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**Report of the Manager
Santa Fe Operations**

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U. S. Atomic Energy Commission

July 1950 to January 1954

DELETED VERSION ONLY



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July 1950 - JAN. 1954



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UNITED STATES
ATOMIC ENERGY COMMISSION

SANTA FE OPERATIONS OFFICE
P. O. BOX 8400
ALBUQUERQUE, NEW MEXICO

January 1, 1954

Dear Sir:

I have the honor to transmit herewith a report of Santa Fe Operations, U. S. Atomic Energy Commission, summarizing mission accomplishments and management programs for the period from July 1950 through December 1953.

Respectfully,

C. L. Tyler
Carroll L. Tyler
Manager

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

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Foreword

The purpose of this report is to summarize in broad outline the mission accomplishments and the management programs of Santa Fe Operations during the period from July 1, 1950, through December 31, 1953. The report is not intended to record the full management achievement; it is intended to provide a summary which will serve as a background for understanding the complex weapons operation.

The body of the report covers three full fiscal years, to July 1, 1953. The first chapter summarizes the full report and additionally records the major actions of the next six months to January 1, 1954. To provide a better perspective, background of the 1947-1950 period is included where essential. It was considered preferable not to include a section on management projections beyond January 1, 1954, although such projections are indicated where they benefit understanding.

The previous report, covering SFO's first three years of stewardship, was devoted largely to the programmatic and community operations at Los Alamos. It reflected the proportion of weapons activity, and consequently of management activity, then centered in Los Alamos. It necessarily reflected the key importance during that period of the development of the Los Alamos community.

The present report records the major expansion of development, production and test facilities which occurred after July 1, 1950. It covers the full period of the Korean War and almost the full period of the thermonuclear development program. It covers the full period of continental tests. It records the considerable expansion of the contractor structure and the development of Santa Fe Operations Office as an operations-wide headquarters and field activity. In broad outline it covers the period of SFO building and expansion and terminates with a new period of consolidation and, in some respects, of contraction based on changed national requirements resulting to a considerable extent from SFO accomplishment.

Staff directors, field managers, and key contractors have contributed to the preparation of the report. In particular, Sandia Laboratory has assisted materially, the final organization, layout, and printing having been accomplished by its Document Department.

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CHAPTER I

Summary of SFO Progress, 1947 to 1954

Santa Fe Operations fulfilled its mission assignments for the period July 1947 to January 1954. Atomic weapons of required efficiency, variety and utility were developed, produced and placed in stockpile in conformance with constantly expanding military requirements and approved schedules. New weapons of greater destructive power, of greater efficiency, and of at least equal variety and utility were in development prior to production or were clearly foreseen as a result of research. A major store of other knowledge of great value to other national programs, such as military utilization and civil defense, was obtained through SFO or SFO-related activity.

Weapons-wise, the six and one-half year period encompassed the A-bomb or fission stage and concluded well beyond the threshold of the H-bomb or thermonuclear stage. History may refer to the period by its weapons, A-bomb and H-bomb. In the memory of SFO management it may well be characterized as the building period. It extended from the beginning to the essential completion of the job of building the organization, the physical plant, and the basic programs required for mission accomplishment.

Weapons-wise and otherwise the final six months, July 1 through December 31, 1953, were a period of transition. As of July 1, management was already shifting from the phase of major stress on organizing and building to one of major stress on consolidating and tidying-up administration and operations. Midway in the period the direction of the implosion weapon program was reversed from added expansion to major retrenchment when the Military slashed its requirements for training and for stockpile. As the period closed, plans for one new high explosives plant and projected increases in facilities at two others had been cancelled and studies were under way to determine the degree of need for the remaining high explosives production facilities. Accompanying the cutback on implosion weapons was a military determination for concentration on thermonuclear weapons. As the period closed, plans were under way for achieving the scheduled production, but largely through organizations and facilities already established during thermonuclear development. As in weapons, the final six months also brought major developments in other phases of Santa Fe Operations. Planning was well under way at the close of the period to adjust to the changes involved in bringing San Francisco Operations Office and the Livermore Laboratory into SFO, and to those involved in concentrating on development and production of thermonuclear weapons.

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Because of the tremendous gains made in the past six and one-half years, and the remarkable crystallization of a large development and production complex achieved since mid-1950, SFO had never before been so ready to meet expanded and urgent national requirements. Starting almost from scratch, without adequate tools to perform its mission, it had forged its tools and at the same time achieved its atomic weapons mission. Today its organizational structure and large plant complex is at once basically sound enough to stand the load of increased and new requirements, and flexible enough to adapt to changed circumstances.

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1. JULY 1947 TO JULY 1950

The newly-created Atomic Energy Commission took over responsibility for the atomic energy program on January 1, 1947. On July 2 the Office of Santa Fe Directed Operations (now Santa Fe Operations Office) was established to administer the atomic weapons field program. Two weeks later, the present Manager of SFOO arrived at Los Alamos to be the first civilian manager of the project.

In mid-1947, Los Alamos Scientific Laboratory, assisted by a small Sandia Branch, was carrying the major weight of weapons manufacture. There was some production of mechanical components at the Army's Rock Island (Ill.) Arsenal. The Salt Wells Pilot Plant of Naval Ordnance Test Station, Inyokern, California, was producing high explosives. There was little participation by private industry. Two weapons types were being produced in extremely limited quantity. Units going into stockpile were laboratory-fabricated. The limited production chain had only one source for each major component. Three major modifications of one Mark weapon were in early development.

The SFOO assignment at the beginning of its operations represented a tremendous undertaking. It was required to build the mandatory physical plant and organization, while at the same time assuring continuous production of weapons, and maintaining basic and applied research for development of more powerful, more varied, or more efficient weapons. The scope and priority of initial assignment were direct reflections of the situation:

To build and develop at Los Alamos, the heart of the program, a community that would be adequate to obtain and to retain the type of personnel required. This meant rebuilding and expanding the community.

To provide a climate in which LASL could proceed with its job of basic nuclear research and development, and to provide a Technical Area physical plant adequate for the job.

To organize and supervise an ordnance development, production, and testing complex, relieving LASL of these responsibilities.

To expand production and facilities at other sites, in order to achieve a continuous flow of component parts.

To evolve an organization competent to achieve basic management and program objectives.

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Approximately two and one-half peacetime years provided a relatively secure period unhampered by wartime expediencies, during which programs could be adequately planned and activated. The value of time for orderly development of a basic SFO structure was underwritten by national and international events near the end of the period. In the Autumn of 1949 Russia tested an atomic weapon, and SFO moved immediately out of its "peace-time" period into one of increased mission urgency and of "crash" programs. This was intensified in early 1950 with the decision to go all out on thermonuclear weapon development. It was further intensified three days before the end of the reporting period by the outbreak of the Korean War.

