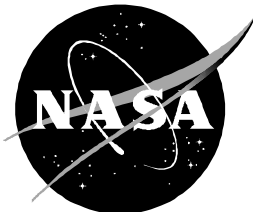


IG-98-030

AUDIT REPORT

SINGLE-SOURCE SUPPLIERS FOR CRITICAL ITEMS

September 14, 1998



National Aeronautics and
Space Administration

OFFICE OF INSPECTOR GENERAL

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ACRONYMS

JSC	Johnson Space Center
NASA	National Aeronautics and Space Administration
NPG	NASA Procedures and Guidelines
OIG	Office of Inspector General

W

September 14, 1998

TO: AA/Director, Lyndon B. Johnson Space Center

FROM: W/Assistant Inspector General for Auditing

SUBJECT: Final Report on the Audit of Single-Source Suppliers for Critical Items
Assignment Number A-HA-97-010
Report Number IG-98-030

This subject final report is provided for your use and comment. Our evaluation of your response is incorporated into the body of the report. The corrective actions taken or planned on recommendations 1 and 2 were responsive. The proposed action on recommendation 3 was not responsive. Accordingly, we request that management reconsider its position on recommendation 3 and provide additional comments by October 14, 1998.

If you have questions concerning this report, please contact Mr. Dennis E. Coldren, Program Director for Human Exploration and Development of Space Audits, at (281) 483-4773, or Ms. Lydia C. Lin, Auditor-in-Charge, at (281) 483-0741. We appreciate the courtesies extended to the audit staff. See Appendix E for the report distribution.

Russell A. Rau

Enclosure

cc:
AE/Chief Engineer
B/Chief Financial Officer
G/General Counsel
M/Associate Administrator for Space Flight
JM/Director, Management Assessment Division

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Single-Source Suppliers for Critical Items

EXECUTIVE SUMMARY

INTRODUCTION

Most National Aeronautics and Space Administration (NASA) Space Shuttle and Space Station subsystems and components are produced by only one supplier. Single-source suppliers could present an immediate threat to Agency program operations if production stopped due to an unplanned event. In 1991, the Office of Space Flight issued "Policy Direction on Single-Source Suppliers of Critical Items," requiring analyses of single-source-supply situations to ensure uninterrupted availability of industrial materials.¹ (See Endnotes in Appendix A.) This policy distinguishes between production and logistics support suppliers and requires less rigorous analyses of the latter category. In 1996, the NASA Administrator and the Johnson Space Center (JSC) Director expressed concern that the listings of single-source suppliers may not be up-to-date and directed NASA program offices to develop current lists of single-source suppliers. The JSC Director asked the Office of Inspector General (OIG) to review this critical area. Related OIG reports are shown in Appendix C.

OBJECTIVE

The overall audit objective was to evaluate actions taken by NASA to identify Space Shuttle and International Space Station reliance on single-source suppliers for critical items. Appendix B describes our specific objectives, scope, and methodology. The International Space Station Program Office took prompt corrective actions during our audit to include requiring the contractor, Boeing Company, to provide critical, single-source supplier listings where required. Therefore, we focused our audit on the Space Shuttle Program.

RESULTS OF AUDIT

The Space Shuttle Project Managers have not adequately developed analyses of critical, single-source suppliers of industrial materials. Specifically, analyses of production suppliers were frequently performed to meet the less rigorous analysis requirements for logistics support suppliers. Additionally, logistics support analyses were not adequately supported. As a result, risks may not be fully identified; alternatives to critical, single-source suppliers may not be available when needed; and corrective actions may not be taken to minimize risks to the mission.

RECOMMENDATIONS

We recommended that the Space Shuttle Program Manager revise the analysis and reporting requirements for critical, single-source suppliers and include the revised requirements in appropriate Shuttle Program contracts. We also recommended that the NASA Chief Engineer revise NASA policy to require rigorous analyses of all critical, single-source suppliers for all NASA programs and projects.

