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UNITED STATES ATOMIC ENERGY COMMISSION

Washington, D.C.

AEC CONTRACT ADMINISTRATION, MANAGEMENT, and ORGANIZATION

Report by

The Task Force on Basic AEC-Contractor Relationships

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UNITED STATES
ATOMIC ENERGY COMMISSION
Washington 25, D.C.

April 20, 1953

M. W. Boyer
General Manager
U. S. Atomic Energy Commission

The charter of September 18, 1952, from you establishing this Task Force assigned as basic purpose the obtaining of comprehensive and definite answers to the five questions raised in the letter of April 2, 1952, from the Joint Committee on Atomic Energy. Our report in fulfillment of that assignment is being submitted separately.

The charter also specified that basic issues of contract and management policies were involved in the study which might require examination of allied problems, and that our report was "to present an objective examination and evaluation of the policies and practices of AEC in these areas in the light of experience and of alternatives and possible improvements". In planning our study and in discussing our plans and progress with Commissioner Zuckert and with Mr. Kelehan of the General Manager's Office, it became apparent at the outset that the desired comprehensive and imaginative treatment would involve a study not narrowly confined to the five JCAE questions, although centered on them. These questions go ultimately to the basic relationship between AEC and its contractors in the conduct of the atomic energy program, the responsibilities discharged by AEC staff, and the management and organization policies and arrangements within which AEC personnel function. These matters are treated in the present report, which is submitted to you at the request of Commissioner Zuckert, under whose overall supervision and direction our work was conducted.

In going about our study and writing this report, we have conceived our task to be that of an inquiry or reconnaissance survey. We have not attempted a full management survey, but have sought, in visiting AEC installations and talking to men from the divisions and offices, to find out what AEC personnel considered the objectives and management policies of AEC to be, how these understandings agreed with official policy, and where policy was not stated or not adequate or not applied. We have not considered ourselves investigators in the narrow sense, but rather as the instruments of a Commission self-examination. We thus have been free to talk frankly with men in the field and Washington in a cooperative effort to define AEC's problems and their roots. Defining AEC's problems and areas of possible improvements, rather than the agency's achievements, has been the conscious emphasis of our study.

To the extent possible, we have tried to let AEC's experience point out problems to us. In examining the experience of AEC it has not always been possible to identify unmistakably the specific effects of management weaknesses. We have not hesitated to identify, and often to question, AEC management practices which diverge from usual management practices. Such established management principles and practices represent an accumulation of experience, and it has seemed to us practical rather than merely academic to test AEC's methods against them.

It will be remarked that our usual recommendation as to a problem of management is one of further study, rather than of a specific solution. This reflects our respect for the complexity of the problems with which we have been concerned, and accords with our conception of our task as an inquiry or reconnaissance rather than a full management survey. When specific suggestions are on occasion set forth, they are intended less as clear courses for solution than as concrete possibilities of possible benefit to responsible officials working on these problems.

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SECTION 1.

CONTRACT ADMINISTRATION

a. Introduction

For the immediate future, we have seen in our report on the five questions raised by the Joint Committee on Atomic Energy, it appears that AEC will continue to operate almost entirely through contractors, and that in both operation and construction the cost-type contract will predominate. Under such contracts, where the contractor does not have the profit incentive to efficiency and economy of performance, and no competitive fixed price establishes a ceiling on cost, AEC has a special interest and direct responsibility for holding costs down during performance of the contract work. We look in the following sections, accordingly, at what AEC responsibilities are for performance and economy of work done, what supervision and control over contractor activities are exercised, and what organizational and staffing arrangements are in effect to carry out these responsibilities. To the extent possible, we have tried to observe how responsibilities, controls, and staffing have actually worked in the field, and the extent to which they seem to need strengthening.

b. Basic AEC Responsibilities and Achievements

The basic responsibilities of the Atomic Energy Commission are set in the Atomic Energy Act of 1946, and are summarized in Section 1(b) which provides for major programs for research and development, for production and use of fissionable material, for control and dissemination of information, and for administration. The Act also gives the Commission specific responsibilities regarding granting access to restricted data, classification of information as restricted data, and ownership of fissionable materials.

Stated in the most general terms, then, the Commission has the overall responsibility, growing out of the "paramount objective of assuring the common defense and security", of maintaining the U. S. pre-eminence in nuclear research and its military and civilian applications. The manner in which the Commission has discharged this responsibility is a matter of pride. After taking over the Atomic Energy program under difficult post-war conditions, the Commission has increased production of fissionable materials and weapons many-fold, and has successfully designed, proved, and stockpiled a versatile array of atomic weapons.

In the course of this production increase, the unit costs of both uranium and plutonium have been sharply reduced. Vigorous programs of research and process improvement have led to these cost reductions, to new designs in weapons and reactors, and to a constant strengthening of basic science and technology. Successive expansions with their vast construction programs have been planned and supervised in a way that has made demanding schedules and goals attainable. New firms and individuals have been brought into participation in the program.

In referring thus briefly to the Commission's achievements, we hope to indicate the spirit in which we now proceed to inquire into the administration of the program. We have not known nor have we found instances of fraud or disregard for the proper use of Government funds; we have not known nor have we found in the principal AEC staff anything but devotion to the interests of the program. On the other hand, we have been aware of the unremitting pressures of the succession of expansions during the past six years, of the strain they have placed on a new and thinly staffed agency, and of the numbers of conscious risks and improvisations that have yielded such impressive successes. We are aware also of the increasing amount of effort now being devoted at all levels of the agency to building out of the experience of the past years an organization not dependent on individuals and unwritten ways of working together, and supported in future expansions or program changes by a strengthened and orderly managerial base.

As we have seen, the execution of the program has been through contractors drawn from industry and from educational and other institutions. While execution of the work is done by contractors, some of the AEC responsibilities, such as those for clearance of personnel or declassification of information, cannot be delegated to contractors under the Act. Furthermore, the Commission as the agency which formulates the atomic energy program and obtains funds from the Congress cannot by delegation to its contractors divest itself of responsibility for the proper expenditure of these funds. The Commission is accountable to the Congress and to the President for the progress of the program and the expenditure of public funds, and has the duty of informing itself concerning the activities of its contractors in order that it may report to the President and the Congress, satisfy itself as to the progress and economy of the work, and make decisions and plans for the future of the program. Clearly a proper and well-understood definition of the desired relationship between AEC and its contractors is essential to effective conduct of the program.

c. Present Definition of Role of AEC and Contractors

The Task Force, in looking for statements of the Commission policy on relations with its contractors, found two closely similar statements in public documents: one in the Ninth Semiannual Report issued in January, 1951, and the other in the Guide for Contractors issued May 1,

1952. The statement in the Ninth Semiannual Report is as follows:

"a). The contractor recognizes that the AEC is responsible under the law for the conduct of the atomic energy program.

b). The AEC recognizes that the contractor is an established industrial, business, or academic organization with proved capabilities, both technical and administrative.

c). The contractor recognizes that the proper discharge of the AEC responsibilities under the law requires that the AEC shall have full access to information concerning the contractor's performance of the contract work and the power to exercise such control and supervision under the contract as the AEC may find necessary.

d). Both the AEC and the contractor recognize that the proper discharge of the contractor's responsibilities for management requires that it shall, to the fullest extent compatible with the law, exercise its initiative and ingenuity in carrying out the contract work."

The Guide for Contractors does not differ significantly from the above principles except that the words "and the expenditure of public funds" are added to a. The addition of these words does not change the sense of the statement, but it does reflect a growing AEC emphasis on the fiscal aspect of the responsibility of the agency, and thus is noteworthy for our examination of what the AEC staff considers its responsibility to be.

These principles leave room for considerable variation in the role of the AEC field staffs who administer contracts. At one extreme, these principles might be interpreted as meaning "we will let the contractor do what he thinks best and stand behind him even if he fails"; at the other extreme they might be interpreted to say "AEC has responsibility for every aspect of the program and therefore we must take part in every important day-to-day decision and observe all details of the contractor's work". Neither extreme represents AEC intent as we understand it, but there is apparently no internal AEC directive which gives guidance to the staff as to the emphasis to be placed in AEC relations with its contractors. In the absence of a recognized internal statement, we have inquired at AEC area and Operations Offices as to just what each AEC staff does to control and administer contract work, and as to the philosophy by which key administrators explain what they are doing. We found a basic pattern of controls, but also a frequent uncertainty as to their purpose and how they were to be administered. In what follows we assume an understanding of the general AEC method of contract administration, which is well described in the public documents just referred to. Without repeating in detail, we will identify from the material prepared for the Task Force by the field the principal areas and occasions where decision is reserved to AEC and the principal other means by which AEC responsibilities are exercised.

In speaking of AEC "control and supervision" of contractors, there is intended no implication that the role of AEC's contractors is that of an agent carrying out the Commission's directions and plans. Operating, research, and engineering contractors have a principal share not only in execution but in conception and shaping of programs. In the (1) field of atomic weapons, AEC looks to the Los Alamos Scientific Laboratory and not to its own staff to conceive, design, and test new (2) weapons models; in the field of reactors it looks to the Argonne (3) National Laboratory and other groups; in the field of production techniques and process development, to Carbide, General Electric, and others. Careful definition and emphasis of AEC's basic responsibility for the atomic energy program and the role of the AEC staff in assuring the conduct of the program are not inconsistent with continued contractor initiative, and are essential if duplication of functions and staff are to continue to be avoided.

d. Contracts as a Basis for Supervision

AEC contracts cover a variety of types of production, research and development, and construction and architect-engineer work; they are written with firms of differing sizes and from different industries, and with universities and other non-profit organizations. Because of these differences and the give-and-take nature of the negotiative process itself, variation in contract provisions is to be expected. At the same time, there should be a basic uniformity to the extent that the agency's methods of administration and operation require a contractual basis for application to each separate project.

Since the basis for AEC's discharge of its responsibilities and for supervision of expenditures and control of the work rests in the authority reserved to AEC in the contract, the Task Force has had 38* active major prime cost-type contracts examined with particular reference to provisions for AEC control over various aspects of the contractor's performance. The resultant charts, together with an index and key, constitute an appendix to this report.

These charts disclose a wide range of variations among control provisions in the different contracts. For example, the clauses regarding extent of the work in twenty operating contracts for production and research facilities varied as follows: 12 provided that the extent of work to be performed was subject to agreement, 3 gave AEC authority to require performance of work subject only to the contractor's judgment as to technical and safety limits, and 5 gave AEC authority to prescribe the work to be done. This range is illustrated by two extreme cases: (1) The contract for Sandia Laboratory provides that "Sandia Corporation

*One of these is the contract between Silas Mason Company and the Department of the Army for operation of Project Sugar. This is an AEC-owned facility but the contract is administered for AEC by Army Ordnance.

will operate the Sandia project, performing such work as from time to time shall be agreed upon by the Commission and Sandia Corporation"; and (2) the feed materials production contract with National Lead Company provides that the "exact nature and extent of the work . . . at any time and from time to time, including the designation of, and technical specifications for, items to be produced and/or fabricated, shall be within the discretion of the contracting office." If the contractor appears not to be meeting schedules, 3 contracts give AEC the unqualified right to direct such remedial action as it sees fit; 8 give AEC the right to direct the contractor to extend hours of work; 2 provide that AEC may call the matter to the contractor's attention for such action as the latter sees fit; and 24 have no specific provision.

The AEC right of control over contractor designation of key personnel also varies widely. In 12 contracts there is no specific reservation of AEC authority; in 2, AEC has control only over the project head; in 23 AEC has some control over more than the project head -- over certain specified positions in 3 cases, over salaries above a specified figure (ranging from $6,000 to $12,000) in 6 cases, and over both salaries and positions in 14 cases.

Virtually all contracts provide for Commission authority in the fields of safety and security standards and for the right to inspect the work and records and require reports. As the appendix shows, other administrative provisions vary considerably. With regard to the AEC right to furnish materials, equipment, etc., for example, 14 contracts give AEC explicit rights, 14 give AEC a right qualified by contractor option to reject under specified circumstances, 8 have an indirect or implied AEC right and 1 has no provision.

In view of the importance of continuity of operations, a few of the major contracts were examined separately as to contractor rights of termination:

Sandia Laboratory	120 days notice
Los Alamos Laboratory	120 days notice
Hanford	1 years notice
Feed Materials Production Center	270 days notice
Oak Ridge	6 months notice
Project Royal	6 months notice; but only after failure to agree upon estimated cost or fee for a given year
Argonne)	No stated right of termination; but the scope requires agreement from time to time on programs
Brookhaven)	

The strict interpretation of contract terms is not always the basis for the relations of the Commission and its contractors, of course, but

in points of controversy the contractor does have the right to hold to the limits of his contractual obligations. It is thus important that AEC supplement clear definition and agency-wide understanding of the degree of responsibility and control expected from its contract administrators, with a contractual basis for exercise of these responsibilities. Otherwise difficult problems either of exceptions, of contract modification, or of negotiation of working arrangements outside the contract will subsequently burden the contract administrators. For example, it took a year to persuade the contractor, California Research and Development, to install an internal audit system; and UCRL still has not done so. The Chicago Operations Office in emphasizing the importance of negotiation of the basic contract has commented:

> "The process of negotiation of this type of contract is important in obtaining good administration and control of cost. In some cases a contract is virtually 'administered' during its negotiation."

As a matter of sound relations also, it is clearly desirable that the contractor know at the outset what AEC expects of him and reserves to itself.

While absolute uniformity in contract provisions is neither desirable nor obtainable, variations appear to be greater than is required by differences in the work or other necessary conditions. Contracts vary between Operations Offices, also. The explanation for these variations is in good part the absence of codification of AEC contract policy (except for construction and architect-engineer work) to guide AEC negotiators, and the lack until the past year of systematic central review of contracts. The Procurement Manual now in preparation should in part meet the need for codification of contract policy. If AEC is to seek greater uniformity in its contract administration, review of principal contracts and operations appears necessary to determine what contract provisions will give an adequate basis for effective control of the work. AEC should have authority to establish the scope of work and to direct and check the contractor's performance to the extent necessary to assure that it conforms to statutory requirements and will meet applicable standards and schedules. Also desirable would be provision for a considerable elapsed time before contractor notice of termination can be effective, and AEC approval of at least the project manager and preferably other key personnel.

The importance of the selection of contractors has already been emphasized. Here it will only be added, as a reservation to the statement of principles quoted from the Ninth Semiannual Report, That the problems of contract administration by no means are ended when a contractor of high technical or industrial competence has been selected. A university or firm with the highly specialized skills sought by AEC does not necessarily accompany these with all needed managerial and administrative skills or with familiarity with Government practices. Furthermore, even though a contractor may possess high technical

competence, the unique problems in atomic energy require application of these skills to unusual situations which will be a challenge to the contractor and require him to go through a period of organization and readjustment. Both in operations and construction, the Commission has had experience with firms or institutions of the highest reputation and experience who have had a difficult initial period organizing at a new site and working into the atomic energy field. The AEC staff administering such contracts has a corresponding additional burden of assisting and even teaching the contractor during just that period when the demands on the AEC staff for planning and coordinating the project are also heaviest.

e. Administration of Contracts

Most major AEC contracts are signed by one of the managers of operations and assigned by him to one of his staff as contract administrator.* The contract Administrator may be an area manager or he may be a member of the operations office staff. In either case he is unlikely to have a full staff of his own of specialists in the various fields in which the contractor's work is given surveillance. At the San Francisco Operations Office, for example, the contract administrators for contracts with the California Research and Development Company or the University of California Radiation Laboratory have no separate staff but rather call on the finance, security, and other staff divisions for assistance as needed. A similar situation exists for the contracts handled by contract administrators of the Santa Fe, Chicago, and Oak Ridge Operations Offices. Where area managers administer contracts, they are aided by some specialists. For example, the Sandia, Kansas City, and Rocky Flats managers have security and administrative services staffs, but they do not have finance or legal staffs; the Pittsburgh and Lockland managers have finance staffs. The principle nominally followed is the practical one that where full time services are required by the work load, they are located at the site of the work.

The principle on which contract administrators function is summarized as follows by the Oak Ridge Operations Office; the statement is generally representative, though the administrator need not be a technical man himself if technical staff help is available.

> "(he is) usually an operating official technically competent in the predominant type of work being carried out under the contract. The major objective in such assignments is to select a technician who speaks and understands the language of the contractor and who is in a position to appreciate the problems as well as to be on guard to secure maximum advantage for the Government. He must be able to provide intelligent liaison and assistance and act as a competent

* The Task Force did not find anywhere in AEC a complete list of AEC employees delegated authority to sign or administer contracts.

judge of the contractor's program accomplishments...From the standpoint of the contractor the AEC contract administrator serves as a little AEC...."

While the concept is generally that reflected in the above quotation ---"a little AEC"---, the contract administrator is rarely in a position to speak for AEC on major decisions. For example, actions on procurements or subcontracts above a limit of $100,000 must be referred by most area managers to their respective operations offices. The Rocky Flats manager is not responsible for quality assurance or technical inspection of the product of the contractor; rather these responsibilities belong to Los Alamos Scientific Laboratory. He is also not responsible for scheduling of the contractor's work, which is done by Santa Fe Operations Office by direct dealing with the contractor, rather than with the manager. Field or area managers usually handle security clearance and construction matters for their contracts; but the San Francisco contract administrators do not have authority over these aspects of their contractors' work.

The matters on which the contract administrator is generally required to take action are listed in more detail in the following sections with comments as to the purposes which we found the AEC administrators to have in mind in making their decisions and the sorts of people who were performing the work. While the basic responsibility of managers and their representatives is defined in organization bulletins as "to administer contracts", we found little agreement on what it means to "administer" a contract.

f. The Standard Pattern of Controls over Performance and Cost of Contractor's Work.

This section lists briefly, and without analysis or criticism, the principal controls and techniques in use at virtually every AEC office, usually based on GM Bulletins. General evaluation of these controls follows in subsequent sections.

The primary instruments for determining and controlling the contractor's work are the program assumptions which are the basis for planning, the budget submissions, the approved financial plans, and directives authorizing specific projects. Continuing control to assure that the contractor adheres to established programs is exercised through such devices as monthly cost reports, regular progress reports, conferences with the contractor, review and observation of the work by AEC engineers and other specialists, inspection of finished products, and audits.

The AEC budget is not only the vehicle for obtaining funds from Congress for the AEC program, but it is also the chief instrument in defining and controlling the program. When the budget has been approved,

financial plans based on actual appropriations are issued by Washington and in turn by Operations Offices, setting cost limitations by program and giving specific authorization to contractors for each activity and category. These authorizations serve as cost ceilings and are compared monthly with contractor cost and progress reports to detect incipient over-runs or other significant divergences. Review of contractor cost reports is thus an important responsibility of AEC management and technical personnel as well as the financial staff. Mid-year budget reviews are held in order to re-appraise fiscal planning against actual progress and make any necessary revisions.

For some minor production or construction activities inclusion in an approved budget and financial plan is sufficient authorization. For major production, construction, and engineering activities, however, specific authorization by directive is required. Santa Fe and Oak Ridge Operations Offices, for example, issue production schedules to their major operating contractors which are keyed to the financial plan. Major process developments are included in approved financial plans but are given specific authorization after careful analysis. Construction costing over $20,000 and engineering studies estimated to cost over $2,000 must by Commission-wide policy (GM-CON-5) be authorized by specific directive; any project, regardless of cost, must be specifically authorized if it requires modification of existing AEC policy.

AEC review and control of engineering and construction is uniform and close. Preliminary engineering and process flow sheets are analyzed and approved by AEC. Types of construction materials to be used, particularly where scarce materials are involved, also require an AEC decision. General drawings and specifications, as well as important changes in plans and specifications, must be approved by AEC. The progress of construction is observed regularly by engineers from the field construction office and in addition is inspected regularly but less frequently by project engineers from the AEC Washington office. AEC participates in all final inspections and accepts completed work in writing. Construction accounts have been developed to afford close control over construction costs and are reviewed and interpreted promptly and regularly to insure that schedules are being met and that costs are being held within approved levels.

Supervision and control of research and development vary with the size and nature of the project, but conform generally to the pattern of budget control, inspection visits, and review of reports and records.

Because of the crucial place of the budget and approved financial plan in the AEC control system, the financial accounts and reports are keyed closely to the budget. Fund accounting and control procedures assure that objectives and expenditures for any given period do not exceed allotments authorized under specific appropriations. The accounts of major cost-type contractors are fully integrated with the accounts kept by the AEC Operations Office and duplication between AEC and contractor accounts is thus avoided, with all detail records kept by the contractor. The AEC budget and financial reports system thus provides

the means for determining that adequate funds are available to finance approved programs, the means for approving in advance the contractor's programs for the ensuing fiscal year, and a means of measuring actual performance against approved programs. Reports going forward from each echelon present in progressively summarized form the key information on the agency's fiscal position.

During the current fiscal year an agency-wide unit cost accounting system is being installed which makes a start toward providing comprehensive cost information for management in analyzing efficiency and measuring progress of the work.

The balance sheet, operating accounts, books and records, and financial transactions of all integrated cost-type contractors are verified periodically by on-site audits. These audits use a test check method and are conducted generally in accordance with accepted auditing standards. A critical survey of internal fiscal control exercised by the contractor is an essential part of the AEC comprehensive audit. The scope of the comprehensive audit is currently being broadened to encompass business practices and to emphasize the institution and adherence to required control procedures in general administration and business practices. The audit is thus intended to constitute an increasingly important instrument of general management as well as financial control.

Contractors sometimes audit their own cost-type purchase orders, subject to final review and approval by AEC; in other cases the audit is done by AEC.

Limits are set, usually by terms of the contract, to the individual procurements that a contractor may make without the prior approval of AEC. In addition, each cost-type contractor is required to prepare detailed written purchasing procedures for formal AEC approval. These procedures are required to follow the principles outlined in the AEC Procurement Policy Guide. Adherence to these procedures is secured by review of the file on individual actions submitted for approval, by periodic inspection, and by examination of the entire volume of purchase orders on a sample basis.

Other contractor activities under AEC control include security, wages and salaries, and safety. The basic approach is the establishment of written procedures, standards, and scales approved by AEC, the submission of changes for review by AEC, and the periodic inspection of contractor practices to verify conformance with standards and procedures. Some matters, such as overtime, key personnel, and fringe benefits, require specific AEC approval.

g. Effectiveness of Controls

The pattern of controls outlined above serves to guard against diversion of Government funds and to protect Government property, and gives AEC a voice in major commitments of money or in decisions as to program activities which will lead to monetary expense. These controls are at best the machinery, however, which gives AEC and its administrators the opportunity to play an effective part in the operations of contractors. The real test of the apparatus for control and supervision and of its suitability in actual use comes in its results, whether in accumulation of masses of routine paper work or instead in the encouraging, assisting, and directing of contractors in achieving program goals economically and efficiently and in assurance to AEC that goals will be met.

The success of AEC administration of contracts depends on many factors, including the competence and cooperativeness of the contractor and the adequacy of the contract provisions. The factors which we will discuss here are:

(1) The spirit in which the Operations Office exercises the required controls. Unless there is understanding of their proper purpose and use, they may do little more than add to the total cost of the program and to the number of Government personnel, and may hinder the contractor rather than help in the execution of the work.

(2) Emphasis on knowledge and evaluation of contractor performance.

(3) Caliber of AEC personnel.

(4) The AEC management framework.

(1) Spirit in Which Controls are Exercised -- Field Office Philosophies of Contract Administration

As a confirmation of the Task Force discussions with AEC managers and field staffs, we asked for statements of the philosophy according to which the various offices administered their principal contracts. A few excerpts from these statements show the range in field attitudes. For example, Oak Ridge stated in part:

"The approach taken toward...administration is conditioned from the outset by the knowledge that the contractor has been selected for his superior competence and the AEC is contracting with him not only for technical services but for managerial services as well. The degree of competence secured varies among contractors; the degree of supervision is varied accordingly...Emphasis is placed on

positive assistance rather than negative acts of control...An important part of the job is to determine when assistance and guidance are needed. This is accomplished in part through frequent informal contacts with the contractor and in part through the review of information received as a result of formal reporting requirements and other controls...As one method of evaluation, the costs receive very intensive study and a constantly diligent effort is directed toward economy...Although his detailed operations are spot-checked as a safe-guard to insure consistency with approved policy, it is not felt necessary to look over the contractor's shoulder constantly to assure compliance."

