONS ON PAGE 2	18. SHIPP NG PO NT	19. GROSS SHIPP NG WEIGHT	20. NVOICE NO.	17(h) *(Cont. pages)*
	21. MAIL NVOICE TO:			
	a. NAME: NASA Shared Services Center (NSSC), Financial Management Division (FMC) –			
	b. STREET ADDRESS *(or P.O. Box)*: Building 1111, C. Road		$47,427	17(i) GRAND TOTAL
	c. CITY: Stennis Space Center	d. STATE: MS	e. ZIP CODE: 39529	

22. UNITED STATES OF AMERICA BY *(Signature)*: Geraldine B. Mason

23. NAME OF CONTRACTING/ORDERING OFFICER: Geraldine B. Mason

AUTHORIZED FOR LOCAL REPRODUCTION

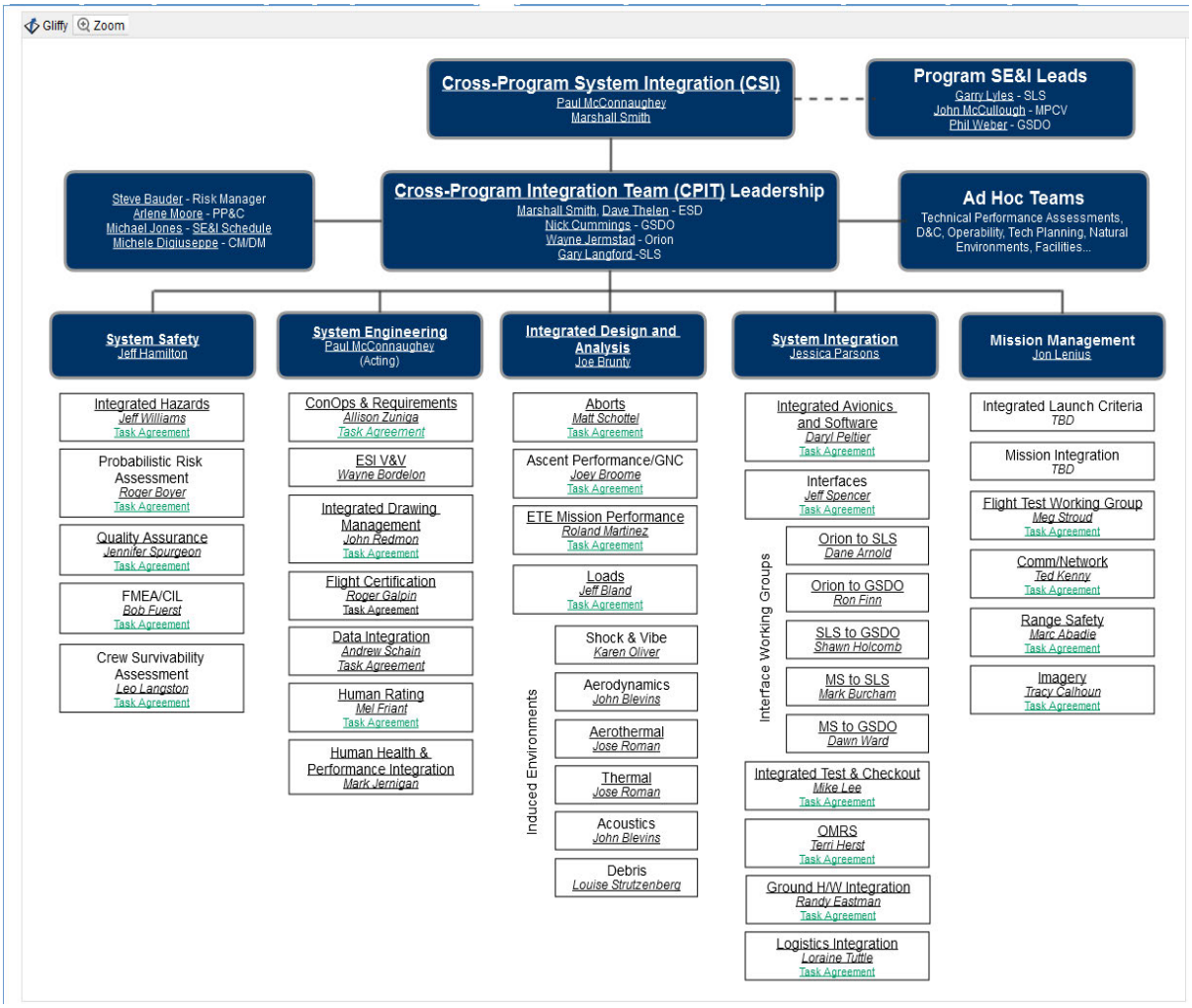
OPTIONAL FORM 347 (REV. 4/2006)

