HA-96-001

# AUDIT REPORT

# RAPID ACTION

## CONSOLIDATION OF AIRCRAFT AT THE DRYDEN FLIGHT RESEARCH FACILITY

## NASA HEADQUARTERS

## DECEMBER 7, 1995


National Aeronautics and Space Administration

## OFFICE OF INSPECTOR GENERAL

National Aeronautics and
Space Administration
**Headquarters**
Washington, DC 20546-0001

DEC 7 1995

Reply to Attn of: W

TO: AT/Associate Deputy Administrator (Technical)

FROM: W/Acting Deputy Assistant Inspector General for Auditing

SUBJECT: Final Rapid Action Report on Consolidation of Aircraft at the Dryden Flight Research Center
Assignment No. A-HA-96-002
Report No. HA-96-001

The NASA Office of Inspector General (OIG) has completed a preliminary analysis of NASA's decision to consolidate aircraft at the Dryden Flight Research Center (DFRC). Our analysis indicates that NASA's estimated costs of consolidation are questionable, and that NASA has not thoroughly considered the impact consolidation will have on its science research programs.

The OIG questions NASA's decision to consolidate aircraft at Dryden. Of NASA's fleet of 107 active aircraft, there are 47 different types of planes, most having varying, sometimes unique, maintenance and piloting needs. Hence, the efficiencies traditional consolidations offer in terms of a smaller infrastructure and the economies resulting from eliminating redundant operations may not occur with NASA's aircraft. Furthermore, with so many different types of planes, we question NASA's claim that it can consolidate 21 aircraft at Dryden and reduce the number of direct support personnel from 404 to 320. Our interviews with center officials revealed every effort would be made to reabsorb these 84 employees into their work force; layoffs would be a last resort. Consequently, Dryden should not count all 84 of these employees' salaries and overhead as savings from consolidation when most may not truly be separated.

In addition, NASA's decision to consolidate aircraft did not adequately consider the impact consolidation will have on the Agency's science research programs. Our discussions with program researchers informed us that geographically separating the science instruments (aircraft) from the researchers will adversely impact their science research, with any savings arising from the consolidation coming at the expense of aeronautics research.

NASA management provided written comments to a draft of this report on December 6, 1995. The comments outline measures which are responsive to the report's recommendation. The comments have been incorporated into the body of the report and are included in their entirety as Appendix C. In accordance with NMI 9910.1A, please include our office in the concurrence cycle for closing the recommendation.

The NASA Office of Inspector General staff members associated with this audit express their appreciation to the many NASA personnel at Headquarters and the Field Centers for their courtesy, assistance, and cooperation during our review.

Carroll S. Little

Enclosure

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# TABLE OF CONTENTS

# CONSOLIDATION OF AIRCRAFT AT THE DRYDEN FLIGHT RESEARCH CENTER

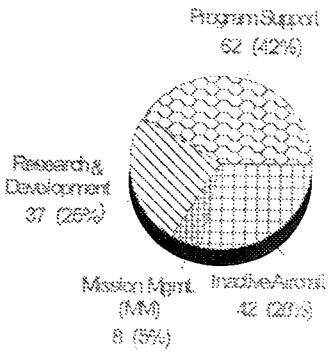
## INTRODUCTION

The NASA Office of Inspector General has completed a survey of NASA's plan to consolidate aircraft at the Dryden Flight Research Center (DFRC). During this survey, we identified a condition related to the consolidation plan that warrants management's immediate attention. Accordingly, we are issuing this rapid action report due to the significance and time sensitivity of the condition.

In an internal discussion paper known as the "white paper," dated February 2, 1995, NASA identified options to streamline operations and improve the efficiency of the Agency's programs. The white paper proposed, in part, that "Dryden should prepare to receive program aircraft from other NASA Centers." In response to the white paper, NASA Headquarters (HQ) tasked DFRC to study the feasibility of the proposed consolidation. The study only considered DFRC as the location for consolidating aircraft. On April 4, 1995, DFRC concluded its study stating that NASA could save an estimated $9.0 million annually by consolidating aircraft at DFRC. Subsequently, DFRC revised this figure to $23.3 million.

