CONTRACT NASW-5067
(Task/Delivery Orders)

The following information has been determined to be exempt from disclosure and has been deleted from the task/delivery orders:

- Order for Supplies or Services: Cost breakdown in blocks 17b, c, d, e, and f;
- Study Plan: Study Plan Overview, Task Activity Synopsis, Performance Schedule, and Key Personnel;
- Staffing & Cost Tables: Labor categories, hours, and specific direct costs.

The deleted material is exempt from disclosure under 14 C.F.R. 1206.300 (b) (4) which covers trade secrets and commercial or financial information obtained from a person and priviledged or confidential. It has been held that commercial or financial matter is "confidential" for purposes of this exemption if its disclosure would be likely to have either of the following effects: (1) impair the Government's ability to obtain necessary information in the future; or (2) cause substantial harm to the competitive position of the person from whom the information was obtained, National Parks and Conservation v. Morton, 498 F2d 765 (D.C. Cir. 1974).

Disclosure of the financial information could cause substantial competitive harm to the contractor by providing its competitors insight into the company's costing practices and management approaches. Furthermore, disclosure would discourage other companies from participating in future competitive procurements, thereby impairing the Government's ability to obtain complete and accurate cost data, and, in turn, frustrating the mandate to obtain maximum competition in negotiated procurements.

Regarding the names of key personnel, disclosure of such information, which was submitted to the Government in confidence, would allow potential competitors to benefit from the company's efforts to build up a highly successful management team that possesses unique experience and expertise. Such information is not readily available upon request by a third party.

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. *(if any)*	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
1/25/99	NASW-5067	156	

5. ISSUING OFFICE *(Address correspondence to:)*

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: *(Consignee and address, ZIP Code)*

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR *(Name, Address and ZIP Code)*

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA
P.R. CH.0629; R22544; $5,000 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION *(Check appropriate box (es))*
☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
Destination	N/A	February 5, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:
NASA Langley Research Center

17. SCHEDULE *(See reverse for Rejections)*

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]				[redacted]	

	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL *(Cont. pages)*
INSTRUCTIONS ON REVERSE	N/A	N/A	N/A		
	21. MAIL INVOICE TO: *(Include ZIP Code)* NASA Langley Research Center, Financial Management Division, Mail Stop 175 Hampton, VA 23681-0001			$5,000	17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)* ▶ Richard J. Siebels

23. NAME *(Typed)*
Richard J. Siebels JAN 25 1999
TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083 50347-101 OPTIONAL FORM -347

Space Science Studies

WORK ORDER REQUEST

NASA Contract NASW-5067

Requester Information:

Name:. David B. Lavery

NASA Org./Loc.: Office of Space Science, Code S, NASA Headquarters

Phone: (202) 358-4684 FAX: (202) 358-2697 E-mail: dlavery@mail.hq.nasa.gov

Task Title: Preliminary NEPA Compliance for the Outer Planets/Solar Probe Program

Brief Description of Task:

Utilizing capabilities not available at NASA Headquarters, the Contractor will begin preparation of the Draft Environmental Impact Statements (EIS's) for the Outer Planets/Solar Probe Program, encompassing the Europa Orbiter and Pluto/Kuiper Express missions. Specifically, the Contractor will serve as an integral member of the NASA EIS team with responsibility for critical technical NEPA compliance review of all inputs prepared by the team for the EIS, and will integrate those inputs, including inputs prepared by the Contractor, into the documents. In addition, the Contractor will prepare an updated evaluation of stratospheric ozone impacts due to a normal launch, and will provide a critical review of the non-nuclear power system alternatives developed by the Jet Propulsion Laboratory for the subject missions.

Work In Accordance with SOW Sections:

C.3.1 Technical Study	_____
C.3.2 Scientific Study	_____
C.3.3 Engineering Study	_____
C.3.4 Independent Analysis	__X__

Estimated Schedule and Cost

Requested Start Date: January 25, 1999

Duration: 9 months

Estimated Cost: $273,000

Funds Source: Code S, NASA HQ

Deliverables:

1) Update to evaluation of stratospheric ozone impacts
2) Critical review of JPL's non-nuclear power system alternatives
3) Preliminary Team Review versions of Draft EIS's for the Europa and Pluto missions

Concurrence:

David B. Lavery, Task Requester

Approval:

Catharine G. Schauer

Ms. Catherine Schauer, COTR- LaRC 1/7/99

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. (If any)	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
4/1/99	NASW-5067	156M1	

5. ISSUING OFFICE (Address correspondence to:)

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: (Consignee and address, ZIP Code)

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR (Name, Address and ZIP Code)

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA
P.R. CH.0646; R24161; $182,174 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION (Check appropriate box (es))
☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
Destination	N/A	November 30, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:
NASA Langley Research Center

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL (Cont. pages)
INSTRUCTIONS ON REVERSE	N/A	N/A	N/A		
	21. MAIL INVOICE TO: (Include ZIP Code) NASA Langley Research Center, Financial Management Division, Mail Stop 175 Hampton, VA 23681-0001			$182,173.17	17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY (Signature)

23. NAME (Typed)
Richard J. Siebels APR 01 1999
TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083
(Computer Generated 9/95)

50347-101

OPTIONAL FORM -347
Prescribed by GSA
FAR (48 CFR) 53.213(a)

Date: February 19, 1999

Memo to: Distribution

From: [redacted]

Subject: Study Plan [redacted]

↳ DO56 Preliminary NEPA Compliance for the Outer Planets/Solar Probe Program

Study Request

Utilizing capabilities not available at NASA Headquarters, the Contractor will prepare studies and analyses required for the Draft Environmental Impact Statements (EIS's) for the Europa and Pluto/Kuiper Express missions proposed for launch in 2003 - 2004. Specifically, the Contractor will serve as an integral member of the NASA EIS team with responsibility for critical technical National Environmental Policy Act (NEPA) compliance review of all inputs prepared by the team for the EIS, and will integrate those inputs, including those prepared by the Contractor, into the documents. In addition, the Contractor will prepare an updated evaluation of potential impacts on stratospheric ozone due to a normal launch. The Contractor will also provide a critical review of the non-nuclear power system alternatives developed by the Jet Propulsion Laboratory.

Study Plan Overview

[redacted]

Task Activity Synopsis

[redacted]

[redacted]

Performance Schedule

[redacted]

Task Deliverables

There are four study deliverables for this effort which are as follows

1. Comprehensive assessment of NEPA adequacy of skeleton draft EIS for the Europa Orbiter and for the Pluto/Kuiper Express mission.
2. Final assessment of JPL non-nuclear power alternatives.
3. Final update of potential stratospheric ozone impacts of alternative launch vehicles.
4. Skeleton draft EIS's for Europa Orbiter and Pluto/Kuiper Express

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. *(if any)*	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
1/25/99	NASW-5067	157	

5. ISSUING OFFICE *(Address correspondence to:)*

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: *(Consignee and address, ZIP Code)*

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR *(Name, Address and ZIP Code)*

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA

P.R. CH.0631; R23410; $2,000 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION *(Check appropriate box (es))*

☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
Destination	N/A	February 5, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:

NASA Langley Research Center

17. SCHEDULE *(See reverse for Rejections)*

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED) (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]				[redacted]	

	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL *(Cont.pages)*
INSTRUCTIONS ON REVERSE	N/A	N/A	N/A		
	21. MAIL INVOICE TO: *(Include ZIP Code)* NASA Langley Research Center, Financial Management Division, Mail Stop 175 Hampton, VA 23681-0001			$2,000	17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)* ▶ [signature]

23. NAME *(Typed)*

Richard J. Siebels JAN 25 1999

TITLE : CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083 50347-101 **OPTIONAL FORM -347**

Space Science Studies

Work Order Request

NASA Contract NASW-5067

Requester Information:

Name: Dr. Carl Pilcher
NASA Org./Loc.: Code S, NASA Headquarters
Phone: (202) 358-0291 FAX: (202) 358-3096 E-Mail: carl.pilcher@hq.nasa.gov

Task Title: SSES Technical Analysis and Assessment Support

Brief Description of Task:

NASA Headquarters is in the process of updating its Strategic Plan for the next decade. The revised Plan is to be completed in time to support the Agency's FY'01 Budget request that will be submitted in late summer of 1999. Over the course of FY'99 the Office of Space Science (Code S) will be preparing its inputs to the new Strategic Plan for each of its Space Science Themes with the assistance of the SScAC and its member subcommittees. The objective of this Delivery Order request is to obtain technical analysis and assessment expertise to assist one of these subcommittees, the Solar System Exploration Subcommittee, in preparing its recommendations to the SScAC for the Code S inputs to the new NASA Strategic Plan. The provided expertise should include future exploration concepts, current interplanetary flight capabilities, advanced spacecraft systems, relevant developing technologies, and life-cycle cost assessments for a broad range of planetary missions. Knowledge of programmatic constraints and operating guidelines is also required. Participation will take place as a Technical Observer on telecons, at meetings and in workshops convened by the SSES, its Integration Team, and the five CSWG's reporting to the Subcommittee. Supporting analyses and assessment will be conducted off-line on an as-assigned basis with documented results provided to the SSES and the SSE Director.

Work in Accordance with SOW Sections:

C.3.1 Technical Study	X
C.3.2 Scientific Study	
C.3.3 Engineering Study	X
C.3.4 Independent Analysis	X

Estimated Schedule and Cost:

Requested Start Date: January 1999
Duration: 9 months
Estimated Cost: $40K (including Study Plan)
Funds Source(s): Code S/NASA HQ

Deliverables:

1) Programmatic Analysis and Assessment Results as-assigned
2) Final Memo Summary Report of Provided Support

Concurrence:

Carl Pilch 12/29/98

Dr. Carl Pilcher, Task Requester

Approval:

Catharine G. Schauer

Ms. Catharine Schauer, COTR/LaRC 1/20/99

Rec'd 1/20/99

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. *(if any)*	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
3/17/99	NASW-5067	157M1	

5. ISSUING OFFICE *(Address correspondence to:)*

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: *(Consignee and address, ZIP Code)*

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR *(Name, Address and ZIP Code)*

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA

P.R. CH.0645; R23410; $3,500
; R24144; $30,186
; R24160; $4,323;
Total: $38.009 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION *(Check appropriate box (es))*

☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
Destination	N/A	December 31, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE: NASA Langley Research Center

17. SCHEDULE *(See reverse for Rejections)*

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL *(Cont. pages)*
N/A	N/A	N/A		

INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO: *(Include ZIP Code)*
NASA Langley Research Center,
Financial Management Division, Mail Stop 175
Hampton, VA 23681-0001

$38,008.59

17(I). GRAND TOTAL

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

23. NAME *(Typed)*
Richard J. Siebels MAR 17 1999
TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083
(Computer Generated 9/95)

50347-101

OPTIONAL FORM -347
Prescribed by GSA
FAR (48 CFR) 53.213(a

Memorandum

Date: February 15, 1999

Memo to: Distribution

From: [redacted]

Subject: Study Plan [redacted]

↳ Delivery Order 157: SSES Technical Analysis and Assessment Support

Study Request

NASA Headquarters is in the process of updating it Strategic Plan for the next decade. The revised Plan is to be completed in time to support the Agency's FY'01 Budget Request that will be submitted to OMB in late 1999. The objective of this Delivery Order request is to obtain technical analysis and assessment expertise to assist the Solar System Exploration Subcommittee (SSES) with its recommendations and contributions to this 1999 strategic planning effort. The Subcommittee will make its inputs to its parent committee, the Space Science Advisory Committee (SScAC), who will in turn participate with the Office of Space Science (Code S) in preparing the Space Science Enterprise component of the overall NASA Strategic Plan. The requested expertise shall be provided through participation as a technical observer on telecons, at meetings, and in scheduled workshops convened by the SSES, its Integration Team, and the five Campaign Science Working Groups (CSWG's) reporting to the Subcommittee. Supporting analyses and assessments will be conducted off-line on an as-assigned basis with documented results provided to the SSES and the Solar System Exploration (SSE) Theme Director, Dr. Carl Pilcher.

Study Plan Overview

[redacted]

[redacted]

Subtask Activity Synopsis

[redacted]

[redacted]

Performance Schedule

[redacted]

Task Deliverables

There are two deliverables identified for this study effort:

1) Ad hoc technical analyses and planning assessments ..... due as required
2) Final Memo Summary Report of support activity.... on or before December 31, 1999

Staffing and Cost

Cost Element	Levels-of-Effort (work-hours) Task 1	Task 2	Total	Labor Rate	Cost
DIRECT LABOR					
[redacted]					
OTHER DIRECT COSTS (ODCs)					
[redacted]					$ [redacted]
[redacted]				$ [redacted]	
[redacted]				$ [redacted]	
[redacted]				$ [redacted]	
[redacted]				$ [redacted]	
[redacted]					$ [redacted]
[redacted]					$ [redacted]
				Total Other Direct Costs	$ [redacted]
TOTAL COST OF STUDY					
				Total Cost	$ 38,008.59

Period of Performance

The proposed study period is early March 1999 through December 31, 1999.