Progress During the 1947 to 1950 Period

SFOO planned and began building a vastly expanded plant and organizational structure large enough to enable Santa Fe Operations to meet its weapon stockpile requirements during the period, and flexible enough to provide for still further expansion in the future. Los Alamos was made an attractive place to live and a favorable climate was developed in which scientists could work resultfully. The geographic breadth of SFO was extended from New Mexico to the Atlantic Coast and westward to the Marshall Islands. The five-fold initial assignment was fulfilled.

Physical Plant

The physical plant was expanded materially, being costed on July 1, 1950, at \$174,000,000. The inherited development and production facilities at LASL, Sandia Laboratory, Salton Sea Test Base, and Inyokern were rejuvenated and extensive new construction added. A new plant was built at Burlington, Iowa; extensive new technical facilities added to a structure leased in Kansas City, Missouri; and facilities added to Picatinny Arsenal. Eniwetok Atoll was developed as a permanent overseas testing facility. Los Alamos community was expanded and modernized; community facilities were provided at Sandia Base; and housing was provided at Salton Sea, Inyokern, and Burlington. The large White Rock, New Mexico, construction camp was established. One storage site was improved and expanded, and two were added.

Organization

The SFO field organization was expanded equally. The number of key, operating contractors was doubled with addition of: Sandia Corporation, to operate Sandia Laboratory; Bendix Aviation, to operation Kansas City; Silas-Mason (through an Army Ordnance contract), to operate Burlington; Holmes and Narver, to build and maintain Eniwetok; and Edgerton, Germeshausen and Grier, to support tests. Under a new agreement Project Pepper was established at Army Ordnance's Picatinny Arsenal. SFOO Field Offices were established at Sandia, Kansas City, and Los Angeles, with offices at Burlington and Rock Island equivalent to field offices.

A headquarters staff was organized by 1948 and its general structure remained fairly constant.

Recruitment of personnel to staff the expanding organization was a feature of the period. SFOO-AEC employees increased from mid-1947's 380 to 1,368, of whom 1,115 were in Los Alamos, 41 at other places, and 212 in SFOO Field Offices. Contractor personnel (excluding military ordnance, construction and design) increased from 4,840 to 9,494.

Organizational Plan for Mission Operations

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In order for LASL to concentrate on explosive system research and development, the ordnance development and stockpile quality assurance responsibilities were transferred to Sandia Laboratory and other LASL responsibilities were transferred elsewhere. To provide duality of source and to lessen the production load on LASL, partial production of nuclear and high explosive components was arranged for in other AEC and military facilities. Fabrication of plutonium parts was undertaken by General Electric at Hanford, Washington; fabrication of enriched uranium parts by Carbide and Carbon, Oak Ridge, Tennessee; and fabrication of initiators by Monsanto, Dayton, Ohio. High

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explosives fabrication and assembly were performed at Inyokern and Burlington. Detonators were fabricated at Rock Island and at Picatinny Arsenal.

Mechanical components were fabricated at Kansas City. LASL performed research, development, production, and product acceptance of nuclear and high explosive components, and carried heavy test responsibilities. Sandia performed research, development, testing, production, and product acceptance of inert components, performed stockpile surveillance, and a heavy program of liaison and training work with the Military.

Staff Supervisory and Operating Programs

Reflecting the concentration of mission operations in Los Alamos and the key importance of stabilizing and building the Los Alamos activity, a major proportion of SFOO headquarters staff attention was devoted to Los Alamos throughout the period. Supervision and contract administration, outside of Los Alamos, was conducted almost exclusively by SFOO Field Offices. The Office of Production Coordination, organized in 1948, was the first staff supervisory program to be truly operations-wide. Two operating functions, operations-wide in nature, were also assigned to this office: Control of fissionable materials, and custody of stockpiled weapons. Near the end of the period, a reorganization was effected to provide more resources for operations-wide action while simultaneously establishing concentrated responsibility for Los Alamos community operations.

Status of Mission Achievement, July 1950

In many respects the period was one of building—programs, as well as supporting plant and organization—with the full capacity of the new resources to be felt most strongly in the subsequent three years. Nonetheless, the steadily-increasing national requirements for training and War Reserve weapons were met.

Of peculiar importance in supporting mission achievement was the building and development of Los Alamos community to a point where LASL could obtain and retain the personnel it required. Major progress was made toward giving Los Alamos residents self-government and helping them to achieve a considerable measure of self-support. The Government's 1949 contribution of \$4,403,000 to community operations was reduced to \$1,883,000 for 1950.

A feature of the period was the conduct, as a ship-based operation at Eniwetok Atoll, of the first full-scale nuclear field test series under the AEC. Theories proved in this series were being reflected in stockpile modifications by mid-1950 and were pointing the way to development of other more flexible weapons. The results of the comparatively small amount of knowledge obtained from this series were so immediate that LASL recommended constructing a permanent proving grounds at Eniwetok.

The general and extensive expansion of production—utilizing AEC, military, and private industrial facilities and resources—permitted a strategically important dispersal. It resulted in relieving LASL of some production so that it could concentrate on development. It resulted also in changing weapons production from a custom-built, laboratory operation to an industrial operation. Activation of Sandia Laboratory not only contributed considerably to 1947-1950 results but was a major factor in providing a broad and flexible basis for meeting the very heavy requirements of the next three years.

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Research was continuing on thermonuclear weapons and, in response to Presidential directive, LASL had activated a "crash" development program in March 1950. New types projected to meet military desires included a nuclear shell for an artillery rifle.

2. JULY 1950 TO JULY 1953

During the first three years a basic structure of mission and supporting programs and resources was built. This preparation paid off heavily during the second three years when factors such as the Korean War and Russia's first nuclear tests greatly stimulated national requirements for numbers and varieties of weapons, and when scientific and technical achievements in turn presented new possibilities and brought new requirements. The need for more capacity to meet approved production schedules and the need for reserve capacity if possible to meet any hot war buildup combined with other necessity—such as that for new resources to support the thermonuclear program—to require again tremendous expansion and internal development. SFO amply fulfilled its increased assignments in weapons manufacture, and simultaneously enlarged its development and production plant system; reorganized, relocated and expanded its management structure; and effected improvements in administrative procedures and operating techniques, and in costs of supporting and community programs.

Highlights of Progress During the 1950 to 1953 Period

In reviewing the progress made during the period, it will be helpful to bear in mind that the field operating structure, aside from that for weapons development, was built over the years to meet requirements of implosion weapons manufacture. Implosion manufacture was fully an AEC-SFO responsibility. The advent of gun-type and of missile warhead programs inserted new factors such as assignment of some development and of much component production responsibility to the Military and its direct contractors. Planners also had to anticipate the probability of success in thermonuclear development and to consider that manufacturing requirements would be added on top of requirements for other types and that there would be added variations in the extent of responsibility assigned to AEC or to the Military.