***MANAGEMENT'S
RESPONSE***

Management generally concurred with the intent of the recommendations and proposed alternative actions that are responsive to the recommendations. Management stated that it will consider revising NASA policy to include requirements for rigorous analyses.

***EVALUATION OF
MANAGEMENT'S
RESPONSE***

Management's planned actions are responsive except with regard to revising NASA policy to require more rigorous analyses. We request that management reconsider its position on that matter and provide additional comments.

FINDING AND RECOMMENDATIONS

ANALYSES OF CRITICAL, SINGLE- SOURCE SUPPLIERS

Space Shuttle Project Managers have not adequately developed analyses of critical, single-source suppliers of industrial materials. The analyses are essential to ensuring the uninterrupted availability of industrial materials required to execute the Space Shuttle Program. Deficiencies in the performance of the analyses occurred because the Space Shuttle Program Office has not correctly applied the Headquarters Office of Space Flight requirements to some suppliers. Also, the Office of Space Flight requirements are not sufficiently detailed regarding logistics support suppliers. As a result, program risks associated with the Space Shuttle Program's reliance on critical, single-source suppliers may not be fully identified and, consequently, contingency plans may not be developed and corrective actions may not be taken to minimize the associated risks.

SINGLE-SOURCE SUPPLIER REPORTING REQUIREMENTS

On February 4, 1991, the Office of Space Flight issued "Policy Direction on Single-Source Suppliers for Critical Items." The Policy Direction applies to both the Space Shuttle and International Space Station² Programs. The Space Shuttle Program consists of multiple projects, and Project Managers must ensure that the required analyses are performed. The Policy Direction divides single-source suppliers into two categories, production³ and logistics support,⁴ and provides separate requirements for each.

PRODUCTION SUPPLIERS

For production suppliers, the Policy Direction requires programs to perform single-source analyses to identify mission support concerns. Each program must evaluate the supply process down to subtier subcontractors and vendors to identify potential failure sources. The analyses are to identify any risks associated with proprietary processes, environmental issues, and foreign suppliers. The Policy Direction includes a reporting form that requires information on the material, supplier, availability, consumption, procurement, development of other sources, and a strategy for support during supply interruption. Project Managers use the analyses results to develop plans and actions to protect the mission from production stoppages and to ensure the availability of materials.

LOGISTICS SUPPORT SUPPLIERS

For logistics support suppliers, the Policy Direction requires less information and reporting than that for production suppliers. Project Managers are to "conduct continuous contractual assessments to identify single sources of vendor vulnerability, which might result in production or repair capability loss through parts obsolescence, skills

retention or unplanned events." As vulnerabilities are identified, Project Managers are required to recommend approaches to alleviate the adverse effects. No reporting format is specified.

***CONGRESSIONAL AND
NASA MANAGEMENT
CONCERNS***

In Senate Report 101-128, accompanying the Departments of Veterans Affairs and Housing and Urban Development and Independent Agencies' Appropriation Bill, 1990, the Senate Committee on Appropriations voiced concerns about the development and operational costs that NASA incurs due to the loss of, or risk of losing, single-source suppliers whose work has not been previously identified as a single point of failure. In June 1996, the Johnson Space Center Director expressed concern to us that the listings of critical, single-source suppliers were not up-to-date and stated that he had directed the Space Shuttle and International Space Station Program Offices to develop current listings. Copies of single-source listings we requested showed that the project offices had not updated the listings since 1990. Later in the audit, the project offices updated their listings of single-source suppliers.

***ANALYSES BY PROJECT
OFFICES***

We selected the following five major Space Shuttle projects to review their single-source supplier analyses and listings.

