A REPORT ON THE CLOSING

OF

THE NASA ELECTRONICS RESEARCH CENTER

CAMBRIDGE, MASSACHUSETTS

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CLOSING A GOVERNMENT RESEARCH CENTER

Foreword

The purpose of this report is to document some of the more important aspects and considerations by management officials relevant to planning and implementation of an orderly and effective closing of a major research establishment. It contains specific chapters on key areas of activity. The specific case-study treated here is that of the NASA Electronics Research Center, Cambridge, Massachusetts. The circumstances of the establishment of the Electronics Research Center, its growth for a relatively short period, and its demise is historically unique; the details may never be repeated again ever. But there seem to be many aspects of the ERC closing which have meaning in the "art of disestablishment of organizational and functional entities." It was hoped that this account of the closing of ERC as a NASA entity, of actions taken, and of the resultant conclusions that emerge might provide useful management perspective to others who may be faced with a similar unhappy task.

Without reviewing the institutional history of the Center, and without analyzing the bases for the decision to close it out,

suffice it to say that Dr. Thomas O. Paine, Administrator of the National Aeronautics and Space Administration, did make the decision to close ERC on December 29, 1969. The first actions following the decision were of paramount importance in setting the policy guidelines for closing and the environment that was generated within which the myriad of actions required and solution of problems were dealt with in the ensuing six months.*

First, Dr. Paine communicated his decision via telecon to appropriate NASA officials asking for complete cooperation and to the Director of ERC, Mr. James C. Elms. Within forty-eight hours, the Administrator met in a mass meeting in Cambridge with all employees and management officials at the Center, and explained the reasons for the decision. He met with members of the Boston press corps and had personally notified appropriate Congressional officials. He designated a Headquarters NASA official to take charge of the closing. He insisted in all of his actions to make known to government and industry that the ERC people and facilities were a valuable national resource that could be of important use to other of our governmental agencies.

*See Introduction. A chronology of major events, decisions, actions, and completions, providing a concise history, is at the end of this Foreword.

NASA clearly had little choice in this matter. Something had to give. Because of NASA's declining budget situation and personnel ceiling limitations, it was unalterably clear that NASA would be able to place no more than a tenth of the ERC employees within other parts of the NASA organization. The research program at ERC, however, had fundamental long-term merit to national aerospace needs, and an attempt had to be made to continue as much of the high priority and quality work as possible in other NASA Centers and/or universities and other government agencies within existing budgets. This resulted in displacement of on-going or planned work already authorized.

Dr. Paine's overall guidelines to the undersigned, who was given responsibility to implement the closing, were simply stated:

"I expect every ERC employee to be placed in an appropriate job at a better salary and I want the Center closed in an orderly manner within six months, with programs transferred or stopped, contracts closed out or transferred, physical facilities disposed of, equipment disposed of for maximum utilization."

People first, program second, and physical facilities third. While these objectives could not be entirely achieved sequentially, there was no question about the prime importance Dr. Paine placed on the actions affecting each individual employee.

Dr. Paine retained final authority on all major policy issues that arose, but he delegated a rather free hand to the closing officials. My first decision was to establish a Headquarters

task force, embodying top level experienced people from various functional and line organizations to plan, implement, and manage the closing.

All members of this task force took on their assignments with enthusiasm but as collateral assignments. Philosophy guiding the operation planning was to use the task force as a planning steering group with each member operating within his regular functional office or program office channel. We were not to act in the capacity of dictatorial masters, leaving the actual detailed implementation of the closing to the management at ERC. For some members of the task force this ground rule was hard to accept, but it was accepted. The amount of physical manpower required to implement the closing was only available at ERC itself; the local knowledge and expertise rested there. Many of the complex problems and interfaces could only be administered by people most intimate with the personalities involved. Institutional program details involved in the operation of the Center required hundreds of very competent people to build and run. Closing would require similar effort and judgement.

The Headquarters group mapped out plans, checklists, milestones, and target dates for major actions and decisions. After several unsuccessful master planning attempts, a reasonably coherent initial plan was presented to ERC. This sparked a more detailed

and realistic plan and development of an organization at ERC for implementation. A biweekly reporting system was established to report on progress and problems associated with major milestones and decision points. A special overall organization was created at ERC with specific charters for each subgroup. Modified PERT charts for identifying conflicts and interfaces were established.

There were many events and critical problems too numerous to detail in this overview. But major impacts involved were:

(a) The possible "takeover" of the Center facilities by the Department of Transportation;

(b) The identification of programs to be continued at other centers, and the Center and Headquarters management decision to continue the work within their existing budgets;

(c) The identification and funding of NASA work that could be conducted for NASA by DOT;

(d) The identification and program justification for $27 million of equipment for NASA programs, university research and other government agency requirements;

(e) The general requirement to leave the Center for DOT as a viable laboratory prepared to initiate new transportation systems research should DOT take over;

(g) Establishing and operating an outplacement program to place potentially more than 800 people;

(h) Providing for regular communications with employees, land owners in Cambridge holding contracts for future Center expansion, interested Congressional parties, certain parts of the Executive Department advising the White House on capabilities of the Center, GSA, Bureau of the Budget, Department of Justice, and many others;

(i) The necessity to arbitrate disputes regarding applicability of equipment to certain programs;

(j) Preparing cooperative agreements with universities to assume certain research undertakings;

(k) The move of the total Center from leased space to "permanent" facilities in the midst of a prolonged teamsters strike and the resultant redistribution of equipment; and

(l) The morale and attitudes of people who were adversely affected.

Enter DOT

One unprecedented decision was of major significance: Soon after action plans for closing ERC were in process, a decision was reached by the White House that the facilities of ERC would be transferred to the Department of Transportation (DOT). The announcement of this decision was made public on March 25, 1970. This followed almost three months of rumors and newspaper stories on the possibility of such a transfer. To say the least, these rumors had a definite adverse effect on an expeditious implementation of the closing actions. Most ERC employees, for example, were

naturally reluctant to close down, stop on-going work, complete technical reporting on projects, and dismantle equipment as long as there was hope that somehow business would continue as usual, except focused toward a new mission of transportation systems research and development. This was true despite Mr. Elms and other NASA officials cautioning about any optimism. After the official announcement, the situation was even more traumatic since the entire ERC personnel staff was ecstatic and each sincerely believed that each man and woman would be hired by DOT. Further, there appeared no urgency to close; salaries were, after all, being paid by NASA up to June 30, 1970. Hence, the general ERC environment became one of enthusiastically seeking to define objectives, programs, tasks and work that might meet the new goals of the new center as announced by the Honorable John Volpe, Secretary of Transportation. Further, those who had looked elsewhere for jobs had been rather discouraged by their unavailability. A few who had lined up possible jobs were inclined to not commit themselves to an early change.

ERC and Headquarters management took specific actions to emphasize to all concerned, including management teams from DOT, that NASA and ERC must proceed to complete almost all of the closing actions as planned whether or not DOT was to get the facilities and hire ERC employees. NASA still had to close its books, turn off its contracts, transfer work and equipment to other NASA installations,

terminate leases, help people find jobs who may not be hired by DOT, etc. At the same time NASA was trying to meet these objectives, the needs of DOT had to be determined. Both interests had to be served if we were to do the best job for the nation: (1) maintain that vital part of the program capability to support NASA missions; and (2) assure that the new DOT center would start up in the most viable manner possible, particularly in facilities, equipment, and services required. DOT specifically had to determine their specific needs with respect to the retention of people.

This challenge to establish a new center under a different agency required much effort, many meetings, a considerable amount of traveling to Washington to define program and mission needs, and many voluntary hours of overtime on the part of ERC personnel and others to meet this challenge. While the professional research staff at ERC was working this side of the street, detailed administrative plans were being pursued to provide staff and administrative channels to DOT to set criteria and establish working relationships with entirely new administrative techniques and management procedures practiced by DOT and its various modal agencies. NASA Headquarters established dual channels of communication directly with DOT and through ERC on both program and institutional matters, both to keep informed and to interface with DOT where planning assistance was needed.

Although all this appeared reasonably complex, in actual practice, NASA was able to maintain overall control. This was possible largely because Mr. James Elms, Mr. Franklyn Phillips and Dr. Eugene Mannella at ERC maintained with the NASA Administrator, Dr. George Low, and myself and the DOT counterparts, Under Secretary James Beggs, Mr. William Davis, and Dr. Robert Cannon, a dual loyalty and dedication that truly held the national interest uppermost: do the best thing for NASA and DOT and you do the best thing for the country. Even in this group, however, there were some differing views as to what seemed best on all matters.

To say a unity of national sense of purpose permeated very far down in the lower levels of both organizations would be an exaggeration of the actual situation. Competition, parochialisms, and organizational prerogatives required that we run our business of closing and opening with great patience, reasonably good understanding of all points of view, but with an unwavering purpose of the basic job to be done. I found myself at times sympathetic with some of the self-seeking of both sides. In retrospect, however, most of the key decisions regarding funding, completion of construction, major equipment items, extension of leases and service contracts, and programs were made on the basis of what made sense for the government in support of each agency's respective mission. For example, Dr. Paine made a decision to keep the large ERC computer in NASA, much to the objection of DOT. This decision was appealed to the

highest levels in DOT and NASA. On the other hand, Dr. Low made decisions regarding several special purpose computers, some staying in NASA, some in DOT. Neither organization's program people were completely happy but both organizations accepted the Solomon-like decisions. Several months later, no major adverse effects could be detected in either organization. DOT's basic institutional computer needs would undoubtedly have been enhanced by retaining the large computer, but leasing arrangements at least temporarily sufficed until DOT/TSC could assess their total needs against their future program requirements.

With respect to the other 11,000 items of equipment with an original value of about $27 million, all of it was assigned on a program or institutional need basis. As the arbitrator, judge, and jury, I found that both sides had sound arguments but some parochialism crept in mainly due to the volume, the relatively short time available for the program vs. equipment assessment, and the narrow points of view exhibited at the lower levels in both organizations participating in the evaluation.

On-site review teams from each NASA center were sent to ERC to identify "unique equipment" needed to carry out their specific work. To help, the assessment process was elevated to a higher management level. Each center was required to have all its technical equipment requests reviewed at the center management

level by a Deputy Center Director or Assistant Center Director. This modus operandi caused few changes in the number of equipment items originally requested by a center. But the fact that there was a review and there were some items deleted that were originally labelled as essential gave creditability to the process. All equipment decisions were made prior to July 1, 1970.

The proof-of-the-pudding has yet to be fully established as to efficiency and effectiveness of the entire process. One point on the curve that is heartening can be noted at this writing. Mr. Elms, now Director of DOT's Transportation Systems Center (TSC), and Dr. Gene Mannella, Assistant Director, have both indicated that the new Transportation Systems Center was operating smoothly on some tasks immediately and on all tasks on new transportation research within two months of its establishment. When one compares this with the four to seven years of effort normally required to start up a new research center, DOT must be as pleased as NASA. In this case, site selection and the physical facility construction problems were eliminated, and the time normally required for the hiring and organization of people and the acquisition and set up of equipment necessary to get on with important work were also greatly minimized.

Overall, it is estimated that at least 850 NASA, DOT and ERC/TSC people including program professionals, administrative professionals, and other administrative people at all levels in both organizations played a direct role in closing NASA's ERC and establishing DOT's TSC.

I firmly believe that the use of the line and functional organization, administered by the NASA ERC Steering Group of twelve people for ERC closing, interfacing with a similar group in DOT Headquarters and the ERC Task Force, was an effective mechanism. The program decisions required several months of coordination and this portion is ably described by Mr. Frank Sullivan in Section XI of this report.

There were numerous meetings between Mr. Elms, Mr. Phillips, Mr. Davis, and myself, similar meetings and feedback between the Headquarters Steering Group and the ERC Task Force and the ERC Management Council--these were effective in ferreting out differences in points of view and areas of misunderstanding and dispute. To all the NASA Headquarters and other center people, this was a high priority but part-time effort--for ERC/TSC people it was full time and generally well done. Except for equipment, the most numerous meetings were those required in reviewing and establishing programs to be retained in NASA centers and those that DOT proposed to carry out for NASA. The equipment identification process was started prior to final program decisions but could not be completed until after final decisions were made on May 19 and 21, just five weeks before the closing date of June 30, 1970.

The Critical Problem: People

Without question, the single most difficult management problem was not program, facilities, or equipment, but rather was people. While this had been fully expected, there was indeed an unique situation. Less than half of the original staff was earmarked to become employees of DOT, but not until five weeks prior to closing. The remainder had been busily seeking new jobs, a somewhat bitter task in a tight job market, and were trying to close out operations for NASA while preparing for the start of new operations and new programs under DOT. This was almost a double work load situation that required nearly seven days a week effort for many.

Perhaps the most important early decision made in the ERC closing concerned the method of reduction in force to be employed. One choice was to proceed with a phase-down RIF; that is, so many per month until reaching zero on the date of closing or before, and establishing a small Headquarters group to complete unfinished actions. This choice was rejected in favor of a "General Notice" type of RIF in which all employees were notified early in January that they would be involuntarily separated on June 30, 1970. The advantages were: (a) all employees would have maximum time to find jobs in a poor labor market, (b) staff would be available to actually implement the closing actions, (c) the disruption caused by bumping and retreating would have caused unpredictable availability of necessary talent needed to close the center,

(d) bad morale and confusion would be minimized. The disadvantage, of course, was that it was more costly in terms of total compensation. In general, many administrative and clerical people decided to separate early while almost all the technical professionals and most of the administrative professionals decided to stay until the question of transfer of facilities to DOT was resolved. The total staff on board at the time of the official announcement on DOT was about 75% of the 826 on board three months earlier when Dr. Paine announced the ERC closing decision. The attrition in secretarial and clerical help caused problems which definitely had an adverse effect on the closing operations. The market for secretaries and clerical help in the greater Boston area was generally good. By far, the most important impact of the "General Notice RIF" resulted in the retention of practically all of the research talent and most of the key administrative talent. This, of course, provided DOT with a choice of talent available for their selection and hiring for their program needs. Had key research leaders departed and research groups dispersed, DOT would have required perhaps two years or more to acquire top quality talent, and the initiation of their new programs would have been delayed accordingly. This decision to instigate a "General Notice RIF" was insisted upon by Messrs. Elms and Phillips of ERC; and after a few days of meetings and discussions, I recommended to Dr. Paine and Dr. Low that based on the considerations for people

and the staff required that this was the best course of action. Dr. Low approved this method (by phone on a Saturday while at MSC in Houston). Perhaps this prompt approval and Mr. Elms' further judgement that a transfer of facilities to another agency was highly likely formed the "swing factor" in the decision. I must say that while I was hopeful, I was not as confident on this point as Mr. Elms. From my point of view it was a good decision in any event.

The Center closed on June 30, 1970. The new DOT Center was functioning reasonably well; all but 85 former ERC employees had jobs; NASA had programs and equipment it needed; DOT had ample equipment for the new Center; 27 universities were pursuing new work of relevant NASA interest. Most important, the government and the nation were in a position to fully utilize a national capability of nearly $60 million in facilities and equipment and over 740 highly capable people on new programs. NASA had retained the highest priority work and related equipment.

While the bulk of this job was completed in six months, the major remaining tasks of personal equipment packing and shipping and disposition of leased space was estimated to consume 60 man-months of future effort.

In Retrospect

Legitimate objective criticisms should be noted: Headquarters people have felt closing actions should have moved faster, that they could have accomplished it better with more authoritarian methods, that NASA bent over backwards in providing DOT with equipment and support. ERC personnel who did not have jobs remained upset over the basic decision to close, but interviews revealed that they felt NASA had done all or more than could be expected. Outplacement of ERC people is yet active. ERC personnel who went with DOT were generally pleased with the entire operation and felt the transition was relatively smooth with the exception of apprehension until they were officially notified of their being hired. The DOT Headquarters Task Force had interfaced well with the NASA Headquarters Steering Group, primarily on equipment, support service contracts, responsibility assumption, and personnel, but some members of this task force wanted to exercise more of a decision making role, especially on equipment, than NASA had permitted.

In summary, I am convinced that use of regular functional and line organizational authorities, expertise and available personnel on a part time basis was very effective and the preferred method over a "closing czar" type operation. Very few decisions had to be made at the Administrator level; program transfers, computer capability, some major equipment items, and policy to support DOT represented the major ones.

It is hoped that the following sections may be reasonably helpful to those who may be interested in the various functions that must be performed in a closing operation.

I submit a positive self-appraisal of a job well done. Such a traumatic undertaking is fraught with great emotional turbulence and asserting of organizational prerogatives. This seems par for such a course. However, the job was done within the time scale and to the general satisfaction of all concerned. All direct participants from NASA, DOT, universities, and other government agencies are to be commended for their efforts and cooperation. From my viewpoint, special praise is due Dr. T. O. Paine, Dr. George Low, Mr. James Elms, Mr. James Beggs, Mr. Franklyn Phillips, and each member of the ERC Task Force, the NASA Planning Steering Group for ERC Closing and the DOT Task Force. No summary report can adequately describe all of the details, nuances, and facts related to all closing activities. Therefore, for future referral, this report includes a list of key people who may be contacted for additional information and elaboration.

Boyd C. Myers, II
Deputy Assistant Administrator
for Administration, and
Chairman, Planning Steering
Group for ERC Closing

PARTIAL LIST OF INDIVIDUALS
BY FUNCTION FOR FUTURE REFERENCE
OR CONTACT ON ERC CLOSING

Dr. George M. Low Acting Administrator National Aeronautics and Space Administration Washington, DC 20546	Agency Policy
Mr. Boyd C. Myers, II* Deputy Assistant Administrator for Administration National Aeronautics and Space Administration Washington, DC 20546	Overall Closing Planning and Implementation
Mr. James C. Elms Director Transportation Systems Center Department of Transportation 55 Broadway Cambridge, MA 02142	Center Director's Policy
Mr. Franklyn W. Phillips (Formerly, Assistant Director for Administration, ERC) Vice President of Administration and Finance University of Massachusetts 85 Devonshire Street Boston, MA 02109	Center Administration

*Mr. Myers can direct inquiries for further detailed information on matters of interest pertaining to Legal, Financial Management, Procurement, Administration, Safety, Security, Public Affairs, University Affairs, Construction, Maintenance and Operations, Legislative Affairs, etc.

Mr. Grove Webster Director of Personnel National Aeronautics and Space Administration Washington, DC 20546	Agency Personnel
Mr. LaVern S. Hanson Director, Property and Supply Division National Aeronautics and Space Administration Washington, DC 20546	Agency Supplies and Equipment
Mr. Frank J. Sullivan Director, Electronics and Control Division National Aeronautics and Space Administration Washington, DC 20546	Agency Program
Mr. Robert H. Curtin Director Office of Facilities National Aeronautics and Space Administration Washington, DC 20546	Agency Real Property

INTRODUCTION

A CHRONOLOGY OF MAJOR EVENTS IN THE CLOSING OF THE ELECTRONICS RESEARCH CENTER

December 29, 1970	Dr. Paine Announces the Planned Closing to ERC Employees
January 2, 1970	Dr. Low Establishes Planning Steering Group, Designating Mr. Boyd Myers as Chairman
January 5, 1970	Mr. Elms Starts Publication of Weekly Newsletter to Employees
January 5, 1970	Mr. Elms and Mr. Myers Meet with ERC Employees to Announce June 30, 1970 Closing Date
January 6, 1970	Planning Steering Group Initiates Planning and Assignments
January 8, 1970	ERC Forms Task Groups to Carry Out Closing Plan
January 9, 1970	Outplacement Program Established
January 12, 1970	Program Offices Start Program Transfer and Termination Reviews
January 16, 1970	Dr. Low Meets with Cambridge Redevelopment Authority and Establishes Basis for Continuing Liaison During Closing Operations. Mr. Beresford Named Liaison Leader
January 19, 1970	Dr. Paine Writes to and Makes Personal Contact With Cabinet Members, Agency and Department Heads Regarding Possible Utilization of ERC Capacilities
January 20, 1970	Steering Group Members Submit Closing Planning Documents
January 27, 1970	All New Construction Stopped and Remaining Items Necessary for Completion are Determined
February 2, 1970	ERC Completes Closing Implementation Planning Documents

February 19, 1970	Dr. Low Makes Tentative Program Decisions for Review and Response by NASA Centers
February 25, 1970	Tentative Program Decisions Sent to Centers for Response
March 16, 1970	Centers Recommend Program and HQ Offices Start Review
March 25, 1970	President Nixon Announces Planned Transfer of ERC Facilities to DOT Effective July 1, 1970
March 30, 1970	DOT Forms Task Group to Establish New Center
April 1-7, 1970	Dr. Low Approves Planned Allocations for Work to be Transferred to NASA Centers; Requests Recommendations for NASA Work to be Performed by DOT
April 6, 1970	Teamsters Strike Delayed Moving From Leased to Permanent Space
April 8, 1970	Mr. Myers Starts Series of Meetings With Dr. Cannon, DOT, to Advise on R&D Management System
April 13, 1970	Dr. Low Establishes NASA Policy for Continuation of Work at Universities. University Program Office Starts University Proposal Process
April 16, 1970	11,000 Items of Equipment Put on Computers and Master Lists Prepared
April 16-20, 1970	NASA Center Teams Visit ERC to Identify Equipment and Documentation for Transfer to NASA Centers
April 30, 1970	NASA Transmits to GSA Notice of Excess Property; Informs Congress of Transfer Action
May 14, 1970	Agreement Reached Between NASA and Teamsters Union Regarding NASA Closing Efforts During Teamsters Strike

May 19-22, 1970	Final Programmatic Decisions on Work to be Performed by NASA and DOT
May 28, 1970	Teamsters Strike Settled
June 4, 1970	Mr. Myers Discusses Job Situation and Program Transfers with 150 ERC Personnel Without New Employment
June 4, 1970	Final Disposition of Procurement Actions
June 11, 1970	Final Determination of Functional Transfers
June 15, 1970	University Proposals Approved and Unique Equipment Identification Completed
June 27, 1970	Final Resolution of Equipment Dispositions
June 29, 1970	GSA Letter to NASA and DOT Transferring Property to DOT without Reimbursement
June 30, 1970	All People Had Vacated NASA Leased Space
July 1, 1970	Facility Transfer to DOT Completed and Essentially all Closing Actions Except Outplacement and Equipment Transfer are Complete
July 1, 1970	Transferred Outplacement Program to NASA Headquarters
July 1 - December 31, 1970	Establishing NASA Warehouse, Physical Packing and Shipping of All Equipment to NASA, DOT and Universities and the Determination of Excess Property

FUNCTIONAL ACTIVITIES
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SECTION I - PUBLIC AFFAIRS

REPORT ON ERC CLOSING

PUBLIC AFFAIRS

Nature and Scope of the Task

The total closing of a federal installation, any federal installation, is not without its opposition and public outcry. The affect on a community is more often measured by the level of protest rather than the true economic and social impact. Voices are heard from every direction, and some of them are powerful. The agency that takes such action must prepare itself for a community reaction so vociferous as to either delay or sometimes completely frustrate the agency's plans.

Yet a closeout is just that--the end of an activity which translates into job losses, idle property, surplus equipment, abrogation of agreements with local communities, etc. There is no way to make a closeout palatable. The best the agency can hope for is to come out of this kind of action with its honor and integrity in tact.

The problem, then, is to bring about a closeout in the face of strong public opposition, employee resistance and political pressure with a minimum of confusion, in an open exchange of information, and with an expression of a genuine intent on the government's part to reduce the impact on the community and to effect the least number of dislocations.

In the case of ERC, it became necessary immediately to establish machinery to deal with the press, radio and television; with industry and its associations; with employees; with the public; with local political and community leaders; and with the Congress.

Basic Plan and Approach

The immediate need was to establish a single point of contact in the agency for all matters related to Public Affairs, and this was done without delay. The choice had to be an official in Public Affairs accustomed to dealing on a daily basis with the information media, and one who had at his immediate disposal the resources of the NASA News Room and had functional supervision over the public information activities of the ERC. The next and immediate step was a workable and realistic plan which follows:

PUBLIC AFFAIRS

1. GENERAL - In compliance with established agency policy and procedures for the release of information, it would be the practice to keep affected employees, the Congress, and the information media fully and promptly informed of all phase-out developments.

2. COORDINATION - Overall coordination for the collection and release of information was to be vested in the Public Affairs member of the steering committee, who would exercise functional supervision over the Public Affairs Officer at ERC and would be responsible for coordination with Legislative Affairs.

   a. At Headquarters - The focal point for implementing the release of information would be the Public Information Division.

   b. At ERC - The focal point would be the Public Affairs Office.

   c. Procedures

      (1) Each member of the committee was required to keep the Public Affairs Coordinator fully informed and copies of all plans, memoranda, correspondence, etc., were to be promptly made available to the Public Affairs Coordinator.

      (2) While it was anticipated that releases would originate from a number of sources, they were to be fully coordinated with the Public Affairs Coordinator and with Legislative Affairs prior to issuance.

      (3) Unless extraordinary circumstances dictated otherwise, it would be the general practice to release all information through the Public Affairs Office, ERC, with information copies available in the Headquarters News Room.

      (4) To minimize rumors and speculation, all releases would be issued to ERC personnel simultaneously with issuance to the information media.

      (5) The established agency procedures for keeping the Congress informed would apply with respect to contract

terminations and the provisions of NASA PR 8.202 would govern prior notification to Public Affairs and Legislative Affairs. Public Affairs and Legislative Affairs would receive prior notification of all terminations of significant grants or research contracts with universities and non-profit institutions.

3. RESPONSE TO QUERY - Recognizing that full coordination is not always practical on short deadlines when responding to telephone queries, Headquarters and ERC would make every effort to respond within the framework of fact sheets and previously issued official statements such as press conference transcripts and news releases.

   All queries would be committed to query sheets and a current log of these queries would be maintained.

   ERC and Headquarters would exchange queries and answers by telephone as soon as possible without delaying the response to the inquirer. Where any significant information was announced by way of a response to queries, Legislative Affairs would be given prior notification by Public Affairs.

   Copies of each query with answer would be passed to Legislative Affairs, Headquarters, and copies posted at conspicuous locations (bulletin boards) throughout ERC.

4. PRESS RELATIONS - General meetings with management and the employees would be open to the press and the press would be advised of these meetings well in advance.

Significant Events and/or Major Problems Encountered

Generally public affairs matters were handled as outlined in the plan with the following exceptions:

1. The initial volume of mail was great, and did not lend itself entirely to stock answers (boiler plate), although much boiler plate sufficed in getting the letters answered.

2. Department of Transportation's entrance into the situation required a new set of coordination procedures both at the Washington and Cambridge level, but these were a help rather than a hindrance as far as public affairs was concerned, since DOT's intervention was a promise of hope thus reducing the public clamor.

3. The committee was not always able to keep the Public Affairs Officer fully informed on all the details related to DOT's part in this action, with the result that in some instances the Public Affairs man was playing "catch-up".

Summary of the Results

As stated earlier, there is no way to make a closeout action of this nature palatable. The successful effort by the agency--not any planned public affairs program--to find a suitable tenant for the ERC relieved the pressure, reduced the criticism, and to a large extent placated the critics. A parallel effort, that of outplacement, which enjoyed some success also alleviated the tense situation.

Conclusion and Recommendations

A plan for such a contingency is absolutely necessary. The one above is in general suitable and should suffice for any future closeout operation.

SECTION II - LEGISLATIVE AFFAIRS

REPORT ON ERC CLOSING

LEGISLATIVE AFFAIRS

Nature and Scope of the Task

The Office of Legislative Affairs had the task of facilitating explanations to the Congress of the action to close NASA's ERC both in testimony to Congressional Committees and in responses to any Congressional inquiry about events and conditions related to the closing. It was anticipated that there would be great Congressional interest in this matter and a heavy workload.

Basic Plan and Approach

All responses to Congressional inquiries were funneled through one point in the Director of Congressional Liaison's office. All responses were fully coordinated and concurred in finally by the Chairman of the Steering Committee, Mr. Boyd Myers, or his representative.

Significant Events and/or Major Problems Encountered

After initial protest and inquiry from members of the Massachusetts Congressional delegations immediately after the ERC closing was announced, there was a relatively small volume of correspondence with questions related to this action (27 letters). The initial questions, e.g. from Senators Kennedy and Brooke, were responded to through personal meetings with NASA officials in Congressional offices where information about the action and procedural plans was presented. The ERC question was discussed during authorization hearings in both House and Senate. It was not a significant issue.

Summary of the Results

Apparently the normal procedure established for response to Congressional questions was completely satisfactory and no major problems have arisen thus far.

Conclusions and Recommendations

The same procedure should be followed under similar circumstances.

SECTION III - GENERAL COUNSEL

REPORT ON ERC CLOSING

GENERAL COUNSEL

Nature and Scope of the Task

The Office of General Counsel provided legal advice and assistance with respect to a number of questions. In particular, they participated in (1) the determination of possible transfers of functions from ERC to other NASA Centers or to DOT; and (2) the preparation of the declaration of excess for the real property involved. In connection with the latter, they prepared the required report on the title to the real property. Also the Deputy General Counsel actively participated in a last minute lawsuit seeking to enjoin the transfer of personnel and facilities from NASA to DOT and the termination of employment of ERC employees.

At the request of the Administrator, the General Counsel personally acted as the day-to-day liaison with the Cambridge Redevelopment Authority and kept that Authority fully informed on NASA's (and to a lesser extent, DOT's) plans. This task also involved contact with the Massachusetts Governor's Office and Congressional delegations.

Significant Events and/or Major Problems Encountered

The DOT decision when finally made greatly alleviated the adverse impact of the ERC closing on the Cambridge Redevelopment Authority. Hence, this decision helped NASA-CRA relations.

Summary of the Results

The real property was transferred to DOT through GSA on July 1, 1970.

It was determined that no functional transfer existed between ERC and DOT, and in only one instance was there a functional transfer of work continued at other NASA Centers.

A temporary restraining order enjoining the transfer of personnel and facilities from ERC to DOT was not granted because no clear

violation of law had been demonstrated and because plaintiff ERC employees had not exhausted their administrative remedies. However, the suit remains pending until the Government succeeds in having it dismissed by motion.

The NASA-CRA relationship was significantly improved between the date of the announcement of ERC closing and the effective date of the closing. While the day-to-day information channel helped, perhaps the most important reason for the improvement was the DOT decision to assume responsibility for, and operation of, the Cambridge facility.

Conclusions and Recommendations

The experience gained in applying RIF procedures, particularly with respect to transfer of functions, should be of future benefit.

The involvement with CRA is a matter that is probably unique. However, in any future similar situation it may be prudent to advise a vitally interested body like the CRA of impending actions prior to or, at least, contemporaneously with affected NASA employees.

SECTION IV - PERSONNEL

REPORT ON ERC CLOSING

PERSONNEL

Nature and Scope of the Task

When the closing of the Electronics Research Center (ERC) was announced on December 29, 1969, the Center had 826 permanent civil service employees on board. These employees were distributed in two major groups:

Administrative and Non-Professional	388
Technical Professional	438

It was agency policy and the personal desire of the Administrator that every effort be made to find employment for all ERC personnel. To this end an intensive outplacement program was established early in January and was continued throughout the closedown period. In addition, both NASA and the Department of Transportation (DOT) have continued to provide assistance beyond the closing date.

Basic Plan and Approach

Employees of ERC were given a general notice of reduction in force (RIF) on January 8, 1970, stating that all employees would be separated on June 30, 1970. This notice was issued after approval was received from the Boston Region of the USCSC to extend the general notice period from the normal 90 days to 180 days. Concurrently, several processes necessary to complete the RIF in an orderly manner and to provide the most effective support to the employees were initiated. These activities are listed in Attachments 1 and 2 and displayed in diagram form on Attachment 3. Significant activities included: the outplacement program; transfer of function determinations; disposition of consultants, military details, coops, etc.; phaseout of training; and the preparation and issuance of specific notices. Since this was the closing of a complete facility, the numerous bumping and retreating processes as described in the Federal Personnel Manual were not a major factor.

Major elements of the plan were: (1) the issuance of a general notice six months in advance of the closing to afford greater flexibility in the exercise of severance pay rights; (2) the review of competitive levels and determination of transfer of

function rights; (3) the issuance of final specific notices; and (4) outplacement activity and other incidental closeout functions.

Significant Events and/or Major Problems Encountered

The general notice of RIF was issued as planned and was beneficial to those employees who wanted to take advantage of severance pay provisions.

The outplacement program was initiated during January and constituted a major effort for the personnel staff during the closeout period. Private firms as well as other government agencies were contacted and arrangements were made for interviews at ERC. This activity is described briefly in Attachment 4 and more thoroughly in Attachment 5 (an unpublished Master's thesis entitled, "Closing of the NASA Electronics Research Center, A Study of the Reallocation of Space Program Talent" by R. H. Rollins, II). Mr. Rollins was a NASA Headquarters employee participating in the MIT Sloan Program who assisted the outplacement effort and prepared this study as his major report.

The labor market in science and engineering was extremely low during the closeout period and, as a result, the outplacement effort was severely impacted, particularly in the area of basic research. It had been predicted that employees engaged in basic research would have the greatest difficulty in finding employment and this prediction proved to be correct.

As a part of the outplacement program a NASA Stopper List was issued on February 6, 1970. It had been hoped that this list would be issued sooner, but delays in accumulating forms from ERC employees and in organizing and cataloging the list prevented earlier publication. Actually, the Stopper List was not too effective and its use, or lack of use, demonstrated the strange negative psychology attached to stopper lists, reemployment priority lists, etc. Although employees are on these lists through no fault of their own, managers or supervisors seem to interpret their presence on the list as an adverse comment on their employment record. This is an extremely difficult problem to deal with and is one that cannot be corrected merely by procedure or directive.

A significant factor influencing the outplacement program was the decision by the Department of Transportation (DOT) to acquire the ERC facility and employ a large number of the employees. Although this decision was not announced until March 25, 1970, rumors which began as early as January had

a major influence on the employees. Many delayed accepting job offers in anticipation of this decision and the expectation of an offer from DOT. Since DOT offers were not made until late in May and firm offers were not made until June, many employees may have lost job opportunities which they otherwise would have accepted. It seems apparent that the DOT decision and rumors which preceded it slowed the outplacement effort; however, the specific degree of impact cannot be assessed.

Within NASA, the principal pacing actions for the final RIF notices were the technical program decisions on the disposition of the work being performed at ERC. Until these program decisions were made, it could not be determined if the work being moved to other centers constituted a transfer of function according to RIF regulations. The final disposition of the ERC work was decided on May 22, 1970 and specific tasks were then reviewed to determine if any constituted a transfer of function.

A committee composed of representatives of the Office of Personnel, OART, OSSA, and the General Counsel was established to review the work to be transferred by individual work unit. Each center receiving work was asked to identify the organizational element of the center where the work was to be performed, the function of that element, and the current on-going work being performed. After reviewing this information, as well as the actual work being transferred, the committee concluded that only one item of work constituted a transfer of function. In establishing a rationale for their determinations the committee in their report stated in part:

> "During its deliberations the committee discussed at some length the concept of transfer of function and its application to research work. The function to perform research is shared commonly by nearly all NASA Centers. This universe may be partitioned in many ways, including discipline, goals and objectives, programs, projects, etc. In fact, research can be as discretely identified as the difference between two individual researchers. In this context some rationale must be established when forced to assess whether the transfer of research work constitutes a transfer of function according to CSC regulations. The committee recognized that there is little if any identical duplication of work in NASA's Centers. However, it believed that similar research activities or responsibilities existed at

some centers. The procedures, approaches, techniques, and methods vary but many work toward similar missions and inter-related objectives. The committee further believed that the approach or technique in research was not the function. In this framework the committee determined that if an organization had the charter to do work in a research area and it was exercising that charter, the addition of a new technique or approach was not the addition or creation of a new function.

Final specific notices were issued to ERC employees on June 12, 1970 using the automated Headquarters personnel system to process the official separation notices. Use of this automated system was of particular significance since by June the ERC personnel staff had been reduced to a skeleton workforce particularly in the clerical area.

Summary of the Results

Attachment 6 is a summary report on the results of the total ouplacement program. On June 30, 1970, 741 of the 826 permanent employees had found employment. Of the 85 employees without jobs, 63 were technical professionals and 22 were administrative or non-professionals. A high percentage of the technical professionals were physicists, chemists, or electronic engineers reflecting both the elimination of much of the advanced research at the Cambridge center and the added difficulty of finding employment in these fields. Within NASA, 15 ERC employees transferred to Headquarters, 9 to Wallops, 9 to Goddard, 1 to FRC, 2 two Lewis, 7 to Ames, and 1 to KSC. DOT hired 396 ERC employees on July 1, 1970 and other government agencies hired 75. During the outplacement program 90 different organizations conducted a total of 1,303 interviews with ERC personnel.

Only one transfer of function was identified with work being moved from ERC to other NASA centers. This transfer involved work moving to Goddard and the employees associated with the work were afforded their right to accompany the transfer in accordance with Civil Service Commission procedures.

As of August 7, 1970, 13 transfer of function appeals have been received by NASA. Six of these individuals have appealed on the basis of a transfer of function to DOT; six have appealed on the basis of a transfer of function to other NASA Centers and one has appealed on the basis of both a transfer to DOT and to other NASA Centers. It may be several weeks before the outcome of these appeals is known.

Although NASA is convinced that no transfer of function exists (other than the one so identified at Goddard), it must be recognized that anything so subject to interpretation will inevitably provoke challenge and that bitterness on the part of those who are impacted is inevitable. Fortunately, the system provides for appeals to the Civil Service Commission so that if an error has been made, it can be rectified.

Conclusions and Recommendations

In theory, the perfect outplacement program would be one through which all employees separated by RIF are placed in new jobs. The effort at ERC did not achieve this goal; however, considering the job market during the closeout period and skills of the employees who were eventually separated without employment, the ERC effort was commendable. Many of the techniques used by the outplacement people at ERC could well be followed during similar activities in the future. In particular, the use of the so-called "mini resumes" should be noted. These very brief summaries of employee experience and qualifications proved more useful and effective than a list of position titles, which isn't enough, or complete SF-171 resumes, which are too extensive for quick review by prospective employers.

The determinations on transfers of function were difficult and involved considerable thought and analysis. When considering the transfer of research work, the guidance of the Federal Personnel Manual is not as helpful as it is in such areas as administration. As a result of the experience with ERC, essentially three factors are considered necessary to arrive at the correct decision on transfer of functions. First, the actual work or activity to be transferred must be clearly identified by established work unit numbers and titles. In the case of ERC, some confusion existed since in many instances only parts of the work unit were actually being moved. Second, the specific organizational element (to the lowest level) receiving the work must be identified; the functions of that organization must be completely described, and the current on-going work of that organization by function must be thoroughly explained. Finally, the activity being transferred must be analyzed in the context of the gaining organization, i.e. whether or not it will become a part of an existing function and whether or not the same kind of work is currently being performed. Of course, if transfers of function are identified, it is also necessary to identify those employees in the losing organization who are associated with the work. Although there is a certain logic that would maintain that the burden of proof in functional transfers rests with the receiving organization (and thus the determinations should be made by that organization), there is

an even stranger logic that only a third party can make such determinations with any degree of consistency. The decision to form a Headquarters committee to review and make determinations on each individual case, we believe, was a wise choice and one that should be used in any future RIF situation.

SECTION V - LOANS TO UNIVERSITIES

REPORT ON ERC CLOSING

LOANS TO UNIVERSITIES

Nature and Scope of the Task

With the closing of ERC, NASA wished to preserve for the benefit of NASA and the country, in as far as possible, the valuable research being pursued at the center. It was anticipated that a significant portion of the ERC research would continue elsewhere in NASA and that certain other research, particularly in the basic research areas, would be of interest to universities closely involved in similar work.