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

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 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
	C	Support development and production of recurring schedule status, analyses, and assessments, to include schedule estimates, risk assessments, and critical path identification.		N/A
	C	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.



ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 3

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: August 26, 2014	2. CONTRACT NO. (If any): NNJ13TA03B
3. ORDER NO.: NNJ15TA04T/Basic	4. REQUISITION/REFERENCE NO.: N/A

5. ISSU NG OFFICE (Address correspondence to):
NASA Johnson Space Center
Attn: Jennifer Ariens/BT
2101 NASA Pkwy
Houston, TX 77058-3696

6. SHIP TO:
a. NAME OF CONSIGNEE: Transportation Officer, Building 421
b. STREET ADDRESS: 2101 NASA Parkway
c. CITY: Houston | d. STATE: TX | e. ZIP CODE: 77058-3696
f. SHIP VIA:

7. TO:
a. NAME OF CONTRACTOR: ARES Technical Services Corporation
b. COMPANY NAME: Attn: Melba York, MPIC Program Manager
c. STREET ADDRESS: 1331 Gemini Street, Suite 120
d. CITY: Houston | e. STATE: TX | f. ZIP CODE: 77058-2729

8. TYPE OF ORDER
[ ] a. PURCHASE
REF YOUR: _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

[X] b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA

10. REQUISITION NG OFFICE: NASA Johnson Space Center

11. BUSINESS CLASS FICATION (Check appropriate box(es))
[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALL BUSINESS

12. F.O.B. POINT

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
a. NSPECTION	b. ACCEPTANCE		September 30, 2015	NT30

17. SCHEDULE (See Page 2 for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The purpose of this task order is to authorize the contractor to perform the requirements described in the attached MPCV Exploration Development Integration (EDI) Support Statement of Work (SOW). Estimated Cost: (b) (4) Fixed Fee: (b) (4) $492,371 See page 2	1		$492,371	$492,371	

18. SHIPP NG PO NT | 19. GROSS SHIPP NG WEIGHT | 20. NVOICE NO.

SEE BILLING INSTRUCTIONS ON PAGE 2

21. MAIL NVOICE TO:
a. NAME: NASA Shared Services Center (NSSC), Financial Management Division (FMC) – Accounts Payable
b. STREET ADDRESS (or P.O. Box): Building 1111, C. Road
c. CITY: Stennis Space Center | d. STATE: MS | e. ZIP CODE: 39529

17(h) (Cont. pages) ◄

$492,371 ◄ 17(i) GRAND TOTAL

22. UNITED STATES OF AMERICA BY (Signature) ► Geraldine B. Mason

23. NAME OF CONTRACTING/ORDERING OFFICER
Geraldine B. Mason

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

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: 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, and Wiki development/maintenance of same Provide Program Level Integration database 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		per year Bi-weekly CRADLE CoP mtg	

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	

Estimated Travel Requirements: All Travel from Houston, TX						
	SOW	Location	# of Trips	# of Days	# of People	Reason
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

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 9

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: September 16, 2015
2. CONTRACT NO. *(If any)*: NNJ13TA03B
3. ORDER NO.: NNJ16TA01T/Basic
4. REQUISITION/REFERENCE NO.: N/A
5. ISSUING OFFICE *(Address correspondence to)*:
NASA Johnson Space Center
Attn: Ethan Miller/BT
2101 NASA Pkwy
Houston, TX 77058-3696

6. SHIP TO:
a. NAME OF CONSIGNEE: Transportation Officer, Building 421
b. STREET ADDRESS: 2101 NASA Parkway
c. CITY: Houston
d. STATE: TX
e. ZIP CODE: 77058-3696