On May 19, 1995, NASA issued a press release that announced a proposed realignment of roles and responsibilities for all NASA field centers. DFRC was to assume flight operations management of all aircraft except those in support of the Space Shuttle.

As of January 30, 1995, NASA had a total of 149 aircraft, categorized as follows:



The 42 inactive aircraft were either in storage for use as parts, displays or wind tunnel models, or were being used as ground-based test beds. Under NASA's consolidation plan, only 21 of the active aircraft will be relocated to DFRC (14 program support and 7 R&D aircraft). Of the 21 aircraft being transferred to DFRC, 9 are to come from the Ames Research Center (ARC), 5 from Langley Research Center (LaRC), 4 from Wallops Flight Facility (WFF), and 1 plane each from Lewis Research Center (LeRC), Stennis Space Center (SSC), and Johnson Space Center (JSC). The remaining Space Shuttle support and mission management aircraft will stay at their respective centers or will be retired.

# OBJECTIVES, SCOPE, AND METHODOLOGY

***OBJECTIVES***

The objectives were to:

- Determine NASA's rationale for transferring the aircraft to DFRC.
- Evaluate NASA's decision-making process that led to the aircraft consolidation plan.
- Identify the support used by DFRC to prepare its aircraft consolidation study.
- Query aircraft operations and program personnel as to the impact of the consolidation on their respective activities.

***SCOPE AND METHODOLOGY***

To accomplish our objectives, we interviewed key NASA employees and reviewed documents pertaining to the planned consolidation. Site visits were performed in conjunction with these interviews at ARC, LeRC, LaRC, and DFRC. We also reviewed cost estimates provided by NASA officials for accuracy and reasonableness to the extent necessary to satisfy the survey objectives.

***MANAGEMENT CONTROLS REVIEWED***

The need to test management controls depends on their relevance to the audit objectives. We did not consider a review of management controls to be significant relative to the audit objectives. Management controls will be reviewed as part of our ongoing work.

***AUDIT FIELD WORK***

Audit field work, which started in July 1995, is continuing. Field work is being performed at NASA HQ, DFRC, LeRC, WFF, LaRC, and ARC. The audit is being performed in accordance with generally accepted government auditing standards, and includes such examinations and tests of applicable records and documents as are considered necessary in the circumstances.

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## OBSERVATIONS AND RECOMMENDATIONS

### *INTERIM RESULTS OF AUDIT*

Expected cost savings were cited as the primary factor in NASA's decision to consolidate aircraft. However, our preliminary analysis indicates that NASA's estimated costs and savings calculations are questionable. In addition, the consolidation effort did not fully take into account the impact on the Agency's research science programs. NASA could incur significant additional costs rather than the $23.3 million annual savings it has most recently projected. Also, NASA may incur $32.2 million of start-up costs for an aircraft consolidation program that has not been adequately justified. Based on the significant costs and adverse impact on program research, the OIG has concluded that NASA should re-evaluate its plan to consolidate aircraft at the DFRC. Audit work continues on both cost and savings estimates.

### *NASA'S ESTIMATED COSTS ARE QUESTIONABLE*

The Associate Deputy Administrator (Technical ) advised the OIG that the decision to consolidate aircraft was based on expected cost savings. The OIG found, however, that most of DFRC's cost estimates were based on overly optimistic and questionable assumptions or unsupported data. Specifically, DFRC's analyses: (1) assumed that it can operate the transferred aircraft with fewer personnel; (2) claimed recurring cost savings from the retirement of 11 aircraft, even though most of these aircraft would have been retired regardless of the consolidation decision; (3) reported other cost savings and cost increases that were either not supported or appeared unreasonable; and (4) did not assess the cost impact of consolidation on NASA's research programs. Each of these matters is discussed below.