Comments from Santa Fe Operations Office include the following remarks:

"SFOO adheres to the philosophy that, having assigned prime responsibility for development and production to the prime contractors, it should not interfere with the performance of those contractors except to the extent required by law or by Commission directive...AEC exerts program control, but purposely avoids any effort to control the techniques of processing nuclear material in the SFOO operations, since the contractor has the requisite knowledge and SFOO has not been staffed with this technical personnel."

The views of the New York Operations Office reflect a rather different approach:

"We believe that AEC is trying to do its job with too few technically qualified contract administrators on its own staff...On production or construction contracts...a constant critical analysis of performance is essential. It appears to NYOO that the AEC has over-emphasized control and audit of administrative matters in contractor operation as devices for ensuring good contractor performance. Procurement, property management, subcontracting, personnel and finance surveys and approvals are required almost ad nauseam by Washington directive. On the other hand little or nothing is prescribed by Washington for judging contractor performance."

The Chicago Operations Office states that it has followed a middle course between the two extremes of rigid regulation on the one hand and virtual grant-in-aid on the other; it terms this middle course the cooperative and negotiative, or the "practical or common sense" approach. With regard to contract administration, Chicago states:

"Since the emphasis is on cooperation in getting a job done in which primary responsibility for performance is placed on the contractor, the main role of the Commission is one of education and assistance in improving administration to get and ultimately exceed minimum standards in the expenditure of public funds...In fulfilling the

basic requirement of contractor compliance with minimum AEC standards, the office is giving increasing emphasis to the survey and spot-check methods of evaluating performance. Since the information gained in such checks and surveys is valuable in the positive role of general improvement of contractor administration discussed above, the work and approach must be closely tied in with achieving creative results."

These varying attitudes reflect to some extent the varying situations in AEC field offices. To the extent that the AEC staffs are working with established contractors, whose performance is attested by a record of achievement, the reliance on a relationship of cooperation and confidence supported by regular check of operations and of performance reports will give AEC basic assurance that the job will be carried out. We thus agree with Oak Ridge and Chicago that the degree of supervision will vary. Where new contractors are being brought into the program greater assistance in working out administrative procedures and basic technical or management methods will be required, as will a closer check on the quality of contractor work. The situation differs yet again when emergency programs, perhaps requiring virtually simultaneous development and initial production runs, must be carried out to extremely tight schedules. This situation has existed in many parts of the Santa Fe program and has been the justification of the direct responsibility given such contractors as the Los Alamos Scientific Laboratory and the Sandia Corporation for the technical aspects of the program; time does not permit layers of approval or time-consuming program reviews. AEC should, however, appraise the progress of such responsible contractors by more than the final results or by written reports; we note that the Division of Military Application holds the view, with regard to the remarks quoted above from Santa Fe, that:

"This office believes that the SFOO technical staff should be adequate to control and properly evaluate its programs. One cannot assume that all SFOO contractors have equivalent competencies in operating and management fields. Justification of numbers of AEC personnel depends upon the extent to which SFOO or any Operations Office must supplement identifiable contractor weakness or avoid duplication in areas of contractor strength."

The Task Force believes that it is sound policy to expect the contractor to take the initiative in working out and executing programs in the field for which he is hired, but we also consider it essential that AEC have personnel competent to know that the contractor has worked out an adequate program and is applying the necessary resources. As one branch chief observed to us, technical personnel of the sort now employed by AEC or available to it can tell whether the contractor has planned his work well without themselves necessarily being able to work out such a plan. Unless AEC does know that reasonable steps are being taken toward the program goals, it runs an unreasonable risk of finding itself with responsibility for an avoidable failure. The principle which, whenever possible, should be followed is that the responsibility of the

contracting officer extends across the entire area of the work of the contractor.

It is possible also for AEC personnel to err on the other extreme and interfere in the contractor's performance of the job for which he was hired. This relationship is undesirable both as unsound management practice, and as a waste of AEC staff. This matter is a difficult one to evaluate, since often assertion of proper AEC responsibility is resisted by contractors. It is important to keep responsibility for the performance of the work on the contractor, but at the same time to make him aware that he is being currently measured against strict standards by competent judges of his performance.

We would like to emphasize again that our conception of the positive responsibility of the AEC field managers does not reduce the responsibility of contractors, but rather complements it. The essence of the manager's job is to see that the contractor understands his responsibility, has planned and is taking adequate action to meet it, and has all help AEC can give him in doing his work. We do not ask that the manager do the work; we do ask that he know currently, before completion, whether it can be expected to be done well and economically. The sort of working relationship that he has with the contractor will vary with different kinds of work, different kinds of personalities, different lengths of time on the job. It should always recognize on the one hand that the manager represents the public interest in seeing that the work is done and done well and the money wisely spent, and on the other hand that the contractor is expected to furnish initiative, ideas, and know-how for performance of the work.

The attitude of field staffs toward the controls which they are exercising in procurement and property management activities is again crucial to the effectiveness of their work. If such required field reviews and approvals as those specified in bulletins GM-S&S-37 and -38, for example, are to be productive, the field staffs must use these reviews to apply sound business judgment to the award of contracts or purchase orders. The formal signatures and documentation required by these GM's are essentially ways for encouraging the following of competitive practices wherever possible and the application of good judgment in awarding business on a basis favorable to the Government.

(2) Emphasis on Major Aspects of Job

Following and appraising the progress and quality of the contractor's performance has appeared to the Task Force to be a most important aspect of contract administration, once program goals have been established and defined for the contractor. In particular we have considered that AEC field staffs are not simply channels between the contractor and the Government nor are they merely service units. They have an important function which can for convenience be referred to as inspection

of the work. Inspection involves an overall and up-to-date familiarity with the nature and progress of the work which is gained by daily observation, close contact with contractor personnel, examination of the reports and cost statements, review of proposed procurement and subcontract actions, and regular conferences with contractor top management regarding progress and difficulties. Such regular inspection by the AEC manager and his responsible staff members enables AEC to point out errors and ascertain that the efforts of the contractor are carefully planned and directed to the major objectives of the job without undue expense or attention to minor aspects of the work. Such inspection appears to us necessary for the discharge of inherent AEC responsibility, and in addition would be doubly valuable while new contractors are being brought into the program or when contractors have shown less capability for some aspects of their jobs than others.

In our field visits, we asked the managers and their staffs what methods they had to satisfy themselves as to the quality of the contractor's work. The answer was usually given in terms of increased production and reduced unit costs over a period of years, or in terms of successful completion of development projects. It was recognized that this improvement reflected primarily technological advances in a young industry, and furnished no sure guide as to whether the performance of the contractor was as good as it should be. In some activities such as safety or community management or operation of standard facilities such as power plants, it has been possible for Operations Offices to compare contractor performance with performance by other private or public units. For key AEC activities, however, such comparisons are not possible. As the AEC system of industrial accounts is perfected it can be expected to enable analyzing performance against past standards, but the system is as yet not generally satisfactory to either contractor or AEC management for this purpose. We asked also concerning the quality of contractor staffs, and found to our surprise that many AEC offices were aware only in general terms of the competence of key contractor personnel, particularly in the middle management level. Since the organization and people furnished by the contractor are in one respect the essential thing which he is furnishing, we would expect an AEC manager to satisfy himself continuously concerning the quality of the people whom the contractor brings into key positions and concerning their performance on AEC work.

There is considerable variation, among different types of operations, as to the degree of AEC supervision and the confidence which AEC field staffs appear to feel in their ability to measure the contractor's work. In construction, we found in all AEC offices personnel who were aware in detail of the plans, progress, and quality of the performance of design and construction activities, and who spoke of suggestions which they made to contractors for changes and improvements.

In research and development, on the other hand, AEC field staffs in most cases confined their activities either to assistance to the contractor in such matters as budgeting, obtaining information, or SF

accountability, or to maintaining a general familiarity with the work being carried on without feeling direct responsibility for evaluating the work. This field role reflects the rather obscure AEC division of responsibility between Washington program divisions and field technical staffs in research, concerning which we shall comment subsequently. Particularly for off-site research but also for basic research in the National Laboratories, the divisions of Research and Biology and Medicine look to field staffs for services in executing contracts and preparing budgets but not for evaluating research-in-progress or research results. For applied and developmental research, field supervision varies; the San Francisco Office Technical Operations Branch, for example, is staffing to follow closely the UCRL weapons program, while Los Alamos Field Office has no technical staff following LASL work. As far as we could ascertain, the initiative of the field staff determined how active a role would be played, since the Washington divisions did not lay specific responsibilities on them.

An established distinction between basic and applied research should be borne in mind in considering field supervision. Thus, the "Operating Policy of the Argonne National Laboratory", approved by the Commission on June 1, 1950, states:

> "7. The extent of AEC control over basic research and over programmatic work will differ widely...Because of the greater difficulty in precise description of specific goals in basic research, and because of the desirability of freedom of choice of subject by the responsible scientists, basic research will not be budgeted or controlled in such detail. Dollar estimates and dollar limitations will be coupled only with broad classes of work, leaving flexibility to the Laboratory Director and the scientist as to specific investigations and modes of attack, subject only to the aggregate amount provided under each major budget program..."

The distinction appears to us a valid one, since it is to the interest of AEC to create in its laboratories an atmosphere as conducive as possible to basic research. The role of field staffs in such circumstances will properly be a limited one, devoted in the main to administrative and technical help and service.

In supervision of production there is a marked difference between the Divisions of Production and Military Application growing out of the difference in the products. Weapons production includes the manufacture and acceptance of a large number of components; the Santa Fe field offices have a considerable staff of inspectors operating in the plants of contractors (see Table 3). We understand from AEC managers that these staffs are of assistance in following the contractor's work in addition to the performance of their specific duties of inspection and acceptance of products. Otherwise the supervision of production in Santa Fe is the responsibility of contractors. Santa Fe has stated:

"Contractor performance in the execution of the work is a technical responsibility of LASL or Sandia Corporation, this responsibility normally being stated in the contract. The contracting officer or his representative is kept informed by copies of correspondence and by attendance at technical program conferences, if desirable..."

At Oak Ridge and Hanford fewer technical people are necessary to assure the quality of the product because of the single continuous production process. Technical control is otherwise exercised through review of weekly, monthly, and quarterly production reports, regular visits to the plants, and conferences. At Fernald and Savannah River, where new plants are being brought into operation, somewhat larger technical staffs are active in working with the contractor in decisions as to incorporation of process improvements and in bringing new facilities into successful operation.

(3) Caliber of AEC Staff

It follows from the preceding discussion that AEC needs on its field staffs primarily people of the experience and training to understand the technical and business aspects of the contractor's work. They need to be able to analyze programs and evaluate the adequacy of the effort being made.

We have quoted earlier in this chapter the New York view that AEC is trying to do its job with too few technically qualified contract administrators on its own staff. New York illustrates the need for such qualified personnel by examples of their function in selecting the contractor most fitted for the work, in evaluating the performance of contractors on process development and production or construction work, and in recognizing a contractor's need for information or help and knowing the kind of guidance or assistance which will be most useful. The attached tables (Tables 1, 2, 3, and 4) on technical positions in AEC gives an indication of the extent to which AEC is at present staffed with persons engaged in following the progress and quality of the technical work of contractors. The overall percentage of such personnel is 20%, evenly divided between engineering and construction personnel and others with technical training in engineering or the sciences. The variance in field offices is marked; we have commented on some of the reasons in discussing production controls earlier. It should be recognized in examining the tables that technical people are not the only specialists of value in controlling and assisting the work of contractors, but because of the nature of the AEC program they include the bulk of such individuals. Contractor proposals for purchase of equipment or other procurements often need technical judgment applied to their evaluation, for example.

The AEC field offices have recognized the importance of quality in the AEC staff if the Commission's responsibilities are to be properly discharged. Savannah River has commented as follows:

> "It was our basic premise...that we would keep our organization as small and compact as possible, made up of highly competent personnel able to deal at least on an equal footing with their opposite numbers in the contractor's organization..."

Chicago has stated similarly:

> "Two general types of personnel, thus, are involved in the negotiation and administration of COO contracts: (1) high level executive and staff personnel are required for the negotiation of contracts and for making the decisions and providing the leadership in making the cooperative approach really work in the administration of contract...(2) broad gauged administrative and professional personnel...are required for the surveys, audits, and day-to-day consultations necessary for contractors to meet and exceed the minimum standards established by the AEC covering the expenditure of public funds...The number of personnel required to carry on the functions and role of COO is not large but the quality must be good."

Our comments on the importance of improved recruitment, training and rotation procedures in AEC to develop the type of personnel described herein are contained later in this report.

(4) Management Framework

AEC field offices are, of course, one in several echelons of AEC management. The support and guidance they receive from higher authority are crucial in their functioning. In our discussions with field staffs, we found the following complaints concerning higher echelons to recur frequently:

a. Excessive reporting requirements.

b. Lack of clear and timely policy guidance.

c. Need to refer to Washington for decisions.

Such complaints are to be expected in any large organization. We mention them here as we turn to consideration of problems of management including reporting, policy formulation, and degree of centralization, to point out that these aspects of management have direct and daily impact on field program activity.

In the foregoing sections we have stressed variations in contract administration. Where the variations were not due to differences in

the job, we did not find indications that these variations arose out of differences in attention to duty by AEC staff, but rather out of different conceptions of what was expected from AEC personnel in their relations with contractor. In discussions below of "Delegations" we shall examine further the sources of this uncertainty; we can express here our conviction that clarification of the agency's responsibility in contract administration would assist in attaining a healthy degree of uniformity.

Table 1

AEC FIELD TECHNICAL POSITIONS
(Excluding Direct Operations, CPC and Guard Units)
(June 30, 1952)

Office	(1) Total Positions	(2) Number** Omitted	(3) Number Tallied	(4) Technical Total	(5) Technical Eng. & Const.	(6) Technical Other	(7) Non-technical	(8) % (6) to (3)	(9) % (4) to (3)
Chicago	311	16	295	47	21	26	248	8.8%	15.9%
Schenectady	66	0	66	20	13	7	46	10.6%	30.3%
San Francisco	103	0	103	19	5	14	84	13.6%	18.4%
Idaho	444	201	243	56	30	26	187	10.7%	23.0%
Reactor Development	924	217	707	142	69	73	565	10.3%	20.1%
Santa Fe	1843	800	1043	194	62	132*	849	12.6%	18.6%
Weapons	1843	800	1043	194	62	132	849	12.6%	18.6%
Oak Ridge	1121	356	765	137	94	43	628	5.6%	17.9%
Hanford	484	3	481	98	80	18	383	3.8%	20.4%
New York	593	198	395	84	20	64	311	16.2%	21.3%
Savannah River	358	0	358	81	43	38	277	10.6%	22.6%
Production	2556	557	1999	400	237	163	1599	8.1%	20.0%
GRAND TOTAL	5323	1574	3749	736	368	368	3013	9.8%	19.6%

* Includes 76 inspectors at Sandia, Kansas City, Sugar and Pantex.
** Personnel engaged in common services, direct operations, CPC and guard units.

Table 2

REACTOR DEVELOPMENT FIELD TECHNICAL POSITIONS
(June 30, 1952)

Unit	(1) Positions	(2) No. Omitted*	(3) No. Tallied	(4) TECHNICAL Total	(5) TECHNICAL Eng. & Const.	(6) TECHNICAL Other	(7) Non-technical	(8) % (6) to (3)	(9) % (4) to (3)
Ames	10	0	10	3	1	2	7	20.0%	30.0%
Lockland	19	0	19	5	0	5	14	26.3%	26.3%
Pittsburgh	45	0	45	9	3	6	36	13.3%	20.0%
Chicago	237	16	221	30	17	13	191	5.9%	13.6%
TOTAL COO	311	16	295	47	21	26	248	8.8%	15.9%
Idaho	444	201	243	56	30	26	187	10.7%	23.0%
San Francisco	103	0	103	19	5	14	84	13.6%	18.4%
Schenectady	66	0	66	20	13	7	46	10.6%	30.3%
TOTAL	924	217	707	142	69	73	565	10.3%	20.1%

* Personnel engaged in common services, direct operations, CPC, and guard units.

Table 3

WEAPONS FIELD TECHNICAL POSITIONS
(June 30, 1952)

Unit	(1) Positions	(2) No. Omitted*	(3) No. Tallied	(4) TECHNICAL Total	(5) TECHNICAL Eng. & Const.	(6) TECHNICAL Other	(7) Non-technical	(8) % (6) to (3)	(9) % (4) to (3)
SFOO	538	93	445	38	14	24	407	5.4%	8.5%
Los Alamos	940	707	233	32	32	-	201	-	13.7%
Kansas City	58	0	58	25	-	25(1)	33	43.1%	43.1%
Pantex	44	0	44	21	2	19(2)	23	43.2%	47.9%
Sandia	196	0	196	52	2	50(3)	144	2.6%	26.5%
Sugar	9(5)	0	9	7	0	7(4)	2	77.8%	77.8%
Las Vegas	24	0	24	8	6	2	16	8.3%	33.3%
Eniwetok	11	0	11	5	3	2	6	18.2%	45.4%
Rocky Flats	23	0	23	6	3	3	17	13.0%	26.1%
TOTAL	1843	800	1043	194	62	132	849	12.6%	18.6%

1) Includes 19 inspectors
2) Includes 16 inspectors
3) Includes 35 inspectors
4) Includes 6 inspectors
5) Ordnance Department is responsible for all activities except technical inspection and security

* Personnel engaged in community services, direct operations, CPC, and guard units.

Table 4

PRODUCTION FIELD TECHNICAL POSITIONS
(June 30, 1952)

Unit	(1) Positions	(2) No. Omitted*	(3) No. Tallied	(4) TECHNICAL Total	(5) TECHNICAL Eng. & Const.	(6) TECHNICAL Other	(7) Non-technical	(8) % (6) to (3)	(9) % (4) to (3)
New York	505	196	309	51	12	39	258	12.6%	16.5%
Brookhaven	19	0	19	3	1	2	16	10.5%	15.8%
Fernald	39	0	39	18	6	12	21	30.8%	46.2%
St. Louis	16	2	14	5	1	4	9	28.6%	35.7%
Cleveland	14	0	14	7	0	7	7	50.0%	50.0%
TOTAL NEW YORK	593	198	395	84	20	64	311	16.2%	21.3%
HANFORD	484	3	481	98	80	18	383	3.8%	20.4%
Oak Ridge	1012	356	656	104	70	34	552	5.2%	15.9%
Paducah	95	0	95	30	23	7	65	7.4%	31.6%
Dayton	14	0	14	3	1	2	11	14.4%	21.4%
TOTAL OAK RIDGE	1121	356	765	137	94	43	628	5.6%	17.9%
Savannah River	273	0	273	50	25	25	223	9.2%	18.4%
Dana	17	0	17	5	2	3	12	17.6%	29.4%
Wilmington	68	0	68	26	16	10	42	14.7%	38.2%
TOTAL SAVANNAH RIVER	358	-	358	81	43	38	277	10.6%	22.6%
TOTAL	2556	557	1999	400	237	163	1599	8.1%	20.0%

* Personnel engaged in community services, direct operations, CPC, and guard units.

SECTION 2.

AEC MANAGEMENT

a. Staff Development

Clearly all phases of the AEC's operations, including contract administration, will benefit from a continuing effort to strengthen its staff through sound recruitment practices and development of the capabilities of its employees. We comment here on three aspects of staff development -- training, performance review, and development of executive personnel -- which in our opinion deserve increased stress.

(1) Training

The following is quoted from the Commission's Personnel Policy:*

"TRAINING"

> "Consistent with definite needs which arise or are anticipated, employees will be provided with opportunity to improve their knowledges, skills, or attitudes in order to enable them to perform the tasks assigned to them in the best known ways and to prepare for advancement. This will include programs for orientation and induction before assignment of work, training on the job, up-grading and understudy programs, and training in supervision and management practices."

We have not examined thoroughly the nature of training programs throughout the AEC. We have gained the impression that clerical and stenographic employees are generally given indoctrination training, especially in security practices, and that continuing training is given AEC guards. Several training programs are apparently in progress also for recent college graduates, particularly in the fields of accounting, auditing, and budgeting. We have reviewed representative training publications issued by the Division of Organization and Personnel in Washington, and we have noted several impressive examples of training in the field. Our impression is, nevertheless, that the importance of training has not received adequate recognition throughout the agency, and that the present training activities are very uneven. We were accordingly glad to be advised by the Division of Organization and Personnel that it hopes in the near future to take steps "to coordinate and strengthen the training activities of the AEC to such extent that they are comparable in all respects to those conducted by progressive business and Governmental agencies". The Division conceives its reponsibilities in the training area to be:

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*Personnel Policy. The United States Atomic Energy Commission, January, 1951.

(a) Formulating over-all policies, plans and standards;

(b) Coordinating AEC-wide training programs and projects;

(c) Rendering staff advice and assistance in the development, administration and evaluation of training programs;

(d) Providing a central source of information on effective training programs, methods, aids and techniques;

(e) Keeping top management currently informed concerning the quantitative and qualitative aspects of AEC training activities.

The effort Organization and Personnel hopes to make is an important one which it would seem could be reasonably guided by the above statement of responsibilities. It will require competent staff, an aggressive program, and the backing of top management. We are inclined to think that it would be facilitated by a more positive policy on training than is quoted above from the Personnel Policy. The present policy does not seem to take sufficiently into account that the agency, as well as the employee, stands to benefit from a vigorous training program; the relating of training to "definite needs" seems to invite neglect of the activity in the absence of a critical immediate need.

It seems to us that in strengthening the AEC's training activities, early attention might well be given to training of two groups of employees (which might to some extent overlap). One of them is the group which would be involved in an executive development program (discussed subsequently). The other consists of field employees whose duties entail considerable direct contact with contractors, especially "contract coordinators" who stand in the lines of authority between AEC and contractors.

(2) Performance Review

The following is quoted from the Commission's Personnel Policy:

"PERFORMANCE REVIEW"

Formal periodic review of the performance and capabilities of employees will be made against realistic and understood performance standards to determine any merited recognition, need for their further development, or change in job status. Each supervisor will record and use current information on the experience, qualifications and performance of each individual "under his direction" as a basis of planning for the training and further development of such employees or other appropriate personnel action. Each supervisor will discuss

any evaluation and the basis for it with the employees affected to develop mutual understanding."

The AEC discontinued use of the Civil Service efficiency rating system early in 1949. Since that time formal rating of an employee has been required only when, on the basis of his time in grade, he becomes eligible for a periodic pay increase. The supervisor certifies on such occasions merely that the employee does or does not meet the overall requirements of his position.* It is agreed generally that this procedure does not constitute satisfactory implementation of the above policy.

We have reviewed working papers of the Division of Organization and Personnel concerning development of a program of periodic formal review of employees' performance and potentialities which would implement the Commission's policy. A "Management Appraisal System", a procedure for rating management personnel, is tentatively proposed as the first step to be taken in the performance review program, and seems to us in the main sound. We also feel that the second step contemplated -- provision of a rating procedure for non-management personnel -- is sound as now roughly outlined.

We hope it will now be possible to make good progress in instituting performance review. We hope also that as soon as appropriate approvals are obtained the Personnel Policy will if necessary be amended to bring it into accord with the procedure.

(3) Development of Executive Personnel

We believe that systematic development of executive personnel contributes to the vitality of large organizations and incidentally simplifies their staffing problems. The unique nature of AEC should not make it exceptional in this respect; in fact, some of the staffing problems experienced by the agency in its first years seem particularly to suggest the importance of establishing a sound executive development program in AEC. Various key positions, for example, have stood vacant for long periods while efforts were made to induce men from outside the organization to accept the posts. In addition to these considerations, it seems apparent that an executive development program would do much to increase the attractiveness of AEC to present and prospective employees interested in promising opportunities for career employment.