7. TO:
a. NAME OF CONTRACTOR: ARES Technical Services Corporation
b. COMPANY NAME: Attn: Marvin Leblanc, MPIC Program Manager
c. STREET ADDRESS: 1331 Gemini Street, Suite 120
d. CITY: Houston
e. STATE: TX
f. ZIP CODE: 77058-2729

f. SHIP VIA:

8. TYPE OF ORDER
[ ] a. PURCHASE
REFERENCE YOUR: _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

[X] b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA:

10. REQUISITIONING OFFICE: NASA Johnson Space Center

11. BUSINESS CLASSIFICATION *(Check appropriate box(es))*
[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALL BUSINESS

12. F.O.B. POINT:

13. PLACE OF
a. INSPECTION:
b. ACCEPTANCE:

14. GOVERNMENT B/L NO.:

15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*: September 30, 2016

16. DISCOUNT TERMS: NT30

17. SCHEDULE *(See Page 2 for Rejections)*

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The purpose of this task order is to authorize the contractor to perform the requirements described in the attached MPCV/Program Management/Program Planning and Control (PP&C) Statement of Work (SOW). Estimated Cost: (b) (4) Fixed Fee: (b) (4) $5,045,098 See pages 2-10.	1		$5,045,098	$5,045,098	

18. SHIPPING POINT:
19. GROSS SHIPPING WEIGHT:
20. INVOICE NO.:

17(h) (Cont. pages)

21. MAIL INVOICE TO:
a. NAME: NASA Shared Services Center (NSSC), Financial Management Division (FMC) – Accounts Payable
b. STREET ADDRESS *(or P.O. Box)*: Building 1111, C. Road
c. CITY: Stennis Space Center
d. STATE: MS
e. ZIP CODE: 39529

$5,045,098

17(i) GRAND TOTAL

SEE BILLING INSTRUCTIONS ON PAGE 2

22. UNITED STATES OF AMERICA BY *(Signature)*: ►SHINE LIN
Digitally signed by SHINE LIN
DN: c=US, o=U.S. Government, ou=NASA, ou=People, cn=SHINE LIN, 0.9.2342.19200300.100.1.1=slin5
Date: 2015.09.16 11:23:09 -05'00'

23. NAME OF CONTRACTING/ORDERING OFFICER: Shine Lin

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Previous edition not usable

OPTIONAL FORM 347 (REV. 4/2006)
Prescribed by GSA/FAR 48 CFR 53.213(e)

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

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 16 (October 2015 through September 2016).

Statement of Work	SOW Paragraphs	Title: Program Management	Projected Quantity	DRD
1.1.1	A	Identification, documentation, and update of interdependencies	Note 1	N/A
	A	Program Integration Team Charter with integration tasks	Note 2	N/A
	A	Centralized data source to be developed under Statement of Work (SOW) 1.1.2.3.5	1	N/A
	A	Coordination Meetings	Weekly	N/A
	A	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 of Work	SOW Paragraphs	Title: PP&C Planning Function	Projected Quantity	DRD
1.1.2.1	A	Planning Data Set	Note 3	PC-01
	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	B	Maintain MPCV Program Plan, Work Breakdown Structure (WBS) Tree & Data Dictionary, and list of Technical requirements documents associated with the Program Baseline	Per DRD	PC-01
1.1.2.1	C	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~~12	PC-01
	D.2	Fiscal and year end cost estimates, Life Cycle Cost (LCC) estimates, Estimate at Complete (EAC), Basis of Estimates (BOEs), and Joint Cost and Schedule Likelihood (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	E	Johnson Space Center (JSC) Quality Management System (QMS)	Note 4	N/A
	E	MPCV Document Review	1	
	E	MPCV Internal Audit	1	
	E	MPCV Management Review	2	
	E	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 (PMB)for Earned Value Management (EVM) reporting	Per DRD	PC-01
1.1.2.1	G.1	Update Planning Data Products	As applicable	PC-01
	G.2	Revise Performance Management Baseline	Per DRD	PC-01
	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	A	Performance Data Set	Note 6	PC-02
1.1.2.2	B, B.1	Supplier Data	Per DRD	PC-02
1.1.2.2	C	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	E	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	H	Program Manager Feedback	Monthly	PC-04
1.1.2.2	I	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	A	Configuration Management Services	Note 7	PC-05
	B	Administrative Services	Note 8	N/A
1.1.2.3.3	A, B	Data Integration and Management	Note 9	PC-05
		MPCV Program Office website(s) development, maintenance, and updates	Note 11	PC-05
1.1.2.3.4	A	Risk Management	N/A	N/A
1.1.2.3.5	A	Coordinate and process Service Requests	Note 10	PC-05
	C	End user IT service support	Note 12	PC-05
	D, E, H	Assist the MPCV IT Property Custodian in managing NASA provided software to coordinate repair and maintain organization's unique software	Note 13	PC-05 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	B	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 Center Director	Monthly	
		- MPCV Overview used by public speakers	Bimonthly	
		- ESD Program Status Presentation	Quarterly	
		- Tile Progress Chart (data supplied by MPCV Prime Contractor)	Monthly	
		- 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 material for online publication	Monthly	
		- 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	

