

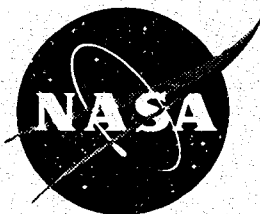
AUDIT REPORT

GO-96-004

SURVEY OF WALLOPS FLIGHT FACILITY MACHINE SHOP OPERATIONS

GODDARD SPACE FLIGHT CENTER

AUGUST 30, 1996



National Aeronautics and
Space Administration

OFFICE OF INSPECTOR GENERAL



AUG 30 1996

Reply to Attn of W

TO: 100/Center Director, GSFC

FROM: W/Assistant Inspector General for Auditing

SUBJECT: Survey of Wallops Flight Facility Machine
Shop Operations
Assignment No. A-GO-95-012
Report No. GO-96-004

The NASA Office of Inspector General has completed a survey of Wallops Flight Facility (WFF) Machine Shop Operations. The overall objective of the survey was to evaluate controls over WFF Machine Shop operations. Specific objectives were to determine whether:

- Adequate controls are in place to ensure that work is properly authorized and approved.
- Work is accomplished in the most cost effective manner.

The survey showed that management controls over WFF Machine Shop operations can be strengthened. Further, the potential exists that through consolidations, fabrication work at the WFF could be accomplished in a more cost effective manner. Although this assignment was terminated after completion of the survey, sufficient work was performed to report the following two areas which require management's attention:

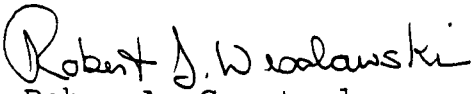
- Controls over materials inventory need improvement.
- Opportunity exists to consolidate machine shops.

Two recommendations are made which, if implemented, will ensure compliance with existing regulations, and strengthen management controls over the WFF Machine Shop.

A draft report was issued on July 10, 1996. The Center's official response was received on August 12, 1996. The Center's response is included after each recommendation and is presented in its entirety as Appendix A to the report. The

response indicates that management has taken or planned corrective actions that are generally considered responsive to the intent of the report's recommendations. We, therefore, consider the recommendations to be closed for reporting purposes.

If you have any questions, please contact Kevin Carson, Audit Field Office Manager, at 301-286-0498; Robert Wesolowski, Director, Audit Division-A, or me at 202-358-1232.


for Debra A. Guentzel

Enclosure

cc:
JMC/P. Chait
201/J. Clark (w/enclosure)
W/K. Carson (w/o enclosure)

Table of Contents

EXECUTIVE SUMMARY	1
INTRODUCTION	3
OBJECTIVES, SCOPE, AND METHODOLOGY	5
OBSERVATIONS AND RECOMMENDATIONS	7
1. CONTROLS OVER MATERIALS INVENTORY NEED IMPROVEMENT	7
2. OPPORTUNITY EXISTS TO CONSOLIDATE MACHINE SHOPS	13
APPENDIX A - GSFC MANAGEMENT RESPONSE	

SURVEY OF WALLOPS FLIGHT FACILITY MACHINE SHOP OPERATIONS

GODDARD SPACE FLIGHT CENTER

EXECUTIVE SUMMARY

INTRODUCTION

The NASA Office of Inspector General has completed a survey of Wallops Flight Facility (WFF) Machine Shop Operations. The WFF Machine Shop provides fabrication support for all WFF operations, with primary customers being the Sounding Rocket and Tracking and Data Acquisition Programs. The WFF Machine Shop is operated under a task order on a one-year, cost-plus-award-fee contract with the Computer Sciences Corporation.

OBJECTIVES

The overall objective of the survey was to evaluate controls over WFF Machine Shop operations. Specific objectives were to determine whether:

- Adequate controls are in place to ensure that work is properly authorized and approved.
- Work is accomplished in the most cost effective manner.

RESULTS OF SURVEY

The survey showed that management controls over WFF Machine Shop operations can be strengthened. Further, the potential exists that through consolidations, fabrication work at the WFF could be accomplished in a more cost effective manner. Although this assignment was terminated after completion of the survey, sufficient work was performed to report the following two areas which require management's attention:

- Controls over materials inventory need improvement.
- Opportunity exists to consolidate machine shops.