Basic Plan and Approach

It was considered to be in NASA's and the country's best interests to transfer to universities ERC equipment that would enable them to continue specific basic research efforts provided the equipment was not required for research in other NASA centers. A statement of NASA policy regarding university requests for equipment loans resulting from the closing of ERC was issued by NASA Deputy Administrator on April 13, 1970. The policy was stated as follows:

> NASA can make and will consider making research equipment available to universities on a loan basis for use in the conduct of work of interest to NASA's mission. Loan requests will be made in writing to NASA, including a statement of research objectives, indications of existing and projected capabilities and resources to conduct such research, and a willingness to make results of the work available to NASA. NASA will retain ownership of the equipment and will make final assessments and determinations regarding all requests. The research equipment will be made available on a loan basis in the context of and pursuant to a cooperative agreement between NASA and the university embodying the foregoing conditions.

Significant Events and/or Major Problems Encountered

The loan of equipment was dependent upon acceptability of the research proposal as compared to other requests for the same equipment. All requests were to be sent to the Office of University Affairs, NASA Headquarters.

As a minimum, the proposals were to contain the following:

1. The approval of a university/agency official authorized to enter into a loan agreement with NASA.

2. A listing of the equipment requested identified by the ERC equipment number.

3. A statement of research objectives.

4. A statement of availability and commitment of the resources required to conduct the proposed research program.

5. A willingness to make the results available to NASA.

6. An agreement to pay relocation expenses.

The equipment proposals were not to include requests for NASA funds to support the research. Regular unsolicited proposals could be submitted, however, they were not to be considered as a part of the equipment proposal.

The Office of University Affairs Proposal Control Section processed requests for equipment and arranged for technical evaluation according to its established procedures for unsolicited research proposals. In addition to the regular distribution for evaluation, all equipment proposals were distributed to the Electronics Research Center for comment.

The Office of University Affairs developed a model cooperative agreement which was concurred in by legal and equipment specialists for the loan of equipment. The agreement contains specific information on the responsibilities of the universities and NASA concerning the operation, maintenance, and disposition of the equipment. A sample agreement is attached (Attachment 11).

The list of equipment to be included in each agreement was forwarded to Headquarters Property and Supply Division for them to verify each item for availability for transfer prior to entering into a cooperative agreement. After negotiation the Assistant Administrator for University Affairs signed the agreement for NASA.

Program offices and centers will monitor the research programs and all technical publications resulting from the research conducted will be made available to the NASA Scientific and Technical Information Facility.

Summary of the Results

Approximately 40 proposals, representing 900 pieces of equipment, were received from universities and other government agencies. The proposals were reviewed and duplicate requests were resolved. Upon receipt of verification of availability for transfer from the Headquarters Property and Supply Division, the Office of University Affairs issued the Cooperative Agreement to the respective institutions.

Conclusions and Recommendations

The transfer of equipment to universities seems to offer excellent promise for preserving for NASA and the country the benefits of research which otherwise might have been lost as a result of closing the center. The basic approach and agreement document as described herein could be used in any general phase down of operations or on an individual basis as unique items of scientific equipment becomes excess to NASA's needs.

SECTION VI - DISPOSITION OF EQUIPMENT

REPORT ON ERC CLOSING

DISPOSITION OF EQUIPMENT

Nature and Scope of the Task

At ERC there were roughly 13,000 items of equipment at various locations worth approximately $28,000,000 and varying from small test instruments to large computers of both a unique and general purpose character. Some items had not been delivered and were still at contractors plants while others had been crated and packed in preparation for the move from rented quarters to the new buildings.

It was decided that most of the general purpose equipment would remain at TSC, and the unique special purpose equipment would be divided into the following categories:

a. Required for NASA programs (RTOP's) to be transferred to other NASA Centers.

b. Required for NASA work which would be performed at the new DOT Center.

c. Required by DOT to carry out their mission.

d. To be loaned to universities for work which would contribute to NASA programs.

e. Required by other government agencies which planned to hire certain ERC specialists and to continue the work they had previously performed.

In addition to the volume and variety of equipment at dispersed locations, the early departure of many of the ERC personnel familiar with the equipment and the understandable preoccupation of those still on-board with their future plans added to the difficulty of identifying equipment with specific work assignments. One major problem was the lateness of the date (May 22, 1970) when final determinations were made as to what programs were to be transferred to other NASA Centers and what work was to be performed for NASA at the new DOT Center. However, the problem was offset to some degree by two major decisions:

a. NASA would concern itself primarily with items of equipment worth more than $5,000. This reduced the total number of items to approximately 800 at a value of roughly $20,000,000.

b. Although final program transfers had not been determined, it was considered that a major number of the program transfers would occur as initially planned, and, accordingly, in mid-April the receiving centers were directed to proceed with the identification of equipment.

The receiving centers responded to item b above with listings of specific items of equipment considered necessary to carry out the tentatively planned program transfer. A procedure was established within the Headquarters program offices for review, identification, and resolution of all duplicate requests. A focal point in OART was established for this process and lists of equipment related to RTOPs were collated according to centers and then sent to the Property Division. The Property Division then issued instructions to receiving centers to prepare and issue to ERC the necessary shipping documents.

These shipping documents formed the basis for central control and were used for final resolution of conflicts and duplications. The more difficult conflicts were between requests from centers for equipment considered necessary to carry out work to be transferred and the ERC requests for equipment considered necessary to carry out the DOT missions. This was particularly true in the case of several computer systems. Resolution of most of these conflicts was accomplished through the program offices; however, a number of them had to be referred to the Deputy Administrator for final decision.

Summary of the Results

Approximately 536 items of equipment valued at $3.35 million were identified as necessary for RTOPs transferred to other NASA Centers. Approximately 226 items valued at $2.17 million were determined to be necessary to NASA programs to be implemented by DOT and to be left at DOT on loan. An additional 225 items valued at $2.95 million were identified as useful to NASA Centers for ongoing programs and not required by DOT.

In addition to the above, items to be loaned to universities (662/$1.5 million) and other agencies (187/$323K) resulted in a grand total of approximately 1,800 items valued at $10,000,000

which would be retained by NASA.

Conclusions and Recommendations

Obviously the earliest possible determination of work to be transferred, versus work to be terminated, would assist in future situations. An up-to-date catalog of both unique and general purpose equipment that is related to specific work units would also save considerable time and would be extremely useful in expediting the transfer and disposition of equipment. Such a catalog should include a complete description and identification of the equipment and should be designed for easy cross reference (i.e. by work effort such as RTOP/1122, equipment name, cost, location, etc.).

The importance of a computerized inventory system in an operation of this type cannot be overemphasized, particularly where a short turnaround time and numerous iterations of programmatic determinations are involved. Without this capability, the required schedule of operations at ERC would have been virtually impossible.

SECTION VII - FINANCIAL MANAGEMENT

REPORT ON ERC CLOSING

FINANCIAL MANAGEMENT

Nature and Scope of the Task

The financial management group's major job was to close all financial records effective as of June 30, 1970. This required that all financial transactions be completed in accordance with NASA Management decisions and the accounting requirements prescribed by the FMM. Upon completion and closeout of all the transactions, final reports had to be prepared, and the remaining assets, records, and files had to be transferred to Headquarters.

Basic Plan and Approach

The basic plan of operation involved the following:

1. Clearance of all property accounts--supplies, equipment, and real property.

2. Transfer of contracts after determination by program and procurement personnel as to who was to have technical and contractual responsibility.

3. Transfer of the payroll function of ERC to Headquarters.

4. Arrangements for the transfer of all residual active files and records to Headquarters, and the transfer of inactive records to GSA holding areas.

Significant Events and/or Major Problems Encountered

As a result of the combined requirement to close out ERC and, at the same time, preserve a going operation for the new DOT Center, it became increasingly apparent that the existing work force could not accommodate the magnitude of the transactions required. Accordingly, Financial Management made arrangements to have 10 individuals from the various Centers and Headquarters go to ERC and provide direct assistance to the financial office. Other problems complicating the process were:

1. The technical decisions governing the disposition of programs and related contracts, purchase orders

and equipment were not completed until May.

2. Although a freeze was imposed, critical requirements continued and new contracts were being negotiated up through June 30, 1970.

3. Due to difficulties encountered with the computer services contract, computer runs identifying the financial codes and documentation were not available during the extremely critical period of June 22 through July 2, 1970.

4. In the transition period of moving from leased to permanent space, people involved in financial management functions had to be moved (files, desks, equipment, etc.) a total of three times. Since this was right in the middle of the busiest period, the moves further complicated an orderly closeout.

Summary of the Results

In the transfer of the payroll function, ERC was given permission to make their last payroll a 17-day pay rather than a 14-day pay so the employees could be paid up through June 30. Headquarters then on July 1 assumed responsibility for severance pay and other related payroll functions.

With the establishment of the new DOT Center (TSC), it was necessary for Headquarters to develop new funding procedures to accommodate the fact that TSC was to operate under a consolidated working fund. In line with the agreements reached with NASA and DOT, special steps were taken to assure that TSC received funding on July 1, 1970. The appropriate papers were executed to fund $2.230 million for new RTOP work and $1 million was provided to TSC for those contracts and purchase orders which were returned to them. On July 14, TSC was provided $220,000 of CofF money to pay for partitions, landscaping, and lights for the parking lot. It is estimated that $1 million worth of additional contracts and purchase orders will also be returned to TSC.

Conclusions and Recommendations

In view of the delays caused by the negotiations necessary to arrange for the transfer of ERC to DOT and the problems of making program/technical decisions, the closure could not have been accomplished without the assistance of those individuals who were detailed to ERC and the long hours put in by ERC financial personnel during June and July.

However, considering all the factors involved in the closing of ERC and the establishment of a new DOT function (TSC), it is believed that the closing of ERC was accomplished in a successful manner.

SECTION VIII - MAINTENANCE AND OPERATIONS

REPORT ON ERC CLOSING

MAINTENANCE AND OPERATIONS

Nature and Scope of the Task

Basically, the task in the maintenance and operations area consisted of the preparation of information, instructions and basic documentation for maintenance and operations of the facilities. The total workload was as follows:

a. Accumulate and file construction drawings, shop prints, and maintenance and operations manuals.

b. Compile lists of all mechanical and electrical equipment requiring maintenance.

c. Code systems for identification.

d. Determine frequency of maintenance.

e. Implement preventive maintenance program.

f. Itemize equipment covered by guaranty/warranty.

g. Determine spare parts requirements.

h. Analyze and determine operations contract effort through June 30, 1970.

i. Complete work order review.

j. Trouble-shoot and repair.

Basic Plan and Approach

Acquisition of the information and data required for the implementation of an effective and economical maintenance and operations program was a matter of a certain amount of research effort and time. Fortunately much of the basic information/data had already been prepared by a task team organized by Headquarters several weeks prior to the shutdown announcement.

Significant Events and/or Major Problems Encountered

Generally speaking, there were no significant events or major

problems encountered during the six-month period and sufficient time was available for the Electronics Research Center (ERC) personnel to prepare the complete package that would be released to Department of Transportation (DOT).

Summary of the Results

The maintenance and operations program was prepared and implemented, and finally released to DOT. The program is considered satisfactory and, with the passing of time, DOT can revise the systems procedures to accommodate actual conditions.

Conclusions and Recommendations

Only a few NASA maintenance and operations personnel have remained behind as DOT employees. However, with additional qualified DOT personnel, there is no reason why the maintenance and operations program will not be successful.

SECTION IX - LEASED SPACE

REPORT ON ERC CLOSING

LEASED SPACE

Nature and Scope of the Task

At the time of the announced closure, ERC was occupying approximately 265,000 square feet of rental office, laboratory and warehouse space in six different locations in the Cambridge area. Most of the space was leased by the General Services Administration (GSA) for NASA on a reimbursable basis at a cost of approximately $1.6 million per year. In addition, facilities of other Government agencies were being utilized to varying degrees under permits. The principal tasks to be performed were to assure (1) a timely and orderly move into permanent facilities as construction was completed and accepted; (2) termination of lease arrangements and restoration of the property as necessary; and (3) termination of NASA's responsibilities in connection with facilities being utilized under permits/agreements with Government and private agencies.

Basic Plan and Approach

Plans and schedules were developed by ERC for vacating portions of the leased space as the permanent facilities were made available from the construction contractor on a floor-by-floor basis. Schedules and progress reports were reviewed by the Office of Facilities staff for general compatibility with the overall time tables for completion of construction and the June 30, 1970 closure date. ERC was to be responsible for furnishing GSA firm release dates for the leased space and for concluding NASA's responsibilities in connection with properties being utilized under permits/agreements with other agencies. In addition, they were to identify NASA's residual responsibilities subsequent to June 30, 1970.

Significant Events and/or Major Problems Encountered

Although the overall schedule of June 30, 1970 set for vacating the leased space was met, the moves were not accomplished in as smooth and orderly a manner as one would like. This was caused by a variety of reasons, some of which are summarized as follows:

a. Delays in determining (1) what programmatic work would be transferred from ERC to other NASA

installations; (2) what NASA work would be performed at Cambridge by DOT; and (3) what work would be carried on by universities and other Government agencies, made it impossible to identify, on a timely basis, equipment that was to be shipped or was to remain with DOT. The effect of this delay, coupled with the desire of ERC personnel to protect their (soon-to-be DOT) interests, resulted in equipment not being moved out of leased space as expeditiously as may have been possible.

b. A prolonged strike by the local Teamsters Union adversely affected the support contractor who provided materials handling (moving) services to ERC. As a result, for a period of about 7 weeks (April 6 to May 28), during a very critical time frame, no moves of equipment from leased space into either permanent or storage facilities were accomplished.

c. There was an apparent reluctance on the part of ERC personnel to accomplish primary objectives of NASA once it became known that DOT was to acquire the facilities since ERC was hopeful of persuading DOT to retain leased space at certain locations.

d. Employee morale was understandably low during the January - June period.

Initially ERC attempted to work out problems of restoration directly with the individual landlords. However, in view of the manpower shortage and the tightness of the closure schedule, Headquarters recommended turning the responsibility over to GSA.

Summary of the Results

The lateness of decisions concerning the disposition of the equipment resulted in action to establish a depot operation at the Boston Naval Shipyard (formerly the Boston Army Base). An Interservice Support Agreement was executed between the Naval Shipyard and NASA Headquarters (Code BD) for the use of 81,125 square feet of warehouse space in which the equipment would be held during preparation for shipment. The agreement provides for the furnishing of fire protection, utilities, refuse collection, and normal repairs and maintenance. The agreement covers a period of one year (July 1, 1970 through June 30, 1971) but can be terminated at any time upon 30 days' notice. Arrangements have been made to accomplish the necessary funding and payment from Headquarters.

Conclusions and Recommendations

Although numerous difficulties were encountered, they were generally unique to this particular situation or, as in the case of the Teamsters' strike, were of a type beyond normal administrative control.

SECTION X - CONSTRUCTION OF FACILITIES

REPORT ON ERC CLOSING

CONSTRUCTION OF FACILITIES

Nature and Scope of the Task

After the December 28, 1969 announcement of the closing of ERC, the Agency was committed to ensure that certain actions pertaining to the Construction of Facilities (CoF) were taken prior to the closing of ERC on June 30, 1970, and later, to provide for subsequent transfer of land, facilities and equipment to the Department of Transportation (DOT). The responsibilities of NASA to supervise the phase-out activities were as follows:

a. To develop a CoF phase-out plan

b. To complete all contracted construction work on schedule

c. To meet all financial obligations to contractors and to Corps of Engineers (CoE)

d. To complete the design and bid packages for residual work remaining at ERC and charged to NASA CoF program

e. To transfer funds to DOT for remaining NASA construction work not completed prior to June 30, 1970 and to be contracted by DOT after June 30, 1970

f. To transfer funds to CoE for payment of outstanding claims to NASA construction contracts, for closing out contracts and for CoE overhead costs associated with this work.

Basic Plan and Approach

NASA had to accomplish the above actions in a manner which would complete the scheduled construction, facilitate expenditious moving of ERC personnel from leased to newly-constructed facilities, and assist ERC in meeting its financial obligations to vendors and the Corps.

Significant Events and/or Major Problems Encountered

The following actions were accomplished:

a. In early January task teams were formed at ERC and at Headquarters.

b. Meetings were held with CoE personnel to establish guidelines for termination or completion of work.

c. NASA continued funding to the CoE for on-going work contracted prior to December 28, 1969, and paid the Corps supervision and administration costs through June 30, 1970.

d. ERC handled the following NASA-approved actions: (1) issued an AE contract ($5,996) for design of landscaping work to cost approximately $100,000; (2) developed an estimate for parking lot lighting ($20,000), and (3) developed a bid package for Guidance Laboratory partitions ($100,000).

e. ERC and CoE reviewed and validated outstanding construction claims (in May 1970). At that time, the claims totalled approximately $900,000; it is anticipated that they may reach $1,200,000. Arrangements were made with the CoE to continue negotiations for the settlement and payment of all claims.

f. Through meetings with the CoE, surplus uncosted contingency funds held by the Corps were identified and where appropriate, funds were withdrawn.

g. During June an agreement was reached on a figure of approximately $50,000 for CoE costs from July 1, 1970 to December 31, 1970, to resolve construction claims, correction of construction deficiencies, and liquidation of construction contracts.

Summary of the Results

Adequate planning and close liaison between NASA, Office of Facilities, personnel and ERC construction and resources personnel, provided the installation enough time to reassess its requirements, obligations and resources; terminate or reduce contracts; and transfer unexpended contractual balances to NASA. This resulted in permitting NASA to withdraw surplus program authority and funds from the installation for reallocation and use within the Agency.

Conclusions and Recommendations

The Agency established adequate plans and schedules of action milestones, and a smooth and timely phase-out was accomplished.

SECTION XI - PROGRAM DECISIONS

REPORT ON ERC CLOSING

PROGRAM DECISIONS

Nature and Scope of the Task

When the ERC closing was announced, the technical program plan totalled $22.6 million and included support from six offices in OART, four offices in OSSA, two in OMSF and one in OTDA. Of the total program plan, $18.2 million in program authority had been released to the Center. The work planned for implementation at the Center was described in 92 different Research and Technology Objectives and Plans (RTOP's) or work units distributed among the major program offices in NASA as follows:

OART	-	59 RTOP's
OSSA	-	29 1122's
OTDA	-	2 1122's
OMSF	-	2 RTOP's

Basic Plan and Approach

The task faced by the program offices was to determine which portions of the ERC program were integral to the aerospace effort and required continuation and which could be terminated with the least impact on agency programs. Allied with those decisions was the need to establish and implement procedures for the transfer of continuing work to other centers and to complete the transfers and termination activities by the close of Fiscal Year 1970. However, since the programmatic changes would largely determine the actions to be taken in the facilities, personnel, financial, equipment, and procurement areas, it was essential that decisions on these changes be made at the earliest possible date so that action could proceed in the other areas.

Significant Events and/or Major Problems Encountered

The first step toward deciding which parts of the ERC work should continue and where they should be performed was through the issuance of a memorandum (Attachment 7) to ERC laying out a plan and time schedule for disposition of all ERC work. Under this plan, ERC would make recommendations to Headquarters (by RTOP). OART would review the proposals, make recommendations to the Administrator and then forward the approved tentative

program to ERC and recipient centers for their review and comments. Upon receipt of these comments, a final recommendation would be submitted to the Administrator for approval.

While activity implementing this plan was underway, a decision was made at the presidential level to use the ERC facilities for a Department of Transportation facility. The Administrator had previously stated that if this were done, NASA would sponsor work at the new center for one year at a level of about $5 million. As a result a new memorandum (Attachment 8) was sent to ERC with a listing of the programs by RTOP that were planned for continuation at other NASA Centers and a listing of work which might be conducted for NASA at the new DOT Center.

It had originally been proposed that all transfer actions would be completed by April 15, 1970. However, with the occurrence of a new set of ground rules (i.e. determination on work to be performed by DOT versus NASA), it became apparent that not only would this target date be delayed, but expeditious action would be necessary to even meet the June 30, 1970 deadline for the closing of ERC. As a result, the memorandum was supplemented by a personal visit by those members of the Headquarters divisions most involved in the program transfer. Although it had been hoped that a specific list of work could be agreed upon at this meeting, such an agreement could not be reached since the policy of DOT in research work had not yet been defined. After considerable negotiation with ERC and after consultation with Dr. Low, a message (Attachment 9) was sent to ERC on May 19, 1970 outlining the FY 71 work NASA desired to be performed at the new DOT Center and requesting that RTOP's for this work be prepared. On May 22, 1970 a letter (Attachment 10) was sent to NASA Centers listing the ERC programs to be transferred and directing the necessary implementing actions.

Summary of the Results

Out of the total ERC program of $22.6 million, $14 million was transferred to other NASA Centers with the bulk of the remaining work being terminated or allowed to run out. Primary recipients of the transferred work were GSFC, MSFC, LaRC, and ARC.

Conclusions and Recommendations

From a programmatic viewpoint the closing of ERC was carried out essentially as planned. However, the presidential decision to use the ERC facilities for DOT and the consequent need to fund and equip the new center in FY 71 altered to some degree the

original plan and both delayed and complicated many of the programmatic and related equipment decisions. The operation was also hindered by a lack of specific DOT inputs as to the type of work which they proposed to perform for NASA at their new center. Unfortunately, DOT did not have an R&D team on their staff and had to form such a group while the negotiations were underway. However, in spite of these factors, it is believed that final dispositions were evolved on a carefully thought out basis and in the best overall interest of NASA, DOT and the government.

SECTION XII - PROCUREMENT

REPORT ON ERC CLOSING

PROCUREMENT

Nature and Scope of the Task

The contractual closeout problems were many-fold, and in some respects unique. The objective was an orderly disposal of all contracts by one of the following methods:

a. Transfer to another NASA Center if the work was to continue.

b. Transfer to the new Department of Transportation (DOT) Center if it involved work that DOT was to perform for NASA or support services that DOT would require for its own mission.

c. Transfer to the applicable Defense Contract Administration Services Region (DCASR) for contract closeout if the contract was physically complete or for final administration and closeout when the expiration date was shortly after June 30, 1970.

d. Contract termination in accordance with the standard terms of the contracts.

A point of major consideration was the subsequently additional objective of turning over an operating center to DOT. This meant that continued contractual coverage had to be provided in certain areas where a select number of contractors might be providing coverage for both NASA and DOT.

The contractual closeout effort was tailored to the June 30, 1970, closing date for the Center. As with many other functional areas, personnel to accomplish the job was a problem in view of the fact that many key personnel were understandably retiring or actively seeking jobs elswhere.

Basic Plan and Approach

Procurement planning for the ERC closing contemplated extensive use of DCAS for the contract closeout effort. Initially only a small cadre of personnel was planned however, as June 30 approached it became apparent that the numbers would have to be increased. To the extent possible, ERC was to handle contract closeout whenever the necessary documentation was available locally, whereas contracts

requiring DCAA audit normally were to be transferred for closeout by the applicable DCASR. Form letters of delegation for contract closeout were to be used; however, each contract would have to be examined individually to determine the extent of problem areas (if any) and to consider appropriate corrective action as required.

Significant Events and/or Major Problems Encountered

Procurement Requests Placed in "Freeze" Status

It became obvious in early May that the contractual closeout effort would not be completed by June 30, 1970 unless the ERC Procurement Officer was given some relief against an accumulating backlog of Procurement Requests (PR's). Accordingly, on May 13, 1970, a freeze was placed on all PR's and, as a result, action was stopped on fifty-five items in various stages of the procurement cycle. After consideration of the known facts in each case, disposition of the fifty-five PR's was made as follows:

Approvals Granted	37
Contingency Approval Granted	7
Disapproved	11
	55

Any subsequent request was to require specific approval under conditions of the freeze.

Purchase Order Closeout/Disposition

After consideration of various alternatives it was agreed between DOT and NASA officials that the entire purchase order closeout function should remain with the new DOT Center, since most of the purchase orders were of small dollar value, and DOT in many cases would be the recipient of the materials received.

Center Transfers

Possibly the biggest single problem was in determining what contracts were to be transferred to what Centers since the RTOP's do not identify specific contracts nor is there a cross reference to the RTOP within the basic contractual documents. After considerable effort and with time literally running out, all technical monitors and receiving Centers were finally determined and letters were dispatched to the respective Center Director.

Summary of the Results

Although difficulties were experienced, the contractual closeout was apparently accomplished without adverse effects to existing programs and the contractors involved. NASA was particularly fortunate with regard to the following:

a. DCAS was available to accept contractual administrative closeout responsibility and contract administration responsibility on a significant number of contracts, and

b. A close working relationship was established with present TSC procurement personnel (formerly NASA procurement personnel), who assisted daily in resolution of problems that arose.

Final disposition of the ERC contracts was as follows:

Transferred to DCAS for closeout or Administration	357
Closeout by ERC	261
Transferred to DOT (TSC)	40
Transferred to MSFC	17
Transferred to ARC	7
Transferred to GSFC	17
Transferred to LeRC	13
Transferred to NaPO	3
Transferred to MSC	17
Transferred to HQRTS	18
Transferred to LaRC	13
TOTAL	763

Conclusions and Recommendations

Notwithstanding the problems involved, the contractual closeout was accomplished in a credible manner and in the face of a moral situation that was understandably low. On this point, it is worth mentioning that one procurement employee with 26 years service who had been RIF'd and was without a job, stayed working on the closeout effort until after 6 p.m. on the final closing date.

With regard to implementing programmatic decisions, it should be noted that technical personnel relate the effort being accomplished to RTOP's/1122's, whereas procurement personnel speak only to contract numbers, thus creating a lack of identification between the two approaches. One possible solution would be to reference the RTOP/1122 number somewhere in the contract. One other approach would be for

the program office to incrementally publish a report listing all contracts awarded under each RTOP/1122. In any event, it is recommended this problem be studied so that better identification between RTOP's/1122's and contracts can be established.

SECTION XIII - DISPOSAL OF REAL PROPERTY

REPORT ON ERC CLOSING

DISPOSAL OF REAL PROPERTY

Nature and Scope of the Task

Normally, when a government agency determines that it has real property that it no longer requires, such property is reported to GSA as being excess to the agency's needs. The GSA then "screens" other government agencies for possible utilization and if a requirement does exist, it authorizes a transfer of property. If no requirement exists the GSA may effect disposal by other means such as donation to public bodies, sale, etc. In all cases the holding agency is required to provide caretaker services pending disposal of the property.

The situation at ERC was unique in the sense that, at the time the decision was made to close the installation, the government had not accepted from the contractor the facilities being constructed. In addition, NASA had initiated directly a canvass of other government agencies in an effort to seek possible utilization of the totally integrated research capability (i.e. personnel, real property, facilities, and equipment). These factors, coupled with the DOT interest in acquiring the facilities made it necessary to proceed on the basis of continuing operations while at the same time planning for complete shutdown of NASA activities by June 30, 1970.

Basic Plan and Approach

In view of the circumstances, it was decided that NASA would advise GSA informally of its intent to divest itself of the real property, but would withhold any actual report of excess until the results of the NASA effort to effect a transfer of the total integrated capability were known. Specific actions to be accomplished included: (1) development of adequate property and financial records; (2) a preliminary report of excess; and (3) proposed transfer of accountability documentation.

Significant Events and/or Major Problems Encountered

The following resume will highlight chronologically, for the record, dates and actions incidental to the disposal by NASA of the real property.

Date	Action
Dec. 29, 1969	NASA announcement of closure of ERC.
Jan. 5, 1970	Exploratory meeting between staff officials of NASA Headquarters and GSA Central Office.
Jan. 19, 1970	NASA Administrator's letter to Cabinet Heads and Agency and Department Heads regarding possible utilization of ERC capabilities.
Mar. 25, 1970	President's announced transfer of ERC to DOT effective July 1, 1970.
Apr. 20, 1970	NASA Administrator letter to DOT Secretary enclosing copies of proposed declaration of excess and related documentation.
Apr. 20, 1970	NASA Administrator letter to White House, BOB, NASC, forwarding copy of 4/20/70 letter to Secretary DOT.
Apr. 29, 1970	Secretary DOT letter concurring in actions outlined in 4/20/70 letter.
Apr. 30, 1970	NASA letter to GSA (Region 1) transmitting report of excess real property.
Apr. 30, 1970	NASA letter to appropriate members of Congress advising of transfer action.
May 11, 1970	Letter from GSA acknowledging receipt and acceptance of NASA report of excess.
May 12, 1970	DOT letter to GSA enclosing formal request for transfer of real property.
June 4, 1970	GSA letter to BOB requesting approval to transfer property without reimbursement.
June 29, 1970	GSA letters to NASA and DOT transferring property to DOT without reimbursement. NASA to arrange details for transfer of custody and accountability.

June 30, 1970	NASA letter to DOT enclosing documentation transferring accountability effective July 1, 1970. Letter noted construction deficiencies to be corrected.
July 1, 1970	DOT letter to NASA returned executed NASA Form 1046 accepting accountability and requesting assistance in resolving construction deficiencies.
July 1, 1970	NASA processed Real Property Transaction Vouchers to clear financial property accounts.
July 13, 1970	NASA letter to GSA (Region 1) advising that transfer of custody and accountability had been completed.

One major delay resulted from the resignation of the Real Property Accountable Officer at ERC shortly after the announced closure. Consequently, no detailed property records had been established by ERC at the time of the proposed transfer of accountability.

Summary of the Results

The value of the real property as carried on NASA books at the time of the transfer of accountability was $20,080,781 and covered 14.3 acres of land, six buildings and related utilities and supporting facilities. Despite the delays encountered in developing the property record data, late acceptance of the facilities by the government, and the compressed time frame available for processing essential documentation through the various government channels, the transfer of accountability of the real property was accomplished effective July 1, 1970 as scheduled.

Conclusions and Recommendations

It is not likely that a situation similar to the ERC closure will occur within NASA since most of the construction at our other installations has been completed and the basic records have been established.

SECTION XIV - ELECTRONICS RESEARCH CENTER

REPORT ON ERC CLOSING

ELECTRONICS RESEARCH CENTER

Nature and Scope of the Task

Following Dr. Paine's December 29, 1969 announcement of the closing of the Electronics Research Center, a task extremely complex in nature and broad in scope confronted Center management. This task involved 829 civil service employees; 257 contractor employees; approximately 292,000 square feet of property (most of which was under lease and required restoration); a nearly completed permanent facility of approximately 351,000 square feet valued at approximately $20,000,000 including utilities, betterments and land; approximately 19,000 line items of accountable personal property; 3,500 open accounts payable, reconciliation of all accounts; a total of 804 contracts in various stages of administration with a dollar value in excess of $60,000,000.

Even more to the point, the phase-out of the Center would involve the shutting down of a growing young Center which had been characterized by enthusiasm and dedication over the six years of its existence. Its closing created a myriad of concerns involving the careers and livelihood of far more than the 629 employees on the Center's rolls, as well as a deep concern for maximizing the possible economies to NASA and the Government in shutting down the many research and development programs and tasks underway and disposing of the large numbers of sophisticated general purpose and special purpose equipment which was carefully amassed.

In addition, the required evaluation to determine the Programs which should be transferred to other NASA Centers, an extremely "tight" job market for professional personnel, and continuing discussions of the possibility of another Government Department assuming cognizance of the equipment and facilities of the Center (and its need for qualified personnel) all served to complicate an already difficult task.

Basic Plan and Approach

In the first two weeks of January 1970, a series of announcements were made creating six Task Forces, one each in the following areas:

Personnel, Facilities Services, Property, Financial, Procurement, and Engineering and Construction. (Copies of these announcements appear as Attachment 12). Each announcement included a list of personnel who would serve on that group. The formulation of that list required the identification of those personnel whose skills and knowledge were necessary for the phase-out of the Center and whose professional motivation and dedication could hopefully be relied upon to provide the effort necessary to accomplish their task. Each announcement also included an organizational structure, a charter or functional statement, and a request from the Deputy Director of Administration that the Task Force develop and submit a detailed "master plan" with milestones. In this fashion, Center management developed a fully integrated detailed plan for accomplishment of phaseout activities.

Assignment to each Task Force was on a full time basis, and took precedence over any existing assignments. All Task Forces reported, through their Chairmen, to the Deputy Director of Administration and each was required to submit a weekly progress report by 2PM each Friday. Each Chairman had the authority to reassign personnel and duties within the Task Force, and to submit for the approval of the Deputy Director of Administration any significant changes in the makeup or organization of the Task Force, or assignment of additional personnel thereto.

Following the development and submission of a milestone plan for each of the Task Forces, an integrated plan was formulated for all six Task Forces which illustrated in summary form the major events, the interrelationships of those events and the major interfaces with other Task Forces (Attachment 13).

As time progressed, each Task Force devised a number of formats in an attempt to depict activity during each two-week period. A compilation of these formats was sent to NASA Headquarters each two weeks in the form of an "ERC Status of Phase-Out Activities Report." Following each report a review was held with each of the Task Force Chairmen to reevaluate plans, progress, report formats, and any problems which may have arisen.

Significant Events and/or Major Problems Encountered

Certainly the most difficult problem in the closing of any installation is the problem of morale and motivation of personnel at a time when the efforts of many people are necessary to the

accomplishment of phase-out activities. Immediately after Dr. Paine's announcement, the Center Director made clear to all personnel that every attempt would be made to help employees secure positions elsewhere. Toward this end an ERC outplacement program was initiated to focus our employment efforts.

Not long after December, it was widely rumored that another Government Department was involved in discussions to assume responsibility for the Center. As these rumors became more persistent, it became progressively more difficult to carry out phase-out activities, and employees became more reluctant to seek outside employment. Center management as wellwas faced with a dilemma. Since discussions were preliminary, and since very many levels of discussions and approval remainded, what should their attitude be to ERC personnel who demanded to know the facts. Further complicating the situation was the fear that if the facts became known by the press at the preliminary stages of discussion, the possibility of effecting such a transfer would be greatly damaged. Nevertheless, Center management knew that as important as the facility itself was to the Department of Transportation, just as essential and valuable was the staff and skills of a carefully assembled workforce.

The position adopted by ERC management was to be as open as possible in providing Center personnel with information on the current status of negotiations, but nevertheless carefully warning all those concerned that they should not hold out false hopes as final decisions had not yet been made.

As negotiations with the Department of Transportation continued and the likelihood of the creation of a Transportation Systems Center under the Department became greater, ERC management found itself in a situation replete with conflicting demands and interests. On one hand it had the responsibility for efficient and quick phase-out of NASA-ERC by June 30, 1970. On the other hand it was faced with the necessity for preparing for the start-up and functioning of DOT-TSC by July 1, 1970. This caused numerous problems.

While morale reached unprecedented heights with Secretary Volpe's announcement on March 25, 1970, it became quickly apparent that the skills of many ERC employees would not represent a match for TSC's needs; this understandably decreased motivation on the part of these employees. On the other hand, there was extreme confidence on the part of other employees who believed their background and skills would be relevant to the new Center's responsibility.

Conclusions and Recommendations

The experience of the phase-out of ERC should certainly provide a foundation for experience with similar occurrences. However, it would only be prudent to remark that the ERC experience was not a total shutdown, but rather a partial shutdown and a partial transfer. There were no reductions-in-force at ERC in the traditional sense, i.e., with retreat and bumping rights, but a "general notice" instead. How far in fact, therefore, we can generalize from the ERC experience is debatable. Nevertheless, the following conclusions and recommendations are offered:

a. The use of Task Groups with specifically defined areas of activity and delegated authority, lends itself ideally to a situation of this type since it greatly facilitates the interface problem and is readily adaptable to changes in personnel.

b. A detailed plan and flow diagram within each area of activity is essential, not only as necessary to track progress but also, and more importantly, to identify interfacing activities between the various task groups.

c. Problems of morale, under such circumstances, are inevitable but can be significantly reduce through absolute candor and timely flow of information and through visible evidence of an aggressive outplacement program.

SECTION XV - DEPARTMENT OF TRANSPORTATION

REPORT ON ERC CLOSING

DEPARTMENT OF TRANSPORTATION

Nature and Scope of the Task

The Department of Transportation had experienced considerable difficulty in developing a comprehensive R&D program and felt that acquisition of ERC would permit it to focus its development of technology in a newly completed modern R&D facility with a strong technical core capability which could be reoriented to DOT related research.

On March 25, 1970, President Nixon announced that he had approved the acquisition of ERC by DOT and Secretary Volpe in his press release of that date stated that the acquisition "will redirect a significant portion of America's technological resources from exploring space to solving earthbound problems."

Basic Plan and Approach

Immediately upon approval of the ERC acquisition by the President, DOT established two task forces under the overall direction of the Under Secretary.

a. A technical task force which was assigned responsibility for developing a first year R&D program, giving due regard to the work which NASA planned to ask DOT to perform at the Center.

b. An administrative task force which was assigned overall responsibility for insuring that all necessary administrative actions involved in the transition of the Center to DOT on July 1, 1970, were completed in an acceptable manner. This included the designation of a name for the Center and the development and approval of an organization structure, key personnel, supergrade actions, facilities plans (including DOT actions on transfer documentation) staffing plans and personnel levels, continuation of support services contracts, delegations of authority, etc.

The technical task force was to be chaired by the Assistant Secretary for Systems Development and Technology and included representation from each operating administration, selected offices in the Office of the Secretary (OST), and the Director, ERC. Most of the work of this group was internal to DOT with considerable effort devoted to defining the program to be carried out at the new Center.

The administrative task force was to be headed by the Assistant Secretary for Administration and included representatives from each of the appropriate OST functional offices. One of the first requirements was to establish, through the Deputy Assistant Administrator for Administration, a working relationship with the NASA Headquarters ERC Working Group to obtain the benefit of the work already performed by NASA and to effect a working arrangement on matters of mutual interest.

Another requirement was the development of an action plan listing all actions which had to be completed by July 1, 1970, and a time schedule for each. This plan was updated weekly and served as a basis for a weekly progress report to the Under Secretary. It was a comprehensive plan and was the most important tool to control the required actions.

In terms of operating methods, the task force performed work in DOT headquarters, made several visits to the Center, and worked closely with their counterparts in NASA headquarters. While there were the normal frictions between groups working on a problem there was a cooperative spirit and a "lets get the job done" attitude by all parties concerned.

Significant Events and/or Major Problems Encountered

From the DOT standpoint the most difficult tasks in taking over the Center were:

a. development of a FY 1971 R&D program

b. establishment of Civil Service and support service contract

c. manpower levels

d. development of delegations of authority

e. determination of overall ADP requirements

f. preparation and approval of supergrade actions

g. selection of personnel to be retained

h. determination of equipment to be transferred to DOT

While not an overriding problem at the time of the transition, DOT was not in an immediate position to advise the Cambridge Redevelopment Authority (CRA) as to its requirements for future facilities and land use at the New Center. Accordingly, DOT had to inform CRA that it

needed until the end of 1970 to identify such requirements. CRA advised DOT that unless specific plans were presented as soon as possible, CRA may have to offer the available vacant land (ten acres) to other potential developers. The urgency for DOT to produce at least a tentative development plan for TSC at the earliest opportunity, without the benefit of sufficient experience and in light of many budgetary uncertainties, constitutes a major problem still facing DOT.

Summary of the Results

Acquisition of ERC was effected as scheduled on July 1, 1970, as the DOT Transportation Systems Center (TSC). Establishing TSC as an effective DOT operational entity involved a multitude of administrative, management and technical actions. Completing these actions effectively within the July 1, 1970, deadline compounded the complexity of the undertaking and necessitated a high degree of planning and execution of those tasks involved. Significant accomplishments are briefly described below:

1. Organization. Organization and functional statements for TSC were established on an interim basis. Proposals for changes are being considered and as we gain more operational experience at TSC we will identify other changes before finalizing the organization and accompanying functional statements by the end of 1970. A Federal Register amendment dated July 1, 1970, reflected the acquisition of TSC by the Department and described the delegations of authority to TSC. Appropriate changes were made to the DOT Organization Manual.

2. Budget. Under the NASA operation, direct funding of the Center had been available. Under DOT operations different financial arrangements had to be established to allow the various DOT operating administrations and organizational elements in the Office of the Secretary to provide funds to TSC. The Bureau of the Budget approved adoption of a management fund as a basis for interim financial support of TSC, with the understanding that during the next fiscal year decisions would be made as to whether a different permanent method of funding should be established. An initial Civil Service staffing level of 425 was developed for TSC and a year end staffing level not to exceed 625 was established. The DOT Office of Budget and TSC developed funding requirements of approximately $21-22 million for FY 1971 based upon the level of staffing and a reasonable level of contract effort. In addition to the Civil Service personnel at TSC, support services contracts equivalent to 176 man years were authorized and a decision

was made to perform a comprehensive study of the support service requirements to determine the most effective way of obtaining these services for the future.