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. *(if any)*	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
1/25/99	NASW-5067	158	

5. ISSUING OFFICE *(Address correspondence to:)*

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: *(Consignee and address, ZIP Code)*

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR *(Name, Address and ZIP Code)*

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA

P.R. M.1045; R23816; $500 (Complete)
M.1046; R23816; $12,000 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION *(Check appropriate box (es))*

☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
Destination	N/A	March 26, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE: NASA Langley Research Center

17. SCHEDULE *(See reverse for Rejections)*

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED) (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]					
Year 3	[redacted]					
Year 4	[redacted]					
	[redacted]					

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL *(Cont. pages)*
N/A	N/A	N/A		

INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO: *(Include ZIP Code)*
NASA Langley Research Center,
Financial Management Division, Mail Stop 175
Hampton, VA 23681-0001

$12,307.29

17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)* ►

23. NAME *(Typed)*
Richard J. Siebels

JAN 25 1999

TITLE : CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083 50347-101 **OPTIONAL FORM -347**

Memorandum

Date: January 25, 1999

To: Rebecca W. Bales, IPAO/LaRC
Study Requestor

From: [redacted]

Subject: Study Plan
Delivery Order 158: ISS Independent Annual Review Support

Study Request:

The Independent Program Assessment Office (IPAO) at Langley Research Center (LaRC) will be conducting an Independent Annual Review (IAR) of the International Space Station (ISS) during the second quarter of FY '99. In support of this review the IPAO has requested SAIC to provide technical systems engineering, testing, and verification expertise for the conduct of independent cost, schedule, and technical analyses at the FY '99 ISS IAR. A final report of the provided assessment analyses is required.

Study Plan Overview

[redacted]

Task Activity Synopsis

[redacted]

documented in a final written report delivered to the Study Requester at the conclusion of the Delivery Order.

Performance Schedule

[redacted]

Task Deliverable

There is one deliverable required under this delivery order which is a written Final Report of the analyses, findings and assessment performed by [redacted] the participating SAIC expert.

Task Staffing and Costs

Cost Element	Work Hours	Labor Rate	Cost
YEAR 3 LABOR			
[redacted]			
YEAR 4 LABOR			
[redacted]			
OTHER DIRECT COSTS			
[redacted]			
		Total Other Direct Costs	
TOTAL COST OF TASK			$ 11,857.29

Period of Performance

January 26, 1999 through March 26, 1999.

Distribution:

[redacted] SAIC Contract Representative
R. Bales, IPAO/LaRC/NASA Requester
C. Schauers, LaRC/NASA Contract Technical Representative
R. Siebels, LaRC/NASA Contract Representative

Submitted by: [redacted] Date: 1/25/99
[redacted], Contract Study Coordinator

Approved by: Rebecca W. Bales Date: 1.25.99
Rebecca Bales, Delivery Order Requester

Approved by: Catharine D. Schauer Date: 1/25/99
Catharine Schauer, Contract Technical Representative

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. (If any)	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
4/2/99	NASW-5067	158M1	

5. ISSUING OFFICE (Address correspondence to:)

Acquisition Division
NASA Langley Research Center
Hampton. VA 23681-0001

6. SHIP TO: (Consignee and address, ZIP Code)

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR (Name, Address and ZIP Code)

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton. VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION (Check appropriate box (es))

☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
Destination	N/A	Extended to April 30, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:
NASA Langley Research Center

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]					

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL (Cont.pages)
N/A	N/A	N/A		

INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO: (Include ZIP Code)
NASA Langley Research Center,
Financial Management Division, Mail Stop 175
Hampton, VA 23681-0001

17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA
BY (Signature)

23. NAME (Typed)
Richard J. Siebels APR 02 1999
TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083
(Computer Generated 9/95)

50347-101

OPTIONAL FORM -347
Prescribed by GSA
FAR (48 CFR) 53.213(a)

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. (If any)	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
2/1/99	NASW-5067	159	

5. ISSUING OFFICE (Address correspondence to:)

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: (Consignee and address, ZIP Code)

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR (Name, Address and ZIP Code)

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
c/o [redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA
P.R. CH.0633: R22544; $3,500 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION (Check appropriate box (es))
☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
Destination	N/A	February 16, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:
NASA Langley Research Center

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED) (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]				[redacted]	

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL (Cont.pages)
N/A	N/A	N/A		

INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO: (Include ZIP Code)
NASA Langley Research Center,
Financial Management Division, Mail Stop 175
Hampton, VA 23681-0001

$3,500

17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY (Signature) ▶ Richard J. Siebels

23. NAME (Typed)
Richard J. Siebels FEB 01 1999
TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083 50347-101 OPTIONAL FORM -347

Space Science Studies

Work Order Request

NASA Contract NASW-5067

Requester Information:

Name: Dr. Peter Ulrich
NASA Org./Loc.: Advanced Technology and Mission Studies, Code SM/NASA HQ
Phone: (202) 358-0357 FAX: (202) 358-3096 E-Mail: pulrich@hq.nasa.gov

Task Title: Solar Sail Assessment for SSE Missions

Brief Description of Task:

The objective of this Study is to assess the use of Solar Sails for Solar System Exploration (SSE) missions by demonstrating trajectories utilizing Solar Sail propulsion, optimizing sail area and flight time of various trajectories, and sizing Solar Sail vehicles for several SSE missions, with the ultimate goal of designing a common vehicle for all of the missions. Optimal Solar Sail trajectories shall be identified for several SSE Missions, including but not limited to, a Mercury Orbiter, a Comet Sample Return, an Asteroid Sample Return, and a Neptune Aerocaptured Orbiter Mission. For each mission, multiple trajectories should be investigated that optimize the total flight time, the sail area, and if feasible, simultaneously optimize the flight time and the sail area. In addition, the sample return missions should be optimized for a return trajectory that allows reuse of the Solar Sail Vehicle for additional missions. Solutions with the same or similar sail areas shall be identified from the optimized trajectories that are found. Candidate payloads developed in other mission studies can be used as representative science payloads for the solar sail mission concepts considered in this study. The sail vehicles and payloads should incorporate advanced technologies and materials wherever possible with key enabling technologies clearly identified.

Task 1: Demonstrate Solar Sail Applicability - develop time-optimal trajectories for several missions, especially the four mentioned above, incorporating real ephemeris data.

Task 2: Analyze Sail Area Sensitivities - design trajectories that optimize sail area and develop an understanding of the sensitivity to sail area for the various missions.

Task 3: Simultaneously Time and Area Optimization - analyze all missions again allowing flight time and sail area to be optimized simultaneously. Investigate solution space to find solution sets that are effective for many missions.

Task 4: Size and Cost a Solar Sail Vehicle – provide a preliminary design, size and cost for a "standard" solar vehicle that will satisfy the requirements for as many of the SSE Missions as possible. Employ a preliminary costing analysis to subsystem level of detail and include both non-recurring and recurring costs. Identify key enabling technologies for the design.

Task 5: Reporting – generate an interim report after Task 3 and a final report at the end of the Study.

Work in Accordance with SOW Sections:

C.3.1 Technical Study	X
C.3.2 Scientific Study	
C.3.3 Engineering Study	X
C.3.4 Independent Analysis	

Estimated Schedule and Cost:

Requested Start Date: January 1999
Duration: 10 months
Estimated Cost: $100K
Funds Source(s): Code SM/NASA HQ

Deliverables:

1) Interim report to review several of the optimal trajectories identified.
2) Final report with oral presentation of results.

Concurrence:

Dr. Peter B. Ulrich, Task Requester

Approval:

Ms. Catharine Schauer, COTR/LaRC

Received 1/27/99

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. *(if any)*	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
3/17/99	NASW-5067	159M1	

5. ISSUING OFFICE *(Address correspondence to:)*

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: *(Consignee and address, ZIP Code)*

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR *(Name, Address and ZIP Code)*

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA

P.R. CH.0644: R24160; $96,495 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION *(Check appropriate box (es))*

☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
Destination	N/A	December 31, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE: NASA Langley Research Center

17. SCHEDULE *(See reverse for Rejections)*

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL *(Cont. pages)*
N/A	N/A	N/A		

INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO: *(Include ZIP Code)*
NASA Langley Research Center,
Financial Management Division, Mail Stop 175
Hampton, VA 23681-0001

$ 96,494.27

17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)* ► Richard J. Siebels

23. NAME *(Typed)*
Richard J. Siebels
TITLE: CONTRACTING/ORDERING OFFICER

MAR 17 1999

NSN 7540-01-132-8083
(Computer Generated 9/95)

50347-101

OPTIONAL FORM -347
Prescribed by GSA
FAR (48 CFR) 53.213(a)

Ulrich

Memorandum

Date: February 26, 1999

Memo to: Distribution

From: [redacted]

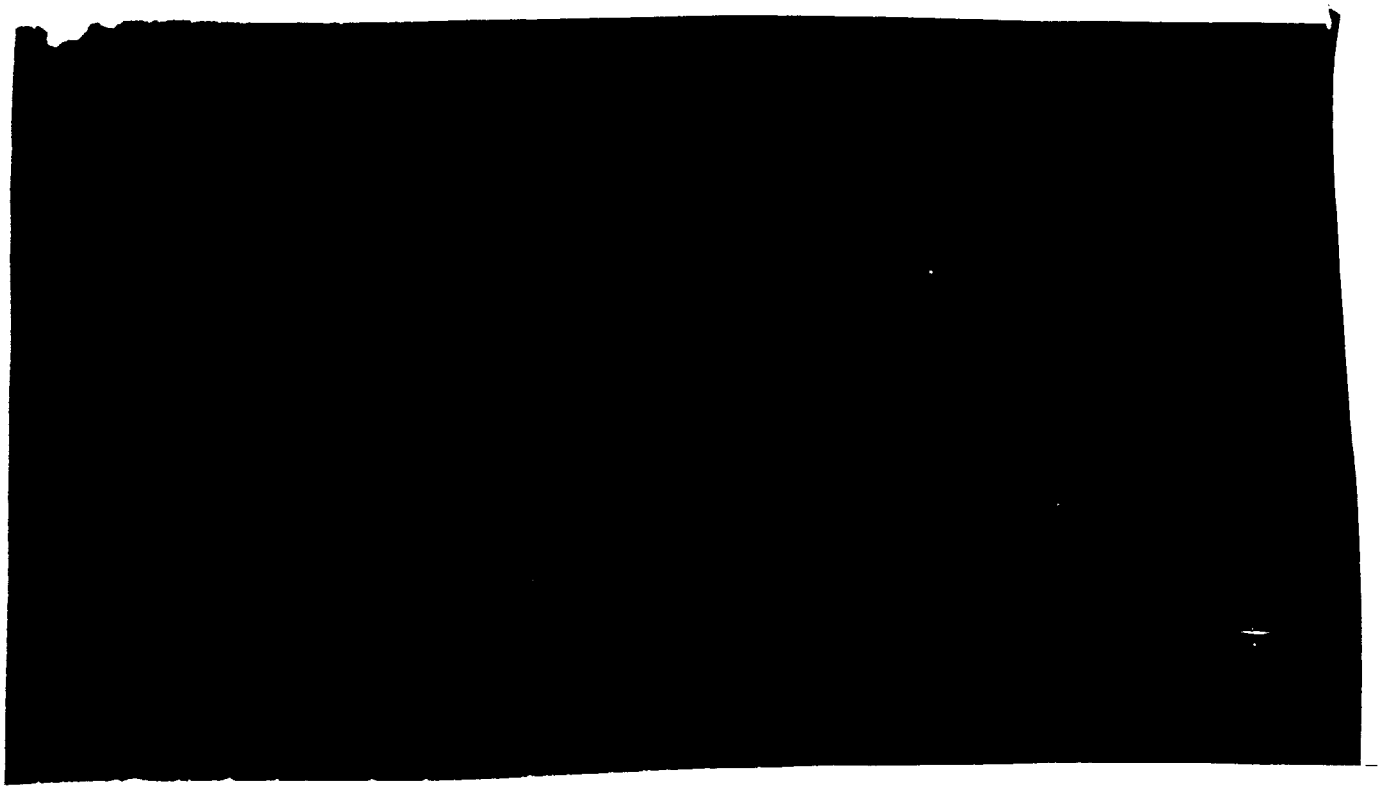
Subject: Study Plan
DO 159: Solar Sail Assessment for SSE Missions