Two recommendations are made which, if implemented, will ensure compliance with existing regulations, and strengthen management controls over the WFF Machine Shop.

1. CONTROLS OVER MATERIALS INVENTORY NEED IMPROVEMENT. Controls over the materials inventory need improvement. Specifically, a proper separation of duties for ordering, receiving, recording, issuing and maintaining custody of materials has not been established. In addition, the individual with these responsibilities also conducts the physical inventories and adjusts the records. This condition has occurred because personnel responsible for oversight of the WFF Machine Shop were unaware of basic management control standards requiring the proper separation of duties. As a result, the potential for loss, unauthorized use, or misappropriation of the materials inventory is increased. (page 7)

2. OPPORTUNITY EXISTS TO CONSOLIDATE MACHINE SHOPS. The WFF has five machine shops performing similar fabrication services. Separate machine shops were established by individual WFF organizations because the WFF Machine Shop (responsible for installation-wide fabrication support) was giving priority to the Sounding Rocket and Tracking and Data Acquisition Programs. The operation of multiple machine shops increases the WFF's infrastructure at a time when downsizing and consolidation are being emphasized. (page 13)

RECOMMENDATIONS

We recommend:

1. The Experimental Mechanical Construction Section of the WFF's Technical Support Branch should ensure that the duties and responsibilities currently performed by the WFF Machine Shop's inventory custodian are properly separated.
2. The WFF's Suborbital Projects and Operations Directorate should examine the requirements of the four independent machine shops and determine whether they can be consolidated.

INTRODUCTION

The NASA Office of Inspector General has completed a survey of Wallops Flight Facility (WFF) Machine Shop Operations. The WFF Machine Shop provides fabrication support for all WFF operations, with primary customers being the Sounding Rocket and Tracking and Data Acquisition Programs. Specific responsibilities of the WFF Machine Shop include:

- Manufacturing a variety of products used in the development of prototype mechanical systems using equipment such as lathes, mills, drill presses, press brakes, band saws, shears, welding equipment and hand tools.
- Assembling and checking payload components for flight, and accompanying payloads to launch sites for final assembly, launch and recovery.
- Modifying and overhauling range support equipment such as launchers, telemetry and radar trailers.
- Providing assistance to NASA in accountability and inventory control.

On July 1, 1995, the Computer Sciences Corporation was awarded a one-year, cost-plus-award-fee contract in the amount of \$12,871,419. The contract is for engineering support and related services in support of the WFF in multi-disciplines required to support sounding rocket and balloon programs, aeronautical programs, and launch range support. The WFF Machine Shop is operated under a task order on this contract.

A total of 41 contractor employees and seven civil servants support operations in the WFF Machine Shop. The Technical Support Branch of GSFC's Suborbital Projects and Operations Directorate's Engineering Division is responsible for management of the WFF Machine Shop. Oversight for daily operation is provided by the Technical Support Branch's Experimental Mechanical Construction Section.

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OBJECTIVES, SCOPE, AND METHODOLOGY

OBJECTIVES

The overall objective of the survey was to evaluate controls over WFF Machine Shop operations. Specific objectives were to determine whether:

- Adequate controls are in place to ensure that work is properly authorized and approved.
- Work is accomplished in the most cost effective manner.

SCOPE AND METHODOLOGY

The survey was performed in accordance with generally accepted government auditing standards and included such examinations and tests of applicable records, documents, and management controls as were considered necessary in the circumstances. Specifically, the survey included:

- Review of applicable appropriation laws, internal control regulations, and the Federal Acquisition Regulation (FAR).
- Interviews with WFF Machine Shop employees for inventory control, inspection and scheduling, as well as the resource analyst, contractor management, and experts in the area of fabrication facilities.
- Review of Fiscal Year (FY) 1994 and 1995 production reports, discrepancy reports, equipment inventory, materials inventory, costs and support for FY 1994 and 1995, performance award packages and various documents related to the support of the WFF Machine Shop.