We believe the Commission can never expect to be able to fill all of its key positions from within the agency. The Directors of Biology and Medicine and Research, for example, almost have to be recruited from outside and for good and apparently permanent reasons. There are other reasons, one of which is the agency's present lack of systematic executive development, why it may be desirable for some time in the future to fill certain other top executive positions from the outside. But the

* GM-PER-18

Commission's objective should be, we think, to bring about as quickly as possible a situation in which it can confidently expect to be able to fill all but a few key positions (and those principally technical) from within the agency.

Realization of this situation will depend on the success of efforts in several fields. One of these obviously is effective recruitment at the lower levels. We have not considered recruiting practices in detail but hope that they will be scrutinized in the course of the re-examination being given the Division of Organization and Personnel.*

A good system of performance review will also be necessary. We hope that the void in this field will be filled as a result of the current efforts discussed above.

A program for training of executive personnel and potential executive personnel will likewise be necessary. We hope, as has been indicated, that significant steps will be taken with respect to the overall training situation in the near future; executive development should be a primary consideration at that time.

Finally, it will be important for the realization to prevail that filling a key position can be more than a means of assuring that functions of the position are capably fulfilled for an indefinite period. When such a position is filled, the individual concerned is given an opportunity to develop himself and increase his future value to the agency, and obviously therefore placement may be used as a means of executive development.

Key positions are filled today in accordance with a procedure** which does little but insure that a "digest of Qualification Data" (Form AEC-285) on each key employee throughout the agency whose past experience seems pertinent is made available to the operating official filling the vacancy. How he thereafter fills the vacancy is entirely his responsibility.*** While this procedure certainly has its advantages, it stops considerably short of what is desirable. Form AEC-285, in the

*We hope action will be taken on a suggestion made at the October 2, 1952 meeting of the Advisory Committee on Personnel Management, that a paper setting forth the manner in which recruiting has been carried out for certain key positions, be submitted for the Committee's consideration.

**GM-188 ("Filling Key Positions")

***There are exceptions to this, some of which we have noted, e.g., attorneys, field Directors of Finance and Security, and positions higher than GS-15.

first place, gives only brief information on education and job history. The interested operating official may, of course, inquire as to a candidate's performance and personality and capabilities, but he may well address his inquiries to another official interested in keeping the candidate where he is. In general, we feel that Managers' personal knowledge of the abilities of candidates and the presence of candidates at sites where vacancies have occurred, have overinfluenced key recruitment. The filling of virtually all of the key positions of the Paducah and Portsmouth Area Offices from within Oak Ridge Operations Office organization are cases of interest in this connection, though we do not deny the possibility that urgency may have required that executive placement be handled as it was in these cases.

Besides urging a program of executive development supported at high levels in AEC, we have general proposals, some of which have been intimated earlier, which we offer not in the certainty that they are in all details desirable, but at least to indicate the direction in which we believe that effort should proceed.

First, the need in the fields of recruitment, training, and performance review has already been discussed.

Second, believing that executive development calls for a coordinated AEC-wide program, we suggest establishment of a position in Washington headquarters of coordinator of placement for key positions. The important contribution we would expect this coordinator to make is to assure that executive development and placement is treated as an overall AEC problem and not as one which should be dealt with by each Operations Office without regard to the rest of the field and Washington. Thus, he would be concerned with mobility of personnel (discussed below), and we would expect him to insure that each key position placement action is made with full consideration not only of the candidates' past history as it may relate to the job requirements, but with thought also to the long range development of the outstanding candidates. The coordinator should maintain full information on all key positions*, their incumbents, and employees within the agency becoming eligible to move into key positions. With respect to such personnel, he should currently maintain not only employment background data such as shown on Form AEC-285, but performance review data from written reports, and this information should be reinforced by personal contacts with the individuals themselves and their supervisors. He should, that is, have current and well grounded judgments as to the present capabilities and the potentialities of key personnel throughout AEC.

*A very rough definition of "key personnel" proposed only for purposes of discussion is: branch chiefs and above in Washington, deputy division directors and above in the field. It would probably be desirable, actually, to make the number of key positions handled by the coordinator as large as his time would permit.

Third, filling of a key position in the field should involve collaboration of the local Manager, the Washington division director specializing in the field in which the vacancy exists (e.g., finance, security), and the key position coordinator. Because of the traditional tendencies of operating officials to wish to fill vacancies from within their immediate organizations, it might be desirable that disagreements which cannot be resolved among the three officials be referred to the General Manager or the Deputy General Manager.

Fourth, mobility of personnel should be encouraged. Increased movement of key personnel among the field offices and Washington headquarters would benefit the Commission by expanding the capabilities of the personnel affected, encouraging consistency of practices and policy interpretation throughout the field, reducing the gap between "field viewpoint" and "headquarters viewpoint", encouraging identification of primary loyalty with the agency rather than one of its offices, and averting the temptation, which is sometimes a real one in the field, to subserve the contractor in the belief that this will assure an amicable long-term relationship. Of interest in connection with personnel mobility would be the carefully planned introduction of grade differences between corresponding key positions in large and small Operations Offices. Thus, for example, the logical first step of advancement for the Deputy Manager of a large office might not be to replace his superior, but to become Manager of a smaller Operations Office. We recognize that the question of "rotation" involves difficult but hardly insoluble problems, such as the reluctance of individuals to be moved from site to site, or the need for some additional travel funds.

As to the question of where the key position coordinator should be placed within the organization, we believe that he should certainly not be lower in the organization than directly below the Director of Organization and Personnel. It would not be inconsistent with good industrial practice to place him in the Office of the General Manager.

Planning for a complete program of executive development -- one beginning with recruitment in the lower grades -- should start promptly, but development of a complete program will take some time even after completion of planning. The actions proposed above might be initiated in the interim, and should be easily integrable with the ultimate program.

b. Policy Formulation and Promulgation; Advance Planning

To maintain momentum and effective cooperation in an enterprise as complex as the atomic energy program, goals and policies must be clearly stated and readily available. Such goals and policies are important to the field officials who must execute them, to the divisions who are responsible for working out and meshing together the various programs of the Commission, and to the Commissioners themselves in shaping and controlling the enterprise. We have spoken from time to time about difficulties in ascertaining what AEC policy is on a specific question. In this section we shall look at some reasons for this difficulty and some possible aids in reducing it.

(1) Policy Formulation

Basically policy and goals are established by the Commission itself as an aspect of discharge of its responsibility for the program under the Act. Establishing policies and goals has been less a distinct activity than an aspect of the continuing Commission occupation with review and appraisal of the program, planning for programs and organization, resolution of problems referred by the staff, and preparation for explanation and defense of the program. / Because of the youth and rapid growth of AEC, operating and policy problems are peculiarly closely related and at times inseparable, so that the Commission's participation in operating programs and decisions is quite detailed. This concern with program detail is reinforced by the Commission's accountability for the program -- to the President, to the Congress, and to the public. The importance and sensitivity of atomic energy make this accountability arduous and time-consuming, and invest details of the program as well as major decisions with implications that bring them to the Commission.

A measure of the problem is the sheer volume of things which the Commission has tried to give its attention to, and the number of documents sent to it. In 1952, as one measure, 398 action papers went to the Commission for decision, a total of 5400 pages; in addition, 1506 information papers totaling 6521 pages were sent to the Commission as matters presumably deserving review. The load of day-to-day meetings, consultations, operating problems and so forth has been so great and absorbing that the Commission in seeking relief and perspective has on occasion left Washington for overall policy review sessions free of distraction.

Policies and goals thus are to be found in a large number of individual decisions and specific programs, rather than in a deliberately developed single body. This step-by-step approach has been in part a matter of choice; to attempt to formulate general policies, in advance of experience, has seemed unwise in view of changing technical possibilities, changing military requirements, and changing national needs. Individual decisions and goals are brought together for overall statement of the program and policies and goals only in required reports like

the semi-annual report to the Joint Committee, and in budget planning and presentation. These are valuable documents in a general sense as well as for their particular purposes, but they do not provide good occasions for resolving basic policy issues, since they have special purposes, inflexible deadlines, and a format and style of presentation directed to the needs of the recipient agency rather than to clear internal policy guidance. Yet in the absence of other policy summaries of equally full scope, they must be used both as a vehicle for obtaining decision and as a basic source of existing policy for the staff.

The distracting pressures and demands, whether for imperative program and operating decisions or for explanation and defense of the project, will continue to make policy review and formulation difficult. Overall review, appraisal, and formulation of policies, goals, and progress must be performed, however, and the results must be stated and promulgated for the guidance of the staff. Ways of helping toward this end are several; we will speak below of two which seem essential -- codification of existing policy, and establishment of a staff to assist the Commission and General Manager in their long range planning. In speaking here of the difficulties in establishment and overall review of goals and policies, we have had in mind two other possible approaches to facilitating this job. (a) One is the systematic review of major programs and establishment of revised goals and policies independent of special needs like budgeting or Congressional reporting, so that policy issues will be presented in their essentials and Commission positions will be available in statements drawn for staff guidance rather than for external consumption. (b) The second is the planning of Commission business in rough outline over the course of the year, so that the recurring items such as budgets and reports to the Joint Committee will be foreseen and the necessary preliminary study and discussion arranged for. New program developments, Congressional hearings, supplemental appropriations will defy ordered transaction of business in AEC for some time, but the underlying pattern is also becoming stabilized and by explicitly recognizing it some issues may be anticipated or even forestalled and some recurring business may be handled with better preparations. A partial basis for reducing Commission involvment in operating detail and decisions may also be provided.

(2) Planning

The preceding remarks suggest that advance planning in the Commission has been bound to specific problems, incidental to other activities, and dependent on a few individuals (including the Commissioners and General Manager) already over-burdened with other concerns. Individuals on the Commission and the staff have fostered planning in particular areas, but often without time or available energy from other duties to press their ideas, and without organizational machinery to support them or coordinate their work. Under these circumstances, there has been no assurance that planning has proceeded in all important areas.

Examples of the apparent deficiency here are the following:

1. We found no staff unit assigned responsibility for long range organizational planning. For example, the figures used in the subsequent section on "Organization" had to be prepared at our request and assembled from several different offices.

2. Division directors are left uncertain as to their responsibility and authority for planning and establishing goals. A basic staff paper on the AEC reactor program, for example, began with the following statement of the problem:

   "To identify the assumptions of the Division of Reactor Development regarding the Commission's objectives and priorities in respect to the development of non-mobile reactors, and to indicate the relationship of these objectives and priorities to existing and planned programs..." (AEC 152/21, March 11, 1952)

3. The one unit presently concerned more than any other with general problems relating to long range planning appears to be the Operations Analysis Staff, but they have no responsibility for appraising the general adequacy of agency planning, and are in some uncertainty as to the extent to which they are expected to initiate studies in areas cutting across the work of other divisions.

4. There are many matters on which authoritative working assumptions are necessary for effective staff planning. An example is the question of the level at which production may be considered adequate for the weapons supply to be "saturated". Efforts to learn from the Department of Defense what this level is have apparently been futile. Even if the saturation level cannot be firmly established, however, a working assumption might be formalized and cleared with the Department of Defense as a proper means of sharing responsibility with them for decisions which must be made in the next few years in such various fields as production, contractor selection, community management.

We recognize that a constantly changing program has made it difficult to make staff provision for specialized aid in planning, since goals and schedules and current operating decisions have been interdependent and have had the attention of the Commission, General Manager, and top staff. Planning is an integral function of top management, of course, but it is one in which we believe an able full-time staff would assist the Commission and top staff in foreseeing and considering the trends of present programs and their inter-relationships.

(3) Policy Promulgation -- Commission Decisions

The principal record kept of Commission decisions is the official

minutes, maintained by the Secretary to the Commission. The minutes state all decisions reached and frequently indicate the outlines of the reasoning leading to the decisions. The minutes are given very limited circulation; only the General Manager and the General Counsel among the Commission's staff regularly receive copies. For each decision reached, the Secretary sends a memorandum in behalf of the General Manager to the staff division affected, citing the decision and requesting that it be implemented. As a rule the memorandum contains no account of the Commission's discussion, though occasionally excerpts of the draft minutes may be attached. Copies of the memorandum may be sent to other staff divisions if they have an obvious and immediate interest. Recipients of any staff paper considered by the Commission receive copies of a "decision sheet" setting forth the bare decision.

The reporting of Commission decisions seems to us to be inadequate. Only the bare decisions are given general circulation to the top staff, and this by a device which is in some respects most unsatisfactory. A staff member may receive, for example, a paper from the Office of the Secretary designated AEC 285/10 advising simply that on May 1 the Commission approved the recommendation of AEC 285/9. Frequently the staff might be better guided if it were aware of the Commission's reasoning as well as of its decisions. In addition the staff member will have the physical difficulty of interpreting the decision sheet, since locating the earlier Commission paper may be difficult after a considerable lapse of time. While respecting the need for privacy of the Commission's minutes as a whole, we wish to emphasize their potential value to top staff members and to point out that the bulk of their contents requires no privacy beyond that imposed by security regulations. Possible means of better acquainting the staff with the substance of Commission deliberations deserve study. As random examples we suggest consideration of periodic topical abstracts of the minutes, or systematic distribution of full extracts of discussions.

Records of existing policy and the supporting facts and reasoning are dispersed physically and uncodified. The divisions do not have all the minutes or other pertinent papers dealing even with the activities for which they are responsible; on the other hand, the Office of the Secretary does not always have documents however important which have not been directly considered by the Commission or have not grown out of a Commission decision. It is thus difficult to ascertain in considering any problem whether all existing policy and pertinent facts are on hand. This difficulty is complicated by the absence of codification. As we have observed, the Office of the Secretary maintains case files in simple chronological order. Without deprecating the conscientious work that has gone into these files and their unique value, we would point out the frequent difficulty of ascertaining which policies remain in effect and which have been superseded, as well as whether pertinent decisions are included in other documents not cross-indexed. We believe that the codification of Commission policy on a nearly current basis should be studied, and will prove a way of saving time and effort of busy key people out of all proportion to the additional people who will

be needed. Such codification, if imaginatively done, might also be of significant help in policy planning.

(4) Policy Promulgation -- GM Bulletins; Manuals

We propose to discuss briefly now the means by which policies and procedures of general applicability are made known throughout the AEC. The basic pertinent directive is GM-O&M-1, from which is quoted the following:

> "A Bulletin is a statement of organization, policy, program or procedure. Though all statements of organization, policy, program or procedures, regardless of their form, are applicable in the areas of responsibilities assigned the issuing official, it is intended that when such statements are of permanent importance they shall be formalized as Bulletins."

Bulletins issued by Washington headquarters for use throughout AEC are designated "GM Bulletins".

There seems to be no reasonable alternative to maintenance of a system of Washington headquarters bulletins. Even if most of the contents of GM Bulletins were to be issued in a relatively few manuals, the difference would be one of format, and the need for means of continuous issuance of new and revised statements would continue. There is a tendency to think that changes in format will solve the problems which have developed in the GM Bulletin system. Certainly the question of improved format should always be an open one. Several problems are involved in the GM Bulletin system, however, which relate to questions of policy.

One such problem is to determine for whom GM Bulletins are written. There seems to be no doubt that they should be addressed to the Washington headquarters staff and to Managers of Operations. The question is, should their purpose go beyond this, and include giving essentially all necessary instruction (within the scope of their subject matter) to the staffs in the field offices, and to contractors? It is clear to us that generally it should not. There are, of course, cases in which manuals can be issued to field employees and contractors, which will provide satisfactory guidance with a minimum of supplemental instruction at the field level. Some such manuals are in use; the issuance of others -- several are now in preparation -- should be regarded as urgent. In general, however, a headquarters instruction requires interpretation, elaboration and editing before it can be fully helpful to the field employee or the contractor. This is in our opinion properly the job of the Manager of Operations, and GM Bulletins should not be thought of as addressed to individuals below his level, or to contractors. Clarification is needed on this essential point.

A certainly fundamental shortcoming of the GM Bulletin system today is that the mandatory nature of the provisions of GM Bulletins is not

established. This is in part because of poor editing; clear distinction is not always made between what is offered for guidance and what is set forth as required. In addition it is probable that recollections of some early AEC history cause confusion on this matter. In March, 1948, at which time decentralization was extreme, the term "GM Bulletin" was devised to replace the term "GM Instruction" which had been used earlier. This change came about as the result of objection made by field officials that issuances designated as "instructions" left them inadequate discretion and seemed out of keeping with the Commission's professed philosophy of decentralization. At the time of this change field officials and Washington officials were alike informed that Bulletins were intended as guidance and that literal compliance with them was not to be expected in view of the diversity of conditions throughout the organization. We have noted earlier that contract provisions affect implementation of GM Bulletins, and particularly that in some cases contracts provide the local manager with no basis for requiring compliance with the terms of an order from AEC headquarters. It is hard to see how the GM Bulletin system can operate successfully if the requirements issued through it are considered as anything other than mandatory. Before they can be so considered, however, the Managers must be provided with contractual basis for insisting on implementation within the contractors' organizations. As has appeared from discussion in Section 1(d), this will require agency-wide action.*

A third fundamental problem is that of coordinating the GM Bulletin system in Washington headquarters. The coordination required is of a much firmer and more aggressive nature than that which has been performed to date by the Division of Organization and Personnel. We believe that the elements of the necessary coordination should be defined and that it should then be made the responsibility of a unit of the headquarters staff. If this unit is not within the Office of the General Manager, it should presumably be within the Division of Organization and Personnel.

We have now alluded to basic problems in the GM Bulletin system which call for decision at the General Manager level. The nature of some of the less fundamental problems will be implied in the following listing of the duties and questions with which we believe the coordinating headquarters unit would be concerned:

*The mandatory nature of apparent requirements of GM Bulletins is further thrown into doubt when exceptions are allowed by Washington headquarters in the cases of particular contractors. Thus, by action of Washington headquarters, DuPont was recently, and at its own insistance, partially exempted from requirements of GM-S&S-39 concerning recording of certain cost information in cases when bids are not obtained by formal advertising. The arguments offered by the DuPont Company in requesting exemption were arguments which could just as validly be made by numerous contractors throughout the program.

(a) Issuances should be reviewed for clarity. This is especially important in connection with assignments of responsibility and modifications of existing delegations. It is similarly important in assuring clear distinction between what is required and what is offered as mere guidance.

(b) Non-conformance of issuances with basic principles of good management or special management policies of AEC should be questioned and if not corrected brought to the attention of the General Manager. The question of placing a time limit on any proposed restriction of the authority of field offices should be raised.*

(c) Keeping GM Bulletins complete and current must be of constant concern. Though GM Bulletins are now voluminous, they are not complete by the standard set in the portion of GM-O&M-1 quoted above.** This situation may have been invited by the fact that GM Bulletins are issued by the authority of the General Manager -- that is, of the highest AEC staff echelon. The Managers in the field are separated from this echelon by one or two additional echelons in Washington, and are grouped in four separate organizations, each under a Washington program division. There is no doubt that this has tended to limit GM Bulletins to matters of interest throughout the field, and has encouraged issuance of directives in less formal form by division directors when only their own field offices have been involved. (It has long been agreed that only one bulletin system -- "GM" -- will be maintained in Washington headquarters.) Issuance programs should be obtained from all Washington divisions and offices, outlining, with target dates, their future plans for new bulletins and for revising existing bulletins. These programs should be evaluated and followed up. The minutes of the Commission should be reviewed periodically (if no other solution to the problem is devised) to insure that policy statements appearing in them are properly reflected in bulletins.

(d) Procedures for expediting "clearance" of new issuances should be improved and enforced.

(e) Continuing study should be given the problem of simplifying the use of bulletins, through better editing, for example, combining of Bulletins in manuals, or devising more detailed subject indices than now exist.

* C.F. pg. 68

** The number of Bulletins issued in some of the various categories may be indicative; only one bulletin has been issued in the category "Classification", one in "Community Management", two in "Reactor Development", and none in "Military Application".

(f) Procedures for checking on the promptness of implementing action in the field, and for the responsiveness of that action to GM bulletin requirements, should be devised and put into effect.

(g) One of the costliest operations involved in the issuance system -- that of the means of implementation of a GM bulletin in the field -- should receive overall study. As has been stated, we do not think bulletins can be drafted in Washington which are suitable in themselves as instructions to field staffs or contractors. Neither do we think it is a good practice to forward GM bulletins to contractors with a covering letter from the Operations Offices requesting compliance and giving interpretation and further information.* The reissuance of virtually every bulletin by each of 10 Operations Offices, however, represents a major load on the field staffs. We have wondered whether there would be merit in at least some cases in transmitting to the Operations Offices with new GM bulletins, re-writes such as would appear suitable for issuance by an Operations Office, with blanks left where field office officials should be designated, or other local information given. The re-write would call attention to points requiring interpretation. Its use would be entirely at the discretion of the Manager of Operations and its sole purpose to simplify reissuance and cut down the time spent in reissuing bulletins throughout the field.

* This practice is now common in AEC.

c. Evaluation

Evaluation of performance against goals and standards is a basic responsibility of management. Aspects of evaluation in AEC are discussed at several points in this report. In the first section, it was pointed out that one way of stating the responsibility of contracting officers is that they should assure themselves that the contractors understand their objectives and are taking adequate steps to achieve them; this requires evaluation not only of work done but of prospects for future work. Evaluation of contractor work also affects AEC staffing, since in general field staffs may be reduced as performance of the contractors is dependably shown to improve. Precise evaluation of contractor contributions will be necessary if incentives are to be introduced into contracts, so that cost reductions attributable to contractor management efficiency can be distinguished from reductions due to greater volume or process development. Further, reliable ways of measuring or evaluating performance are essential to stimulation of competition between different AEC contractors or different units within AEC or contractor organizations. Finally, the relationship of evaluation to discussions earlier in this chapter on personnel performance review and development of executive personnel is obvious.

Principal instruments of evaluation in AEC are inspections and reports, on each of which brief comment appears below.

(1) Inspection

We have not found that a comprehensive view of inspection as a technique by which headquarters evaluates performance in the field, is taken in Washington headquarters; rather, the many kinds of specialized inspections seem ordinarily to be considered individually. This may largely explain the great variety in current inspection practices. In certain fields -- notably property management, physical security, construction, and source and fissionable materials accountability, -- inspection is more or less systematically carried on by the interested units of the Washington staff. In other fields inspection is more random, and in still others -- including several in the areas of personnel* and management -- it can hardly be said to exist. Practices of following up on results of inspection are similarly diverse.

Inspection may be overdone as well as slighted, and no implication is intended that a wholesale increase of inspection activities should be initiated. Recognizing, however, that most of the Washington divisions and offices should be concerned in inspection of the field, one would

*For comment on the value of inspection by headquarters units in evaluating field staffing, see discussion of question four of the JCAE letter, in Chapter Five of our report of April 13, 1953.

hope that, through a survey of existing inspection activities, perhaps followed up with supplementation of the present meager policy statements in inspection, provision might be made for insuring a reasonable consistency and coverage among the many aspects of AEC's inspection program.

There are of course valuable by-products of inspection. The inspector can often assist a field officer because he has knowledge of the problems and experience of other field offices. Moreover, his inspection activities should enable a headquarters specialist to perform his functions in policy making with appreciation of the problems of operating in the field.

Among the advantages of the recently initiated internal audit program is that it may be expected to call attention to gaps in the inspection programs of both Washington headquarters and field offices, especially if policies and standards of inspection can be more fully stated in official issuances. While the internal audit should be concerned consistently with the conduct of appropriate inspections, however, it would be undesirable to regard it over any extended period as a substitute for other inspections, or as compensation for weaknesses in the general program of inspection. In carrying out the internal audit program, auditors will be examining many areas of administration in which inspections should be made systematically by specialists of other staff units. To avoid confusion and duplication of effort, it will be important that the responsibilities of the two groups — the auditors and inspectors — be delineated clearly and in a manner which takes reasonable account of the backgrounds and experience ordinarily found in members of such groups.