Physical Plant

Expansion of the physical plant by \$297,000,000 brought the completed investment as of July 1953 to \$471,000,000 with \$48,000,000 work in progress. Three new research and production plants were added: Pantex near Amarillo, Rocky Flats between Denver and Boulder, and a Cryogenics Engineering Laboratory at Boulder. Following an extended site survey, construction was ready to begin on a Spoon River plant near Macomb, Illinois. Consideration had been given to another plant for high explosives production to round out facilities needed, based on established military requirements. Six War Reserve storage sites were built and construction of two others was being planned. Following an extended site survey, the Nevada Proving Grounds was activated and minimum facilities built. The Pacific Proving Grounds' Eniwetok facilities were enlarged and

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Bikini Atoll was incorporated to provide more real estate. Earlier programs, as subsequently modified, for building technical and community facilities were completed or moved far toward completion at Los Alamos and Sandia. Additional facilities were built at Kansas City, Burlington, Salton Sea, Inyokern, and Picatinny Arsenal. The Simms Girl's School building and site in Albuquerque were taken over from Sandia Laboratory and slightly enlarged for the use of SFOO headquarters.

Organization

The SFOO field and contractor organizations grew extensively. The number of key, operating contractors approximately doubled with addition of: Procter & Gamble, under Army Ordnance contract, to operate Pantex; Dow Chemical Company, to operate Rocky Flats; Thompson Products Company, to operate Spoon River; Reynolds Electric & Engineering Company, to perform various support services at Nevada Proving Grounds; and the following as part of thermonuclear development: National Bureau of Standards, to operate a research and production facility at Cryogenics Engineering Laboratory; Cambridge Corporation, to develop, assemble and test dewar equipment; and American Car & Foundry, to do production engineering and production at new Albuquerque facilities. The Rock Island project was deactivated, cancelling this contract with Army Ordnance. SFOO Field Offices were established at Burlington (to replace a representative office), Los Alamos, Rocky Flats, Pantex, Eniwetok, Las Vegas, and Spoon River. The field office at Los Angeles was replaced by a Branch security office and the representative office at Rock Island was deactivated. Security representatives were stationed in New York City.

The headquarters of SFOO remained in Los Alamos until the Summer of 1951 and during the period was reorganized into an operations-wide staff with assignment of the Los Alamos responsibilities to a new field office. The headquarters was transferred to Albuquerque as of June 18, 1951, following survey of various cities located near the center of Santa Fe Operations, with transfer being completed by mid-autumn. The Office of Test Operations was established and a patent attorney added to the staff. The reorganization and physical separation of SFOO headquarters office from Los Alamos resulted in improved SFO-wide planning, greater coordination and integration, more concentrated responsibility for local Los Alamos problems, and more effective staff utilization.

SFOO-AEC employees increased from mid-1950's 1,368 to only 1,624, of whom 352 were in the Albuquerque headquarters office, 144 were assigned to "other places", and 1,128 were in field offices. Contract personnel (including operations, research and development, maintenance and service, Los Alamos Constructors, and Ordnance contract employees at Pantex and Burlington but excluding design and engineering) grew to 29,871.

Organizational Plan for Mission Operations

The 1947 objective of relieving LASL of all operations not directly associated with research, development and testing of the active weapons system was largely accomplished. LASL retained facilities which could be used for stockpile production of nuclear and high explosive components, but was using them only for developmental and prototype production. Detonators were still being shipped from Picatinny to LASL, but agreement had been reached for concluding this practice.

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By mid-1952, plans had been completed for a nuclear component organization with a sound division of responsibilities. These plans were being activated as the reporting period ended, timing being largely dependent on activation of operations at Rocky Flats. The organization centered in LASL as the developmental laboratory and in Rocky Flats as the production agency, with fabrication continuing at other AEC installations.

Efforts were made in mid-1952 to plan and to activate a system which would divest Sandia Laboratory of production functions and make it primarily an inert component development and design control center, and which would provide a sound centralized control and division of responsibilities for inert and high explosives production. A Production Agency was to be established with direct operating control over Kansas City, for inert components, and what became Spoon River, for high explosives. Inert and high explosives fabrication, procurement, and assembly were to be centered in the new Agency. The general plan was developed in separate studies by Sandia Corporation, Bendix, and by an Industry Advisory Panel of top-level industrialists. The divestment of certain functions from Sandia and centralizing inert component production in Kansas City were being activated in mid-1953. Simplification of the high explosives organization had not progressed. As it was being developed, Kansas City Plant was becoming the Production Agency for inert component procurement, fabrication, and assembly. The proposal for a centralized agency over both inert and HE production had been dropped. Inyokern remained to some extent the production engineering and prototype production center, although these functions were scheduled for eventual transfer to the new Spoon River plant. Inyokern, Burlington, and Pantex would continue to fabricate HE and have assembly responsibilities. Much of the relief of Sandia Laboratory was being obtained through the buildup of Kansas City. As the period closed, Sandia was primarily responsible for research, development, design control, and testing of inert components for which the AEC had responsibility.

The organization built for thermonuclear development was wholly within SFO. LASL held responsibility for the full explosive system and case. American Car & Foundry was added to assist LASL with engineering and to produce developmental cases at Albuquerque. Cambridge Corporation and National Bureau of Standards at Boulder were added to perform research, engineering, and production of specialized equipment and materials, while Herrick Johnston was added as a LASL sub-contractor to engineer, build and operate a liquefaction plant at Pacific Proving Grounds.

A different total organization was developed for gun-type manufacture. Development of a bomb type was centered in LASL and Sandia, with the Navy participating. Development of an atomic cannon nuclear shell was a joint LASL-Sandia activity, with Picatinny Arsenal participating. As of July 1, 1953, non-nuclear design and all non-nuclear production were to be transferred to the Armed Forces.

Another and different organizational arrangement was developed for missile warhead installations. The primary problem peculiar to SFOO was adaptation of existing nuclear weapons as warheads, and this was undertaken by Sandia. After the first four atomic warhead installations, responsibility for fuzing and arming was transferred to the Military. Development of the vehicles, or missiles, was, throughout, a responsibility of the Military and its contractors. SFO's nuclear, HE and inert component development and production system continued, of course, to manufacture the atomic warheads.

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The development of organizations for the conduct of full-scale nuclear field tests was largely perfected during the period. Following the pattern for 1948's Sandstone

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series, certain planning and preparation for overseas tests remained a responsibility of SFO, with control during the operational period passing to a military officer as executive agent for DOD and AEC. The task group charged with mission—or technical—phases of operations for both series was headed by the Director, Test Division, LASL, and was staffed by SFO laboratories and to some extent by other AEC headquarters and Operations Office personnel. Three other task groups represented the military components. A fifth is to be added for Operation Castle, providing organizationally for the support given by SFOO and contractor personnel. All continental tests have, on the other hand, been commanded by the Manager, SFOO, reflecting the very keen responsibility for safe as well as successful conduct from which the AEC could not be disassociated. The Manager in his capacity as Test Manager has been executive agent for the AEC, DOD, and other participating agencies. The Test Organization grew through several stages before it reached apparent maturity in the structure for the Spring 1953 series, many of the changes reflecting increasing military participation and support. As now organized, there are Deputy Managers for Scientific, Military, and Support Operations with clearly defined areas of responsibility.