MANAGEMENT CONTROLS REVIEWED

The significant management controls reviewed include (1) segregation of duties for the authorization, recording and custody of the materials inventory, (2) the contractor award fee process, (3) reimbursement procedures, and (4) authorizations for approval of work and issuance of materials. Management control weaknesses were identified and are described in detail in the Observations and Recommendations section of the report.

***SURVEY FIELD
WORK***

Survey field work was conducted during the period July through December 1995 at the WFF and GSFC Greenbelt.

OBSERVATIONS AND RECOMMENDATIONS

OVERALL EVALUATION

The survey showed that management controls over WFF Machine Shop operations can be strengthened. Further, the potential exists that through consolidations, fabrication work at the WFF could be accomplished in a more cost effective manner. Although this assignment was terminated after completion of the survey, sufficient work was performed to report the following two areas which require management's attention:

- Controls over materials inventory need improvement.
- Opportunity exists to consolidate machine shops.

Two recommendations are made which, if implemented, will ensure compliance with existing regulations, and strengthen management controls over the WFF Machine Shop.

1. CONTROLS OVER MATERIALS INVENTORY NEED IMPROVEMENT

Controls over the materials inventory need improvement. Specifically, a proper separation of duties for ordering, receiving, recording, issuing and maintaining custody of materials has not been established. In addition, the individual with these responsibilities also conducts the physical inventories and adjusts the records. This condition has occurred because personnel responsible for oversight of the WFF Machine Shop were unaware of basic management control standards requiring the proper separation of duties. As a result, the potential for loss, unauthorized use, or misappropriation of the materials inventory is increased.

Office of Management and Budget (OMB) Circular A-123, "Management Accountability and Control," provides guidance to Federal managers on improving the accountability and effectiveness of programs and operations by establishing, assessing, correcting, and reporting on management controls. Among the requirements of the circular are that agencies and individual managers must take systematic and proactive measures to develop and implement appropriate, cost-effective management controls for results-oriented management. These management controls must provide reasonable assurance that assets are guarded against waste, loss, unauthorized use and misappropriation. One of the management control standards defined in the circular states that key duties and responsibilities in

authorizing, processing, recording, and reviewing agency transactions should be separated among individuals.

NASA Handbook (NHB) 4100.1C, "NASA Materials Inventory Management Manual," states that all materials inventory will be placed under continuing physical and financial controls. These controls include a physical inventory on a periodic basis. The NHB also states that the duties and responsibilities for keeping accountable records and for physical custody of materials inventories, and systems thereto, shall be segregated to the extent possible, in order to minimize opportunities for unauthorized, fraudulent, or otherwise irregular acts and to support internal controls.

***MACHINE SHOP
MAINTAINS A \$3.6
MILLION
MATERIALS
INVENTORY***

The WFF Machine Shop maintains a materials inventory of various items used for providing fabrication services. The inventory is valued at approximately \$3.6 million (reported on NASA's property records), and is funded solely by the Sounding Rocket Program (WFF Machine Shop's primary customer). The inventory includes small items such as machine screws and nuts, and large items and bulk materials such as sheet metal, tubing, plastic and fiberglass. The materials inventory data base system tracks receipts and issues of materials, and provides information for low quantities, reordering points, and annual inventory counts.

***ONE INDIVIDUAL
PERFORMS ALL
MATERIALS
INVENTORY
RESPONSIBILITIES***

One individual in the WFF Machine Shop performs all materials inventory responsibilities. Specifically, the WFF Machine Shop's inventory custodian (contractor employee) (1) approves material issue requests, (2) issues the material from inventory, (3) updates the data base system, (4) determines what materials need replenishment, (5) prepares the purchase orders, and (6) receives the purchased materials.

The inventory custodian also conducts the physical inventories of materials. During these inventories, if the actual amount of an item differs from its recorded amount, the inventory custodian adjusts the inventory data base system. These adjustments are made without performing any research to determine the cause of discrepancies.

Because there is a lack of separation of duties, the validity of the annual physical inventory results reported to NASA Headquarters is questionable. For example, the FY 1995 annual physical inventory of materials, conducted between May 22, 1995 and May 31, 1995, reported no discrepancies for a sample of 135 (five percent) line items.