Study Request

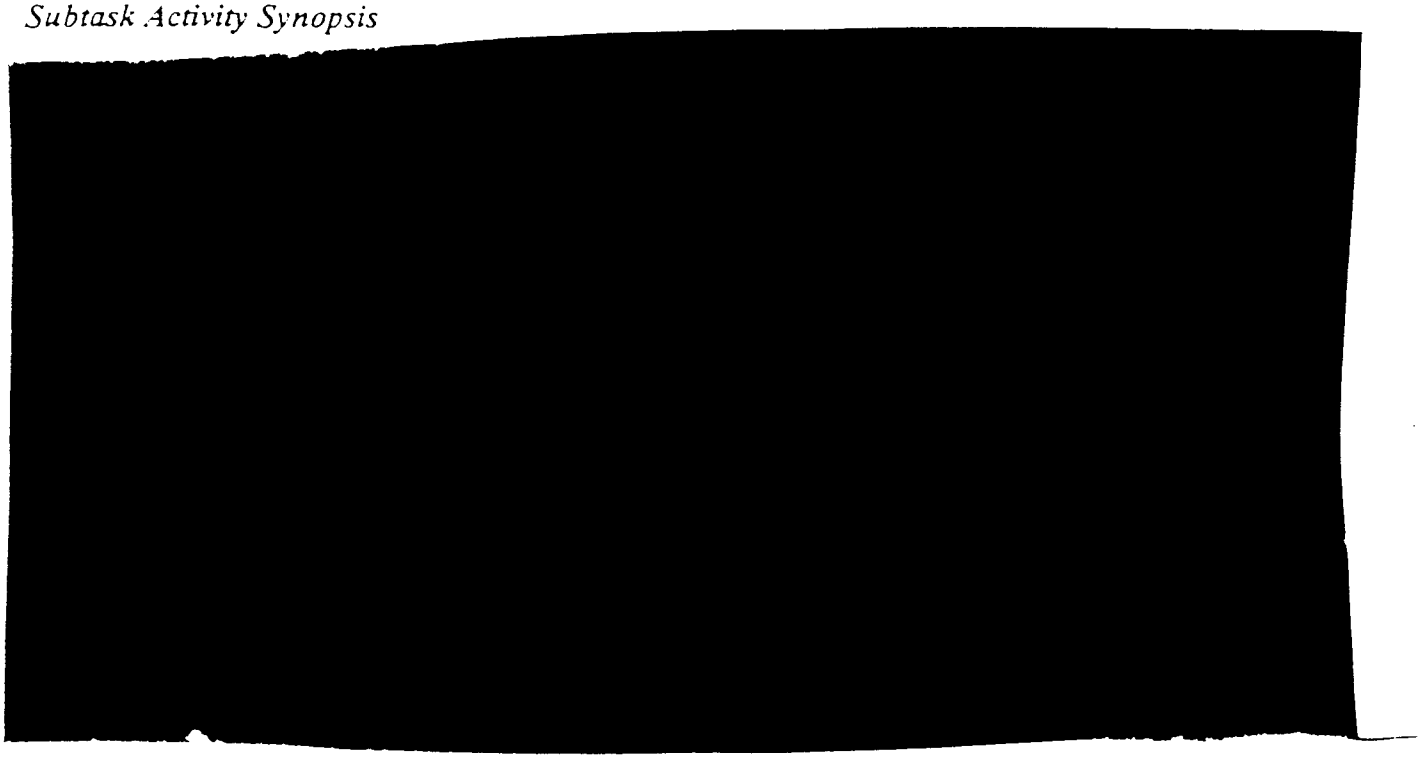
NASA's Advanced Technology and Mission Studies Division (Code SM) is chartered to pursue advanced mission concepts that strongly dependent on emerging technologies and are capable of accelerating space science exploration within constrained budgets. The objective of this Delivery Order is to assess the use of solar sails for Solar System Exploration (SSE) missions by demonstrating trajectories utilizing solar sail propulsion, optimizing sail area and flight time of various trajectories, and sizing solar sail vehicles for several SSE missions, with the ultimate goal of designing a common vehicle for all of the missions. Optimal solar sail trajectories shall be identified by the contractor for several SSE Missions, including but not limited to, a Mercury Orbiter, a Comet Sample Return, an Asteroid Sample Return, and a Neptune Orbiter Mission with aerocapture. For each mission, the contractor shall investigate multiple trajectories that optimize the total flight time, the sail area, and if feasible, simultaneously optimize the flight time and the sail area. In addition, the sample return missions should be optimized for a return trajectory that allows reuse of the Solar Sail Vehicle for additional missions. The assumed sail vehicles and payloads should incorporate advanced technologies and materials wherever possible with key enabling technologies clearly identified.

This assessment of solar sailing is related to a recent Space Science budget initiative for Gossamer Spacecraft that is subject to further review in the June/July timeframe of FY '99. Hence, a significant progress report to Code SM on this work must be provided in June 1999. Final study findings and recommendations may also impact Solar System Exploration strategic planning and shall be available by the end of the calendar year (1999).

Study Plan Overview



Subtask Activity Synopsis



[redacted]

Performance Schedule

[redacted]

Study Deliverables

There are two deliverables associated with this study. The first is a presentation of interim progress on the study, including handouts, that will be given to Code SM at NASA Headquarters. The second deliverable is the Final Study Report. The Report will provide, in annotated viewgraph form suitable for presentations, the study results including pertinent figures and data tables. A vehicle concept design will be included, along with a preliminary cost analysis, at the level of detail that is appropriate to this study effort.

Task Staffing and Cost

Cost Element	Levels-of-Effort (work-hours)						Labor Rate	Cost
	Task 1	Task 2	Task 3	Task 4	Task 5	Total		
DIRECT LABOR								
[redacted]								
OTHER DIRECT COSTS (ODC's)								
[redacted]								[redacted]
						Total Other Direct Costs		
TOTAL COST OF STUDY								
							Total Cost	$ 96,494.27

Period of Performance

The proposed period of performance is from early March 1999 through December 31, 1999.

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. (if any)	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
2/1/99	NASW-5067	160	

5. ISSUING OFFICE (Address correspondence to:)

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: (Consignee and address, ZIP Code)

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR (Name, Address and ZIP Code)

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referanced contract.

9. ACCOUNTING AND APPROPRIATION DATA
P.R. CH.0634: R22544; $948 (Complete)
; R24160; $2.522 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION (Check appropriate box (es))
☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
Destination	N/A	February 16, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:
NASA Langley Research Center

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]				[redacted]	

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL (Cont. pages)
N/A	N/A	N/A		

INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO: (Include ZIP Code)
NASA Langley Research Center,
Financial Management Division, Mail Stop 175
Hampton, VA 23681-0001

$3,500

17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA
BY (Signature) ► [signature]

23. NAME (Typed)
Richard J. Siebels

FEB 01 1999

TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083

50347-101

OPTIONAL FORM -347

Space Science Studies

Work Order Request

NASA Contract NASW-5067

Requester Information:

Name: Dr. Peter Ulrich
NASA Org./Loc.: Advanced Technology and Mission Studies, Code SM/NASA HQ
Phone: (202) 358-0357 FAX: (202) 358-3096 E-Mail: pulrich@hq.nasa.gov

Task Title: Space Exploration Accessibility Assessment

Brief Description of Task:

The objective of this study is to explore innovative technology and implementation pathways for low-cost accessibility to space and interplanetary exploration. The scope of this study should address two such pathways: (1) a low-cost multi-purpose standard bus, and (2) design alternatives for global surface mobility at Mars. Concepts should be developed in sufficient detail for each pathway to assess basic design requirements, launch vehicle and/or carrier compatibility, and any associated new enabling technologies. Each pathway should be explored as a separate task within the study, i.e.

Task 1: Standard Multi-purpose Spacecraft Bus for Low-Cost Science Missions

This pathway would provide the science community with a low-cost spacecraft bus compatible with ASAP piggy-back launches being offered on Ariane V launch vehicles. Such a standard bus could provide a capable platform for Earth orbiting and interplanetary science exploration at only the recurring cost of the bus. The study should also investigate the feasibility of launching this same standard bus (reconfigured as necessary) on a Taurus Launch Vehicle for added implementation flexibility. The selected bus concept must be able to support as wide a range of space science missions as possible within a standard (low cost) recurring design. To this end this task shall identify several example missions and typical payload suites that are compatible with the chose bus design. The selected concept and example mission concepts shall be presented in the final report along with associated risks and identified new enabling technologies.

Task 2: Mars Global Exploration Mobility Requirements

The intent of this task is to provide NASA/OSS with a preliminary assessment of the requirements for global Mars surface exploration based on established surface science objectives, vehicle design tradeoffs, and implied new technologies. Both long-range and local mobility vehicle concepts shall be studied with candidate payloads to investigate different approaches to global exploration. Science measurement objectives shall be incorporated into candidate payloads, coverage domains and mobility requirements to support the definition of alternative mobility concepts (e.g. balloons, airplanes, ballistic hoppers, and rovers), considered both individually and as cooperative sets. Technology innovations in power, propulsion, automated control, and ISRU facilities (primarily for propellant production) should be considered to support these concepts. The final report shall present alternative implementation roadmaps, with their associated design and technology requirements. The report shall also recommend follow-on work to conduct a thorough assessment of such roadmaps including comparative analyses of mission requirements, implementation risk and program cost.

Work in Accordance with SOW Sections:

C.3.1 Technical Study	X
C.3.2 Scientific Study	X
C.3.3 Engineering Study	X
C.3.4 Independent Analysis	X

Estimated Schedule and Cost:

Requested Start Date: January 1999
Duration: 6 months
Estimated Cost: $100K
Funds Source(s): Code SM/NASA HQ

Deliverables:

1) Final report with oral presentation of results.

Concurrence:

Dr. Peter B. Ulrich, Task Requester

Approval:

Catharine L. Schauer

Ms. Catharine Schauer, COTR/LaRC

Received 1/27/99

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 1

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

1. DATE OF ORDER	2. CONTRACT NO. (If any)	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
March 11, 1999	NASW-5067	160M1	

5. ISSUING OFFICE (Address correspondence to:)

Office of Procurement
NASA Langley Research Center
Hampton, VA 23681-2199

6. SHIP TO: (Consignee and address, ZIP Code)

NASA Langley Research Center
Hampton, VA 23681-2199

7. TO: CONTRACTOR (Name, Address and ZIP Code)

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

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 referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA

PR: CH.0641; R24160; $96,498.00 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION (Check appropriate box(es))

☐ SMALL X OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
Destination	N/A	October 31, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:

NASA Langley Research Center

17. SCHEDULE *(See reverse for Rejections)*

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED) (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]	[redacted]	[redacted]	[redacted]	$ [redacted]	

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL (Cont. pages)
N/A	N/A	N/A		

SEE BILLING INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO: *(Include ZIP Code)*

NASA Langley Research Center,
Financial Management Division, Mail Stop 175
Hampton, VA 23681-2199

$96,497.43

17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)* ▶ Jennings B. Cherry

23. NAME *(Typed)*

Jennings B. Cherry SEP 12 1999

TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083 50347-101
(Computer Generated 9/95)

OPTIONAL FORM 347
Prescribed by GSA FAR (48 CFR) 53.213(a)

Signature

Memorandum

Date: February 18, 1999

Memo to: Distribution

From: [redacted]