	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, and subcontractors	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	As requested	
	Compile post-event summary report and media tracking	Quarterly	

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
39	**1.1.2.3**	Boston	1	6	2	PTC Conference (Windchill, CAD 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)
42	**1.11**	San Francisco, CA	1	11	2	One NASA - Bay Area Science Fest (Oct 23-Nov.1)
43	**1.11**	Dallas, TX	1	3	1	Texas Astronomical Society of Dallas presentation, b-roll shoot at Lockheed (Oct)
44	**1.11**	Los Angeles, CA	1	7	2	One NASA - Calif. Science Ctr, possible supplier visits
45	**1.11**	Yuma, AZ	1	3	1	PTV-10 drop test (Nov)
46	**1.11**	New Orleans, LA	1	3	2	EM-1 closeout weld shoot at MAF (Nov)
47	**1.11**	Sandusky, OH	1	3	1	SA Cone installed at Plum Brook (Dec)

48	**1.11**	New Orleans, 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)
51	**1.11**	Indianapolis, IN	1	3	2	One NASA - 100th Running of Indy 500, supplier visits TBD (May)
52	**1.11**	Layton, UT	1	3	1	Supplier Visit - Janicki
53	**1.11**	Los Angeles, CA	1	3	2	Supplier Visit - Votaw/AMRO
54	**1.11**	San Diego, CA	1	3	2	Supplier Visit - Aero Pacific / Rayotek
55	**1.11**	Cleveland, OH	1	3	2	Supplier Visit - Plum Brook
56	**1.11**	Denver, CO	1	3	2	Supplier Visit - Lockheed
57	**1.11**	Buffalo, New York	1	3	1	Supplier Visit - Moog (with SLS)
58	**1.11**	Louisville, KY	1	3	1	Supplier Visit - Parker Hannifin / 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
62	**1.11**	Cape 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.

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 7

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: September 16, 2015
2. CONTRACT NO. *(If any)*: NNJ13TA03B
3. ORDER NO.: NNJ16TA02T/Basic
4. REQUISITION/REFERENCE NO.: N/A
5. ISSUING OFFICE *(Address correspondence to)*:
NASA Johnson Space Center
Attn: Ethan Miller/BT
2101 NASA Pkwy
Houston, TX 77058-3696

6. SHIP TO:
a. NAME OF CONSIGNEE: Transportation Officer, Building 421
b. STREET ADDRESS: 2101 NASA Parkway
c. CITY: Houston
d. STATE: TX
e. ZIP CODE: 77058-3696

7. TO:
a. NAME OF CONTRACTOR: ARES Technical Services Corporation
b. COMPANY NAME: Attn: Marvin Leblanc, MPIC Program Manager
c. STREET ADDRESS: 1331 Gemini Street, Suite 120
d. CITY: Houston
e. STATE: TX
f. ZIP CODE: 77058-2729

f. SHIP VIA:

8. TYPE OF ORDER
[ ] a. PURCHASE
REFERENCE YOUR: _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

[X] b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA:

10. REQUISITIONING OFFICE: NASA Johnson Space Center

11. BUSINESS CLASSIFICATION *(Check appropriate box(es))*
[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALL BUSINESS

12. F.O.B. POINT:

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
a. INSPECTION	b. ACCEPTANCE		September 30, 2016	NT30