**Personnel Reductions** -- In its aircraft consolidation study, DFRC estimated total annual cost savings of $9.0 million. DFRC later revised this figure to $23.3 million. About $7.0 million of these savings were based on the assumption that a "synergism" would be achieved by consolidating 21 aircraft at a single location. DFRC stated that it can maintain and operate these additional aircraft using only 320 personnel instead of the 404 personnel presently required at the other centers. The study showed that the reduction of 84 personnel (404 - 320) represented a cost savings of about $7.0 million, computed as follows:

Annual Cost Savings Through
Personnel Reductions

| | | |
|---|---|---|
| Pilots: | 14 @ $100,000 | $1,400,000 |
| Other personnel: | 70 @ $80,000 | 5,600,000 |
| | 84 personnel | $7,000,000 |

DFRC acknowledged that the estimated personnel reductions were based solely on judgment, and that it had no documentary support for the reductions. In supporting the claim of synergism, however, the DFRC study stated that savings had been achieved by collocating two F-16XL aircraft at DFRC in November 1994. DFRC was unable to isolate such savings from any other factors that may have contributed to the savings.

According to several aircraft operations personnel, the purported benefits were overly optimistic. In their view, synergism would be diminished due to the uniqueness of the aircraft slated for consolidation, and the specialized maintenance and support requirements for these aircraft. Our analysis supports their view as NASA's 107 active aircraft is comprised of 47 different types.

DFRC stated that "synergism" will occur because the savings associated with personnel reductions due to aircraft consolidation have already been deducted from each center's staffing complement and salary budget. We disagree with DFRC's position because it does not reflect the number of employees who would be reassigned at their respective centers. To illustrate, if NASA does not reduce its overall staffing by any of the 84 personnel (404 - 320) as presently assigned, then none of the estimated $7.0 million recurring savings will materialize.

Several officials disclosed to the OIG that their centers will attempt to reassign those personnel who do not transfer to DFRC, and that layoffs will occur only if absolutely necessary. The reassignments would be made within the centers' reduced budgets (and staffing levels). It should be noted that at the time of our survey, ARC, LaRC, and LeRC had a total of only 25 position vacancies. This figure is significantly less than the number of vacancies that would be required to accommodate the number of personnel who elect not to transfer. Since positions generally do not already exist for these personnel, it is evident the centers do not have a pre-existing need for their skills.

ARC, LaRC, and LeRC officials expressed confidence in their ability to reassign civil servants (potentially 25 positions at ARC, 21 at LaRC, and 25 at LeRC) who may not transfer to DFRC. If these 71 positions are reassigned to newly created positions at the respective centers (i.e., within the centers' reduced staffing complements/personnel ceilings), then $3,680,000 of NASA's estimated recurring savings ($7,000,000) will not be realized. This figure is derived as follows: ((71 positions - 25 vacant positions = 46 net positions) x $80,000 per position).

Furthermore, to the extent ARC, LaRC, and LeRC reassign or terminate NASA employees, NASA will incur additional costs for employee retraining, outplacement services and severance benefits. These potentially significant costs (up to $45,000 per employee for severance pay only) were not reflected in the DFRC study. We will pursue these costs in our detailed audit phase.

In light of the anticipated staffing complement at DFRC, the views of officials at the other centers and the uncertainties of final disposition of those employees working on aircraft, we conclude the actual amount of personnel cost savings realized will be dependent on the number of employees and positions ultimately terminated.

**Retirement of Aircraft** -- DFRC claimed additional savings of $1,552,000 due to the retirement of 11 NASA aircraft at other NASA centers. DFRC derived the $1,552,000 by multiplying the number of personnel currently associated with the 11 aircraft, or 19.4 personnel, by an estimated cost of $80,000 per employee per year.