- Logistics Operations
- External Tank
- Space Shuttle Main Engine
- Reusable Solid Rocket Motor
- Solid Rocket Booster

***EXTERNAL TANK
PROJECT COMPLIED
WITH POLICY DIRECTION***

Only the External Tank Project had instituted critical, single-source supplier analyses consistent with the Policy Direction. The remaining four projects prepared analyses using the logistics support requirements, even though many of the materials were for production and should have had the more rigorous analysis and reporting format required by the Policy Direction. Although some analyses clearly identified certain components as production, none used the standard reporting format or included all the required information (for example, risk identification) needed for production materials. Consequently, the analyses were not as thorough as they should be, and the Project Managers may not have adequately identified the risks associated with single-source suppliers.

***LOGISTICS SUPPORT
ANALYSES VARIED IN
LEVEL OF DETAIL***

For logistics support suppliers, the analyses we reviewed varied significantly in detail. For example, the Reusable Solid Rocket Motor Project contractor, Thiokol Corporation, prepared a "Bi-Monthly Obsolescence Status Report." The report contained detailed information for the project's critical, single-source suppliers. The

report listed items to be replaced, dates when items would no longer be available, availability of replacement items, verification or qualification schedule and methods,⁵ actions to protect the project, and status. The data were summarized by component area in priority sequence. For the Solid Rocket Booster Project, documentation of the single-source analysis was much more limited. The only documentation available was a brief analysis included in the Program Operating Plan submission.

***PROGRAM OFFICE
CATEGORIZES BY
PROJECT RATHER THAN
BY SUPPLIER***

We discussed our observations with a representative from the Space Shuttle Program Office. The representative stated that the Program Office categorizes each project as either "production" or "logistics support." According to the representative, the only production project is the External Tank Project. All the other projects are categorized as logistics support and are required to perform only the "continuous contractual assessments" stated in the Policy Direction.

We disagree with the Space Shuttle Program Office's categorizations. We believe the intent of the Policy Direction is to categorize suppliers and materials, not the entire project, as production or logistics support. Production materials are consumed in performance of the mission; logistics support materials are reusable. The Policy Direction clearly specifies some items as production, such as thermal protection system materials, pyrotechnic devices, and batteries. Nonetheless, the Space Shuttle Program Office considered these and all other items as logistics support except those in the External Tank Project.

We also discussed with the Space Shuttle Program Office representative the varying detail of the analyses of logistics support suppliers. The representative agreed that the detail could vary among projects. He stated that there is no standard definition of the "continuous contractual assessments" terminology referred to in the February 1991 Office of Space Flight Policy Direction. Therefore, the project offices had considerable latitude in performing and documenting their analyses.

***REVISED POLICY
DIRECTION NEEDED***

The Space Shuttle Program Office⁶ should develop common analysis and reporting requirements for both production and logistics support suppliers. For production suppliers, the Policy Direction requires programs to evaluate contractor and subtier subcontractors in order to identify vulnerabilities and develop plans to mitigate risks. To minimize risk to projects and programs, it is logical to have those same requirements for logistics support items. A common reporting requirement would standardize documentation and may facilitate the review of information between projects. NASA Handbook 7120.5,

"Management of Major System Programs and Projects," does not make a distinction between the analyses required for production and logistics support suppliers. The handbook states:

Programs/projects shall perform surveys and analyses of their critical single source production and logistic support suppliers for essential industrial materials, parts, components, systems, and critical facilities. This shall also include consumable, hardware, software and expendable items. The survey results shall be formally documented and made available for Agency use.

***NPG 7120.5A
SHOULD BE
REVISED***

The handbook was superseded on April 3, 1998, by NASA Procedures and Guidelines (NPG) 7120.5A, "NASA Program and Project Management Processes and Requirements." The new NPG does not contain the above requirement. However, to provide analyses and reporting of critical, single-source suppliers on all present and future programs and projects, NASA management should revise NPG 7120.5A to include the requirements from the earlier handbook.