3. Financial Management. General Working Agreements and Project Plan Agreements (PPAs) providing detailed support for the "General Working Agreement" were developed by the DOT Office of Budget, Office of Management Systems and TSC. The PPAs support each individual project and contain the technical information required for the individual project activity. These two documents combined provide the legal, accounting, and technical basis for the contractual agreements between TSC and the supporting DOT organizational elements. Through joint DOT-NASA meetings, accounting close-out procedures were developed for payroll and contract operations. A separate accounting activity was adopted for the TSC with assignment of an accounting station code by the Department of the Treasury. A financial system was established for cash operations. A modified accounts structure was established to accommodate the newly established Consolidated Working Fund.

4. Personnel Management. A 452 personnel ceiling was fixed for TSC effective July 1, 1970, and the Center Director recommended those former ERC people who could be offered employment with DOT. DOT issued letters to 422 ERC employees indicating they could reasonably expect to receive job offers in the new DOT Center. It also issued 194 letters to ERC employees advising that there was probably no likelihood that they would receive job offers in the new Center. Regardless of the category applicable to each ERC employee, all employees were invited to submit applications if they were interested in employment with DOT either in Boston or elsewhere. While DOT was engaged in placement activities at the Center, NASA was also conducting its own outplacement program in an effort to offer displaced ERC employees jobs within NASA. As of July 1, 1970, DOT appointed 399 persons to the TSC rolls. With respect to supergrade positions, supergrade approvals were recieved for 12 positions from the Civil Service Commission on June 26, 10 of these key people were appointed as of July 1, 1970.

5. Facilities Utilization. DOT representatives met with several staff officials of the Cambridge Redevelopment Authority (CRA) to discuss DOT's plans for use of existing TSC facilities and its intentions with respect to the ten acres of cleared, unconveyed land. DOT agreed to prepare, hopefully by the end of the calendar year, a plan for future development for TSC to form a basis of mutual planning for disposition of the ten acres presently unacquired by the Federal Government. The Department's Assistant Secretary for Systems Development and Technology is to develop this plan. CRA and DOT

agreed to maintain contact so that each might be kept informed of any changes in the plans of the other, pending development of the tentative plan.

6. Facility Deficiencies. Actions required to correct outstanding construction deficiencies on the new facility were identified by NASA and DOT and submitted to the Corp of Engineers who agreed to take the necessary corrective action. NASA agreed to transfer lands to DOT for completion of construction involving landscaping, partitions in the Space Guidance Laboratory, and lighting in the parking area. During the transfer of ERC to DOT, minor construction and alterations were necessary to adapt the existing permanent facilities for the business and R&D computers.

7. Data Processing Support. One requirement which had to be determined in taking over TSC from NASA was the nature and extent of computer support required by the activities DOT would be engaged in at TSC. DOT concluded that the exact requirements in terms of size and performance characteristics for a large central computer system to replace the IBM 360/75 system removed by NASA in early 1970 would depend on further definition of the programs to be performed at TSC. DOT expects to have sufficient information available by the end of September 1970 to develop a computer acquisition plan. DOT also concluded that the various small-scale and hybrid computers in the several laboratories at ERC could be effectively utilized by DOT. All of these computers were transferred to DOT except for one of three computers which make up the DDP-516 system.

Conclusions and Recommendations

An overall assessment of the approach DOT used to establish TSC as an effective operational entity within the July 1, 1970, deadline is considered to be a sound and practical way of accomplishing the multitude of administrative, management and technical actions involved. The TSC consolidated action plan by functional area proved most effective in this regard. It provided a substantial planning base and the capability for making the necessary arrangements to consummate the acquisition of the Center as scheduled.

Of particular value was the establishment of a functional task force which interfaces and integrates the separate skills of the functional specialists involved. Many benefits were also derived early by establishing effective working relationships with key ERC and NASA personnel and by keeping key officials informed of significant events. Our weekly progress reports served a very useful purpose in this regard.

ATTACHMENTS

ATTACHMENT 1. Personnel - Checklist----------

2. Personnel - Headquarters Decision----------

3. Personnel - Flow Diagram----------

4. Personnel - Outplacement----------

5. Personnel - Report by Robert Rollins----------

6. Personnel - Report by Robert O'Neil----------

7. Program - Disposition Plan----------

8. Program - Decision Document----------

9. Program - Decision Document----------

10. Program - Transfer Document----------

11. University - Cooperative Agreement----------

12. ERC - Task Force----------

13. ERC - Flow Diagrams----------

Attachment 1

Personnel - Checklist

ATTACHMENT 1

NASA PLANNING & STEERING GROUP FOR ERC CLOSING

Checklist for Personnel Processes

Item	Action
RIF Processes	
Establishment of competitive area	ERC in accordance with NASA FPM Supplement 351-4-1
Review of competitive level	ERC in accordance with BP consultation
Notice letter preparation and issuances to employees	ERC in consultation with BP
Request to CSC for notice period of over 90 days	ERC letter to CSC Boston Region
Provide counseling on RIF to employees	ERC
Determine transfers of functions	ERC/OART/BP
Identify personnel involved and transfer rights	ERC/OART/BP - consultation with CSC
Assess impact of functional transfers on personnel at other NASA Centers	OART/BP
Outplacement Process	
Freeze hiring at all NASA Centers	BP
Determine disposition of ERC personnel spaces within NASA during FY 70 & 71	D/B

Establish outplacement systems at ERC	ERC with assistance as necessary from BP and other NASA Centers
Prepare qualification and experience summaries on ERC employees	ERC/Employees
Establish outplacement program stopper list and administer outplacement program	BP/ERC

Training Actions

Review training plans for second half of FY 70 and phase out training	ERC
Discontinue special student-trainee programs or work/study arrangements	ERC
Notify employees on paid graduate study leave or long-term fellowships of status	ERC
Coordinate with National Academy of Science on disposition of NAS fellows	ERC
Disposition of resident research associates	ERC

Other Items

Inform individuals on commitment lists of ERC closing	ERC
Stop making commitments	ERC
Identify key ERC personnel who should be retained by NASA	ERC/OART/BP

Notify employees about the Proxmire amendment	ERC
Notify personnel on obligated positions of future point of contact within the agency	ERC/BP
Notify aliens of status	ERC/BP
Notify and coordinate RIF with CSC (central office & region)	ERC/BP
Notify the Department of Labor	BP
Notify selective service boards of employees for whom ERC has requested deferments	ERC
Notify and coordinate (through Code W) with the military services the disposition of military detailees	ERC/BP
Identify final close-out cadre of essential employees for personnel operations	ERC/BP
Arrange for retention and final disposition of Personnel Folders	ERC/BP

Attachment 2

Personnel - Headquarters Decision

ATTACHMENT 2

PERSONNEL PROCESSES

Summary -- Specific Headquarters Decisions Required

Action Date	Item
February 6	Establish and distribute Agency-wide Personnel "stopper" List.
March 13	Identify and determine ERC functions to be transferred to other Centers.
	Determine which NASA Center will assume responsibility for ERC obligated positions and notify ERC.
March 27	Notify Centers of functions (and personnel) they will be receiving from ERC.
April 1	Complete coordination with Code W for disposition of ERC military detailees.
	Notify ERC where to send Personnel Folders for final retention and disposition.
May 15	Arrange for transfer of ERC Close-out cadre (after June 30) to Headquarters rolls.

PERSONNEL PROCESSES

Actions	Specific Headquarters Decisions Required	
RIF Processes	Item	Decision Date
Establish Competitive area		
Review Competitive levels		
Prepare and issue notice letter		
90 day extension of notice period from CSC		
RIF counseling for employees		
Determine transfer of functions	Identify functions	March 13
Identify personnel involved in transfer of functions and transfer rights		
Transfer functions and personnel	Notify Centers	March 27

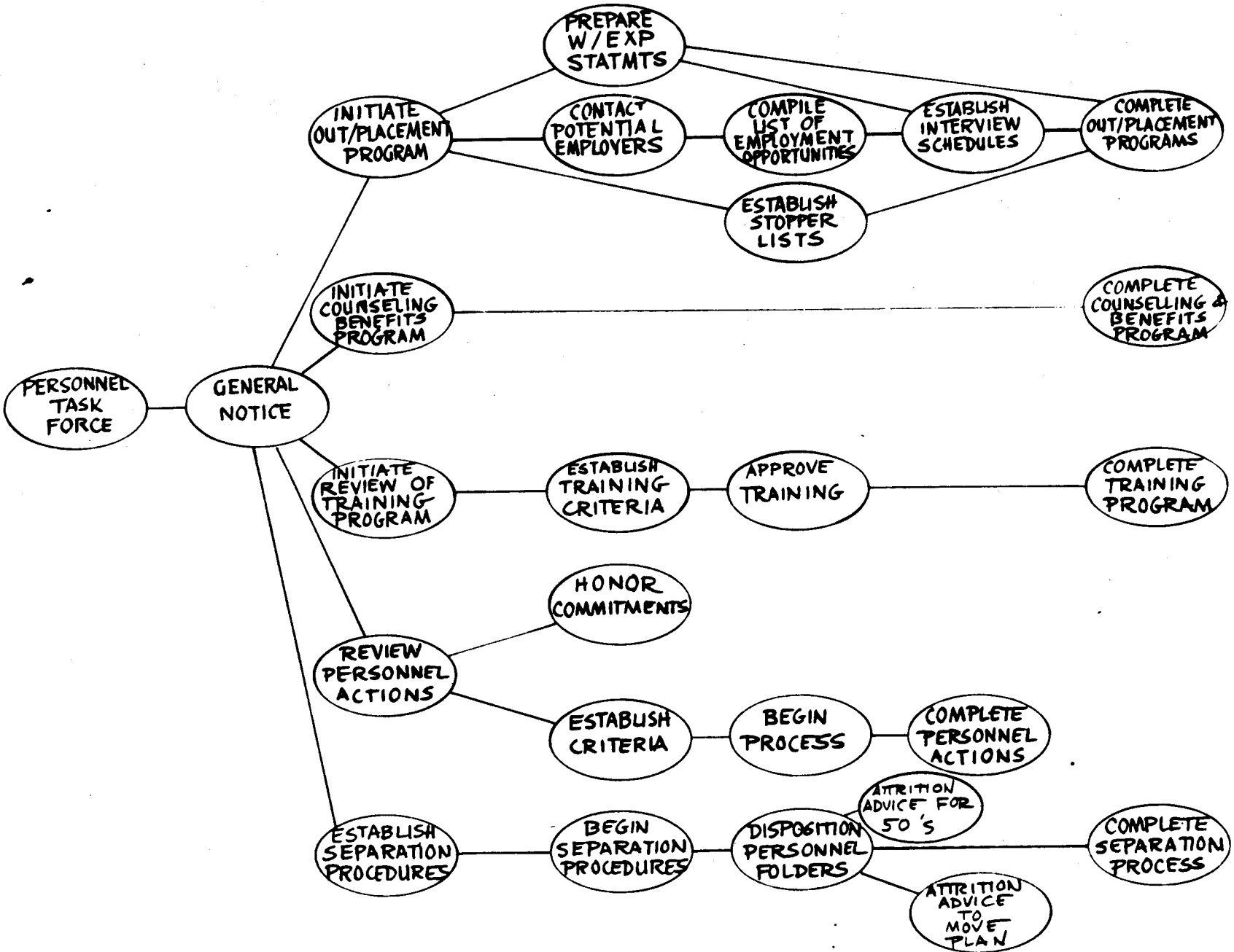
Actions	Specific Headquarters Decisions Required	
	Item	Decision Date
Outplacement Processes		
Establish ERC outplacement program		
Prepare qualification and experience summaries on ERC employees		
Establish and Administer NASA outplacement stopper list	Establish List	February 6
Training Actions		
Review training plans for second half of FY70 and phase out training		
Discontinue special student-trainee programs or work/study arrangements		

Actions	Specific Headquarters Decisions Required	
	Item	Decision Date
Notify employees on paid graduate study leave or long term fellowships of status		
Coordinate with National Academy of Science on disposition of NASA fellows		
Disposition of resident research associates		
Other Items		
Inform individuals on commitment lists of ERC closing		
Stop making commitments		
Notify employees about the Proxmire amendment		
Notify personnel on obligated positions of future point of contact within the agency	Determine Center	March 13

Actions	Specific Headquarters Decisions Required	
	Item	Decision Date
Notify aliens of status		
Notify and coordinate RIF with CSC (central office & region)		
Notify the Department of Labor		
Notify selective service boards of employees for whom ERC has requested deferments		
Notify and coordinate (through Code W) with the military services the disposition of military detailees	Coordinate with Code W	April 1
Identify final close-out cadre of essential employees for personnel operations	Arrange Transfers	May 15
Arrange for retention and final disposition of Personnel Folders	Notify ERC	April 1

Attachment 3

Personnel - Flow Diagram


PERSONNEL TASK FORCE
GENERAL NOTICE
INITIATE OUT/PLACEMENT PROGRAM
PREPARE W/EXP STATMTS
CONTACT POTENTIAL EMPLOYERS
COMPILE LIST OF EMPLOYMENT OPPORTUNITIES
ESTABLISH INTERVIEW SCHEDULES
COMPLETE OUT/PLACEMENT PROGRAMS
ESTABLISH STOPPER LISTS
INITIATE COUNSELING BENEFITS PROGRAM
COMPLETE COUNSELLING & BENEFITS PROGRAM
INITIATE REVIEW OF TRAINING PROGRAM
ESTABLISH TRAINING CRITERIA
APPROVE TRAINING
COMPLETE TRAINING PROGRAM
REVIEW PERSONNEL ACTIONS
HONOR COMMITMENTS
ESTABLISH CRITERIA
BEGIN PROCESS
COMPLETE PERSONNEL ACTIONS
ESTABLISH SEPARATION PROCEDURES
BEGIN SEPARATION PROCEDURES
DISPOSITION PERSONNEL FOLDERS
ATTRITION ADVICE FOR 50's
ATTRITION ADVICE TO MOVE PLAN
COMPLETE SEPARATION PROCESS

Attachment 4

Personnel - Outplacement

OUTPLACEMENT AT ERC

The ERC Outplacement Team began its operations in mid-January. Since that time, more than 75 companies have conducted over 1000 interviews at the Center. In addition, a similar number of companies have requested detailed resumes from approximately 300 employees for over 600 different job opportunities. In spite of this activity, placements have been difficult for numerous reasons, chief among which are a lack of interest of many employees to relocate and a reaction by private employers that many employees are too specialized and too advanced in salary and experience for the positions open. Another contributing factor is the series of industrial and government layoffs, primarily in D.O.D. caused by reduced federal spending. The decision to convert this Center to a Transportation Development Center is, therefore, a most welcome blessing to most ERC employees.

There is, however, a very real problem for certain employees whose skills are not applicable to the work planned for the new Center. This is particularly true in the case of the more basic research personnel, mostly Ph.D's with highly developed research capability, who have very limited job opportunities due to the drastic reduction in Federal support of research. These people present a very difficult and challenging job for the Outplacement Team. One special effort in their behalf is the search for university faculty positions. It is doubtful however that this effort will be very productive as the positions are very limited, low paying and the number of applicants for each position is extremely high. Therefore a more diligent search for openings within NASA is a current and urgent endeavor of the Outplacement Team. A similar search is planned throughout the various model agencies of the Department of Transportation.

The Outplacement Team function has been essentially that of bringing together "people looking for jobs" and "jobs looking for people". The first order of business was to obtain resumes from employees. These were then briefed

to mini-resume size and made available for review. At the same time, we put together information on job opportunities and began to publish this information in a periodically-released bulletin. Both of these listings are broken down into three categories -- technical, administrative and clerical.

The listing of companies/agencies with job openings published came to a grand total of 350. To each of these contacts we sent a complete set of mini-resumes with an invitation to visit the Center and conduct personal interviews or to request more detailed resumes from those people in whom they had some interest. The results were stated above.

To supplement these major efforts, the outplacement effort included these additional activities:

-- Personal calls to individuals are sometimes made to bring a unique job posting to their attention.

-- Job information of interest to a large group within the Center is often duplicated and sent to the particular lab or division where the job is applicable and there it is circulated and posted. Personal attention is given by the Outplacement Staff to individuals who seek orientation toward jobs listed by the Outplacement Office, especially those in other government agencies. Companies which have received the mini-resumes (resume briefs) frequently call the Outplacement Office for more detailed information or resumes on persons listed in the mini-resumes. The Outplacement Office, when requested, acts as liaison in setting up personal interviews between these persons and the companies.

-- A comprehensive list of Federal agencies from all regions of the country is kept in the Outplacement Office for the use of employees who wish to make "cold calls" to explore vacancies which may occur.

-- In March, ERC had representatives of its outplacement service at the I.E.E.E. meeting in New York. As a result, 16 new contacts with companies were made.

-- Interface with NASA Headquarters in connection with the NASA-wide Outplacement Program (Stopper Lists) and with the CSC for the Displaced Career Employee Program.

In addition, much time is consumed providing personal consultation and assistance to employees in their quest for jobs. In addition to individual sessions, members of the Outplacement Team participated in meetings with various organizational groups to provide overall advice and assistance on all personnel matters that were of concern to those in attendance.

Attachment 5

Personnel - Report by Robert Rollins

ATTACHMENT 5

CLOSING OF THE NASA ELECTRONICS RESEARCH CENTER
A STUDY OF THE REALLOCATION OF SPACE PROGRAM TALENT

by

ROBERT HARVEY ROLLINS II

B.S., University of Illinois
(1957)

M.S., University of Illinois
(1958)

SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE

DEGREE OF MASTER OF

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MASSACHUSETTS INSTITUTE OF

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Signature of Author.....
Alfred P. Sloan School of Management, May 21, 1970

Certified by.....
Thesis Supervisor

Accepted by.....
Chairman, Departmental Committee on Graduate Students

ABSTRACT

CLOSING OF THE NASA ELECTRONICS RESEARCH CENTER A STUDY OF THE REALLOCATION OF SPACE PROGRAM TALENT

ROBERT HARVEY ROLLINS II

Submitted to the Alfred P. Sloan School of Management on May 21, 1970, in partial fulfillment of the requirements for the degree of Master of Science in Management.

Four-hundred and thirty-six scientists and engineers employed by the Electronics Research Center of the National Aeronautics and Space Administration were displaced by the closing of the Center, located in Cambridge, Massachusetts, on July 1, 1970. The attitudes and behavior of these aerospace professionals were studied during a period of four months, during which time they were actively searching for new employment and the Center was being reestablished with a new role in the transportation field.

Management of the Center provided a wide range of services to aid the employees in their job search. These services, which assisted employees in making contacts with employers outside as well as inside the federal government, are discussed and evaluated for the benefit of other organizations involved in a layoff of high-technology personnel. A technique for rapid distribution of employee characteristics which is also useful for job market survey is described.

Profiles of the employees educational, job classification, salary and age characteristics are supplied and these characteristics are used to compare employment success. Fields of education and specialization in which employment difficulties were found are delineated. The impact of age, experience, salary and degree attainment on employment success are evaluated.

A brief description is given of the successor organization, the Transportation Systems Center of the United States Department of Transportation, and of the employees absorbed by that establishment. Comparisons are made of the two-hundred and ten professional employees offered employment in the new Center and the employees who had found other employment or were still looking at the end of the study.

Thesis Supervisor: Donald G. Marquis

Title: Professor of Management

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CHAPTER I

INTRODUCTION

On December 29, 1969, the Administrator of the National Aeronautics and Space Administration, Dr. Thomas O. Paine, visited the NASA Electronics Research Center in Cambridge, Massachusetts. Dr. Paine met with the employees of the Center to announce that, because of changes in NASA priorities, the Center was to be closed.[1] The meeting was held in the newly-occupied Auditorium Building, the first of a complex of new facilities being constructed for the Center which was ready for use.

On January 8, 1970, the employees of the Center, numbering approximately 900, were notified that they would be separated from service with the National Aeronautics and Space Administration at the close of business on June 30, 1970, the date set for closing of the Center.[2] The notice of reduction in force indicated that if any of the functions of the Center were transferred to another NASA activity or any other federal agency, employees identified with such transferred functions would be offered an opportunity to accompany the function.

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[1]Robert Creamer, "NASA Center to Close in '70", Boston Herald Traveler, December 30, 1969, p. 1.

[2]James C. Elms, Director, Electronics Research Center, "Reduction in Force Notice", letter to employees, January 8, 1970.

This study was proposed to provide information on a topic of current interest; the reallocation of scientific and engineering personnel as they are displaced from government-supported aerospace programs. Almost one-half of the employees, 436 in number, were classified as scientists and engineers, and it is this group which provided the data upon which this study is based.

The object of the study is to determine the impact of the closing on the individual aerospace professional. The adaptability of employees in various job classification categories and with a wide range of educational and experience levels to find employment in and out of the aerospace field was of primary interest. Fulfillment of the desires of the employees regarding geographical location, employment field, and income maintenance were also of interest. Finally, the techniques used, and the employees ratings of these techniques, in the search for new positions were surveyed to provide guidance for others in similar situations.

Because the closing was announced during a period when public support of aerospace goals was declining, it was believed that a study of this nature would provide information on the adaptability of professionals in that field to transfer their skills into new areas. The NASA has long held that much of the aerospace technology developed in its programs is adaptable to other fields. If that hypothesis is true, the employees involved in the production of advances

in the state-of-art should be in demand in other fields. The more basic research conducted as a prelude to application in aerospace programs should have even more general adaptability to a number of fields, thus it was assumed that the scientists would have more opportunity to carry on basic work under other sponsorship than engineers involved in applications.

During the period from January 8, to May 11, 1970, the job search activities of the employees were observed through access to records of the personnel office at the Center and discussions with employees of the Center and employers holding placement interviews at the Center. Information on educational background, job description, salary, and experience was made available from records. Several questionnaires were used to determine preferences for new jobs and locations, search techniques, and other information not available from the personnel records.

One event had a major impact on the study. After a long period of speculation by employees, based on newspaper reports and rumor, the Secretary of the United States Department of Transportation, John A. Volpe, visited the Center and announced that the facility and a majority of its employees would be taken over by his organization.[3] The transfer was announced to be effective on July 1, 1970,

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[3]A. S. Plotkin, "Cambridge Center Shifting Research to Transportation", The Boston Globe, March 26, 1970, p. 1.

the day after the formal closing of the Center by the NASA. The basis for this action by the Department of Transportation (DOT) lay in the need for advanced development support of national transportation goals, the availability of the Center, and the applicability of some of the work being conducted to transportation programs. Almost one-half of the professional employees being studied were invited to apply for transfer to the new organization.

CHAPTER II

STUDY METHODS

The location of the Electronics Research Center (ERC) near the campus of the Massachusetts Institute of Technology made it possible to observe first-hand the activity described in this study. With the full cooperation of the Center's personnel office, the author was provided with office space, clerical assistance, and access to records.

The first survey of employee attitudes was made through a questionnaire distributed to every eigth person on an alphabetical employment roster effective December 31, 1969. The questionnaire is exhibited in Appendix A. Distribution was made on January 22, 1970, and the return percentage was approximately 30 percent. Analysis of the returns is made in Chapter VI.

On January 6, 1970, the Personnel Officer had distributed a memorandum to all employees announcing the institution of an outplacement program.[4] Employees desiring to participate were requested to submit an "Interest and Experience Statement", or short resume, on the form reproduced in Appendix B. This statement, which was eventually submitted by over 70 percent of the employees, indicated their geographical preference, preference for non-federal

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[4] John P. McLaughlin, "Job Placement Program", ERC Announcement 70-77, January 6, 1970.

or federal employment, and through its submission, indicated that the employee was actively searching for employment through the auspices of the Center-sponsored placement activity. Discussion of the use of information supplied on this statement is found in Chapters V and VI.

A number of organizations expressed interest in hiring the employees to be displaced by the Center closing. An information center was established in the personnel office to handle these inputs. In addition, other organizations were solicited regarding employment opportunities. An interview center was opened to allow interested employers the opportunity to talk with ERC employees at the Center. Complete records were kept so as to identify the organizations holding interviews, and number of employees interviewed. At a later date, the interviewing organizations were queried by mail to determine the results of their meetings. This activity is discussed in Chapter V.

All information regarding employment interviews at ERC was published and distributed to employees. The information was catagorized as being applicable to individuals with: 1) clerical, 2) administrative, or 3) technical backgrounds. The name, location, and contact individual for each organization was listed with brief descriptions of the existing vacancies. More detailed information was held available for reference in the information center. All opportunities were listed, regardless of plans for on-site interviews, and the

employees were encouraged to contact organizations directly. Employers who did not conduct on-site interviews were later contacted regarding the results of the listings and these results are discussed in Chapter V.

The activities of employees who did not file "Interest and Experience Statements" and/or who did not interview at the interview center were surveyed by another questionnaire. (Appendix C) This information indicated the interviewing frequencies both inside and outside of the Center as well as offers received, mail solicitation by employees, and comments on the placement program. Discussion of this data may be found in Chapters V and VI.

A final questionnaire was prepared and given to each employee as part of his clearance procedure as he separated from the Center. (Appendix D) Information regarding job selection, search technique, and employee attitude is discussed in Chapter VI.

Finally, the author spent a great deal of time at the Center in discussions with the employees and in preparation of statistical information included in this study and used by the Center in managing the outplacement activities.

CHAPTER III

THE ELECTRONICS RESEARCH CENTER

During the earliest years of the space program, from 1957 through 1960, there was a growing recognition that electronics capability was one of the major pacing items in the development of the sophisticated systems being planned. In 1961, the Office of Electronics and Control was created in the NASA and assigned the task of coordinating and strengthening the electronics research being carried out. A study of the NASA's electronics capability reached the conclusions that: 1) space needs required increased attention by electronics research organizations throughout the nation, and 2) greater electronics research capability and competence was required within the NASA.

Four alternatives to provide space electronics capability were investigated: 1) more research at existing NASA Centers, 2) concentration of research at one of the existing Centers with major expansion at that site, 3) increased effort at non-NASA installations, and 4) a new Research Center for Electronics. The fourth alternative was selected and, in the budget submitted to the Congress in January 1963, a request for $5,000,000 was made to enable construction of a NASA Electronics Research Center in the Boston area.

Legislation was passed authorizing the establishment of the Center conditional to transmittal to the Congress a study

in detail the geographic location of, the need for, and the nature of, the proposed Center. A report of the study was transmitted to the Congress on January 31, 1964, and provides the basis for comparison of original planning and actual growth of the Center.[5] The Center was officially established in Cambridge on September 1, 1964.

Projected and actual buildup of personnel is compared in Table 1. Funding plans and actual expenditures for facilities are also shown. It is obvious that the Center had sufferred from a stunted growth pattern long before the decision to close was made.

TABLE 1

BUILDUP OF PERSONNEL AND FACILITIES, 1964-1969

Fiscal Year (ends June 30)		1964	1965	1966	1967	1968	1969
Personnel (Number)	Planned	50	250	550	1000	1600	2100
	Actual	33	238	555	791	950	893
Facilities (Millions of Dollars)	Planned	$ 5.0	10.0	19.6	13.9	8.5	-0-
	Actual	$ 2.8	10.5	5.3	7.5	-0-	-0-

The original plans called for about one-third of the staff to be professional scientists and engineers, supported by technical personnel amounting to 43% of the complement,

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5"Electronics Research Center, Report of the National Aeronautics and Space Administration", Committee Print, House Committee on Science and Astronautics, U. S. Govt. Printing Office, Washington, D. C., January 31, 1964.

and administrative and general support of 24%. The actual percentages as of December 31, 1969, were 50% professional, 14% technical support, and 36% other support. These figures are close to those proposed for the earlier years of Center growth and reflect the reduced size of the facility in which most of the technical support personnel would have been employed.

Plans for the professional staff called for 54% to be in the fields of Electrical and Electronic Engineering, 32% in Physical and Classical Sciences, and 14% in other fields. Final figures showed only 27% with Elgctrical and Electronic Engineering degrees, and 47% having degrees in the Sciences, while 26% had degrees in other areas of engineering and in the arts. Advanced degree holders comprised 65% of the staff at closing, a very large increase over the 26% originally anticipated as desirable. These data indicate that considerable changes in the research needs of the NASA occurred as the Center evolved.

The early organization of the Center was horizontal, with ten laboratories, each covering a discipline in electronics.[6] These laboratories each had responsibility for developing ideas and putting them into practice, but had tended to concentrate on the former, which led to the high concentration of scientists. In 1968, the Center was reorganized

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[6] James K. Glassman, "What's at Stake if NASA is Cut", Boston Herald Traveler, December 28, 1969, Sec 1, p. 39.

into three technical directorates which progressed from basic to applied research with some development. (Figure 1) Evidently, during the earlier growth of the Center the bias toward scientific personnel was even stronger, as most of the scientists were assigned to the largest of the directorates, Research.

Table 2 provides a profile of employees by job classification. Of the 436 scientists and engineers on the staff, 418 were classified in the Aerospace Technology field and 18 in supporting areas. Within these classifications, there was a further breakdown into 47 aerospace and 7 supporting areas, the support categories shown at the end on the table. These classifications are provided as they are more descriptive of the work performed than information on educational field.

Distributions of the staff within the organizational divisions by salary, age, education, and experience are provided in Tables 3 through 5. The average age of the professional was 38.1 years, average salary $18,165, and average experience (years since first degree) was 15.1 years. The oldest of the four operating organizations, in terms of both age and experience, was the Administration Directorate, with 67% of the professionals over the average age and experience levels. The youngest organization was the Technical Programs Directorate, with only 36 and 29 percent over the age and experience averages. In terms of salary, the most professional

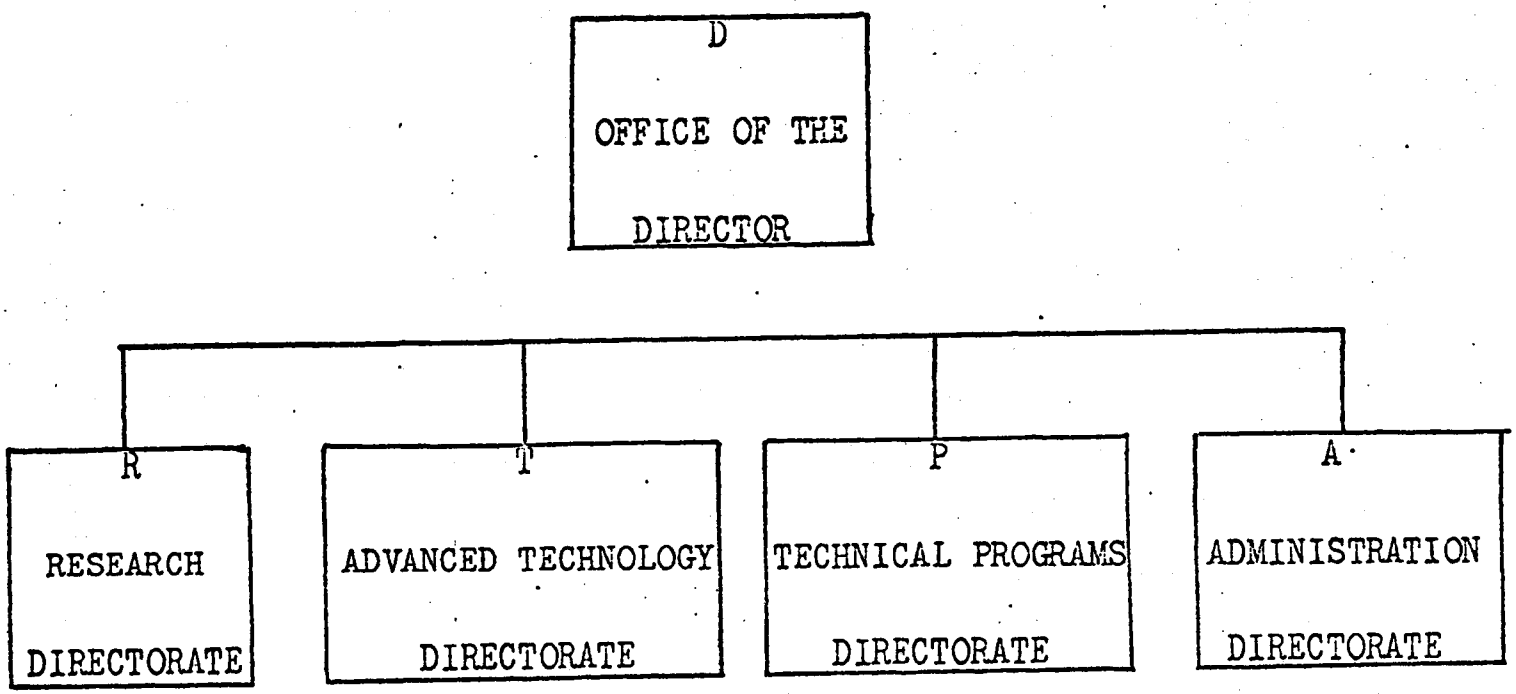

Figure 1. ORGANIZATION OF THE ELECTRONICS RESEARCH CENTER

TABLE 2

CLASSIFICATION OF ERC SCIENTISTS AND ENGINEERS

TITLE	NUMBER OF EMPLOYEES	HIGH SALARY*	LOW SALARY*
Flight Systems	4	27	24
Space Sciences	6	23	15
Aeronomy	1	16	
Ionospheres	1	15	
Fields and Particles	1	21	
Meteoroid Studies	2	16	15
Solar Studies	1	28	
Physiological Studies	4	19	13
Human Performance Studies	2	20	18
Manned Systems Engineering	1	17	
Fluid & Flight Mechanics	2	15	9
Flight Mechanics	6	23	13
Control & Guidance Systems	47	29	11
Magnetofluidynamics	1	17	
Basic Properties of Gases	2	23	19
Materials & Structures	2	24	9
Basic Properties of Materials	55	28	11
Aerospace Polymers	1	23	
Electrical Propulsion & Power	2	19	19
Direct Energy Conversion	8	27	14
Flight Systems	3	25	24
Reliability	4	24	15
Flight Systems Test	1	17	
Quality Assurance	2	20	17
Electrical Systems	8	22	11
Measurement & Instrumentation	47	32	9
Measurement & Inst. Systems	6	19	15
Space Optics	33	26	12
Measurement Standards & Calibration	1	16	
Control Systems	17	30	13
Tracking & Telemetry Systems	7	22	11
Electronics Engineer	8	20	14
Telemetry Systems	1	14	
Telecommunications	2	19	13
Electronics of Materials	11	24	11
Microwave Physics Electronics	23	29	13
Data Systems	36	28	9
Data Analysis	14	22	11
Theoretical Simulation Technology	6	20	13
Data Equipment	11	22	11
Experimental Facilities & Equip.	7	27	17
Experimental Tooling & Equipment	6	20	12

(Table continued on following page)

TABLE 2 (Continued)

CLASSIFICATION OF ERC SCIENTISTS AND ENGINEERS

TITLE	NUMBER OF EMPLOYEES	HIGH SALARY*	LOW SALARY*
Director	1	33	
Project Manager	3	24	20
Technical Management	10	23	14
Technology Utilization	1	21	
General Engineer	1	18	
Safety Engineer	1	16	
Architect	2	18	18
Civil Engineer	4	18	15
Mechanical Engineer	7	21	12
Electrical Engineer	2	18	15
Industrial Engineer	1	17	

*Salary in thousands of dollars

TABLE 3

SALARIES OF ERC SCIENTISTS AND ENGINEERS

ORGANIZATIONAL DIVISION	A	D	P	R	T	ALL
Less than $10,000	-	-	3	1	4	8
$10,000 to 12,000	1	-	2	8	8	19
12,000 to 14,000	4	-	11	12	9	36
14,000 to 16,000	7	-	11	12	20	50
16,000 to 18,000	10	-	27	42	29	108
18,000 to 20,000	9	-	11	17	17	54
20,000 to 22,000	4	1	12	31	17	65
22,000 to 24,000	6	-	7	17	14	44
24,000 to 26,000	1	2	8	14	6	31
More than 26,000	1	2	1	11	6	21

TABLE 4

AGE AND EDUCATION OF SCIENTISTS AND ENGINEERS EMPLOYED AT THE ELECTRONICS RESEARCH CENTER

Organizational Division	A	D	P	R	T	All
Age, in years						
20 - 25	-	-	4	6	11	21
25 - 30	5	-	18	22	18	63
30 - 35	4	-	21	32	18	75
35 - 40	6	1	20	38	29	94
40 - 45	11	1	18	19	20	69
45 - 50	7	-	9	28	15	59
50 - 55	7	1	2	12	10	32
55 - 60	2	-	1	6	8	17
60 - 65	-	1	-	2	-	3
Over 65	1	1	-	-	-	2
Education						
Science	10	3	27	109	65	214
Engineering	25	2	64	54	60	205
Other	8	-	2	2	5	17
Bachelor's Degree	27	1	36	29	52	145
Master's Degree	13	3	48	50	41	155
Doctor's Degree	-	1	8	86	37	132
No Degree	3	-	1	-	-	4
Total Employees in Division	43	5	93	165	130	436

TABLE 5

EXPERIENCE OF SCIENTISTS AND ENGINEERS EMPLOYED AT THE ELECTRONICS RESEARCH CENTER

Organizational Division	A	D	P	R	T	All
Years since Bachelor's Degree						
0 - 5	1	-	9	10	15	35
5 - 10	7	-	23	26	26	82
10 - 15	6	-	30	40	25	101
15 - 20	10	1	15	36	26	88
20 - 25	11	1	10	22	19	63
Over 25	5	3	5	31	19	63
Years of Federal Service						
0 - 3	1	-	15	15	27	58
0 - 5	6	2	39	78	54	169
5 - 10	10	2	34	60	57	163
10 - 15	12	1	13	15	11	52
15 - 20	6	-	5	4	7	22
20 - 25	5	-	1	7	-	13
Over 25	4	-	1	1	1	7
Years of NASA Service						
0 - 5	25	2	70	113	98	308
5 - 10	17	3	20	49	32	121
Over 10	1	-	3	3	-	7

organization, the Research Directorate, enjoyed first place, while the Administrative Directorate was lowest, with only 32 percent of its employees receiving more than the average wage.

The official announcement that the Center was to close was made to the employees on December 29, 1969. Dr. Paine said, "We are being forced to close. . . . We find that we must effect reductions and consolidations across the board if we are to reshape our programs to meet the nation's future needs in aeronautics and space. . . . We are simply faced with the fact that NASA cannot afford to invest broadly in electronics research as we have in the past. . . ."[7, 8] Dr. Paine also noted that efforts would be made to find some other government use for the Center.

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[7]Electronics Research Center News Release 69-26, December 29, 1969.

[8]Creamer, p. 4.

CHAPTER IV

PERSONNEL POLICIES

The official policy regarding layoffs of federal civil service employees is known as "Reduction in Force".[9] Under this policy, the employee has a number of rights. In the case where an installation is being reduced in strength, but not closed, there are procedures which take into account seniority, prior military service, area of work or specialty, and other considerations. In the case of the Electronics Research Center, where no employees were to be retained, certain rights to employment elsewhere in NASA and other federal agencies exist.

Separated employees may register for preferential treatment in the filling of vacancies at other NASA facilities. If openings exist in the employee's classification elsewhere in NASA, he must be given preference over other non-NASA applicants. The employee must register for this consideration and is given preference for up to six months from the date of registration. This register is called the "Stopper List".

Employees may also register for preferential consideration by other agencies through the "Displaced Career Employee" program of the Civil Service Commission.

9"Adjustment of the Workforce", NASA Handbook 3250.2, Washington, D. C., November 1967 (with posted changes)

The minimum notice of separation possible under civil service regulations is thirty days; the maximum, ninety days. To allow employees additional time to avail themselves of Reduction in Force benefits, an exception to the ninety-day limit was made so that notice of separation could be issued on January 9, 1970, rather than April 1.