(2) Reports

In connection with requirements for reporting imposed by Washington headquarters on the field, we wish to comment first on two related problems — that of maintaining reporting requirements at a minimum, and that of improving the usefulness of the reports required. The Controller has advised us of his proposed review of all financial reporting requirements of Washington headquarters with a view to simplifying them, eliminating overlapping requirements, and insuring that all requirements are justified. This review seems very desirable, but while it should result in improvements, we believe that additional steps might be taken.

It seems desirable, first that responsibility be fixed within the Washington staff for continuing review of existing and proposed reporting requirements (perhaps the same unit responsible for reviewing GM bulletins). The burden represented by present requirements is considerable. Throughout the field we were told that reporting requirements accounted for a substantial proportion of AEC personnel man-hours; we incidentally frequently found scepticism as to the usefulness of many reports. The Division of Organization and Personnel has periodically prepared an "AEC Reports Directory", but this has entailed compilation rather than critical review of the requirements. To supplement the screening of individual requirements, continuing broad study should be made of the collective requirements, to seek means of simplification and

if possible means by which the benefits of reports required or proposed can be weighed against their costs in terms of dollars and man-hours.

This continuing study might easily extend beyond questions of simplification and justification to the second problem mentioned, of improving the usefulness of the reports required. Work on this problem too, seems to stand to benefit from fixing responsibility at a central point. The special reporting needs of the Commission and General Manager, which we understand are now under review, should be included in the study, for the demands on the time of these men are such that they cannot be expected to review reports prepared to meet the more detailed requirements of the Washington divisions; the reports most useful to them are terse, frequent high-light reports, and graphic reports by which performance can readily be measured against programs.

We wish to offer brief further comment on the need discussed above for evaluation of contractor performance. At present, reports evaluating the overall performance of contractors appear to be required only for construction work:

"The Contract Board shall maintain the following records . . .

(e) As to performance, a record which will show the effectiveness with which the firm performed cost-plus-a-fixed-fee work, in order that its qualifications may be evaluated . . . for any further work at the Office of Operations or at other Offices of Operations." (Section 4-24 of the Contract Manual.)

We believe that formal evaluation could usefully be put on a regular basis with respect to all cost-type contractors and perhaps in a relatively limited way with respect to some lump sum contractors. Some information for the necessary reports on individual contractors could be obtained from reports now being made, for in some management fields -- safety, operating stores inventories, SF accountability -- measures of performance have been devised which permit comparisons and appraisal of progress. Additional specific measures could be worked out as well, but the evaluation should not be confined to areas in which precise statistical data can be developed. Thus, an annual report might be made by the contracting officer on the performance of each of his contractors, where possible evaluating performance with respect to stated standards and goals, and adding comment on those aspects of performance not subject to statistical presentation. Such evaluation would be valuable not only in documenting future contract actions, but also in defining what is expected from contractors and in encouraging improvement.

d. Delegations

(1) Introduction

In the first section of this report we reached the conclusion that AEC needs to state clearly and explicitly what the responsibilities of the agency are in administering its contracts, and what is expected of field managers. Clarification of policy on contract administration is closely tied in with the AEC system of delegation of responsibility and authority, since field managers derive their authority in contract administration and their policy guidance from their superiors in the organization. We will look in the present section at the AEC system of delegations, to see whether responsibilities are clearly defined and distinguished and whether the channels from the contractor to the Commission are clear and adapted to the needs of the various programs.

In our review of AEC delegations we have kept in mind several generally accepted principles of management. Three of these are stated in the form of policy adopted by the Commission* in the AEC Personnel Policy:**

(a) Assignment of responsibility will carry with it commensurate delegation of authority.

(b) An employee will not be required to report directly to more than one supervisor.

(c) Instructions and directions relating to work assignments will be communicated to him only through, or with the agreement of, the immediate supervisor. ("The desirability for freedom and informality in staff communications and working relationships at and between all

* Meeting 218, November 23, 1948.

**It is not to be assumed that the Personnel Policy is intended to apply only to the personnel problems of employees in the lower grades. The Policy itself states that "Application of the principles underlying (it) must be an integral part of the daily activities of supervisors at all levels and of all other employees." The "Preface" authorized by the Commission (Meeting 496, Nov. 21, 1950), for the January, 1951, edition of the Policy, states: "We believe that (The Personnel Policy) contains the principles which must be put into practice if our management is to meet the test. We want these principles to be applied with increasing skill by all of us in the AEC at all levels of management throughout the critical days ahead."

organizational levels is emphasized; always recognizing, however, the single line of authority necessary in taking official action.")

Two other traditional management principles have seemed to us pertinent to the present discussion:

(a) A delegation should include clear-cut definitions of the responsibilities and authorities of the official concerned, as well as of his relationship to other officials with whom he ordinarily works.

(b) Clear and easily understood lines of authority should run from the top to the bottom of an organization.

(2) The Basic Pattern of Delegation in AEC

It is proposed to discuss here the basic pattern of delegation in AEC as officially stated and as modified in actual operations. It is important to understand the basic pattern, among other reasons, because it is widely regarded outside the agency, and sometimes within it, as indicating definitely how delegation is effected by AFC.

The Commission has stated that it gets job done "through a carefully decentralized management chain", and that "operations have been assigned, along with commensurate authority and responsibility, to field managers and through them to contractors".* We propose to consider first the general basis in official directives and records for delegation from the Commission down the chain to the field office level.

(a) Commission and General Manager

No particularly informative document explaining the functions of the Commission has come to our attention. A public statement on the subject appearing in the Commission's Twelfth Semi annual Report** asserts that "the Commissioners confer and act as a body on important matters of policy, programs and administration," and continues:

"The Commissioners establish policies and programs pursuant to the provisions of the Atomic Energy Act, direct the administration and executive functions of the Commission to be discharged by the General Manager, appoint the principal officers of the Commission's organization, and take such other

* AEC 255/5

**Major Activities in the Atomic Energy Program, January-June, 1951, United States Atomic Energy Commission, July 1951

action as may be required to effectuate the purposes and policies of the Atomic Energy Act."

The function of the General Manager is described thus in the Twelfth Semiannual Report:

> "The General Manager is responsible to the Commission for formulation of policies and programs by the Commission's divisions."

The current "Statement of authority of the General Manager" signed by the Chairman on October 30, 1950, reads in part as follows:

> "The General Manager of the Atomic Energy Commission is authorized and directed to discharge the executive and administrative functions of the Commission. The General Manager may discharge those functions through such officers, employees, and agencies of the Commission as he may designate, and may exercise the statutory authorities of the Commission in the discharge of those functions.
>
> "Any authority herein delegated may, within the discretion of the General Manager, be redelegated with or without authority to make successive delegations, and under such terms, conditions and limitations as he may deem appropriate."*

It is not possible to discern clearly, either from such broad statements as quoted above, or from other official statements on AEC administration, specifically how responsibilities are divided between the Commission and the chief member of its staff. In response to our inquiry as to this division, the Secretary to the Commission replied that the Commission desires "to consider those issues which have important or long range implications for the future of the atomic energy program, rather than to consider specific categories of problems" and that "therefore, the type of information desired by the Commission and the issues upon which the Commissioners desire to take action is necessarily always in transition." The actual authority held by the General Manager in practice, as distinct from that in the formal "Statement of Authority", has thus not been expressed in summary form, and the line between matters within the authority of the General Manager and those requiring action by the Commission is indistinct and changing.

We have examined several specific delineations of the General Manager's authority contained in the Commission's minutes, on such matters as land condemnation and establishment of positions higher than GS-15, but these do not seem to be of general significance.

*This "Statement of Authority" is substantially identical to that issued to the Commission's first General Manager.

(b) Office of the General Manager.

Within the Office of the General Manager, the Deputy General Manager "is authorized to take action for the General Manager on all matters falling within the authority of the General Manager".*

The Assistant General Manager for Manufacturing is authorized to take action on behalf of the General Manager on (among other things):

> "All programs concerning:
>
> a. The Division of Raw Materials, including exploration and procurement of raw materials . . .
>
> b. The Division of Production, including the production of fissionable and special materials . . .
>
> c. The Division of Construction and Supply, including the design and construction of plant facilities . . ."**

The Assistant General Manager for Manufacturing is also given delegable contract authority without specific financial limitations and he is authorized, in the absence of the General Manager and Deputy General Manager, to take action for the General Manager on all matters falling within the authority of the General Manager.

(c) Delegation to Washington Divisions

By means of GM bulletins, "primary functions" have been assigned to the six Washington "program" divisions. The most important of these functions are:

> Division of Research: Research relating to atomic energy in the field of the physical sciences.
>
> Division of Biology and Medicine: Research relating to atomic energy in the fields of biology and medicine.
>
> Division of Raw Materials: Exploration, mining, acquisition, and

* GM-O&M-?

**This item (c) of the delegation is confusing in that:

1. One might infer from it that the Division of Construction & Supply has "line authority" over the design and construction of plant facilities, which is not the case, and
2. It might appear (as is not the case) to endow the Assistant General Manager for Manufacturing with line authority over design and construction of plant facilities undertaken by divisions which do not report to him -- e.g., Division of Reactor Development, Division of Military Application.

production of raw source materials and uranium concentrates, and the procurement of certain special materials.

Division of Reactor Development: Development of reactors, including the equipment and processes which will make possible their effective and safe use.

Division of Production: Processing of raw materials to feed materials; production of fissionable materials; procurement and processing or production of special materials, special equipment, and materials critical to AEC operations.

Division of Military Application: Research, development, production, and testing in the field of atomic weapons.

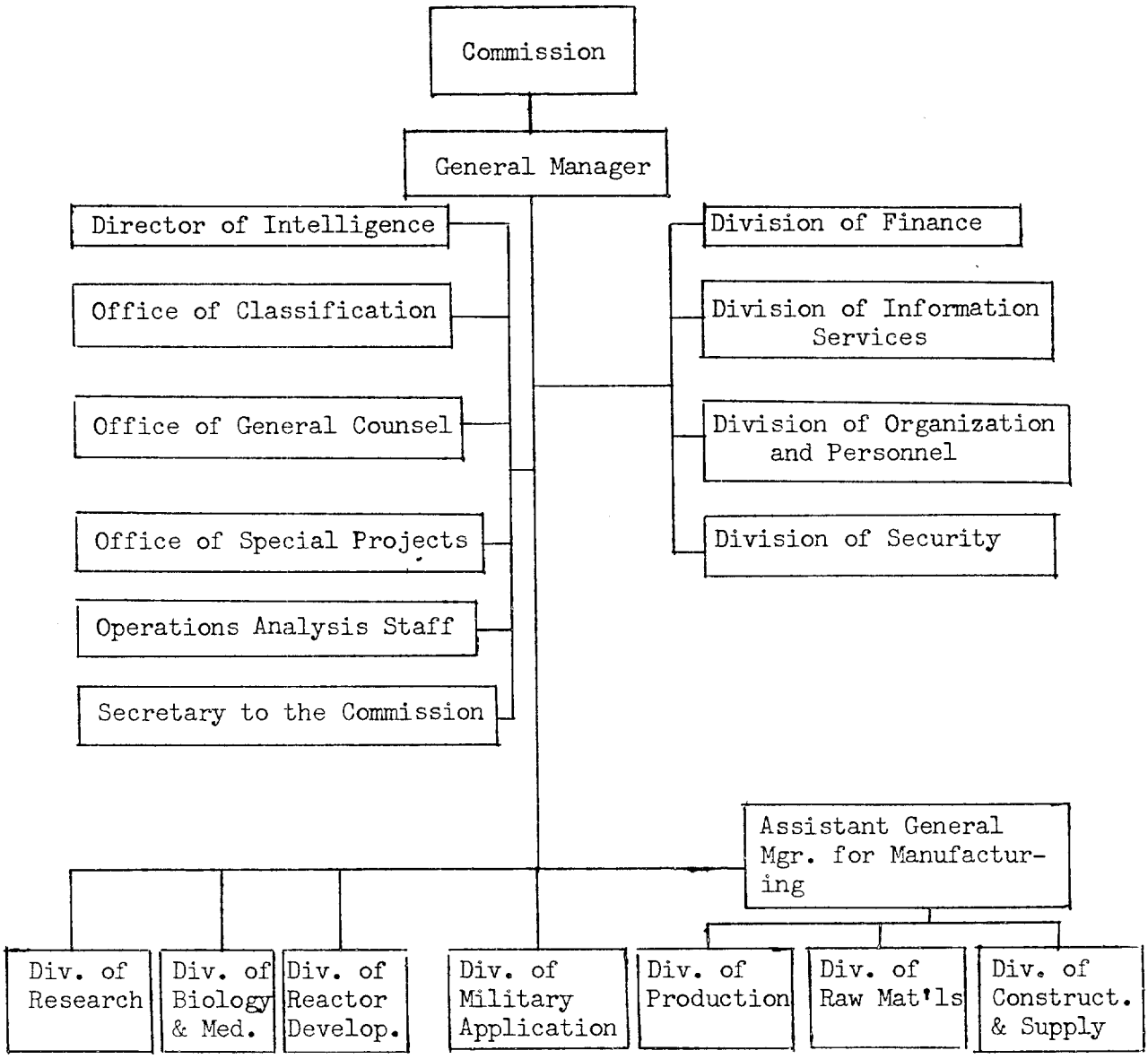
The responsibility of the Director of each of the above divisions includes, with respect to his assigned functions, coordination, review and defense of budgets, and "the general supervision of expenditures made under the approved budgets and programs".*

The Divisions of Raw Materials, Reactor Development, Production, and Military Application are, in addition, given certain (delegable) authority to make and administer contracts, (no specific monetary limitation is imposed on their contract authority) and are charged with supervision of the "direct" AEC field activities under them.

The other Washington divisions (Construction and Supply; Finance; Organization and Personnel; Information Services; Security; and General Counsel) are, in general, delegated "staff" functions without direct responsibility for the performance of contractors or field offices.

*The word "general" is omitted in the case of the Division of Reactor Development (GM-C&M-5)

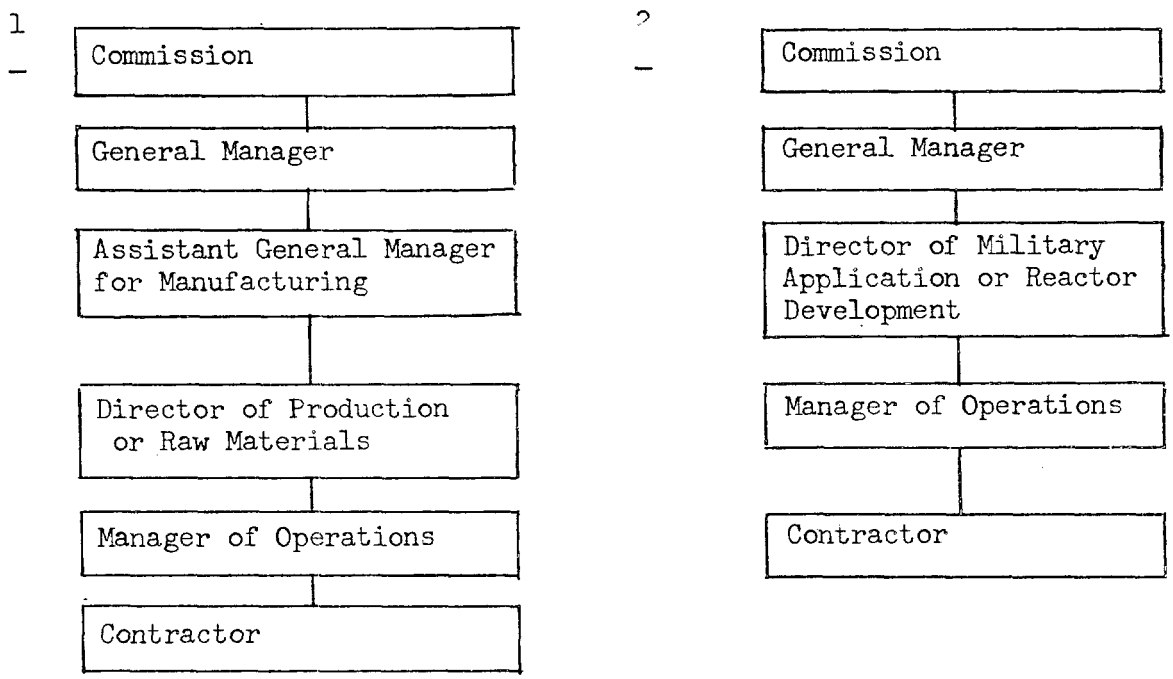
The general pattern of delegation within Washington headquarters is thus as follows:



(d) Delegations to Managers of Operations

Each Manager of Operations receives his delegation from and reports to one of four Washington program divisions. Thus, with respect to the functions for which Managers of Operations are responsible to their immediate superiors, standard patterns of the management chain have evolved such as the following. These patterns are basic in the Commission's

operations, though as will appear, they are substantially modified in practice:



(3) Patterns of Delegations in Practice

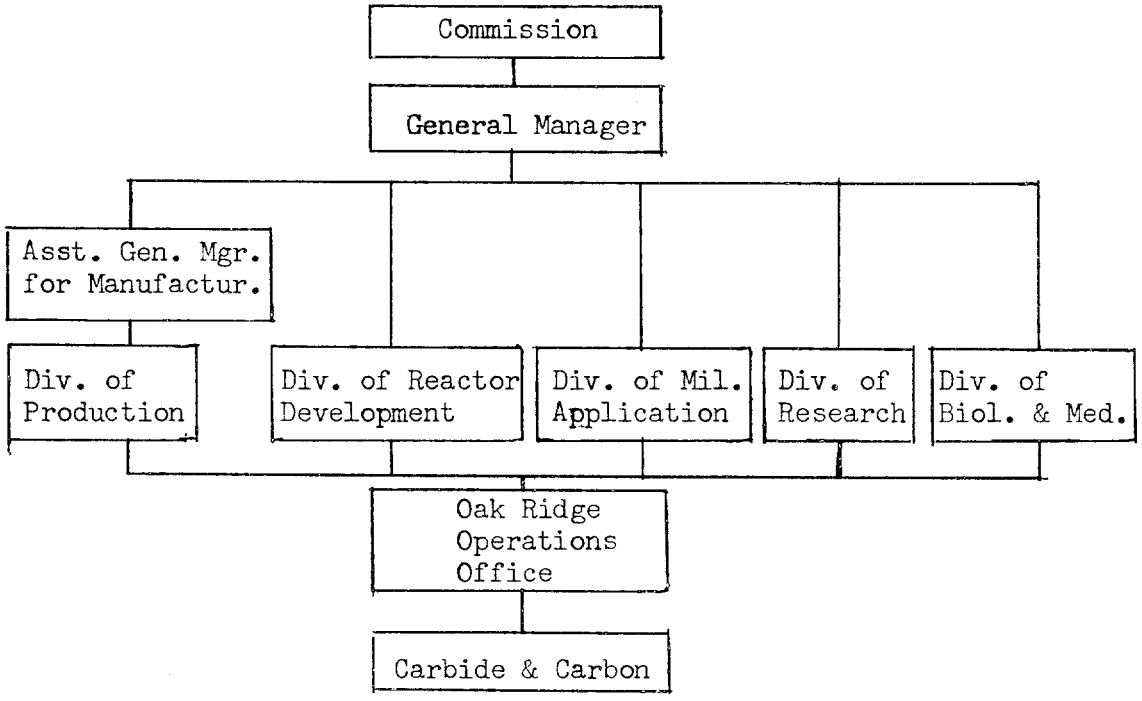
We turn now to consideration of respects in which AEC's relatively simple basic delegation patterns have become complicated and sometimes confused in practice. Examples are given below of official directives or delegations which have the effect of complicating the basic patterns.

(a) Multiple Responsibilities of Managers of Operations

The delegation of each Manager of Operations appears to give him broad responsibility and authority for administering programs of primary interest to the Washington Division to which he reports. Each delegation also provides a basis* on which the Manager may be assigned responsibility for administering contracts, or providing management for execution of programs, for which primary responsibility in the Washington staff rests with divisions other than that to which the Manager reports. Each Manager is given responsibility "for assisting the responsible program divisions in the preparation of budgets and the supervision of expenditures made under approved programs".**

*In most cases this is specifically spelled out in the delegations; in a few the assignment would probably be based on statements that "special functions" or "administration of other programs or contracts" may be assigned.
**The omission of this wording from the delegation to the Grand Junction Operations Office (GM-O&M-20) is probably of academic interest only.

As will appear, few Operations Offices do not actually (in at least some senses) administer major programs for several Washington divisions. Such programs may comprise all of the work done under specific contracts, or a part of the work done under a large contract. This situation, of course, complicates the pattern of delegation, so that it would appear possible to trace the responsibility for work done under the Carbide and Carbon contract (for example) from the Commission to the contractor, thus:



The role of the Washington divisions in the line of responsibility as it runs downward from the General Manager has been discussed in Paragraph (2)(c) above. The relationship between each Manager and Washington program divisions other than the one to which he reports (referred to hereafter as the "parent division") is illuminated by the following sentences, which appear in the basic delegations of all Managers:

> "Problems or questions involving the jurisdiction of Washington program directors other than the Director of (the parent division) which cannot be resolved by direct negotiation between the Manager and the Director concerned, shall be referred to the Director (of the parent division). Direct communication with all Divisions in Washington on matters pertaining to the assigned functions of such Divisions is authorized and encouraged."*

*In the case of the Grand Junction Operations Office (GM-O&M-20) the first sentence refers to "Washington Division Directors" rather than to "Washington program directors".

Thus, while the parent division becomes involved in serious disagreements between a Manager and another Washington program division, and while in practice budget communications between program divisions and Managers are usually coordinated with and made through the parent division, it is to be noted that channels around the parent division are provided, and extensively used, through which program direction and information alike may be communicated directly to a Manager by Washington program divisions other than his parent division.

(b) Instances of Divided Responsibility for Administration of Contracts

Several points need to be raised to indicate that even the chart shown above is an oversimplification.

One of these points concerns the meaning of the word "administer", a problem referred to in Section 1(e) of this report.

While Operations Offices are required by portions of GM Bulletins to "administer" operating contracts, official directives, some of which are noted below, appear to make what we consider basic elements of contract administration the responsibility of Washington divisions:

1 The delegations to the Divisions of Biology and Medicine and of Research provide that the Director (in each case) "and his staff are expected to work directly with the professional and scientific personnel employed by the AEC or its contractors, with the understanding that establishment of or changes in policy or programs are made through the Managers of Operations concerned."

2 With respect to their assigned functions, the Washington program division directors are, it will be recalled, "responsible for the coordination and review of budgets, and the general supervision* of expenditures made under approved budgets and programs".

3 As has been mentioned, the delegations to the Managers of Operations do not specifically assign them responsibility for actual supervision, but speak of responsibility "for assisting the responsible program division directors in the preparation of budgets and in** the supervision of expenditures made under approved programs".***

* The word "general" is omitted in the case of the Division of Reactor Development (GM-O&M-5).

** The word "in" has been inserted here, apparently to remove ambiguity, only in the case of the recent delegation to the San Francisco Operations Office (GM-O&M-34); the meaning seems clear in all cases, however.

***This wording, as has been noted, is not included in the delegation to the Grand Junction Operations Office (GM-O&M-20)

4 Additional issuances can readily be cited which indicate that supervision of the work of the contractor is the responsibility not of the Operations Office but of the Washington staff. Carbide, for example, has undertaken an Aircraft Nuclear Propulsion project at ORNL. Within the Division of Reactor Development in Washington is an "Aircraft Reactors Branch" which "plans and supervises the technical aspects"* of the ORNL-ANP project, and provides "staff direction of technical activities in laboratories and other contractor organizations to assure that program objectives are achieved effectively, on schedule, and economically".*

One fundamental question raised by these directives and delegations has actually been discussed in Section 1 of this report. In the context of the present discussion it might be phrased thus, with particular reference to the chart above, showing lines of responsibility between the Commission and Carbide and Carbon: With respect to important elements of contract administration, is the Oak Ridge Operations Office intended to serve merely as a conduit for directives, while the significant liaison is carried out via the direct informal lines of communication connecting Carbide with the Washington divisions?