NASA Headquarters and other center personnel advised that the consolidation would have caused only 4 of the 11 aircraft to be retired (the Lear 24, Lear 25, T-34, and OV-10). The remaining 7 aircraft would have been retired anyway due to changes in program requirements. Since the 4 aircraft represent $192,000 of the estimated savings, the DFRC study overstated the recurring savings from aircraft retirement by $1,360,000 ($1,552,000 minus $192,000).

**Other Savings and Cost Increases** -- The DFRC study estimated other cost savings and cost increases resulting from the planned aircraft consolidation. Some of these estimates were either unsupported or unreasonable. For example:

- DFRC estimated one-time relocation costs at $33,000 per employee. Our review disclosed that relocation costs approximate $70,000 per employee. This significant difference is primarily attributable to reimbursable real estate costs not reflected in the DFRC estimate. Assuming DFRC's

estimate is correct that 250 employees will be transferred to DFRC, then the DFRC study will have underestimated employee relocation costs by as much as $9,250,000 (($70,000 - $33,000) x 250).

- The DFRC study estimated savings of $.5 million annually due to the closing of hangars, offices, labs, etc., at the other centers. Subsequently, DFRC increased this figure to $2.2 million. The amount consisted of $1.5 million savings from building maintenance and $.7 million savings from reduced utility costs. Based on our discussions with center officials, many aircraft-related facilities will remain open after the consolidation and hence cost savings may be overstated. To illustrate, LeRC estimates that reducing its hangar from active to standby status will save only about $60,000 annually. Also, LaRC officials advised they have no plans to close any facilities due to the consolidation and pay no fees for use of the Langley Air Force Base runways, air traffic control, or crash/fire/rescue services. DFRC's estimated $2,200,000 recurring savings may, therefore, be overstated by as much as $2,140,000 ($2,200,000 - $60,000).

- DFRC estimated that because roughly 400 direct civil service and contractor personnel will be eliminated from the other centers as a result of the consolidation, a proportionate number of indirect personnel (e.g., financial management personnel, procurement personnel, etc.) will also be eliminated at those centers. Using NASA's agency wide ratio of 4 direct employees to every 1 indirect employee, DFRC estimated that 100 indirect personnel (1/4 of 400 direct personnel) can be eliminated at a savings of $8 million annually ($80,000 per NASA employee x 100 indirect employees).

  However, DFRC's calculation did not include a proportionate increase in the number of indirect personnel that would logically result from adding an estimated 142 direct civil service personnel at DFRC. In contrast, officials from the "contributing" aeronautical centers indicated that they do not expect the number of indirect personnel at their centers to be reduced as a result of the consolidation. If correct, then DFRC will experience an associated increase of 36 indirect personnel (1/4 of 142 additional direct personnel). The additional costs of indirect personnel to DFRC, therefore, will total $2,880,000 (36 indirect personnel x $80,000). Accordingly, our analysis indicates DFRC's estimated savings of $8,000,000 is in error. Rather than saving $8 million of indirect personnel costs, the consolidation would actually add $2,880,000 of indirect

personnel costs. (Note: The OIG conservatively applied the 4:1 ratio to the number of affected civil service positions only, not to the combined total of civil service and contractor positions as computed by DFRC.)

We agree that the contributing centers will likely not experience a decrease in indirect personnel due to the proportionately smaller reductions of aircraft personnel at those centers. For example, at LaRC the number of affected aircraft personnel (21) represents less than 1 percent of its total direct work force. At DFRC, however, the proportionately larger increase in total staffing (142 additional civil servants, or a 43 percent increase based on its September 1994 staffing data), will require additional indirect personnel. In this regard, a DFRC official advised the OIG that the number of indirect civil servants in one DFRC organization will increase by 50 percent (from 4 employees to 6 employees), as a result of the consolidation of aircraft at DFRC.