Severance payments are made to all employees not transferred to other federal positions or eligible for retirement annuities. These payments are made on the basis of length of service and age. One week's pay for each year of service up to ten years, and two week's pay for each year over ten years are given as the basic allowance. For each year the employee is over forty years of age, the basic allowance is increased by five percent. Payments are made at the employee rate of pay in effect at separation at regular pay periods until the allowance is depleted, regardless of employment status unless another federal job is taken. The maximum allowance is one year's pay.

Employees are also eligible for payment for unused vacation at separation and for refunds of their contribution to the federal retirement plan (if desired, funds may be left in the retirement plan and will pay an annuity at a later date)

Under the provisions of the NASA procedures, any employee with five years of civilian federal service is eligible for immediate retirement if he: 1) is age 62 or older,

2) is age 50 or older and has at least 20 years of service, 3) has a total of 25 years of service, including Military service, with no age restriction, or 4) is totally disabled.

Of the 436 professional employees under study, 223 registered for the "Stopper List" within NASA. Only 103 registered for the preferential treatment available through the Civil Service Commission, perhaps because very few employees had long civil service experience records (Table 5) and a number of other federal layoffs were in progress in the local area. Three employees had decided to retire, and only four more were eligible amongst the group that was still looking for employment at the end of the study.

In addition to the regularly proscribed placement preference programs discussed above, the Center personnel office undertook to provide the employees with direct assistance in securing employment outside the federal government. These efforts are described in the following Chapter.

CHAPTER V

THE ERC OUTPLACEMENT PROGRAM

Center employees were invited to participate in an outplacement program sponsored by the Personnel Office. On January 6, 1970, the employees were provided with the "Interest and Experience Statement" exhibited in Appendix B, and were informed of the procedures to be followed in the program.[10] The Personnel Office was to serve as a clearing house for job information in all fields. The statements submitted by employees were filed in an information center for perusal by interested employees. Later in the program, the statements were used to prepare condensed employee descriptions, called "mini-resumes", which were mailed to interested employers. Response to the program was enthusiastic, with thirty percent of the employees submitting statements in the first two weeks. Within a month, over half of the Center's employees had submitted, and a final count showed over seventy percent of the initial group of employees had filed. The professionals under study, as a group, were less active than other employees in their participation, with a final filing percentage of sixty-two percent.

In addition to maintaining information on employee interests and experience, the information center compiled lists

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[10] McLaughlin, ERC Announcement 70-77

of prospective employers with existing vacancies. This effort was initiated in response to the influx of inquiries from a large number of organizations regarding the availability of ERC employees. It grew into a listing service, which published four periodically updated lists of employment opportunities classified as: 1) clerical, 2) administrative, 3) technical, and 4) employment agencies. In the technical area, which included opportunities for non-degree technicians as well as scientists and engineers, the list eventually grew to include over 300 employers.[11] A sample page from the technical list is shown as Appendix E. These lists were distributed and posted on bulletin boards and employees were counseled to make direct contact with the employers listed. No absolute count of employee contacts made through the listings was possible, but most employees indicated that they had been used to provide telephone numbers, names, and addresses for direct, telephone and mail contacts.

Prospective employers were requested to provide more detailed information about vacancies than what was included on the published lists. This information was kept on file in the information center for review by employees. The majority of initial contacts by the information center staff were made by telephone to insure currency of information listed, using the form shown in Appendix F for recording

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[11] Francis H. Huron, "Revised listing of technical positions", ERC Memorandum, February 5, 1970. (with additions)

initial contact data. After the early influx of outside interest in employee availability had died down, the staff began to solicit employers in the local area and large organizations in the electronics field on a nation-wide basis. ERC employees were also requested to provide information to the staff on known vacancies for use by other employees.

In addition to the information center operation discussed above, an interview center was also established. As prospective employers made contact or were contacted, they were invited to schedule a period during which interested ERC employees could meet them and discuss employment. A suite of offices in one of the new buildings was used for that purpose, and provided many of the employees with their first opportunity to visit that new facility. Over 70 employers took advantage of the invitations and over 1100 interviews were held during the spring. The professional staff under study provided the majority of the interviewees, and 720 interviews were included in the data for this analysis. Of the 436 professionals, 244 participated in the interview program. The scheduled interviews were somewhat sensitive to salary range, with 62% of the employees in the less-than-$22,000 range participating, and only 35% of the higher paid employees contacting employers by this method.

The true value of the interview program is difficult to assess because of the number of employees who had received offers as a result of interviews but had not made employment

decisions during the period of the study. Employers who held interviews indicated that approximately 50 offers were made, while employees separating indicated only a fraction of that number, indicating that a number of offers were still outstanding.

The preparation of "mini-resumes" was mentioned previously. These short, one-paragraph employee descriptions were listed in the same three categories as the lists of employment opportunities. The lists were then mailed to organizations interested in hiring for positions in those areas. This effort resulted in requests for further information about 179 of the 271 employees who had filed for that type of assistance. A total of 393 requests were handled for the professional employees. These results only reflect the contacts made through the information center; employers were also informed that they could reach employees directly by mail and through the Center switchboard by telephone. As these requests were passed on to the employees for personal follow-up, tangible results of the procedure were only available if employees volunteered the information. The demand for further information is compared by job specialty and degree field in Chapter VIII.

The employees that had not filed interes statements were surveyed to encourage participation and determine what search techniques they were using. The same survey form (Appendix C) was used to question employees not participating

in the interview program. Results of these surveys are discussed in the next Chapter.

Members of the outplacement staff held counseling sessions with the majority of the Center staff. A typical meeting would be held in the employee's work area with from fifteen to thirty employees at a time. Short descriptions of the services available were given, and questions answered on all placement and separation procedures.

The final step in the placement program was a survey of employees made as they separated. Results of the survey were used to evaluate the programs and to provide suggestions to those employees still seeking employment.

CHAPTER VI

THE SEARCH FOR A JOB

The reaction of one employee to the December 29th meetin was immediate. He immediately went to the Personnel Office, located in the same building, and tendered his resignation, effective that afternoon. Most employees were not so well prepared for the announcement of closing and attrition grew slowly. At the end of the period under study, only 99 of the 436 professionals under study had been separated or had announced decisions regarding separations. Formal offers to join the staff of the new DOT organization taking over the facility had not been issued, but 211 of the employees had just received invitations to apply. Many of the 126 remaining employees had been delaying decisions pending these invitations from the DOT and it was expected that the decision rate would climb almost immediately. Because many employees had feared that offering information regarding job offers might impact their opportunities with the new organization, no attempt had been made to overtly gather this information. The majority of the discussion in this Chapter is based on data from job search activities and from those employees who had announced employment decisions prior to May 11, 1970.

Several investigatory areas will be discussed. The original survey questionnaire used in January to establish

employee preferences, and preference information from the resumes filed for the placement program are tabulated. Public and private interviewing and other methods used by employees to locate new employment will be surveyed. Finally, the results of exit interviews will be discussed.

The initial survey of employees was made by the questionnaire exhibited in Appendix A. This form was sent to over one hundred employees; thirty-five returns were received. Because of the length of the questionnaire and the poor response by employees, it was decided to gather most of the information desired from the employees as they left the Center. A second questionnaire (Appendix D) was used during the separation process and is discussed later in this chapter.

The first several questions in the initial questionnaire were designed to rate job search techniques. Table 6 shows the response from questions three through seven. The almost overwhelming preference for use of professional associates and friends is evident. This preference has also been noted in other studies of technical placement activity.[12] The high rating given the ERC listing service was thought to[13]

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[12] Leslie Fishman and others, "Reemployment Experiences of Defense Workers: A Statistical Analysis", U. S. Arms Control and Dev. Agency, ACDA/E-113, USGPO, December, 1968, pp. 24-27.

[13] Felician F. Foltman, "White and Blue Collars in a Mill Shutdown", ILR Paperback No. 6, Cornell University, April, 1968.

TABLE 6

RANKING OF JOB SEARCH TECHNIQUES - INITIAL QUESTIONNAIRE

Technique	Effectiveness Rating Best 1	2	3	4	5	Worst 6	Weighted Average	Rank	Techniques Used to Search Next Position	Present Position	Previous Position
Family	1	-	-	-	-	5	5.16	7	--	--	--
Friends	6	6	2	-	1	3	2.61	2	21	6	7
Professional Associates	15	3	6	-	-	-	1.61	1	25	18	13
Newspaper Advertisement	-	2	3	1	3	4	4.31	6	14	1	6
Magazine Advertisement	-	2	-	3	5	-	4.10	5	6	--	1
ERC Listing	3	9	5	-	-	4	2.86	3	23	--	--
Employment Agencies	3	3	5	1	1	3	3.00	4	10	1	4
Radio Commercial	-	-	-	2	3	4	5.22	8	--	--	--

and that was for a three-year phaseout of another federal installation. All respondents were given time off for interviewing, but only one-third had had the benefit of in-plant interviews. Most of the respondents were given some severence pay and were paid for unused vacation.

The "Interest and Experience Statement" data on employee preferences is shown in Table 8. As stated before, only 62 percent of the professional employees submitted these resumes and thus showed less interest in the placement program than the average employee. With over 70% of the total Center complement completing these statements, it must be assumed that the professionals thought that the program had less to offer to them. The low submission percentage from the personnel of the Administration Directorate may have been due to the fact that this group was oriented more to the general support of the Center than to its technical mission and felt that employers would be looking for the technical specialties that gave the Center its name.

The high percentage of submissions from the Research group probably reflected the feeling that the association with the Center would be a good drawing card in their search for employment. Research employees also faced the highest probability of displacement because their specialties were less directly applicable to some of the plans under discussion for utilization of the Center's facilities.

reflect a desire of the employees to use the placement services provided by the Personnel Office and helped to support the expansion of that activity. At the time the initial questionnaire was distributed, only a few employees had been successful in finding new positions and it was believed that more valid responses regarding search techniques would be made upon successful completion of the search. A comparison of the results of the initial survey with the results of the separation questionnaire will be found later in this Chapter.

Response to Question 8 showed a majority of employees desiring to remain in the service of the federal government, with 68% responding in that area, more than half of that number indicating a desire to remain with the NASA. Most of the other responses indicated a preference for industrial positions, with electronics leading aerospace by a 20% margin. Education received as many responses as Aerospace industry, and, not surprisingly, there were no indications of a desire for military service.

A slight preference was shown for remaining in the aerospace field, with 45% desiring to stay, 35% desiring to leave, and 20% with no preference. Most of those desiring to stay in the field listed their interest or experience in aerospace, while those desiring to leave indicated that the lack of stability or the existance of higher priorities in other area was the motivating factor in their preference.

In their response to Question 10, employees showed a sensitivity to the shifting emphasis in public demands on the federal government. Over one-third of the responses were in the environmental area, including such fields as air and water pollution, environmental control, oceanography, and earth resources. A slightly smaller response was elicited for programs in the transportation area. Only three responses were tallied for the Department of Defense, surprising because of the closely related technical activity conducted in that Department.

Electronics and computers led the response to Question 11. Several listed aerospace and manufacturing, and one respondent desired a position as a stock broker. Most of the responses to the education question were in the teaching area, in college or vocational school.

Table 7 lists percentages for the yes and no questions beginning with number 13. It is evident that the respondents had a higher participation and interest in the ERC placement programs than the average, because even early in the program they had exceeded the participation averages existing at the end of the study.

Twenty percent of the respondents had lost previous jobs because of layoffs; almost half of them had been federal employees at the time. Only one response to the layoff question gave a notice period in excess of the six months

TABLE 7

RESPONSES TO INITIAL OUTPLACEMENT SURVEY

QUESTION	PERCENTAGE RESPONSE YES	NO
13. Do you have access to:		
a. ERC lists of interested employers?	97	3
b. ERC interview schedules?	100	0
c. ERC NEWS special editions?	100	0
d. Adequate employment information?	82	18
14. Do you know where the Personnel Office is?	97	3
15. Do you know where the Interview Center is?	80	20
16. Have you prepared your own resume?	87	13
17. Have you submitted an Interest and Experience Statement?	81	19
18. Have you submitted a NASA Outplacement Application?	61	39
19. Is your Personal Qualification Statement updated for application to federal jobs?	63	37
20. Do you prefer to:		
a. Remain in this commuting area?	73	
b. Remain in Massachusetts?	12	
c. Remain in New England?	9	
d. Move (outside of New England)	6	
21. Have you lost a previous job because of a general layoff?	19	81
37. Do you own your home?	63	37
38. Do you have a college or university degree?	80	20

TABLE 8

INTEREST AND EXPERIENCE STATEMENT SUBMISSIONS AND PREFERENCES

Response	Organizational Directorate A	D	P	R	T	Degree Science	Engin.	Other	Totals All	%
Number of Employees	43	5	93	165	130	214	206	16	436	-
Statements Submitted	20	2	57	119	73	143	120	8	271	-
Percent Submitting	47	40	61	72	62	67	58	50	62	
Type of Employment										
Federal Only	6	-	3	4	4	7	7	3	17	9
Federal Preferred	3	-	4	18	13	21	16	1	38	21
Total, Federal	9	-	7	22	17	28	23	4	55	30
Any Employment	17	2	52	118	79	145	117	6	168	91
Geography										
Boston Area Only	9	-	6	18	10	24	18	1	43	16
Boston Preferred	5	1	24	38	18	40	43	3	86	31
Total, Boston	14	1	30	56	28	64	61	4	129	47
New England Only	2	-	2	5	6	6	7	2	15	5
New England Preferred	2	1	7	10	11	20	11	-	31	11
Total, New England	4	1	9	15	17	26	18	2	46	16
Any Location	10	2	41	103	63	119	93	7	219	79

Employees were more loyal to their geographic situation than to their employer. Almost twice as many employees preferred jobs in the New England area as did upon jobs with the federal government. Both federal employment and local geographic preference were highest among the employees in Administration, reflecting the age and experience levels of these employees shown in Tables 4 and 5. Thesehigh levels may also have impacted the total submissions from this group, with employees preferring to conduct their own search on familiar ground.

The most professional organization, the Research Directorate, showed the least loyalty to geography, indicating that their specialization might require them to relocate, or, perhaps, that a job in their specialty was more important than its location. The researchers were also low in employer loyalty, only being exceeded by the Technical Programs organization which had a lower average of federal and NASA service.

Fifty-six percent of the professional employees were interviewed at the interview center set up by the Personnel Office. Data indicating the number of interviews per employee is shown in Table 9. Between 21 and 24 percent of the total had only one interview, with almost no trend evident by organization. The Advanced Technology group (T) fared somewhat better on an overall basis, with 60 percent of the group having at least one interview and a slightly higher

TABLE 9

NUMBER OF INTERVIEWS PER PROFESSIONAL IN THE FIVE ERC ORGANIZATIONS

Number of Interviews	Number and Percentage of Employees by Organization											
	# A	%	# D	%	# P	%	# R	%	# T	%	# All	%
1	10	23	-	-	22	24	37	22	27	21	96	22
2	5	12	-	-	10	11	21	13	20	16	56	13
3	1	2	1	20	4	4	14	8	8	6	28	6
4	2	5	-	-	5	5	6	4	8	6	21	5
5	-	-	-	-	2	2	3	2	3	2	8	2
6	1	2	-	-	3	3	6	4	2	2	12	3
7	1	2	-	-	-	-	-	-	3	2	4	1
8	-	-	-	-	1	1	-	-	1	1	2	-
9	1	2	-	-	1	1	1	1	3	2	6	1
10	1	2	-	-	2	2	-	-	1	1	4	1
More than 10	1	2	-	-	1	1	3	2	2	2	7	2
None	20	47	4	80	42	45	74	45	52	40	192	44
Total Interviews	74		3		150		255		238		720	
Interviews/Employee	1.72		1.33		1.61		1.55		1.76		1.65	

average number of interviews per employee. This slight trend may indicate a better job market for employees in the "T" group, but it is far from conclusive. Taken together with the interest expressed in Table 8, the trend indicates some disparity in favor of the "T" organization compared with the "R" group.

A more definite trend is observed when interview frequency is compared with salary. Table 10 shows peak activity at the $20,000 level with a sharp reduction above $24,000. This trend indicates either a dearth of opportunity for the higher-paid employees or a position related hesitancy of senior employees to apply for normal interviews. The latter is suspected to a certain extent, as a number of the senior personnel were observed to meet with the interviewers outside of the interview center. Age, related to salary, was probably a factor in the drop-out of senior people, although the second-highest average number of interviews was in the oldest organization (A). It should be noted that that group had the highest number of employees not interviewing at all, perhaps related to age and salary.

During the period of the study, questionnaires (Appendix C) were sent to employees who had not filed resumes or attended interviews at the Center. The questionnaires were meant to stimulate interest in the placement program as well as to determine what personnel placement efforts were being

TABLE 10

RELATION OF SALARY TO INTERVIEW FREQUENCY

AMONG ERC SCIENTISTS AND ENGINEERS

Salary	Number of Employees	Employees Interviewed	Percentage Interviewed	Number of Interviews	Average
$9-10,000	8	4	50	8	1.0
10-11,000	1	1	100	2	2.0
11-12,000	18	10	56	24	1.3
12-13,000	14	9	64	23	1.6
13-14,000	22	9	41	22	1.0
14-15,000	28	17	61	55	2.0
15-16,000	22	14	63	42	1.9
16-17,000	50	31	62	114	2.3
17-18,000	58	37	64	98	1.7
18-19,000	25	13	52	29	1.2
19-20,000	29	19	66	57	2.0
20-21,000	31	23	74	63	2.0
21-22,000	34	23	68	76	2.3
22-23,000	14	5	36	15	1.1
23-24,000	30	14	47	39	1.3
24-26,000	31	12	39	* 46	* 0.6
26-33,000	21	3	14	7	0.3
Totals	436	244	56	720	1.6

* One Employee had 27 Interviews, Not included in Average

made by the employees themselves, without the assistance of the placement program. Figure 2 shows the results of this survey. The employees who returned questionnaires and had resumes on file (Group 1) were arranging their own interviews at a rate of 2.84 per employee while attending ERC interviews at a very low rate of 0.72. The second group, who had not filed the Interest and Experience Statements, were arranging personal interviews at the same rate as the first group, while appearing at the interview center at an even lower frequency. Over seventy percent of these first groups indicated that they had been arranging their own interviews.

Group 3 presented a problem in analysis. Only 38 percent were participating in the placement program in any manner. It was discovered that this group included over one-third of the Center's supervisors, one-third of the employees with announced new positions, and 43 percent of the employees with salaries of $26,000 and above. These explanations for placement "drop-out" were adequate to alleviate fears that this was a group of hard-core unemployables.

The fourth group brought up the Center average for in-house interviews to the levels shown in Table 9. If it can be assumed that Groups 3 and 4 were as active as the first two groups in arranging personal interviews, the average number of interviews per professional employee would be more than twice the Table 9 values.

85 Questionnaires Returned	GROUP	1	54 Resumes on file	39 Arranged 153 Personal Interviews Interview Rate = 2.84 15 Attended 39 Interviews at ERC Intervies Rate = 0.72
	GROUP	2	31 Resumes not filed	22 Arranged 88 Personal Interviews Interview Rate = 2.84 8 Attended 18 Interviews at ERC Interview Rate = 0.58
134 Questionnaires Not Returned	GROUP	3	134 Resumes not filed	51 Attended 135 Interviews at ERC Interview Rate = 1.00
217 Not Questioned	GROUP	4	217 Resumes on file	170 Attended 536 Interviews at ERC Interview Rate = 2.48

Figure 2. Returns from Interview Questionnaire

Of the ninety-nine employees who had announced decisions at the end of the study, forty-seven had completed exit interview questionnaires (Appendix D). Table 11 presents the results of the questions on job search techniques which may be compared to data from the same questions asked early in the study. The ratings of techniques are ordered in the same prioritiy as in the first survey with the exception of assistance from family, which moved up in rank. The response to the interview program at ERC had not been included in the original questionnaire and was placed fourth in the second survey.

Almost three-fourths of the new positions were found with the help of friends and professional associates compared with expectations of less than fifty percent in the initial survey. A decline in responses is noted in all categories except the single family response. Newspaper and magazine advertisements show the greatest decline, either because of a general tightening of the job market or their replacement by the ERC services, which were somewhat more accessible. Response to the question regarding technique used to find a position at the ERC tally well with the initial responses, with a little higher weight being placed on friends. The response to this question is interesting, as appointment to civil service positions is competitive. It must be assumed that the response reflects lower formal recruiting expenditures by government.

A major change was noted in employee preference for employment in aerospace fields. Less than twenty percent of

TABLE 11

RANKING OF JOB SEARCH TECHNIQUES - FINAL QUESTIONNAIRE

Technique	EFFECTIVENESS RATING Best 1	2	3	4	5	Worst 6	Weighted Average	Rank	TECHNIQUES USED TO SEARCH New Position	ERC Position
Family	2	-	-	-	1	1	3.25	5	1	--
Friends	11	11	-	1	-	1	1.79	2	19	16
Professional Associates	17	7	6	-	-	-	1.63	1	20	15
Newspaper Advertisement	2	2	-	-	1	3	3.63	7	4	4
Magazine Advertisement	1	-	1	2	3	1	4.25	8	1	1
ERC Listing	-	5	3	2	-	-	2.70	3	3	-
ERC Interview	2	1	7	-	2	1	3.15	4	6	-
Employment Agencies	3	2	4	3	-	4	3.44	6	5	1
Radio Commercial	-	-	-	2	3	2	5.86	9	-	-

desired to remain in the field as they left the Center, compared with 45 percent earlier. 65 percent desired to leave the field, with the majority giving reasons of instability and insecurity as their reasons.

Thirty percent of the employees leaving took jobs outside of the New England Area, compared with the 79 percent that had stated that they would work anywhere in Table 8. There did not appear to be major difficulty finding jobs matching preferences to the local area from the results of these early returns. The time required to secure employment at a distance from one's home may change thes figures in the end result. Of course, all those employees retained in the new Center organization will be added to the local category.

Three-fourths of the employees thought that their new positions would be better than those they were leaving, while only 12 percent thought they would be worse. The fact that 70 percent of the respondents reported higher salaries, ranging from $100 to $4000 more than their ERC pay, probably had some impact on that judgement. Only 5 percent reported reduction in salary, but the validity of that response is in question, as many of the employees signed the questionnaire and may not have desired that information to be known by their peers at ERC.

CHAPTER VII

THE TRANSPORTATION SYSTEMS CENTER

The evolution of the Transportation Systems Center from the brightly glowing coals of the defunct space center will justify a detailed study in its own right. An attempt is made here to touch lightly on this evolution because of the impact it had on the employees of the ERC.

The great public furor over the closing of the ERC soon receded into a determined search for a new tenant for the facility under construction, with little mention of the utilization of the work force. Various local, state, and federal agencies were suggested for occupancy, with little regard for the specialized nature of the laboratories. The Department of Transportation was mentioned in press reports less than three weeks after the closing was announced.[14] The earliest ties to the new agency were the ongoing NASA projects in the area of air traffic control and navigation and guidance systems which could be considered within the realm of transportation research.

Before the end of January, The Department had appointed a committee to study the feasibility of using the Center

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[14]"NASA Cuts 50,000 Workers", Boston Herald Traveler, January 14, 1970

for a number of transportation projects.[15] Named to head the feasibility study was Undersecretary of Transportation James M. Beggs, who knew the ERC well. Less than a year earlier, Mr. Beggs had been responsible for the operation of the Center in his former position as Associate Administrator for Advanced Research and Technology with the NASA.

The report of the study group was presented to the Presidents Science Advisor, Dr. Lee DuBridge, whose advisory committee had been charged with the task of surveying all federal research and development programs for possible utilization of the facility. An affirmative report was given on the transportation proposals, and, on March 25, 1970, Secretary Volpe visited the Center and announced to the employees that a new development facility would come into being on July 1st and that he hoped that a majority of the employees could be retained.[16, 17]

The immediate reaction of the employees was very enthusiastic. Many had been delaying their search for, or acceptance of new jobs, and an aura of security settled over the Center. The organization and programs of the new transportation center were still to be established, and the number of employees to be retained was not known, but it

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[15]Drew F. Steis, "NASA Site OK'd as Transit Center", Boston Herald Traveler, January 23, 1970, p. 1.

[16]Arthur Stratton, "NASA Center, 600 Jobs Saved", Boston Herald Traveler, March 26, 1970, p. 1.

[17]A. S. Plotkin, "Cambridge Center Shifting Research to Transportation", The Boston Globe, March 26, 1970, p. 1.

was clear that a number of jobs had been "saved". It had become apparent by that time, however, that much of the advanced research conducted in the Research Directorat would not be supported by the transportation center, as the new goals lay closer to the application end of the R&D spectrum.

On May 7, 1970, the Department of Transportation mad the announcement that the new organization to be established on July 1st would have a staff of 425.[18] Letters which indicated whether or not they would be considered for employment in the new organization were mailed to all ERC employees who had not announced placement plans.

At the time of the staffing announcement, 99 of the 436 professionals under study had announced their plans. Of the remaining employees, 211 were invited to apply to the DOT for employment in the Transportation Systems Center (TSC). This left 126 professionals who would be seperated on June 30, whether or not they had found new positions.

The average annual salary of the group of employees selected for inclusion in the TSC was $17,995, or $170 less than that of the original complement of the ERC. Average age for the new organization was 37.5 years compared with the original 38.1 years. Experience was 14.5 years compared with 15.1 for the ERC professional profile.

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[18] Drew F. Steis, "186 Fired in Takeover of Cambridge NASA Site", Boston Herald Traveler, May 8, 1970,

Organizationally, the new Center will be similar to the that of the ERC, with three technical and one administrative divisions (Figure 3). The major difference is the removal of the Research Directorate in favor of a Transportation Systems Concepts Directorate. This new directorate had not been staffed at the completion of the study; thus the employees to be retained were placed in either the Systems Development Directorate, which replaced Technical Programs; or in the Technology Directorate, which had dropped the adjectival "Advanced" from its title. Table 12 shows the results of attrition upon the old organization and indicates the assignments of retained personnel to the new organization.

Over half of the employees not invited to be part of the new organization were from the research group. Those who were considered for retention were included in the technology area of the new organization with few exceptions. The large number of employees from the research organization who were not included in the new organization is a good indication the shift in emphasis toward the development areas in the transportation field. The NASA was supporting more activities in basic research fields with time horizons more distant than new transportation concepts require. A more comprehensive discussion of employees who had: 1) made job decisions, 2) been invited to join the TSC, and 3) not found new positions is included in the next chapter.

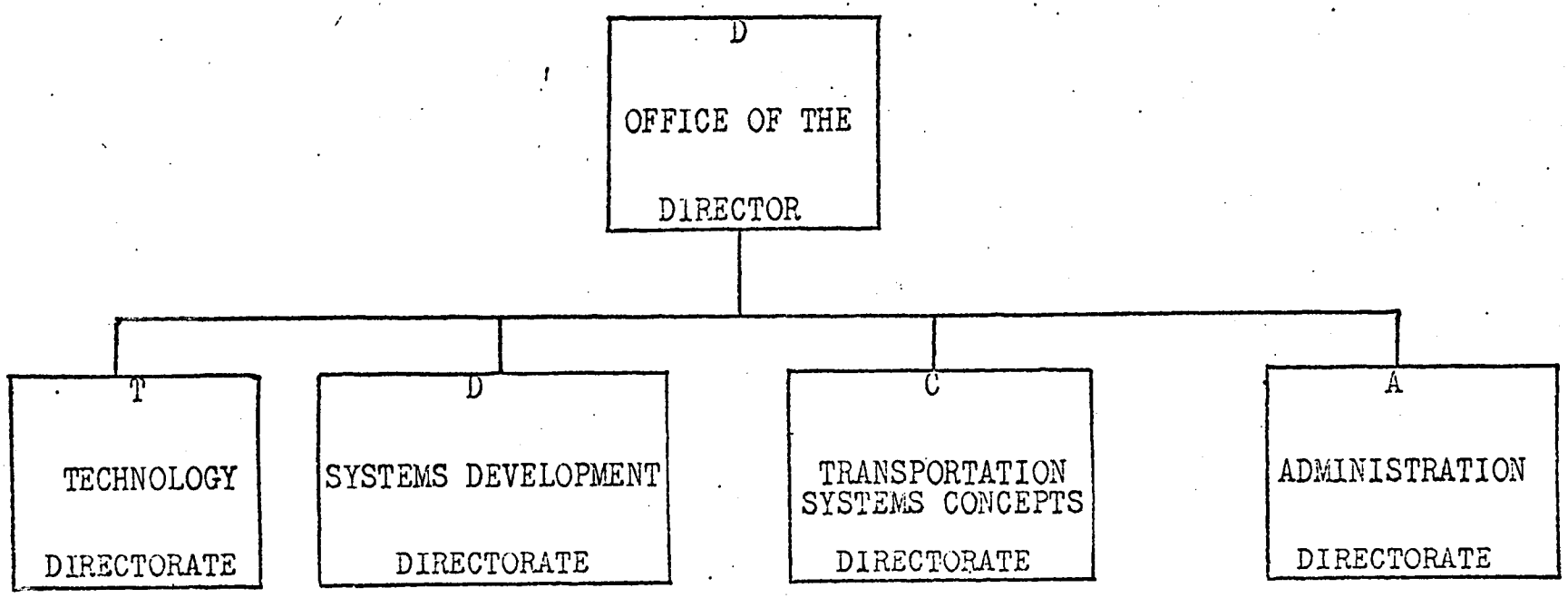

Figure 3. ORGANIZATION OF THE TRANSPORTATION SYSTEMS CENTER

TABLE 12

DISTRIBUTION OF ELECTRONICS RESEARCH CENTER PROFESSIONALS

ELECTRONICS RESEARCH CENTER DIRECTORATE	STATUS OF ELECTRONICS RESEARCH CENTER PERSONNEL							
	NUMBER OF EMPLOYEES	DECISIONS MADE	LOOKING FOR WORK	ASSIGNMENTS TO NEW ORGANIZATIONS A	C	D	S	T
A	43	14	11	18	--	--	--	--
D	5	0	4	--	--	1	--	--
P	93	15	16	--	--	--	62	--
R	165	32	67	--	2	1	4	59
T	130	38	28	--	--	--	17	47
TOTAL	436	99	126	18	2	2	83	106

CHAPTER VIII

ANALYSIS OF PLACEMENTS

Three-hundred and ten of the four-hundred and thirty-six professionals studied were considered to be placed at the end of the study period. Table 13 gives a profile of the entire complement of professionals, broken down into three groups: 1) those who had announced position decisions outside of the Transportation Systems Center, 2) those who were invited to apply for employment in the new center, and 3) those who had not found work or had not announced their decisions.

The majority of the group with decisions made were going or had gone to positions in private industry. Engineers had a definite edge in the Bachelor's Degree category, even though all but one of the scientists had advanced degrees. The employees going to other jobs in the federal government were considerably lower in education, with only 52 percent holding advanced degrees, compared with 67 percent of the industry-bound employees.

Table 14 presents the sub-totals for the three groups in a percentage format. Two percentages are shown, the first is the percentage within the category of classification (for example, of the 99 employees with decisions made, 42% had Science, 51% had Engineering, 7% had other, and none had no Bachelor's Degree). The second percentage shows the percentage of each response falling in each of the placement areas.

TABLE 13

DISPLACEMENT OF ERC SCIENTISTS AND ENGINEERS

CATEGORY OF CLASSIFICATION	RESPONSE	JOB SEARCH DECISIONS MADE: NASA	FEDERAL GOVERNMENT	INDUSTRY	UNIVERSITY	RETIREMENT	OTHER	DECISION SUBTOTAL	DOT SUBTOTAL	LOOKING SUBTOTAL	TOTAL
BACHELOR'S DEGREE	SCIENCE	6	5	21	3	3	4	42	104	68	214
	ENGINEERING	7	8	32	3	0	0	50	104	52	206
	OTHER	2	1	3	0	0	1	7	1	5	13
	NONE	0	0	0	0	0	0	0	2	1	3
ADVANCED DEGREE	SCIENCE	3	5	20	3	1	3	34	70	61	165
	ENGINEERING	2	4	18	1	1	0	26	61	29	116
	OTHER	1	0	0	0	0	0	1	3	2	6
	NONE	9	5	18	2	1	2	37	77	35	149
ADVANCED DEGREE LEVEL	MASTER'S	3	7	17	1	2	2	32	88	35	155
	DOCTORATE	3	2	21	3	0	1	30	46	56	132
	NONE	9	5	18	2	1	2	37	77	35	149
RESUME FILED	YES	9	7	26	4	3	1	50	136	85	271
	NO	6	7	30	2	0	4	49	75	41	165
STOPPER FILED	YES	11	10	21	3	1	1	47	105	71	223
	NO	4	4	35	3	2	4	52	106	55	213
TOTAL		15	14	56	6	3	5	99	211	126	436

TABLE 14

PERCENTAGE DISPLACEMENT OF ERC SCIENTISTS AND ENGINEERS

CATEGORY OF CLASSIFICATION	RESPONSE	DECIDED SUB-TOTAL	DECIDED % CAT	DECIDED % TOT	DEPARTMENT OF TRANS. SUB-TOTAL	DEPARTMENT OF TRANS. % CAT	DEPARTMENT OF TRANS. % TOT	LOOKING SUB-TOTAL	LOOKING % CAT	LOOKING % TOT	TOTAL	PERCENT OF CATEGORY
BACHELOR'S DEGREE	SCIENCE	42	42	20	104	49	48	68	54	32	214	49
	ENGINEERING	50	51	25	104	49	50	52	41	25	206	47
	OTHER	7	7	54	1	1	8	5	4	38	13	3
	NONE	0	0	0	2	1	67	1	1	33	3	1
ADVANCED DEGREE	SCIENCE	34	34	21	70	33	42	61	48	37	165	38
	ENGINEERING	26	26	22	61	29	53	29	23	25	116	27
	OTHER	1	1	17	3	1	50	2	1	33	6	1
	NONE	37	38	25	77	37	52	35	28	23	149	34
ADVANCED DEGREE LEVEL	MASTER'S	32	32	21	88	42	57	35	28	22	155	36
	DOCTORATE	30	30	23	46	21	35	56	44	42	132	30
	NONE	37	38	25	77	37	52	35	28	23	149	34
RESUME FILED	YES	50	50	18	136	65	51	85	67	31	271	62
	NO	49	50	30	75	35	45	41	33	25	165	38
STOPPER FILED	YES	47	47	21	105	50	47	71	56	32	223	51
	NO	52	53	24	106	50	50	55	44	26	213	49
TOTAL		99	100	23	211	100	48	126	100	29	436	100

Forty-nine percent of the original ERC complement held Science baccalaureates, but after 71 percent of the employees had found new positions, 54 percent of the remainder were scientists. The situation was even worse for advanced degree holders; originally 38 percent of the complement held advanced degrees in the sciences, while 48 percent of those still looking held those degrees. As many of the scientists held doctorates, the trend against science is also reflected in the advanced degree level category, with 14 percent more of the seeking group holding doctorates than the original population.

A more comprehensive analysis of placement within the scientific, engineering, and other degree fields is presented in Table 15. Data from employer contact requests for information is also included in this table to reflect demand in each field. The first column of the table shows the number of employees holding bachelor's degrees in each of the fields. The second and third columns indicate the number of employees and the percentage of employees contacted through distribution of the "mini-resumes" to prospective employers. As a number of the resumes elicited more than one request, the next two columns indicate total demand for employees in each field.

The total demand, shown in column 5, in most cases reflects the actual placement percentages, making this technique of employer solicitation useful in prediction of

TABLE 15

DISTRIBUTION OF DEMAND AND PLACEMENT BY BACHELOR'S DEGREE

		NUMBER OF EMPLOYEES	CONTACT EMPL. #	CONTACT EMPL. %	REQUESTS REQ. #	REQUESTS REQ. %	DECIDED EMPL. #	DECIDED EMPL. %	DOT REQUESTS #	DOT REQUESTS %	TOTAL PLACED #	TOTAL PLACED %
SCIENTISTS	Mathematics	52	21	40	52	100	14	27	34	65	48	92
	Physics	120	40	33	78	65	18	15	54	45	72	60
	Chemistry	32	16	50	29	91	7	22	10	31	17	53
	Astronomy	1	1	100	2	200	1	100	0	0	1	100
	Earth Sciences	2	1	50	3	150	0	0	2	100	2	100
	Biology	3	2	67	4	133	1	33	2	67	3	100
	Bio-Physics	1	1	100	3	300	0	0	1	100	1	100
	Psychology	3	1	33	2	67	1	33	1	33	2	67
ENGINEERS	Chemical	12	8	67	19	158	4	33	5	42	9	75
	Metalurgical	3	1	33	2	67	0	0	0	0	0	0
	Nuclear	1	0	0	0	0	0	0	1	100	1	100
	Electrical	92	40	43	99	108	22	24	51	55	73	79
	Electronic	29	14	47	39	134	5	17	16	55	21	72
	Aeronautical	24	8	33	16	67	8	33	10	42	18	75
	Mechanical	30	11	37	22	73	6	20	15	50	21	70
	Civil	5	3	60	4	80	2	40	1	20	3	60
	Marine	1	0	0	0	0	0	0	1	100	1	100
	Earth Sciences	9	4	44	6	67	3	33	4	44	7	78
OTHERS	Architecture	3	0	0	0	0	3	100	0	0	3	100
	Traffic Management	1	1	100	2	200	1	100	0	0	1	100
	BusinessAdministration	4	1	25	1	25	1	25	1	25	2	50
	Education	1	0	0	0	0	1	100	0	0	1	100
	Language	1	1	100	3	300	1	100	0	0	1	100
	History	3	1	33	1	33	0	0	0	0	0	0
	No Degree	3	3	100	6	200	0	0	2	67	2	67

placement trends. This technique is recommended as a fast and inexpensive means of spreading information about the qualifications of a work force that can also provide feedback on job market trends.

It is apparent from the table that personnel in the Chemistry field were having difficulty in placement on the basis that only 53 percent had been placed. Concern for the Chemists is alleviated somewhat, however, by the demands for information and the placements shown in the "decided column. Other fields with high demand percentages had fared better than the chemists, and it was felt that their problems were not as severe as the ones Physicists faced. Low demand and a low decision rate were somewhat buffered by the DOT requirements, but it is known that this was one of the more difficult placement fields at the time of the study.

On an overall basis, engineers fared better than scientists in placement. 72% of the engineers, against 67% of the scientists were placed at the end of the study.

The same type of information is presented by job classification in Table 16. From this table it is possible to observe the relative demand for specialists correlating with placements in the same manner as in the previous table. This table also gives a good comparison of the specialties required in the original ERC organization against those requested for the new DOT organization.