(c) Layering of Responsibility Within Operations Offices

The lines of authority connecting the contractor and AEC are commonly complicated within the Operations Offices in several respects.

As has been mentioned, a contract coordinator or Area Manager is concerned with most of the AEC's contracts within the Operations Office organizations, and is usually placed in the line of authority between the Manager and the contractor. His authority is considerably more limited than that of the Manager, however, and a line is also maintained running directly from the Manager to the contractor.

Cases are also found in which the contractor may receive directives from members of the Managers' staff who, though not in line of authority, are permitted to act for the Manager in directing certain aspects of the contractor's program.**

*Memorandum dated Feb. 19, 1953, from the Director of Reactor Development to his staff, subject: "Reorganization of the Division of Reactor Development".

**We have noted instances in which use in official documents of loose terminology concerning responsibility appears to invite confusion. In the current organization chart of the Fernald Area, for example, the (AFC) Metallurgical Section is described as having "responsibility that final product meets all specifications." In the current organization chart of the Savannah River Operations Office several branch chiefs are described as "responsible for production operations" in various of the plants. Despite these descriptions of their duties, we understand that none of the AEC employees involved are in the line of authority. Other examples appear in the memorandum of February 19, 1953, from the Director of Reactor Development cited above.

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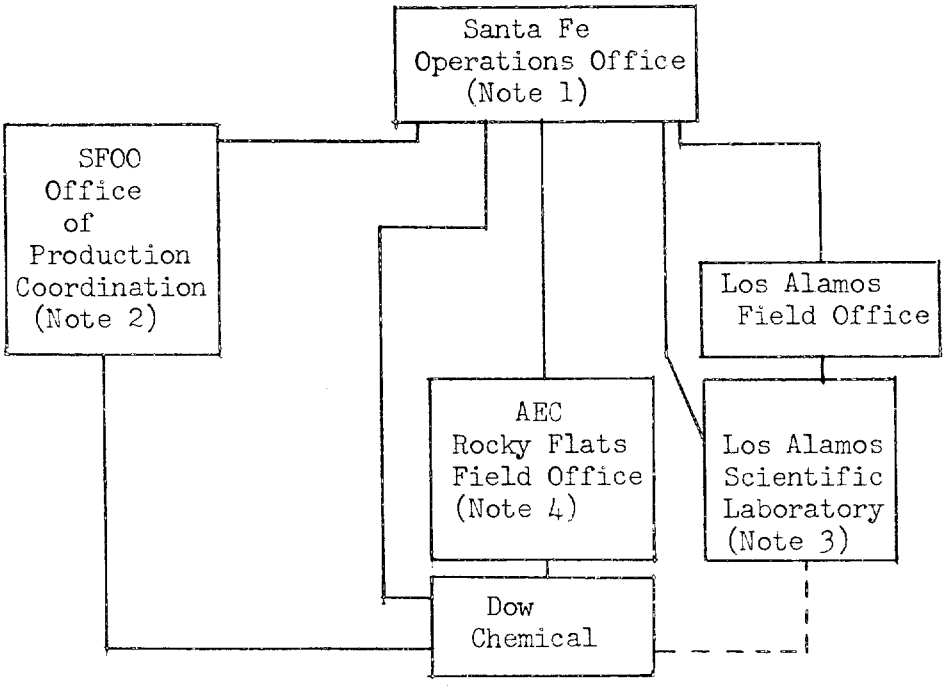
In addition, there are cases -- for the most part, we believe, involving work at the National Reactor Testing Station -- in which responsibility for the work under one contract is split between two Operations Offices; for example, though the Westinghouse contract is under COO, IOO is responsible for certain aspects of the safety program at Westinghouse's STR project.

There follow charts showing formal channels of communication connecting AEC with several contractors:

1 Dow Chemical Company, Rocky Flats



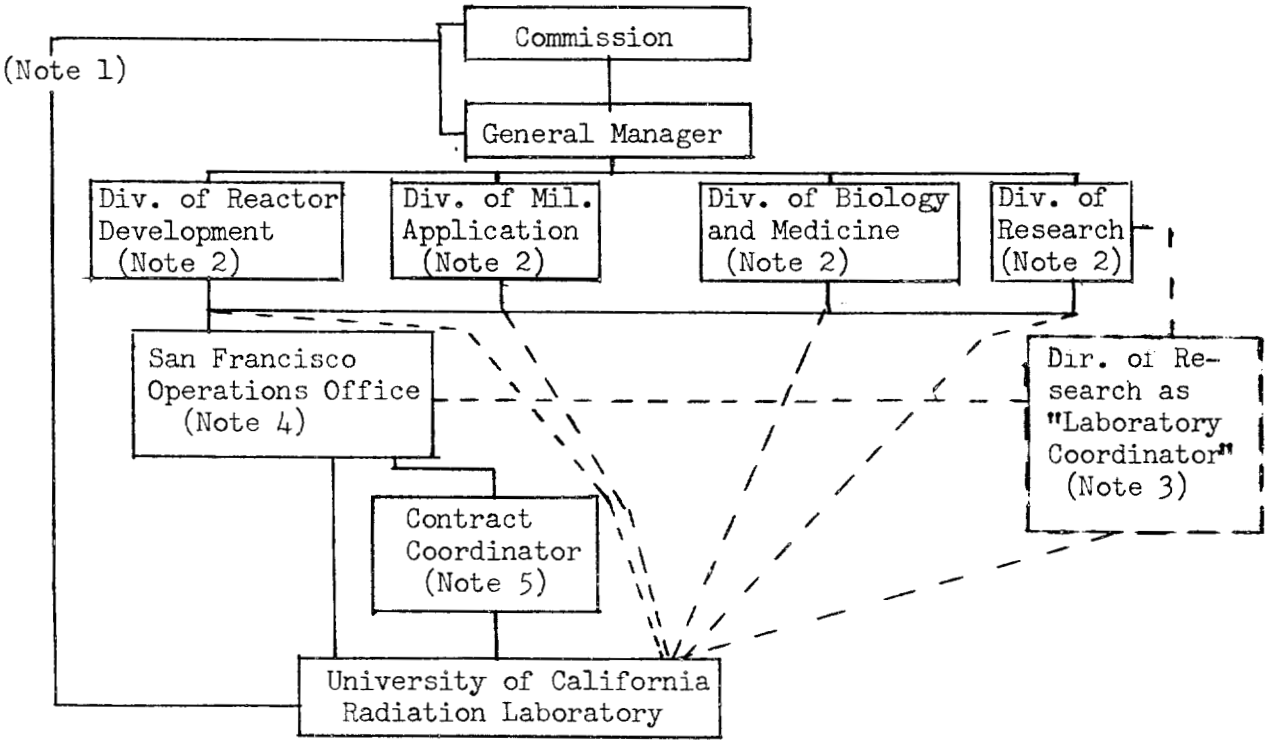
Note 1: Manager, SFOO, is contracting officer. Liaison on certain staff functions (e.g., fiscal, legal) by SFOO staff.

Note 2: Office of Production Coordination, SFOO, is responsible for production scheduling; communicates directly with Dow.

Note 3: LASL maintains program of "quality assurance".

Note 4: "Administration of the operating contract with Dow Chemical Company."

2 University of California Radiation Laboratory



Note 1: This contractor has repeatedly received direction from meetings with the Commission and General Manager; confirming documents ordinarily go through channels.

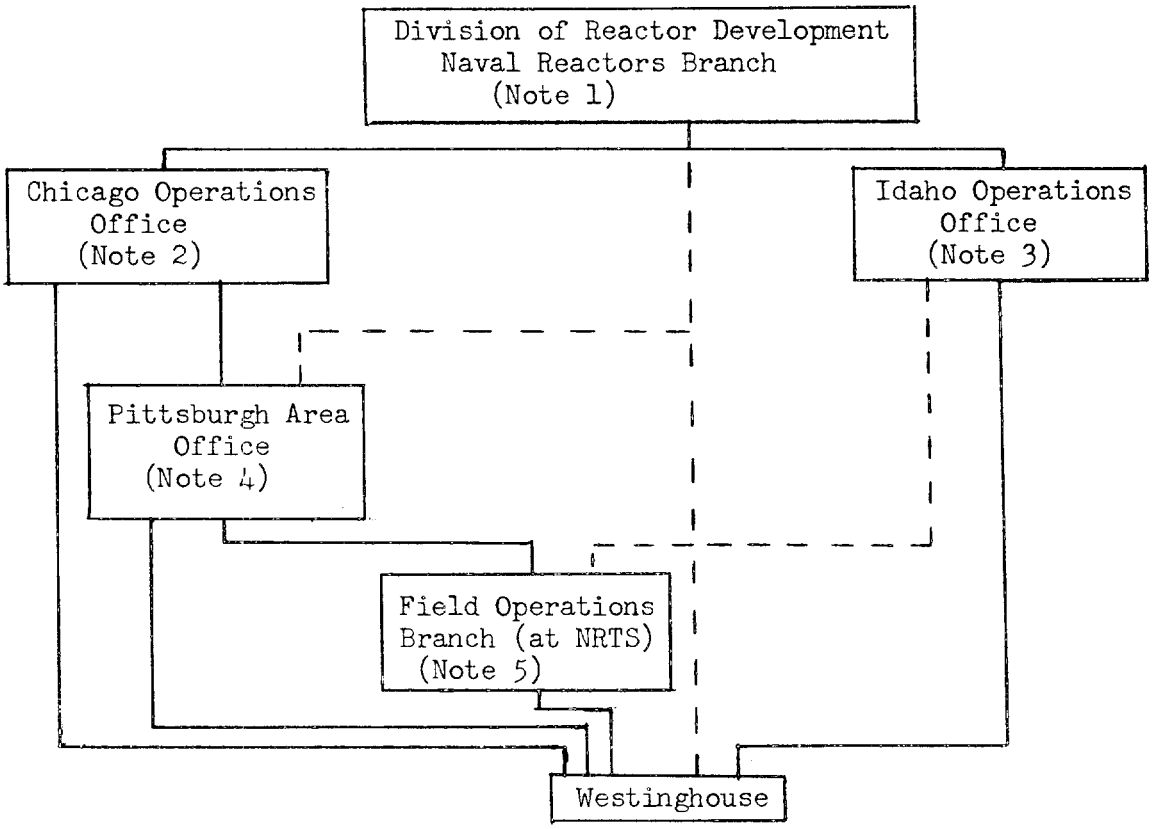
Note 2: (General) supervision of expenditures.

Note 3: Defends laboratory budget (See Para. (3)(h) below).

Note 4: "Administers" the contract; Manager is contracting officer.

Note 5: "Acts as representative of the Commission in the administration" of the contract.

3 Westinghouse -- Submarine Thermal Reactor, National Reactor Testing Station



Note 1: "Staff direction of technical activities ... to assure that program objectives are achieved effectively, on schedule, and economically." "Supervision of expenditures."

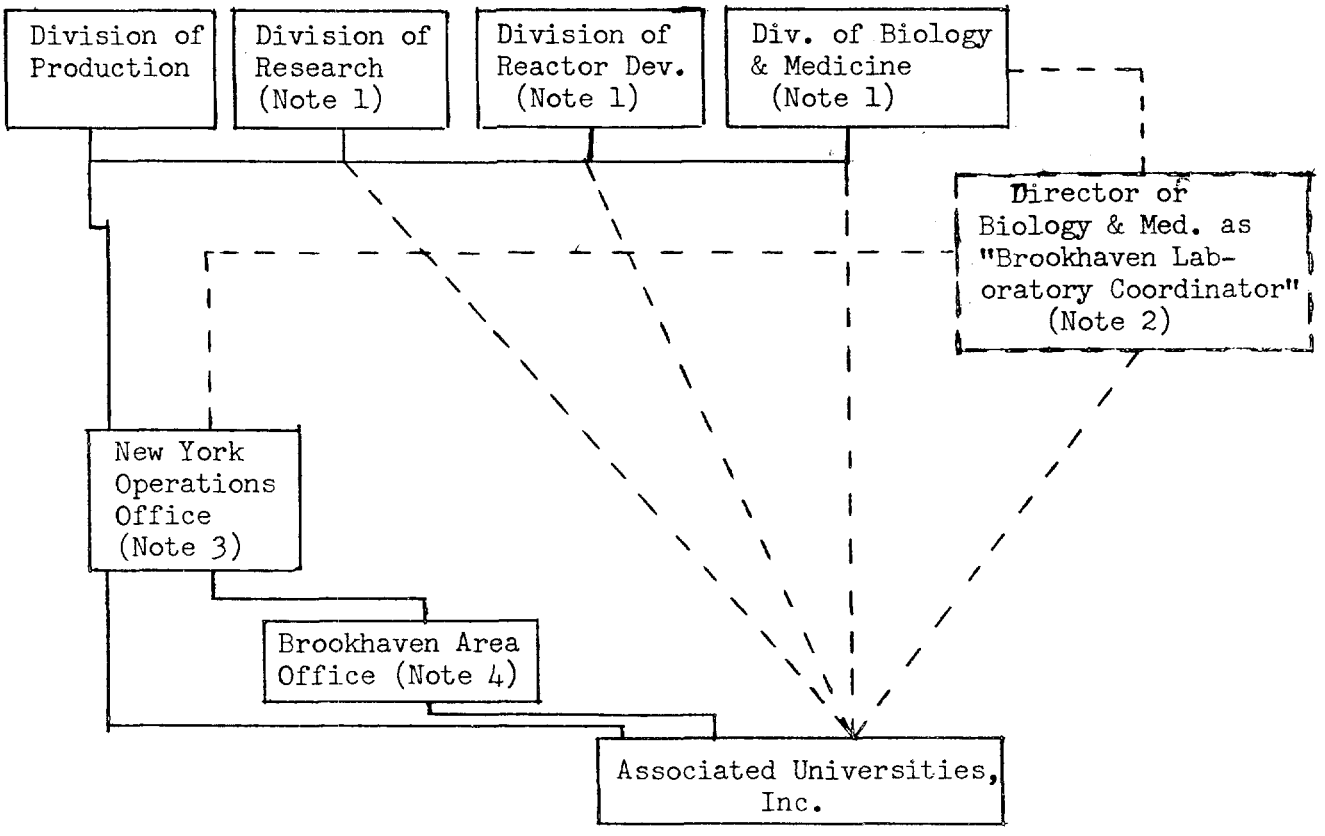
Note 2: "Administers" contract. Manager, COO, is contracting officer. Liaison on certain staff functions (e.g., legal, personnel) by COO staff.

Note 3: IOO responsible for communications, transportation, weather observations, safety and fire protection program, security except within buildings.

Note 4: Area Manager acts as "representative of the Commission in performance of the functions assigned ... particularly, activities of the Westinghouse Electric Corporation."

Note 5: "Supervises construction, installation and operation of the Mark I reactor and its test facilities." A branch of the Pittsburgh Area Office.

4 Associated Universities, Inc.



Note 1: (General) supervision of expenditures.

Note 2: Defends laboratory budget (See Para. 3(h) below).

Note 3: Manager, NYOO, is contracting officer, with "special function" of administration of the contract for a research and development program at the Brookhaven National Laboratory in accordance with policies and programs established by the responsible program divisions".

Note 4: "Administers the contract . . . at Brookhaven National Laboratory."

(d) Actions Requiring Advance Approval of Other Offices

Monetary limits are set on the contracting authority of all Managers of Operations and subordinate contracting offices, and "new and unusual types of transactions" in all cases require prior consideration by higher authority up to the level of General Manager or in some cases, Assistant General Manager for Manufacturing.

Also, as has been noted, delegations of authority to Washington division directors and to Managers of Operations provide that when, in the judgment of any of these officials, existing AEC policies are inadequate to the purpose at hand, he will make recommendations as appropriate to the official in line authority above him. In addition, formal AEC issuances or procedures in a number of cases specifically require that actions within the apparent delegated authority of AEC officials receive prior approval of higher authority. Examples of these cases are shown below:

1 Specific Restrictions on the General Manager

As has been mentioned above, the Commission has specifically limited the authority of the General Manager in some cases. As a recent example, the Commission has formally noted that "selection of subcontractors for major projects in connection with AEC installations will be reviewed by the Commission".*

2 Specific Restrictions on Managers of Operations

a Preliminary Proposals -- Under certain conditions, "Preliminary Proposals" estimated to cost more than $50,000 must be submitted by the Manager of Operations to "the appropriate Operating Division Director" in Washington for review and approval by the latter, prior to initiation of the project. (GM-O&M-26)**

b Insurance -- "When the terms of a cost-type contract require AEC approval of insurance policies procured by the contractor, the approval of the Division of Finance, Washington, D. C., must be obtained." (GM-INS-3)**

"Binders for fidelity coverage may be secured by contractors prior to AEC approval of the final form of the fidelity bond. Before approval by the contracting officer is given, a copy of the bond will be given an advisory review by the Insurance Section, Division of Finance, Washington, D. C." (GM-INS-2)

*Memorandum dated December 12, 1952, to the Director of Production from the Secretary to the Commission.

**These restrictions appear to apply to contracting officers at all levels.

3 Appointments of Staff Officers

"The Controller is authorized ... to approve the selection of the principal accounting officer at each operations office and request his removal if his technical performance is unsatisfactory to the Controller." (GM-O&M-9)

"The Director of Security . . . concurs with the Managers of Operations concerned in the selection of a Director of Security for each Operations Office..." (GM-O&M-11).

"The General Counsel . . . shall be responsible for the selection and promotion of all Commission employees whose duties require professional legal training. The selection and promotion of such personnel for the respective Operating Establishments shall be made by the General Counsel with the concurrences of the Manager of Operations and after consideration of any recommendation by him." (GM-O&M-8)

"Evaluation of jobs in grades GS-13, 14 and 15 reporting directly to the Manager of Operations, his deputies or assistants, shall be approved by the Manager of Operations, provided that prior to such approval the evaluation has been reviewed by the Washington Division Director who exercises staff supervision over the assigned function, and concurred in by the Washington Division Director who exercises line supervision. Requests for such review and concurrences shall be submitted through channels to the Director of Organization and Personnel. When there is not agreement, the recommendations of the Manager and the appropriate Washington officials shall be referred to the Office of the General Manager through such Salary Administration Committee as may be appointed by the General Manager from among headquarters officials." (GM-PER-19).

4 Actions Affecting Contractors

GM-PER-2 authorizes the (Washington) Director of Organization and Personnel to make final determination on certain contractual actions specifically withdrawn from the authority of the Managers of Operations; for example:

a Employee benefit plans

b Establishment of positions and employment of contractor personnel at salaries in excess of the rate of $15,000 per annum

c Salary schedules for scientific personnel

(e) Procedures Prescribed for Utilization of Specific Members of their Staffs by Managers

The following quotation from GM-PER-19 is illustrative of cases in which General Manager's bulletins specify the function of staff officials in Operations Offices in processing actions which lie within the authority of the Manager.

> "Operating officials who are delegated authority by Directors of Offices and Divisions, Washington Headquarters, or by Managers of Operations to approve personnel actions for their organizations shall approve job descriptions and analyses for jobs under their jurisdiction, and shall approve evaluations for such jobs (with certain specified exceptions), subject to concurrence by the Chief of the appropriate Organization and Personnel Division or his authorized personnel official. When questions as to evaluations cannot be reconciled between operating and personnel officials, the recommendations of the operating official and personnel official shall be referred preferably through a salary administration committee to the Manager of Operations, and in Washington to the Office of the General Manager, for final determination."*

(f) Staff Officers or Units Responsible to Echelons Higher than Those to Which Assigned

As has been intimated, the legal staff available to advise Managers of Operations reports directly to the General Counsel in Washington. The formal basis for this arrangement is stated in GM-O&M-8:

> "The Office of the General Counsel shall direct and be responsible for all matters of law and legal policy concerning the Commission, including all such matters which arise in connection with the functions administered by the Operating Establishments. An Assistant General Counsel, attached for administrative purposes to appropriate Operating Establishments, shall act for the Office of the General Counsel as advisor to the respective Managers of Operations."

Until recently GM-AUD-1 prescribed that "the Finance Director of each office is functionally responsible to the Controller for administering the auditing prescribed by this Bulletin, including that performed by the staffs of area and other subordinate offices". GM-AUD-1 (December 1, 1952) does not include this statement, but if anything appears to strengthen the Controller's direction of field audit operations. It states: "Instructions to implement the foregoing

*In some cases this particular ruling would appear to preclude an operating official from taking an action which had not previously been approved by one of his subordinates.

(AEC audit) policies shall be issued by the Office of the Controller, which also has responsibility for providing such administrative direction and review of the audit activity by operations offices as is necessary to the consistent AEC-wide conduct of audits in accordance with the policy here stated and the subordinate policies and practices to be issued by that office."

The Director of Biology and Medicine has advised us that while "in the final analysis the Director of the (New York) Health and Safety Division, and his staff, are employees of the New York Operations Office", nevertheless the Health and Safety Division is "for all practical purposes an integral part of the (Washington) Division of Biology and Medicine," by which it is fully financed.

(g) Limitations of Scope of Authority

As is well known, a few personnel security clearance operations are centrally handled by the Division of Security in Washington for the entire AEC.

It also seems appropriate to mention under this heading that despite the delegated prime function of the Division of Research (research relating to atomic energy in the field of physical sciences), a sizeable amount of basic research is conducted at Los Alamos Laboratory (under a "weapons" budget classification), over which the Division of Research exercises no supervision.

Since there is a natural tendency to identify the lines of supervision with those of authority and responsibility, confusion may well result from supervisory assignments made without regard to established lines of authority, such as the following function of the Division of Biology and Medicine (GM-O&M-13):

> "Supervising measures in the operations of the atomic energy program to guard the health of employees of the AEC and its contractors and of the public".*

*This delegation should be compared with the following from GM-SFP-1: "The Division of Biology and Medicine will provide staff supervision for and assistance to industrial and public health programs (including radiation protection). It is primarily responsible for leadership and assistance in developing health programs and standards for ascertaining the effects of toxic materials on the living organism, and for determining the prevention and treatment of such effects." The confusion of responsibility inherent in these and related delegations (the difference between "supervision" and "staff supervision" involves degrees of responsibility) may, we suggest, be related to a conclusion of a recent survey that there has been a lack of coordination of "protective functions" in Washington headquarters. This finding is discussed further on page 82.

(h) Defense of Laboratory Budgets

By a memorandum dated October 5, 1949, the General Manager announced that he was assigning responsibility for defense of laboratory budgets as follows:

Director of Research: Berkeley, Ames and Oak Ridge National Laboratory
Director of Reactor Development: Argonne and Knolls
Director of Biology and Medicine: Brookhaven

In so doing, the General Manager stated "it should be clear that defense of the technical programs will remain the responsibility of the Division Director with the appropriate technical interest."

This arrangement is still in effect, though in current practice there is considerable difference in the manner in which the three Division Directors exercise the responsibility.

Actually additional general responsibilities have in the past been assigned to the above three Division Directors with respect to the laboratories whose budgets they defend. For a time they met periodically with the General Manager, functioning as a group of "Laboratory Coordinators", and while these regular meetings have been long discontinued, the Director of Biology and Medicine still alludes to his responsibility as "coordinator of the Brookhaven National Laboratory".*

It should be noted that the responsibilities assigned by the General Manager's memorandum of October 5, 1949, are not alluded to in the formal delegation of authority to the Division Directors concerned or in other GM Bulletins.

(4) Discussion

(a) In the discussion above we have tried by use of illustrative examples to give an impression of how AEC's basic patterns of delegation are complicated in present practice. It should not be assumed that we consider all of the cases cited to involve undesirable procedures; the complexities of the program may always require some exceptional practices of delegation. At the same time, it should be emphasized that maintenance of a clear and sensible general scheme of delegation in AEC relates directly and essentially to efficient conduct of the program.

It will be recalled that at the outset of this section we stated the following generally accepted principles of good management which are

*See also AEC 324 for discussion of the coordinating functions of the Division of Research in connection with the program of ORNL.

germane to problems of delegation:

1 A delegation should include clear-cut definitions of the responsibilities and authorities of the official concerned as well as of his relationship to other officials with whom he ordinarily works.