***CONTRACTUAL
REQUIREMENT
NEEDED***

The Space Shuttle Project Offices perform their missions through contractors, which are responsible for executing many detailed and complex tasks. These tasks involve numerous suppliers used by the prime contractors and lower tier subcontractors. For projects to have effective insight into all critical, single-source suppliers used by the Space Shuttle Program, applicable contracts should include the revised Policy Direction requirements. Some projects, such as the Reusable Solid Rocket Motor, included some Policy Direction requirements in their contracts, but only the External Tank Project included all requirements. By incorporating the requirements into contracts, the Space Shuttle Project contractors would need to determine their use of critical, single-source suppliers; evaluate risks; and develop plans for alternative sources commensurate with the risks identified. Further, the requirements should be extended downward to lower tier subcontractors.

We consider it essential to the overall safety, cost, and schedules of both the Space Shuttle and International Space Station Programs that critical, single-source suppliers of industrial materials be completely and accurately identified. Failure on the part of a critical, single-source supplier could magnify and compound the severity of a parts supply problem to a potentially catastrophic level. Increased attention to this area will also help to ensure compliance with the Administrator's mandate that human safety be the Agency's top

priority and issue. Accordingly, risks associated with relying on the single-source suppliers need to be assessed so that contingency plans can be developed and implemented should they become necessary.

RECOMMENDATION 1

The Space Shuttle Program Manager should revise the Policy Direction to require uniform analysis and reporting requirements for all critical, single-source suppliers. The requirements should be similar to those currently required by the Policy Direction for production suppliers.

MANAGEMENT'S RESPONSE

Partially concurred. Management stated it was not cost-effective to require all projects to implement the same approach for evaluating and reporting the status of single-source suppliers. As a result of the audit, the Space Shuttle Program has been conducting a comprehensive review of each project's single-source supplier review process, risk criteria, and reporting content. Management plans to change existing requirements for any identified process change that either provides operational benefit or reduces program costs or schedule risk. The complete text of management's comments is in Appendix D.

OIG EVALUATION OF MANAGEMENT'S RESPONSE

The actions planned by management are responsive to the intent of the recommendation. We will keep this recommendation open, pending our review of management's completed actions.

RECOMMENDATION 2

The Space Shuttle Program Manager should incorporate the revised Policy Direction requirements for critical, single-source suppliers into the appropriate Space Shuttle Program contracts.

MANAGEMENT'S RESPONSE

Partially concurred. Management indicated that the existing direction (Program Requirements Control Board Directive S08738 ARI) on single-source supplier surveys was sufficient and binding on all Space Shuttle Program projects and contracts. In responding to recommendation 1, management stated that the Space Shuttle Program will perform a comprehensive review of the single-source supplier process. Any needed improvements will be implemented by a Program Requirements Control Board change to National Space Transportation System 07700 requirements.

OIG EVALUATION OF MANAGEMENT'S RESPONSE

The actions planned by management are responsive to the intent of the recommendation. We will keep this recommendation open, pending our review of management's completed actions.

RECOMMENDATION 3

The Headquarters Chief Engineer should revise NPG 7120.5A to include requirements for performing rigorous analyses of and reporting on all critical, single-source suppliers, making no distinction between logistics and production suppliers.

***MANAGEMENT'S
RESPONSE***

Management stated that the Chief Engineer will consider including the requirements of recommendation 3 in a future version of NPG 7120.5A.

***OIG EVALUATION
OF MANAGEMENT'S
RESPONSE***

Management's proposed action to only consider a revision in a future version is not responsive to the recommendation. We reaffirm the need to revise NPG 7120.5A to require single-source supplier analyses and request management to reconsider its position.