17. SCHEDULE *(See Page 2 for Rejections)*

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The purpose of this task order is to authorize the contractor to perform the requirements described in the attached MPCV Systems Engineering and Integration (SE&I) Statement of Work (SOW). Estimated Cost (b) (4) Fixed Fee: (b) (4) $2,553,192 See pages 2 - 8.	1		$2,553,192	$2,553,192	

18. SHIPPING POINT:
19. GROSS SHIPPING WEIGHT:
20. INVOICE NO.:

17(h) *(Cont. pages)*: ◄

SEE BILLING INSTRUCTIONS ON PAGE 2

21. MAIL INVOICE TO:
a. NAME: NASA Shared Services Center (NSSC), Financial Management Division (FMC) – Accounts Payable
b. STREET ADDRESS *(or P.O. Box)*: Building 1111, C. Road
c. CITY: Stennis Space Center
d. STATE: MS
e. ZIP CODE: 39529

$2,553,192 ◄

17(i) GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)*: ►SHINE LIN
Digitally signed by SHINE LIN
DN: c=US, o=U.S. Government, ou=NASA, ou=People, cn=SHINE LIN, 0.9.2342.19200300.100.1.1=slin5
Date: 2015.09.16 11:23:23 -05'00'

23. NAME OF CONTRACTING/ORDERING OFFICER: Shine Lin

AUTHORIZED FOR LOCAL REPRODUCTION
Previous edition not usable

OPTIONAL FORM 347 (REV. 4/2006)
Prescribed by GSA/FAR 48 CFR 53.213(e)

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

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 16 (October 2015 through September 2016).

SOW	Title: Program Integration (Vehicle Integration Office)	SOW Paragraphs	Projected Quantity	DRD
1.2.3	Perform integration of Verification Analysis Cycle (VAC) 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. Provide MPCV representation to the Data Integration ITT. 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 -Analysis 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.	A.1, A.3, A.4, A.5	2 analysis 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 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 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 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 • 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 Monthly	
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, 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 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	A	1 MVP baseline doc review/ development	N/A

	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.			

SOW	Title: Test & Verification (T&V) (Avionics Power & Software)	SOW Paragraphs	Projected Quantity	DRD
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.

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)
13	**1.2.7**	KSC	1	5	1	SLS/MPCV to GSDO Checkpoint (Flt to Grnd) (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

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 3

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: September 16, 2015
2. CONTRACT NO. *(If any)*: NNJ13TA03B
3. ORDER NO.: NNJ16TA03T/Basic
4. REQUISITION/REFERENCE NO.: N/A
5. ISSUING OFFICE *(Address correspondence to)*:
NASA Johnson Space Center
Attn: Ethan Miller/BT
2101 NASA Pkwy
Houston, TX 77058-3696

6. SHIP TO:
a. NAME OF CONSIGNEE: Transportation Officer, Building 421
b. STREET ADDRESS: 2101 NASA Parkway
c. CITY: Houston
d. STATE: TX
e. ZIP CODE: 77058-3696

7. TO:
a. NAME OF CONTRACTOR: ARES Technical Services Corporation
b. COMPANY NAME: Attn: Marvin Leblanc, MPIC Program Manager
c. STREET ADDRESS: 1331 Gemini Street, Suite 120
d. CITY: Houston
e. STATE: TX
f. ZIP CODE: 77058-2729

f. SHIP VIA:

8. TYPE OF ORDER
[ ] a. PURCHASE
REFERENCE YOUR: _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

[X] b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA:

10. REQUISITIONING OFFICE: NASA Johnson Space Center

11. BUSINESS CLASSIFICATION *(Check appropriate box(es))*
[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALL BUSINESS

12. F.O.B. POINT:

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
a. INSPECTION	b. ACCEPTANCE		September 30, 2016	NT30

17. SCHEDULE *(See Page 2 for Rejections)*

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The purpose of this task order is to authorize the contractor to perform the requirements described in the attached MPCV Exploration System Integration (ESI) Support Statement of Work (SOW). Estimated Cost: (b) (4) Fixed Fee: (b) (4) $ 47,863 See pages 2 - 3.	1		$47,863	$47,863	