Although no discrepancies were reported, weekly physical inventories that were conducted in the weeks (April 14 and 21, May 5, 12, and 18, June 19 and 30) both before and after the annual inventory identified discrepancies between the physical count and the record count for similar line items of materials.

***OVERSIGHT
OFFICIAL WASN'T
AWARE OF
REQUIREMENT
FOR SEPARATION
OF DUTIES***

The head of WFF's Technical Support Branch's, Experimental Mechanical Construction Section is responsible for daily oversight of WFF Machine Shop operations. The Section Head was unaware of the OMB and NHB requirements for separation of duties over the materials inventory. Proper separation of duties is needed to reduce the potential for loss, unauthorized use, or misappropriation of the approximately \$3.6 million materials inventory. At a minimum, action should be taken to ensure the duties and responsibilities currently performed by the inventory custodian concerning the materials inventory are properly separated.

RECOMMENDATION 1

The Experimental Mechanical Construction Section of the WFF's Technical Support Branch should ensure that the duties and responsibilities currently performed by the WFF Machine Shop's inventory custodian are properly separated.

***MANAGEMENT
RESPONSE***

Concur. The Experimental Mechanical Construction Section (now the "Mechanical Systems Group") agrees to take action to improve materials management in the Wallops machine shop stock room and to ensure proper separation of duties for ordering, receiving, recording, issuing, maintaining, and inventorying materials. The Group has conducted an assessment of appropriate responsibilities and practices toward this goal, including the following:

Authorized Stock Recipients: To conform with "NASA Materials Inventory Management Handbook," NHB 4100.1C, Section 300(B), the controlling program manager will provide a list of authorized users of program stock to contractor stock personnel. Once the list is in place, stock will only be issued to personnel on that list.

Inventory Database Maintenance: To conform with NHB 4100.1C, Section 104(J), the stock clerk will only enter material issue transactions. An additional clerk will be tasked to process receiving transactions. These transactions are handled by input forms, for which the security edit permissions will be changed so that only the assigned clerk will have edit capabilities of his or her form. The inventory

record for each item in the database contains a "read only" quantity field that is automatically calculated in the database.

Material Replenishment Determination: This function is controlled by the NASA task monitors for Computer Sciences Corporations (CSC) contract NAS5-32261, tasks 18 and 19. These monitors have set low-limits for each item in the inventory database. When an item's quantity reaches the low-limit, the stock room terminal alerts the stock clerk, who prints a low-limit form for that item and sends it to the appropriate NASA task monitor (task 18 monitor for electrical items or task 19 for mechanical items). The NASA task monitor then reviews the past usage of the item, adjusts the low-limit if necessary, and orders new stock if needed.

Purchase Order Preparation: The NASA task monitors for tasks 18 and 19 are responsible for most purchases made in the inventory. The only other purchase initiators are from the Mechanical and Instrumentation Branches located at Wallops. For purchases of routine stock items, the contractor stock clerk and contractor clerk typist perform clerical duties in the preparation of a purchase request. The NASA task monitors actually initiate and release those purchase requests through normal Small Purchase System channels.

Materials Receipt: Purchased materials are delivered to the stock room. The NASA task monitor verifies material received and signs the receipt from Wallops Receiving. Only NASA personnel are permitted to sign for material received. In the absence of the task monitor, another resident NASA employee will verify and sign for received material. Once material has been accepted by the NASA task monitor, the stock clerk enters the received stock as a transaction in the database. As stated above, receiving transactions will be processed by an additional clerk instead of the existing stock clerk.

Periodic Inventory of Stock Room: The partial annual inventories have been conducted by the stock clerk, and the last 5-year full inventory (1994) was conducted by the stock clerk and one NASA employee. To further improve separation of duties, all inventories will be conducted by the NASA task monitors and their NASA designee. The stock clerk will help with the inventories; however, control will be the responsibility of NASA employees. Discrepancies in material inventory will be investigated in accordance with NHB 4100.1C, Section 307, by the NASA task monitors. Adjustments made to correct discrepancies of inventory will be made only with NASA task

monitor approval and will be conducted in accordance with Section 307.

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

The actions taken and planned are considered responsive to the intent of the recommendation.