Subject: Study Plan
DO 160: Space Exploration Accessibility Assessment

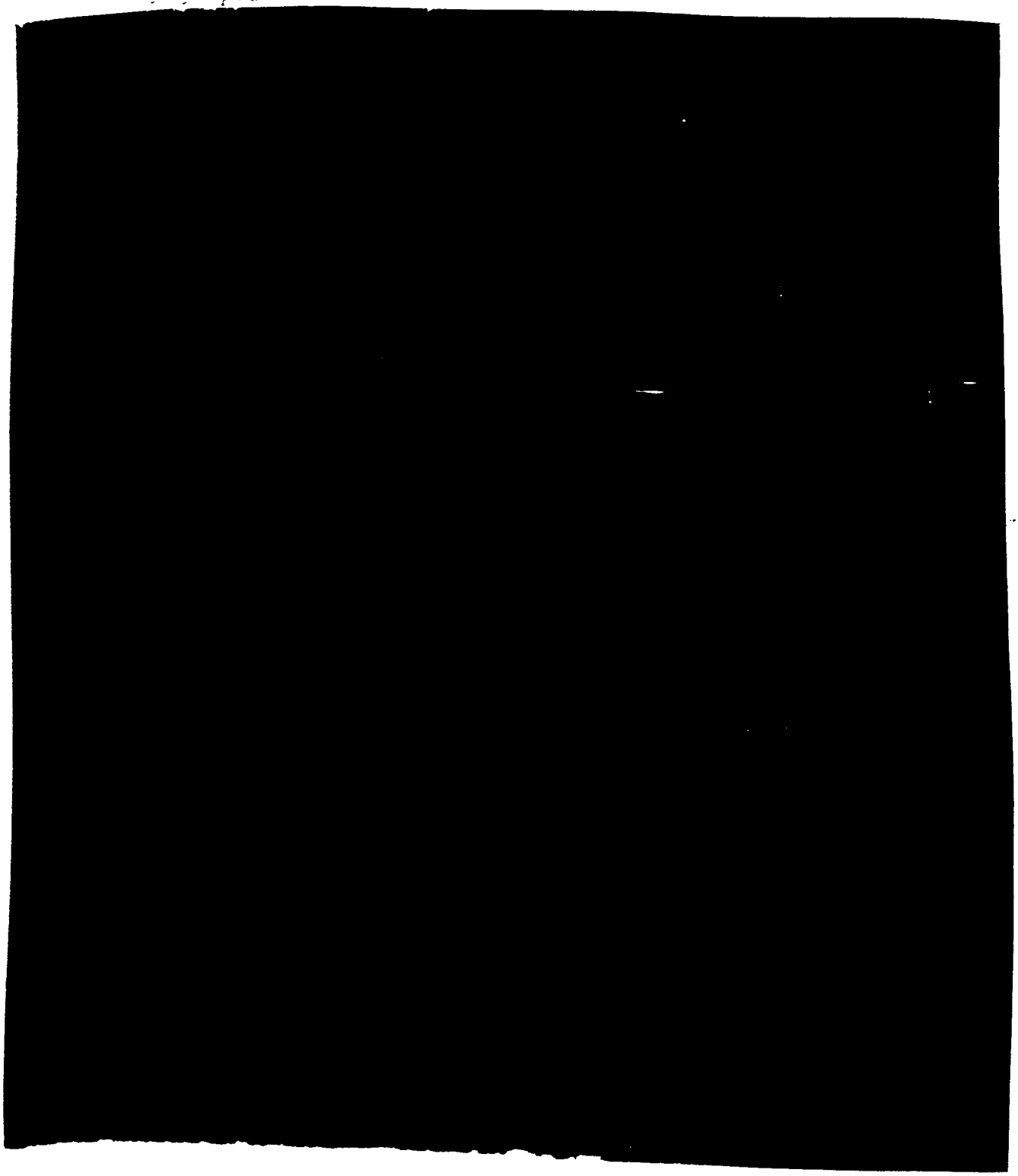
Study Request

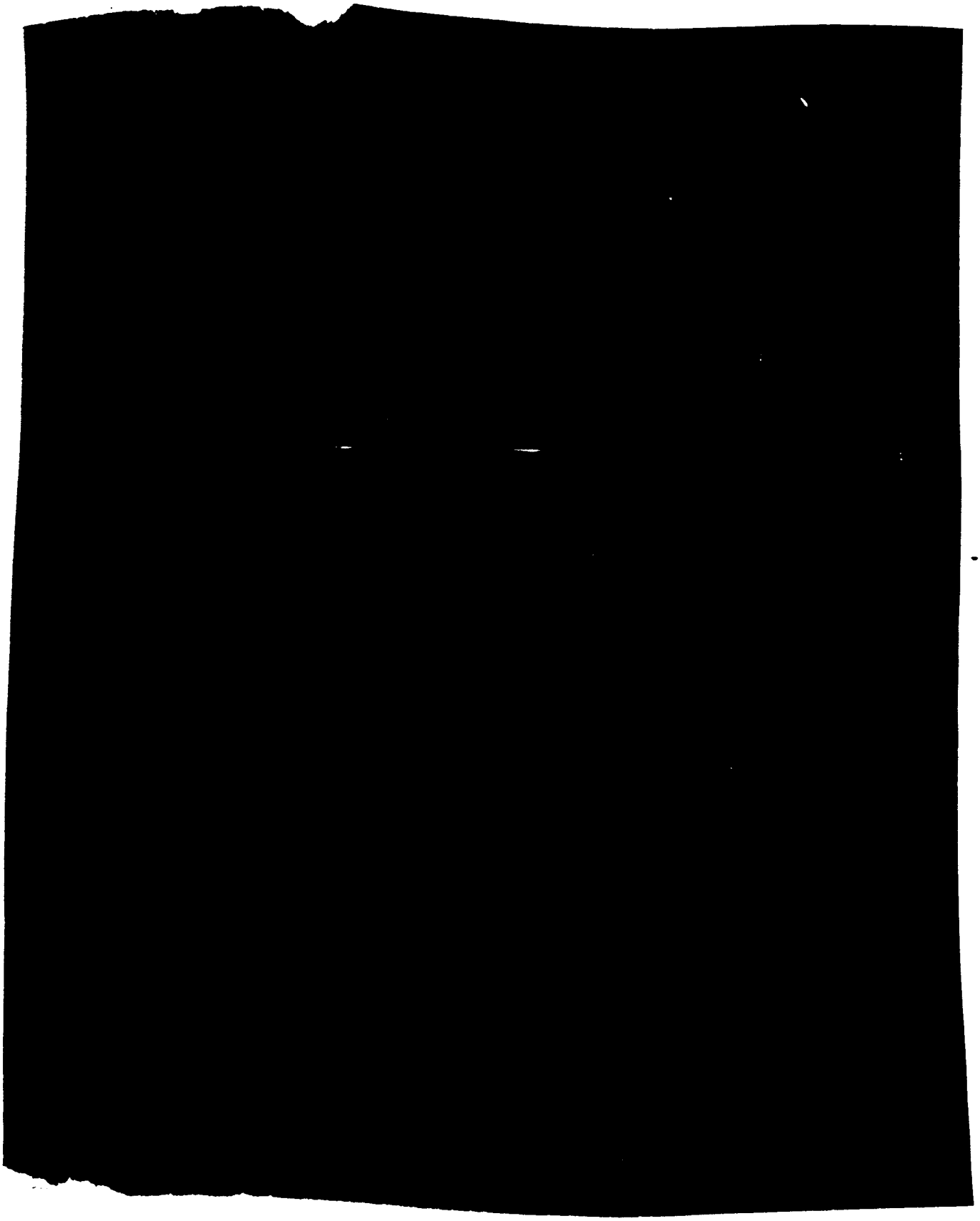
NASA's Advanced Technology and Mission Studies Division (Code SM) is chartered to pursue advanced mission concepts, that strongly dependent on emerging technologies and are capable of accelerating space science exploration within constrained budgets. The objective of this Delivery Order is to pursue such advanced concepts in two specific areas: 1) low-cost multi-purpose mini-spacecraft for a broad range of space science missions, and 2) design alternatives for global surface science on Mars. Both of these topics are keyed to recent Space Science budget augmentations that are subject to further review in the June/July timeframe of FY '99. Hence, significant progress reports to Code SM on this requested work must be provided in June 1999. Final study findings and recommendation must also be available to Solar System Exploration strategic planning that will culminate in a planning workshop scheduled for the summer of 1999.

Study Plan Overview

[redacted]

Task Activity Synopsis





[redacted]

Performance Schedule

[redacted]

Task Deliverables

There are three deliverables planned for this study effort. They are as follows:

1. Mid-term oral presentation (with hand-outs) to Code SM of preliminary results of both study tasks,
2. Final Technical Report on the Utility of a Standard Multi-Purpose Space Science Mini-Spacecraft, and
3. Final Technical Report on the Mobility Requirements for Mars Global Surface Exploration.

Monthly reporting on Delivery Order progress will also be provided as the study approaches its conclusion, and a Final Delivery Order Completion Form will be prepared for Dr. Peter Ulrich's approval once all work has been completed and all deliverables submitted.

Task Staffing and Cost

Cost Element	Levels-of-Effort (work-hours)			Labor Rate	Cost
	Task 1	Task 2	Total		
DIRECT LABOR	[redacted]				
OTHER DIRECT COSTS (ODC's)	[redacted]				
				Total Other Direct Costs	
TOTAL COST OF STUDY					
				Total Cost	$ 96,497.43

Period of Performance

The proposed period of performance is from early March 1999 through October 31, 1999.

Distribution:

[redacted] SAIC Contract Representative
C. Schauer, NASA LaRC Contract Technical Representative
R. Siebels, NASA LaRC Contracting Officer
P. Ulrich, NASA HQ Delivery Order Requester

Submitted By: [redacted] Date: 2/19/99
[redacted]act Study Coordinator

Approved By: Peter S Ulrich Date: 3/3/99
Dr. Peter Ulrich, Delivery Order Requester

Approved By: Catharine G Schauer Date: 3/10/99
Ms. Catharine Schauer, LaRC COTR

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. *(if any)*	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
2/1/99	NASW-5067	161	

5. ISSUING OFFICE *(Address correspondence to:)*

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: *(Consignee and address, ZIP Code)*

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR *(Name, Address and ZIP Code)*

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

8. TYPE OF ORDER

☐ A. PURCHASE — Reference your _____

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x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA
P.R. CH.0634: R24162; $3,000 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION *(Check appropriate box (es))*

☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
Destination	N/A	February 16. 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:
NASA Langley Research Center

17. SCHEDULE *(See reverse for Rejections)*

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]				[redacted]	

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL *(Cont. pages)*
N/A	N/A	N/A		

INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO: *(Include ZIP Code)*
NASA Langley Research Center,
Financial Management Division, Mail Stop 175
Hampton, VA 23681-0001

$3,000

17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)* ▶ Richard J. Siebels

23. NAME *(Typed)*
Richard J. Siebels

FEB 01 1999

TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083 50347-101 OPTIONAL FORM -347

Space Science Studies

WORK ORDER REQUEST

NASA Contract NASW-5067

Requester Information:

Name: Mark R. Dahl

NASA Org./Loc.: Office of Space Science, Code S, NASA Headquarters

Phone: (202) 358-0306 FAX: (202) 358-3987 E-mail: mdahl@mail.hq.nasa.gov

Task Title: Tier 1 Environmental Impact Statement for the Mars Surveyor Program

Brief Description of Task:

Utilizing capabilities not available at NASA Headquarters, the Contractor will prepare the Draft and Final Tier 1 Environmental Impact Statements (EIS's) for the Mars Surveyor Program, encompassing the 2001 and 2003 missions. Specifically, the Contractor will serve as an integral member of the NASA EIS team with responsibility for critical technical NEPA compliance review of all inputs prepared by the team for the EIS, and will integrate those inputs, including inputs prepared by the Contractor, into the documents. In addition, the Contractor will prepare technical inputs required for NEPA notices that must be published at various points in the process. The Contractor will also maintain a master mailing list for use in distributing the NEPA notices and the Draft and Final Tier 1 EIS's.

Work in Accordance with SOW Sections:

C.3.1 Technical Study	____
C.3.2 Scientific Study	____
C.3.3 Engineering Study	____
C.3.4 Independent Analysis	__X__

Estimated Schedule and Cost

Requested Start Date: February 22, 1999

Duration: 12 months

Estimated Cost: $252,000

Funds Source: Code S, NASA HQ

Deliverables:

1) Camera-ready hard copy and Internet-ready electronic copy of the Draft Tier 1 EIS: 6/30/99
2) Camera-ready hard copy and Internet-ready electronic copy of the Final Tier 1 EIS: 11/30/99
3) Final Letter Report: 2/28/00

Concurrence:

Mark R. Dahl 1/22/99

Mark R Dahl, Task Requester

Approval:

Catharine G Schauer

Ms. Catherine Schauer, COTR- LaRC

1/22/99

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. (if any)	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
2/3/99	NASW-5067	161M1	

5. ISSUING OFFICE (Address correspondence to:)

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: (Consignee and address, ZIP Code)

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR (Name, Address and ZIP Code)

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA

P.R. CH.0635: R24162; $3,000 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION (Check appropriate box (es))

☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
Destination	N/A	February 16, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:

NASA Langley Research Center

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED) (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]					

	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL (Cont. pages)
INSTRUCTIONS ON REVERSE	N/A	N/A	N/A		
	21. MAIL INVOICE TO: (Include ZIP Code) NASA Langley Research Center, Financial Management Division, Mail Stop 175 Hampton, VA 23681-0001				17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY (Signature)

23. NAME (Typed)

Richard J. Siebels FEB 03 1999

TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083 50347-101 **OPTIONAL FORM -347**

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 1

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

1. DATE OF ORDER	2. CONTRACT NO. (If any)	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
March 11, 1999	NASW-5067	161M2	

5. ISSUING OFFICE (Address correspondence to:)

Office of Procurement
NASA Langley Research Center
Hampton, VA 23681-2199

6. SHIP TO: (Consignee and address, ZIP Code)

NASA Langley Research Center
Hampton, VA 23681-2199

7. TO: CONTRACTOR (Name, Address and ZIP Code)

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

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 referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA

PR: CH.0643; R24162; $298,987.87

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION (Check appropriate box(es))

☐ SMALL X OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
Destination	N/A	April 28, 2000	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:

NASA Langley Research Center

17. SCHEDULE *(See reverse for Rejections)*

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1 Year 4	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

SEE BILLING INSTRUCTIONS ON REVERSE	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL (Cont. pages)
	N/A	N/A	N/A		
	21. MAIL INVOICE TO: (Include ZIP Code) NASA Langley Research Center, Financial Management Division, Mail Stop 175 Hampton, VA 23681-2199			$298,987.87	17(I). GRAND TOTAL

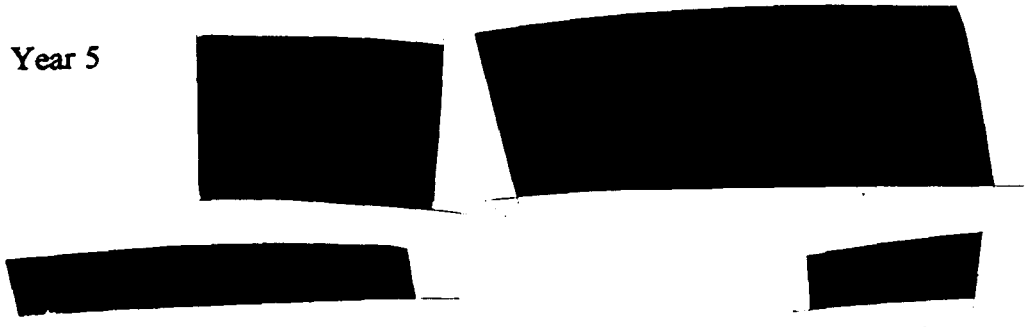
22. UNITED STATES OF AMERICA
BY (Signature) Jennings B. Cherry

23. NAME (Typed)
Jennings B. Cherry MAR 11 1999
TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-152-8083 5C347-101
(Computer Generated 3/95)

OPTIONAL FORM 347
Prescribed by GSA FAR (48 CFR) 53.213(a)

Year 5



Contract No. NASW-5067
Delivery Order 162
SPACE SCIENCE STUDIES
WORK ORDER REQUEST Delivery Order 162

Requester Information Name: Mark Saunders, NASA Org./Loc: LaRC, SSSO e-mail: m.p.saunders@larc.nasa.gov

Phone: 864-9850; Fax: 864-8894

Brief Description of Task:

Rationale: The ST-4 mission: The Office of Space Science *will* conduct a confirmation review in order to determine whether the mission is ready to proceed to development and flight. An independent review of the program has been requested by the Office of Space Science in order to get an unbiased assessment of the readiness of the mission. This task would perform an assessment of specific aspects of the ST-4 mission.

The specific disciplines, which should be assessed, include: (1) Whether the mission design is adequate to support the scientific goals; (2) Whether the scientific instruments *will* provide adequate data to meet the scientific goals; and (3) Whether the system engineering and hardware development progress at PDR indicate the mission *will* be ready to launch on time, within budget, and *will* be able to accomplish the mission.

The five subtasks for each discipline assessed should include: (1) Survey mission requirements as documented in the original plans; (2) Review the current status of the mission by attending the ST-4 program PDR and subsystems technical reviews (dates TBD); (3) Prepare a report, including recommendations on the readiness of the mission to proceed to development and flight; (4) Review report findings with the Independent Review Team chairman and members; and (5) Support the chairman's summary presentation of the independent assessment to Office of Space Science.