2 Clear and easily understood lines of authority should run from the top to the bottom of an organization.

3 Assignment of responsibility will carry with it commensurate obligation of authority.

4 An employee will not be required to report to more than one supervisor; instructions and directions relating to work assignments will be communicated to him only through, or with the agreement of, the immediate supervisor.

It does not seem immoderate to say that some widely prevalent and basic departures from these principles are indicated in the discussion above. We must comment also with respect to AEC's basic delegations (and with reference to earlier discussions in this report) first, that they do not resolve the prevalent variations in conceptions of the agency's responsibilities in contract administration, and second, that they seem almost to invite the inconsistencies we have noted in the roles of Washington divisions and field offices in contract administration. These considerations suggest to us that following policy clarification as to the agency's responsibilities for contract administration, AEC's system of delegation should be reexamined and overhauled. This is a job to which the best management judgment available to AEC should be applied. When it has been accomplished there will of course remain the similarly important task of keeping the system in repair. The discussion following is of some of the problems which we feel would particularly deserve attention in such a re-examination as we propose. Our hope is to suggest schemes and principles of delegation which would promote effective, coordinated functioning of all components of the staff. This concern carries over into the closely related discussion of organization in the succeeding section.

(b) Split lines of authority

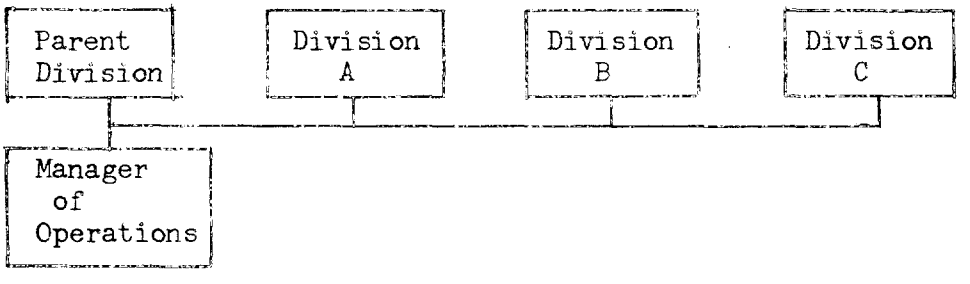
Perhaps the most striking feature of AEC's delegation pattern in the characteristic splitting of the lines of authority joining the Commission to its contractors.* From the standpoint of good management practice, this is a feature which should certainly be regarded with suspicion. It clearly does not facilitate maintenance of clear and

*A sense of the size of the programs affected by this arrangement may be derived from Figure A.

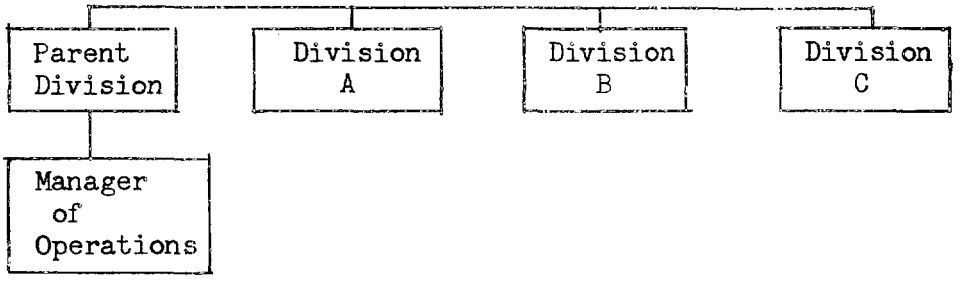
easily understood lines of authority; and in more than an academic sense, it appears to establish several supervisors over individual Managers of Operations. It is this feature, incidentally, which largely brings about the obvious disparity between AEC's organizational pattern and such patterns of delegation as are illustrated in this section.

Significant improvements could, no doubt, be made without altering the present general scheme of delegations. Clarification of the agency's responsibilities in contract administration should, for example, facilitate clarification of the respective responsibilities of the officials concerned in contract administration. If satisfactory policies can be drawn up to express the particular responsibilities of contracting officers, and if they can be generally applied, the clarification could for the most part be attained through revision of the basic delegations. If, however, elements of contract administration are to be made the primary responsibility of Washington headquarters in numerous cases, the clarification would probably have to come through a number of working agreements between Washington and the field, setting forth the division of responsibilities for administering individual contracts or projects. Our view, as expressed earlier in this report, is that the simplest and most easily administered arrangement is that whereby the responsibility of the contracting officer extends across the entire field of contract administration.

Even given such clarification, the problem would remain of individual Managers of Operations holding responsibilities to several Washington divisions. We are little impressed by the argument sometimes made, that the Commission's policy discouraging situations in which an employee reports to more than one supervisor, while sound in general, need not be applied to higher level employees such as Managers. It seems to us, rather, that in the case of a Manager the problem is of such scope as to deserve particularly careful thought. A possibility of obvious interest in this connection is instituting a requirement that all formal communications concerning program direction passing between Washington and the field, be routed through the parent divisions. Thus, for such a pattern of delegation as this:



there would be substituted the following:



It seems to us, however, that this modification would not correct the real weakness of the situation. The parent division, in the first place, has a primary interest in, and essentially a full-time occupation with, its own program; its insertion in the line of authority between the other Washington divisions and a Manager in the field would be a concession to formality rather than a move which could logically be expected to result in substantive strengthening of the programs. Under either scheme shown, the Manager is concerned in projects of primary interest to several Washington divisions, which it would seem should be evaluated and stressed by him with the same impartiality the General Manager or the Commission would feel. The requisite objectivity is not fostered, however, by a situation in which the Manager reports to, owes principal loyalty to, and is promoted by, the Director of one of the several divisions for which he does work -- an official whose responsibilities and interests in a very practical sense, cover only part of the span of the Manager's own responsibilities and interests. Because we believe that this consideration, which is at the heart of the objection to the practice of splitting lines of authority at the Washington level, is of fundamental importance, we will consider further, in the final section of this chapter, means by which Managers of Operations might be enabled to report to an individual in headquarters whose breadth of responsibility would match the Managers' own. The lines of authority, if this purpose were to be realized, would presumably pass around the program divisions, leaving them to function in staff capacity.

(c) Reduction of Echelons

In a sound organization, any echelon in the line of authority justifies its existence in terms of positive contribution to the program. We think it desirable to consider all reasonably possible means of reducing the four or often five echelons which now separate the Commission itself from the contractor. One possibility which will be explored further is that of routing the lines of authority around the program divisions. Other possibilities are suggested by the organization of the Operations Offices and are commented on below.

(d) Liaison with the Contractors

Without questioning the desirability of freedom of informal

communication between the AEC and contractor organizations, we wish to emphasize the importance to a good relationship of simple and well understood channels of formal communication. We believe that wherever the responsibility of the contracting officer can be defined as extending across the entire field of contract administration, AEC's relationship with contractors will be greatly simplified and strengthened. At present the problem of communicating formally with the AEC must be an exasperating one for many contractors. Authorities are diffused throughout the agency and many problems of the contractor do not seem to be problems of the AEC field offices. Channelling of communications through the field offices is accordingly in many cases a cause of useless delay which has no doubt often encouraged the contractors to take their problems direct to Washington.

Within Operations Offices attention should be given to two problems. One of these is eliminating wherever feasible the customary echelon in the chain of authority between the Manager of Operations and the Contractor. We are aware of the arguments in favor of this echelon and we are convinced that in many cases, especially those involving small contracts, or large projects at a distance from the Operations Office, the additional echelon is necessary and useful, but when the Manager of Operations is stationed at the site of the project, if a contract coordinator cannot function effectively in a staff capacity, with a single line of authority going directly from the Manager to the Contractor, we feel that consideration is indicated of reducing the jurisdiction of the office to an extent which would make such an arrangement feasible. (A related possibility, which will be discussed subsequently, is that of designating certain Area Offices as Operations Offices.) Our interest here, of course, has to do with the principle that unnecessary echelons should be removed. In perhaps more obviously practical terms, however, we feel that in general a better relationship with the contractor will exist when the individual to whom he looks for direction is of the caliber and experience of a Manager rather than a junior (however competent) member of the staff of a GS-13 to GS-15 rating; the difference in authority held is also of significance.

The second problem deserving attention is a related one -- that of keeping to a minimum the number of individuals in the AEC Operations Offices who are authorized to direct the contractor in any phase of his work. It is sometimes felt that the right to direct a contractor carries with it a prestige which is helpful to the staff member concerned in his contacts with contractor personnel. Of this argument we are suspicious. The number of individuals who should direct the contractor is ideally one, and additions to the list should be fully justified.

(e) Decentralization

"Decentralization", implying a delegation of responsibility and authority outwards in an organization, is a term too loosely used in general, but which can hardly be avoided in a discussion of AEC's delegation practices. Since considerable earlier comment has actually

concerned the limits to decentralization from AEC to its contractors, the present discussion will be limited to decentralization within AEC, and specifically from Washington headquarters to the field. It will be seen that our most important point on the subject as thus confined has also been developed earlier: that is, that the delegation of responsibility to contracting officers which extends across the field of contract administration, will in general promote efficient conduct of the program.

The Commission itself has discussed decentralization in official issuances, both as a basic management technique and as a measure of civil defense. For example:

> "We intend to continue to emphasize managerial decentralization. May we call to your attention that the decentralization in operations followed by the Commission is designed in part as a concrete demonstration of how large and far-flung enterprises can be organized for continuity in case an atomic attack should disrupt the headquarters organization."*

> "AEC gets its job done through a carefully decentralized management chain. In general, operations have been assigned, along with commensurate authority and responsibility, to field managers and through them to contractors. Basic policy and program is determined by Washington, in concert with the field people involved, and necessary reviews of performance are made on a post-audit basis. Certain programs involving security matters, problems involving international relationships, and matters requiring judgments of highly trained and scarce scientific minds, are exceptions to this general practice."**

In its "Concluding Report" the Hoover Commission gave terse comment on the problem of decentralization in the Government in general which deserves being noted here and being considered in connection with the AEC's operations:

> "Our task force also found many instances where headquarters officials in Washington still clung to the power to make decisions even in matters of minor importance. This, too, has resulted in interminable delays in getting things done, has stultified initiative in the field services, and has resulted

*Letter (released to the press) dated Dec. 28, 1948, from the Chairman, AEC, to the Chairman, Industrial Advisory Group.

**This in partial response (August 6, 1951) to a Presidential request that AEC programs and operations be reviewed "to insure that sufficient authority has been delegated to permit effective operation at the field level". (See AEC 255/5.)

in decisions being made which have not taken due account of variations in local conditions.

* * *

"In substantive matters, too, we have recommended that a greater measure of authority be delegated to the field services of the operating departments. This will require that the headquarters agencies concentrate their attention more and more on developing policies which are unmistakeably clear. They must also give more attention to establishing standards of performance and to improving their systems of reporting and inspection to insure that policies are carried out."*

We do not regard decentralization as an end in itself. It is, rather, one of the many problems encountered in trying to achieve good management of a dispersed organization -- finding a satisfactory balance between centralization and decentralization, or with more specific application to the AEC, striking a sound balance in the division of authority between the Washington headquarters and the offices in the field.

There are general tests involving certain of the issues brought up by the Hoover Commission, which might be applied continuously to the operation of the AEC's program to detect over-centralization:

1 Is headquarters so occupied with operating decisions (or possibly with minute checking of the work of the field) that it is unable to give adequate attention to planning, promulgation of policy, and inspecting?

2 Are Operations Offices delegated sufficient authority to enable them to function effectively in administration of their contracts? Does the necessity of checking with Washington impair their effectiveness or impede their programs?

With respect to these general questions we feel misgivings, some of which have been mentioned in earlier discussions of planning, promulgation of policy and evaluation. The main issue raised in the second question has figured already in our conclusion as to proper responsibilities of contracting officers.

It should be clear that in our opinion a number of restrictions on field authority are desirable, to insure that major policy and operating decisions are referred to headquarters, as well as problems which because of their ramifications require coordination by

*Concluding Report, a report to the Congress by the Commission on Organization of the Executive Branch of the Government, May 1949, pp. 37-39.

headquarters. A continuous sensitivity to the importance of decentralization is necessary in headquarters, however, because in a large organization (and AEC has not proved to be an exception) problems commonly arise, the solution to which is often erroneously thought to be increased centralization. Thus, centralization may be resorted to following a blunder in the field, and this is particularly likely if high level criticism from outside the organization becomes involved, when the real problem may be the inadequacy of policy provided to the field, of reports required of the field, of inspection of the field by headquarters, or perhaps the incompetence of the field official involved. Encouragement of undue centralization may result from other factors which deserve intelligent watching -- empire building, for example, in headquarters staffs, and the apparently pyschological inability, which seems to be innate in certain otherwise competent men, to delegate authority.

It would seem desirable, therefore, that this more specific test be applied to proposed restrictions on field authority (and also, in event of a review of AEC regulations affecting delegations to the field, to such restrictions as discussed in Par.(3)(d) above): is there positive advantage, due to the nature of the problem, rather than to any weakness of the organization, in requiring that solution of the problem be referred to headquarters?

We recognize that cases will arise, as they have in the operations of AEC, in which it will be desirable or even urgently important to require that problems be referred to headquarters because of a weakness of the organization. These cases should call, however, for only a temporary restriction, because corrective action should promptly be applied to the weakness concerned -- whether it be issuance of better policy guidance, improvement of inspection by headquarters, or replacement of an incompetent field official. When such a case arises consideration should therefore be given to setting a term to the restrictive measure, and charging a headquarters unit with responsibility for completing corrective action, so that authority to deal with similar problems can be returned to the field.

(f) Management Review of Draft Delegations

We have spoken of the job which would remain, even after reexamination and revision of AEC's system of delegation, of maintaining the system in good repair. An important part of this job could we think be accomplished by such a system of review of issuances as is proposed in Section 2b(4) of this chapter. The need for such a review seems to be emphasized by a number of the illustrative cases we have used in discussing delegations.

e. Organization

The AEC delegation system which we have just discussed is an aspect of the organization of the agency, and of the arrangement of functions and inter-relations of the Washington and field units. In considering how the programs of the agency can best be administered and the authority and responsibility of field managers best be defined, we have looked generally at the organizational framework within which the program is conducted.

(1) Present Organization

HISTORY

(a) Development of Present Organizational Pattern

In the original organizational pattern of the AEC, all Washington division directors reported in a staff capacity to the General Manager. Field activities were placed under five principal field offices (Oak Ridge, Hanford, Santa Fe, New York, and Chicago) which were headed by Assistant General Managers, reporting directly to the General Manager.*

In 1948 the organization underwent a realignment based in large part on a breakdown of "the major segments of the Commission's overall job" into the following principal categories:**

1 The production of fissionable and special materials

2 The research, development, production and test of weapons

3 The development of reactors, using this term in its broadest sense to include chemical separation processes, disposal of waste products, provision of adequate health and safety measures, etc.

4 The conduct of research in the field of physical sciences

5 The conduct of research in the fields of biology and medicine

It will be noted that the principal interest of each of five Washington "program" divisions existing in 1948 (among which we include the Division of Reactor Development, created by the reorganization) coincided with one of the above five categories, and further, that while some of the five Operations Offices then existing administered programs falling into more than one category, in each case the predominant interest clearly fell within a single category. The reorganization placed

* During a transition period following transfer of responsibility to AEC from the Manhattan District, all major field offices except Santa Fe reported to Washington through Oak Ridge.
** AEC 132, August 31, 1948.

each Operations Office under the authority of a Washington Division, according to the coincidence of their principal interests, as follows:

Category	Washington Division	Operations Office
Fissionable and special materials	Production	Oak Ridge Hanford New York
Weapons	Military Application	Santa Fe
Reactor Development	Reactor Development	Chicago
Research (physical sciences)	Research	-
Research (Biology & Medicine)	Biology & Medicine	-

Use of the criterion of the principal function or interest in determining the relationship between Washington divisions and field offices is the respect in which the organization has been described as being "along functional lines" -- a concept which will be considered further. It should be noted that the 1948 reorganization did not change the identity of the principal field offices. The same officials continued in charge of each office, though they were known thenceforth as "Managers of Operations". The new elements introduced were the rearrangement of organizational lines in Washington and the revised functions not only of the Divisions directly responsible for the Operations Offices, but, as discussed in the previous section, of the Divisions of Research and Biology & Medicine as well.

The 1948 organization achieved some definite ends. It grouped together major related production programs and installations throughout the Commission, and placed on a few particularly able and vigorous men in Washington and the field the responsibility for executing as well as planning the work in these program areas of direct importance to national security. Sufficient authority and a relatively free hand were given with the responsibility. These practical arrangements proved adaptable to the demands of the successive expansion programs since 1948 and to the remarkable growth of the program in the past five years.

This tremendous growth has in itself placed great strain on the organization and on the individuals around whom it has been in good part built. The rough functional lines of 1948 scheme have in the expansion become further complicated. Weapons, feed material, and U-235 production have remained under Santa Fe, New York, and Oak Ridge respectively, but the number of subordinate offices has multiplied. In plutonium production Savannah River is dividing the function with Hanford; new reactor offices have developed at Idaho, Schenectady, and San Francisco; and the Raw Materials Division has become independent and acquired the Grand Junction Operations Office. The problems of coordinating major programs and of obtaining consistent administration of an increasing number of contracts have intensified. Let us look at some aspects of these problems under the present organization.

(b) Comment on Present Organization

We have prepared several tabulations (in a separate classified appendix) to assist in appraising the organization which has now developed.

Figure A shows graphically operating costs for Fiscal Year 1952, broken down first as to administering Operations Offices, and second as to program categories, with portions indicated which were administered by Operations Offices for other than the "parent" divisions.* Our interest in these breakdowns relates obviously to discussion in the previous section on "Delegations", and to the question of the degree of "functionalism" of the present organization.

Figure B, also compiled from operating costs for Fiscal Year 1952, shows the total size of the programs under the Operation Offices and also the large subordinate offices. This figure is helpful in visualizing the substantial range in size of the programs placed under the Operations Offices.

Figure C shows the officials reporting directly to the General Manager (1) just prior to the 1948 reorganization, and (2) in January, 1953.

As a basis for some generalizations concerning the present organization, we have arbitrarily assumed that those segments of the program may be regarded as "functionally" administered which are under Operations Offices reporting to the Washington divisions principally concerned, in each case, or which are directly administered from Washington. On this assumption, the following marked exceptions to a functional organization scheme must be recognized:

1 Work in several program categories is often performed at one location by a single contractor, as in the case of Carbide, General Electric (Hanford), and the University of California Radiation Laboratory. In such cases, the entire contract is administered by one AEC Manager.

2 No field office reports to either the Division of Research or the Division of Biology and Medicine. Where contracts exist involving work of primary interest to one of these divisions, (e.g., Brookhaven National Laboratory, Iowa State College, University of Rochester), they are administered by an Operations Office convenient to the contractor. All basic research contracts administered in the field are assigned to Operations Offices.

*In our consideration of the size of various segments of the program, we refer in this section for the most part to operating costs. Other costs -- construction and plant and equipment, for example, are clearly not irrelevant, but it has seemed possible to exclude them here in the interest of simplicity.

3 Special factors have influenced assignment of particular contracts. Mound Laboratory is under Oak Ridge, for example.

From Figure A it appears that the bulk of the weapons, raw materials, and fissionable materials programs is functionally administered according to the definition stated earlier. These three programs of course dominate AEC's operating costs at present, and thus the proportion of FY 1952 operating costs "functionally" administered was 84.0%. The facts, however, that costs totalling $87.5 million were non-functionally administered in FY 1952, and that this figure includes all of the programs in physical research and biology and medicine administered in the field, should not be obscured by the even larger production figures.

(2) Discussion: Organization in the Future

(a) Introduction; organization planning at present

From discussion with the General Manager, we have learned that he has for some time considered overall organization planning to be the responsibility of his office, in which he has taken a personal interest and about which he has had informal discussions with the Commission from time to time. He has described his plans generally to us, and explained some of their principal features, and in some cases certain steps already taken to put them in effect, as summarized below:

1 A "Director for Administrative Services" will be appointed principally to coordinate the work of the Divisions of Security, Organization and Personnel, and Information Services, and perhaps other staff units. We understand that the individual to fill this position has been decided upon.

2 In the fields of production and military application, the present organization is to be continued. The operating Divisions of Production and Raw Materials, and the staff Division of Construction and Supply, will continue under the Assistant General Manager for Manufacturing (the last division to function, however, throughout the organization). We were told that for the present and immediate future, the Deputy General Manager will continue to serve also as Assistant General Manager for Manufacturing, and that active recruiting for the position is suspended. The Santa Fe Operations Office continues with jurisdiction as at present, reporting through the Director of Military Application. We were told that ultimately Livermore may be placed under Santa Fe.

3 The position of Assistant General Manager for Research and Development is to be established, under which three staff divisions will be placed: Research, Biology and Medicine, and Engineering and Development (at present Reactor Development). Also under this Assistant General Manager will be a Director of Contract Administration, to whom will report principal field offices not reporting to Production,

Raw Materials or Military Application. Among these will be Brookhaven, which will be taken from under the New York Operations Office. We were told of efforts to recruit a number of candidates for the position of Assistant General Manager for Research and Development, none of which have proved successful to date.

(b) Future Operation under the Organization as Presently Planned

Organization planning should meet the needs of operations as they exist at the time the planning is done, and also the changed needs of operations as they will have developed at a future time; the importance of this is emphasized, in the case of AEC, by the tremendous expansion of operations now under way. To assist in visualizing some of the consequences of carrying out and continuing the organization plan explained to us by the General Manager, throughout and following the expansion program, we have prepared several further figures based upon expected 1961 operations.*

Figure D shows estimated operating costs for FY 1961, by Operations Offices and principal subordinate offices. (Much of this information is shown graphically in Figure I (1)).

Figure E is a map indicating Operations Offices and their principal subordinate offices.

The plan makes several contributions to adjusting the present AEC organizational scheme to the tasks ahead, and attacks important problems in the present organization.

*To enable preparation of Figures D, E, F, and I (1), we have had to make certain assumptions as to the General Managers' plan which appear reasonable in the light of the July, 1951 chart shown us by the General Manager, and his supplementary explanation, but some of which have been arrived at arbitrarily:

1. Portsmouth will be under the Oak Ridge Operations Office.
2. Operations Offices will be established in Tennessee and Florida under the Raw Materials Division.
3. An independent office will be established at Brookhaven under the Director of Contract Administration.
4. The weapons work at Livermore now under the San Francisco Operations Office will be transferred to the Santa Fe Operations Office.
5. An office will be established at Hartford, Conn. under Chicago.
6. Otherwise offices under the Director of Contract Administration will continue to have their present relationships to each other.

For example, the plan contemplates placing all field activities except those assigned to the Division of Military Application under Assistant General Managers of strong background recruited or borrowed from private industry. This should strengthen the Office of the General Manager and at the same time relieve the burden on the General Manager himself by reducing the number of officials reporting to him. This number is still large at present (Figure C).

The plan provides better opportunity for integrating the work of the Divisions of Research, Biology and Medicine, and Engineering and Development (now Reactor Development).

It also provides, in the position of Director for Administrative Services, better opportunity for integration of the work of the Divisions of Security, Organization and Personnel, and Information Services.

The plan provides for a considerable increase in the "functionalism" of the organization. If the present organizational scheme were to be continued, estimated operating costs for FY 1961 for work performed under field offices for other than their parent divisions in Washington would be $183.8 million, or 9.2% of the total estimated operating costs. The corresponding figure under the General Manager's plan would be $101.5 million, or 5.3% of the total. Most of the difference is of course brought about by placing the preponderance of the research programs under an official with general line responsibility for research and development.

(c) Considerations in Long Range Organization Planning

Organization planning is so important to an expanding agency like AEC that alternative approaches should be carefully explored and evaluated. For this reason, and also because the General Manager's plan has not been carried into detail concerning field organization,* we wish to describe an alternate approach to organization planning based on the problems discussed in our review of field administration, on the study of delegations, and on a projection of the program up to FY 1961.