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***2. OPPORTUNITY
EXISTS TO
CONSOLIDATE
MACHINE SHOPS***

The WFF has five machine shops performing similar fabrication services. Separate machine shops were established by individual WFF organizations because the WFF Machine Shop (responsible for installation-wide fabrication support) was giving priority to the Sounding Rocket and Tracking and Data Acquisition Programs. The operation of multiple machine shops increases the WFF's infrastructure at a time when downsizing and consolidation are being emphasized.

In May 1995, the NASA Administrator announced that an internal NASA review team had produced proposals to enable the agency to meet funding targets for the 1996 budget, and to cut spending by \$5 billion by the end of the decade. The proposals included cutting infrastructure by reducing jobs, facilities, and administrative overhead. This internal review, known as the "Zero-Base Review," also proposed streamlining functions at NASA centers, which would reduce overlap and consolidate administrative and program functions across the agency. The review team specifically proposed that the cost of WFF operations be reduced.

***WFF MACHINE
SHOP HAS EXCESS
CAPACITY***

The WFF Machine Shop performs fabrication services in support of all WFF programs and operations. The shop operates equipment such as Computer Aided Design and Computer Aided Machinery (CAD/CAM). Approximately 95 percent of the WFF Machine Shop's workload is for the Sounding Rocket and Tracking and Data Acquisition Programs, with the remaining workload for other WFF organizations. The WFF Machine Shop is also not operating at capacity. A 1994 independent study concluded that the WFF Machine Shop "needs higher throughput to achieve a lower cost per job, because the shop was essentially a fixed-cost to NASA."

***INDIVIDUAL WFF
ORGANIZATIONS
HAVE
ESTABLISHED
MACHINE SHOPS***

Individual WFF organizations have also established machine shops that operate independent of the WFF Machine Shop. Specifically, we identified four other machine shops at various locations on the WFF. Examples of these machine shops are as follows:

- The Earth Sciences Directorate's Observational Science Branch operates a machine shop in the aircraft hanger (building N-159) at the WFF. The shop includes equipment obtained from surplus such as lathes, drill presses, grinders, sanders, a milling machine, band saw, sheet metal bender and various supplies. Branch personnel informed us that the shop

was started because the WFF Machine Shop did not assign a high priority to aircraft jobs, and they could not be completed in a reasonable time frame. The shop currently employs a machinist under an existing support services contract for an average of 3 days per week.

- The Suborbital Projects and Operations Directorate's Balloon Projects Branch operates a machine shop in the aircraft hanger (building N-159) at the WFF. This shop supports various balloon projects and has equipment such as a lathe and drill press.
- Building X-35 on Wallops Island has a machine shop which is primarily used by launch maintenance crews. Its equipment, also obtained from surplus, includes drill presses, milling machines and a lathe.
- The Facilities Management Division's Wallops Management Branch has a machine shop located in building C-15. This shop performs mostly sheet metal work.

The independent machine shops were established because the WFF Machine Shop was giving priority to fabrication jobs for its primary customers, the Sounding Rocket and Tracking and Data Acquisition Programs. As a result, other WFF organizations did not want to wait for fabrication services and acquired their own equipment. The establishment of these separate machine shops has increased the WFF's infrastructure at a time when downsizing and consolidation are being emphasized. To reduce infrastructure costs, the WFF's Suborbital Projects and Operations Directorate should examine the requirements of the four independent machine shops and determine whether they can be consolidated.

RECOMMENDATION 2

The WFF's Suborbital Projects and Operations Directorate should examine the requirements of the four independent machine shops and determine whether they can be consolidated.

***MANAGEMENT
RESPONSE***

Concur. A special committee, established by the Director of the Suborbital Projects and Operations Directorate, examined the four independent machine shops and their possible consolidation. The following summarizes the shop consolidations and reductions that

have been implemented or are in process. The following also describes unique characteristics and requirements of remaining shop configurations that are necessary to most efficiently and effectively serve the Goddard programs and operations at the Wallops facility.

1. Earth Sciences Directorate (900) Observational Science Branch (Code 972) Precision Instrument Fabrication Facility, Building N-159.

This facility will be maintained; equipment and floor space will be reduced.