Work in accordance with
SOW Section (check one):
- C.3.1 Technical Study X
- C.3.2 Scientific Study
- C.3.3 Engineering Study X
- C.3.4 Independent Analysis X

Requested Start Date: March 1999
Duration: May 1999
Estimated Cost (optional):
Funds Source:

Deliverables:
Draft report on the readiness of the ST-4 mission - Third Week in April 1999
Final report and presentation on the readiness of the ST-4 mission - mid-May 1999

Completion Date: May 21, 1999

Mark Saunders, Head, SSSO
Date: March 4, 1999

Catharine Schauer, COTR
Date: March 4, 1999

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 1

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

1. DATE OF ORDER	2. CONTRACT NO. (If any)	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
March 8, 1999	NASW-5067	162	

5. ISSUING OFFICE (Address correspondence to:)

Office of Procurement
NASA Langley Research Center
Hampton, VA 23681-2199

6. SHIP TO: (Consignee and address, ZIP Code)

NASA Langley Research Center
Hampton, VA 23681-2199

7. TO: CONTRACTOR (Name, Address and ZIP Code)

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]

Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

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 referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA

PR: CH.0642; R22413; $2,000 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION (Check appropriate box(es))

☐ SMALL X OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
Destination	N/A	March 22, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:

NASA Langley Research Center

17. SCHEDULE *(See reverse for Rejections)*

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED) (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]				[redacted]	

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL (Cont. pages)
N/A	N/A	N/A		

SEE BILLING INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO: *(Include ZIP Code)*

NASA Langley Research Center,
Financial Management Division, Mail Stop 175
Hampton, VA 23681-2199

$2,000.00

17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)* ▶ Jennings B. Cherry

23. NAME *(Typed)*
Jennings B. Cherry MAR - 9 1999
TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-152-8083 50347-101
(Computer Generated 3/95)

OPTIONAL FORM 347
Prescribed by GSA FAR (48 CFR) 53.213(a)

Contract No. NASW-5067
Delivery Order 162
SPACE SCIENCE STUDIES
WORK ORDER REQUEST Delivery Order 162

Requester Information
Name: Mark Saunders
NASA Org./Loc: LaRC, SSSO
e-mail: m.p.saunders@larc.nasa.gov
Phone: 864-9850
Fax: 864-8894

Brief Description of Task:

Rationale: The ST-4 mission: The Office of Space Science will conduct a confirmation review in order to determine whether the mission is ready to proceed to development and flight. An independent review of the program has been requested by the Office of Space Science in order to get an unbiased assessment of the readiness of the mission. This task would perform an assessment of specific aspects of the ST-4 mission.

The specific disciplines which should be assessed include 1) whether the mission design is adequate to support the scientific goals; 2) whether the scientific instruments will provide adequate data to meet the scientific goals; and 3) whether the system engineering and hardware development progress at PDR indicate the mission will be ready to launch on time, within budget, and will be able to accomplish the mission.

The five subtasks for each discipline assessed should include: (1) Survey mission requirements as documented in the original plans; (2) Review the current status of the mission by attending the ST-4 program PDR and subsystems technical reviews (dates TBD); (3) Prepare a report, including recommendations on the readiness of the mission to proceed to development and flight; (4) Review report findings with the Independent Review Team chairman and members; and (5) Support the chairman's summary presentation of the Independent assessment to Office of Space Science..

Work in accordance with SOW Section (check one):
- C.3.1 Technical Study X
- C.3.2 Scientific Study
- C.3.3 Engineering Study X
- C.3.4 Independent Analysis X

Requested Start Date: March 1999
Duration: May 1999
Estimated Cost (optional):
Funds Source:

Deliverables:
Draft report on the readiness of the ST-4 mission—Third Week in April 1999
Final report and presentation on the readiness of the ST-4 mission—Mid-May 1999

Completion Date: May 21, 1999

Mark Saunders, Head, SSSO
Date: March 4, 1999

Catharine Schauer, COTR
Date: March 4, 1999

SPACE SCIENCE STUDIES
Delivery Order 163-MIDEX Downselect Concept Studies Evaluation

WORK ORDER REQUEST
NASW-5067

Requester Information Name: David A. Gilman
Office/Org: SSSO, NASA-LaRC
e-mail: d.a.gilman@larc.nasa.gov

Phone: 757-864-4428
Fax: 757-864-8894
Date: March 30, 1999

Brief Description of Task:

Schedule is shown on the attached sheet.

Requirements include the expert evaluation review (minimum of four consultants to provide expert review, etc.) and cost assessment (a cost analyst will support cost assessment).

Other milestones:

Evaluation Kick-Off at LaRC on 6/29/99; a first evaluation plenary at LaRC from 7/19-23/99; five site visits from 8/1-20/99; and a final plenary at LaRC from 8/30-9/2/99.

If NASA is unable to secure suitable instrument expertise via civil service, SAIC will also supply this critical skill. This should be included in the cost estimate as a separate line item.

Travel as required.

Work is in accordance with SOW Section (check one):

C.3.1 Technical Study
C.3.2 Scientific Study
C.3.3 Engineering Study
C.3.4 Independent Analysis X

Requested Start Date: May 3, 1999

Duration: December 31, 1999

Estimated Cost (optional): $200,000

Funds Source:

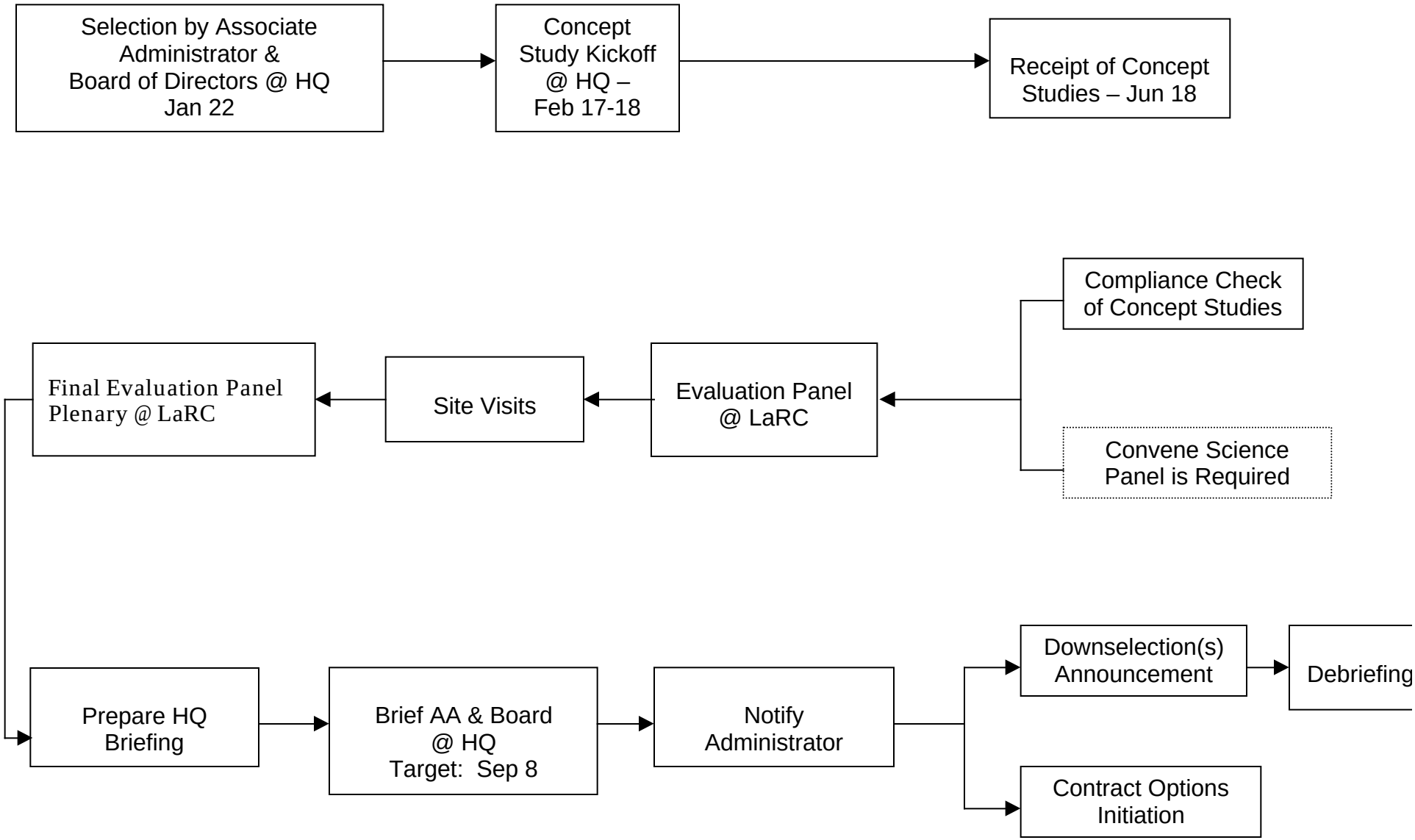
Deliverables: Technical evaluations and documentation from detailed assessment of concept studies.

_____
Technical Monitor/Date

_____
Division-Level Approval/Date

_____
NASA-LaRC COTR/Date

MIDEX Downselect Schedule/Evaluation Flow



OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. *(If any)*	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
4/1/99	NASW-5067	163	

5. ISSUING OFFICE *(Address correspondence to:)*

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: *(Consignee and address, ZIP Code)*

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR *(Name, Address and ZIP Code)*

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA

P.R. CH.0647; R22675; $5.000 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION *(Check appropriate box (es))*

☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
Destination	N/A	April 16, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:

NASA Langley Research Center

17. SCHEDULE *(See reverse for Rejections)*

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED) (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]				[redacted]	

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL *(Cont. pages)*
N/A	N/A	N/A		

INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO: *(Include ZIP Code)*
NASA Langley Research Center,
Financial Management Division, Mail Stop 175
Hampton, VA 23681-0001

$5.000

17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)* ▶ [signature]

23. NAME *(Typed)*
Richard J. Siebels

APR 01 1999

TITLE : CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083
(Computer Generated 9/95)

50347-101

OPTIONAL FORM -347
Prescribed by GSA
FAR (48 CFR) 53.213(a)

SPACE SCIENCE STUDIES
WORK ORDER REQUEST
164

Requester Information
Name: John D. Rummel

Phone: (508) 289-7218
NASA Org./Loc: Planetary Protection/Office Space Science Fax: (508) 289-7900
e-mail: jrummel@mbl.edu (jrummel@hq.nasa.gov after4/1/99) HQ Phone (202) 358-0702 after 4/1/99

Brief Description of Task: Mars Planetary Protection Modeling and Analysis

Currently planned Mars missions as well as missions to be proposed through the Discovery Program and through other channels are subject to the planetary protection provisions of NPD 8020.7E and NPG 8020.12B. The contractor will study the effects of planetary protection requirements to be applied to future Mars missions--specifically spacecraft cleanliness, sample canister sealing and verification, and operational parameter and trajectory requirements derived from NPG 8020.1213 and NRC planetary protection reports--based on modeling, analysis, and information (such as planetary protection models and regulations, mission planning information, and available risk analyses) provided to the Contractor by NASA. As part of this study, the Contractor will assess the technical feasibility and adequacy of planetary protection implementations proposed by the Mars Program Office and CNES and other mission partners, and provide data about the study necessary for NASA to communicate planetary protection requirements to Mars mission planners, the scientific community, and other groups involved with the planning, implementation, and results of Mars missions. Travel to NASA Headquarters or Langley Research Center and to JPL may be necessary to obtain relevant mission planning and planetary protection requirements information, and a presentation of the results by study principals may be required within the continental United States.

Work in accordance with SOW Section (check one):

C.3.1 Technical Study X

C.3.2 Scientific Study

C.3.3 Engineering Study

C.3.4 Independent Analysis

Requested Start Date: 4/1/99
Duration: 28 February 2000
Estimated Cost (optional): $75K
Funds Source: UPN 344-50-06-01

Deliverables: Interim reports and supporting materials, if and as required. Final report at the completion of study. Presentation of study results.

John D. Rummel, Ph.D./Planetary Protection Officer
Date:

Guenter R. Riegler, Ph.D./Director
Research Program Management Division
Date:

Catharine G. Schauer, NASA LaRC COTR

Omd Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. *(if any)*	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
5/10/99	NASW-5067	164	

5. ISSUING OFFICE *(Address correspondence to:)*

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: *(Consignee and address, ZIP Code)*

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR *(Name, Address and ZIP Code)*

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA

P.R. CH.0657; R24306; S2,000 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION *(Check appropriate box (es))*

☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
Destination	N/A	May 21, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:

NASA Langley Research Center

17. SCHEDULE *(See reverse for Rejections)*

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED) (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]				[redacted]	

	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL *(Cont. pages)*
	N/A	N/A	N/A		
INSTRUCTIONS ON REVERSE	21. MAIL INVOICE TO: *(Include ZIP Code)* NASA Langley Research Center, Financial Management Division, Mail Stop 175 Hampton, VA 23681-0001			$2.000	17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)* Richard J. Siebels

23. NAME *(Typed)* Richard J. Siebels MAY 10 1999

TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083
(Computer Generated 9/95)

50347-101

OPTIONAL FORM -347
Prescribed by GSA
FAR (48 CFR) 53 213(a)

SPACE SCIENCE STUDIES
WORK ORDER REQUEST
165

Requester Information Name: John D. Rummel
Phone: (508) 289-7218
NASA Org/Loc: Planetary Protection/0ffice of Space Science
Fax: (508) 289-7900
e-mail: jrummel@mbl.edu (jrummel@hq.nasa.gov after 4/1/99) HQ Phone: (202) 358-0702 after4/1/99

Brief Description of Task: Small Body Planetary Protection Modeling and Analysis

Currently planned solar system exploration missions to small bodies (e.g., Europa orbiter), as well as missions to be proposed through the Discovery Program and through other channels are subject to the planetary protection provisions of NPD 8020.7E and NPG 8020.12B. For up to three such missions proposed to the Discovery program or under review during this period, the contractor will study planetary protection requirements to be applied to solar system exploration missions--specifically spacecraft cleanliness, sample canister sealing and verification, and operational parameter and trajectory requirements derived from NPG 8020.12B and NRC planetary protection reports--based on modeling, analysis, and information (such as planetary protection models and regulations, mission planning information, and available risk analyses) provided to the Contractor by NASA. As part of this study, the Contractor will assess the technical feasibility and adequacy of planetary protection implementations proposed by applicable mission projects, as applicable, and provide data about the study necessary for NASA to communicate planetary protection requirements to mission planners, the scientific community, and other groups involved with the planning, implementation, and results of missions to small bodies of the solar system. Travel to NASA Headquarters or Langley Research Center and to proposing institutions may be necessary to obtain relevant mission planning and planetary protection requirements information, and a presentation of the results by study principals may be required within the continental United States.