TABLE 16

DISTRIBUTION OF DEMAND AND PLACEMENT BY JOB CLASSIFICATION

TITLE	NUMBER OF EMPLOYEES	CONTACT EMPL. #	CONTACT EMPL. %	REQUESTS REQ. #	REQUESTS REQ. %	DECIDED EMPL. #	DECIDED EMPL. %	DOT REQUESTS #	DOT REQUESTS %	TOTAL PLACED #	TOTAL PLACED %
Flight Systems	4	1	25	1	25	2	50	1	25	3	75
Space Sciences	6	0	0	0	0	2	33	3	50	5	83
Aeronomy	1	0	0	0	0	1	100	0	0	1	100
Ionospheres	1	1	100	2	200	1	100	0	0	1	100
Fields and Particles	1	0	0	0	0	0	0	0	0	0	0
Meteoroid Studies	2	0	0	0	0	1	50	0	0	1	50
Solar Studies	1	0	0	0	0	1	100	0	0	1	100
Physiological Studies	4	3	75	5	125	2	50	0	0	2	50
Human Performance Studies	2	0	0	0	0	0	0	1	50	1	50
Manned Systems Engineering	1	1	100	1	100	1	100	0	0	1	100
Fluid & Flight Mechanics	2	1	50	2	100	0	0	2	100	2	100
Flight Mechanics	6	3	50	3	50	0	0	3	50	3	50
Control & Guidance Systems	47	19	40	31	66	9	20	27	57	36	77
Magnetofluidynamics	1	0	0	0	0	0	0	0	0	0	0
Basic Properties of Gases	2	1	50	2	100	0	0	0	0	0	0
Materials & Structures	2	0	0	0	0	0	0	1	50	1	50
Basic Properties of Materials	55	24	44	48	87	8	15	10	18	18	33
Acrospace Polymers	1	1	100	4	400	0	0	1	100	1	100
Electrical Propulsion & Power	2	1	50	1	50	1	50	1	50	2	100
Direct Energy Conversion	8	3	38	3	38	1	13	2	25	3	38
Flight Systems	3	2	67	3	100	0	0	2	67	2	67
Reliability	4	2	50	4	100	0	0	3	75	3	75
Flight Systems Test	1	0	0	0	0	0	0	0	0	0	0
Quality Assurance	2	1	50	3	150	0	0	2	100	2	100
Electrical Systems	8	5	63	22	275	5	63	3	37	8	100
Measurement & Instrumentation	47	15	32	31	66	10	21	28	60	38	81
Measurement & Inst. Systems	6	0	0	0	0	1	17	4	67	5	84

TABLE 16 (Continued)

DISTRIBUTION OF DEMAND AND PLACEMENT BY JOB CLASSIFICATION

TITLE	NUMBER OF EMPLOYEES	CONTACT EMPL. #	CONTACT EMPL. %	REQUESTS REQ. #	REQUESTS REQ. %	DECIDED EMPL. #	DECIDED EMPL. %	DOT REQUESTS #	DOT REQUESTS %	TOTAL PLACED #	TOTAL PLACED %
Space Optics	33	10	30	15	45	8	24	18	54	26	78
Measurement Standards & Calibration	1	0	0	0	0	0	0	0	0	0	0
Control Systems	17	8	47	11	65	2	12	7	41	9	53
Tracking & Telemetry Systems	7	3	43	6	86	0	0	6	86	6	86
Electronics Engineer	8	6	75	8	100	3	38	5	62	8	100
Telemetry Systems	1	1	100	3	300	0	0	1	100	1	100
Telecommunications	2	1	50	10	500	1	50	1	50	2	100
Electronics of Materials	11	4	36	5	45	3	27	3	27	6	54
Microwave Physics Electronics	23	6	26	15	65	3	13	19	83	22	96
Data Systems	36	16	45	61	170	13	36	20	56	33	92
Data Analysis	14	11	79	37	265	6	43	8	57	14	100
Theoretical Simulation Technology	6	1	17	2	33	0	0	5	83	5	83
Data Equipment	11	3	27	8	72	2	18	8	72	10	91
Experimental Facilities & Equipment	7	2	29	5	71	3	43	3	43	6	86
Experimental Tooling & Equipment	6	5	83	12	200	0	0	5	83	5	83
Director	1	0	0	0	0	0	0	1	100	1	100
Project Manager	3	1	33	1	33	1	33	0	0	1	33
Technical Management	10	3	30	4	40	2	20	3	30	5	50
Technology Utilization	1	0	0	0	0	0	0	0	0	0	0
General Engineer	1	1	100	2	200	1	100	0	0	1	100
Safety Engineer	1	0	0	0	0	0	0	0	0	0	0
Architect	2	0	0	0	0	2	100	0	0	2	100
Civil Engineer	4	4	100	5	125	1	25	0	0	1	25
Mechanical Engineer	7	7	100	13	186	1	14	4	57	5	71
Electrical Engineer	2	2	100	4	200	0	0	0	0	0	0
Industrial Engineer	1	0	0	0	0	1	100	0	0	1	100
Total	436	179	41	393	90	99	23	211	48	310	71

Other statistical information comparing the three groups of employees under discussion is shown in the following table:

TABLE 17

AGE, SALARY, EXPERIENCE, AND SUPERVISORY STATISTICS

Category	ERC	TSC	Decided	Looking
Number of Employees	436	211	99	126
Average Age	38.1	37.5	36.2	41.5
Average Salary	18,165	17,795	17,434	19,095
Average Experience	15.1	14.5	12.9	18.6
Supervisors	60	29	13	18

No surprising trends appear in the above tabulation. Age and wage are generally considered to be negative factors in placement efforts, and experience correlates directly with age.

CHAPTER IX

CONCLUSION

The results of this study indicate that the "Aerospace Technologist" is adaptable to other fields of endeavor. Almost three-quarters of the professional employees of the Electronics Research Center had secured employment or offers of employment six weeks before their final day of employment in the Space Agency. The majority of employees were to be employed in fields similar to those they had occupied at the Center, but with their direction focused on different goals. Almost one-half of the employees were to be employed in another federal organization, the Department of Transportation, where their expertise would be applied to near-term problem solving in the air traffic control area and to generation of new transportation developments and concepts. A second large group was dispersed to private industry, where their skills are to be applied to many areas, most of them not considered to be directly related to the space program.

The study indicates that engineers, generally working closer to development applications, had less trouble finding positions than research scientists. This may have been the result of a general reduction in spending on basic research by government and industry, but does not nullify the

conclusion that the hardware-oriented engineers have skills that can be applied to other-than-aerospace tasks.

Verification of the findings of other studies of technical placement was accomplished through surveys which showed that the technologists best friend is his professional associate when it comes to securing a new position.

Much of the studywas concerned with the operation of a placement service by the Personnel Office of the Center. Several conclusions result. A listing of employers with positions available was valued highly by the employees. This list was generated by a small number of employees not trained in placement work and produced as many or more employee contacts with prospective employers as the more costly procedure of providing interviews in the Center. Initial contacts were made by telephone, and files of more detailed information were kept in an information center.

Another successful project was the preparation of very short descriptions of each of the professional employees. These "mini-resumes" triggered much more response from prospective employers than the usual list of job classifications or educational and experience backgrounds. The complete set of resumes was sent to employers, and in many cases employees in fields other than those the employer had announced vacancies in were contacted, primarily on the suggestive nature of the resume. The availability of a switchboard that offered directory service and a centralized mail

distribution service made it easier for employers to contact job-seekers than individual mailings by the employees would have provided.

Employers were offered the assistance of the personnel office in contacting prospective employees. Through this service, the status of the job market could be surveyed by the number of responses in specialty areas.

While the results of this study may be of use in finding positions for other technical personnel displaced by changing social priorities, a further study is necessary to ascertain the results of the reallocation of these scientists and engineers from the space program. To this end, information regarding forwarding addresses and new positions will be secured from the majority of the employees so that they may be contacted regarding their success or failure in their new fields of endeavor at a later date. A digested version of the results of this study will be provided to those who participated in the data provision.

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RETURN TO: AP/R. T. O'NEIL, CHIEF OUTPLACEMENT PROGRAM

APPENDIX A

ERC OUTPLACEMENT SURVEY
(DO NOT SIGN THIS QUESTIONNAIRE)

1. TODAY'S DATE _____

2. HAVE YOU ACCEPTED A NEW POSITION YES:____ NO:____

3. WHAT SOURCES ARE/WERE USED IN SEEKING A NEW POSITION? CHECK THOSE USED.

A. FAMILY:	____	F. ERC LISTINGS:	____
B. FRIENDS:	____	G. EMPLOYMENT AGENCIES:	____
C. PROFESSIONAL ASSOCIATES:	____	H. RADIO COMMERCIALS:	____
D. NEWSPAPER ADVERTISEMENTS:	____	I. _____:	____
E. MAGAZINE ADVERTISEMENTS:	____	J. _____:	____

4. WHICH THREE OF THE ABOVE SOURCES ARE/WERE MOST EFFECTIVE

A. BEST: ____ B. 2D BEST: ____ C. 3D BEST: ____

5. WHICH THREE OF THE ABOVE SOURCES ARE/WERE LEAST EFFECTIVE:

A. WORST: ____ B. 2D WORST: ____ C. 3D WORST: ____

6. WHICH SOURCES WERE USED TO FIND YOUR POSITION AT ERC? _____

7. WHICH SOURCES WERE USED TO FIND PREVIOUS POSITIONS? _____

8. ARE YOU LOOKING FOR A POSITION IN:

A. NASA?	____	F. AEROSPACE INDUSTRY?	____
B. DOD?	____	G. ELECTRONICS INDUSTRY?	____
C. FEDERAL GOVERNMENT?	____	H. OTHER INDUSTRY?	____
D. OTHER GOVERNMENT?	____	I. MILITARY SERVICE?	____
E. EDUCATION?	____	J. _____	____

9. WHAT ARE YOUR FEELINGS REGARDING THE AEROSPACE FIELD?

A. PREFER TO STAY IN IT: ____

9. WHY? _____

B. PREFER TO LEAVE IT: ____

WHY? _____

10. WHAT OTHER GOVERNMENT PROGRAMS ARE YOU INTERESTED IN?

A. _____ B. _____

C. _____ D. _____

11. WHAT AREAS OF INDUSTRY ARE YOU INTERESTED IN?

A. _____ B. _____

C. _____ D. _____

12. WHAT AREAS OF EDUCATION ARE YOU INTERESTED IN?

A. _____ B. _____

13. DO YOU HAVE ACCESS TO:	YES	NO
A. ERC LISTS OF INTERESTED EMPLOYERS?	____	____
B. ERC INTERVIEW SCHEDULES?	____	____
C. ERC NEWS SPECIAL EDITIONS?	____	____
D. ADEQUATE EMPLOYMENT INFORMATION?	____	____
14. DO YOU KNOW WHERE THE PERSONNEL OFFICE IS?	____	____
15. DO YOU KNOW WHERE THE INTERVIEW CENTER IS?	____	____
16. HAVE YOU PREPARED YOUR OWN RESUME?	____	____
17. HAVE YOU SUBMITTED AN "INTEREST AND EXPERIENCE STATEMENT" (ANNOUNCEMENT 70-77)?	____	____
18. IS YOUR SF-171 (PERSONAL QUALIFICATION STATEMENT) UPDATED FOR APPLICATION TO FEDERAL JOBS?	____	____
19. HAVE YOU SUBMITTED A "NASA OUTPLACEMENT APPLICATION" (ANNOUNCEMENT 70-83)?	____	____

IF NOT, WHY NOT? _____

IF NOT, WHY NOT? _____

20. DO YOU PREFER TO:

	YES	NO
A. REMAIN IN THIS COMMUTING AREA?	____	____
B. REMAIN IN MASSACHUSETTS?	____	____
C. REMAIN IN NEW ENGLAND?	____	____
D. MOVE TO: (IN ORDER OF PREFERENCE) 1) _____	2) _____	

21. HAVE YOU LOST A PREVIOUS JOB BECAUSE OF A GENERAL LAYOFF? ____ ____

IF NO, PLEASE DISREGARD QUESTIONS 22 THROUGH 29.

22. HOW MANY PEOPLE WERE LAID OFF? ____

23. WAS AN ENTIRE PLANT OR FACILITY CLOSED? ____ ____

24. DID THE EMPLOYER PROVIDE:

A. IN-PLANT INTERVIEWS?	____	____
B. TIME OFF FOR INTERVIEWS?	____	____
C. OPPORTUNITY FOR TRANSFER TO ANOTHER LOCATION?	____	____
D. NO ASSISTANCE?	____	____
E. OTHER ASSISTANCE?	____	____

PLEASE LIST: _____

_____

25. HOW MUCH NOTICE DID YOU RECEIVE? ____ WEEKS

26. HAD YOU FOUND A NEW POSITION ON YOUR LAST DAY OF WORK? ____ ____

27. HOW MUCH SEVERANCE PAY DID YOU RECEIVE?

A. NONE	____
B. 0-2 WEEKS SALARY:	____
C. 2-4 WEEKS SALARY:	____
D. 4-10 WEEKS SALARY:	____
E. ____ WEEKS SALARY:	

28. WERE YOU PAID FOR UNUSED VACATION? ____ ____

29. WERE YOU PAID FOR RETIREMENT CONTRIBUTIONS? ____ ____

30. AGE: _____YEARS

31. SEX: _____

32. GRADE: GS-_____

33. NASA JOB CODE _____

34. HOW LONG HAVE YOU WORKED IN:

A. NASA? ____YEARS

B. DOD? ____YEARS

C. FEDERAL GOVERNMENT? ____YEARS

D. OTHER GOVERNMENT? ____YEARS

E. EDUCATION? ____YEARS

F. AEROSPACE INDUSTRY? ____YEARS

G. ELECTRONICS INDUSTRY? ____YEARS

H. OTHER INDUSTRY? ____YEARS

I. MILITARY SERVICE? ____YEARS

J. _____ ____YEARS

35. HOW LONG HAVE YOU LIVED IN:

A. THIS COMMUTING AREA? ____YEARS

B. MASSACHUSETTS? ____YEARS

C. NEW ENGLAND? ____YEARS

D. UNITED STATES? ____YEARS

36. HOW MANY DEPENDENTS DO YOU HAVE? SPOUSE: ____ CHILDREN: ____ RELATIVES: ____

37. DO YOU OWN YOUR HOME: YES: ____ NO: ____

38. DO YOU HAVE A COLLEGE OR UNIVERSITY DEGREE? YES: ____ NO: ____

PLEASE LIST: DEGREE CURRICULUM DATE

_____ _____ _____

_____ _____ _____

39. WHAT ADDITIONAL SERVICES WOULD YOU LIKE TO HAVE PROVIDED BY ERC?

_____

40. A. HAVE YOU INTERVIEWED AT THE ERC OUTPLACEMENT CENTER? YES ____ NO ____

B. HAVE YOU RECEIVED ANY OFFERS? YES ____ NO ____

41. A. HAVE YOU PERSONALLY ARRANGED ANY INTERVIEWS? YES ____ NO ____

B. HAVE YOU RECEIVED ANY OFFERS? YES ____ NO ____

DO NOT SIGN THIS QUESTIONNAIRE

RETURN TO: AP/R.T. O'NEIL, CHIEF OUTPLACEMENT PROGRAM

APPENDIX B

INTEREST & EXPERIENCE STATEMENT

A. PERSONAL DATA

1. NAME _____

2. POSITION _____

3. SUPERVISOR'S NAME _____

4. SALARY _____

5. DEGREE(S) _____

6. TEL. _____

7. (A) Interested only in employment in Federal Government _____

   (B) Interested only in employment in Private Industry _____

   (C) Interested in any employment _____

8. (A) Will work only in Boston area _____

   (B) Will work only in _____

   (C) Will work anywhere _____

B. WORK INTERESTS

Brief description of areas of interest. (You may attach additional information such as a resume if you consider it helpful)

C. POSITIONS FOR WHICH QUALIFIED:

TITLE	NASA SERIES	GRADE(S)
(A)		
(B)		
(C)		

D. WORK HISTORY

Brief description of current duties. (You may attach your position description if appropriate.)

UNITED STATES GOVERNMENT APPENDIX C

MEMORANDUM

TO: Date:

FROM: AP/Chief, Outplacement Team

SUBJECT: ERC Outplacement Program

Records of the Outplacement Program indicate that you have: 1) Not filed an "Interest and Experience Statement" or resume ___; 2) Not signed up for interviews at the Interview Center ___.

Many prospective employers prefer to review the resumes on file in the personnel office prior to requesting interviews with ERC personnel. In addition, brief condensations of the resumes on file have been sent to over 200 employers in order that they may contact employees through the personnel office or directly.

The outplacement team is interested in providing maximum assistance to ERC employees. You are requested to answer the following questions so that we may better plan these services. Please return this memorandum to AP/R. T. O'Neil as soon as possible.

		YES	NO
1. a)	Do you plan to submit an "Interest and Experience Statement"? (Announcement #70-77 dated January 6, 1970)	____	____
2. a)	Have you registered for the NASA "Stopper List"? (Announcement #70-83, dated January 10, 1970)	____	____

b) If not, why not? _____

_____

_____

_____

	YES	NO
3. Have you registered for the Civil Service Commission's "Displaced Employee Register?" (ERC News, January 23, 1970)	____	____
4. Have you prepared your own personal resume?	____	____
5. a) Have you arranged interviews yourself outside of the ERC Interview Center?	____	____
b) How many? ____		
6. a) Have you mailed copies of your personal resume to prospective employers?	____	____
b) How many? ____		
7. a) Have you received any offers of employment?	____	____
b) How many? ____		
8. Have you accepted a new position?	____	____

9. What suggestions do you have for improving the Outplacement Program?

_____

_____

_____

_____

R. T. O'Neil
Chief, Outplacement Team

APPENDIX D

ERC EXIT INTERVIEW QUESTIONNAIRE

1. TODAY'S DATE: _____

2. HAVE YOU ACCEPTED A NEW POSITION? YES: ____ NO: ____

3. DID YOU FIND A POSITION IN:

A. NASA:	____	F. AEROSPACE INDUSTRY:	____
B. DOD:	____	G. ELECTRONICS INDUSTRY:	____
C. FEDERAL GOVERNMENT:	____	H. OTHER INDUSTRY:	____
D. OTHER GOVERNMENT:	____	I. MILITARY SERVICE:	____
E. EDUCATION:	____	J. OTHER: _____	____

4. HOW LONG HAVE YOU WORKED IN:

A. NASA:	____	F. AEROSPACE INDUSTRY:	____
B. DOD:	____	G. ELECTRONICS INDUSTRY:	____
C. FEDERAL GOVERNMENT:	____	H. OTHER INDUSTRY:	____
D. OTHER GOVERNMENT:	____	I. MILITARY SERVICE:	____
E. EDUCATION:	____	J. OTHER: _____	____

5. DO YOU THINK YOUR NEW POSITION WILL BE:

A. BETTER THAN AT ERC: ____ B. WORSE THAN AT ERC: ____

C. WHY? _____

6. (OPTIONAL) DOES YOUR NEW POSITION PAY A SALARY:

A. HIGHER: ____ B. THE SAME: ____ C. LESS: ____ THAN AT ERC

D. HOW MUCH DIFFERENCE $ _____/YEAR

7. WHAT SOURCES WERE USED IN SEEKING A NEW POSITION? (CHECK)

A. FAMILY:	____	F. ERC LISTINGS:	____
B. FRIENDS:	____	G. ERC INTERVIEWS:	____
C. PROFESSIONAL ASSOCIATES:	____	H. EMPLOYMENT AGENCIES:	____
D. NEWSPAPER ADVERTISEMENTS	____	I. RADIO COMMERCIALS	____
E. MAGAZINE ADVERTISEMENTS	____	J. OTHER: _____	____

8. WHICH SOURCES IN QUESTION 7 WERE USED TO FIND YOUR NEW POSITION? _____

9. WHICH SOURCES IN QUESTION 7 WERE USED TO FIND YOUR PREVIOUS POSITION AT ERC? _____

10. WHICH THREE OF THE ABOVE SOURCES IN QUESTION 7 ARE/WERE MOST EFFECTIVE?

A. BEST: ____ B. 2D BEST: ____ C. 3D BEST ____

11. WHICH THREE OF THE ABOVE SOURCES IN QUESTION 7 WERE/ARE LEAST EFFECTIVE?

A. WORST: ____ B. 2D WORST: ____ C. 3D WORST ____

12. WHAT ARE YOUR FEELINGS REGARDING THE AEROSPACE FIELD?

A. PREFER TO STAY IN IT: ____ B. PREFER TO LEAVE IT: ____

C. WHY? _____

13. IN WHAT OTHER GOVERNMENT AGENCIES DID YOU LOOK FOR A POSITION?

A. _____ B. _____

C. _____ D. _____

14. IN WHAT AREAS OF INDUSTRY DID YOU LOOK FOR A POSITION?

A. _____ B. _____

C. _____ D. _____

15. IN WHAT AREAS OF EDUCATION DID YOU LOOK FOR A POSITION?

A. _____ B. _____

16. DID YOU HAVE ACCESS TO:

	YES:	NO:
A. ERC LISTS OF INTERESTED EMPLOYERS?	____	____
B. ERC INTERVIEW SCHEDULES?	____	____
C. ERC NEWS SPECIAL EDITIONS?	____	____
D. ADEQUATE EMPLOYMENT INFORMATION?	____	____

17. HOW LONG HAVE YOU LIVED IN:

A. THIS COMMUTING AREA? ____ YEARS

B. MASSACHUSETTS? ____ YEARS

C. NEW ENGLAND? ____ YEARS

D. UNITED STATES? ____ YEARS

18. IS YOUR NEW POSITION:

A. IN THIS COMMUTING AREA: ____

B. IN MASSACHUSETTS? ____

C. IN NEW ENGLAND? ____

D. WHERE: _____ ____

19. HOW MANY DEPENDENTS DO YOU HAVE? SPOUSE: ____ CHILDREN: ____ RELATIVES: ____

20. DO YOU OWN YOUR HOME: YES: ____ NO: ____

21. DO YOU HAVE A COLLEGE OR UNIVERSITY DEGREE: YES: ____ NO: ____

DEGREE	DATE	CURRICULUM	DEGREE	DATE	CURRICULUM

22. A. DID YOU INTERVIEW AT THE ERC OUTPLACEMENT CENTER? YES: ____ NO: ____

B. DID YOU RECEIVE ANY OFFERS? ____ ____

23. A. DID YOU PERSONALLY ARRANGE ANY INTERVIEWS? ____ ____

B. DID YOU RECEIVE ANY OFFERS: ____ ____

24. WHAT ADDITIONAL SERVICES WOULD LIKED TO HAVE HAD PROVIDED BY ERC?

_____

25. WOULD YOU LIKE TO SEE THE RESULTS OF THIS SURVEY WHEN THE ERC PHASEOUT IS COMPLETE? YES: ____ NO: ____

26. NAME: _____ 27. AGE: _____ 28. SEX: _____

29. ERC GRADE: GS-_____ 30. NASA-ERC JOB CODE: _____

	COMPANY	CONTACT	POSITIONS AVAILABLE
60.	AMERICAN INST. OF PHYSICS 335 EAST 45 ST. N.Y., N.Y. 10017	SUBMIT RESUME TO THE PLACEMENT SERVICE	ACADEMIC OPENINGS (UNITED STATES, CANADA, AUSTRALIA)
61.	EGG&G CROSBY DRIVE BEDFORD, MA	LARRY ASBURY	COMPUTER OPERATORS (SHIFTS) DATA DISTRIBUTION CLERK " ASSEMBLY LANGUAGE PROGRAMMER (DDP 516)
62.	FAIRCHILD R&D CENTER 4001 MIRANDA AVE. PALO ALTO, CALIF.	JOHN ARTHUR (408) 321-7250	SENIOR ENGINEER
63.	FAIRCHILD R&D CENTER 2513 CHARLSTON RD MOUNTAINVIEW, CALIF. 94040	WILLIAM HARE. (415)(961-1028)	MANAGER OF III-V WAFER PROCESSING MFG DEPT.
64.	MIT LINCOLN LABORATORY BOX 73 LEXINGTON, MA 02173	RICHARD KILSON 862-5500, X7304	TECHNICIANS (MICROWAVE) ENGINEERING ASST.
65.	NAVAL ELEC. LAB CTR[L] 271 CATALINA BLVD. SAN DIEGO, CAL. 92152	SUBMIT SF 171 TO PERSONNEL OFFICE (CODE 123) IDENTIFY VACANCY AND INCLUDE HOME ADDRESS WITH ZIP CODE.	SEE SEPARATE LISTINGS FROM NELC DATED 2/13/70, 2/19/70, 3/4/70, AND 3/11/70, POSTED ON BULLETIN BOARDS.
66.	NORTHEASTERN UNIVERSITY[M] ELECTRICAL ENGRG DEPT. 360 HUNTINGTON AVE. BOSTON, MA	DR. NOWAK 437-2971	FACULTY POSITION - ASSOCIATE OR ASST. PROF. (PH.D REQUIRED)
67.	TEKTRONIX, INC. 400 TOTTEN POND RD. WALTHAM, MA 02154	DON SEELYE 894-4667, -8	PRODUCT SERVICE TECH. FIELD ENGINEER

	COMPANY	CONTACT	POSITIONS AVAILABLE
68.	VISION SYSTEMS, INC. 42 NORTH RD. BEDFORD, MA	JON MEADS 275-8700	PROGRAMMER ANALYST (SMALL COMPUTERS) INTERACTIVE GRAPHICS
		UNITED STATES GOVERNMENT	
69.	NAVAL SHIP MISSILE SYSTEMS[N] PORT HUENEME, CAL. 93041	SUBMIT SF 171 TO CIVILIAN PERSONNEL OFFICE (CODE 121)	ELECTR. ENGR. (ELECTRO-MAG) GS-13/14 (06/N-23/70) ELECTR. ENGR (DATA PROC.) GS-12 (#06/N-24/70) GEN. ENGR, GS-13 (06/N-25/70)

L - SEE ALSO SUPPLEMENT 6, No. 48
M - " " BASIC LIST, No. 125
N - " " " " , No. 204

APPENDIX F

DATE OF CALL _____

FOR: INTERVIEWS _____

LISTING _____

BOTH _____

OUTPLACEMENT TELEPHONE CONTACT

1. ORGANIZATION

   A. NAME OF ORGANIZATION _____

   B. DIVISION _____ C. BRANCH _____

   D. ADDRESS _____

   E. PRODUCTS _____ F. EMPL. AGENCY _____

   G. NAME OF CONTACT(S) _____ H. TELEPHONE _____

2. POSITIONS OPEN

A. TITLE	B. QUAL REQUIRED	C. NO. POS.	D. SALARY

3. LISTING

   A. OPEN INTERVIEWING ____ DATE(S) _____

   B. CLOSED INTERVIEWING ____ DATE(S) _____

      1) LIST OF EMPLOYEES ATTACHED ____ TO BE SUPPLIED ____

      2) REVIEW OF RESUMES BEFORE SCHEDULING ____ DATE _____

   C. PUBLICATION ON LISTS ONLY ____

4. INTERVIEWS

A. INTERVIEWERS NAME	B. SPECIALTY PERSONNEL	B. SPECIALTY TECHNICAL	C. WHICH POSITIONS	D. GENERAL COVERAGE

E. NUMBER OF INTERVIEWS POSSIBLE _____ F. EXTRA INTERVIEWERS _____

G. STARTING TIME 9:30 ____ OR ____ H. STOPPING TIME 4:30 ____ OR ____

I. SPECIAL TIME REQUIREMENTS _____

Attachment 6

Personnel - Report by Robert O'Neil

ATTACHMENT 6

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

REPLY TO ATTN OF: B

JUL 20 1970

TO: B/Deputy Assistant Administrator
Office of Administration

FROM: R. T. O'Neil, R. H. Rollins II

SUBJECT: Summary Report on Outplacement Activity at the Electronics Research Center

At the close of business at the Electronics Research Center on June 30, 1970, seven hundred and forty-one (741) of the eight hundred and twenty-six (826) permanent ERC employees had found employment. Table 1 lists the disposition of the center's employees.

Attrition during the six-month closeout period is shown in Table 2. The largest decrease in employees actively searching for work occurred in early May when the Department of Transportation issued informal offers to 425 of the ERC employees. By actual count, only 396 employees were hired by the DOT from ERC; the difference was due to employees taking other employment and suspension of several informal offers. In addition to the 396 ERC employees, three MSC personnel were transferred to the new organization.

A chronology of the activities associated with employee placement is shown in Table 3. Outplacement activities began during January with three requests of the employees: (1) to file interest and experience resumes, (2) to file application for the NASA stopper list, and (3) to file application for the CSC displaced employee program. The final results of these requests are shown on the table, with more than half of the employees filing personal resumes and lesser numbers applying for the NASA-wide and CSC placement programs. The interview program began in mid-January and by late April over 1000 interviews had been conducted. A total of 1303 interviews

were held during the program with 90 different organizations. Approximately one-half of the ERC employees registered for at least one interview.

The preparation of short, one paragraph mini-resumes from the longer employee submissions was begun in February. By the end of May, over 700 responses had been received from prospective employers and referred to employees. A survey of employees in early June reduced the number of names on the mini-resumes and a final mailing was made in June to a list of 450 prospective employers. As of this date over 100 responses have come in.

Because the majority of employees not finding employment at the closing date were technical professionals, a closer look at these employees is warrented. Table 4 indicates the degree fields of the unemployed group compared with the original complement in those specialties at ERC. The high percentage of physicists, chemists, and electronic engineers unemployed reflects both the elimination of much of the advanced research at the Cambridge center and the difficulty in finding employment in these fields elsewhere.

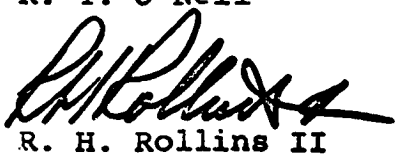
Table 5 also indicates the difficulty of finding research employment. The complement of the new DOT organization has a lower educational level than did ERC. Also, the highly educated specialists were taking longer to find employment.

Three lists of employee names are attached as appendices. Appendix A lists those employees sworn into the new DOT organization. Appendix B lists the employees retained in the NASA with some descriptive data. Appendix C lists the employees retained in other federal organizations. 515 of the 826 employees retained federal jobs and an additional 33 retired on civil service annuities for a two-thirds majority of the original staff. Of the remaining one-third of the staff, one third had not found employment by the closing date.

Further analysis of the placement of ERC personnel is underway and a detailed report will be prepared in September. A more complete analysis of the placement of the technical professionals

over the next year will be conducted by questionnaire. To this end, the forwarding addresses of all ERC employees are on record and questionnaires are being prepared for review.

R. T. O'Neil



R. H. Rollins II

Attachments

TABLE 1

DISPOSITION OF ERC EMPLOYEES

06-30-70

DISPOSITION	ADMINISTRATIVE & NON-PROFESSIONAL 1, 3, 5, & 600	TECHNICAL PROFESSIONAL 2, 700	TOTAL
TO DOT-TSC	192	204	396
TO NASA	10	34	44
TO OTHER FEDERAL	55	20	75
TO INDUSTRY	67	69	136
TO EDUCATION	1	21	22
TO RETIREMENT	24	9	33
TO OTHER EMPLOYMENT (or out of job market)	17	18	35
SUB-TOTAL	366	375	741
UNEMPLOYED	22	63	85
TOTAL	388	438	826

TABLE 2

ERC PHASEOUT STATUS
6/30/70

ACTION	DATE	NUMBER OF PERSONNEL WITHOUT JOBS OR RETIREMENT		
		ADMINISTRATIVE & NON-PROFESSIONAL 100, 300, 500, 600 SERIES	TECHNICAL PROFESSIONAL 200, 700 SERIES	TOTAL
ANNOUNCEMENT OF ERC CLOSING	12/29/69	388	438	826
ANNOUNCEMENT OF DOT TAKEOVER	3/29/70	310	411	721
DOT LETTERS TO EMPLOYEES	5/7/70	67	163	230
PERSONNEL SURVEY	6/8/70	49	120	169
CLOSING OF ERC	6/30/70	22	63	85

TABLE 3 CHRONOLOGY OF PLACEMENT-ASSOCIATED ACTIVITIES

DATE	ACTIVITY	
12/29/69	Announcement of closing	823 employees on board
1/6/70	Outplacement team formed Resumes requested	565 employees filed
1/12/70	First job lists published	
1/14/70	Stopper list request	287 employees filed
1/16/70	Interviews initiated	
1/23/70	Displaced Employee request	239 employees filed
2/9/70	First mini-resumes mailed to 350 organizations	
3/25/70	DOT Announcement	721 employees on board
5/7/70	DOT Informal Offers to 425 employees	655 employees on board
6/1/70	Unemployment survey 137 employees without acceptable offers	
6/12/70	Interviews ended - 1303 interviews, 79 confirmed offers	
6/30/70	Center closed 396 employees transferred to DOT-TSC 85 employees without jobs or retirement	

TABLE 4

UNEMPLOYED PROFESSIONALS BY DEGREE FIELD

DEGREE FIELD	ORIGINAL COMPLEMENT	UNEMPLOYED	PERCENT UNEMPLOYED
MATHEMATICS	52	3	6%
PHYSICS	120	26	22%
CHEMISTRY	32	5	16%
CHEMICAL ENGR.	12	1	8%
METALURGICAL ENGR.	3	2	67%
ELECTRICAL ENGR.	92	11	12%
ELECTRONIC ENGR.	29	6	21%
AERONAUTICAL ENGR.	24	3	12%
MECHANICAL ENGR.	30	2	7%
CIVIL ENGR.	5	1	20%
EARTH SCIENCE ENGR.	9	1	11%
PSYCHOLOGY	3	1	33%
BUSINESS ADM.	4	1	25%
OTHER FIELDS	31	0	0%
TOTAL	436	63	14%

TABLE 5

STATUS OF TECHNICAL PROFESSIONAL EMPLOYEES
(200, 700 Series)

Degree	None	Bachelor's	Master's	Doctor's	Total
On Board 12/29/69	3	146	155	132	436
Decisions thru 5/7/70	0	37	32	30	99
DOT Offers 5/7/70	2	75	88	46	211
No Employment Found 5/7/70	1	34	35	56	126
Decisions thru 6/1/70	0	11	3	11	25
No Employment Found 6/1/70	1	23	32	45	101
Decisions thru 6/30/70	1	7	8	22	38
No Employment Found 6/30/70	0	16	24	23	63
Percentage Without Employment	0	11%	16%	17%	14%

DEPARTMENT OF TRANSPORTATION

TRANSPORTATION SYSTEMS CENTER

OFFICE OF THE DIRECTOR - D

Brouillet
Casey
Cheever
Damigella
Dennison
Donoghue
Dunlap
Elms
Farmer
Megerian
Murphy
O'Donnell
Pitts
Minerva

DIRECTORATE OF TRANSPORTATION SYSTEMS CONCEPTS

Bowden
Franks
Hodge -- **From MSC**
Kovatch
McCommis -- **From MSC**
Perrine -- **From MSC**
Schuck

DIRECTORATE OF ADMINISTRATION

Akillian
Amodeo
Audette
Blazo

Bowen
Brown
Burkard
Burns
Cahalane
Calabro
Cal[illegible]ll
Caso
Cassidy
Catanzano

ADMINISTRATION - cont.

Chandler
Chin
Compagna
Connolly
Cotroneo
Coyne
Desmond
Devenuti
Devlin
Donahue
Doyle
Efstathiou
Fernandez
Fickett
Finkelstein
Fitzgerald
Flaherty
Flanders
Flynn
Frederick
Furst
Gaffney
Gallagher
Galligan
Garrity
Glynn
Gosselin
Gould
Greenwood
Haughey
Hughes
Huron
James
Kaplan
Kelleher
Kelly
Kondos
Kordis
Krawiec
Leonard
Mayhew
Marifiote
Massey

ADMINISTRATION - cont.

McCann
McDonough
McLaughlin
McNamara
Miner
Minichiello
Minichiello
Moonan
Moran
Morrissey
Nichols
Noble
Nugent
O'Brien
Ohanian
O'Malley
Ostrosky
Pagliarulo
Pambookian
Pandil
Pappas
Pappas
Parilla
Paris
Peabody
Peacock
Perez
Petrie
Phillips
Pistone
Puzzo
Rakip
Remedis
Roache
Roberts
Ryan
Ryan
Sanborn
Sinausky
Stuart
Sullivan
Sullivan
Swain
Tholander
Thompson
Tierney

Valente
Votolato
White
Wolff
Yonika

TECHNOLOGY - T

Allen
Barone
Barth
Blair
Giliberti
Haberek
Harrington
Koniares
LaRhette
McGann
O'Meara
Peterson
Pulicifico
Rotman
Schneider
Watson

Aruda
Griffin
Coleman

Barone
Giangrande
Mitchell
Sirianni

Bessler
Byrne
Byron
Coutts
Dillaby
Dumais
Dunne
Early
Fisher
Gagenon
Golini
Gosselin
Hallenborg
Kelley
Kimbrough
Leonard
Nags
Palermo
Palonen
Porcaro
Reardon
Roberts
Saccoccio
Scapicchio
Spicer
White
Yaffee

Apgar
Barrington
Beatty
Bray
Bowe
Brown
Buck
Burnham
Cacossa
Canal
Carlson
Chin
Cline
Darling
Davis
Dehollan
Dumanian
Eaves
Ebacher
Ehrenbeck
Fantasia
Farr
Flores
Form
Frasco
Frenkel
Furumoto
Goldstein
Hard
Haroules
Harriott
Hergenrother
Hilborn
Hill
Hinckley
Holmstrom
Hopkins
Ingrao
Jordan
Kahn
Kalafus
Karp
Klaubert
Klein
Knable

TECHNOLOGY - T

Kodis
Kulke
Landman
Larson
Larussa
Lavery
Lifsitz
Liimatainen
Litant
Long
Lutz
Macdonald
Marantz
Mason
Medeiros
Mengert
Messcher
Minkoff
Morin
Morris
Obrien
Patt
Paul
Plank
Poirier
Polcari
Raposa
Randseps
Ryan
Salomon
Schappert
Scotto
Seekell
Skeeber
Spenny
Steinberg
Stickler
Sullivan
Thompson
Udin
Veronda
Wagner
Walter
Wang
Watt
Weigand
Weinreb
Wilmarth
Yatsko
Yoh
Zorio
Sarachik
Mannella
Leavitt
Van Meter
Roberts

TRANSPORTATION SYSTEMS DEVELOPMENT - P

Ameral
Boehner
Cadigan
Caporale
Dechristoforo
Deserres
Fanara
Fitzgerald
Gaiser
Hayes
Herlihy
Houten
Jones
Murphy
Paolini
Patten
Scanlon
Sussan
Winchus
Woolfall

TRANSPORTATION SYSTEMS DEVELOPMENT - P

Wedan	Tung
Aronis	O'Connor
Conway	Saccone
Hyatt	Thompson

Andersen	Hoelker	Phillips
Bellantoni	Hubbard	Protopapa
Bland	Hynes	Ressler
Brandel	Jackson	Rhine
Brayton	Keane	Ricci
Brownell	Kleiman	Richards
Canniff	Klien	Rockwell
Cantor	Koenke	Robertson
Carroll	Koziol	Roy
Clarke	Lanman	Rutyna
Colella	Lonecchio	Sarkisian
Collins	MacKenzie	Sher
Concannon	Madigan	Sigona
Coonan	Manning	Spitzer
Dahlgren	Mauro	Stein
Decker	McCabe	Stevenson
Duncombe	McWilliams	Tani
Economou	Moroney	Toye
Engels	Morrison	Wactjen
Foley	Murphy	Weinstock
Flynn	Muzyka	Wilson
Glynn	Nagy	Winston
Gorstein	Neat	Wiseman
Gould	OGrady	Wong
Geindersen	O'Mathuna	Wright
Hallock	Ow	Vilcans
Hebert	Passera	Rudis
Hershkowitz	Pawlak	

Belckevich	Sassoon
Decaro	Smits
Greene	Kramer
Reardon	Smith

ERC PERSONNEL TRANSFERRED TO NASA

NAME	NASA CODE	GRADE	DEGREE	AGE	EFF DATE
HEADQUARTERS					
Bayne, J.	74001	16/4	D01(1)	42	5/9
Carley, R. R.	70001	15/6	C06(1)	42	6/30
Delaney, C. J.	66001	AD	D08	56	6/30
Fall, A.	62301	12/6	D04(1)	47	5/16
Landers, E. F.	61402	12/4	--	47	6/30
Lewelly, J. R.	73501	15/4	C05(1)	50	2/21
Loria, J. C.	77010	15/5	C07(2) C07(1)	46	6/27
Miner, R. J.	73001	13/4	C05(1)	40	5/23
O'Neil, R. T.	63301	13/1	D06	40	6/30
Robertson, D. D.	62101	14/9	D04	54	5/30
Rubin, B.	71520	15/6	A03(3) A03(1)	47	6/27
Sears, A. F.	77030	13/4	D04(2) A03(1)	42	2/28
Willis, N. J.	74001	14/2	D03(1)	36	4/18
Walsh, F.	60401	13/4	D04(1)	45	6/13
Saletnik	10000	8/3	--	51	6/30
WALLOPS					
Holland, A. C.	73015	14/4	C07(1)	43	6/13
Kim, H. H.	73015	11/2	A03(2) A03(1)	35	6/1
Lacheman, E. R.	73015	11/1	A02(1)	32	5/16
Maurer, H. E.	73501	14/6	C05(3) C05(1)	42	6/13
Oberholtzer, J. D.	71520	13/4	A02(3) A02(1)	37	6/26
Nand, Sharda	70101	13/3	A02(3) A02(1)	38	5/30
Trafford, G. H.	73001	15/5	C05(1)	42	6/27
Vaughn, C. R.	73015	12/4	A04(2) A02(1)	31	6/27
Walsh, E. J.	70101	13/4	D04(1)	45	6/13

NAME	NASA CODE	GRADE	DEGREE	AGE	EFF DATE
GODDARD					
Bebris, J.	73001	13/6	C06(1)	48	5/2
Caruso, A. J.	70101	14/4	A02(1)	40	4/19
Dalton, J. M.	20201	13/3	A03(1)	45	6/27
Eckerman, J.	73015	15/6	A01(3) A01(1)	44	6/6
Minzer, R. A.	70101	14/5	A02(2) A02(1)	54	6/27
Powers, J. W.	32507	11/2	--	43	6/30
Ramasastry, J.	73065	13/4	C05(3) C05(1)	29	6/13
Russo, F. P.	73065	13/4	A02(1)	34	6/27
Tschunko, H.F.A.	73015	14/6	C07(1)	57	6/30
FLIGHT					
Gilbert, R. D.	61101	9/1	--	33	3/1
LEWIS					
Gilman, S.	72025	15/4	A03(3) A03(1)	39	6/30
Schwarz, F. C.	72025	16/4	C05(3) C05(1)	56	6/30
AMES					
Anliker, J. E.	70640	14/3	B04(3) B04(1)	53	6/27
Bretoi, R.	73025	15/5	C07 C08(1)	44	6/20

NAME	NASA CODE	GRADE	DEGREE	AGE	EFF DATE
AMES (Continued)					
Billman, F. W.	73015	14/4	A02(3) A02(1)	37	6/30
Finger, H. J.	73001	13/1	C05(1)	23	6/27
Khan, I.	71520	14/6	A02(3) A02(1)	40	6/27
Tobias, L.	73025	12/1	C14(3) C14(1)	27	6/27
Tombs, N. C.	71520	15/3	A03(3) A03(1)	44	6/27
KSC					
Corey	60001	12/5	D07(2) D07(1)	35	2/10

FORMER NASA/ERC PERSONNEL TO OTHER GOVERNMENT AGENCIES

Abbas, Joseph
Andrews, James M., Jr.
Balzarini, Maureen
Barry, Lawrence J.
Bennett, Arthur
Bourgeois, Eugene
Burns, Eleanor P
Callahan, Anne E
Carnevale, Janice
Carroll, Frederick
Carson, John
Ciccone, Nancy Lee
Cleverly, John
Connor, Joseph
Corrado, Ernest
Crosby, Dolores
Crowley, Roberta
Cullen, Thomas
Cummings, Thomas
Curran, Marjorie T.
Daneault, Susan
Devaney, Alice
Diamond, Maurice
Donahue, Patricia E.
Donovan, James F., Jr.
Donovan, John L.
Douglas, Elaine
Fitzgerald, Thomas
Flavin, Elizabeth L.
Gagne, Girard N.
Gakis, John
Gerhard, Jon
Hanst, Philip L.
Haggett, Hiram R.
Hoffman, Herbert S.
Hull, Joseph A.
Jervinis, Stella
Jones, Donna M.
Jones,Herschel C.
Kelledy, Richard
Kelley, Kevin J.
Kinsella, Lawrence

Klein, Philipp
Larson, Dorothy
Landman, Morris
Larkin, John
Leo, John
Loria, John C.
Mailloux, Robert
Margosian, Karen J.
Martin, Edward
Mauck, Charlene M.
McGahan, Maryalyce
Medoff, Steven
Melia, Ruth
Morreal, John
Murphy, Eileen
Murphy, Kathleen
Pilistine, Daniel
Pope, Donald
Reed, Alvah
Robinson, Elizabeth
Rubin, Bernard
Sands, Edward
Scherrer, Victor
Snell, Cheryle
Spellman, Carol
Stone, Robert
Truax, Terry
Wallie, James
Walsh, Mary A.
Wenger, Catherine V.
Westcott, John
Wilson, Kathleen
Zane, Thelma

Attachment 7

Program - Disposition Plan

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

JAN 16 1970

REPLY TO
ATTN OF:

TO: Director, Electronics Research Center

FROM: Associate Administrator for Advanced Research and Technology (Acting)

SUBJECT: ERC Technical Program Disposition Plan and Time Schedule

In order to comply with the directive for discontinuing NASA operations at the Electronics Research Center as expeditiously and smoothly as possible, we have composed a plan and time schedule for the disposition of ERC's technical program. Attached is a detailed schedule for this purpose, and a summary of the major steps to be taken follows.