ENDNOTES

1. Industrial materials include hardware, software, components, and other items needed to accomplish the program or project's mission.
2. The International Space Station Program Office modified the program's prime contract with Boeing Company to include the requirements of the Policy Direction.
3. Production suppliers are those involved in a manufacturing process to supply industrial materials consumed or expended in the performance of a mission. The Policy Direction lists the following examples of production items: the external tank; external tank side of the Orbiter/external tank disconnect; thermal protection system materials; pyrotechnic devices; batteries; propellants and fluids; and individual components consumed within hardware items, such as the Solid Rocket Booster and Redesigned Solid Rocket Motor.
4. Logistics support suppliers are those involved in supporting the ongoing performance of reusable industrial materials. These items are designed for an extended lifetime and are repairable or replaceable through the ongoing operations and logistics programs. The Policy Direction lists the following examples: the Orbiter and Government-furnished equipment, Space Shuttle main engine, Space Station elements, Spacelab/carrier systems, and ground facilities.
5. Industrial materials used by many NASA programs, such as the Space Shuttle and International Space Station, must meet certain specifications. To make certain that the materials comply with specifications, projects establish verification and qualification procedures that must be met by the suppliers.
6. Due to Agency reorganization, responsibility for development of policy direction has shifted from Headquarters to the Space Shuttle Program Office at the Johnson Space Center.

OBJECTIVES, SCOPE, AND METHODOLOGY

OBJECTIVES

The overall audit objective was to evaluate actions taken by NASA to identify Space Shuttle and International Space Station reliance on single-source suppliers for critical items. Specific objectives were to determine whether:

- Space Shuttle and International Space Station Program offices established policies and procedures in accordance with NASA Handbook 7120.5, "Management of Major System Programs and Projects," which should be distributed to the project offices responsible for managing and controlling critical, single-source suppliers;
- the program offices had developed effective plans, including contract clauses, to address and minimize risks associated with relying on single-source suppliers; and
- the program offices adequately performed surveys and analyses of critical, single-source suppliers in accordance with the NASA handbook.

SCOPE AND METHODOLOGY

We accomplished our objectives by:

- conducting interviews of Space Shuttle and International Space Station Program Managers to understand the reorganization, structure, and responsibilities of each Center in controlling and managing the critical, single-source items;
- conducting interviews of Johnson Space Center, Kennedy Space Center, and Marshall Space Flight Center Government and contractor personnel to determine the methodology used to identify critical, single-source suppliers;
- performing analyses of the data (dated from November 1996 through June 1998) needed to assess the extent to which each project office identified and analyzed critical, single-source suppliers; and
- performing analyses of related Office of Inspector General audit reports on single-source suppliers for critical items.

AUDIT FIELDWORK

We performed our audit in accordance with generally accepted government auditing standards.

We conducted the field work from November 1996 through June 1998 at Johnson Space Center, Kennedy Space Center, and Marshall Space Flight Center.

RELATED OFFICE OF INSPECTOR GENERAL REPORTS

"Audit of Single-Source Suppliers for Critical Items, Johnson Space Center," March 1991, NASA Office of Inspector General

"Audit of Single-Source Suppliers for Critical Items, Marshall Space Flight Center," September 1991, NASA Office of Inspector General

MANAGEMENT'S RESPONSE

National Aeronautics and
Space Administration
Lyndon B. Johnson Space Center
2101 NASA Road 1
Houston, Texas 77058-3696



Reply to Attn of: BD5

AUG 06 1998

TO: NASA Headquarters
Attn: W/Assistant Inspector General for Auditing

FROM: AA/Director

SUBJECT: Management's Response to the OIG's Draft Report on the Audit of Single-Source Suppliers for Critical Items, A-HA-97-010

Thank you for the opportunity to respond to the findings of the subject draft report. As stated in the draft report, this review was done at my request, and I am pleased to learn that both the Space Shuttle and International Space Station Program Offices have taken actions regarding the listings of single-source suppliers.

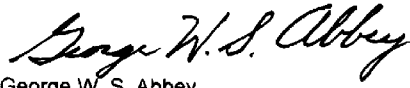
The findings contained in the draft report pertain to requirements stated in NASA Policy Guideline 7120.5A, "NASA Program and Project Management Processes and Requirements," and the deletion of specific requirements in the April 3, 1998, revision relating to analyses and reporting of critical, single-source suppliers on all present and future programs and projects. This revision is a result of an extensive, Agencywide review of the original 1991 policy document issued by the Office of Space Flight. The Johnson Space Center and the Space Shuttle Program (SSP) were involved in this review and agreed to the deletion of those specific requirements in this policy document.