- DFRC estimated recurring savings of $3 million from closure of the Moffett Airfield (at ARC) and $1.6 million from closure of the Moffett range (at ARC). Discussions with ARC officials indicated that there are no immediate plans to close the Moffett Airfield, and that approximately 75 percent of the Moffett range operating costs will continue following the aircraft consolidation. Therefore, we question the $3 million savings claimed for the Moffett Airfield and the $1.2 million (75 percent of $1.6 million) savings claimed for the Moffett range.

- The DFRC study was based on the assumption that Edwards Air Force Base (collocated with DFRC) will provide aircraft hangars and other support facilities to accommodate the additional 21 aircraft to be consolidated at DFRC. The study estimated DFRC's cost for these facilities at $745,000 annually. This figure was not adequately supported. At the time of our survey, related discussions between DFRC and the Air Force were still in progress.

**Cost Impact on Programs** -- The DFRC study did not consider the expected cost impact of the consolidation on NASA's research programs, as indicated in the following table:

**Examples of Program Cost Impact**
**Not Included in DFRC Study**

| Research Program | Cost Impact/year (in millions) |
|---|---|
| Microgravity (LeRC) | $1.6 |
| Airborne Science Mission (Wallops) | .6 |
| Icing Research (LeRC) | .1 |
| RASCAL Rotorcraft (ARC) | .3 |
| Total | $2.6 |

The above program cost impacts pertain to additional logistics-related costs. For example, officials at LeRC advised that the LeRC microgravity program will incur an additional $.7 million for researchers' travel; $.7 million for shipping of experiments; and $.2 million for lost productivity of researchers. Other programs will incur similar types of additional costs. We will assess additional program cost impacts as part of our ongoing work.

Appendix A summarizes all cost adjustments identified to date.

***RESEARCH WILL BE ADVERSELY AFFECTED***

The aircraft targeted for consolidation at DFRC are primarily used for research purposes. Accordingly, the effects of the consolidation on present and future research work should have been incorporated into the decision-making process. Our review of (1) NASA documents, and (2) interviews of program officials, disclosed that NASA had not adequately assessed the effects of consolidation on its aeronautical and science programs.

**Internal Documentation** -- Internal NASA documents alluded to significant programmatic concerns regarding the consolidation. For example, in a report dated November 1993 (known as the Rausch Report), the Deputy Director for the National Aerospace Plane, Office of Aeronautics, stated in part:

> *Additional analysis and evaluation of the ramifications of this very complex* [consolidation] *will be required to determine its total impact . . ..* [Consolidation] *can clearly be implemented. However, it will not be easy . . . it will adversely impact the program and customers while it is being implemented; morale will be (and already is) adversely impacted; and, the challenge to ensure that flight research is closely connected to the Aeronautics program and the researchers will be even greater than it is today. Finally, the challenge to change NASA culture to become more customer-oriented would become more difficult . . .. The near-term adverse effects of*

*this* [consolidation] *could degrade the last vital link in NASA's Aeronautical mission -- the successful transfer of technology to U.S. industry.*

Also, the Brooks Report, dated January 30, 1995, stated that:

> *Efficient conduct of any R&D program requires the integration of many elements to create a focused technical team. In addition, these teams are most effective when all the elements of the program, including the aircraft, are collocated. Since the specialized aircraft required for these programs are only one element in a complex program structure, evaluation of effective aircraft utilization by aircraft description alone is inappropriate. Certainly every effort should be made to review our R&D aircraft utilization to avoid duplication and maximize our efficiency, but it should be remembered that R&D is a discovery process which cannot properly be served with a "bottom line/rent-an-airplane" philosophy.*

Finally, in a memo dated March 1, 1995, the NASA Chief Scientist responded to the "white paper" by stating that:

> *Our understanding is that Dryden is leading an evaluation of the airplane-based science program, but that its focus is on the management of function, and not a plan for the conduct of science research. We advocate strongly that the review of the airplane program must incorporate a plan that facilitates research, including the enabling of the external guest investigators that use the airplane instruments for research.*

In response to these concerns, DFRC claimed that any programmatic impact will occur in a "controlled" manner, and that improved telecommunications technology will eliminate the need for collocating the aircraft with the science researchers. Conversely, discussions with principle investigators and program researchers disclosed that separating the research instruments (aircraft) from the scientist would significantly impede the ability of the researcher to conduct science research. Furthermore, that increased use of telecommunication capabilities would do little to overcome the loss gained from hands-on experience.