First, ERC will review all OART Research and Technology Objectives and Plans (RTOP's) for the purpose of selecting and recommending to this Office those technology efforts to be concluded at ERC, transferred to other Centers, or terminated, subject to the criteria for ERC Program disposition set forth in the Attachment.

By January 30, 1970, ERC will submit to this Office a list of such work identified by individual RTOP's and grouped by subprogram areas. For each RTOP (or portion thereof) to be continued, the list will identify:

The work (by title) to be continued.

The funding and manpower levels associated with it.

All contracts/grants under this work, and funding levels.

Contracts not part of the RTOP but considered of major importance to the subprogram area of this work.

Unique equipment supporting the work.

ERC recommendation on the disposition criteria under which the work falls (see Attachment).

This Office will review ERC's submission and will make recommendations to the Administrator on the work to be continued and the NASA Center (including JPL and Headquarters) to which it will be deployed. By February 11, 1970, following the Administrator's review; this Office will: a) inform ERC of those program actions approved by Headquarters which should be implemented immediately, and b) forward programmatic guidance to the other Centers. Centers will have a week in which to evaluate their interest, ability, and specific conditions associated with undertaking either the Headquarters recommended program additions, or programs other than those recommended by Headquarters.

The Center's proposals will also be reviewed by this Office, and a final recommendation submitted for the Administrator's approval. It is expected that a final decision will be made by the end of February, at which time ERC will be notified. Subsequent action by ERC on the disposition of its technical program is expected to be completed by April 15, 1970.

Bruce T. Lundin

Bruce T. Lundin

January 13, 1970

ERC CLOSEDOWN

TECHNICAL PROGRAM PLANS

Policy

NASA is reducing its investment in broad based electronics research. The current and immediate future emphasis is on focused and applied technology for aerospace missions and systems.

Criteria for ERC Program Disposition

- Selected research and key technology efforts, justified to and approved by the Administrator, may be assigned to other NASA centers including JPL.

- Selected research and technology efforts, complementary to existing programs or missions of the NASA centers, may be transferred subject to the mutual agreement of the receiving center director and Headquarters sponsoring office.

- Research and technology efforts of particular suitability or interest to other government agencies will be identified and staffed for the Administrator's approval.

- Existing grants or contracts, not covered above and judged of select importance to the NASA mission may be transferred to Headquarters offices.

- Selected grants or contracts in the procurement cycle, justified by ERC and approved by Headquarters, may be consummated by ERC and deployed under the criteria defined above.

- Program elements not covered by the criteria noted above will be terminated or concluded.

Plan of Action and Key Dates

- Headquarters program associate administrators inform ERC of criteria and guidelines based on technical program disposition/Research and Technology Objectives and Plans (RTOPs) or equivalent levels specified by the program offices. 1-16-70

- ERC develop the Center's position by organizing the OART RTOPs under technical functional areas.* (Similar procedures will apply to the documentation levels specified by the other major program offices.) Under each RTOP list:
  - All contracts/grants under the RTOP (where multiple RTOPs are involved, judge one as primary, the others secondary).
  - Contracts that may not fall under the RTOP but are considered of major importance to technical functional area.
  - Unique equipment that supports work undertaken under these RTOPs.
  - ERC recommendation to Headquarters program associate administrators under the disposition criteria specified above. 1-30-70

*These functional areas will be initially represented by OART's subprogram categories as listed in NASA's coding structure.

- Headquarters program associate administrators will review the ERC submissions and recommend to the Administrator:

  (1) Proposal for redeploying selected portions of the ERC technical program and equipment to other NASA centers including JPL.

  (2) Specific procurement actions, now frozen in process, which are recommended for immediate reactivation and completion of the contract/grant negotiation.

2-6-70

- Following the Administrator's review, the Headquarters program associate administrators will:

  (1) Inform ERC of those program actions approved by Headquarters which should be implemented immediately.

2-11-70

  (2) Forward programmatic guidance to other centers including JPL. (The following specifications apply to the OART-RTOP system, other program offices will define equivalent formats and information levels.)

  - List ERC RTOPs, classified by technical functional areas, that are considered of significant programmatic importance.

  - List ERC FY 70 contracts and unique equipment associated with above RTOPs.

  - Headquarters guidance as to which RTOPs or portions are considered appropriate to each center.

2-11-70

- NASA centers including JPL respond stating:
  - Evaluation of their interest, ability and specific conditions associated with:
    (1) Undertaking Headquarters recommended program additions.
    (2) Undertaking programs other than those recommended by Headquarters.

2-18-70

- Headquarters program associate administrators will review the Center proposals and recommend programs to be transferred. 2-24-70
- Following the Administrator's review and approval, the Headquarters program offices will forward those approved to ERC for action. 2-28-70
- ERC complete action on technical program disposition. 4-15-70

RE/FJSullivan/has

Attachment 8

Program - Decision Document

ATTACHMENT 8

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

APR 7 1970

REPLY TO
ATTN OF: B

TO: Electronics Research Center
Attention: Mr. James C. Elms

FROM: Deputy Assistant Administrator for Administration

SUBJECT: Programmatic and Administrative Decisions on Work at ERC

On April 1, 1970, Dr. Low reviewed a listing of ERC RTOP's and tasks that have been proposed by the program offices for continuation in FY 1971 (Enclosure 1). From that listing the program offices have also identified suggested NASA work that might be conducted at the new DOT center (Enclosure 2). The feasibility of DOT undertaking these latter items (or other proposed areas of work) depends, of course, upon the skills and capabilities that are to be acquired by DOT.

As I am sure you can appreciate, it is essential that early decisions be reached on the specific items of work that are to be transferred to other NASA installations and work that the new DOT center may desire to conduct with NASA support. Accordingly, it is requested that, within the next three to four days, a proposal be forwarded to this office for review by the program offices and decision by Dr. Low. Enclosures 1 and 2 should influence this process but should not necessarily be constraining on any items that may be proposed. General format and guidelines will be as follows:

a. As in the document you handed me Wednesday evening, dollar amounts should be broken down by Direct, Indirect, and Contracts.

b. In general, it will be assumed that work proposed can be completed with FY 1971 funding. Any work proposed for continuation beyond FY 1971 should be so identified with an indication of the projected dollar amounts by fiscal year.

c. Each item proposed should be accompanied by appropriate RTOP's and 1122 forms. Any entirely new work should be so identified.

d. Each item proposed should indicate the in-house man-years involved, together with names of the principal investigator and supporting professionals. Numbers of clerical, technician, and supporting personnel should also be included.

e. In addition to the foregoing, work that is proposed for NASA support which is primarily in support of DOT missions should be so identified.

With regard to any work that may be transferred to other NASA installations, and as indicated by the requirements of Civil Service regulations, we must make a case-by-case determination as to whether or not a functional transfer exists. In support of this effort, it is requested that, for each RTOP and task (as appropriate) listed in Enclosure 1 (and in the format shown in Enclosure 3), the following data be provided:

a. The current ERC organizational element (lowest level--division, branch or section) that performs the work.

b. The function of that organizational element (as described in existing documentation) of which the work is all or a part.

c. A statement that the work is or is not all of the work currently being performed in that function.

d. The names of employees who spend a majority of their time (51% or more) performing that work or for whom the performance of that work is grade controlling.

The foregoing should provide NASA Headquarters with enough information to make early decisions on assignments of work and to identify possible areas of functional transfer. Frank Sullivan and I, as well as people from our Personnel Division, will be available to assist in any way possible.

Boyd C. Myers, II

Enclosures

RTOP/1122 NUMBER	TITLE (ABBREVIATED)
120-60-02	Aircraft Electrical Power---
120-60-03	Spacecraft Electrical Power
120-64-10	Space Shuttle Electrical Power
120-67-20	Space Station/Base Electrical Power
124-12-05	Space Vehicle Design Criteria (G&C)
125-06-08	Automatic Approach and Landing
125-06-10	V/STOL Avionic Systems Technology
125-17-13	G&C Sensors-Star/Horizon Sensors
125-17-13	G&C Sensors-Laser Gyro
125-17-13	G&C Srnsors-Inertia
125-19-22	Advanced Aerospace Control Theory
125-21-07	Navigation/Traffic Control Experiments
125-22-07	Pilot Warning Indicators (PWI)
125-22-12	Optical Techniques
125-23-07	Advanced Aerospace Computer (Multiprocessor)
125-23-07	Advanced Aerospace Computer (Bulk Storage)
125-23-07	Advanced Aerospace Computer (Optical Memory)
125-23-08	Advanced Aerospace Data Processing
125-23-09	Advanced Aerospace Data Processing Theory
125-24-09	Advanced Instrumentation (V/STOL Sensor)
125-24-09	Advanced Instrumentation (Biosensor)
125-24-09	Advanced Instrumentation (UV and X-Ray)
125-24-14	Aircraft Hazard Avoidance
125-25-06	Materials for Electronic Components

RTOP/1122 NUMBER	TITLE (ABBREVIATION)
125-25-07	Advanced Electronic Components---
125-25-08	Design, Processing---LSI
125-25-09	Reliability and Quality
125-64-08	Materials for Antenna
125-64-09	Microwave Electron Tubes
125-64-12	Low Visibility Approach
125-64-18	Advanced Software Techniques
125-64-19	Multiplex Data Bus
125-64-20	System and Component---Storage
125-64-21	Screening and Reliability Testing
125-64-28	Display Devices
125-67-19 (125-21-06)	Microwave Communications
125-67-23 (125-22-05)	Space Station Optical Communications
125-67-24 (125-22-06)	Optical Technology Test
125-67-28 (125-22-04)	Telescope Technology
127-06-17	Bionics
127-49-20	Bioinstrumentation
127-51-14	Advanced Human Engineering Concepts
127-53-24	Manned Spacecraft Monitoring
708-13	Bioinstrumentation Flight Experiments
129-02-20	Quantum Electronics (Gas Laser)
129-02-20	Quantum Electronics (Interactions)
129-02-21	Electron-Wave Interactions

RTOP/112? NUMBER	TITLE (ABBREVIATION)
129-03-40	Surface Physics and Chemistry---
129-03-41	Thin Film Research
129-04-21	Information Sciences
320-00-00	Space Technology Applications
160-43-05- -25	Laser Altimeter
160-43-05- -25	Correlation of Gravimetric
160-44-05-05-25	Atmospheric Ozone
160-44-05-07-25	Design and Construction
160-44-05-13-25	Atmospheric Scattering Techniques
160-44-05-23-25	Wide-Band Solid State Power
160-44-05-25-25	Passive Microwave
160-44-05-26-25	Optical System
160-44-05-28-25	Requirements for---Sensors
160-44-05-29-25	Detection of Minor Constituents
160-44-05-30-25	Reliability of Dormant Systems
160-44-05-31-25	Mass Memory Applications
160-44-05-35-25	Improvement of Small Academic
164-18-01-21-25	Application of Navigation
164-18-01-34-35	Satellite ATC Terminal
164-18-01-36-25	Nav/TC Control System Definition
164-21-10-12-25	Interference and Propagation Experiments
164-21-10-18-25	Interference Measurements
180-17-01-06-25	Guidance System Performance

RTOP/1122 NUMBER	TITLE (ABBREVIATED)
180-17-01-19-25	Strapdown Gyro---
180-17-01-28-25	Procurement---Gyroscopes
180-17-04-10-25	System Software Development
180-17-0[illegible]-25	Research on the Effective
180-17-[illegible]-25	Evaluation of Reconfiguration
180-17-[illegible]-25	Analysis of Simplified Guidance
185-47-3[illegible]-25	Structure and Variability
188-39-0[illegible]-25	Study of HF Radio Wave Ducting

OSSA WORK AT ERC WHICH COULD STAY AT T.D.C. IN FY 71

Work Unit Number	Title	Remarks
160-43-05-01-25	Laser Altimeter	Leaving work at T.D.C. contingent on availability of Dr. Karp.
164-18-01-36-25	Nav/Traffic Control Systems Division	Run Out to Completion.
164-18-01-34-25	Satellite Air Traffic Control Terminal	Retain at ERC/TDC with NASA Hdqs. or GSFC as technical monitors. Continued support after FY 70 will be considered based on contract results.
164-21-10-05-25	Electromagnetic Transmissions Through the Atmosphere	Leave at ERC/TDC until handbook is complete.
185-47-33-01-25	Structure and variability of the Earth's Atmosphere	If Dr. Minzner at ERC transfers to TDC and his services are made available.

In addition to the above, it is expected that Goddard Space Flight Center will procure from TDC in-house support in connection with the RIPM (Radio Interference and Propagation Measurement Program, which is planned for transfer from ERC to GSFC.

Enclosure 2

OART WORK AT ERC WHICH COULD STAY AT T.D.C. IN FY 71

RTOP Number	Title	Remarks
125-06-10	V/STOL Avionic System Technology	
125-22-07	Pilot Warning Indicator (PWI)	To continue PWI flight tests to conclusions.
125-21-07	L-Band Propagation Tests	To aid DOT in deciding between L-Band and VHF for aero satellites.
125-24-14	Clear Air Turbulence Detection (Microwave Detector)	Takes advantage of unique capability and interest at ERC.
125-23-09	Advanced Data Processing Theory (SOFIX)	Modified program to take advantage of effort initiated at ERC and utilizing ERC research talents.
125-21-06 125-22-12	Microwave and Optical Components	Takes advantage of unique capability and interest at ERC
125-17-13	Strapdown Inertial Components	

RTOP or work unit #_____ Title _____

ERC Organization:

Division:

Branch:

Section:

Function of this organization element of which this work is all or a part:

This work ☐ is
☐ is not all of the work currently being performed in this function

Names of employees who are spending a majority of their time or grade controlling duties on this work.

Prepared by _____

Title _____

Enclosure 3

Attachment 9

Program - Decision Document

TELEGRAPHIC MESSAGE

NAME OF AGENCY	PRECEDENCE	SECURITY CLASSIFICATION
NASA HEADQUARTERS	ACTION: ROUTINE INFO:	UNCLASSIFIED
ACCOUNTING CLASSIFICATION	**DATE PREPARED**	**TYPE OF MESSAGE**
RES	MAY 18, 1970	☐ SINGLE ☐ BOOK ☒ MULTIPLE-ADDRESS
FOR INFORMATION CALL		
NAME	**PHONE NUMBER**	
CHARLES H. GOULD	962-7253	

THIS SPACE FOR USE OF COMMUNICATION UNIT

MESSAGE TO BE TRANSMITTED *(Use double spacing and all capital letters)*

TO:
DIRECTOR, ELECTRONICS RESEARCH CENTER

INFORMATION COPIES TO:
DIRECTOR, AMES RESEARCH CENTER
DIRECTOR, LANGLEY RESEARCH CENTER
DIRECTOR, LEWIS RESEARCH CENTER
DIRECTOR, FLIGHT RESEARCH CENTER
DIRECTOR, MARSHALL SPACE FLIGHT CENTER
DIRECTOR, MANNED SPACECRAFT CENTER
DIRECTOR, GODDARD SPACE FLIGHT CENTER
DEPARTMENT OF TRANSPORTATION, DR. ROBERT H. CANNON, JR.
ASSISTANT SECRETARY FOR SYS. DEV. & TECH.

THE FOLLOWING NASA PROGRAMS WILL BE CARRIED OUT IN FY 71 AT THE DOT TRANSPORTATION SYSTEMS CENTER (TSC) UNDER NASA FUNDING. THIS PROGRAM WAS AGREED TO BY MR. ELMS, MR. NICKS, AND DR. CANNON, AND APPROVED BY DR. LOW ON MAY 15, 1970.

TITLE	FY 1971 PROGRAM	COGNIZANT HQ PROGRAM OFFICE
EARTH RESOURCES	$ 450 K	SR
SATELLITE OCEANIC ATC CENTER	100 K	SC
MICROWAVE AND OPTICS TECHNOLOGY	750 K	RE
L-BAND EXPERIMENT AND TERMINAL	1,035 K	RE
ANTI-COLLISION (PWI) SYSTEMS	800 K	RE

SECURITY CLASSIFICATION: UNCLASSIFIED

PAGE NO.	NO. OF PGS.
1	2

STANDARD FORM 14
REVISED AUGUST 1967
GSA FPMR (41 CFR) 101-35.306
* GPO : 1967 O-F—300-456 (9-11)
14-306

TELEGRAPHIC MESSAGE

NAME OF AGENCY	PRECEDENCE	SECURITY CLASSIFICATION
NASA HEADQUARTERS	ACTION: ROUTINE INFO:	UNCLASSIFIED
ACCOUNTING CLASSIFICATION RES	DATE PREPARED MAY 18, 1970	TYPE OF MESSAGE ☐ SINGLE ☐ BOOK ☒ MULTIPLE-ADDRESS
FOR INFORMATION CALL		
NAME CHARLES H. GOULD	PHONE NUMBER 962-7253	

THIS SPACE FOR USE OF COMMUNICATION UNIT

MESSAGE TO BE TRANSMITTED *(Use double spacing and all capital letters)*

TO:

MICROELECTRONICS AND RELIABILITY	900 K	RE
COMMUNICATIONS FOR AIRCRAFT	1,100 K	RE
TOTAL	$5, 135 K	

TO FORMALIZE THIS AGREEMENT, ERC IS REQUESTED TO SUBMIT RTOPS TO NASA VIA DOT, TO REACH NASA HEADQUARTERS BY JUNE 1, OR EARLIER IF POSSIBLE.

IN ADDITION, IT IS OUR DESIRE TO SUPPORT WORK AT TSC (ERC) IN V/STOL AVIONICS AND IN AEROSOL ANALYSIS (T003 EXPERIMENT), IF MUTUALLY AGREEABLE PROGRAMS CAN BE PLANNED. NASA HEADQUARTERS AND CENTER PERSONNEL WILL BE WORKING WITH ERC TO DEVELOP THESE AND OTHER IDEAS.

IT IS CLEAR THAT A CONTINUING CLOSE ASSOCIATION BETWEEN NASA AND DOT, USING TSC (ERC) PROGRAMS AS A MEDIUM FOR THIS ASSOCIATION, WILL BE IN THE NATIONAL INTEREST. WE WILL WORK TOWARDS THIS END.

Original signed by
Francis J. Sullivan
ORAN W. NICKS

MAY 19 1970

NASA HQ COPIES TO:

RE
S
BI
SC
SR
RB

PAGE NO.	NO. OF PGS.	SECURITY CLASSIFICATION
2	2	UNCLASSIFIED

STANDARD FORM 14
REVISED AUGUST 1967
GSA FPMR (41 CFR) 101-35.306

228

* GPO : 1967 O—300-486 (9-H)

14-306

Attachment 10

Program - Transfer Document

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

See also Transfers of Jan 5 and 9 1970.

MAY 22 1970

REPLY TO ATTN OF: R

TO: Distribution

FROM: R/Acting Associate Administrator for Advanced Research and Technology

SUBJECT: ERC Program Transfers

REF: (a) My TWX to ERC, Dated May 19, 1970, R191845Z
(b) B. Myers' Letter of April 16, 1970, to Distribution, Identification of ERC Equipment Associated with ERC Programs Proposed for Transfer to Other NASA Centers

The referenced TWX established and approved a NASA program which will be carried out in FY 71 at the DOT Transportation Systems Center (TSC) under NASA funding. This letter directs action to transfer program responsibility, records, contracts and equipment for those RTOP's and 1122's to be continued at other NASA Centers in FY 71.

ERC is directed to transfer program responsibility, records, contracts and equipment related to the RTOP's/1122's listed in the attachment, to the Centers indicated. All ERC actions must be completed by June 30, 1970. Receiving Centers should reflect program acceptance and responsibility, together with planned action, in their FY 71 RTOP/1122 submissions; in most cases this has already been accomplished. In addition, ERC is directed to transfer as appropriate any records, contracts, reports or useful information remaining on RTOP's/1122's which will not be transferred or continued, in order that maximum future value to NASA programs will result.

Further detailed instructions on equipment transfers and procedures for equipment transfers will be furnished by Mr. Boyd Myers by May 28, 1970.

For clarification of information and program intentions, please contact the cognizant persons listed in the attachment.

Oran W. Nicks

Attachment

Distribution:

Director, Electronics Research Center
Director, Ames Research Center
Director, Langley Research Center
Director, Lewis Research Center
Director, Marshall Space Flight Center
Director, Manned Spacecraft Center
Director, Goddard Space Flight Center
Director, Jet Propulsion Laboratory

ERC RTOPs/1122's TO BE TRANSFERRED

RECEIVING CENTER	RTOP/ 1122	ABBREVIATED TITLE	HQ CONTACT	REMARKS
LeRC	120-60-01	Power Processing Res.&Adv.Devel.	RNT/P.T. Maxwell x-20041	
LeRC	120-60-02	Aircraft Electrical Power	" "	
LeRC	120-60-03	Spacecraft Electrical Power	" "	
LeRC	120-64-10	Space Shuttle Electrical Power	" "	
LeRC	120-67-20	SS/Base Electrical Power	RNT/P.T. Maxwell x-20041	
JPL	124-12-05	Space Veh.Design Criteria(G&C)	RVA/R. Bohling x-20083	
ARC	125-06-08	Auto.Approach & Landing	RES/C.H. Gould x-27253	
LaRC	125-17-13	G&C Sensors-Star/Horizon Sensors	REG/J. Kanter x-27294	
MSFC	125-17-13	G&C Sensors-Laser Gyro	" "	
MSC	125-17-13	G&C Sensors-Inertia	" "	
ARC	125-19-22	Adv. Aerospace Control Theory	REG/J. Kanter x-27294	
MSC	125-23-07	Adv.Aerospace Comp.(Multiprocessor -EXAM)	REI/G. Vacca x-27427	
GSFC	125-23-07	Adv.Aerospace Computer(Med.Bulk Storage)	" "	
MSFC	125-23-07	Adv.Aerospace Comptr(Optical Memory)	" "	
GSFC	125-23-08	Adv.Aerospace Data Proc.(TRIM)	" "	
MSC	125-23-09	Adv.Aerospace Data Proc. (GOTS)	" "	
LeRC	125-24-09	Adv.Instrumentation(V/STOL Sensor)	" "	
ARC	125-24-09	Adv.Instrumentation (Biosensor)	" "	

ERC RTOPs/1122's TO BE TRANSFERRED

RECEIVING CENTER	RTOP/ 1122	ABBREVIATED TITLE	HQ CONTACT	REMARKS
GSFC	125-24-09	Adv.Instrumentation(UV & X-ray)	REI/G. Vacca x-27427	
~~LaRC~~	~~125-24-14~~	~~Aircraft Hazard Avoidance~~	~~REI/G. Vacca x-27427~~	cancelled by REI letter of (about) 6/8/70
LaRC	125-25-06	Materials for Electronic Components	REE/C. Pontious x-20141	
LaRC	125-25-07	Adv.Electronic Components--	" "	
MSFC	125-25-08	Design, Processing-LSI	" "	
JPL	125-25-09	Reliability & Quality	" "	
LaRC	125-64-08 (125-25-19)	Materials for Antenna	REE/C. Pontious x-20141	
LaRC	125-64-09 (125-21-14)	Microwave Electron Tubes	RET/H. Anderton x-27335	
ARC	125-64-12 (125-17-33)	Low Visibility Approach	REG/J. Kanter x-27294	
MSC	125-64-18 (125-23-18)	Adv. Software Techniques	REI/G. Vacca x-27427	
MSFC	125-64-19 (125-23-19)	Multiplex Data Bus	" "	
MSFC	125-64-20 (125-23-20)	System & Component-Data Storage	REI/G. Vacca x-27427	
MSFC	125-64-21 (125-25-18)	Screening & Reliability Testing	REE/C. Pontious x-20141	
MSC	125-64-28 (125-19-35)	Display Devices	RES/C. Gould x-27253	

ERC RTOPs/1122's TO BE TRANSFERRED

RECEIVING CENTER	RTOP/ 1122	ABBREVIATED TITLE	HQ CONTACT	REMARKS
GSFC	125-67-24 (125-22-06)	Optical Technology Test	RET/H. Anderton x-27335	
GSFC	125-67-28 (125-22-04)	Telescope Technology	RET/H. Anderton x-27335	
ARC	127-06-17	Bionics	RB/L. Anderson x-20312	
ARC	127-49-20	Bioinstrumentation	" "	
LaRC	127-51-14	Adv.Human Engr. Concepts	" "	
ARC	127-53-24	Manned Spacecraft Monitoring	RB/L.Anderson x-20312	Program responsibili & Property Accounta- bility to be trans- ferred to ARC, but equipt. to remain at ERC/TSC.
ARC	708-13	Bioinstrumentation Flt. Exprmnts.	RB/L.Anderson x-20312	
GSFC	129-02-20	Quantum Electronics(Gas Laser)	RRT/W. Steinle x-20286	
ARC	129-02-20	Quantum Electronics(Interactions)	" "	
LaRC	129-02-21	Electron-Wave Interactions	" "	
LeRC	129-02-21	" " "(super condctvty)	" "	
ARC	129-03-40	Surface Physics&Chemistry	" "	
ARC	129-03-41	Thin Film Research	" "	
ARC	129-04-21	Information Sciences	RRT/W. Steinle x-20286	

ERC RTOPs/1122's TO BE TRANSFERRED

RECEIVING CENTER	RTOP/ 1122	ABBREVIATED TITLE	HQ CONTACT	REMARKS
JPL	320-00-00	Space Technology Applications	RF/L. Gilchrist x-20051	
GSFC	160-43-05-01-25	Laser Altimeter	SF/R. Gutheim x-24086	
HQ	160-43-05-05-25	Correlation of Gravimetric	" "	
LaRC	160-44-05-05-25	Atmospheric Ozone	" "	
LaRC	160-44-05-07-25	Design & Construction	" "	
GSFC	160-44-05-13-25	Atmospheric Scattering Techniques	" "	
LaRC	160-44-05-23-25	Wide-Band Solid State Power	" "	
LaRC	160-44-05-25-25	Passive Microwave	" "	
LaRC	160-44-05-26-25	Optical System	" "	
GSFC	160-44-05-28-25	Reqrmnts for -- Sensors	" "	
LaRC	160-44-05-29-25	Detection of Minor Constituents	" "	
GSFC	160-44-05-30-25	Reliability of Dormant System	" "	
GSFC	160-44-05-31-25	Mass Memory Applications	" "	
HQ	160-44-05-35-25	Improvement of Small Academic	" "	
GSFC	164-18-01-21-25	Application of Navigation	" "	
GSFC	164-18-01-36-25	Nav/TC Control System Definition	" "	
GSFC	164-21-10-12-25	Interference & Propagation Exprmnts.	" "	

ERC RTOPs/1122's TO BE TRANSFERRED

RECEIVING CENTER	RTOP/ 1122	ABBREVIATED TITLE	HQ CONTACT	REMARKS
GSFC	164-21-10-18-25	Interference Measurements	SF/R. Gutheim x-24086	
MSFC	180-17-01-06-25	Guidance System Performance	" "	
MSFC	180-17-01-19-25	Strapdown Gyro	" "	
MSFC	180-17-01-28-25	Procurement--Gyroscopes	" "	
MSFC	180-17-04-10-25	System Software Development	" "	
MSFC	180-17-04-15-25	Research on the Effective	" "	
MSFC	180-17-04-16-25	Evaluation of Reconfiguration	" "	
GSFC	180-17-05-21-25	Analysis of Simplified Guidance	" "	
GSFC	185-47-33-01-25	Structure & Variability	" "	
HQ	188-39-01-01-25	Study of HF Radio Wave Ducting	SF/R. Gutheim x-24086	
GSFC	180-06-06-08-25	Trajectory Analysis Research (No Hardware)	" "	
MSFC	180-17-05-13-25	Vibration Effects on Strapdown Navigation Accuracy (No Hardware)	" "	
HQ	164-21-10-05-25	Electromagnetic Transmissions Through the Atmosphere	" "	

Attachment 11

University - Cooperative Agreement

ATTACHMENT 11

No. NCAw-1

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, DC 20546

COOPERATIVE AGREEMENT

The National Aeronautics and Space Administration, a Federal agency, herein called NASA, has certain Government-owned equipment under its control that has been either designed or selected for the performance of research on excitation and ionization in collisions between ions, atoms and molecules. This research continues to be of interest to NASA and relevant to the furtherance of its mission. However, because of changing research objectives, priorities and applicable scientific and financial resources, it is not feasible to develop and exploit the full potential of all the equipment within the laboratories of the agency.

The Western Kentucky University, herein called the UNIVERSITY, has the scientific capability for performing research in the aforesaid area, and desires to do so in view of the scientific advancement and the professional development of both staff and students that would result. However, it needs certain of the aforesaid equipment in order to perform the research in efficient and effective manner.

Inasmuch as use of the NASA equipment by the UNIVERSITY to perform research of interest to both will result in direct benefits to both that would not otherwise be achieved, and will, in addition, facilitate other mutually beneficial scientific and technical interactions, NASA and the UNIVERSITY, acting under the authority of Section 203(b) of the National Aeronautics and Space Act of 1958 and related regulations, enter into this Cooperative Agreement witnessing that:

1. Equipment. NASA shall provide, for use by the UNIVERSITY, the research equipment identified in the attached Schedule A "Identification of Equipment."

2. Title. Title to the equipment shall remain with NASA.

3. Principal Purpose. The UNIVERSITY shall develop and undertake a program of research in the area of excitation and ionization in collisions between ions, atoms and molecules, which research shall be designated the Principal Purpose of the equipment provided by NASA. The Principal Purpose may be changed from time to time, if mutually agreed by NASA and the UNIVERSITY and documented by an attachment to this agreement. NASA shall be notified promptly when any of the equipment is no longer needed for its Principal Purpose.

4. Other Use. The UNIVERSITY may use the equipment for other research and research training, to the extent that such use does not interfere with the designated Principal Purpose.

5. Costs. The UNIVERSITY shall pay all costs of packing, shipping to point of use, installing, operating and maintaining the equipment. This Agreement does not prohibit the UNIVERSITY from accepting reimbursement for operating and maintenance costs from any sponsor of research utilizing the equipment. However, no depreciation or indirect costs based on the value of the equipment may be charged to any agency of the United States Government.

6. Marking and Records. The equipment shall be marked in accord with instructions to be provided by NASA, and shall not be dismantled or incorporated with other equipment in such manner that it loses its separate identity unless prior written authorization is obtained from NASA. The UNIVERSITY shall maintain such records as are necessary to fulfill the reporting requirements of paragraph 11.

7. Damage or Loss. The UNIVERSITY agrees to exercise due diligence in the care and use of the equipment at all times. In the event of damage to or loss or destruction of any of the equipment while it is under the control of the UNIVERSITY, the UNIVERSITY shall promptly notify NASA, and shall repair or replace the equipment or reimburse NASA as they may mutually agree. This provision shall not apply to normal wear and tear.

8. Government Liability. NASA shall not be held liable for any shortcomings of the equipment, nor for any loss, damage or injury resulting from its use while under the control of the UNIVERSITY, and the UNIVERSITY agrees to indemnify the United States for any related liability to third parties that may be assessed against the United States.

9. Technical Reports and Data. The UNIVERSITY shall provide promptly upon general release three reprints of each publication resulting from research conducted under this Cooperative Agreement to the Scientific and Technical Information Division (Code US), NASA, Washington, D.C. 20546. Furthermore, the UNIVERSITY grants to the United States, and others acting on its behalf, the right to publish, reproduce and use for governmental purposes, all data and technical information developed in connection with the performance of research under this Cooperative Agreement.

10. Inventions. The UNIVERSITY agrees to provide NASA with a disclosure of any invention conceived or first actually reduced to practice in the performance of research under this Cooperative Agreement and grants to the United States an irrevocable, nontransferrable, nonexclusive, royalty-free license to practice such invention throughout the world by or on behalf of the United States.

11. Administrative Reports. The UNIVERSITY shall make an annual report to the Office of University Affairs (Code Y), NASA, Washington, D.C. 20546, within 60 days of the end of each calendar year, confirming that the equipment is in the UNIVERSITY'S possession and indicating the extent of utilization for its Principal Purpose, and summarizing the progress of the research for which it has been used.

12. Modification and Termination. This agreement may be modified at any time by mutual agreement of the parties hereto, and may be terminated in whole or with respect to any part of the equipment, by either party, upon 6 month written notice to the other party of intent to terminate.

13. Disposition. Upon whole or partial termination of this agreement, NASA shall provide instructions to the UNIVERSITY regarding disposition of all equipment affected by the termination. The costs of packing, crating and shipping performed pursuant to NASA instructions shall be borne by NASA.

14. Effective Period. This agreement shall become effective upon execution by both parties hereto. It shall remain in effect for a period of five (5) years unless sooner terminated, and may be renewed for additional periods by agreement of the parties hereto.

Attachment:

Schedule A "Identification of Equipment"

For the National Aeronautics and Space Administration

Date _____ F. B. Smith
Assistant Administrator for University Affairs

For _____

Date _____ President

Attachment 12

ERC - Task Force

GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

TO : Distribution

DATE: January 8, 1970

FROM : A/Deputy Director of Administration

SUBJECT: Establishment of the ERC Personnel Task Force

Because of the comprehensive nature of providing adequate personnel support to the orderly phase-out of ERC, I am establishing a task force along the lines of the organization chart and charter statement attached.

I know that I can expect the full support of all personnel assigned to carry out this activity.

James B. Cahalane

Attachments

Distribution
ERC Personnel Task Force Members

cc:
A/Mr. Phillips
AB/Mr. Bayne
AM/Mr. Fernandez
AR/Mr. Ostrosky

D/Mr. Dennison
R/Dr. Dunlap
T/Dr. Mannella
P/Mr. Wedan

ERC PERSONNEL TASK FORCE

CHAIRMAN
F. H. Huron

DEPUTY CHAIRMAN
J. P. McLaughlin

PLANNING ASSISTANT
*J. T. Donovan

RESIDUAL PERSONNEL FUNCTIONS
*D. Pilistine (L)
R. M. Pistone
STAFFING
J. P. Larkin (L)
**J. F. Petrie
A. M. Henebury
R. Ham
M. V. Bowen
E. M. Douglas
N. A. Getty
S. M. Blanche
CLASSIFICATION
*D. McCarthy (L)
*J. T. Donovan
B. B. Miner
K. M. Wilson
TRAINING
E. F. Wright (L)
A. P. Healy
R. C. Melia

OUTPLACEMENT TEAM
R. T. O'Neil (L)
**J. Harrington
E. Niss
H. C. Jones
P. R. Shea
A. Wolff
E. M. Jensen
M. E. Noble
N. L. Ciccone

EMPLOYEE COUNSELING TEAM
*D. McCarthy (L)
B. Akillian
C. E. Killian
P. S. Corbin

SPECIAL REPORTS TEAM
*D. Pilistine
J. Moorman
T. Hogg

NOTES: (L) = Team or function leader

* = Dual assignment

** = In conjunction with Accounting System phaseout

CHARTER FOR ERC PERSONNEL TASK FORCE

1. GENERAL

The Task Force is responsible for planning and implementing all personnel actions incident to the orderly phase-out of the Electronics Research Center.

Assignment to the Task Force is on a full-time basis, and takes precedence over any existing assignments. The Task Force, through the Chairman, reports to the Deputy Director of Administration.

The Task Force shall develop and submit a master plan with milestones; and shall submit weekly progress reports, by 2 p.m. each Friday.