In the preceding section on Delegations we have discussed at some length certain conditions related to organization which appear to deserve attention -- the presence of certain doubtfully necessary echelons between the Commission and the contractors; divided and unclear lines of responsibility; key officials in effect holding direct responsibilities to several higher authorities; and organizational features at the field level which complicate relationships with contractors. Some of these conditions would be improved by the General

*For this reason it has not seemed that it would be useful to reproduce the chart herein.

Manager's organization plan. To the extent they persist, however, their seriousness will be compounded as the size of the program increases.

The expanded program also greatly increases the interest of features of the organization which already raise questions with respect to the size of programs administered by the AEC's various offices (we here again use operating costs (Figures A and D) as indices to the size of programs), for example:

1 The spread in size of the largest and smallest total programs administered under Operations Offices (the difference between $181 million and $6 million in FY 1952, between $559 million and $12 million in FY 1961).

2 The spread in size between the largest total program administered by an area or field office and the smallest total program administered by an Operations Office (the difference between $121.3 million (area) and $12 million (operations) in FY 1961).

3 The size of the two largest programs administered by Operations Offices (those of Santa Fe and Oak Ridge), already very pronounced in FY 1952, and due to be tripled in each case by FY 1961.

The expansion program likewise increases interest in the geographical jurisdiction of the Operations Offices, particularly with respect to such facilities as shown in Figure F which according to present plans will be administered by other than the nearest Operations Office.

With these problems and questions in mind we proceed to discussion of some of the factors which should influence the shaping of organization, first, in the field, and second, in Washington headquarters.

1 Considerations in Organizing the Field

Since the operations for which the Commission exists are accomplished at its widely dispersed field facilities, we have thought it desirable that our consideration of future organization begin with factors which influence location and organizational grouping of AEC field offices.

A primary question is, of course: What should determine where an AEC staff should be located? The basic responsibilities of the agency require that at major operating and construction jobs there be on-the-spot AEC staff. The present situation, however, suggests a rule to which there are now very few exceptions and which seems a satisfactory one to adopt for the purposes of this discussion: AEC staff should be located wherever there is a significant amount of AEC owned plant and equipment. Thus it is noted that Figure G gives rather reliable indication of the points at which AEC staff is either now located or will be upon initiation of the project (Figure G is a listing

of AEC investments in plant and equipment by location as of the completion of the presently estimated construction program).

The possibility may now be considered of establishing such a strictly functional organization as was recommended by the Industrial Advisory Group in 1948: "One in which each of the four headquarters divisions will be given direct authority over those Commission activities -- wherever situated -- which match the functions of the respective divisions".* We have pointed out already considerable variances from function in the AEC organization scheme. Functional alignment can be increased -- the General Manager's plan, for example, would merge three divisions interested principally in research and development and simplify functional relations between Washington and the field in these activities. Function alone cannot determine AEC field organizations, however. More than one function is involved in the work of many AEC contractors; elaborate channels between AEC and the individual contractors would be necessary on a strictly functional basis, as well as an overlapping AEC field organization.

On the other hand geography does not serve satisfactorily as a sole criterion for organizing the field. For one thing, operations at many facilities -- for example, the feed material plants, or the diffusion plants at Oak Ridge and Paducah -- are closely interrelated and this argues for administration under a single AEC field official. Another consideration is that there may be significant differences in the staffing and capabilities of major AEC offices, which would make strictly geographical grouping inefficient. For instance, Rocky Flats is nearer to Grand Junction than to Santa Fe, but Grand Junction would have to undergo a major reorganization (and expansion) before it could take on the facility, and many difficult problems of communication and coordination would still remain. Likewise, Iowa State is nearer to Kansas City than to Chicago, yet placing the Ames Area Office under Chicago seems clearly preferable, because Chicago is staffed to administer research work while the emphasis at Kansas City is on manufacturing.

Yet geography need not be dismissed altogether as a consideration in organizing the field, for while placing certain combinations of functions under individual Operation Offices may seem undesirable, AEC has learned by experience that other combinations may be quite manageable. This is perhaps demonstrated most effectively by the variety of programs under way at individual facilities, but it is also

*"Report to the U.S. Atomic Energy Commission by the Industrial Advisory Group", December 15, 1948. The four divisions alluded to are apparently Production, Military Application, Reactor Development, and Research, the last name considered as including the jurisdiction of the present Division of Biology and Medicine.

confirmed by the administration of Mound by Oak Ridge, and of Livermore by San Francisco. It should be noted that in major AEC offices the Manager tends to be an administrator rather than a technical man, so that differences in the nature of the work under his jurisdiction do not reduce his personal effectiveness. There is significant variety, however, as has been intimated, in the staffs of the various offices. By and large the AEC staffs at the outlying weapons projects and at Grand Junction do not seem readily adaptable to other than their primary functions. At the same time it is clear that in individual cases weapons work can be well administered under non-weapons Operations Offices, and it seems quite possible that the projected raw materials operations in the southeast could be administered under nearby Operation Offices principally engaged in production of fissionable materials. Reactor development or research projects may also be assigned to offices with other primary functions providing they are well staffed technically. Versatility among functions to the general extent outlined here is a demonstrated and exploitable asset of AEC staffs in the field.

It would appear, in considering organization of AEC field facilities, that this versatility might enable making exceptions to functional grouping where this would prevent duplication of AEC staff or facilitate realization of savings through common services for neighboring sites having different functions. In the AEC organization projected to 1961 according to present plans (Figure E) there are several situations which seem to invite consideration of such exceptions. The principal possibilities involved are the continuation of Livermore under the San Francisco Operations Office, the assignment of the new raw materials operations in the southeast to existing production offices, and some means of integration among the major facilities in the state of Ohio -- these six facilities will apparently be independent of each other (with one possible exception) and will report to Chicago, New York or Oak Ridge.

It is apparent that the workability of exceptions to functional grouping is increased when the line of authority is clear and undivided; it is particularly attractive in connection with schemes of organization under which all principal field facilities report to a single official in Washington headquarters.

Another problem to be considered in organizing the field is that of the optimum size of an Operations Office. It is difficult to discuss this question briefly without oversimplifying, because of the number and nature of relevant factors -- a few being the diversity, variability and geographical distribution of the work, the capabilities of the Manager, and the quality of the staff and of the contractors.

The most obvious problem relating to optimum size of offices, which will develop in the growth of AEC as now planned, will be the very large ultimate size of the Santa Fe and Oak Ridge operations, which is particularly striking when contrasted to the size of the other

Operations Offices (Figure D). It is true that the two systems of operations will be largely functional -- Santa Fe including most of the weapons work and Oak Ridge the diffusion facilities. If indefinite expansion of such offices were assumed, however, it would be expected that circumstances of geographical dispersion, and of size and complexity of the operations, would at some point combine to indicate that division of the operations would be more efficient than continued expansion of the single offices. Some of the limitations of government pay scales would seem to be relevant to such a determination. The question is, whether a point will be reached beyond which growth of Santa Fe and Oak Ridge should not be allowed to proceed.

Several other considerations should be mentioned briefly in connection with possible breaking up of large Operations Offices.

First, it is conceivable that division of an office might be a desirable objective if scheduled to occur when operations have become more stabilized, but should not be attempted while construction remains in progress and some of the more delicate coordinating problems of the expansion period remain. (In this connection, when an unusually large or dispersed jurisdiction of a field office is justified solely on the grounds that it makes possible coordination of related parts of the program by one field official, the question arises, whether higher headquarters could not assume some of the coordinating functions, and thus permit more logical breakdown of the field operation.)

Second, expansion of an office, as we have pointed out, affects its relations with contractors by tending to force day-to-day contacts and official channels of communication increasingly lower in the AEC organization, and leaving the Manager himself less and less time to give to administration of individual contracts.

Third, a possibility which has to be guarded against as field offices grow to extreme size and acquire dispersed sub-offices, is the tendency to accumulate a large field headquarters staff which assumes or duplicates the proper functions of Washington headquarters.

In summary, development of the field organization, and determination of which of the various AEC offices should become Operations Offices, should involve the following considerations:

a The number of field offices Washington headquarters can effectively deal with.

b The size and importance of the program and of the AEC's investment at the various sites.

c Logical grouping of offices by function.

d Exceptions to functional grouping of offices when this would result in savings without sacrifice of effective administration.

e The size, complexity and dispersal of the operations proposed for assignment to a single office.

f The distance of large facilities from the nearest Operations Offices at other sites.

We turn next to discussion of some of the factors which should influence the organization of the Washington office.

2 Considerations in Organizing Washington Headquarters

It has not seemed desirable that we try to consider planning for the organization of Washington headquarters in detail. We do wish to offer comment, however, on two fundamental problems of allocation of responsibilities in headquarters, the first of which in particular concerns the relationship between Washington and the field:

a Is it desirable that lines of authority descending from the General Manager diverge to the principal field establishments from a single point in the Washington headquarters organization? and

b What are the organizational approaches to relieving the burden on the General Manager?

a Lines of Authority between Washington and the Field

We believe that AEC's organization planning should include careful study of the possibility, already alluded to, of placing all field operations under the line authority of a single official in Washington headquarters. As our discussion of delegations and organization has developed, we have tried to suggest actions by which administration of the program under the present or presently planned organization might benefit. A more fundamental approach would be to establish one headquarters official over field operations.

The desirability of the move depends in large part upon the soundness of separating organizationally direct responsibility for operation of the field facilities from the other responsibilities of Washington headquarters.

What might be termed the essential staff functions of the Washington program divisions -- planning, programming, assisting in budget operations, inspecting, evaluating, maintaining formal and informal technical contacts with the field -- are separable from functions directly related to operating responsibility and can all lend themselves to performance by staff, as distinct from line units.

As in the case of the Managers of Operations, strong administrators, rather than technical men, are needed to take responsibility in Washington for large segments of AEC's field operations. We believe in fact that it would be feasible to place a single such official in the line of authority between the General Manager and all of the Managers of Operations, and that the desirability of this arrangement should be carefully weighed in AEC's long range organization planning.

Most of the principal arguments favoring this possible move relate to earlier discussions. They may be summarized as follows:

i Lines of authority and responsibility between the Commission and the field would follow a simple, clear, and (with perhaps minor exceptions) uniform pattern, running from the Commission through the General Manager, through the individual in charge of all operations, to the Managers of Operations. This pattern of delegation would facilitate assignment of commensurate responsibility and authority; it would coincide exactly with the pattern of organization.

ii The number of echelons separating the Commission from the Managers of Operations would be held to two, each fully justifiable. (In the organization now planned, there would be three echelons, except in the case of the Santa Fe Manager.)

iii Managers of Operations would clearly have one supervisor at headquarters level, and their objectivity in administering the various segments of their programs would match his own.

iv The efforts of the Washington program divisions could be concentrated on programming, policy making, planning, inspecting and evaluating, from which they have to a degree been diverted because of preoccupation with operational problems.

v The problems inherent in maintenance of the four virtually nation-wide, highly functional field organizations now planned (those reporting respectively to Raw Materials, Production, Military Application, and the Director of Contract Administration) -- development of inconsistent standards, policies, procedures and interpretations, uneconomical organizational grouping of sub-offices, and difficulties of exchanging assistance among the offices -- would be removed or substantially reduced.

vi Placing a major segment of the program under line authority of the Director of Military Application, who in practice is necessarily a career officer of the Armed Forces detailed temporarily to the AEC, would be avoided.

vii It seems justifiable to expect that the streamlining of the organization and delegation practices which would occur, would act to strengthen significantly AEC's relations with its contractors.

b Organizational Approaches to Reducing the Burden on the General Manager.

Much of the thought which has been given to reorganization has centered about the problem of making more efficient use of the General Manager's time. Taking into account the very small size of his immediate office and the substantial recent growth of the program, as well as the number of officials continuing to report directly to him,* it is difficult to believe that the "intolerable burden" on the General Manager in 1948 has become much more tolerable today.

It should be recognized, of course, that any general improvement of the AEC's organization and management would to a degree alleviate the load on the General Manager, whether the improvement should involve better personnel, for example, better delegations or better promulgation of policy.

As to the General Manager's relationship to field operations, the organizational approach discussed above, of having all Managers of Operations report to a single official in Washington, seems to offer possibilities of simplifying the General Manager's job. Under the organization now planned, the General Manager would hold three principal assistants (the two Assistant General Managers and the Director of Military Application) responsible for the several systems of field operations. There would be a tendency for him to mediate discussions of coordination of the systems, or problems of overlapping interests. Under the proposal just discussed, these problems should be much reduced in the first place, and many of those remaining should be soluble by the Washington official in charge of operations. At the same time, only the simplest administrative channels would exist between the General Manager and AEC's field operations.

There seem to be three general approaches to simplification of the General Manager's relationship with units of the Washington staff: reduction of the number of staff units, establishment of Assistant General Managers "in line" between the General Manager and the units, and increased use of staff assistants in the General Manager's office.

Any reduction in the number of offices reporting to the General Manager must be along logical lines. There seems little possibility that a reduction could be effected among the present "staff" divisions; the grouping of functions under the Division of Construction and Supply is already on a catch-all, rather than a strictly logical basis. Better possibilities might be found among the units of the Office of the General Manager, particularly the Offices of Classification and Industrial Development.

*18 officials now report directly to the General Manager, 6 less than before the 1948 reorganization (see Figure C)

Establishment of "in line" Assistant General Managers between the General Manager and "staff" divisions does not entail dangers of the same order of magnitude as adding echelons between the General Manager and Operations Offices in the field. If the field were to be related to Washington in accordance with the alternative scheme discussed above, the appointment of an Assistant General Manager to be responsible for the Divisions of Research, Biology and Medicine, and Engineering and Development would seem quite logical. There are disadvantages to this approach: individuals of the calibre needed have proved very difficult to recruit, and in some measure it reduces the prestige and attractiveness of the Division Director positions.

The use of a few competent assistants seems feasible in general, to insure that coordination and good staff work have been accomplished on matters being referred to the General Manager, and to conserve his time further by undertaking coordinating and other special assignments, and possibly also to assist in the direction of staff units attached to the Office of the General Manager; as we understand it, in fact, the proposed Director of Administrative Services would be such an assistant. Assistants of this type need not have such backgrounds as would be desirable in "in-line" Assistant General Managers; yet they may make a comparable contribution to the program when they bring to the job a good balance among competence, tact and self-restraint, and they may sometimes enable an executive to function satisfactorily with many more than the usual number of officials reporting directly to him (as appears from Figure C, this last problem is hardly avoidable for AEC's General Manager).

3 Miscellaneous Organizational Considerations

Several miscellaneous problems have come to our attention in the course of our study, which are pertinent to organization.

a Special problems of coordination

We have encountered suggestions for better coordination in Washington headquarters in three fields of activity. We have not studied the situations in question and do not have firm views on them. Each case involves assignment of closely related and important responsibilities to several units of the Washington staff, and it would seem that a review of each case to evaluate coordination now achieved and possibly to suggest organizational or other means of improving it, might be of value. The three fields of security, health and safety, and international affairs:

i Security

The coordination of the many activities in Washington headquarters which relate directly to security is of obvious importance. These include, in addition to the functions of the Division of Security and certain of those of the Division of Organization and Personnel and

Information Services, classification and declassification, export control and SF materials accountability. The proposed position of Director of Administrative Services should facilitate better coordination; it should be noted, however, that several of the functions in question are not those of staff units with coordination of which we understand the Director of Administrative Services will be charged.

ii Health and Safety

General "staff" responsibilities in the field of health and safety have been assigned to the Divisions of Biology and Medicine, Organization and Personnel, and Engineering. We have alluded earlier to the confusion of some of the basic delegations involved. We are sympathetic to a finding of a recent report on an inspection of the AEC's program by Mr. Sidney J. Williams: "In both aims and methods the various protective services -- safety, fire protection, health physics, hygiene, and health and medical services -- have much in common. Hence the Advisory Board recommended that these functions be closely coordinated. In the field, this has been done to a considerable extent; in Washington, not at all."*

iii International Affairs

From several sources we have heard that better coordination is desirable of the many functions in headquarters bearing on international affairs. These are performed throughout the headquarters organization, specifically by:

The Commission
The General Manager
The Division of Security
The Division of Raw Materials
The Division of Construction & Supply (export control and source materials licensing)
The Division of Research (Technical Cooperation and isotopes)
The Office of Special Projects
The Office of Classification (and Senior Responsible Reviewers)
The Office of Intelligence

*"Conformance with the recommendations made by the Safety and Industrial Health Advisory Board, 1947-48", a report by Mr. Sidney J. Williams dated Dec. 15, 1952.

b Field Employees Directly Responsible to Washington

There is no important objection of principle to the establishment of AEC positions in the field which are not parts of Operations Offices, even though they may be administered by them. It must be noted that the legal organization, which throughout AEC (organization charts of most Operations Offices to the contrary) reports directly to the General Counsel in Washington, has operated with apparent success, even though it is not obvious that satisfactory results would not also have been obtained by use of the standard organizational pattern. Wherever an individual holds direct responsibility to a Manager of Operations and to an official in headquarters, however, the traditional administrative dangers of duplicate supervision will exist, and these are sufficient to suggest that such situations be permitted only in special circumstances. Particular care should be taken if the field employee concerned is likely to face a conflict between the interests of the two "supervisors". To illustrate this point we allude to the internal audit program now being formulated by the Controller, for the execution of which he will look to the Directors of Finance on the staffs of the Managers of Operations. An unspecified but real and useful purpose of the internal audit as it appears to be taking shape, is the appraisal of the effectiveness of the Manager himself -- for over a period of time the effectiveness of the parts of his organization which the internal audit will examine is the effectiveness of the Manager. The Director of Finance who finds himself making judgments which require that in effect he criticize his Manager in reports which must be submitted to the Controller in Washington, is in a dilemma. At the same time, to remove the internal audit function from the jurisdiction of the Manager would be to deprive him of responsibility for a major aspect of effective management.

c An "in-line" construction organization

A possibility deserving study is that of creating a construction organization which would be in direct charge of construction wherever it might be in progress. Such an arrangement would accord with common practice, but though it has advantages it would also have distinct disadvantages in AEC's program, especially when construction is undertaken (as in the AEC's program it usually is) at a site already operating other facilities.

4 An Illustration of some Approaches to Problems of Organization Planning

In concluding our discussion of an alternative approach to organization planning for AEC, we describe now briefly and in broad outline, an extremely tentative and incomplete plan for ultimate organization of AEC; as will be noted, the plan contemplates establishment of the position of Deputy General Manager for Operations, in charge of operation of all field activities. Our purpose in discussing this rough plan is principally to illustrate some of the routes by which solutions

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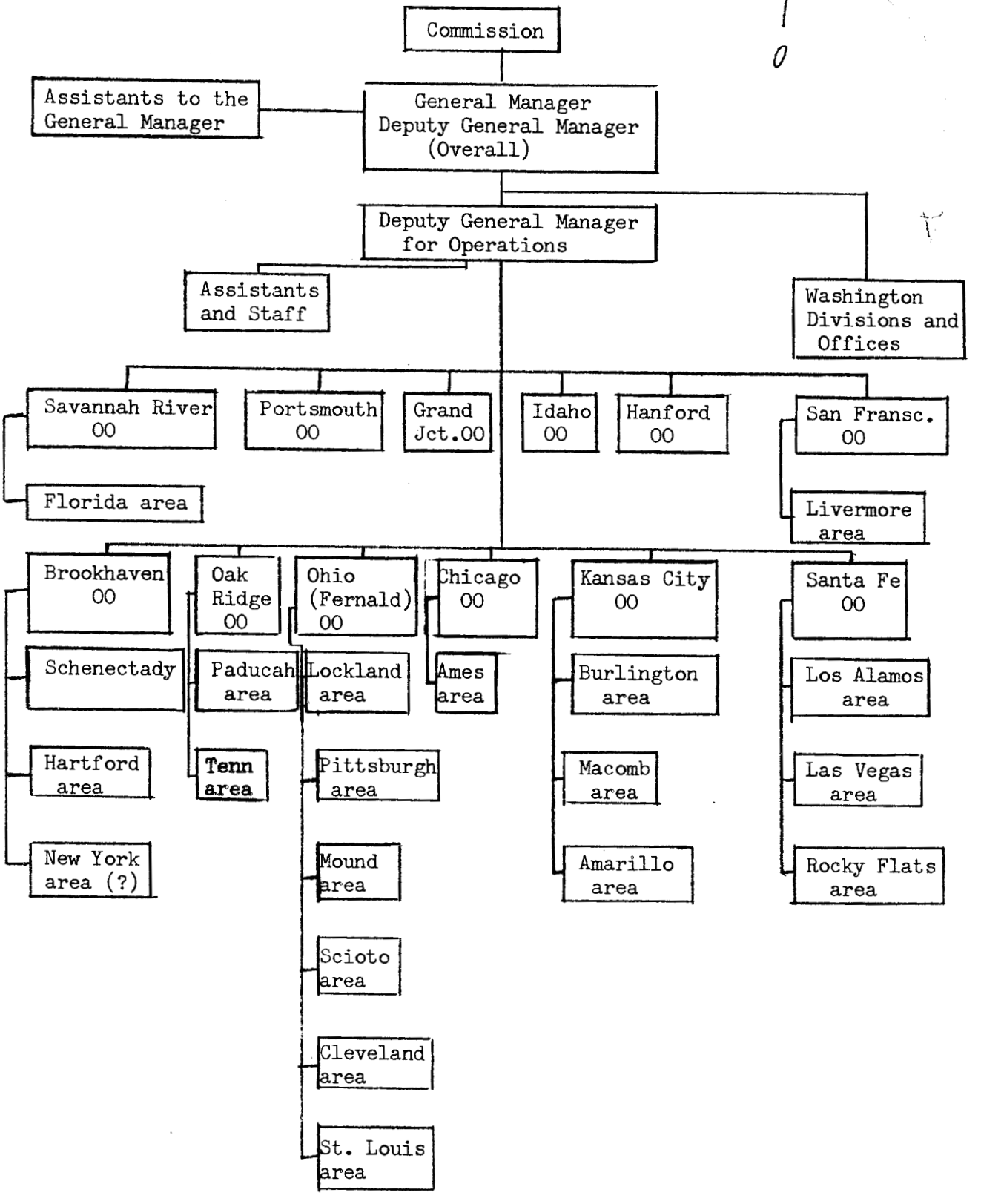
might be sought to the problems discussed in this section and the preceding section on Delegations. While we believe that organization planning should take account of these problems, it should be understood that we consider it beyond the reasonable scope of our assignment to recommend that the following or any other specific plan of organization be adopted. Moreover, though organization planning in AEC may have lacked vigor in the past, we would not, particularly in the present period of expansion, propose that reorganization be achieved by any but the most carefully planned transitions. Our illustrative plan, which is based on 1961 operations, includes no consideration of transitional steps, and in fact ignores divisional breakdowns in Washington headquarters, and all but major field installations. The plan is outlined in the following chart:



Two charts have been prepared to illustrate some of the implications of this rough plan, and to bring out some of the differences between its effects and those of continuing the existing plan in effect.

Figure H shows the proposed field organization on a map, which may be compared with Figure E.

Figure I gives roughly estimated operating costs for Fiscal Year 1961 for Operations Offices and also major sub-offices.

a Comment on the Field Organization

Specific comment follows on some of the components of the organization in the field.

Ohio Operations Office. This office might be located at any of several of the sites involved. We are showing it at Fernald. The bulk of its work would be taken over from the present New York Operations Office, in view of the increasingly heavy concentration of feed materials work at and surrounding Fernald. Added to the jurisdiction of this office are Mound and Scioto, now under Oak Ridge but easily separable, and Lockland and Bettis Field, now under Chicago. Three of the Ohio sites -- Lockland, Fernald, and Mound -- are particularly closely grouped and the possibility of realizing savings by provision of common services seems attractive.*

Brookhaven Operations Office. An Operations Office is shown at this site, with subsidiary offices at Schenectady and Hartford, and possibly one at New York to administer contracts in that vicinity. Circumstances might indicate that this jurisdiction could be administered more reasonably by placing the Operations Office at Schenectady or in New York City, and retaining an Area Office at Brookhaven.)