The work performed in this facility is highly-specialized work, beyond the expertise, experience, and equipment of the Wallops Machine Shop. This specialized facility designs and fabricates telescopes, grinds specialty optical mirrors, fabricates custom optical mountings, performs precision alignment of optical ray paths, fabricates foam core for composite material structures, and designs and fabricates custom instrument mounts for airborne applications. The work is performed by an instrument model maker, not by a traditional machinist. The work requires constant, specialized interaction between the instrument engineers and the instrument maker during design, fabrication, and testing. This facility is operated on an as-needed basis, with a temporary contract precision model maker working only during the design, fabrication, test, and installation stages of new instruments and critical instrument modifications and improvements. During the last 3 years, a period in which two new instruments were developed, the facility operated approximately 50 percent of the time. This level of activity is predicted for the foreseeable future. This facility has no relationship to the aircraft consolidation issue, since Code 972 has plans and is funded for continued airborne instrument development. Instruments will be fabricated in this facility regardless of where the supporting aircraft are based.

Code 972 will transfer/surplus machines not required for precision instrument requirements. The anticipated reduction of floorspace is approximately 200 square feet (from 600 to 400 square feet). The Wallops Machine Shop in Building F-10 will be used for non-precision, not-schedule-critical requirements and for work requiring heavier machines.

2. Suborbital Projects and Operations Directorate (800) Balloon Projects Branch (842) Machine Shop, Building N-159.

This shop has been closed.

The Balloon Programs Branch maintained two pieces of equipment, a grinder and a drill press, in a room in the Balloon Research & Development (R&D) Laboratory for the fabrication of unique parts for the project. During the renovation of N-159, which began in January 1995, the Balloon Programs Branch eliminated this separate shop capability. Machining work required in support of the Balloon Program is now provided through the Wallops Machine Shop in Building F-10.

3. Suborbital Projects and Operations Directorate (800) Mechanical Engineering Branch (823) Wallops Island Machine Shop, Building X-35.

This shop will be maintained for maximum effectiveness, accessibility, and efficiency in support of Island launch activities.

The Launch Vehicle and Recovery Systems Group performs rocket vehicle assembly, launch operations, and rocket launcher maintenance in support of the Sounding Rocket Program. The machine shop in the launcher maintenance shop, Building X-35, enables this group to perform small repairs and machining operations required to support the launcher maintenance and emergency repairs required during launch operations. Work requiring extensive machining and manpower is referred to the Wallops Machine Shop in Building F-10 on the Wallops mainsite, which is located approximately nine miles from Building X-35.

4. Management Operations Directorate (200) Facilities Management Division, Wallops Management Branch (228) Sheetmetal Shop, Building C-15 (now F-16).

This shop was relocated from Building C-15 and now occupies a small area within the existing Building F-16 facilities maintenance operations area. Its operations are limited to supporting minor, essential sheetmetal work requiring quick turnaround to support maintenance and repair activities in the field. The sheetmetal equipment is not large machine shop equipment, but small handbrakes and other inexpensive tools used for the quick-turnaround sheetmetal

requirements (i.e., fabrication of ductwork, roof flashing, and guttering). The large, computerized equipment in the Wallops Machine Shop (F-10) is frequently in production mode for fabrication of rocket hardware and other sophisticated components. In the past, the small facilities-related sheetmetal work had to be delayed in favor of the critical program work and was not as cost-effective as with the current arrangement.

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

The actions taken and planned are considered responsive to the intent of the recommendation.

Management's Response

National Aeronautics and
Space Administration
Goddard Space Flight Center
Greenbelt, MD 20771



Reply to Attn of: 201

AUG 12 1996

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

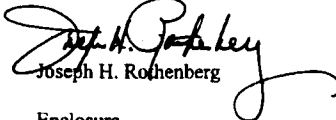
FROM: 100/Director

SUBJECT: GSFC Response to OIG Draft Report on Survey of
Wallops Flight Facility (WFF) Machine Shop Operations, A-GO-95-012

Enclosed is our response to the subject draft survey report dated July 10, 1996.

We concur with the survey report and have taken or will take corrective actions as described in the enclosure.