Staff Supervisory and Operating Programs

As indicated previously, the major development was the physical removal of SFOO headquarters from direct handling of Los Alamos community and project support problems, with consequent development toward an operations-wide, more truly staff type of activity. The process of defining and of refining headquarters and field office programs continued during the period. There was constant effort to separate staff (both headquarters and field office) from "doing the job" by withdrawal from such activity or by clearly defining operating contractor responsibility. Direct operation by SFOO was dictated in certain instances by responsibility which might not be delegated, such as that for control and custody of fissionable materials; and in other instances by security or policy controls, such as for some phases of public information which did not incorporate provision for delegation below the Operations Office.

Information Control

Classification and declassification had progressed measurably by mid-1950 toward the dual objectives of Information Control, which are strict protection of classified information while simultaneously making nonclassified information publicly available. Security and Information lagged then with too much protection being given to nonclassified information (in the broad sense of all data). During the past three years, better understanding has been achieved of the four programs' duality of mission with better integration of attitude and effort. The result has been a sharper definition and a narrower total area requiring protection, permitting better protection; and the result has also been a much broader area of information not requiring the costs and effort of protection and which could be made publicly available.

Classification

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It was estimated that SFO originated each year 15,000,000 classified documents. More than 1,500 formal, written decisions were made by the SFO Classification Board during the three years. SFOO Classification staffed the overseas Joint Task Forces and the Nevada Test Organization; assisted in revision of AEC-DOD, general, and critical materials classification guides; prepared a series of guides for the weapons test organizations gaining Armed Forces and AEC approval; and prepared specific guides for contractors with peculiar problems. The Nuclear Weapons Classification

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Subcommittee, consisting largely of SFO contractor personnel, made two major recommendations in the interest of reduced security costs without weakening national security: (1) Recognition that no security is involved in approximate yield of nuclear detonations in Nevada; and, (2) application of the reactor field's "black box" idea to those items of nuclear weapons which are clearly of a military and not AEC nature. A field classification board was established at Sandia in addition to the one at LASL.

Declassification

Declassification is necessarily highly centralized and is performed for SFO by an Assistant Director, LASL, advised by Senior and Responsible Reviewers (the latter at LASL and Sandia) and by field classification boards. The normal tendency to over-classify has been materially reduced and a continuing program to review classified material for downgrading or declassification has been continued. Formal declassification was accomplished during the three years on 585 items from LASL and 16 from Sandia. Publication of "The Effects of Atomic Weapons" and release of information in the Rosenberg-Greenglass cases opened a fairly large field of information which could be considered for declassification.

Security

Considerable program stabilization was achieved while planning and activating "crash" basis expansion. To provide coordinated service over a wide geographic area, security offices were established in New York and in Los Angeles. As of July 1953, SFOO had security responsibility in 423 security facilities, 25 per cent of the entire AEC's facilities. A key achievement was segregation of staff and operating functions, with the Office of Security providing over-all direction and with SFOO Field Offices tending more toward local administration and less toward operations. For instance, installation guarding was being performed by contractor employees (or the Military) at all points except Los Alamos. Particular SFOO emphasis was placed on continuous review, evaluation, and coordination of security programs and measures throughout SFO. Careful analysis and action made possible a reduction of more than 50 per cent in ratio of guards to total Q-cleared work force at major SFO installations, the 1950 figure having been one to seven and the mid-1953 figure one to seventeen. Reductions in size of limited access areas and institution of various personnel security safeguards permitted a 3,750 reduction in number of Q-clearances processed in fiscal 1953 as compared with 1952. Two permanent panels of Personnel Security Board members were set up in 1950 to assist in administrative review of personnel clearance cases. Document control measures were intensified. Classified documents on hand June 30, 1953, totaled 53,000,000 with unaccounted-for documents totaling 840.

Information

There was a heavy, continuing output of classified reports, primarily by LASL and Sandia, with efforts being made to prepare them in a form not containing critical weapon data and so permitting wider classified distribution. LASL formed a Weapons Test Report section to replace special groups previously organized for each test series and to provide centralized and uniform handling, with 275 such reports issued prior to mid-1953. In addition to the requirement for technical reports, Sandia also had a heavy requirement for preparation of training manuals for the Military.

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LASL and Sandia issued 493 formal, nonclassified reports on scientific and technological subjects during the period. There was a continuing flow of unclassified research material, particularly from UCLA's medical school.

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The AEC Industrial Information sub-program activated in 1952 was only partially activated within SFO, although there was a continuing stream of information actually falling in this category, particularly from Sandia, LASL, and some from Holmes and Narver. This program is essentially a part of scientific and technical information, but stresses digging out and facilitating dissemination of data with possible interest to U. S. technology and to industrial management. One SFOO and two contractor representatives served on the AEC Industrial Information Committee.

Public information prior to mid-1950 was almost exclusively a Los Alamos project and a community relations activity. Local Los Alamos management decision during a reduction-in-force in mid-1952 cancelled all LAFO information positions, necessarily curtailing the previous effective and planned program to inform the community of management actions. A heavy planning and work load was assigned SFOO Information in late December 1950, with advent of continental tests and subsequent direction, staffing and operation of the multiple-agency Test Information Office. The period's assignments included planning and conducting the announcement of all new major installations and developing limited information activity for former installations which were publicly acknowledged as AEC facilities. Public information was characterized during the period by: (1) Very major expansion of activity without any addition to personnel; (2) full protection of classification while releasing a greatly-increased total of nonclassified information; and (3) developing the information function as an integral part of SFOO management.

Patents

A Patent Attorney was added to the SFOO headquarters staff in mid-1952 with full Operations Office responsibility except for Los Alamos Scientific Laboratory matters which are assigned to a Los Alamos Patent Group. A Sandia Patent Group was deactivated in mid-1952. During the period, SFOO opened 162 patent dockets on probable inventions and filed 49 patent applications.

Assistant General Counsel

A wide range of activity was conducted during the period reflecting the legal problems arising from SFO expansion of its physical plant and its contractor organization. A procedure was developed and authorization obtained for prompt investigation and payment of limited claims resulting from continental tests, and a statute drafted under which there would be unquestioned authority to pay such claims up to \$5,000. An act of the California Legislature was obtained returning to Sandia employees \$399,751.49 paid by the AEC through the University of California to the California State Employees Retirement System. Thirty lump-sum contractor appeals totaling more than \$500,000 were handled for SFOO, and 20 others totaling more than \$200,000 were pending. Major problems related to the failure of construction contractors were handled.

Test Operations

The expanded scope and increased pace of full-scale field testing put an extremely heavy burden on various headquarters offices and on J-Division of LASL during 1951. A staff office was activated early in 1952 to administer AEC-SFOO test responsibilities, including various contracts and inter-agency memoranda of agreement, and to coordinate participation by DOD and other agencies. Office personnel also participated actively in the management of two subsequent continental and one overseas series.