The Chairman (or Deputy Chairman in his absence) has authority to reassign personnel and duties within the Task Force; and to submit for the approval of the Deputy Director of Administration any significant changes in the makeup or organization of the Task Force, or assignment of additional ERC personnel thereto.

2. RESIDUAL PERSONNEL FUNCTIONS

This team is responsible for continuing the routine personnel functions and on-going actions in the areas of staffing, classification and training. In addition this team, in the area of staffing, will be particularly concerned with necessary continuity of the personnel staff, with automated personnel data systems and automated reports, with processing of actions and forms and maintenance of records as personnel are terminated, and with the closeout of 201 files.

3. OUTPLACEMENT TEAM

This team is responsible for planning and implementing an out-placement program. This includes but is not limited to establishing a compendium of qualifications of all ERC employees, acting as contact with firms and agencies who might employ ERC personnel, compiling lists of potential employment opportunities, establishing visit and interview schedules for prospective employers, effecting liaison between prospective employers and

ERC personnel, arranging necessary logistics support for interview teams, maintaining records of employment offers and acceptances, and effecting follow-up action as required.

4. EMPLOYEE COUNSELLING TEAM

This team is responsible for counselling ERC employees in all matters of general nature or individual concern. This includes but is not limited to such matters as severance pay, retirement, health and life insurance coverage, social security and unemployment benefits, and assistance in determining the exact status of individual employees. This team shall also establish contact with, and refer difficult questions to, experts in particular matters in the Civil Service Commission and NASA Headquarters.

5. SPECIAL REPORTS TEAM

This team is responsible for assembling and preparing the Task Force weekly progress report, weekly input to the ERC NEWS, and any other special written or statistical reports not under the cognizance of one of the other teams. All other teams are responsible for providing input as necessary.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
ELECTRONICS RESEARCH CENTER
CAMBRIDGE, MA 02139

JAN 1 1 1970

PLEASE REPLY TO CODE A

TO : Distribution

FROM : A/Deputy Director of Administration

SUBJECT: Establishment of the ERC Facilities Services Task Force

In order to provide the necessary support required for an orderly phase-out of Facilities Services, I am establishing the second in a series of task forces along the lines of the organization chart and charter statement attached.

Assignment to the Task Force is on a full-time basis, and takes precedence over any existing assignments. The Task Force, through the Chairman, reports to the Deputy Director of Administration. The Task Force shall develop and submit a master plan with milestones; and shall submit weekly progress reports, by 2 p.m. each Friday.

The Chairman (or Deputy Chairman in his absence) has authority to reassign personnel and duties within the Task Force; and to submit for the approval of the Deputy Director of Administration any significant changes in the makeup or organization of the Task Force, or assignment of additional ERC personnel thereto.

I know that, as in the case of the Personnel Task Force, I can expect the full support of all personnel to carry out this activity.

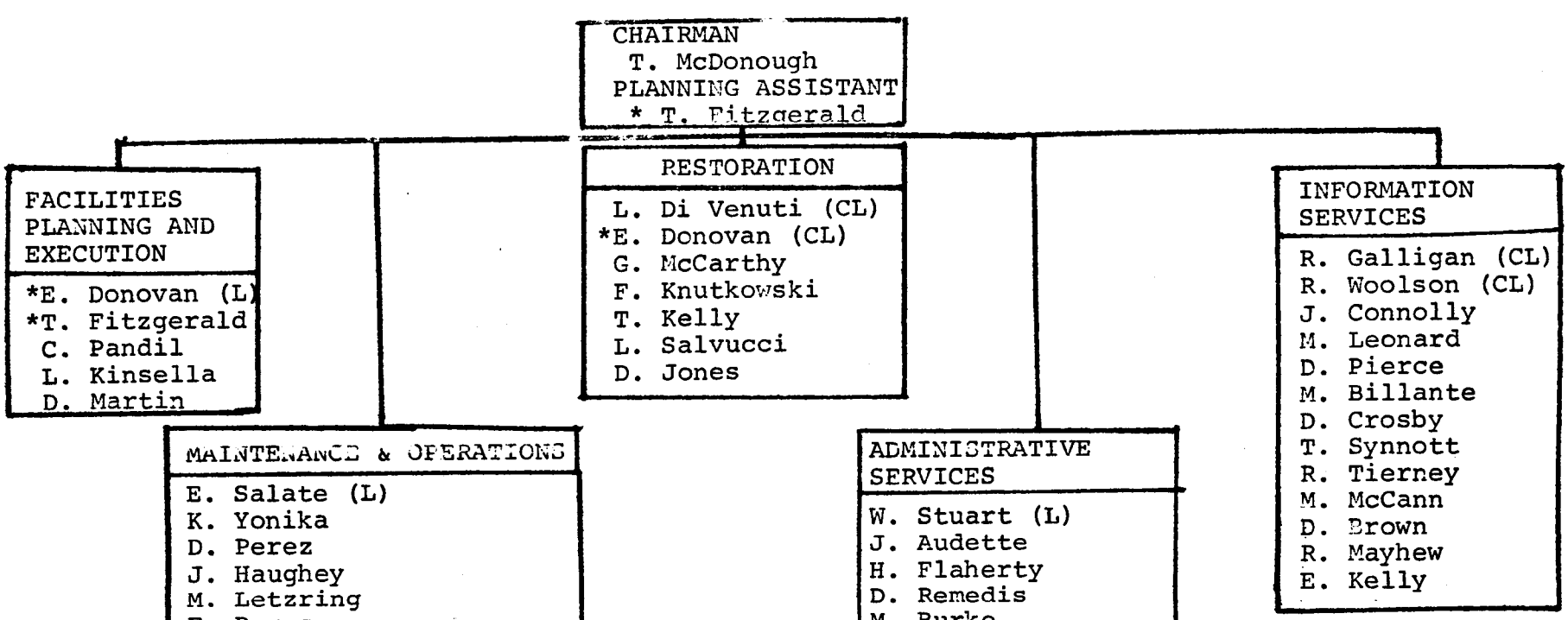
James B Cahalane

Attachments

Distribution:
ERC Facilities Services Task Force

cc:
A/Mr. Phillips
AB/Mr. Bayne
AM/Mr. Fernandez
AR/Mr. Ostrosky
D/Mr. Dennison
R/Dr. Dunlap
T/Dr. Mannella
P/Mr. Wedan

ERC FACILITIES SERVICES TASK FORCE



NOTES: (L) = Team Leader
(CL) = Co-Leaders
* = Dual Assignment

CHARTER FOR ERC FACILITIES SERVICES TASK FORCE

1. GENERAL

The Task Force is responsible for planning and implementing all phase-out actions required in those areas which are the functional responsibility of the Facilities Services Division.

2. FACILITIES PLANNING AND EXECUTION

This team will conduct an immediate space analysis in terms of the present lease and permanent facilities inventory. Cost profiles will be developed based on existing lease agreements and construction progress at Kendall Square.

Recommendations for release of leased space and amalgamation of personnel and equipment will be made based on assumed termination rates and the property disposition plan.

Recommendations will consider the optimum economic position for the Government while honoring basic agreements entered into previously.

A real property plan will be developed which, as a minimum, defines the regulatory aspects of ERC's real property responsibility. Additionally, a real property inventory will be accomplished and procedural reporting requirements defined and executed.

3. MAINTENANCE AND OPERATIONS TEAM

This team is responsible for the preparation of a detailed maintenance and operation plan for ERC Kendall Square Facilities. This plan shall provide for all required services to occupied areas of the Kendall Square Facilities as developed in the move plan furnished by the Facilities Planning and Execution Team. In addition, the team shall provide a plan for provision of required contractor support and develop and implement a preventative maintenance program. This program shall include the following:

a. Tabulate and file plans and maintenance and operation manuals.

b. Compile a list of all mechanical and electrical equipment requiring maintenance.

c. Code systems for identification.

d. Determine the frequency of and execute preventive maintenance tasks.

This team shall also be responsible for providing all required residual facilities operations, such as trouble shooting and repair services during equipment malfunctions.

4. RESTORATION TEAM

This team is responsible for planning and implementing a restoration program for all ERC leased space. Based upon the phase-out move plan developed by the Facilities Planning and Execution Team, they will develop a restoration plan, compile a listing and recommend disposition of all facility oriented equipment and systems, provide engineering cost feasibility studies, prepare as-built drawings, negotiate with landlord, secure approvals from higher ERC management for restorations, prepare work statements and implement the removal of equipment and utilities.

5. ADMINISTRATIVE SERVICES

This team is responsible for the orderly phase-out of services attendant to communications, mail, transportation, travel, and records management. Plans will be developed in each of the above areas. The plans will recommend appropriate actions in phase with the assumed termination rate and the move plan furnished by the Facilities Planning and Execution Team. The communication plan will express as much detail as possible for the benefit of the telephone company planning and continued support. The records management plan will identify the regulatory aspects of records storage and disposition. Additionally, this plan will reflect appropriate interfaces with records coordination throughout the Center to effect a complete final records management program in accordance with established regulation.

6. INFORMATION SERVICE

This team is responsible for planning and executing the phase-out of services and functions attendant to information services. These services include the Technical Information Center, Automated Information Services, Freedom of Information Act, conference support, Documentation Services, Audio-Visual and Photographic Services, and Reproduction Printing Services. The Information Services plan will insure the expeditious reduction of services support commensurate with the closing date of the Center while maintaining a level of support sufficient to finalize final documentation of research results as approved.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
ELECTRONICS RESEARCH CENTER
CAMBRIDGE, MA 02139

OCT 1 0 1969

PLEASE REPLY TO CODE A

TO : Distribution

FROM : A/Deputy Director of Administration

SUBJECT: Establishment of the ERC Property Task Force

This memorandum establishes the ERC Property Task Force, the third in a series of task forces. The task force will be responsible for the orderly disposition of Center personal property, in keeping with the Charter statement and organization chart attached.

Assignment to the Task Force is on a full-time basis, and takes precedence over any existing assignments. The Task Force, through the Chairman, reports to the Deputy Director of Administration. The Task Force shall develop and submit a master plan with milestones; and shall submit weekly progress reports, by 2 p.m. each Friday.

The Chairman (or Deputy Chairman in his absence) has authority to reassign personnel and duties within the Task Force; and to submit for the approval of the Deputy Director of Administration any significant changes in the makeup or organization of the Task Force, or assignment of additional ERC personnel thereto.

This task force will interface and coordinate its activities with previously established task forces, and those to be chartered.

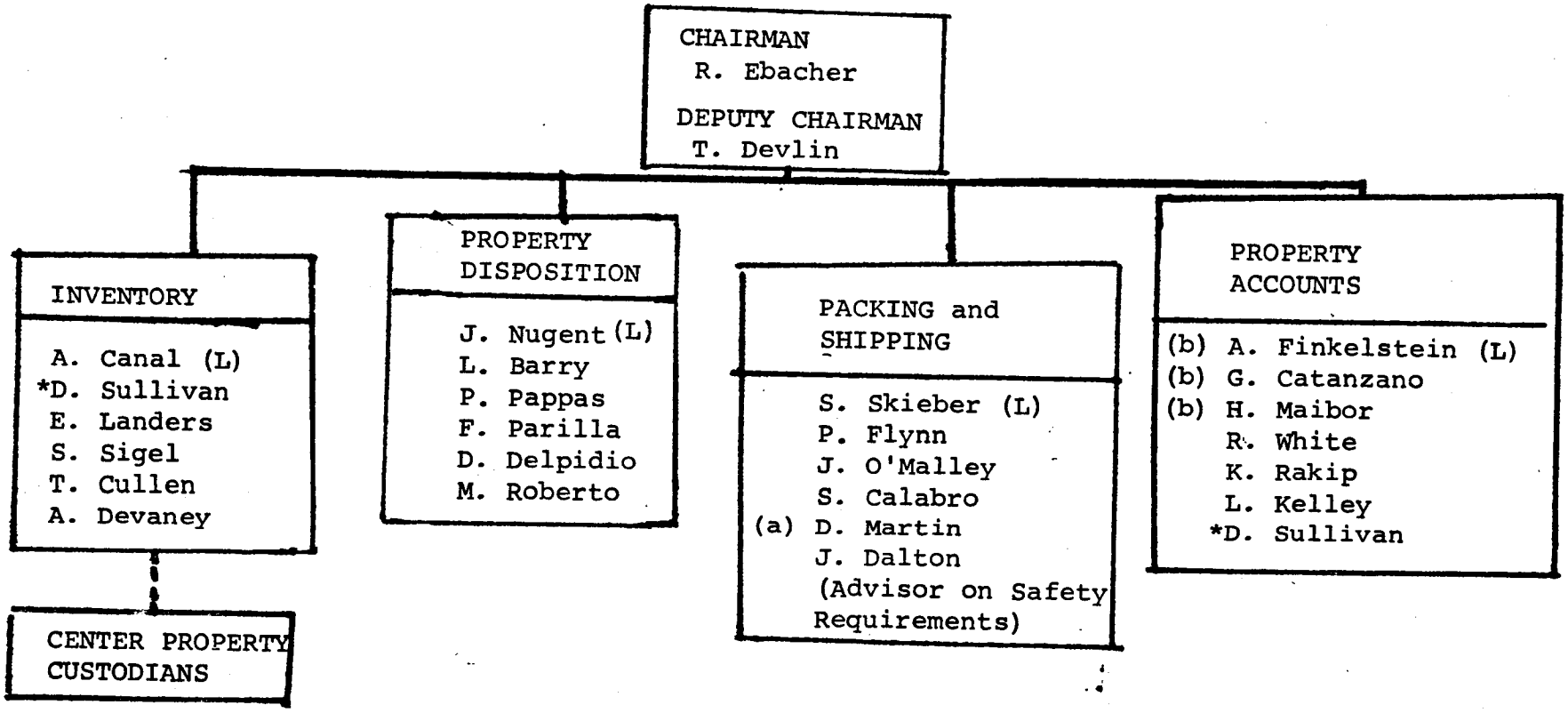
James B. Cahalane

Attachments

Distribution:
ERC Property Task Force Members

cc:
A/Mr. Phillips
AB/Mr. Bayne
AM/Mr. Fernandez
AR/Mr. Ostrosky
D/Mr. Dennison
R/Dr. Dunlap
T/Dr. Mannella
P/Mr. Wedan

ERC PROPERTY TASK FORCE



Notes: (L) = Team Leader
(a) = In conjunction with Facilities Services Task Force
(b) = In conjunction with the Financial Task Force
* = Dual Assignment

CHARTER FOR ERC PROPERTY TASK FORCE

1. GENERAL

The Property Task Force shall be responsible for all plans, actions, recommendations and documentation required to close out ERC personal property accounts, inventory ERC personal property, and effect disposition, packing and shipping of that property. The Task Force shall interface with The Facilities Services Task Force to assure intergration with the move plan, interface with the Procurement Task Force and the Accounting Task Force to assure that all ERC records are reconciled. In addition, The Task Force shall coordinate with and enlist the aid of all ERC property custodians where required to accomplish its responsibilities.

2. PROPERTY INVENTORY TEAM

This team is responsible for developing a complete physical inventory of all accountable and non-accountable property whether located on-site or off-site, government furnished equipment, property on loan to other NASA Centers and other government agencies, in storage, in shipment, or in repair. In the case of property which is government furnished equipment, or contractor acquired, this team shall coordinate with the Procurement Task Force. In each case this team shall coordinate with the proper property custodian. As part of the inventory, the condition of the inventoried property shall be noted, as well as any other salient characteristics required for the Property Disposition Team to make required decisions.

3. PROPERTY DISPOSITION TEAM

The Property Disposition Team is responsible for reviewing the Center's inventories and developing criteria for the planning of property disposition. Such criteria includes time phasing, and costs for disposition of items associated with programs to be completed, to be transferred to other Government agencies. The team shall prepare recommendations regarding return of items to depot stock or vendors, declaring items surplus, or suggestions for abandonment in place.

This team will schedule their activities in keeping with the move and release of leased space plans prepared by The Facilities Planning and Execution Team of the Facilities Services Task Force, so that the release of property may precede or be in conjunction with moves, thereby avoiding repeated moves of the same items. However, this team will prepare for immediate circulation within NASA, a listing of property items likely to be acquired by other installations, i.e. general purpose electronics instruments, extended delivery items, etc.

This team will be the focal point for all inquiries regarding property disposition, and will document all transfer or release actions with the recipient. Further, the teams activities will be coordinated with the Packing and Shipping, and Property Accounts Teams of this task force to ensure an orderly disposition process.

As the release of property progresses, this team will identify items likely to require storage after June 30, 1970. The team will then prepare an estimate of live, dead, and special environment storage requirements for upper management.

4. PACKING AND SHIPPING TEAM

This team shall be responsible for the required packing and shipping of all ERC personal property. The team shall coordinate with the Property Inventory Team and the Property Disposition Team. Ideally all property involved when any of ERC leased facilities are released shall be prepared for packing and shipping to its disposition point prior to the move from that facility or floor. This will require inter-face with the Facilities Planning and Execution Team of the Facilities Services Task Force. This team shall also prepare cost trade-off estimates and a plan for accomplishing its responsibilities with use of contractor support if necessary. Following the packing and shipping, this team shall provide necessary documentation to the Property Accounts Team so that ERC records may reflect ultimate disposition of all personal property.

5. PROPERTY ACCOUNTS TEAM

This team shall be responsible for reconciling all property accounts with physical inventories compiled by

The Property Inventory Team. These accounts include records maintained by the Property Officer and the Accounting Branch. The team shall also be responsible for closing out all ERC property accounts after property has been disposed of, and completing documentation in the way of receiving reports required for payment of open accounts. This last task will involve close coordination with the Accounting Task Force.

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

TO : Distribution

DATE: January 15, 1970

FROM : A/Deputy Director of Administration

SUBJECT: Establishment of the ERC Property Task Force

In accordance with the provisions contemplated by my memorandum dated January 12, 1970, subject as above, the Property Task Force is reconstituted and its charter amended as reflected in the attachments to this memorandum.

James B. Cahalane

Attachments

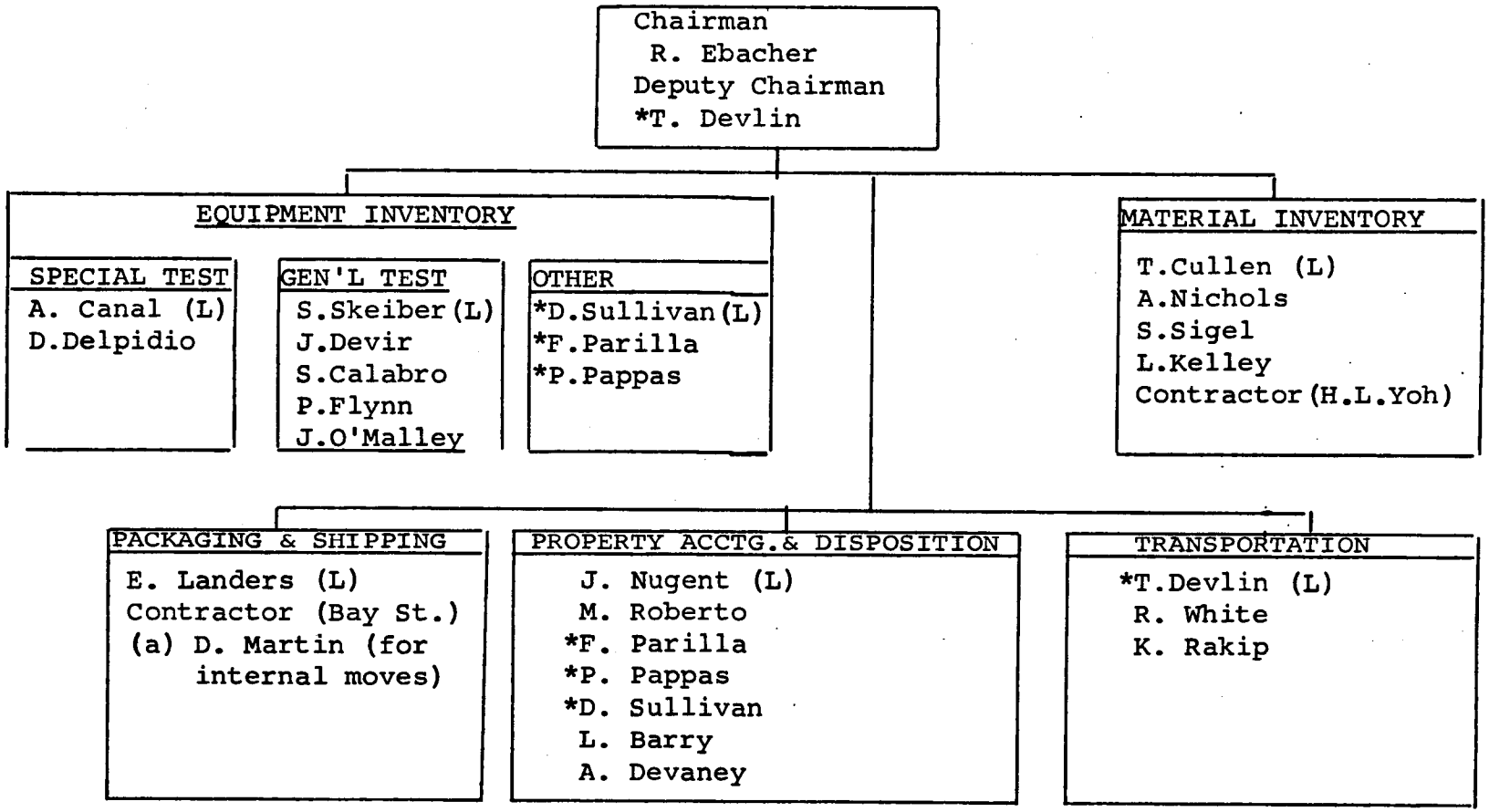
Distribution
ERC Property Task Force Members

cc:

A/Mr. Phillips	D/Mr. Dennison
AB/Mr. Bayne	R/Dr. Dunlap
AM/Mr. Fernandez	T/Dr. Mannella
AR/Mr. Ostrosky	P/Mr. Wedan
DP/Mr. Martin	U/Mr. Rollin

5010-106

ERC PROPERTY TASK FORCE



Notes: (L) = Team Leader
(a) = In conjunction with Facilities Services Task Force
* = Dual Assignment

CHARTER FOR ERC PROPERTY TASK FORCE

1. GENERAL

The Property Task Force shall be responsible for all plans, actions, recommendations and documentation required to close out ERC personal property accounts, inventory ERC personal property, and effect disposition, packing and shipping of that property. The Task Force shall interface with the Facilities Services Task Force to assure integration with the move plan, interface with the Procurement Task Force and the Accounting Task Force to assure that all ERC records are reconciled. In addition, the Task Force shall coordinate with and enlist the aid of all ERC property custodians where required to accomplish its responsibilities.

2. EQUIPMENT AND MATERIAL INVENTORY TEAMS

These teams are responsible for developing a complete physical inventory of all Government accountable and non-accountable property whether located on-site or off-site, Government furnished equipment, property on loan from other NASA Centers and other Government agencies, or in storage. In the case of property which is Government furnished equipment, or contractor acquired, this team shall coordinate with the Procurement Task Force. In each case this team shall coordinate with the proper property custodian. As part of the inventory, the condition of the inventoried property shall be noted, as well as any other salient characteristics required for the Property Disposition Team to make required decisions.

3. PROPERTY ACCOUNTING AND DISPOSITION TEAM

The Property Accounting and Disposition Team is responsible for reviewing the Center's inventories and developing criteria for the planning of property disposition. Such criteria includes time phasing, and costs for disposition of items associated with programs to be completed, to be transferred to other Government agencies. The team shall prepare recommendations regarding return of items to depot stock or vendors, declaring items surplus, or suggestions for abandonment in place. This team shall also be

responsible for reconciling all property accounts with physical inventories compiled by the Equipment and Material Inventory Teams. These accounts include records maintained by the Property Officer and the Accounting Branch. The team shall also be responsible for closing out all ERC property accounts after property has been disposed of, and completing documentation in the way of receiving reports required for payment of open accounts. This last task will involve close coordination with the Accounting Task Force.

This team will schedule their activities in keeping with the move and release of leased space plans prepared by the Facilities Planning and Execution Team of the Facilities Services Task Force, so that the release of property may precede or be in conjunction with moves, thereby avoiding repeated moves of the same items. However, this team will prepare for immediate circulation within NASA, a listing of property items likely to be acquired by other installations, i.e., general purpose electronics instruments, extended delivery items, etc.

This team will be the focal point for all inquiries regarding property disposition, and will document all transfer or release actions with the recipient. Further, the team's activities will be coordinated with the Packaging and Shipping Team of this task force to ensure an orderly disposition process.

As the release of property progresses, this team will identify items likely to require storage after June 30, 1970. The team will than prepare an estimate of live, dead, and special environment storage requirements for upper management.

4. PACKAGING AND SHIPPING TEAM

This team shall be responsible for the required packaging and shipping of all ERC personal property. The team shall coordinate with the Inventory Teams and the Property Accounting and Disposition Team and the Transportation Team.

Ideally all property involved when any of ERC owned or leased facilities are relinquished shall be prepared for packaging and shipment prior to the move from that facility or floor. This will require interface with the Facilities Planning and Execution Team of the Facilities Services Task Force. This team shall also prepare cost trade-off estimates and a plan for accomplishment of its responsibilities, with use of contractor support if necessary. Following the packaging and shipping, this team shall provide necessary documentation to the Property and Accounting Disposition Team so that ERC records may reflect ultimate disposition of all personal property.

5. The Transportation Team has primary responsibility for the preparation of Bills of Lading (Government and commercial), ascertaining traffic rates, and determining mode of shipment. Where applicable, recovery claims for shortages and/or damages will be instituted.

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

TO : Distribution

DATE: January 12, 1970

FROM : A/Deputy Director of Administration

SUBJECT: Establishment of the ERC Financial Task Force

The Financial Task Force, established by this memorandum is the fourth in the series of task forces responsible for orderly Center phase-out. This task force will work closely with, and support all Center personnel, including all other task forces established. This task force will operate along the lines of the attached organization chart and charter statement.

Assignment to the task force is on a full-time basis and takes precedence over any existing assignments. The task force, through the Chairman, reports to the Deputy Director of Administration.

The task force shall develop and submit a master plan with milestones, and shall submit weekly progress reports, by 2:00 p.m. each Friday.

The Chairman (or Deputy Chairman in his absence) has authority to reassign personnel and duties within the task force and to submit for the approval of the Deputy Director of Administration any significant changes in the makeup or organization of the task force, or assignment of additional ERC personnel thereto.

James B. Cahalane

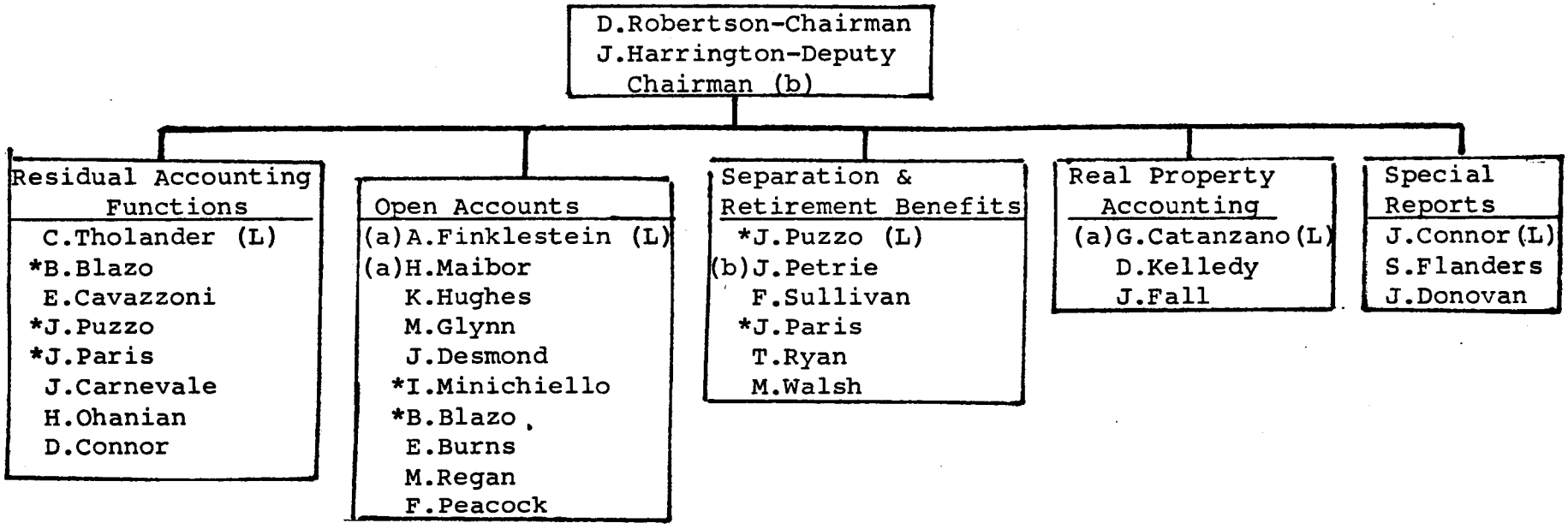
Attachments

Distribution
ERC Financial Task Force Members

cc:

A/Mr. Phillips	D/Mr. Dennison
AB/Mr. Bayne	R/Dr. Dunlap
AM/Mr. Fernandez	T/Dr. Mannella
AR/Mr. Ostrosky	P/Mr. Wedan

ERC FINANCIAL TASK FORCE



NOTES: (L) = Team Leader
(a) = In conjunction with Property Task Force
(b) = In conjunction with Personnel Task Force
* = Dual Assignment

CHARTER FOR ERC FINANCIAL TASK FORCE

1. GENERAL

The Financial Task Force will be responsible for the planning, activities, and documentation required to ensure the payment of the Center's obligations, and to reconcile and close all financial accounts. Working with the Personnel Task Force, this task force will assist in the calculation of separation and retirement benifits, and take the necessary actions to ensure their payment to ERC personnel. In conjunction with the Facilities Services and Property Task Forces, this task force will work toward closing all ERC property accounts. Interfacing with the Procurement Task Force, the transfer of contractual records, and the payment of outstanding obligations will be accomplished.

2. RESIDUAL ACCOUNTING FUNCTIONS

This team is responsible for continuing the routine accounting functions and on-going activities in the areas of payroll, travel, fund certification and imprest funds payments. Of particular concern will be the maintenance of records for personnel separated from ERC rolls to ensure payment of benefits due. This team will provide information to the Special Reports Team of this task force so that selected, on-going financial reports and analyses may continue, special phase-out reporting may be done, and elements of current reporting systems may be dropped.

3. OPEN ACCOUNTS TEAM

The Open Accounts Team shall be responsible for those actions required to close or transfer all ERC open accounts, with the exception of the inventory account, which shall be the responsibility of the Property Accounts Team of the Property Task Force and the real property accounts which shall be the responsibility of the Real Property Accounting Team. This team shall coordinate with the Procurement Task Force and the Property Task Force to assure complete documentation of all accounts.

4. SEPARATION AND RETIREMENT BENEFITS TEAM

This team shall be responsible for those financial actions required to ensure proper retirement and separation benefits to all qualified ERC personnel. The team shall coordinate with the Personnel Task Force the computations required in accomplishing its goals. As part of its responsibility, this team will be certain to obtain up-to-date addresses for all qualifying personnel. This team shall also be responsible for coordinating with the Special Reports Team and the Personnel Task Force in the preparation of any internal or external reports required.

5. REAL PROPERTY ACCOUNTING TEAM

This team shall be responsible for all actions required to close or transfer ERC real property accounts. This will require close coordination with the Real Property Accountability Officer and the Facilities Services Team.

6. SPECIAL REPORTS TEAM

This team will be responsible for undertaking an immediate review of all current financial reporting requirements. They shall then recommend those elements to be continued, modified, added, or discontinued, as appropriate in the context of Center pahse-out. Working with the Residual Functions team of this task force, they will ensure that all financial reporting systems required to provide upper management with the information need to direct the phase-out are maintained. The Special Reports Team, in coordination with all the teams of this task force will prepare the reports and analyses necessary to the orderly phase-out of ERC. All the other teams of this task force shall provide input as required.

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA GEN. REG. NO. 27

UNITED STATES GOVERNMENT

Memorandum

TO : Distribution

DATE: January 13, 1970

FROM : A/Deputy Director of Administration

SUBJECT: Establishment of the ERC Procurement Task Force

The Procurement Task Force, the fifth in the series of task forces responsible for orderly Center phase-out, is established by this memorandum. Operating along the lines of the attached charter statement and organization chart, it is expected that this task force will work very closely with the many technical monitors at ERC, as well as the Property and Financial Task Forces.

Assignment to the task force is on a full-time basis and takes precedence over any existing assignments. The task force, through the Chairman, reports to the Deputy Director of Administration.

The task force shall develop and submit a master plan with milestones, and shall submit weekly progress reports, by 2:00 p.m. each Friday.

The Chairman (or Deputy Chairman in his absence) has authority to reassign personnel and duties within the task force and to submit for the approval of the Deputy Director of Administration any significant changes in the makeup or organization of the task force, or assignment of additional personnel thereto.

James B. Cahalane

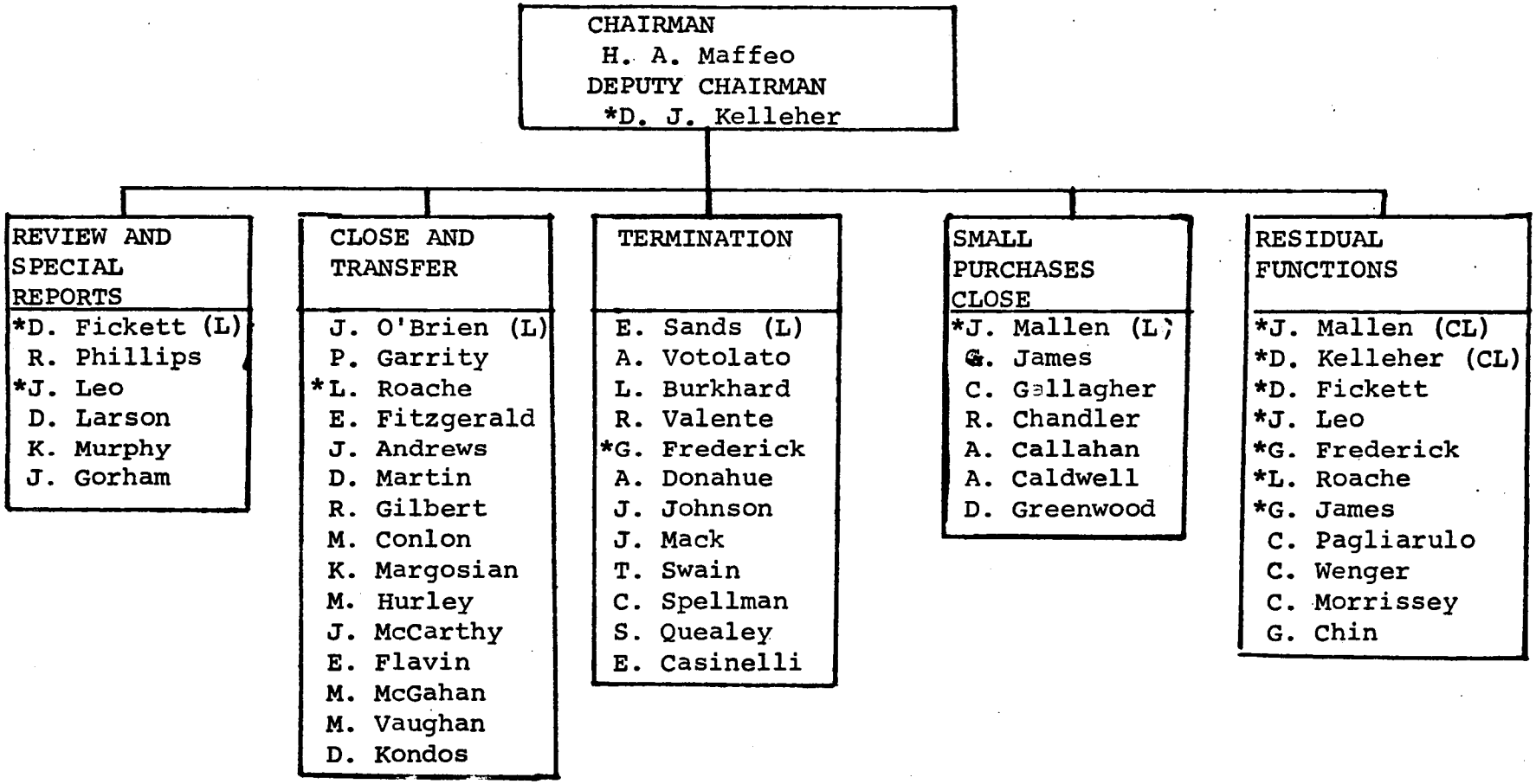
Attachments

Distribution:
ERC Procurement Task Force Members

cc:

A/Mr. Phillips	D/Mr. Dennison
AB/Mr. Bayne	R/Dr. Dunlap
AM/Mr. Fernandez	T/Dr. Mannella
AR/Mr. Ostrosky	P/Mr. Wedan

ERC PROCUREMENT TASK FORCE



NOTES: (L) = Team Leader
(CL) = Team Co-Leader
* = Dual Assignment

CHARTER FOR ERC PROCUREMENT TASK FORCE

1. GENERAL

This Task Force shall be responsible for all planning, actions and reviews required for an orderly phase-out of ERC procurement actions. This shall include the close, transfer or termination of all contracts or agreements, preparation of special reports, and actions required by any residual procurements. This Task Force shall coordinate with The Property Task Force, and the Financial Task Force to assure reconciliation of all records.

Before any implementing action can be taken to close, transfer or terminate a contract or agreement, it will be necessary that all such files be brought up to date. Initially, therefore, all members of the Close and Transfer Team and the Termination Team will work with the cognizant Technical Monitor to completely update all files. These files will then be reviewed and analyzed by the Review and Special Reports Team, as detailed below. Following a decision on each case, the appropriate team will take the steps required to close, transfer or terminate that contract, or agreement.

The decision to close, transfer or terminate shall be made by the Procurement Officer, with the advice of the Technical Monitor, and based upon the reviews and analysis of the Review and Special Reports Team and advice concerning the status of the program involved.

2. REVIEW AND SPECIAL REPORTS TEAM

This team shall undertake an immediate review of all contracts or agreements under administration by ERC. This team will work with the Technical Monitor for each contract to ascertain and receive advice regarding the progress of that contract. Based upon their analysis of the current progress and cost status of each contract or agreement this team will prepare, for use by the Procurement Officer, a trade off study, and recommend contract completion/close, or contract termination.

In support of the Close and Transfer, and the Termination teams, this team will perform or arrange for interim or final audit reports, obtain recommended rates, and support or participate in any negotiations engaged in by these other teams. This team shall analyze current reporting requirements, recommend ending,continuing, modifying, or adding to normal requirements, as needed, to manage the orderly phase-out of procurement activities.

3. CLOSE AND TRANSFER TEAM

Following the update of all files, this team shall be responsible for those actions required to close or transfer contracts or agreements. In carrying out their function, this team shall coordinate with the Open Accounts Team of the Financial Task Force and with The Property Task Force to assure that all ERC records reflect ultimate contract or agreement status. This team will be advised by the Procurement Officer and Task Force Chairman of those contracts or agreements which require their action.

4. TERMINATION TEAM

Following the update of all files this team shall be responsible for those actions required to terminate contracts or agreements. In carrying out their function, this team shall coordinate with The Open Accounts Team of the Financial Task Force and with The Property Task Force to assure that all ERC records reflect ultimate contract or agreement status. This team will be advised by the Procurement Officer and Task Force Chairman of those contracts or agreements which require their action.

5. SMALL PURCHASES CLOSE

Working closely with the Open Accounts Team of the Financial Task Force, this team will effect and document all necessary actions required to ensure payment of vendors and the close-out of Purchase Requisitions files.