Work in accordance with SOW Section (check one):

C.3.1 Technical Study	X
C.3.2 Scientific Study	
C.3.3 Engineering Study	
C.3.4 Independent Analysis	

Requested Start Date: 4/l/99
Duration: 28 February 2000
Estimated Cost (optional): $25K
Funds Source: UPN 344-50-06-01

Deliverables: Interim reports and supporting materials if and as required. Final report at the completion of study. Presentation of study results.

John D. Rummel, Ph.D./Planetarv Protection Officer
Date:

Guenter R. Riegler, Ph.D/Director
Research Program Management Division
Date:

Catharine G. Schauer, NASA-LaRC
Date:

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

ORDER /10/99	2. CONTRACT NO. *(if any)*	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
	NASW-5067	165	

5. OFFICE *(Address correspondence to:)*

sition Division
. Langley Research Center
ton, VA 23681-0001

6. SHIP TO: *(Consignee and address, ZIP Code)*

NASA Langley Research Center
Hampton, VA 23681-0001

ITRACTOR *(Name, Address and ZIP Code)*

e Applications International Corporation
Sorrento Valley Road
iego, CA 92121-1006
[redacted]
e Applications International Corp.
on, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

TING AND APPROPRIATION DATA
CH.0658; R24306; S1,000 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION *(Check appropriate box (es))*
☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

OINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
Destination	N/A	May 21, 1999	N/A
OF INSPECTION AND ACCEPTANCE:			
Langley Research Center			

17. SCHEDULE *(See reverse for Rejections)*

SUPPLIES OR SERVICES (B)	QUANTITY ORDERED) (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
[redacted]				[redacted]	

	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL *(Cont. pages)*
TIONS	N/A	N/A	N/A		
RSE	21. MAIL INVOICE TO: *(Include ZIP Code)* NASA Langley Research Center, Financial Management Division, Mail Stop 175 Hampton, VA 23681-0001			$1,000	17(I). GRAND TOTAL

D STATES OF AMERICA
BY *(Signature)* Richard J. Siebels

23. NAME *(Typed)*
Richard J. Siebels
TITLE: CONTRACTING/ORDERING OFFICER

MAY 10 1999

1-132-8083 50347-101

OPTIONAL FORM -347
Prescribed by GSA
FAR (48 CFR) 53.213(a)

Generated 9/95)

Space Science Studies
Work Order Request
NASA Contract NASW-5067
DO 166

Requester Information:

Name: Glenn Mucklow
NASA Org./Loc.: Advanced Technology and Mission Studies, Code SM, NASA HO
*Phone: (*202) 358-2235; FAX. (*202) 358-3096*
e-mail: gmucklow@hq.nasa,gov

Task Title: Assessment of Extra-Solar Exploration and Technology Roadmap

Brief Description of Task:

NASA's strategic planning horizon now extends to 2050 and includes in its scope extra-solar exploration. Therefore, the Advanced Technology and Mission Studies Division (AT&MS) at NASA HQ is sponsoring studies to develop a roadmap for Interstellar Exploration, and to Identify the critical now technologies required to implement the roadmap missions. Included in the roadmap are missions to the Kulper Belt, the Interstellar Boundary, the Oort Cloud, and ultimately a flight to one of the nearest stars. The purpose of this Delivery Order Is to conduct an independent assessment of the current roadmapping effort, along with the defined critical technologies. The assessment effort should confirm, or recommend modifications for, the proposed roadmap in order to provide further assurance that technology investments made today will provide the needed capabilities for extra-solar exploration in the decades to come. Prioritization of the investments is also sought, since now technology budgets are unable to support all areas of interest.

Task 1: Roadmap and Technology Evaluation *will assess the Interstellar Science, Technology and Mission Roadmap prepared by JPL. The assessment should review the existing literature on extra-solar science objectives and implementation schemes to form a comparative basis for the roadmap. Known scientists and engineers in the areas to interstellar science and relativistic flight should be consulted to gain the broadest view of possibilities for this field of deep-space exploration. It should be determined whether fundamental technical understanding or funding is the pacing item for progress in the key technology areas. Evolved roadmap mission concepts shall be independently evaluated by the contractor, including but not limited to: (1) a Kulper Belt organic mission; and (2) a Hellopause/interstellar medium mission. The Contractor will prepare a final report of all assessment findings and Identify key actions required to support evolving development of NASA's extra-solar exploration capability.*

Task 2: Extra-Solar Program Development Support shall be provided by contractor to address specific technical issues affecting the roadmapping and program planning efforts at AT&MS. This support should include, but not be limited to: engineering and technical feasibility assessments, evaluation of new technology effectiveness, independent estimation of research and development costs, and development of implementation alternatives for comparative evaluation. The Contractor shall maintain the ability to provide this support on an as-needed basis, and to provide effective responses on short-notice. This support shall be limited to 8 work-weeks of effort.

Work In Accordance with SOW Sections:		*Estimated Schedule and Cost:*
C-3.1 Technical Study	*X*	*Requested Start Date: June 1999*
C.3.2 Scientific Study	*X*	*Duration: 12 months*
C.3.3 Engineering Study	*X*	*Estimated Cost: $135,000*
C.3.4 Independent Analysis	*X*	*Funds Source(s):*

Deliverables:

1) *Final Report on the Assessment of the Extra-Solar System Exploration Roadmap*
2) *Ad hoc Responses to Extra-Solar System Program Development Issues*

Concurrence:

_____
Glenn Mucklow, Task Requester

_____
Catharine G. Schauer, COTR, LaRC

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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

1. DATE OF ORDER	2. CONTRACT NO. (if any)	3. ORDER NO.	4. REQUISITION/REFERENCE NO.
5/10/99	NASW-5067	166	

5. ISSUING OFFICE (Address correspondence to:)

Acquisition Division
NASA Langley Research Center
Hampton, VA 23681-0001

6. SHIP TO: (Consignee and address, ZIP Code)

NASA Langley Research Center
Hampton, VA 23681-0001

7. TO: CONTRACTOR (Name, Address and ZIP Code)

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006
[redacted]
Science Applications International Corp.
Hampton, VA 23666-5845

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 sheets, if any, including delivery as indicated. This purchase is negotiated under authority of:

x B. DELIVERY — Except for billing instructions on the reverse, this delivery order is subject to instructions icontained on this side only of this form and is issued subject to the terms and conditions of the above referenced contract.

9. ACCOUNTING AND APPROPRIATION DATA
P.R. CH.0659; R23854; $3,500 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION (Check appropriate box (es))

☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
Destination	N/A	May 21, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:
NASA Langley Research Center

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED) (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]				[redacted]	

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL (Cont. pages)
N/A	N/A	N/A		

INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO: (Include ZIP Code)
NASA Langley Research Center,
Financial Management Division, Mail Stop 175
Hampton, VA 23681-0001

$3,500

17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY (Signature)

23. NAME (Typed)
Richard J. Siebels

TITLE: CONTRACTING/ORDERING OFFICER

MAY 10 1999

NSN 7540-01-152-8083
(Computer Generated 9/95)

50347-101

OPTIONAL FORM -347
Prescribed by GSA
FAR (48 CFR) 53.213(a)

Space Science Studies
Work Order Request
NASA Contract NASW-5067
DO 167

Requester Information:

Name: Glenn Mucklow
NASA Org/Loc: Advanced Technology and Mission Studies, Code SM/NASA HQ
Phone: (202) 358-2235; Fax: (202) 358-3098
e-mail: gmucklow@hq.nasa,gov

Task Title: Advanced Mission Concepts for Extre-Solar System Exploration

Brief Description of Task: The Advanced Technology and Mission Studies Division (AT&MS) at NASA HO is sponsoring advanced mission studies to broaden its understanding of potential exploration opportunities beyond our solar system and to identify critical now technologies that will enable such opportunities. The purpose of this delivery order is to advance our understanding of extra-solar system exploration In three ways: (1) Through the development of a primer document with metrics for relativistic flight; (2) through the investigation of advanced interstellar mission concepts; and (3) Through ad hoc mission assessments in support of an evolving program plan for extra-solar system exploration.

Task 1: Interstellar Mission Primer will construct a primer document to serve as an introduction to relativistic flight for NASA program managers and key staffers of the OMS and Congress. The document should illustrate in laymen terms the key characteristics and properties of extra-solar system missions. Technologies enabling such flights should be identified and characterized in terms of readiness and investment needs. Metrics should be prepared, which can serve as useful criteria for evaluating competing concepts and assessment of likely feasibility. Examples should be included in the primer to illustrate the general characteristics of interstellar flight and the application of the developed evaluation metrics.

Task 2: Extra-solar Exploration Mission Design Trade-off Analysis shall be performed to assess key trades-off in extra-solar exploration with quantifiable results. The contractor shall address at a minimum the following science and technology trades-off: (1) Remote sensing versus in situ science value; (2) Fast-track implementation (with near-term technology) and deferred implementation (with break-through technology); (3) Alternative remote sensing concepts (including large area science telescopes, IR and X-ray Interferometers, and very long baseline interferometers); and (4) optical communications highly processed radio communication. An additional four work-weeks of effort shall be held in reserve for concept assessment analyses requested on an as-needed basis.

Task 3: Advanced Interstellar Mission Concept will perform a mission study of an extra-solar system exploration missions. The final mission objective shall be a neighboring star. The study shall Identify mission unique science objectives, the science payloads and flight support systems, the means of interstellar propulsion, and expected concept for flight operations and date retrieval. Estimates of technology requirements, opportunity readiness, and expected cost shall also be performed. Trade-off justifications for the chosen mission design suits shall be included in the final study results, as well as key prerequisite R&D activities leading to implementation of the designs.

Work In Accordance with SOW Sections:		*Estimated Schedule and Cost:*
C.3.1 Technical Study	*X*	*Requested Start Date: June 1999*
C.3.2 Scientific Study	*X*	*Duration: 15 months*
C.3.3 Engineering Study	*X*	*Estimated Cost: $165.000*
C.3.4 Independent Analysis	*X*	*Funds Source(s):*

Dellverables:

1) *Interstellar Primer Handbook*
2) *Extra-solar Exploration Trade-off Assessment Presentation*
3) *Interstellar Mission Study Report*

Concurrence:

_____
Glen Mucklow, Task Requester

Approval:

_____
Catharine G. Schauer, COTR, LaRC

OMB Approval #: 2700-0042

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 1

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Hampton, VA 23681-0001

7. TO: CONTRACTOR *(Name, Address and ZIP Code)*

Science Applications International Corporation
11803 Sorrento Valley Road
San Diego, CA 92121-1006

[redacted]

Science Applications International Corp.
Hampton, VA 23666-5845

8. TYPE OF ORDER

☐ A. PURCHASE — Reference your _____

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9. ACCOUNTING AND APPROPRIATION DATA

P.R. CH.0660; R23854; $5,000 (Complete)

10. REQUISITIONING OFFICE

11. BUSINESS CLASSIFICATION *(Check appropriate box (es))*

☐ SMALL x OTHER THAN SMALL ☐ DISADVANTAGED ☐ WOMEN-OWNED

12. F.O.B. POINT	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE *(Date)*	16. DISCOUNT TERMS
Destination	N/A	May 21, 1999	N/A

13. PLACE OF INSPECTION AND ACCEPTANCE:

NASA Langley Research Center

17. SCHEDULE *(See reverse for Rejections)*

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED) (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
1	[redacted]				[redacted]	

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(H). TOTAL *(Cont. pages)*
N/A	N/A	N/A		

INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO: *(Include ZIP Code)*
NASA Langley Research Center,
Financial Management Division, Mail Stop 175
Hampton, VA 23681-0001

$5,000

17(I). GRAND TOTAL

22. UNITED STATES OF AMERICA BY *(Signature)* Richard J. Siebels

23. NAME *(Typed)* Richard J. Siebels MAY 10 1999

TITLE: CONTRACTING/ORDERING OFFICER

NSN 7540-01-132-8083
(Computer Generated 9/95)

50347-101

OPTIONAL FORM -347
Prescribed by GSA
FAR (48 CFR) 53.213(a)

Proposed Study Plan
STEREO 1999 Proposal Evaluation
DO 168

Rationale: The Space Science Support Office (SSSO) at the Langley Research Center requires an independent assessment and evaluation of the technical implementation plan submitted as part of each proposal to the Solar Terrestrial Relations Observatory (STEREO) Announcement of Opportunity (AO). This AO is limited to selecting instrument(s) only. A candidate set of seven instruments are described in the STEREO AO. Proposers may propose a single instrument or a suite of instruments. Partial selections are allowed. A TMCO grade will be assigned to each instrument and the instrument suite. For the purpose of sizing the effort required to perform this support, it has been assumed that there will be no more than 20 instrument proposals and 5 Mission of Opportunity proposals to evaluate. It is anticipated that only one panel will be necessary. The STEREO AO was released April 28. Proposals are due July 28. TMCO is scheduled September 13 - 17. The STEREO AO can be viewed at http://spacescience.nasa.gov/ao/99-oss-01/. The review will be conducted in five subtasks, as outlined below.