18. SHIPPING POINT:
19. GROSS SHIPPING WEIGHT:
20. INVOICE NO.:

17(h) *(Cont. pages)*

21. MAIL INVOICE TO:
a. NAME: NASA Shared Services Center (NSSC), Financial Management Division (FMC) – Accounts Payable

SEE BILLING INSTRUCTIONS ON PAGE 2

b. STREET ADDRESS *(or P.O. Box)*: Building 1111, C. Road
c. CITY: Stennis Space Center
d. STATE: MS
e. ZIP CODE: 39529

$47,863

17(i) GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)*: ▶SHINE LIN
Digitally signed by SHINE LIN
DN: c=US, o=U.S. Government, ou=NASA, ou=People, cn=SHINE LIN, 0.9.2342.19200300.100.1.1=slin5
Date: 2015.09.16 11:23:36 -05'00'

23. NAME OF CONTRACTING/ORDERING OFFICER: Shine Lin

AUTHORIZED FOR LOCAL REPRODUCTION
Previous edition not usable

OPTIONAL FORM 347 (REV. 4/2006)
Prescribed by GSA/FAR 48 CFR 53.213(e)

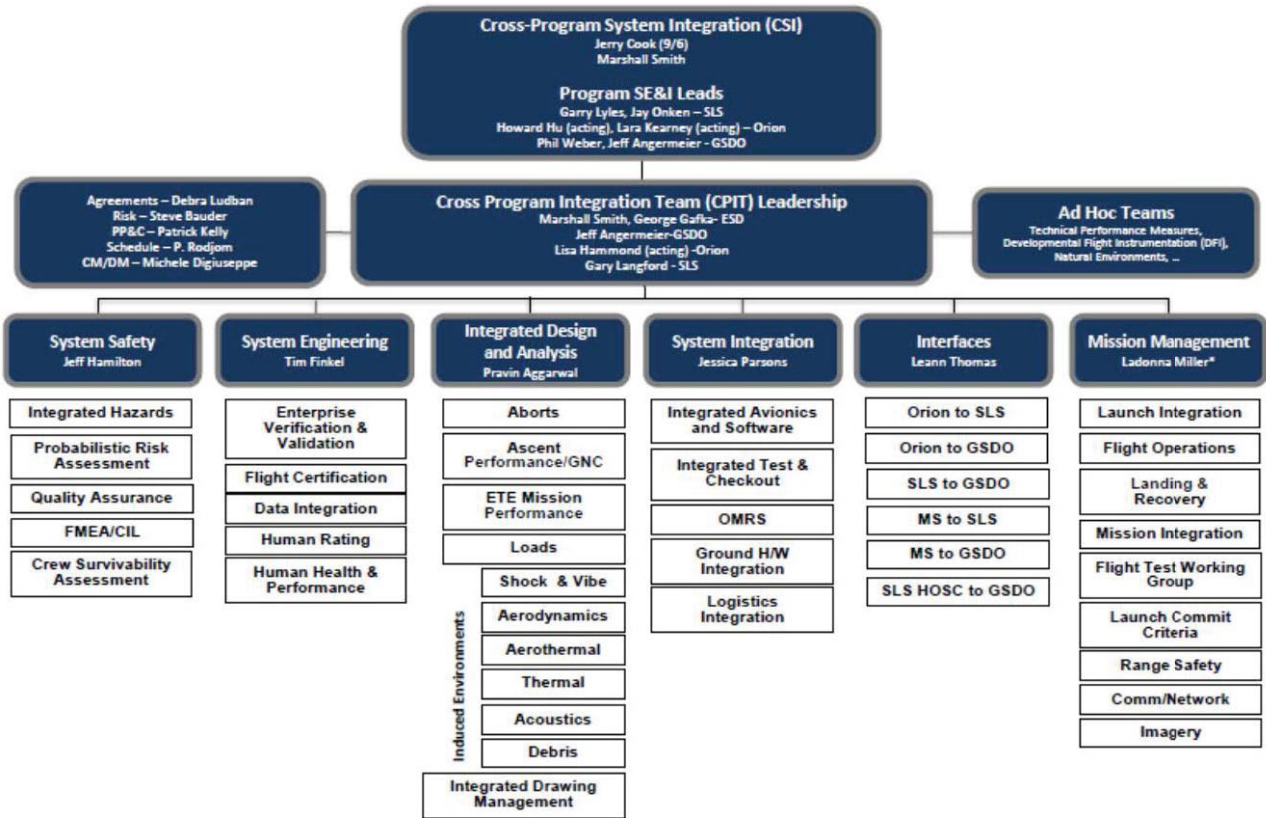
Exploration System Integration (ESI) Support
TASK ORDER NNJ16TA03T

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 16 (October 2015 through September 2016).