Please call Ms. Barbara Sally at 301-286-8436 if you have any questions or need further information or followup on this response.


Joseph H. Rothenberg

Enclosure

Management's Response

GODDARD SPACE FLIGHT CENTER (GSFC)
RESPONSE TO
OFFICE OF INSPECTOR GENERAL (OIG)
DRAFT SURVEY REPORT A-GO-95-012
DATED JULY 10, 1996
ON
WALLOPS FLIGHT FACILITY MACHINE SHOP OPERATIONS

Date  AUG 12 1996

ENCLOSURE

Management's Response

GSFC Response to OIG
7/10/96 Draft Report
A-GO-95-012
Page 2

The following is GSFC's response to the two recommendations.

OIG RECOMMENDATION 1: (\$0)

The Experimental Mechanical Construction Section of the WFF's Technical Support Branch should ensure that the duties and responsibilities currently performed by the WFF Machine Shop's inventory custodian are properly separated.

GSFC RESPONSE TO RECOMMENDATION 1: (\$0) CONCUR

The Experimental Mechanical Construction Section (now the "Mechanical Systems Group") agrees to take action to improve materials management in the Wallops machine shop stock room and to ensure proper separation of duties for ordering, receiving, recording, issuing, maintaining, and inventorying materials. The Group has conducted an assessment of appropriate responsibilities and practices toward this goal, including the following:

Authorized Stock Recipients: To conform with "NASA Materials Inventory Management Handbook," NHB 4100.1C, Section 300(B), the controlling program manager will provide a list of authorized users of program stock to contractor stock personnel. Once the list is in place, stock will only be issued to personnel on that list.

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Material Replenishment Determination: This function is controlled by the NASA monitors for Computer Sciences Corporation (CSC) contract NAS5-32261, tasks 18 and 19. These monitors have set low-limits for each item in the inventory database. When an item's quantity reaches the low-limit, the stock room terminal alerts the stock clerk, who prints a limit form for that item and sends it to the appropriate NASA task monitor (task 18 monitor for electrical items or task 19 monitor for mechanical items). The NASA task monitor then checks the past usage of the item, adjusts the low-limit if necessary, and orders new stock if necessary.

Management's Response

GSFC Response to OIG
7/10/96 Draft Report
A-GO-95-012
Page 3

Purchase Order Preparation: The NASA task monitors for tasks 18 and 19 are responsible for most purchases made in the inventory. The only other purchase initiators are from the Mechanical and Instrumentation Branches located at Wallops. For purchases of routine stock items, the contractor stock clerk and contractor clerk typist perform clerical duties in the preparation of a purchase request. The NASA task monitors actually initiate and release those purchase requests through normal Small Purchase System channels.

Materials Receipt: Purchased materials are delivered to the stock room. The NASA task monitor verifies material received and signs the receipt from Wallops Receiving. Only NASA personnel are permitted to sign for material received. In the absence of the task monitor, another resident NASA employee will verify and sign for received material. Once material has been accepted by the NASA task monitor, the stock clerk enters the received stock as a transaction in the database. As stated above, receiving transactions will be processed by an additional clerk instead of the existing stock clerk.

Periodic Inventory of Stock Room: The partial annual inventories have been conducted by the stock clerk, and the last 5-year full inventory (1994) was conducted by the stock clerk and one NASA employee. To further improve separation of duties, all inventories will be conducted by the NASA task monitors and their NASA designee. The stock clerk will help with the inventories; however, control will be the responsibility of NASA employees. Discrepancies in material inventory will be investigated in accordance with NHB 4100.1C, Section 307, by the NASA task monitors. Adjustments made to correct discrepancies of inventory will be made only with NASA task monitor approval and will be conducted in accordance with Section 307.

GSFC considers the actions under this recommendation to be ongoing and requests that it be closed for reporting purposes. The Audit Liaison Office will perform post-closure validation to confirm implementation of the above described procedures.

Management's Response

GSFC Response to OIG
7/10/96 Draft Report
A-GO-95-012
Page 4

OIG RECOMMENDATION 2: (\$0)

The WFF's Suborbital Projects and Operations Directorate should examine the requirements of the four independent machine shops and determine whether they can be consolidated.