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Production Coordination

Responsibilities of the office embraced a wide range of staff programming and control functions and, in storage, an active field operation which required 119 of the office's 152 people. Its various activities included: coordination of weapons manufacture operations; participation in technical studies, procurement planning, and planning of objectives; development, coordination, and reporting of production schedules; compilation of weapons operations budgets; and control and supervision of accountability for stockpiled weapons components, source and fissionable materials. A Contracts Administration division was added in 1952 to plan and direct negotiation and to assist in administration of prime operating contracts.

Safety and Fire Protection

A Commission Advisory Board resurveyed SFO in mid-1952 and found a "tremendous improvement" in five years. Transfer of field operations to contractors was largely effected during the period, with parallel perfection of the staff program as one for planning, educating, inspecting, and reporting. Occupational injury and disease rates decreased by more than 54 per cent during the three-year reporting period. Facilities of SFO are now believed relatively immune to fire disaster. The industrial fire loss record experience for the last three years was \$0.0011 as compared with the national average of \$0.15 per \$100 evaluation.

Supply and Procurement

These two functions were consolidated under one staff division in mid-1951. Reorganization of the Contract Review Board with a fulltime executive secretary resulted in an effective alertness for adequate negotiations being instilled in all negotiators, definitely improved justification documentation of contract files, achieved uniformity in contract terminology and in basic provisions, and provided a point for discerning and accumulating contract problems for later crystallization in SFO contract policy. A Procurement Specialist, added in April 1952, performed inspection and examination of procurement operations of SFO cost-type contractors and of direct AEC operations. Emphasis in property management was placed on development of sound and comprehensive procedures and techniques to examine effectively the receipt, storage, issue, utilization, redistribution, and disposal operations of those responsible for the care and custody of government property. Results have included a considerable advance in control of materials, reduction of inventory investments, increased turnover ratio, more prompt determination and declaration of excess stocks available for redistribution or for surplus sale, and more efficient warehousing. During the Korean War a special group was formed to expedite scarce material procurement, and no essential mission activity in SFO was prevented because of inability to obtain required material, equipment, or supplies. The Records Management program was greatly accelerated with continuing stress on ample protection of AEC interests but with parallel stress on destruction of administrative records with no enduring value.

Construction

ALOO

This was a very major SFO program throughout the first six years as shown by the previous figures on physical plant buildup. With the peak of construction well past there was a decline in stress on engineering and construction, with an increase in stress for the headquarters and field offices on supervisory activities relating not only to construction but also to real estate, communications, community management and operations, and installation maintenance and improvement.

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Budget and Fiscal

Contractor budget staffs have been strengthened since 1950 and noticeable improvement in budget submissions has resulted. Major effort was devoted to budget methods and system development, with increased participation of responsible operating personnel in preparation and review. A major future requirement is to develop more meaningful standards and reports.

Accounting was expanded to include a production or unit cost system making it possible for the first time to determine cost of weapons and weapon components and to bill AFSWP with a reasonably accurate cost. It also provided a basis for comparing costs of contractors performing similar work and for supporting budget requests.

The audit procedure was greatly improved, with commercial audit practices being substituted for detail examinations. Better audits at reduced man-hour costs resulted.

Money allotments to SFO increased from the fiscal year 1948 low of \$117,000,000 to a fiscal 1952 peak of \$335,000,000. Total allotments through fiscal 1953 were \$1,402,629,986.

Utilization of Personnel

Programs for personnel, organization, and expense controls were activated with the objective of making operational economy the basic determinant in personnel and organization matters.

Principal emphasis in organization was put on definition of those supervisory functions required for AEC-SFOO management with parallel removal of the staff from field operations. Machine records procedures were introduced with significant economies. In-service placement was refined to assure employees of promotion opportunities. There was continued experimentation and study of the utility of objective testing devices. Emphasis was put on realistic hiring plans, correcting former tendencies to over-plan personnel requirements, and to be too optimistic on early hiring dates.

SFOO initiated the idea of a job evaluation system based on factor analysis and point rating, sponsored experimental activity to develop the present AEC system, and undertook the first trial application of the tentative system. Conversion to the new job evaluation system was accomplished by June 21, 1953, following evaluation of 1,539 positions of which 83 were revised upward in grade and 471 revised downward. A major problem during the period was to determine the grades of inspectors on the Los Alamos Protective Force and then to achieve a majority's acceptance, to help those who were not satisfied to find other jobs, and to act on a large number of individual appeals. A coterie of inspectors sought to halt the downgrading by appeals to national officials and to the public featuring charges that Los Alamos security was incompetent and ineffective. JCAE and AEC field investigations resulted. Two inspectors were discharged for insubordination. All questions raised by other inspectors were resolved under established administrative procedures.

ALOO

As the reporting period ended, studies or other actions were in progress to: (1) decentralize personnel responsibilities to field offices; (2) appraise and develop key personnel; and (3) develop a periodic management review approach to evaluation of contractor performance.

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Community Operations

Sandia community operation and maintenance was by Sandia Corporation throughout the period, responsibility having been transferred on June 30, 1950. Average rentals were to be increased 33.5 per cent August 1. There were an estimated 1,483 residents July 1, 1953. The federal contribution to community operation totaled \$4,880,000 in fiscal 1949. This was changed into an excess of income over cost the next year and for fiscal 1953 the community income was \$36,327.00 above costs.

Los Alamos community grew from 1947's 7,150 to 12,700, with some 13,000 projected as the eventual total figure. Community expansion and modernization begun in 1948 was completed except for replacement of substandard housing which was to begin in fiscal 1954. A major achievement was changing 1950's federal contribution to community operations of \$1,883,000 into a net return to the government of \$127,700 for 1953. This objective had been considered impossible of achievement as the three-year period began. Housing rental rates were adjusted, equalling an average 5 per cent increase, and utility rates were revised. The Scurry Panel reported that incorporation and home ownership would not be possible in the foreseeable future at Los Alamos, but should be considered as ultimate goals.

Status of Mission Achievement, July 1953

The period was one of very major mission achievement. A primary objective of weapons development had always been wide ranges in yield and in size-and-weight in order to permit the Military to select bombs appropriate to the target and to the available vehicle, with reduction in size-and-weight additionally offering the advantage to the Military of using a wide variety of vehicles to carry bombs and of gaining greater range of action through load reduction. This objective was achieved prior to mid-1953. Weapons then available provided greatly increased efficiency in use of fissionable materials and at the same time provided a very great flexibility.

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Product specifications, acceptance procedures, and methods for identifying and correcting deficiencies were strengthened, with product acceptance being performed by direct AEC employees at all SFO final assembly installations other than Rocky Flats.

Considerable developmental progress had been made on atomic missiles by an AEC-military team, with three atomic warhead installations nearing the stage of production and stockpiling.

As of July 1, 1953, 41 new weapons programs were in progress and 6 major weapons modifications were under way.