6. RESIDUAL FUNCTIONS TEAM

This team will be responsible for the normal, on-going procurement activities. It will award contracts, effect small purchases, carry on and document Government small business and contractor equal employment opportunity programs.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
ELECTRONICS RESEARCH CENTER
CAMBRIDGE, MA 02139

PLEASE REPLY TO CODE A

JAN 2

TO : Distribution

FROM : A/Deputy Director of Administration

SUBJECT: Establishment of the ERC Engineering and Construction Task Force

The Engineering and Construction Task Force, established by this memorandum, is the sixth such group charged with ensuring orderly ERC phase-out. Keeping with the attached charter statement and organization chart, this task force is expected to work closely with the Corps of Engineers as well as the Property and Facilities Services Task Forces.

Assignment to the task force is on a full-time basis and takes precedence over any existing assignments. The task force, through the Chairman, reports to the Deputy Director of Administration.

The task force shall develop and submit a master plan with milestones, and shall submit weekly progress reports, by 2:00 p.m. each Friday.

The Chairman (or Deputy Chairman in his absence) has authority to reassign personnel and duties within the task force and to submit for the approval of the Deputy Director of Administration any significant

changes in the makeup or organization of the task force, or assignment of additional personnel thereto.

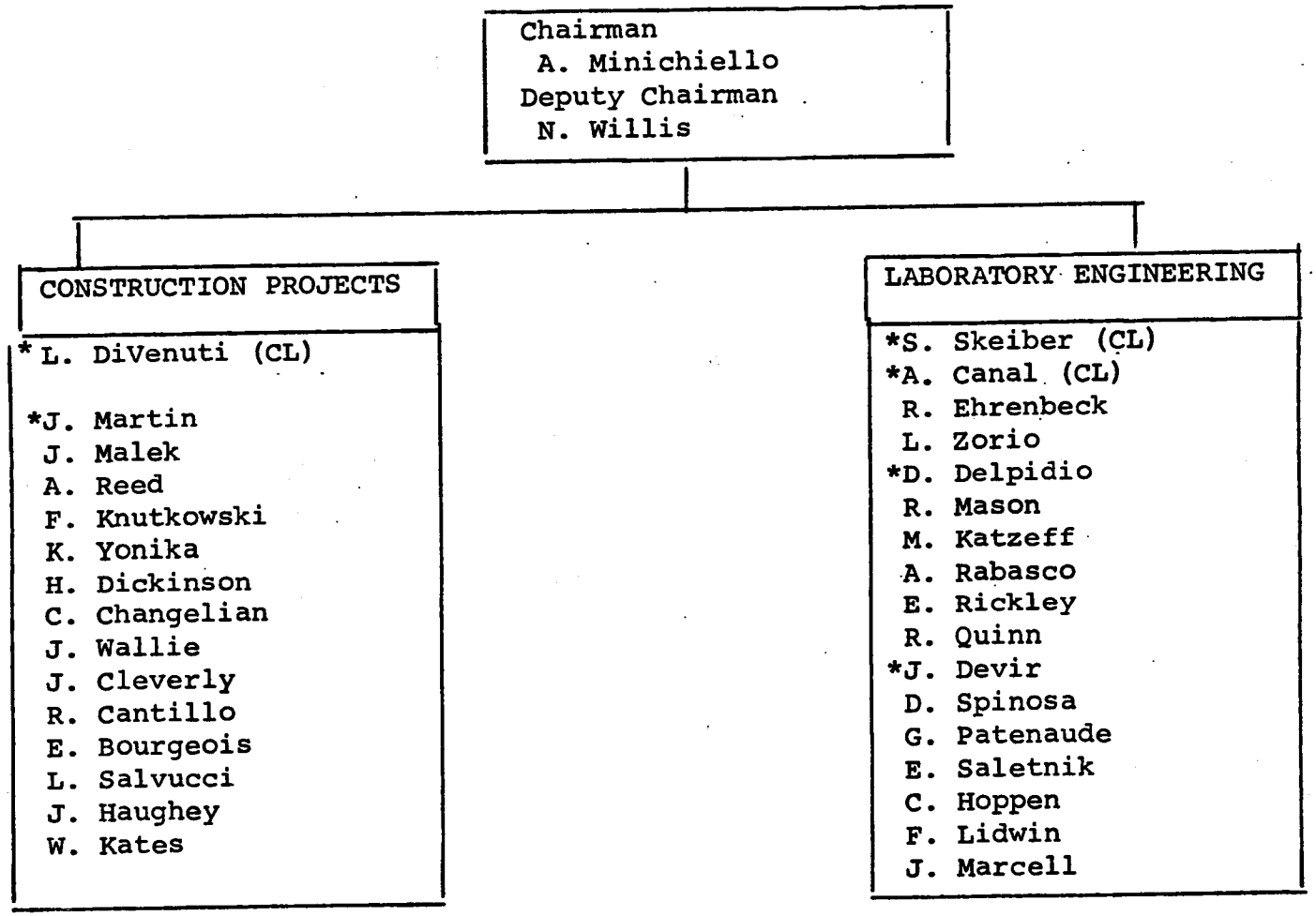
James B. Cahalane

Attachments

Distribution:
ERC Engineering and Construction Task Force

cc:
A/Mr. Phillips
AB/Mr. Bayne
AM/Mr. Fernandez
AR/Mr. Ostrosky
D/Mr. Dennison
R/Dr. Dunlap
T/Dr. Mannella
P/Mr. Wedan
U/Mr. Rollin
DP/Mr. Martin
AP/Mr. Huron
AN/Mr. McDonough
AD/Mr. Ebacher
AW/Mr. Maffeo
AWA/Mr. Robertson

ERC ENGINEERING & CONSTRUCTION TASK FORCE



Notes:

(CL) = Team Co-Leader
* = Dual Assignment

CHARTER FOR ERC ENGINEERING AND CONSTRUCTION TASK FORCE

1. GENERAL

The Engineering and Construction Task Force will be responsible for the planning, management and documentation required for the completion of ERC engineering and construction programs. This task force is also responsible for providing research engineering design and fabrication, and laboratory services as required during phase-out.

2. CONSTRUCTION PROJECTS TEAM

This team will be responsible for the planning and execution of the following activities:

A. Complete review of KI/KC Building design documents.

B. Inspect leased quarters following removal of equipment, and prepare restoration drawings and specifications, as required by the Restoration Team of the Facilities Services Task Force.

C. Assist the Procurement Task Force, and/or GSA in negotiations for the termination of utility services.

D. In coordination with the Maintenance and Operations Team of the Facilities Services Task Force, prepare documents and instructions for "mothballing" of facility equipment, if the buildings are to remain unoccuppied for any length of time.

E. Issue appropriate instructions covering the cut-back in the scope of construction.

F. Working with the Property Accounting and Disposition Team of the Property Task Force, and the Restoration Team of the Facilities Services Task Force, arrange for the disposition of equipment, (pumps, A/C units, control panels, transformer) salavaged upon vacating leased space.

G. Review "As-Built" drawings to assure that the drawings represent construction as accomplished.

H. This team will also undertake the field check of "As-Built" drawings.

I. This team will reconcile funding of the project with Corps of Engineers upon completion of the work under contract; complete processing of Transfer and Acceptance documents; direct the orderly disposition of Field Records and the disposition of all records covering the activities of the Construction Projects Office.

J. In coordination with the Property Task Force, this team will see to the disposal of surplus Government-owned construction materials.

K. This team shall prepare bidding documents for landscaping of the Kendall Square site, and inspect or manage work under this contract, as well as other exterior site work, i.e., rough grading and completion of bituminous paving; plaza paving; completion of the Guidance Building, the roof of the High Rise Building and the correction of deficiencies in all buildings; and the final clean-up work.

L. With the participation of the Maintenance and Operations Team of the Facilities Services Task Force, this team will witness performance and acceptance tests on equipment during the May-June period, when there will be a cooling demand, as well as witness balancing of air conditioning systems.

M. Prepare a glossary of information covering the planning and construction of the Center. Included in this document will be physical data on buildings, descriptions of utilities systems, capacities and mode of operations; description of exhaust systems and emergency operation procedures, and similar information considered useful to future occupant of buildings. This effort will be in coordination with the Maintenance and Operations Team of the Facilities Services Task Force.

3. LABORATORY ENGINEERING TEAM

This team is charged with the following responsibilities during ERC phase-out:

A. Based upon the plan developed by the Facilities Planning and Execution Team of the Facilities Services Task Force, and in coordination with the Packaging and Shipping Team of the Property Task Force, this team will assist in the dismantling, classifying, and moving special equipment.

B. Provide for the condition classification of ERC instruments and machine tools.

C. Prepare a plan for orderly phase-out of functions performed by the Technical Services Division, including a plan for phase-out of all contractor support.

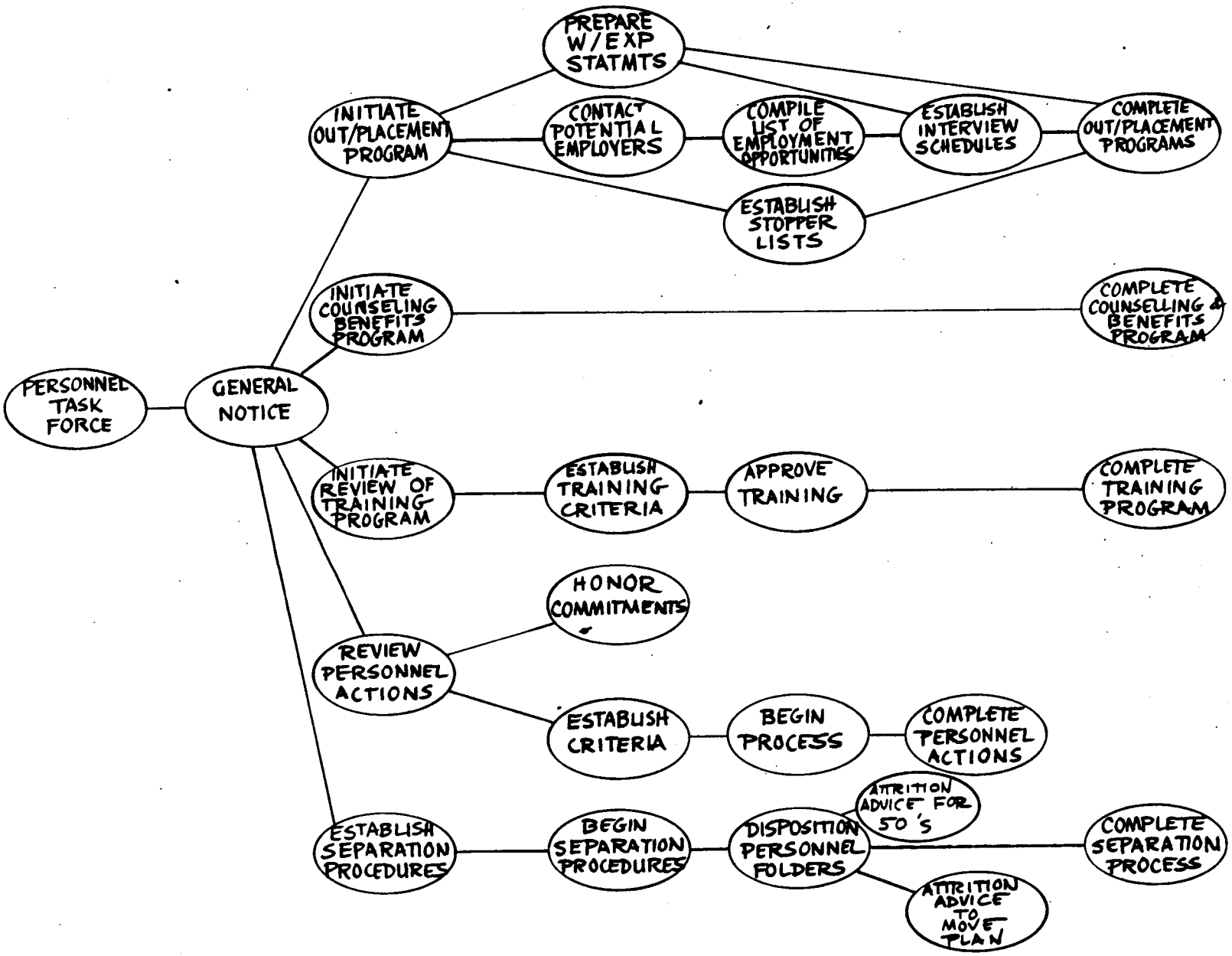
D. Provide continuity in assisting those laboratories who have personnel working on "on-going" projects.

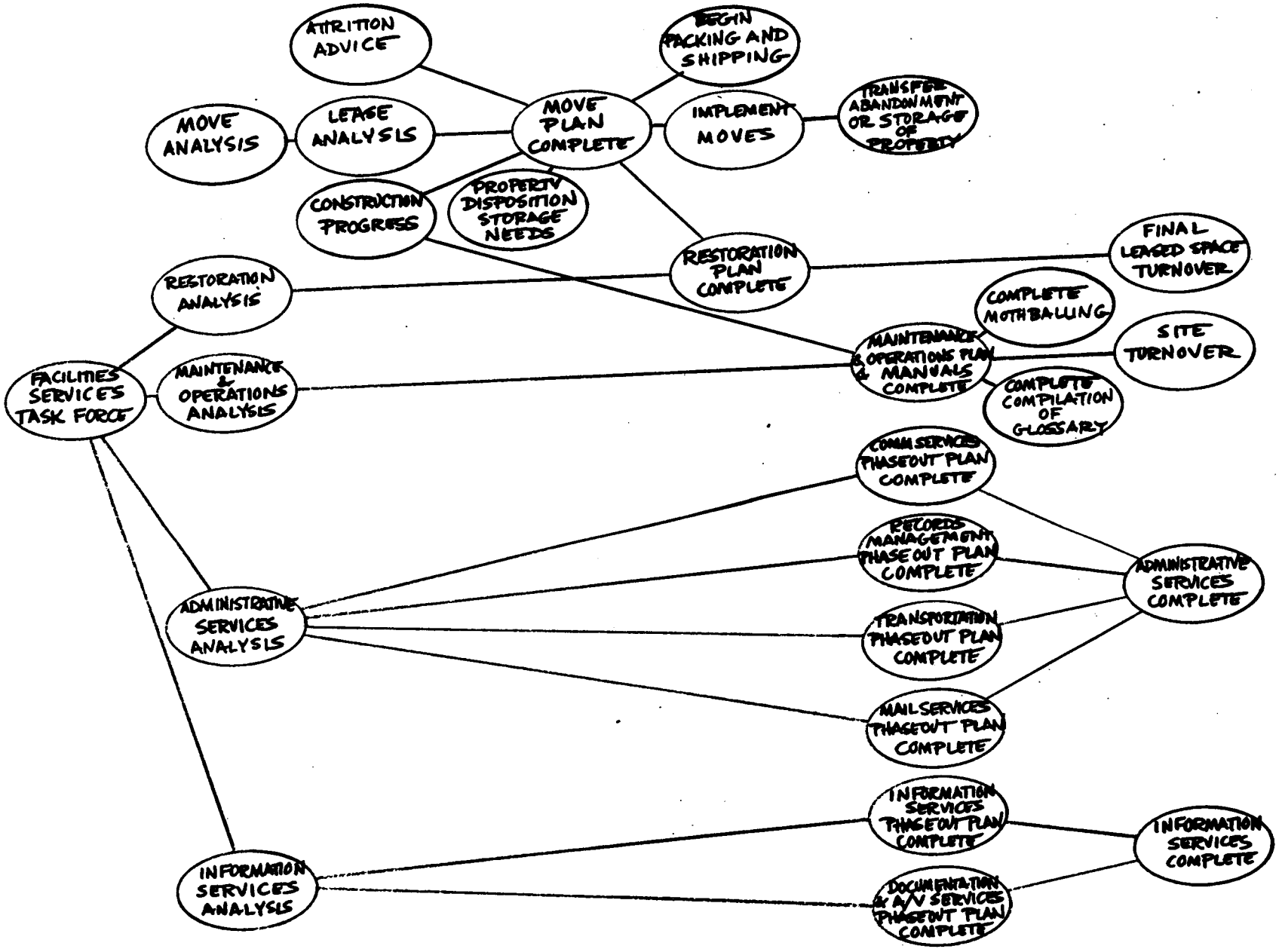
E. Complete full documentation of all records and drawings of the Technical Services Division.

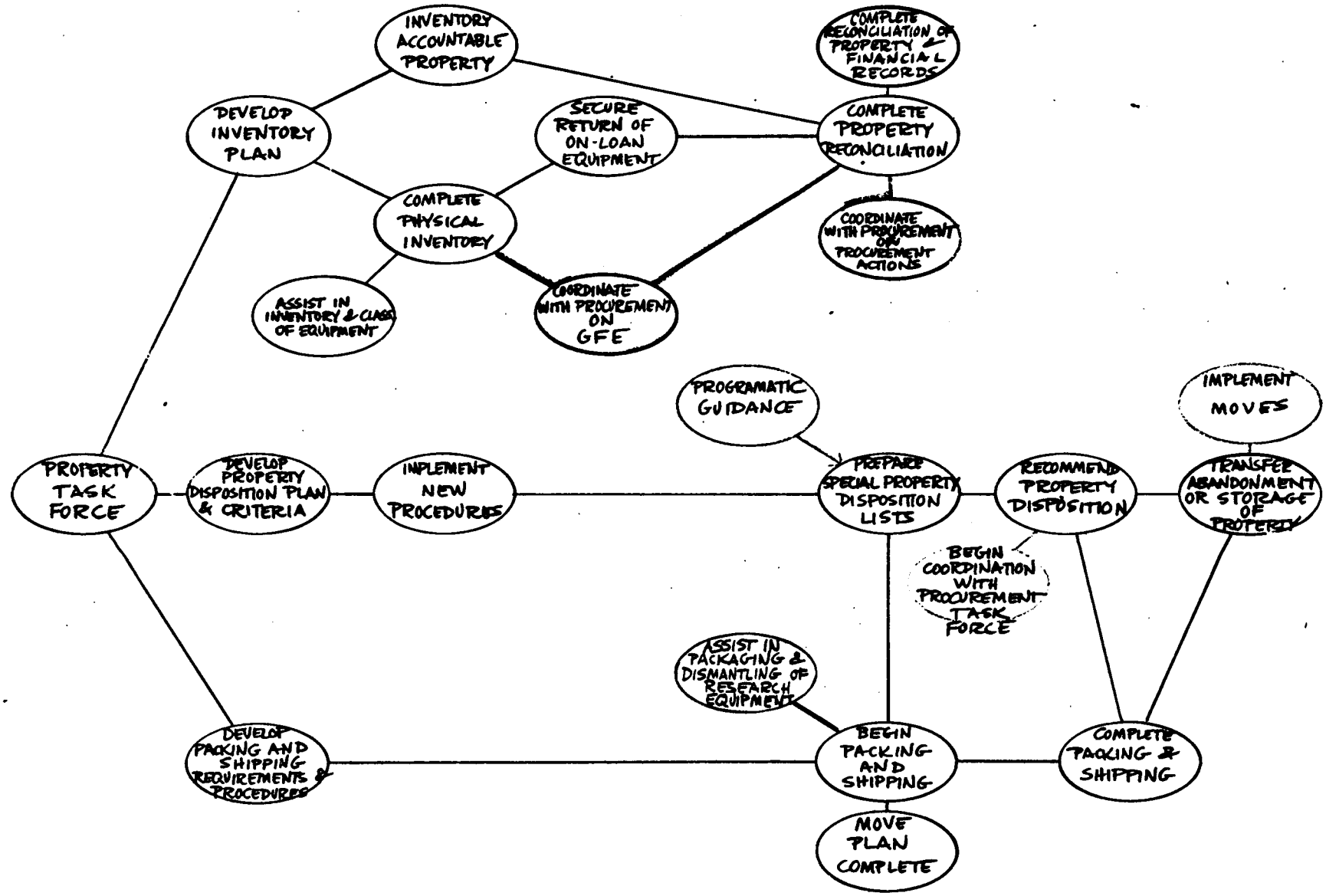
F. Assist all teams of the Property and Facilities Task Forces in those areas where engineering and technical skills are required.

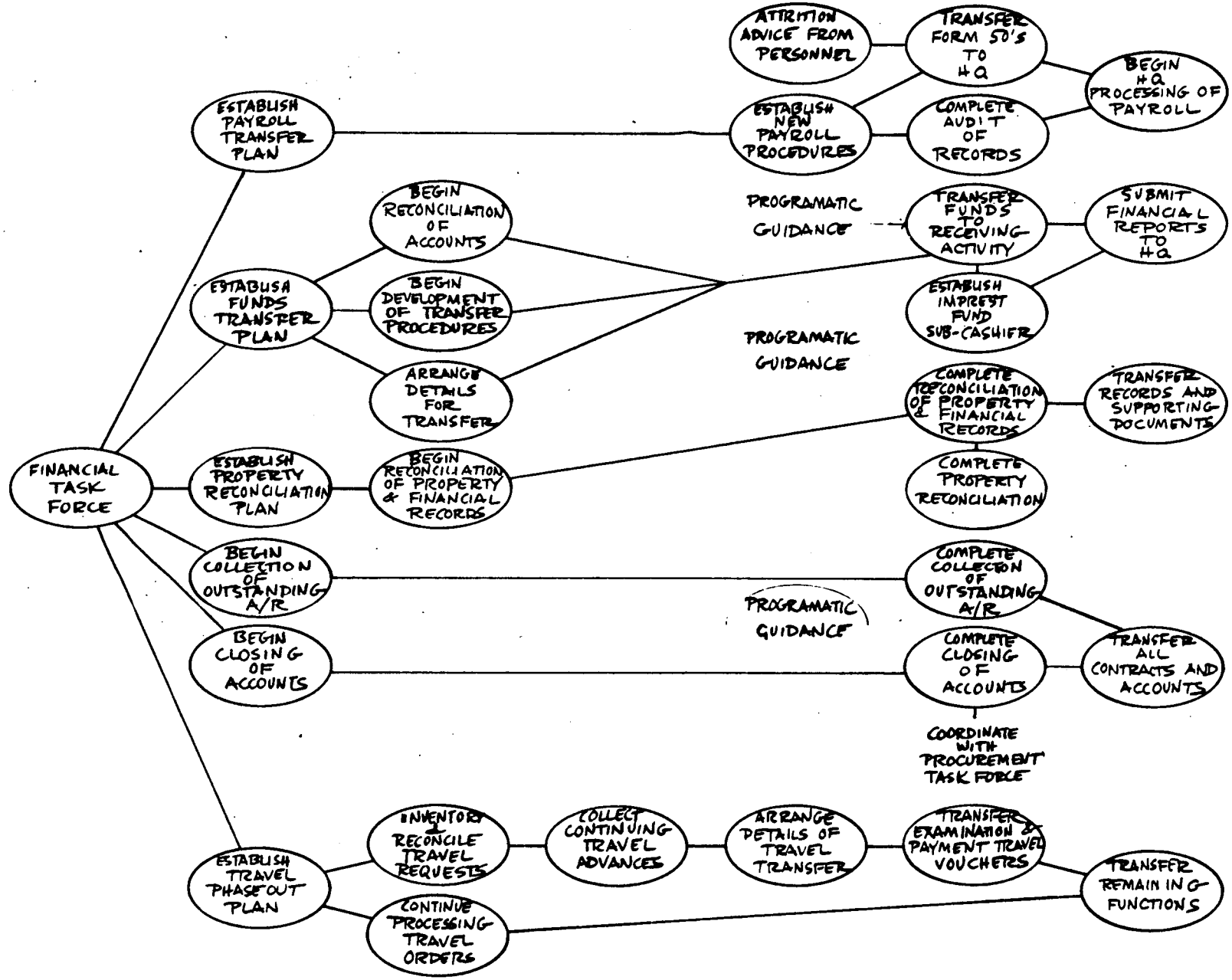
Attachment 13

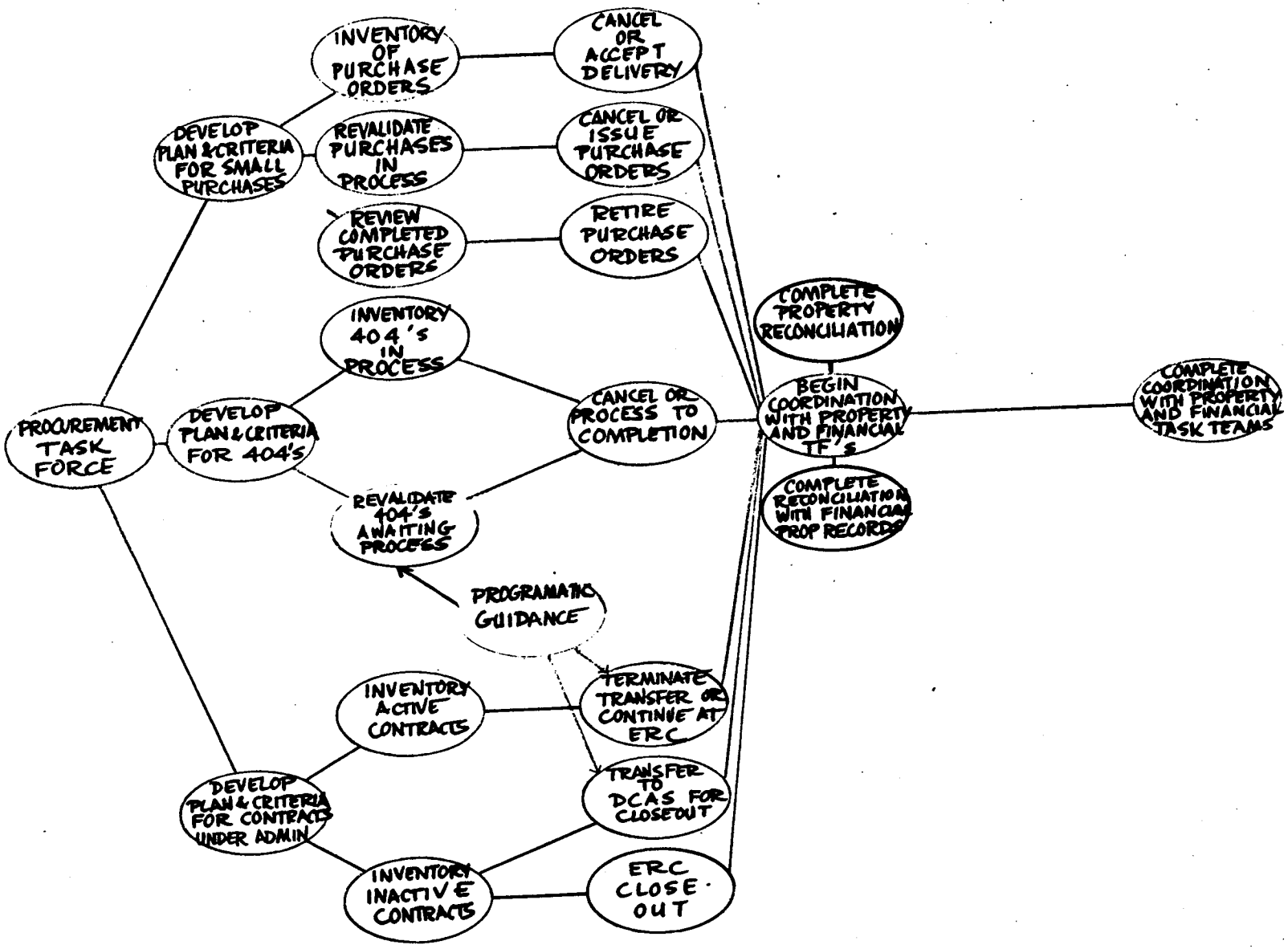
ERC - Flow Diagrams

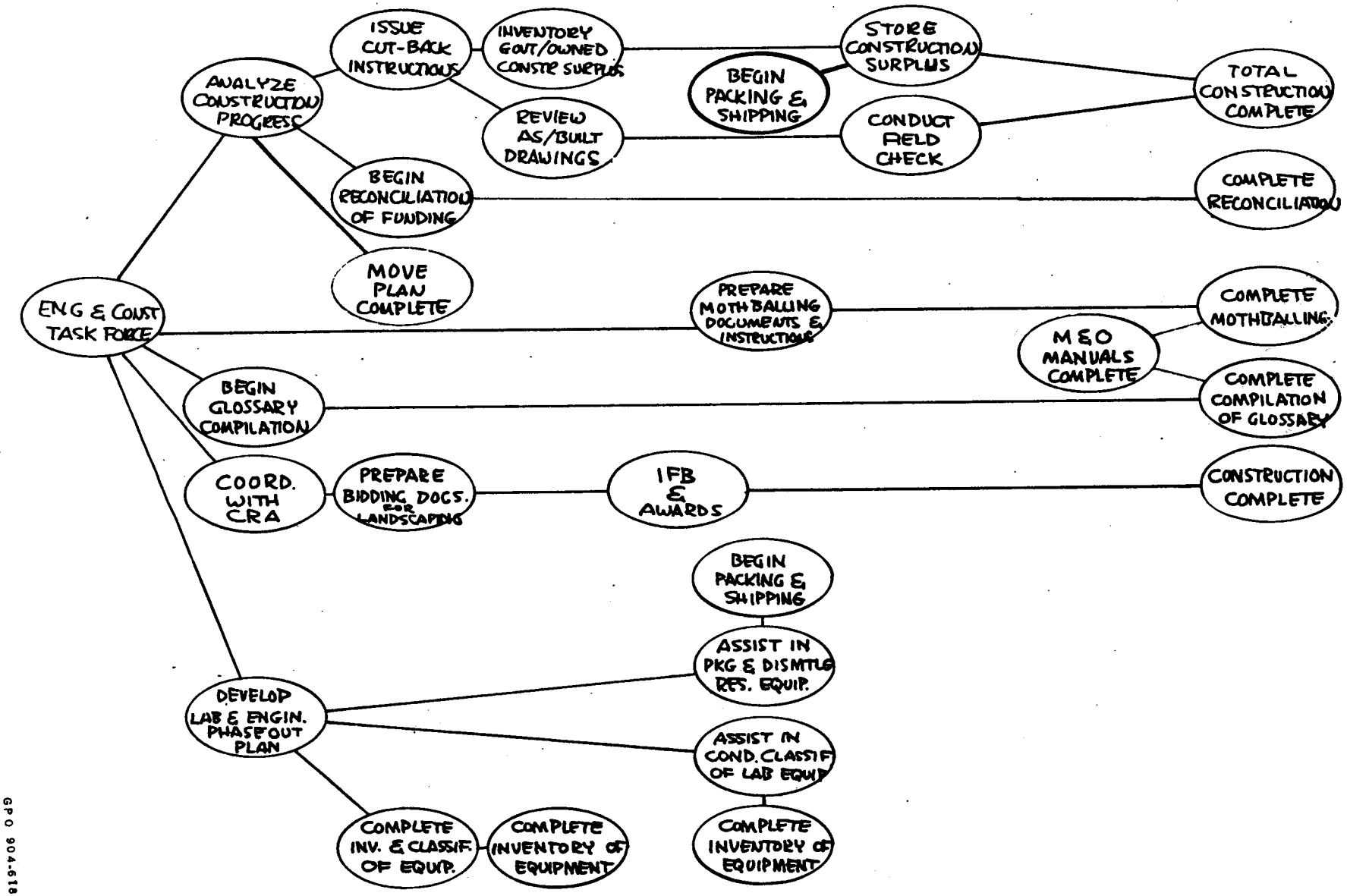

PERSONNEL TASK FORCE
GENERAL NOTICE
INITIATE OUT/PLACEMENT PROGRAM
PREPARE W/EXP STATMTS
CONTACT POTENTIAL EMPLOYERS
COMPILE LIST OF EMPLOYMENT OPPORTUNITIES
ESTABLISH INTERVIEW SCHEDULES
COMPLETE OUT/PLACEMENT PROGRAMS
ESTABLISH STOPPER LISTS
INITIATE COUNSELING BENEFITS PROGRAM
COMPLETE COUNSELLING & BENEFITS PROGRAM
INITIATE REVIEW OF TRAINING PROGRAM
ESTABLISH TRAINING CRITERIA
APPROVE TRAINING
COMPLETE TRAINING PROGRAM
REVIEW PERSONNEL ACTIONS
HONOR COMMITMENTS
ESTABLISH CRITERIA
BEGIN PROCESS
COMPLETE PERSONNEL ACTIONS
ESTABLISH SEPARATION PROCEDURES
BEGIN SEPARATION PROCEDURES
DISPOSITION PERSONNEL FOLDERS
ATTRITION ADVICE FOR 50's
ATTRITION ADVICE TO MOVE PLAN
COMPLETE SEPARATION PROCESS


ATTRITION ADVICE
BEGIN PACKING AND SHIPPING
MOVE ANALYSIS
LEASE ANALYSIS
MOVE PLAN COMPLETE
IMPLEMENT MOVES
TRANSFER ABANDONMENT OR STORAGE OF PROPERTY
CONSTRUCTION PROGRESS
PROPERTY DISPOSITION STORAGE NEEDS
RESTORATION PLAN COMPLETE
FINAL LEASED SPACE TURNOVER
RESTORATION ANALYSIS
COMPLETE MOTHBALLING
MAINTENANCE & OPERATIONS PLAN & MANUALS COMPLETE
SITE TURNOVER
FACILITIES SERVICES TASK FORCE
MAINTENANCE & OPERATIONS ANALYSIS
COMPLETE COMPILATION OF GLOSSARY
COMM SERVICES PHASEOUT PLAN COMPLETE
RECORDS MANAGEMENT PHASE OUT PLAN COMPLETE
ADMINISTRATIVE SERVICES COMPLETE
ADMINISTRATIVE SERVICES ANALYSIS
TRANSPORTATION PHASEOUT PLAN COMPLETE
MAIL SERVICES PHASEOUT PLAN COMPLETE
INFORMATION SERVICES PHASEOUT PLAN COMPLETE
INFORMATION SERVICES COMPLETE
INFORMATION SERVICES ANALYSIS
DOCUMENTATION & A/V SERVICES PHASEOUT PLAN COMPLETE


INVENTORY ACCOUNTABLE PROPERTY
COMPLETE RECONCILIATION OF PROPERTY & FINANCIAL RECORDS
DEVELOP INVENTORY PLAN
SECURE RETURN OF ON-LOAN EQUIPMENT
COMPLETE PROPERTY RECONCILIATION
COMPLETE PHYSICAL INVENTORY
COORDINATE WITH PROCUREMENT ON PROCUREMENT ACTIONS
ASSIST IN INVENTORY & CLASS OF EQUIPMENT
COORDINATE WITH PROCUREMENT ON GFE
PROGRAMATIC GUIDANCE
IMPLEMENT MOVES
PROPERTY TASK FORCE
DEVELOP PROPERTY DISPOSITION PLAN & CRITERIA
IMPLEMENT NEW PROCEDURES
PREPARE SPECIAL PROPERTY DISPOSITION LISTS
RECOMMEND PROPERTY DISPOSITION
TRANSFER ABANDONMENT OR STORAGE OF PROPERTY
BEGIN COORDINATION WITH PROCUREMENT TASK FORCE
ASSIST IN PACKAGING & DISMANTLING OF RESEARCH EQUIPMENT
DEVELOP PACKING AND SHIPPING REQUIREMENTS & PROCEDURES
BEGIN PACKING AND SHIPPING
COMPLETE PACKING & SHIPPING
MOVE PLAN COMPLETE


FINANCIAL TASK FORCE
ESTABLISH PAYROLL TRANSFER PLAN
ESTABLISH FUNDS TRANSFER PLAN
ESTABLISH PROPERTY RECONCILIATION PLAN
BEGIN COLLECTION OF OUTSTANDING A/R
BEGIN CLOSING OF ACCOUNTS
ESTABLISH TRAVEL PHASE OUT PLAN
BEGIN RECONCILIATION OF ACCOUNTS
BEGIN DEVELOPMENT OF TRANSFER PROCEDURES
ARRANGE DETAILS FOR TRANSFER
BEGIN RECONCILIATION OF PROPERTY & FINANCIAL RECORDS
INVENTORY & RECONCILE TRAVEL REQUESTS
CONTINUE PROCESSING TRAVEL ORDERS
ATTRITION ADVICE FROM PERSONNEL
ESTABLISH NEW PAYROLL PROCEDURES
TRANSFER FORM 50's TO HQ
COMPLETE AUDIT OF RECORDS
BEGIN HQ PROCESSING OF PAYROLL
PROGRAMATIC GUIDANCE
TRANSFER FUNDS TO RECEIVING ACTIVITY
ESTABLISH IMPREST FUND SUB-CASHIER
SUBMIT FINANCIAL REPORTS TO HQ
PROGRAMATIC GUIDANCE
COMPLETE RECONCILIATION OF PROPERTY & FINANCIAL RECORDS
COMPLETE PROPERTY RECONCILIATION
TRANSFER RECORDS AND SUPPORTING DOCUMENTS
PROGRAMATIC GUIDANCE
COMPLETE COLLECTION OF OUTSTANDING A/R
COMPLETE CLOSING OF ACCOUNTS
TRANSFER ALL CONTRACTS AND ACCOUNTS
COORDINATE WITH PROCUREMENT TASK FORCE
COLLECT CONTINUING TRAVEL ADVANCES
ARRANGE DETAILS OF TRAVEL TRANSFER
TRANSFER EXAMINATION & PAYMENT TRAVEL VOUCHERS
TRANSFER REMAINING FUNCTIONS


PROCUREMENT TASK FORCE
DEVELOP PLAN & CRITERIA FOR SMALL PURCHASES
INVENTORY OF PURCHASE ORDERS
REVALIDATE PURCHASES IN PROCESS
REVIEW COMPLETED PURCHASE ORDERS
CANCEL OR ACCEPT DELIVERY
CANCEL OR ISSUE PURCHASE ORDERS
RETIRE PURCHASE ORDERS
DEVELOP PLAN & CRITERIA FOR 404's
INVENTORY 404's IN PROCESS
REVALIDATE 404's AWAITING PROCESS
CANCEL OR PROCESS TO COMPLETION
PROGRAMATIC GUIDANCE
DEVELOP PLAN & CRITERIA FOR CONTRACTS UNDER ADMIN
INVENTORY ACTIVE CONTRACTS
INVENTORY INACTIVE CONTRACTS
TERMINATE TRANSFER OR CONTINUE AT ERC
TRANSFER TO DCAS FOR CLOSEOUT
ERC CLOSE OUT
COMPLETE PROPERTY RECONCILIATION
BEGIN COORDINATION WITH PROPERTY AND FINANCIAL TF's
COMPLETE RECONCILIATION WITH FINANCIAL PROP RECORDS
COMPLETE COORDINATION WITH PROPERTY AND FINANCIAL TASK TEAMS


ENG & CONST TASK FORCE
ANALYZE CONSTRUCTION PROGRESS
ISSUE CUT-BACK INSTRUCTIONS
INVENTORY GOVT/OWNED CONSTR SURPLUS
REVIEW AS/BUILT DRAWINGS
STORE CONSTRUCTION SURPLUS
BEGIN PACKING & SHIPPING
CONDUCT FIELD CHECK
TOTAL CONSTRUCTION COMPLETE
BEGIN RECONCILIATION OF FUNDING
COMPLETE RECONCILIATION
MOVE PLAN COMPLETE
PREPARE MOTHBALLING DOCUMENTS & INSTRUCTIONS
COMPLETE MOTHBALLING
M&O MANUALS COMPLETE
BEGIN GLOSSARY COMPILATION
COMPLETE COMPILATION OF GLOSSARY
COORD. WITH CRA
PREPARE BIDDING DOCS. FOR LANDSCAPING
IFB & AWARDS
CONSTRUCTION COMPLETE
DEVELOP LAB & ENGIN. PHASEOUT PLAN
BEGIN PACKING & SHIPPING
ASSIST IN PKG & DISMTLG RES. EQUIP.
ASSIST IN COND. CLASSIF OF LAB EQUIP
COMPLETE INV. & CLASSIF. OF EQUIP.
COMPLETE INVENTORY OF EQUIPMENT
COMPLETE INVENTORY OF EQUIPMENT

GPO 904-618