The first two recommendations contained in the draft are applicable to the SSP operations requirements, and we are in partial concurrence with the stated recommendations in that the SSP has direction in place to its Projects and contractors to meet the intent of the recommendations.

In general, the SSP has levied performance requirements on each of the Shuttle Projects through the NSTS 07700 documentation to assure the availability of hardware, software, and facilities to support Program processing and operations milestones. The SSP has delegated responsibility to the Projects for satisfying these requirements within established fiscal constraints without dictating "how to."

We have coordinated this response with the NASA Chief Engineer, and incorporated the response to recommendation 3, directed to that office, into this letter. A specific response to each recommendation is provided in the enclosure. We consider the actions already taken by the SSP sufficient to ensure there are no supply nor safety

issues with continuing to fly the Space Shuttle. With your acceptance of these actions, we will consider this assignment closed on issuance of the final report. If you have any questions regarding this response, please contact Ms. Pat Ritterhouse, Audit Liaison Representative, at 281-483-4220, or Mr. Lambert D. Austin at 281-483-0969 for technical content.



George W. S. Abbey

2 Enclosures

cc:

MA/T. W. Holloway

MS/L. D. Austin

W-JS/D. Coldren

HQ/AE/K. L. Hudkins

HQ/JM/M. E. Peterson

HQ/M/G. A. Gabourel

Management's Response to the OIG's Draft Report on the Audit of Single Source Suppliers for Critical Items, A-HA-97-010

Auditor's Findings

"On February 4, 1991, the Office of Space Flight issued Policy Direction on Single-Source Suppliers for Critical Items. The Policy Direction applies to both the Space Shuttle and International Space Station programs. The Space Shuttle Program consists of multiple projects, and Project Managers must ensure that the required analyses are performed. The Policy Direction divides single-source suppliers into two categories, production and logistics support, and provides separate requirements for each."

Recommendation 1

"The Space Shuttle Program Manager should revise the Policy Direction to require uniform analysis and reporting requirements for all critical, single-source suppliers. The requirements should be similar to those currently required by the Policy Direction for production suppliers."

JSC Comments

We concur with the intent of the recommendation to require uniform analysis and reporting requirements. However, it has not been shown to be cost effective to mandate that all Projects implement a singular approach for evaluating and reporting the status of single-source suppliers. Since return to flight, all Projects have been assessing and reporting status of single-source suppliers of critical items through the semiannual Integrated Logistics Panel review process documented in NSTS 07700, Volume II and Volume XII. To date, there have been no instances of failure to support SSP milestones, nor are any projected. As a result of the concerns identified in the audit findings, on August 7, 1998, the SSP is conducting a comprehensive review of each Project's single-source supplier review process, risk criteria, and reporting content. Any identified process changes determined to provide operational benefit or reduce program costs or schedule risk will be implemented via a Program Requirements Control Board (PRCB) change to existing NSTS 07700 requirements. We consider this action responsive to the recommendation, and will consider the recommendation closed on issuance of the final report.

Recommendation 2

"The Space Shuttle Program Manager should incorporate the revised Policy Direction requirements for critical, single-source suppliers into the appropriate Space Shuttle Program contracts."

Enclosure 1

JSC Comments

We concur with the intent of the recommendation for the incorporation of single-source supplier analysis and reporting requirements in the SSP contracts. However, it is not felt that any additional SSP action is required to satisfy this requirement as all SSP Projects and their contractors have existing direction (Program Requirements Control Board Directive [PRCBD] S083738AR1) regarding single-source supplier surveys. All SSP contracts (e.g., Space Flight Operations Contract, Space Shuttle main engine, external tank, etc.) are obligated to implement and demonstrate compliance with the applicable performance requirements delineated in the NSTS 07700 documentation and PRCBD's. A copy of this direction, given to all SSP Projects by PRCBD S083738AR1 dated March 13, 1991, with supporting documentation is provided in enclosure 2. With direction in place to satisfy the intent of the recommendation, we will consider this recommendation closed on issuance of the final report.