Work Required:

Subtask 1: Conduct a Compliance Check at the beginning of this task for all proposals to verify that each proposal complies with the basic requirements of the AO. This should include launch dates, endorsements, cost caps, etc. The findings of this check should be reported immediately to the SSSO AO lead by August 15.

Subtask 2: Provide a cost assessment plan by July 16. Identify similar instrument cost data from the cost databases that is appropriate for modeling the costs of instrument proposal for the candidate instrument set. Present a cost assessment plan for these instruments, which describes the data that will be used to model the instrument and the methods to be used to estimate the cost. At least two methods of independent estimates must be provided. In addition, an assessment of cost risk must be provided. This plan should address how the data requested provided by the proposer, described in Appendix B of the AO, will be used to generate the cost estimates and cost risk. This instrument cost assessment plan must be provided by July 16.

Subtask 3: Perform a fully independent life-cycle cost estimate of each proposed instrument and instrument suite using at least two methods. These estimates will include all life-cycle elements from Phase B through Phase E and will be generated with an approach (models, reference cost data, and analogies) that is entirely independent of the proposer's estimation sources. SAIC will also provide probable range of cost for each proposed project based on input assumptions relative to development heritage and use of existing systems. Included in each Life-Cycle Cost estimate will be an assessment of cost risk that will identify the cost drivers in each proposed implementation approach. All estimates will be completed prior to the TMCO Panel Meeting.

Subtask 4: All proposals will be given a thorough TMCO review. SAIC will provide this review through senior technical consultants for the TMCO Panels who are experienced in instrument development. The scope of the STEREO TMCO review includes the following:

- The fit of the investigation within the STEREO spacecraft resources and operations constraints identified in the Section 5.1.3, Table 5-1 of the STEREO AO.

- The proposed total NASA cost together with management practices and technical and cost risks (uncertainty) associated with the proposed investigation. Total NASA cost will be considered to include not only that proposed for any instrument development and for data analysis, but also the projected cost of the investigation during mission operations (through Phase E). Management aspects include the capability to deliver any proposed hardware on the schedule required by the STEREO project.

The TMCO will identify strengths and weaknesses of each proposal based on the evaluation factors and rate each proposal as either low, medium or high risk. The TMCO will document their findings on evaluation forms and present their findings to the STEREO TMCO chair. A one-page summary for each proposal will be prepared, which states the risk rating and provides concise justification of the overall risk rating.

Subtask 5: Utilize Expert Choice for Sensitivity Analysis on TMCO and for TMC at the subfactor level.

Subtask 6: (1) Perform special technical analysis to resolve post-TMCO proposal issues and questions related to partial selections; (2) TMCO representation support at the Science Peer Review Meeting; (3) Technical back-up support for the debriefing of all AO proposers.

Schedule:

The tentative schedule for the STEREO evaluation is as follows:

Receipt of Proposals	July 28
TMCO Kickoff	mid-August
TMCO Panel meeting	September 13 - 17
Science Peer Review Meeting	September 28 - 30
Final Selection of Proposals	Fall 1999
Debrief of Unsuccessful Proposals	Fall 1999

Deliverables:

Subtask 1: Compliance checklist and findings on each proposal.
Subtask 2: Instrument Cost Assessment Plan.
Subtask 3: Lifecycle cost estimate (2) and cost risk with supporting documentation for each instrument and instrument suite proposal.
Subtask 4: Documentation of the findings of strengths and weaknesses of each proposal. A one-page summary for each proposal of the overall risk rating and the Justification of that risk rating.
Subtask 5: Sensitivity analysis on TMCO results. Model in Expert Choice of the TMC subfactors and capture TMC grades for subfactors.
Subtask 6: Technical evaluation and documentation.

Scope: Work is within scope of the contract.

Estimated Cost - TBD

Point of Contact - Cindy Daniels, (757) 864-9865 or (202) 358-0318.

Mars Flyer Red Team Review

Charter: To review the LaRC Mars Flyer budget to determine if the current estimate represents our best understanding of the costs to:

Design, develop and integrate the airframe, the entry capsule, the science instruments, and the deployment mechanisms;
Manage these activities;
Support integration and test of the LaRC provided hardware/software with the JPL-provided spacecraft; and
Conduct science and mission operations.

The Red Team will identify areas where the cost estimate can be improved, if any, and the supporting evidence for these conclusions. Inherent in this review will be an assessment of the planned financial and schedule reserves and the associated technical risks to be overcome through financial and schedule risk management.

Schedule: The team will conduct this review during the week of July 12th, beginning on July 13th and out-briefing the Project team no later than July 16th.

Approach: To accomplish this objective, the team will review the:

- Technical designs and the development approach (including technology development, qualification, and integration and test),
- Schedule,
- Management approach,
- Anticipated organization,
- Hardware/software acquisition strategies,
- Basis of estimate for the current budget, and
- Supporting cost analyses used to corroborate the team's grass roots budget.

The team will not request prepared briefings, but will conduct the review by meeting with Project personnel informally to gain a sufficient understanding of each area to conduct our assessment of the cost estimate. The Red Team's cost assessment will be based on a synthesis of the project's technical/management plans and their basis of estimate; our independent parametric cost estimate, recent historical actuals for similar activities and the impact of project risks.

Team Membership:

Mark Saunders	LaRC	Chair
Mark Croom	LaRC	Airframe
Dick Couch	LaRC	Airframe
Bobby Braun	LaRC	Entry Capsule
TBD	GRC	Propulsion
Arlene Moore	LaRC	Cost
Mark Herring	JPL	Mars Micromissions/Mars Flyers
	SAIC	Mars Flyers/Mission Design
	SAIC	Parametric Cost Estimating
TBD	SAIC	Instruments

SPACE SCIENCE STUDIES
Work Order Request
NASA Contract NASW-5067
Delivery Order 170

Requester Information:
Name: Dr. William Piotrowski
NASA Org./Loc: Mission and Payload Development, Code SD/NASA HQ
Phone: (202) 358-0316

Task Title: Mars Sample Return Independent Review

Brief Description of Task: Scope: The Associate Administrator for Space Science has requested an independent assessment of the management approach, technical, schedule and cost aspects of the '03/'05 total Mars Sample Return program. The program consists of the two JPL-developed MSR Landers/Sampling Rovers/Ascent Vehicles, the LaRC-developed Earth Entry Vehicle, the JPL Orbiting Sample Capture and Return System, provision of space flight hardware and technical support for the CNES Orbiter, MOS development, launch. and mission operations/data analysis; and the planning for post-landing retrieval of the Earth Entry Vehicle, quarantine of the samples, and preparation of the samples for distribution to the selected principal investigators.

Approach: The review, as time permits, will be a broad, but comprehensive assessment of the program addressing the space flight elements as well as all ground system elements, including requirements for new facilities, and the integrated test program among the program elements. The review will be conducted over a two-week period in order to limit the impact on project personnel. The review team will be composed of experts in mission systems development, cost estimating, planetary protection, microbiology/quarantine, sample handling, and systems analysis. The Chairman and selected members of this External Independent Review Team shall be provided by SAIC, contingent upon the approval by the AA/OSS. In addition to the Team Chair, SAIC is requested to provide reviewer expertise is propulsion, reentry systems, systems engineering, project management and life-cycle cost estimation.

The Review Team shall assess the technical performance, technical margins. schedule, and schedule margins for the MSR mission system developments; the technology developments required and their risk; the validity of the project's cost estimates; the adequacy of the financial reserves; and identification of key management and technical risk areas. The team shall also assess the planning for post-landing sample handling activities up through preparation of returned samples for distribution.

The review will consist of technical and programmatic presentation at JPL and vendor sites, as appropriate, during the third week of July. The Review Team will meet during the final week of July to consolidate their findings and prepare a viewgraph report for presentation to the AA/SSO on July 30, 1999. SAIC shall provide all necessary support to the Review Team in its preparation of this report.

Work in Accordance with SOW Sections:		*Estimated Schedule and Cost:*
C.3.1 Technical Study		*Requested Start Date: mid-July 1999*
C.3.2 Scientific Study		*Duration: 1 month*
C.3.3 Engineering Study		*Estimated Cost: nte $65,000*
C.3.4 Independent Analysis	*X*	*Funds Source(s):*

Deliverables: Final Review Team Briefing Report of Findings and Supporting Information

Concurrence".

_____
Dr. William Piotrowski, DO Requester

Approval:

_____
Ms. Catharine Schauer, COTRILaRC

SPACE SCIENCE STUDIES
INDEPENDENT REVIEW OF NEW N/IILLENNIUM PROPOSALS
WORK ORDER REQUEST
NASW-5067
DO 171

Requester Information Name: Jerry Hill
Office/Org. Space Technology Thrust Office
e-mail: j.r.hill@larc.nasa.gov
Phone: (757) 864-1994; Fax: (757) 864-4449
Date: Aug 11, 1999

Brief Description of Task: The NASA LaRC is submitting two proposals, GeoTRACE and GIFTS, to the New Millennium Program (NMP) in a competition for a mission selection. The reviewer will participate with the NASA LaRC independent review team (Red Team) to conduct a critical review of these proposals. Specific tasks are: (1) Review and become familiar with the reviewers' guidelines (to be provided), including the NMP Study guidelines; (2) Review the two NMP proposals, GeoTRACE and GIFTS, using the reviewers' guidelines; (3) Prepare comments and recommendations to ensure the proposals are responsive to the NMP Study Guidelines (provided with the reviewers' guidelines); and (4) Participate in meetings at NASA LaRC to consolidate comments for the two proposals and to provide feedback to the proposal teams.

Schedule provided with the reviewers' guidelines.

Work is in accordance with SOW Section (check one):

C.3.1 Technical Study
C.3.2 Scientific Study
C.3.3 Engineering Study
X C.3.4 Independent Analysis

Requested Start Date: August 23, 1999
Duration: Three days, complete Aug 25, 1999
Estimated Cost (optional): $6K
Funds Source:
258-30-00-01 (NMP Studies)

Deliverables: Comments and recommendations based on the participants' review of the GeoTRACE and GIFTS NMP proposals.

Aug 11, 1999
Technical Monitor/Date

_____
Division-Level Approval/Date

_____
NASA LaRC COTR/Date

Proposed Study Plan
Discovery '00 Proposal Evaluation
SAIC Delivery Order 172

Rationale: The Space Science Support Office at the Langley Research Center requires an independent assessment and evaluation of the technical implementation plan submitted as part of each proposal to the Discovery and Missions of Opportunity Announcement of Opportunity. The review will be conducted in four subtasks as outlined below. For the purpose of sizing, the effort required to perform this support it has been assumed that there will be 26 full-mission proposals and 9 Mission-Of-Opportunity proposals to evaluate.

Work Required*:*

Subtask 1: Perform independent technical and management assessments of all Discovery '00 proposals prior to the scheduled TMC Panel reviews. Conduct a Compliance Check of all proposals at the beginning of this subtask for costs, schedules, and technical and programmatic limits per AO and report its findings immediately to the SSSO AO Lead.

Subtask 2: Perform a fully independent life-cycle cost estimate of each Discovery AO proposal including both full-mission and mission-of-opportunity proposals. These estimates will include all life-cycle elements from Phase B through Phase E, will be generated with an approach (models, reference cost data, and analogies) that is entirely independent of the proposer's estimation sources. SAIC will also provide probable range of cost for each proposed project based on input assumptions relative to development heritage and use of existing systems. Included in each Life-Cycle Cost estimate will be an assessment of cost risk that will identify the cost drivers in each proposed implementation approach. All estimates will be completed prior to the TMC Panel Meeting.

Subtask 3: All proposals will be given a thorough TMCO review. SAIC will provide this review through senior technical consultants for the TMC Panels who are experienced in instrument development, key spacecraft subsystems (e.g., power, data management, attitude control), flight operations, and development project management.

Each of (typically) three TMC Panels evaluates a portion of the received proposals, using established evaluation forms identifying strengths and weaknesses of the approach, and then consolidates its findings with the other Panels during the TMC Meeting to determine the groupings of proposals, which have low, medium, or high implementation risk.

Subtask 4: Provide technical evaluations to the SSSO AO lead for the AO evaluation process. The scope of this support includes: 1) Mission./trajectory analysis of all proposals; 2) The performance of a TMC Sensitivity Study using the Expert Choice software; 3) Performance of special technical analyses to resolve post-TMC proposal issues; 4) TMC representation support at the Science Peer Review Meeting; 5) The Categorization and SSSC meetings; and 6) Technical back-up support to the debriefing of all AO proposers.

Schedule

This task will begin as soon as the Delivery Order is initiated, (i.e., September 30, 1999) and is expected to be completed on December 31, 2000. Key milestones within the task include the following:

Receipt of Proposals	June 2000
TMC Evaluation Team Meeting	August TBD, 2000
Science Peer Review Meeting	September TBD, 2000
Discovery Categorization Meeting	September TBD, 2000
Final Selection of Proposals	November TBD, 2000
Debrief of Unsuccessful Proposals	November – December 2000

Deliverables:

Subtask 1: Findings and compliance check documentation from initial review of proposals.
Subtask 2: Lifecycle cost estimate with supporting documentation for each proposal.

Subtask 3: Findings and documentation from detailed assessments of proposals.
Subtask 4: Technical evaluations and documentation for major reviews.

Scope: Work is within scope of the contract.