GSFC RESPONSE TO RECOMMENDATION 2: (\$0) CONCUR

A special committee, established by the Director of the Suborbital Projects and Operations Directorate, examined the four independent machine shops and their possible consolidation. The following summarizes the shop consolidations and reductions that have been implemented or are in process. The following also describes unique characteristics and requirements of remaining shop configurations that are necessary to most efficiently and effectively serve the Goddard programs and operations at the Wallops facility.

1. Earth Sciences Directorate (900) Observational Science Branch (Code 972) Precision Instrument Fabrication Facility, Building N-159

This facility will be maintained; equipment and floor space will be reduced.

The work performed in this facility is highly-specialized work, beyond the expertise, experience, and equipment of the Wallops Machine Shop. This specialized facility designs and fabricates telescopes, grinds specialty optical mirrors, fabricates custom optical mountings, performs precision alignment of optical ray paths, fabricates foam core for composite material structures, and designs and fabricates custom instrument mounts for airborne applications. The work is performed by an instrument model maker, not by a traditional machinist. The work requires constant, specialized interaction between the instrument engineers and the instrument maker during design, fabrication, and testing. This facility is operated on an as-needed basis, with a temporary contract precision model maker working only during the design, fabrication, test, and installation stages of new instruments and critical instrument modifications and improvements. During the last 3 years, a period in which two new instruments were developed, the facility operated approximately 50 percent of the time. This level of activity is predicted for the foreseeable future. This facility has no relationship to the aircraft consolidation issue, since Code 972 has plans and is funded for continued airborne instrument development. Instruments will be fabricated in this facility regardless of where the supporting aircraft are based.

Code 972 will transfer/surplus machines not required for precision instrument requirements. The anticipated reduction of floorspace is approximately 200 square feet (from 600 to 400 square feet). The Wallops Machine Shop in Building F-10 will be used for non-precision, non-schedule-critical requirements and for work requiring heavier machines.

Management's Response

GSFC Response to OIG
7/10/96 Draft Report
A-GO-95-012
Page 5

2. Suborbital Projects and Operations Directorate (800) Balloon Projects Branch (842)
Machine Shop, Building N-159

This shop has been closed.

The Balloon Programs Branch maintained two pieces of equipment, a grinder and a drill press, in a room in the Balloon Research & Development (R&D) Laboratory for the fabrication of unique parts for the project. During the renovation of N-159, which began in January 1995, the Balloon Programs Branch eliminated this separate shop capability. Machining work required in support of the Balloon Program is now provided through the Wallops Machine Shop in Building F-10.

3. Suborbital Projects and Operations Directorate (800) Mechanical Engineering Branch (823)
Wallops Island Machine Shop, Building X-35

This shop will be maintained for maximum effectiveness, accessibility, and efficiency in support of Island launch activities.

The Launch Vehicle and Recovery Systems Group performs rocket vehicle assembly, launch operations, and rocket launcher maintenance in support of the Sounding Rocket Program. The machine shop in the launcher maintenance shop, Building X-35, enables this group to perform small repairs and machining operations required to support the launcher maintenance and emergency repairs required during launch operations. Work requiring extensive machining and manpower is referred to the Wallops Machine Shop in Building F-10 on the Wallops main site, which is located approximately nine miles from Building X-35.

4. Management Operations Directorate (200) Facilities Management Division, Wallops
Management Branch (228) Sheetmetal Shop, Building C-15 (now F-16)

This shop was relocated from Building C-15 and now occupies a small area within the existing Building F-16 facilities maintenance operations area. Its operations are limited to supporting minor, essential sheetmetal work requiring quick turn-around to support maintenance and repair activities in the field. The sheetmetal equipment is not large machine shop equipment, but small handbrakes and other inexpensive tools used for the quick-turnaround sheetmetal requirements (i.e., fabrication of ductwork, roof flashing, and guttering). The large, computerized equipment in the Wallops Machine Shop (F-10) is frequently in production mode for fabrication of rocket hardware and other sophisticated components. In the past, the small facilities-related sheetmetal work had to be delayed in favor of the critical program work and was not as cost-effective as with the current arrangement.

Management action on Recommendation 2 is complete.