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
	C	Support development and production of recurring schedule status, analyses, and assessments, to include schedule estimates, risk assessments, and critical path identification.		N/A
	C	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

Estimated Travel Requirements: All Travel from Houston, TX						
	SOW	Location	# of Trips	# of Days	# of People	Reason
1						
2						
3						

Note 1: See “Blue Box” and “White Box” content below.



ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 3

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: September 3, 2015
2. CONTRACT NO. *(If any)*: NNJ13TA03B
3. ORDER NO.: NNJ16TA04T/Basic
4. REQUISITION/REFERENCE NO.: N/A
5. ISSUING OFFICE *(Address correspondence to)*:
NASA Johnson Space Center
Attn: Ethan Miller/BT
2101 NASA Pkwy
Houston, TX 77058-3696

6. SHIP TO:
a. NAME OF CONSIGNEE: Transportation Officer, Building 421
b. STREET ADDRESS: 2101 NASA Parkway
c. CITY: Houston
d. STATE: TX
e. ZIP CODE: 77058-3696

7. TO:
a. NAME OF CONTRACTOR: ARES Technical Services Corporation
b. COMPANY NAME: Attn: Marvin Leblanc, MPIC Program Manager
c. STREET ADDRESS: 1331 Gemini Street, Suite 120
d. CITY: Houston
e. STATE: TX
f. ZIP CODE: 77058-2729

f. SHIP VIA:

8. TYPE OF ORDER
[ ] a. PURCHASE
REFERENCE YOUR: _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

[X] b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA:

10. REQUISITIONING OFFICE: NASA Johnson Space Center

11. BUSINESS CLASSIFICATION *(Check appropriate box(es))*
[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALL BUSINESS

12. F.O.B. POINT:

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
a. INSPECTION	b. ACCEPTANCE		September 30, 2016	NT30

17. SCHEDULE *(See Page 2 for Rejections)*

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The purpose of this task order is to authorize the contractor to perform the requirements described in the attached MPCV Exploration Development Integration (EDI) Support Statement of Work (SOW). Estimated Cost: (b) (4) Fixed Fee: (b) (4) $501,174 See page 2	1		$501,174	$501,174	

18. SHIPPING POINT:
19. GROSS SHIPPING WEIGHT:
20. INVOICE NO.:

17(h) *(Cont. pages)*

SEE BILLING INSTRUCTIONS ON PAGE 2

21. MAIL INVOICE TO:
a. NAME: NASA Shared Services Center (NSSC), Financial Management Division (FMC) – Accounts Payable
b. STREET ADDRESS *(or P.O. Box)*: Building 1111, C. Road
c. CITY: Stennis Space Center
d. STATE: MS
e. ZIP CODE: 39529

$501,174

17(i) GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)* GERALDINE MASON

Digitally signed by GERALDINE MASON
DN: c=US o=U S Government ou=NASA ou=People 0 9 2342 19200300 100 1 1=gmason cn=GERALDINE MASON
Date: 2015 09 03 10:38:30 05'00'

23. NAME OF CONTRACTING/ORDERING OFFICER
Geraldine B. Mason

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Previous edition not usable

OPTIONAL FORM 347 (REV. 4/2006)
Prescribed by GSA/FAR 48 CFR 53.213(e)

Exploration Development Integration (EDI) Support
TASK ORDER NNJ16TA04T

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 16 (October 2015 through September 2016).

SOW	Title: Information Technology (IT) Management (Exploration Development Integration and Exploration Mission Planning Office)	SOW Paragraphs	Projected Quantity	DRD
1.1.2.3.5	Provide support to EDI and EMPO in the following areas: • Development, management and maintenance of EDI and EMPO 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 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)	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 • 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 Bi-weekly	

	same Provide Program Level Integration database 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		CRADLE CoP mtg	

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 Exploration Mission Assessment (EMA) .	1.2	2 ITT mtgs per week ~2 doc reviews per month	

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