ALOO

A feature of the full period was, of course, the development of thermonuclear weapons. The accelerated LASL program began in March 1950. A Greenhouse test in the Spring of 1951 determined that a fission weapon would produce enough heat to initiate a thermonuclear reaction in liquefied materials. At an Ivy test in the Autumn of 1952 a large-scale thermonuclear detonation was obtained. Shortly after Ivy a comprehensive program was initiated for development of 

 LASL was also developing other experimental devices in order to prove new concepts of design. (While

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not a part of SFO but working closely with the organization, UCRL-Livermore began in June 1952, to conduct parallel development of thermonuclear weapons. [REDACTED]

The progress made in development and in stockpiled weapons during the period would have been impossible without the rate of full-scale nuclear testing maintained from 1951 through the Spring of 1953. Four series, totaling 31 detonations, were held in Nevada. Two series, totaling 6 shots, were held in the Pacific.

3. JULY 1953 TO JANUARY 1954

This was a period of accelerated transition from the six-year organizing and building phase toward a tidied-up, controlled manufacturing operation. It proved also to be a period of major transition in weapons requirements from implosion to thermonuclear with resulting impact on Santa Fe Operations. Decisions were reached or actions were taken which materially affected various phases of the operation. The major developments of the period are summarized here.

Future Weapons Production Requirements

Operation of five high explosives production facilities at three locations had been planned to meet implosion weapon requirements. By July 1, 1953, this had been "firmed up", and it was planned to complete Spoon River and to expand Pantex and Burlington. The August future production directive made it fairly clear that it would be necessary to complete Spoon River or expand Burlington and Pantex materially. SFOO defended completion of Spoon River both for strategic dispersion and for providing desirable excess capacity for wartime production. In early November the Commission cancelled Spoon River, and it was explained that expenditure of \$6,000,000 for expansion at Burlington and Pantex would provide sufficient capacity and save perhaps \$32,000,000 at Spoon River. In December it was made known that military requirements for implosion weapon production had been cut drastically in anticipation of thermonuclear weapon production. These decisions reversed the constant expansion since 1947 of the implosion production system and major readjustments became essential.

Subsequent redefinition and analysis of military requirements reduced still further the figures for high explosives production. As a result a study was in progress at year end to determine the need for Inyokern, Burlington, and Pantex with a very real possibility that only one plant (or low production at two plants) would be needed.

There was no change in the established requirement for thermonuclear stockpile production. The schedule had provided, however, for meeting only approximately one-third of the 100 per cent figure. This was subsequently increased to two-thirds, and, paralleling the high explosives decisions, was placed at 100 per cent. Expedited action in the thermonuclear field was, of course, requisite.

Spoon River Plant

ALOO

The former site of Camp Ellis had been selected. Recalling the impact on their communities of the quick buildup and quick deactivation of Ellis, the Illinois region was lukewarm or cold to the AEC project. Assured that the plant would bring the same advantages

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as a major industrial plant and that as far as could be foreseen it would be fairly permanent, the nearby communities swung around to full support. The decision to cancel was fortunately taken before there had been major community investments, but it was nonetheless a serious blow to a depressed region. Residents and their leaders accepted the AEC explanation that cancellation was dictated by technical developments making it possible to avoid a multimillion-dollar outlay of Federal funds, and there was only minor continuing criticism. After the most extensive selection procedure in SFOO history, Thompson Products Company of Cleveland had been selected as the operator. Cancellation was a serious disappointment to Thompson management and to the personnel selected or in process of being selected for assignment to Illinois.

Ordnance High Explosive Plant Contracts

The Management Plan proposal of mid-1952 had drawn attention to the position of Army Ordnance as a management middleman in the Burlington and Pantex pictures, as distinguished from Ordnance's position as a producer at Picatinny (Army) and Inyokern (Navy). During the planning stages of Spoon River, this question of AEC, of AEC-through-Ordnance, or of Ordnance contract management was discussed on numerous occasions. The AEC decision was that Spoon River would be a direct AEC operation, but no final decision as to Burlington and Pantex was made known. Partially as a result of the changes in weapons requirements late in the year, it was determined that a new agreement would be negotiated with Army Ordnance providing for a reduction in on-the-site, SFOO-AEC management and contract administration and an increase in Ordnance responsibilities. As this agreement was shaping up, it would provide that AEC would retain responsibility for funding, scheduling, and product inspection, with Ordnance conforming otherwise to AEC policies and procedures such as those on security and on information.

The Possible Thermonuclear Organization

Planning went forward for the transition from thermonuclear development to development-and-production. The organization plan developed during the 1950-1953 period to support LASL development provided the essentials for the future. As the year ended, planning foresaw the outlines of the organization as being: LASL and Livermore, development of the full explosive system; Sandia, development of case and fuzing, with related operations; American Car & Foundry, somewhat as a Production Agency for heavy case components and supported by various sub-contractors; NBS Cryogenics Laboratory, research and production of materials; and Cambridge Corporation, engineering and production in the dewar field.

Divestment of Los Alamos Scientific Laboratory Production Functions

Initiated as a program even prior to 1947, this objective was almost entirely attained during the six months with the full activation of Rocky Flats. The only function in this category still being performed at LASL as the year ended was on-site receipt and inspection of Picatinny detonators.

Rocky Flats Plant

ALOO

Construction was started July 28, 1951, and completed September 25, 1953, final estimated completion cost being \$43,419,000 as compared with the original cost estimate of \$45,000,000. The plant went into operation as various facilities were completed but is considered to have gone into full operation in the Autumn of 1953. Dow Chemical Company is the operator. Field office personnel totaled 22 December 31, and Dow employees totaled 1,063.

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Transfer of San Francisco to SFO

The AEC established in June 1952, a weapons laboratory on the site of a former Navy facility at Livermore, California, contracting with University of California for its operation. The site was also utilized for non-weapons developmental work under contract with the California Research and Development Company, a subsidiary of Standard Oil Company of California. Livermore employment approximated 1,500 at year end. On September 15, 1952, the AEC activated an Operations Office in San Francisco (replacing an Area Office) to administer weapons, biology and medicine, reactor development, and physical science contracts with the University of California and its Radiation Laboratory, with California Research and Development, and with others. Late in December it was determined that, effective January 1, 1954, San Francisco Operations Office would be transferred to SFO, becoming a field office to administer weapons contracts for SFOO and other contracts. As of December 31, 1953, San Francisco Operations Office had a total of 123 personnel.

Nevada Proving Grounds

The Spring 1953 test series was accompanied by new levels of radioactive fallout on nearby communities and by considerable public outcry resulting primarily from fear of fallout rather than fact and from a mistaken belief that Nevada tests caused bad weather. Inclusion of the eleventh shot in the series also made it possible to postpone a series scheduled for the Fall of 1953.

As a result, it was determined that the AEC would not proceed with construction or other improvements at NPG or with planning for further NPG utilization until the Commission had re-examined the question of public hazard and determined whether continental tests would be continued.

A Committee, representing in its members and advisors the various agencies which participate and the more critical fields such as radiation and weather, was activated in July. It determined that its assignment was to review the full experience of four series; to re-evaluate the values and economies of continental testing; to establish future requirements if weapons progress were to continue; and to arrive, in short, at whether tests of value to the national weapons-related programs could be conducted while assuring an adequate level of public safety.