Portsmouth Operations Office. Portsmouth is made independent of Oak Ridge (requiring an increase in coordinative work in Washington headquarters); Oak Ridge is of such size that its jurisdiction is enlarged only where imperative. Portsmouth is not merged with the Ohio Operations Office since that too would result in an "oversize" office.

Oak Ridge Operations Office. Paducah is retained as an Area under Oak Ridge for contractual and operational reasons. The "Tennessee" Area is added because of its proximity and relatively small size.

Kansas City Operations Office. This office is established over its subsidiary offices, largely engaged in production of non-nuclear

*Possible variations would be continued assignment of Lockland to Chicago, and assignment of Bettis Field to Chicago or Brookhaven.

components, as a means of reducing the program now under the Santa Fe Operations Office. Some increase in coordinative work at Washington would result.

Idaho Operations Office. This office administers the National Reactor Testing Station, provides common services for reactor installations, and operates certain reactors. Where operation or construction is by a contractor of another Operations Office, the Idaho Office cooperates with the "home" AEC office as necessary to keep administration of the contract up to AEC standards with respect to the Idaho part of the work.

It will be seen that the plan reflects in a general way, as regards field organization, several of the considerations discussed in this section. It will be noted that a total of 12 Operations Offices are shown, one less than the number involved under continued application of existing plans. Area offices, in addition, have been extensively reassigned. Some of the effects of this are:

i. A geographically far simpler arrangement is achieved (compare Figures H and E); the sprawling geographical jurisdictions of New York, Chicago, and Santa Fe in particular are compressed.

ii The average distance between Operations Offices and subordinate Area Offices* is reduced from approximately 500 to approximately 211 miles.

iii The total size of the programs assigned to the various Operations Offices is considerably evened, and the number of Areas with larger programs than Operations Offices substantially reduced. (See Figure I).

b Comment on the Washington Organization.

An additional Deputy General Manager (for Operations) is created to whom all Operations Offices are directly responsible. It is his job to operate the Commission's domestic field facilities in accordance with approved programs. The present "program divisions" accordingly are returned to "staff" status, though the General Manager continues to hold them principally responsible for recommending programs, and for inspecting the technical aspects of field operations. They work in close cooperation with the Deputy for Operations, and actually collaborate with him in various steps of the budget procedure, including defense. A serious disagreement between the Deputy for Operations and a staff division would go to the General Manager for resolution; the Deputy for Operations would assume the full

*Area offices located at the same site as the parent Operations Office have been ignored in this calculation, as have offices at NRTS subordinate to Operations Offices other than Idaho.

responsibility of the General Manager only in absence of the General Manager and the overall Deputy. The Deputy for Operations will receive considerable help from the Washington divisions. In addition he will require some staff in his immediate office, though there seems good possibility that the people involved would be fewer than those who could be released by the program divisions. We have not attempted to work out details of his staff, but the importance of doing so should not be discounted; to be able satisfactorily to deal with 12 Operations Offices, the Deputy for Operations will need highly competent and well organized help. The comments made above on assignment of staff assistants to the Office of the General Manager are also applicable to the Office of the Deputy of Operations. For example, the burden of twelve field offices reporting to the Deputy for Field Operations might be relieved by assistants, either staff or line, handling matters relating to particular field offices or to particular functions.

(d) Providing for Organization Planning

We have presented this discussion of organization in the belief that the AEC organization can be expected to change markedly in the next few years and that change is desirable and should be planned for in a young and rapidly growing program. The particular scheme of organization described is an illustration of principles and problems in re-organizing. Among the principal questions we have raised are the following:

1 Will any other arrangement than a single official such as a Deputy General Manager for Operations resolve problems of dual responsibility of field managers and divided lines of authority in Washington, release program divisions from operating duties to concentrate on their staff functions, and enable consistency in AEC contract administration?

2 Is there a point in size at which Operations Offices such as Oak Ridge or Santa Fe should be divided in the interests of efficient administration?

3 Can regrouping of field offices be accomplished in some cases to keep administrative staffs and travel to a minimum without loss of sound contract administration or effective relationships among functionally associated projects?

4 Can related activities in Washington offices be more systematically coordinated?

5 How can the burden on the General Manager best be reduced?

Much study of alternate relationships among field offices and among Washington units will be necessary before a satisfactory plan can be

shaped and adopted. The organizational needs of the program can to a significant degree be seen in advance, however, and information on program planning should be available continually to those responsible for organization planning so that changing and eventually stabilized conditions can be anticipated and provided for in an orderly way.

If organization planning is to be given due importance it must be a recognized and supported function in AEC. While major organization decisions are themselves major policy decisions and must be made by the Commission, General Manager, and line administrators, the decisions and planning are complex and far-reaching and require thorough study and preparation. Positive responsibility for overall organization planning should be assigned at a high staff level, and the responsible staff should have access to the program plans and assumptions that are interdependent with organization planning. Such a staff would explore alternate future organization arrangements, study the facts pertinent to such questions as the possible savings through common services for geographically contiguous field offices, or as ways of coordinating Washington offices with common interests, assist the Commission and General Manager in working out advance organizational objectives, and appraise existing organization and plans in the light of program performance and changing needs. The informed criticism that tests the worth of ideas would be facilitated. The help of advisory groups or consulting firms could be obtained on specific problems; without a staff group concerned with the problems on a continuing basis, it would be difficult to enable advisers to reach well-founded and helpful recommendations, or to make effective use within AEC of their comments.

Aside from the usual importance of organization in a mature program, developing a solid organization constitutes a specific immediate goal for AEC. The last major reorganization came in 1948, before the series of expansions that have altered radically the scale and internal proportions of the agency. By heavy demands on the outstanding abilities of key men in the program and of some men drawn temporarily from industry or universities, and by concentration on particular accepted development and production goals, schedules are generally being met with minor adjustments in the existing organization. The load of coordination and planning on the General Manager, Commission, and a few top staff people has been excessive, however; lines of authority and responsibility have depended on personal understandings as much as on clear formal definition; and patterns of administration and supervision and of relations with contractors have varied widely in their ways of getting the job done. In one sense, the goal is that of reshaping the organization to be self-sustaining rather than dependent on a relatively few key people; in this connection, we have called attention elsewhere in this report to the importance of executive development and the associated personnel functions such as recruitment, training, and rotation to furnish the people needed to make the organization continue to work. To build an organization of maximum efficiency, to meet the requirements of future operations, the Commission has a

difficult and demanding task requiring explicit attention, careful staff-work, and the agency-wide contributions of responsible men such as have gone into expansion planning.

SECTION 3.

SUMMARY

(This section contains broad summary comment on our findings as to those problems of management and contract administration which are of most significance to sound future development of the agency. A number of the suggestions set forth earlier as concrete possibilities of possible benefit to responsible officials working on these problems are not repeated.)

a. Under the system of contractor operation, AEC retains responsibility for achievement of program goals and for the efficiency and economical performance of its contractors. Under cost-type operation and construction contracts in particular, AEC has a direct interest in economy and efficiency, and must exercise control and supervision to assure economy in the use of Government funds and conformance with Government procedures and standards of doing business. Effective AEC contract administration can make a positive contribution to contractor management performance, by seeing that the contractor understands his responsibility, has planned and is taking adequate action to meet it, and has all help AEC can give him in doing his work. Internal AEC policy issuances do not clearly establish this objective of contract administra tion, and indeed such official statements as that "necessary reviews of performance (of contractors) are made on a post-audit basis" (Section 2 d 4 e) conflict with it.

b. A policy statement clarifying and reaffirming AEC's responsibilities in contract administration, either in a specific bulletin or as part of an organization manual or procurement manual, would help reduce present variations in conceptions of the responsibility of the contracting officer, and assist field staff in their exercise of supervision and control. The work of the atomic energy program is done in installations all over the country; effective supervision and assistance to the contractors must come from the AEC manager on the spot. Wherever possible, the contracting officer should be the primary agent of AEC in performing the inspection, evaluation, and assistance of the contractor's work which are the agency's positive role in contract administration. Where for special reasons it is necessary that the Washington technical staffs perform these activities -- research is the most familiar area where this occurs -- the division of responsibility must be carefully defined so that there will be assurance that the necessary AEC supervision is exercised. Where not clearly impractical, the responsibility for supervision and the formal position of contracting officer should go together; should circumstances appear to indicate the undesirability of assigning supervision of a contractor to a Manager of Operations, the desirability of having him serve as contracting officer should be reviewed. Inspections of his own and his contractor's activities should

of course continue to be made by the contracting officer's higher authority, and informal technical channels should be left open at all levels. Effective functioning of the present Operations Offices in the manner herein described would require in several cases that the technical staffs be strengthened to enable better appreciation of program goals, better appraisal of the performance of the contractor, and intelligent and helpful (but not obligatory) participation in the discussions which Washington technical staffs should frequently have with contractor personnel.

c. Periodic evaluation of contractor performance should be an explicitly recognized responsibility of the contracting officer. Regular evaluation reports should be prepared, and carefully reviewed in Washington.

d. Present contracts do not always provide AEC staff with an explicit basis for carrying out their full role in contract administration. Some contracts (those with Western Electric or DuPont for example) are written in this manner because of the special role assigned these contractors; in other cases, variations or gaps in contract control provisions appear to be traceable to such causes as uncompiled or incomplete policy guidance on contract negotiations, and the former lack of central contract review. Issuance of basic contract forms and objectives (as in the Procurement Manual) and systematic negotiation and review of contracts should increase inclusion of provisions giving explicit basis for discharge of the agency's responsibilities for the work and expenditure of funds.

e. Basis manuals for field administration are in many cases just now under preparation or in partial form -- an Organization Manual; Controller's Manual; Procurement Manual. Until they and others are completed and instituted, basic uniformity between field offices and a firm field basis for review of contractor procedures will be difficult to obtain. Regular inspection and evaluation of the field, both by line divisions and staff specialists, and refinement of reporting requirements imposed on the field, will assist in assuring uniformity and compliance with agency policies and standards, and will check the adequacy and practicability of policies and procedures.

f. Concerning the general relationship and divisions of responsibilities between Washington and the field, we feel that the excerpts previously given from the "Concluding Report" of the Hoover Commission concern classic failings of Governmental agencies, to which AEC should be constantly alert:

> "Our task force also found many instances where headquarters officials in Washington still clung to the power to make decisions even in matters of minor importance. This, too, has resulted in interminable delays in getting things done, has stultified initiative in the field services, and has resulted in decisions being made which have not taken due account of variations in local conditions.

* * * * *

"In substantive matters, too, we have recommended that a greater measure of authority be delegated to the field services of the operating departments. This will require that the headquarters agencies concentrate their attention more and more on developing policies which are unmistakeably clear. They must also give more attention to establishing standards of performance and to improving their systems of reporting and inspection to insure that policies are carried out."

g. The channels of authority and reporting, whereby each field office reports through a single Washington division presumably having dominant program interest, contain anomalies affecting the administration of major programs, particularly technical and scientific programs. Revision of the grouping of field units and their channels of reporting and direction appears possible to simplify lines of authority and improve program control; an approach to reorganization is presented in this report to illustrate problems and possibilities. The AEC organization can be expected to change markedly in the next few years; such change is desirable and should be planned for in a young and rapidly growing program. Among the principal questions we have raised are the following:

1 Will any other arrangement than a single official such as a Deputy General Manager for Operations resolve problems of dual responsibility of field managers and divided lines of authority in Washington, release program divisions from operating duties to concentrate on their staff functions, and enable consistency in AEC contract administration?

2 Is there a point in size at which Operations Offices such as Oak Ridge or Santa Fe should be divided in the interests of efficient administration?

3 Can regrouping of field offices be accomplished in some cases to keep administrative staffs and travel to a minimum without loss of sound contract administration or effective relationships among functionally associated projects?

4 Can related activities in Washington offices be more systematically coordinated?

5 How can the burden on the General Manager best be reduced?

Much study of alternate relationships among field offices and among Washington units will be necessary before a satisfactory plan can be shaped and adopted. The organizational needs of the program can to a significant degree be seen in advance, however, and information on program planning should be available continually to those responsible for organization planning so that changing and eventually stabilized conditions can be anticipated and provided for in an orderly way.

If organization planning is to be given due importance it must be a recognized and supported function in AEC. While major organization decisions are themselves major policy decisions and must be made by the Commission, General Manager, and line administrators, the decisions and planning are complex and far-reaching and require thorough study and preparation. Positive responsibility for overall organization planning should be assigned at a high staff level, and the responsible staff should have access to the program plans and assumptions that are interdependent with organization planning. Such a staff would explore alternate future organization arrangements, study the facts pertinent to such questions as the possible savings through common services for geographically contiguous field offices or as ways of coordinating Washington offices with common interests, assist the Commission and General Manager in working out advance organizational objectives, and appraise existing organization and plans in the light of program performance and changing needs. The informed criticism that tests the worth of ideas would be facilitated. The help of advisory groups or consulting firms could be obtained on specific problems; without a staff group concerned with the problems on a continuing basis, it would be difficult to enable advisers to reach well-founded and helpful recommendations, or to make effective use of their comments.

Aside from the usual importance of organization in a mature program, developing a solid organization constitutes a specific immediate goal for AEC. The last major reorganization came in 1948, before the series of expansions that have altered radically the scale and internal proportions of the agency. By heavy demands on the outstanding abilities of key men in the program and of some men drawn temporarily from industry or universities, and by concentration on particular accepted development and production goals, schedules are generally being met with minor adjustments in the existing organization. The load of coordination and planning on the General Manager, Commission, and a few top staff people has been excessive, however; lines of authority and responsibility have depended on personal understandings as much as on clear formal definition; and patterns of administration and supervision and of relations with contractors have varied widely in their ways of getting the job done. In one sense, the goal is that of reshaping the organization to be self-sustaining rather than dependent on a relatively few key people; in this connection, we have called attention elsewhere in this report to the importance of executive development and the associated personnel functions such as recruitment, training, and rotation to furnish the people needed to make the organization continue to work. To build an organization of maximum efficiency, to meet the requirements of future operations, the Commission has a difficult and demanding task requiring explicit attention, careful staff-work, and the agency-wide contributions of responsible men such as have gone into expansion planning.

h. AEC policy codification and issuance is in need of improvement. Policy set by the Commission is for the most part filed but not codified by the Office of the Secretary; and policy on organization and operating procedures is issued in a GM Bulletin system which is incomplete in

coverage and does not fully state existing policy in the fields which it covers. Strengthening of advance program planning might be helped by provision of a staff for that purpose.

i. In the areas of management concerning which we have been speaking, many individuals and units are now actively working out and conducting programs of improvement; these efforts are not always recognized and coordinated in a way that will contribute to their effectiveness and build an overall management program for the agency.* We have become convinced that an explicitly formulated and executed arrangement and organization is important for AEC. The achievements of the atomic energy program have arisen from the enthusiasm and ability of many men of different backgrounds -- scientists, engineers, administrators -- and from different organizations -- universities, industry, Government. Understanding and confidence in each other's abilities and efforts has been crucial because of the telescoping of normal processes, and the simultaneous pushing of research, development, construction and operation that have enabled the phenomenal expansion of the program and immediate application of novel discoveries and processes. As the size and geographical spread of the program increase, and the unifying pressure of common recognition of a national emergency and a pioneering enterprise diminishes, the importance of leadership and of management in the best sense increases correspondingly. Lack of understanding of respective responsibilities, and security compartmentalization, make it difficult for one man to realize the importance and the problems of other men's work and the dependence of his own work on that of others; the lack of any but gross measures of success and good performance and the limited devices for recognition of good work either within or without the program also are obstacles to progress. The special conditions supporting momentum and morale during the birth and early youth of the program will lose their force and should be replaced by other incentives and guides. The replacement will come only from a management effort which is given equal emphasis with the program effort which has absorbed the best energies of top AEC personnel so far. We believe that attention to these "management" problems will have a direct impact on the efficiency and economy of operations and on the assurance that program goals will be fulfilled.

One of the consequences of such a systematic management effort might well prove to be a freeing of the Commission and General Manager from some of their present involvement with current operations. A rigid separation of top management from operations is not likely to be possible or indeed desirable in a sensitive public agency such as AEC: the functions of determination of objectives, development of clear and creative plans, design and manning of a flexible organization structure, and appraisal of performance and progress cannot be done with leisurely detachment in an agency with so few years of precedent-making experience and so much Congressional and public interest. But by provision of the

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*Preparation of the annual Management Report for the Bureau of the Budget is in the main a compiling activity which does not satisfy AEC'S need for an overall management program.

management devices for simplifying and improving the reporting and control of operations, and by the building of a self-sustaining organization, the needs of the Commission for information and for assurance that decisions are being made with awareness of their wider implications can be met with increasingly less demand on their time and energy, and a corresponding release for the functions which are uniquely theirs.

CONGRESS OF THE UNITED STATES

Joint Committee on Atomic Energy

April 2, 1952

U. S. Atomic Energy Commission
1901 Constitution Avenue, N. W.
Washington 25, D. C.

Attention: Mr. Gordon Dean, Chairman

Gentlemen:

As you know, the Joint Committee on Atomic Energy has from its inception had as an overriding concern the achievement of the greatest possible atomic strength, at the lowest possible cost. On January 30, 1948, the Joint Committee reported to the Congress, in part, as follows:

> "The joint committee is a legislative committee which was created as a special servant of the Congress to follow this vast and complex /atomic/ program within the terms of the act....As a legislative committee, it does not feel that it should at this time draw any final conclusions respecting the operation of this program on the administrative policies in effect. Sufficient time has not elapsed to warrant conclusions of this kind."

On October 13, 1949, the Joint Committee reported to Congress, in part, as follows:

> "/A/t Hanford the Commission clearly purchases managerial talent, as well as know-how and the services of a technical and operating staff. Yet the Commission must keep watch upon activities, and for that purpose it has its own staff of 340 people located on the site. How avoid overlapping effort and duplicate personnel? How, on the one hand, may GE's managerial talent be put to full use with the Commission people sharing in every important decision; and how, on the other hand, may the Commission feel certain that the national defense and security are being properly promoted unless it insists upon consultation before its contractor acts? ... Only a lump sum, unit-price, or similar-type contract, offering maximum opportunities for profit, creates highest incentive to keep down costs. This system has been applied successfully in the case of certain feed material processes; but whether it might work in the operations at Oak Ridge, Hanford, and Los Alamos is a difficult question which the Commission must face at sometime in the future."

On October 19, 1951, the Joint Committee again reported to Congress, on this occasion, in part, as follows:

> "Still another problem at the forefront in Committee deliberations is that of AEC relations with contractors, especially two aspects: ... (2) the desirability of awarding as many contracts as feasible through competitive bidding and on a lump-sum or unit-price basis, rather than through negotiation and on the basis of cost-plus-fixed-fee....Greater effort is recommended toward extending the use of lump-sum or unit-price contracts."

At the end of 1952, the Commission will have been in charge of this nation's atomic enterprise for six full years. I feel that enough time has now elapsed and sufficient experience has now been gained to make possible a basic assessment of the central policy problems which are cited in the above-quoted excerpts and which have continually troubled the Joint Committee.

May I therefore request that you submit for the Committee's use a comprehensive report, by January, 1953, on the following four points:

(1) whether or not it is now advisable (if only on an experimental basis) to operate a major segment or segments of the program--such as the Oak Ridge gaseous diffusion complex, or the Hanford piles--through a lump sum or unit-price contract;

(2) whether or not it is desirable, as an experiment, to undertake direct government operation of a major segment or segments of the program;

(3) the extent to which the use of lump-sum contracts can now be increased in construction projects;

(4) whether or not the number of Commission employees in the field may now be reduced, thereby vesting greater responsibility in Commission contractors and making fuller use of the managerial skills purchased by contract; and

(5) the extent to which competition in all its forms--between contractor and contractor, government and contractor, small contractor and large contractor, laboratory and laboratory, and the like--can be enhanced both to strengthen the program and reduce costs.

I would appreciate it if your report could be submitted in a form such that the main line of reasoning and the main conclusions could be segregated and made public. Thank you very much indeed for this important assistance.

Sincerely yours,

/s/

Brien McMahon
Chairman

UNITED STATES
ATOMIC ENERGY COMMISSION

To: Principal Staff, Washington
Managers of Operations

September 18, 1952

From: M. W. Boyer, General Manager

Subject: A REVIEW OF BASIC CONTRACTOR-AEC RELATIONSHIPS

On April 2, 1952, a letter was received from the Chairman, Joint Committee on Atomic Energy, addressed to the Chairman, U. S. Atomic Energy Commission, which raised five comprehensive questions concerning contract policies, contractor relations, and their relationship to AEC construction and operations. This letter was simultaneously released to the press. The Chairman, JCAE, requested that answers to these questions be submitted in the form of a comprehensive report by January 1953 in such form that the main line of reasoning and the main conclusions could be segregated and made public.

A Tast Force has been established under the over-all supervision and direction of Commissioner Zuckert to provide the Commission's answer. The Task Force will include the following: Philip J. Farley (Executive Secretary), Thomas O. Jones, Newton I. Steers, Jr. and DuVal Stoaks. Directors of the Divisions of Production, Reactor Development, and Military Application will each designate an individual to be a member of the Task Force from one of their respective Operations Offices. Members will serve as individuals rather than as representatives of their respective offices. Mr. Kelehan of my Office will follow this work closely for me and keep me advised of its progress.

Commissioner Zuckert has been authorized to select appropriate outside consulting assistance. It is expected that this will include one over-all consultant of broad experience to work with the Task Force, a panel of experts in the construction field, and possibly industrial management consultants.

The Charter under which the Task Force will operate is attached.

Under the circumstances the Task Force will require extraordinary assistance and cooperation from many parts of the AEC organization.

All personnel in the field and in Washington are requested to facilitate attainment of these groups' objectives. This will include advice and consultation at all levels and of course complete access to all relevant materials. From time to time

these groups may ask that facts be gathered, figures be compiled, or reports be prepared. Every effort should be exerted to comply with all such requests. Since much of the study involves the relationship of AEC and its contractors, the help to be provided these groups applies to contractors as well as AEC offices.

It is recognized that operational time schedules will sometimes conflict with the inclination to provide the fullest assistance. These groups, however, are also working to a very tight time schedule. The Commission attributes the very highest importance to this work and your cooperation to the maximum is therefore desired.

/s/ M. W. Boyer
M. W. Boyer
General Manager

Attachment: Charter

Charter for Task Force for Study in Connection with JCAE Request of April 2, 1952

I. Purpose

The basic purpose of the study is to obtain as comprehensive and definite answers as possible to the five questions raised by the JCAE letter of April 2, 1952.

II. Scope

The report will center around the basic issues raised by the JCAE letter, that is,

a) contract policy with respect to use of cost type contracts,

b) delegation policy as regards more government operation or more nearly independent contractor operation,

c) policy with respect to obtaining the maximum benefits of competition in all its forms.

The basic issues raised with respect to contract and management policies of AEC may require examination of allied problems whose relevancy is not now apparent. These topics will be explored to the extent they bear on the primary problems and considering the time schedule herein established. Recommendations may be made for further study of related problems where it seems necessary or appropriate.

III. Report

The Task Force's report is expected to present an objective examination and evaluation of the policies and practices of AEC in these areas in the light of experience and of alternatives and possible improvements. The report of the Task Force should include

a) the policy recommendations it finds appropriate,

b) the conclusions upon which the recommendations are based, and

c) the factual data and analysis thereof which it assembles.

The organization of the report is the responsibility of the Task Force. A comprehensive and imaginative treatment is, in general, desired.

IV. Schedule

An interim report, including an outline of the methods to be used in making the study, should be submitted by October 1, 1952, to the General Manager for consideration and, if necessary, discussion with the Commission. The target date for the comprehensive report to be prepared by the Task Force and submitted to the General Manager is January 1, 1953. A summary report suitable for transmission to the Joint Committee is to be submitted to the General Manager on January 23, 1953, for consideration by the Commission. The Task Force should make every effort to adhere to these dates but as a primary concern it will have to satisfy itself that a thorough and adequate study has been given to the issues raised.