**Interviews of Program Officials** -- All 44 program officials interviewed at four NASA centers corroborated the concerns expressed above. These interviews also provided insights into the implications of aircraft consolidation. Their comments include:

- The transfer of a UH-1H helicopter (LaRC) to DFRC will have an adverse impact on the drop testing phase of a related research program. The program includes drop testing models over water. If these models are instead dropped over the dry lake bed at DFRC, the test models will be damaged. The drop testing program would likely end if the helicopter is transferred to DFRC due to the absence of a body of water over which to perform these tests. Separation of the research personnel who perform drop testing from the personnel who perform related wind tunnel and spin tests, will adversely affect the research program as a whole.

- Geographic separation of the DC-9 aircraft from the host Center (LeRC) will deny scientists ready access to their laboratories and equipment, and will unnecessarily increase the risk of damaging science hardware while it is being transported to DFRC.

- The consolidation of the P-3B aircraft will add costs to the Light Detection and Ranging program (LaRC) and, therefore, significantly impede its ability to continue as a viable research program. Additional costs will result from researchers' travel, and from shipping, unpacking and set-up of instruments at DFRC.

- The monitoring and research of Atlantic coast waters and bays, as well as calibration and verification of satellite-borne ocean instruments (MODIS, SeaWiFS, POLDER, OCTS), could not be sustained with DFRC-based aircraft due to the programmatic need for numerous missions in specific meteorological and ocean biological conditions. If the P-3B, C-130Q, T-39e and UH-1H aircraft are managed at DFRC and located at Wallops, there should be no appreciable increase in cost to the supported programs. However, if the aircraft are managed and located at DFRC, these and similar programs would incur an appreciable cost increase.

- The transfer of the ER-2 and DC-8 aircraft from ARC will result in the loss of experienced personnel who choose not to transfer to DFRC, and research will be delayed due to interruptions of ongoing research while equipment and personnel are being consolidated at DFRC.

Personnel from non-NASA research institutions expressed similar concerns. For example, an assistant professor and official for the Kuiper Airborne Observatory (ARC) Users Group advised that the consolidation could seriously compromise the efficiency and cost

effectiveness of the Airborne Astronomy Program. The professor cited the program's proximity to plentiful, nearby, high-tech, commercial-sector resources; a world-class infrared astronomy center; as well as day-to-day science input for operation and development activities. These capabilities do not exist at DFRC. Also, a research physicist from the National Oceanic and Atmospheric Administration expressed concern about the adverse environmental conditions at DFRC. He cited high winds and blowing sand that could jeopardize mission operations.

In summary, the OIG questions NASA's decision to consolidate aircraft at DFRC because the expected cost savings are either not supported or are unreasonably optimistic, and the impact of consolidation on NASA's research programs has not been thoroughly addressed. (Appendix B summarizes the significant issues identified during the course of this survey.) Accordingly, we make the following recommendation.

***RECOMMENDATION***

We recommend that NASA discontinue its efforts to consolidate aircraft at DFRC until NASA has completed a full cost and programmatic impact analysis. This analysis should include a thorough evaluation of issues and concerns expressed by affected NASA researchers, outside customers, and aircraft operations personnel.

***MANAGEMENT RESPONSE***

The Associate Deputy Administrator (Technical) responded that NASA management understood the OIG's concerns, but that they had serious reservations about our analysis. Regardless of those concerns, the Associate Deputy Administrator (Technical) indicated that, as part of their planning process, they had intended to conduct a thorough analysis of the consolidation recommendation, including full cost, programmatic, and operational impacts. The Office of the Chief Financial Officer/Comptroller has been tasked with this action. While NASA management's planning activities will continue, they will not take action to implement consolidation until the analysis is complete in mid-December.