The Committee was able by October to file an interim report recommending that the continental site be continued in use. Its studies continued throughout the Autumn with further exploration of improvements believed possible in obtaining pre-shot knowledge of post-shot weather.

By January 1, the final report was being coordinated prior to being forwarded to the Commission. In its final form the report recommended the standards and actions required to support and to permit continental operation of major value to weapons programs while assuring what it believed to be an adequate level of safety.

During this period, NPG was almost fully inactive for the first time since its activation in 1951.

ALOO

Near the close of the Spring 1953 series it was reported that horses, a considerable number of cattle, and large numbers of sheep has been damaged or killed by radiation exposure. Extended field and laboratory investigations were conducted. It was soon determined that horses grazing very close to NPG had suffered beta burns and settlement for

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owners' losses was reached. It was also determined that cattle had perhaps suffered from drouth but had received only minor radiation exposure if any. Late in the year the investigation had reached a point where it was concluded that radiation exposure had not contributed to the deaths of sheep.

Of considerable interest for future test operations was the negotiation of an agreement under which the United States Public Health Service would participate heavily in off-site monitoring up to some 300 miles from NPG.

During the Committee's discussions it was brought out that permitting NPG region public groups to visit the site during non-operating periods would advance public relations objectives. Subsequently SFOO was advised that public individuals could be shown the site and this authorization was extended by SFOO to include small groups whose visit would be of direct value. As a result of these developments, SFOO later reported that it was feasible to permit one-day-a-week controlled public tours at very small cost in money or effort, and recommended such action.

SFOO to be Released from Further Trinity Site Responsibility

Modification of a previous memorandum of understanding with the Military was being negotiated with the intent of early relief of SFOO-AEC from its assigned responsibility for safety and security of the Trinity site used in 1945.

Plant and Equipment

Completed plant, including equipment, increased from \$471,415,000 on July 1 to \$490,902,000 on December 31. Construction work in progress as the year ended totaled \$39,320,000.

Personnel

SFOO-AEC direct employees totaled 1,572 December 31, 1953, divided 336 in headquarters, 179 in other places, and 1,057 in field offices. Operating contractor employees totaled 20,406.

Recommendation that Los Alamos Community be Opened

A section of Chapter V reports the activation by the Los Alamos Field Manager in June of an employer committee to reach conclusions on the necessity for continued access controls on the Los Alamos community, and on permitting private property ownership.

The Committee included: Dr. Ralph Carlisle Smith, LASL, Chairman; Paul A. Wilson, Chief, AEC Community Management Branch; Chalmers C. King, LAFO counsel; and H. Frank Brown, vice president of the Zia Company. The Committee invited public discussion. In its report to the Field Manager, it included the following: **ALOO**

- a. The security basis for closing the community has changed radically and is disappearing. Security of classified information and of the Technical Area is being maintained despite the adjacent location of 13,000 community residents and approximately 100,000 business and social visitors each year.

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b. Maintenance of access controls is expensive, a nuisance to the private lives of residents and the business operations of concessionaires, and a major obstacle to a "normal" community.

c. Although some residents may enjoy the privacy accompanying restriction of access, this does not justify continuance of such controls.

d. Control over access should be removed as soon as possible, recognizing the need for time to plan and introduce changes in community policing, traffic routing and regulations, and other operations which will be affected by the absence of controls.

On December 2, 1953, SFOO forwarded the full report to AEC and recommended decision to remove access controls some time within fiscal year 1955 but no later than June 30, 1955. The action would remove restrictions on movement into and out of the community, such as requirements for resident and visitor passes and the system of security checks on all highways and at the airport. There would be no relaxation of controls over access to, or of other procedures guarding, the Los Alamos Scientific Laboratory. No decision was reached on provision of a portion of land for sale to or longterm lease to residents or to business concessionaires for private construction. Study of the desirability of such action was to continue.

Withdrawal of Field Authority for Public Information Action

The withdrawal from the field of authority for taking information action to support field mission operations, which had been progressive since 1950, was accelerated during the six months by two limiting directives and a series of AEC staff supplements and interpretations. The impact on SFO contractor-field office-operations office management was far-reaching, entirely reversing the one-time philosophy of fullest possible delegation of operating authority.

Of key importance was the determination that declassification or nonclassification does not permit public release, and that action on nonclassified information generally must be reviewed at the Washington level for sensitivity and policy before it may be used publicly.

Major Contract Negotiations

In addition to the negotiation of an operating contract with Thompson Products Company, which was well under way when the Spoon River plant was cancelled, SFOO conducted or participated in other major contract negotiations during the six months. A fee formula was negotiated with Dow Chemical Company for Rocky Flats operation. Negotiation of a three-year extension to the Bendix contract for operation of the Kansas City plant was well under way by January 1.

ALSO

The Sandia Corporation contract for operation of Sandia Laboratory was to expire December 31, but was extended four months to permit further negotiation. Initial discussion was by Sandia Corporation and SFOO with further negotiation conducted between Western Electric and AEC-Washington officials. Initial negotiation was conducted on a two-year operating contract with American Car & Foundry covering work at the Albuquerque plant.

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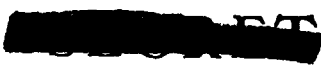
Effect of Presidential Directive on Classification

It had been estimated previously that SFO originated each year 15,000,000 classified documents and that the total number existing as of mid-1953 approximated 50,000,000. The Presidential directive of December 15, 1953, eliminating the lowest classification category of restricted had a major effect in reducing these totals. It was estimated late in 1953 that the total of classified documents in SFO approximated 18,000,000 and that approximately 4,000,000 were being produced annually.

Status of Mission Achievement, December 31, 1953

By the year's end only implosion weapons were being produced for stockpile, in numbers conforming with national directives. Production of gun-type weapons had fulfilled scheduled stockpile requirements prior to December 31. There were no programs under way for major modifications to stockpile weapons. Forty-two formal weapons programs were under way.

ALOO



CHAPTER II

The Weapons Manufacturing Organization

In accomplishing its primary missions of adding to the store of knowledge on the use of atomic energy for weapons and of delivering finished atomic weapons to stockpile, SFO operates in five broad areas: Government administration, research and development, testing, production, and storage. Two broad categories of components make up the final products: The explosive system (fissile and conventional) and the inert system (fuzing and case). Prior to July 1953, two general types of weapons were manufactured for stockpile: Implosion and gun, with the thermonuclear type still in the pre-stockpile-production stage. The technical and operating functions are performed almost wholly by contractors. The extensive organization of key, operating contractors is in turn supported by thousands of contracts with governmental, not-for-profit, and private enterprise agencies which furnish scientific, technical, production, and supply services. Government support and supervision are provided by a direct AEC organization in headquarters and field offices.