Estimated Cost: $410,000

Point of Contact: Wayne Richie, (757) 864-9863, LaRC

Space Science Studies
WORK ORDER REQUEST
NASA Contract NASW-5067
DO 173

Requester Information:
Name: Martha Maiden
NASA Org./Loc.: Office of Earth Science, NASA Headquarters
Phone: (202) 358-1078; *FAX:* (202) 358-2770
E-mail: mmaiden@hq.nasa.gov

Task Title: ESIP Federation Analyses

Brief Description of Task:

The ESIP Federation has recently been challenged by the Associate Administrator for Earth Science at NASA HQ to quantify the success of the Federation experiment and to demonstrate that this success of the Federation is more than simply the sum of the individual successes of the individual members. As a result of this increased visibility and requirement for performance metrics, the SAIC effort is expanded in this subtask to allow full-time, active participation in the ESIP Federation activities to enhance their independent analyses. This activity will build upon the results of the predecessor task, DO 140.

SAIC has developed a systematic process for collecting scientific data during its years supporting science research at NASA HQ. Part of the process involves the use of database software tools, also developed by SAIC, for data collection, organization, and dissemination. The proposed task will draw upon this existing expertise within SAIC to assess individual ES1P and Federation success, via independent analyses supported by the use of the existing database tools. Slight modifications will be required to some of the database modules to customize for Federation-specific applications.

Travel will be required to three Federation meetings during the course of the year's activities: One west-coast trip, one trip to the southwest, and one trip to the midwest. Each trip will be for three or four days and three to four nights, by one person.

Work in Accordance with SOW Sections:
C.3.1 Technical Study
C.3.2 Scientific Study _X_
C.3.3 Engineering Study
C.3-4 Independent Analysis _X_

Estimated Schedule and Cost
Requested Start Date: September 1, 1999
Duration: I year
Estimated Cost: $155,000
Funds Source: OES/NASA HQ

Deliverables:
1) Electronic monthly status updates
2) *Final Summary Report*

Concurrence:

Approval:

_____

Ms. Martha Maiden, Task Requester

_____

Ms. Catharine Schauer, COTR LaRC

GLAST 1999 Proposal Evaluation

Rationale: The Space Science Support Office (SSSO) at the Langley Research Center requires an independent assessment and evaluation of the technical implementation plan submitted as part of each proposal to the Gamma Ray Large Area Space Telescope (GLAST) Announcement of Opportunity (AO). This AO is limited to selecting instrument(s) and investigators only. The primary and at least one secondary instrument is described in the AO. Proposers may propose a primary instrument, a secondary instrument, or an investigation using these instruments. Partial selections are allowed. A TMCO grade will be assigned to each proposal.

For the purpose of sizing the effort required to perform this support it has been assumed that there will be no more than eight proposals (two primary and six secondary instruments) to evaluate. It is anticipated that only one panel (no subpanels) will be necessary. The GLAST AO was released August 20,1999. Proposals are due November 4, 1999. A TMCO panel is scheduled December 13, 1999, at NASA HQ. The GLAST AO can be viewed at: http://spacescience.nasa.gov/ao/99-oss-03/

The TMCO review will be conducted as outlined in five subtasks below.

Work Required:

Subtask 1: Conduct a Compliance Check at the beginning of this task for all proposals to verify that each proposal complies with the basic requirements of the AO. This should include launch dates, endorsements, cost caps, etc. The findings of this check should be reported immediately to the SSSO AO lead by November 8.

Subtask 2: Provide a cost assessment plan by October 8. Identify similar instrument cost data from the cost databases that is appropriate for modeling the costs of instrument proposal for the candidate instrument set. Present a cost assessment plan for these instruments, which describes the data that will be used to model the instrument and the methods to be used to estimate the cost. In addition, an assessment of cost risk must be provided. This plan should address how the data requested provided by the proposer, described in Appendix B of the AO will be used to generate the cost estimates and cost risk. This instrument cost assessment plan must be provided by October 8.

Subtask 3: Perform a fully independent life-cycle cost estimate of each proposed instruments using at least two methods. These estimates will include all life-cycle elements from Phase B through Phase E, will be generated with an approach (models, reference cost data, and analogies) that is entirely independent of the proposer's estimation sources. SAIC will provide probable range of cost for each proposed project based on input assumptions relative to development heritage and use of existing systems. Included in each life-cycle cost estimate will be an assessment of cost risk that will identify the cost drivers in each proposed implementation approach. All estimates will be completed prior to the TMCO Panel Meeting.

Subtask 4: All proposals will be given a thorough TMCO review. SAIC will provide this review utilizing SAIC and senior technical consultants for the TMCO who are experienced in instrument development. The scope of the GLAST TMCO review includes the following:

- The fit of the investigation within the GLAST spacecraft resources and operations constraints identified in the GLAST AO.

- The proposed total NASA cost together with management practices and technical and cost risks (uncertainty) associated with the proposed investigation. Total NASA cost will be considered to include not only that proposed for any instrument development and for data analysis, but

also the projected cost of the investigation during mission operations (through Phase E). Management aspects include the capability to deliver any proposed hardware on the schedule required by the GLAST project.

The TMCO will identify strengths and weaknesses of each proposal based on the evaluation factors and rate each proposal as either low, medium or high risk. The TMCO will document their findings on evaluation forms and present their findings to the GLAST TMCO chair. A one-page summary for each proposal will be prepared, which states the risk rating and provides concise justification of the overall risk rating.

Subtask 5: Provide one-page summaries of each proposal, including descriptions of the investigation, and lists of investigators (PI/Co-I's) and their affiliations. Perform sensitivity analysis on TMCO and for TMC at the subfactor level.

Subtask 6: 1) Perform special technical analysis to resolve pre- and post-TMCO proposal issues and questions related to partial selections, 2) TMCO representation support at the Science Peer Review Meeting, 3) Technical back-up support to the debriefing of all AO proposers (as required).

Schedule

The tentative schedule for the GLAST evaluation is as follows:

Receipt of Proposals	November 4
TMCO Kickoff	November 8
TMCO Panel Meeting	December 1- 3
Science Peer Review Meeting	December 14 - 16
Final Selection of Proposals	February 00
Debrief of Unsuccessful Proposals	February – March 00

Deliverables:

Subtask 1: Compliance check list and findings on each proposal.
Subtask 2: Instrument Cost Assessment Plan.
Subtask 3: Life-cycle cost estimate (2) and cost risk with supporting documentation for each instrument and instrument suite proposal.
Subtask 4: Documentation of the findings of strengths and weaknesses of each proposal. A one-page summary for each proposal of the overall risk rating and the justification of that risk rating.
Subtask 5: Sensitivity analysis on TMCO results. Model in Expert Choice of the TMC subfactors and capture TMC grades for subfactors.
Subtask 6: Technical evaluation and documentation.

Scope: Work is within scope of the contract.

Estimated Cost: TBD

Point of Contact: R.Wayne Richie, (757) 864-9863

Proposed Study Plan
University Earth System Science (UnESS) Project AO Proposal Evaluation
SAIC Delivery Order 175

Rationale:

The Space Science Support Office (SSSO) at the Langley Research Center requires an independent assessment and evaluation of the technical implementation plan, management plan, and the cost and cost realism plan submitted as part of each proposal to the University Earth System Science (UnESS) Project Announcement of Opportunity (AO). The review will be conducted in four subtasks as outlined below. For the purpose of sizing the effort required to perform this support, assume that there will be 40 proposals to evaluate to establish the lower cost bound and 80 proposals to evaluate to establish the upper bound. The cost should be presented as a range based on the above criteria.

Work Required*:*

Subtask 1: Conduct a Compliance Check of all proposals at the beginning of the Technical, Management, Cost and Other Opportunities JMCO) evaluation for costs, schedules, and technical and programmatic limits per the AO and report the findings to the SSSO Evaluation Lead. Perform independent technical and management assessments of all UnESS proposals prior to the scheduled Technical, Management, and Cost (TMQ Subpanel meetings. (The Other Opportunities Subpanel will be the responsibility of the Office of Earth Science.) These assessments should include implementation margins and drivers, and an independent determination of major strengths and weakness of each proposal. In addition, Technical Summary Data Sheets should be prepared for TMCO panel and TMC subpanel members.

Subtask 2: Perform a life-cycle cost estimate of each UnESS AO proposal. These estimates will include all life-cycle elements from Mission Concept Studies through Mission Operations and Data Analysis, Archival, and Dissemination, and will be generated with an approach (models, reference cost data, and analogies) that is entirely independent of the proposer's estimation sources. SAIC will also provide probable range of cost for each proposed project based on input assumptions relative to development heritage and use of existing systems. Included in each Life-Cycle Cost estimate will be an assessment of cost risk of the proposal that will identify the cost drivers in each proposed implementation approach. All estimates will be completed prior to the TMCO Panel Meeting.

Subtask 3: All proposals will be given a thorough TNIC review. SAIC will provide this review through senior technical consultants for the TNIC Subpanels who are experienced in instrument development, key spacecraft subsystems (e.g., power, data management, attitude control), flight operations, and development project management. Each of the TMC subpanels evaluates a portion of the received proposals, using established evaluation forms identifying strengths and weaknesses of the approach, and then consolidates its findings with the other Subpanels during the TMC Subpanel Consensus Meeting to determine the groupings of proposals which have low, medium, or high implementation risk. These findings are reported to the TMCO Panel.

Subtask 4: Provide technical evaluations to the SSSO Evaluation Lead for the evaluation process. The scope of this support includes: 1) mission/trajectory analysis of all proposals; 2) the performance of a TMC Sensitivity Study using the Expert Choice software; 3) performance of special technical analyses to resolve post-TMC proposal issues; 4) TMC representation support at the Science/Applications and Student Involvement Evaluation Panel and Subpanel Meeting; 5) technical support to the Categorization and UnESS Evaluation Executive Committee meetings; and 6) technical back-up support to the debriefing of all AO proposers.

Schedule:

This task will begin as soon as the delivery order is initiated, i.e., November I 1999, and is expected to be completed during May 2000. Key milestones within the task include the following:

Receipt of Proposals .....December 1, 1999

Final Concept Study Selection of Proposals .....March, 2000

Debrief of Unsuccessful Proposals .....April-May, 2000

SAIC should propose a schedule of deliverables to meet all of the AO Evaluation milestones as part of this cost estimate.

Deliverables:

Scope:

Subtask 1: Compliance checks documentation, assessment findings, and Technical Summary Data Sheets from initial review of proposals.
Subtask 2: Lifecycle cost estimate with supporting documentation for each proposal.
Subtask 3: Findings and documentation from detailed assessments of proposals.
Subtask 4: Technical evaluations and documentation for major reviews.

Work is within scope of the contract.

Estimated Cost:

$XXX to $XXX

PROPOSED STUDY PLAN
EUROPA ORBITER PROPOSAL EVALUATION
DELIVERY ORDER 176

RATIONALE: The Space Science Support Office at the Langley Research Center requires an independent assessment and evaluation of the technical implementation plan submitted as part of each proposal to the Deep Space Systems Program Announcement of Opportunity for the Europa Orbiter mission. The review will be conducted in four subtasks as outlined below. For the purpose of sizing the effort required to perform this support, it has been assumed that there will be 10 instrument proposals and 17 facility investigation proposals to evaluate (Note: For facility investigations, all flight capabilities are provided by the program and the investigations are only reviewed for likelihood of being successfully implemented).

WORK REQUIRED:

Subtask 1: Perform independent technical and management assessments of all Europa Orbiter proposals prior to the scheduled panel reviews. Conduct a Compliance Check of all proposals at the beginning of this subtask for costs, schedules, and technical and programmatic limits per AO and report its findings immediately to the SSSO AO Lead.

Subtask 2: Perform a fully independent life-cycle cost estimate of each Europa Orbiter AO proposal including both instrument and facility investigation proposals. These estimates will include all life-cycle elements from Phase B through Phase E, will be generated with an approach (models, reference cost data dn analogies) that is entirely independent of the proposer's estimation sources. SAIC will also provide probable range of cost for each proposed project based on input assumptions relative to development heritage and use of existing systems. Included in each Life-Cycle Cost estimate will be an assessment of cost risk that will identify the cost drivers in each proposed implementation approach. All estimates will be completed prior to the panel meeting.

Subtask 3: All proposals will be given a thorough TMCO review. SAIC will support this review through senior technical consultants for the TMC who are experienced in instrument development, key spacecraft subsystems (e.g., power, data management, attitude control), flight operations, and development project management. The evaluators will be divided into at least two groups to review proposals. Using established evaluation forms, strengths and weaknesses of the proposals will be identified by the evaluators for their assigned proposals. Findings will be consolidated during the Plenary to determine the groupings of proposals which have low, medium, or high implementation risk.

Subtask 4: Provide technical evaluations to the SSSO AO lead for the AO evaluation process. The scope of this support includes: 1) likelihood of being implementable for all proposals, 2) the performance of a Sensitivity Study using the Expert Choice software, 3) performance of special technical analyses to resolve post-TMC proposal evaluation issues, 4) provide technical expertise to the Categorization and SSSO meetings, and 5) provide technical back-up support to the debriefing of all AO proposers.

Schedule

This task will begin as soon as the delivery order is initiated, i.e., October 30, 1999, and is expected to be completed on August 30, 2000. Key milestones within the task include the following:

Receipt of Proposals	December 10, 1999
Evaluation Team Meeting	January 24-28, 2000
Categorization Meeting	January/February 2000
Final Selection of Proposals	March 2000
Debrief of Proposal Teams	April – May 2000

Deliverables:

Subtask 1: Findings and compliance check documentation from initial review of proposals.
Subtask 2: Life-cycle cost estimate with supporting documentation for each proposal.

Subtask 3: Findings and documentation from detailed assessments of proposals.
Subtask 4: Technical evaluations and documentation for major reviews.

Scope: Work is within scope of the contract.

Estimated Cost: TBD

Point of contact: Wayne Richie, (757) 864-9863, LaRC