Recommendation 3

"The Chief Engineer should revise NPG 7120.5A to include requirements for performing rigorous analyses of and reporting on all critical, single-source suppliers, making no distinction between logistics and production suppliers."

Code AE Comments

The Chief Engineer will consider the advisability and benefit of including requirements in a future version of NPG 7120.5A for "...rigorous analyses of and reporting on all critical, single-source suppliers, making no distinction between logistics and production suppliers."

PCIN 083738	SPACE SHUTTLE PROGRAM	PAGE 1 OF 4
PRCBD S083738AR1	LEVEL II PROGRAM RQMTS CONTROL BOARD DIRECTIVE	PRCB DATE #
CHANGE TITLE SINGLE SOURCES OF CRITICAL COMPONENTS AND MATERIALS		
CHANGE PROPOSAL(S) NO. AND SOURCE R1 PRCBD S083738A	DOCUMENTS AFFECTED (NO., TITLE, PARA)	
INITIATED BY: JSC-GM/D.C. SCHULTZ SUBMITTED BY: JSC-GM/D.C. SCHULTZ		
LEVEL II BASELINE CHANGE DIRECTION:	OPR: WA	JFS/CCB
	BOARD: OSB	
<p>R1 PRCBD S083738A WAS ISSUED TO ASSIGN FORMAL PROJECT ACTIONS AS A RESULT OF ME LETTER "REVIEW OF SINGLE SOURCES OF CRITICAL SPACE SHUTTLE SYSTEM COMPONENTS AND MATERIALS" FROM R.L. CRIPPEN, DATED JULY 11, 1990.</p> <p>R1 PRCBD S083738AR1 IS ISSUED TO CLARIFY REPORTING REQUIREMENTS REGARDING R1 SINGLE-SOURCE SUPPLIER SURVEYS, AS PER R.L. CRIPPEN LETTER MOK, R1 DATED 2-5-91. ANNUAL SUPPLIER SURVEY REPORTS ARE REQUIRED FOR ITEMS R1 CONSUMED IN THE PERFORMANCE OF A MISSION, EXCEPT THAT ELEMENTS WHICH R1 HAVE A LOGISTICS PROGRAM TO SUPPORT REUSABLE HARDWARE, SOFTWARE OR R1 MATERIALS DO NOT NEED TO PERFORM A YEARLY SURVEY IN ADDITION TO THEIR R1 ON-GOING EFFORTS. HOWEVER, EACH PROJECT SHOULD INSURE THAT THEIR R1 LOGISTICS PROGRAM PROVIDES ADEQUATE MECHANISMS TO PREVENT UNEXPECTED R1 LOSS OF VENDOR CAPABILITY.</p> <p>R1 CHANGES TO PRCBD S083738A ARE INDICATED BY AN R1 SYMBOL.</p> <p>R1 EFFECTIVITY:NON FLT SPECIFIC (PRCBD S083738A, R1)</p>		
<p><i>Handwritten: 2500 3-13-91</i></p> <p># THIS PRCBD WAS PROCESSED OUTSIDE THE FORMAL LEVEL II PRCB.</p>		
AUTHORIZATION:		
<p><i>Handwritten Signature</i></p> <p>CHAIRMAN, LEVEL II PRCB</p>		<p><i>Handwritten: 3-13-91</i></p> <p>DATE</p>
SSP FORM 4003 (REV MAR 90) (SUPERSEDES NSTS FORM 4003) BARS RPT 8121		

Enclosure 2
Page 1 of 3



National Aeronautics and
Space Administration
Washington, D.C.
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JSC Form 084 (Rev Oct 89)

FEB 5 1991

Reply to Attn of: MOK

TO: Johnson Space Center
Attn: GA/Deputy Director, Space Shuttle Program

FROM: M-7/Director, Space Shuttle

SUBJECT: Single-Source Supplier Surveys

In response to the Inspector General, the Office of Space Flight has developed written guidelines on future single-source supplier surveys. A copy of these guidelines is enclosed.