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

The actions being taken by NASA management are responsive to the recommendation. We will evaluate the results of the analysis of cost programmatic, and operational impacts as part of our ongoing audit work.

## SUMMARY OF PRELIMINARY COST ADJUSTMENTS PER OIG AUDIT SURVEY*

| | Recurring Savings | | Report Page No. |
|---|---|---|---|
| Per DFRC's aircraft consolidation study and subsequent update | $23,330,000 | | 4 |
| *Less questionable savings:* | | | |
| Savings from "synergism" | (3,680,000) | | 5 |
| Aircraft retirement | (1,360,000) | | 6 |
| Savings from closing facilities | (2,140,000) | | 7 |
| Reduction of indirect personnel | (8,000,000) | | 7 |
| Additional indirect personnel | (2,880,000) | | 7 |
| Moffett Airfield closure | (3,000,000) | | 8 |
| Moffett range closure | (1,200,000) | | 8 |
| Various program cost impacts | (2,600,000) | ** | 8 |
| Adjusted total | ($1,530,000) | | |

*NOTE:*

* All costs are subject to change based on further audit work.

** This represents the program cost impact identified through 10/23/95. Additional cost impacts will be identified.

| | One-Time Costs | | |
|---|---|---|---|
| Start-up costs per DFRC study | $22,930,000 | | |
| *Add additional one-time costs:* | | | |
| Additional relocation costs | 9,250,000 | | 6 |
| Adjusted total | $32,180,000 | | 4 |

## SUMMARY OF ISSUES

| ISSUE | RATIONALE FOR CONSOLIDATION | RATIONALE AGAINST CONSOLIDATION | OIG COMMENT |
|---|---|---|---|
| "Synergism" in aircraft operations. | By consolidating all the aircraft at one location (DFRC), fewer personnel will be required to support the aircraft. | The aircraft to be transferred are unique and have specialized maintenance and support requirements. Therefore, savings from "synergism" are unrealistic. | DFRC stated that the estimate of savings due to "synergism" is based on judgement only. Due to the specialized nature of the aircraft, "synergism" may not materialize. |
| Reduction of personnel. | Since fewer direct aircraft support personnel are needed due to "synergism," NASA can reduce its overall staffing level (from approximately 400 to 300), resulting in recurring labor cost savings. | NASA cannot achieve real savings if the unneeded aircraft support personnel are retrained and reassigned to other positions. | Three NASA centers have already advised the OIG that they will make every effort to retrain and reassign aircraft support personnel who do not transfer to DFRC. |
| Retirement of aircraft. | The aircraft consolidation will result in the retirement of 11 aircraft, thereby saving $1,552,000 in recurring labor costs. | Seven of the 11 subject aircraft have been or will be retired because of changes in program requirements, not because of the consolidation. | Preliminary information indicates that 4 of the 11 aircraft will be retired due to the consolidation, resulting in recurring savings of $192,000, not $1,552,000 as claimed by NASA. |
| One-time relocation costs. | DFRC's cost study estimated one-time relocation costs of $33,000 per employee. | DFRC's estimate appears to be significantly understated. The one-time relocation costs would approximate $70,000 if real estate costs are included. | DFRC acknowledged that the $33,000 figure does not include estimated real estate costs. |