These guidelines are a direct outgrowth of the previous Space Shuttle program directive (PRCBD 5083738A) on this issue. In essence, these guidelines require all program elements to provide a yearly single-source supplier survey for items consumed in the performance of a mission.

Those elements which have a logistics program to support reusable hardware, software, or materials do not need to perform a yearly survey in addition to their on-going efforts. However, each project should insure that their logistics program provides adequate mechanisms to prevent unexpected loss of vendor capability.

The annual surveys are due each May.


Robert L. Crippen

Enclosure

CC:
M/Dr. Lenoir
KSC/MK/Mr. Shaw

Enclosure 2
Page 2 of 3



National Aeronautics and
Space Administration
Washington, D.C.
20546

FEB 4 1991

Reply to Att: MZ

TO: M-4/Director, Flight Systems
M-7/Director, Space Shuttle
M-8/Director, Space Station Freedom

FROM: M/Associate Administrator for Space Flight

SUBJECT: Policy Direction on Single-Source Suppliers for Critical Items

At the request of the National Security Council in FY 1989, NASA began a review of single sources for essential industrial materials for national space programs. On August 6, 1990, NASA submitted a report of these surveys to Congress in response to House and Senate Reports accompanying the 1990 Appropriations Bills. During these two activities, the Space Shuttle projects initiated surveys of hardware and software manufacturing, support and components to identify items procured from a single source. Evaluation of these surveys led to Space Shuttle program recommendations aimed at mitigating the vulnerabilities resulting from these single sources.

The Space Shuttle program has continued to identify those items that are single sourced and to analyze the impact on NASA if there were a sudden disruption in the supply of those items. The Space Shuttle program issued direction to the Space Shuttle projects through a letter dated July 11, 1990, and Program Requirements Control Board (PRCB) Directive S083738A (copies enclosed).

We are now extending the review and management requirements to include the Space Station Freedom and Flight Systems programs. This activity must be an ongoing process with annual reporting requirements consistent with the following program guidelines. Please direct your program managers to implement these guidelines and begin preparation of single-source surveys, as required.

The Office of Space Flight divides single-source suppliers of essential industrial materials into two categories:

1. Production Suppliers

Definition: Production suppliers are those involved in a manufacturing process to supply hardware, software or materials consumed in the performance of a mission. These items must be built and/or procured repetitively over a long period of time to replace expended items.

Enclosure 2
Page 3 of 3

REPORT DISTRIBUTION

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Space Shuttle Program Manager, Lyndon B. Johnson Space Center
Director, John F. Kennedy Space Center
Director, George C. Marshall Space Flight Center

NASA Offices of Inspector General

Ames Research Center
Goddard Space Flight Center
Jet Propulsion Laboratory
Lyndon B. Johnson Space Center
John F. Kennedy Space Center
Langley Research Center
Lewis Research Center
George C. Marshall Space Flight Center
John C. Stennis Space Center

Non-NASA Federal Organizations and Individuals

Assistant to the President for Science and Technology Policy
Deputy Associate Director, Energy and Science Division, Office of Management and Budget
Budget Examiner, Energy Science Division, Office of Management and Budget
Associate Director, National Security and International Affairs Division, General Accounting Office
Special Counsel, House Subcommittee on National Security, International Affairs, and Criminal Justice
Professional Assistant, Senate Subcommittee on Science, Technology, and Space

Chairman and Ranking Minority Member - Congressional Committees and Subcommittees

Senate Committee on Appropriations
Senate Subcommittee on VA, HUD and Independent Agencies
Senate Committee on Commerce, Science and Transportation
Senate Subcommittee on Science, Technology and Space
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on VA, HUD and Independent Agencies
House Committee on Government Reform and Oversight
House Committee on Science
House Subcommittee on Space and Aeronautics

Congressional Member

The Honorable Pete Sessions, U.S. House of Representatives

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