## SUMMARY OF ISSUES

| ISSUE | RATIONALE FOR CONSOLIDATION | RATIONALE AGAINST CONSOLIDATION | OIG COMMENT |
|---|---|---|---|
| Savings from closing NASA facilities. | By closing aircraft-related facilities at the other centers, NASA will save $2.2 million annually due to reduction in maintenance and utility costs. | The savings are questionable because many of the facilities (runways, hangars, offices, etc.) will be kept open after the consolidation is completed. | NASA has not provided the OIG detailed information to support the $2.2 million cost savings. Discussions with the centers indicated that many facilities will remain open. |
| Cost of using Air Force facilities. | The cost of using Air Force facilities at Edwards AFB will be about $745,000 a year. This cost estimate is reflected in NASA's cost study. | NASA may be understating the cost of using Air Force facilities. The Air Force's overhead costs are likely to increase due to fewer tenants at Edwards AFB. Also, the Air Force's long-term commitment to NASA at Edwards AFB is uncertain. | Discussions between NASA and the Air Force are still in progress. Until NASA provides the OIG more definitive information, the ultimate cost of using Air Force facilities is uncertain. |
| Indirect personnel cost savings. | Since 400 direct positions will be eliminated at the other centers, these centers can eliminate about 100 indirect personnel (1/4 of 400). This results in an additional $8 million ($80,000 x 100) in recurring cost savings. | It is questionable whether the affected centers will reduce a proportionate number of indirect employees. Also, NASA failed to reflect a corresponding increase in indirect personnel at DFRC due to the increase of about 300 direct personnel at that center. | Interviews conducted with various center officials indicated that the number of indirect personnel will not be reduced at their centers due to aircraft consolidation. |

## SUMMARY OF ISSUES

| ISSUE | RATIONALE FOR CONSOLIDATION | RATIONALE AGAINST CONSOLIDATION | OIG COMMENT |
|---|---|---|---|
| Cost impact on research programs. | Locating all the aircraft at DFRC will have very little impact on the costs of conducting research programs. Cost impact will be minimized through better planning and scheduling of flight missions. | Due to geographical separation of the aircraft and the researchers, additional program costs will be needed to transport personnel and equipment to and from DFRC. | NASA's cost study generally ignored the aircraft consolidation's impact on program costs. Preliminary information provided by program personnel indicated that there may be a significant adverse cost impact. |
| Other one-time costs. | All one-time costs are fully reflected in the NASA cost study. | The cost of training employees who will not be transferring to DFRC, is not reflected in NASA's cost study. | Based on preliminary information gathered, NASA did not include in its cost study the cost of training those employees who will be reassigned to other NASA positions. |
| Impact on program efficiency. | Separation of the aircraft from the researchers would not adversely affect research work. Advanced telecommunication capabilities will be used to transmit data remotely to the researchers at distant locations. | While remote transmission of data is helpful, a significant amount of research work requires the collocation of the aircraft with the researchers and other research facilities. The aircraft must be easily accessible to the researchers to facilitate testing and modification of scientific instrumentation. | Most research personnel contacted by the OIG expressed the concern that they cannot conduct research efficiently if the aircraft are not readily accessible. The researchers maintained that "synergism" in conducting research will be broken if all the research tools (including the aircraft) are not collocated with the research work. |

National Aeronautics and
Space Administration
**Office of the Administrator**
Washington, DC 20546-0001

DEC 6 1995

TO: W/Acting Deputy Assistant Inspector General for Auditing

FROM: AT/Associate Deputy Administrator (Technical)

SUBJECT: Rapid Action Report

We have received your Rapid Action Report on consolidation of aircraft at the Dryden Flight Research Center. We understand your concerns; however, we have serious reservations about your analysis, particularly the fact that it did not take into account the Agencywide implications of downsizing initiatives and their impact on all our requirements. Regardless, as part of our planning process, we had intended to conduct a thorough analysis of the consolidation recommendation, including full cost, programmatic, and operational impacts. The Office of the Chief Financial Officer/Comptroller has been tasked with this action. While our planning activities will continue, we will not take action to implement consolidation until the analysis is complete in mid-December. We will notify you with the results.

Michael I. Mott

cc:
B/A. Holz
B/M. Peterson
J/B. Cooper
R/R. Whitehead