The initial three years of AEC stewardship were described as a period of building a staff, organization, and physical structure to match the developing programs. In July 1947, Los Alamos was the weapons organization. During the next three years the structure at Los Alamos was revised and strengthened, while simultaneously specialized capabilities were established elsewhere. In July 1950, it was projected that the basic structure was essentially complete, that only minor future expansion would be required. Reflecting new scientific discoveries and the changes in program requirements which developed after that date, the three years from 1950 to 1953 were in fact marked by major changes and expansions in the Santa Fe Operations organization—headquarters, field, and contractor—and in the physical plant.

This section presents an oversimplified picture of the development of philosophy, total organization, and plan of operations during six years from mid-1947 to mid-1953. It presents the key details of office and contractor location, physical plant, missions, and personnel. In order to show the full scope, a summary of the related Armed Forces organization is also presented.

4. FACTORS ENTERING INTO FIELD MANAGEMENT AND ORGANIZATION

ALOO

The mission assignment of SFO has remained unchanged, including research, development, testing, production, and custody of nuclear weapons. The scope has been materially expanded, for instance requiring organizational variations to cover implosion-type, gun-type, and thermonuclear weapons. A development in June 1952, was activation of Livermore Branch, University of California Radiation Laboratory, as a weapons development installation reporting to a new Operations Office at San Francisco. The new laboratory uses SFO facilities, particularly those at LASL, Sandia, Inyokern, and the two proving grounds, and

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requires detailed coordination with Los Alamos and with Santa Fe Operations Office, but it reports to AEC staff divisions in Washington.

Full field responsibility for performance of mission assignments continues to rest with the Manager, SFO. The parallel full field authority delegated in 1947, in keeping with the original philosophy of full decentralization, has been progressively limited, in keeping with an apparent swing toward a philosophy of centralization which seemingly accelerated after late 1950. These limitations have not been expressed in a redefinition of Operations Office authority, but in a series of actions each of which removed the control of some aspect of day-to-day performance and placed it with a Washington headquarters staff office.

There have been two major changes since 1947 affecting the line of command through which the Commission directs the field program. In 1947, the Manager, SFO, reported to the General Manager, the chief executive officer, with the Division of Military Application in the position of a staff division; in September, 1948, the General Manager delegated direct supervision of SFO to the Director, DMA. Paralleling the swing to centralization which became apparent in 1950 there has been an intensification of direct control exercised by specialized Washington staff offices over counterpart phases of field operation, expressed not through the command channel but directly through functional channels.

The expressed philosophy of AEC operation has remained constant, being that the maximum degree of operations and supply will be performed through contract with private enterprise. The application of the philosophy in SFO has been reviewed on several occasions, specifically with regard to the Zia and the University of California contracts at Los Alamos and on occasion with regard to operation of production facilities by the Military. In keeping with this philosophy, SFOO's plan of management has been to retain final field responsibility and control, providing policy and regulatory framework, and requiring performance. Manufacturing responsibilities are assigned by SFOO to its contractors in order to utilize to the fullest extent possible the management know-how, operating skills, and efficiency of private enterprise. To the fullest extent possible, authority is also delegated by SFOO to its field offices and to its contractors. Staff functions are retained by the Operations Office headquarters and field office organization. Technical and manufacturing functions are delegated.

5. SANTA FE OPERATIONS OFFICE

Prior to 1947, the Manhattan Engineer District managed and operated the nuclear weapons field organization which was largely centered in Los Alamos. From January 1, 1947, when the newly-created Atomic Energy Commission took over responsibility for the atomic energy program, until July 1947 the Military continued to provide supervision at Los Alamos. On July 2, the AEC established the Office of Santa Fe Directed Operations (now known as Santa Fe Operations Office) to conduct the weapons program. Two weeks later Carroll L. Tyler arrived at Los Alamos, becoming the first direct AEC Manager.

One of his immediate jobs was to organize a staff. There have been numerous reorganizations since, but the general outline of the staff formed by late 1948 has remained constant, changes largely reflecting new areas of key interest. Near the end of the first three years, the Santa Fe Operations Office headquarters and field staff was revised as a start toward providing, on the one hand, an operations-wide administration and, on the other, a more clearly-defined administration of the Los Alamos community.

SFOO Transfer to Albuquerque

At the start of the present reporting period, July 1950, SFO headquarters was still at Los Alamos. It was then decided that reorganization and physical separation of SFO headquarters office from Los Alamos to another geographic location was desirable for several reasons: (a) Shortage of housing at Los Alamos; (b) rapid and widespread addition of SFO facilities outside of Los Alamos; (c) increased demand on the SFOO staff for supervision and coordination of programs extending beyond the Los Alamos area; and, (d) expansion in the testing, production, and stockpiling programs.

After considerable study Albuquerque was chosen as the location, and the former Simms Girl's School (then occupied by Sandia Laboratory personnel) was selected as the site. Albuquerque was selected after a survey of several cities because residential facilities were obtainable, major AEC and military installations were located there and contact with Los Alamos would not be difficult, and there was fair transportation to other SFO geographic areas.

SFOO was formally established at the Albuquerque location on June 18, 1951, and movement of approximately 300 employees was effected between August and October. Eleven staff offices and divisions at Los Alamos were transferred to Albuquerque. Also on June 18, 1951, the Los Alamos Field Office was created to take care of AEC interests at Los Alamos, and to it was transferred the Office of Community Management. LAFO became administrator for all phases, except program assumptions or changes thereto, of the Los Alamos Scientific Laboratory contract.

The reorganization and physical separation of SFO headquarters office from Los Alamos has resulted in improved SFO-wide planning, greater coordination and integration, more concentrated attention on local Los Alamos problems, and more effective staff utilization.

Development of Staff

The development of the present SFOO headquarters and field staff is indicated in the accompanying "Comparative SFOO Organization Chart 1950-1953." It is not fully descriptive. As of July 1953, SFOO had personnel assigned to numerous stockpile locations; had branch security offices in New York and in Los Angeles; had representatives stationed at Inyokern, Salton Sea, and Picatinny Arsenal; and had resident auditors stationed in Kansas City, Los Alamos, Los Angeles, and Rocky Flats.

The staff Office of Test Operations was established on December 26, 1951, reflecting the need which had developed during 1951 and which would continue. The Office of Patent Attorney was established on June 15, 1952, with transfer of the SFO-wide responsibility from the LASL Patent Attorney. Not shown on the accompanying chart are several technical staff functions, which have from the start been accomplished by technical contractor personnel as direct staff assistants to the Operations Manager. The Director, LASL, is in effect technical staff officer and additionally head of the SFO programs of classification and of declassification, functions which he delegates to his Assistant Director for Classification and Security.

ALOO

There have been continuing changes throughout the past three years in key staff personnel. In anticipation of the move to Albuquerque, George P. Kraker, then Sandia Field Manager, was transferred to a new position as Deputy Operations Manager. Present personnel are noted in accompanying illustrations.

COMPARATIVE SFOO ORGANIZATION CHART

JUNE 30, 1950 — JUNE 30, 1953

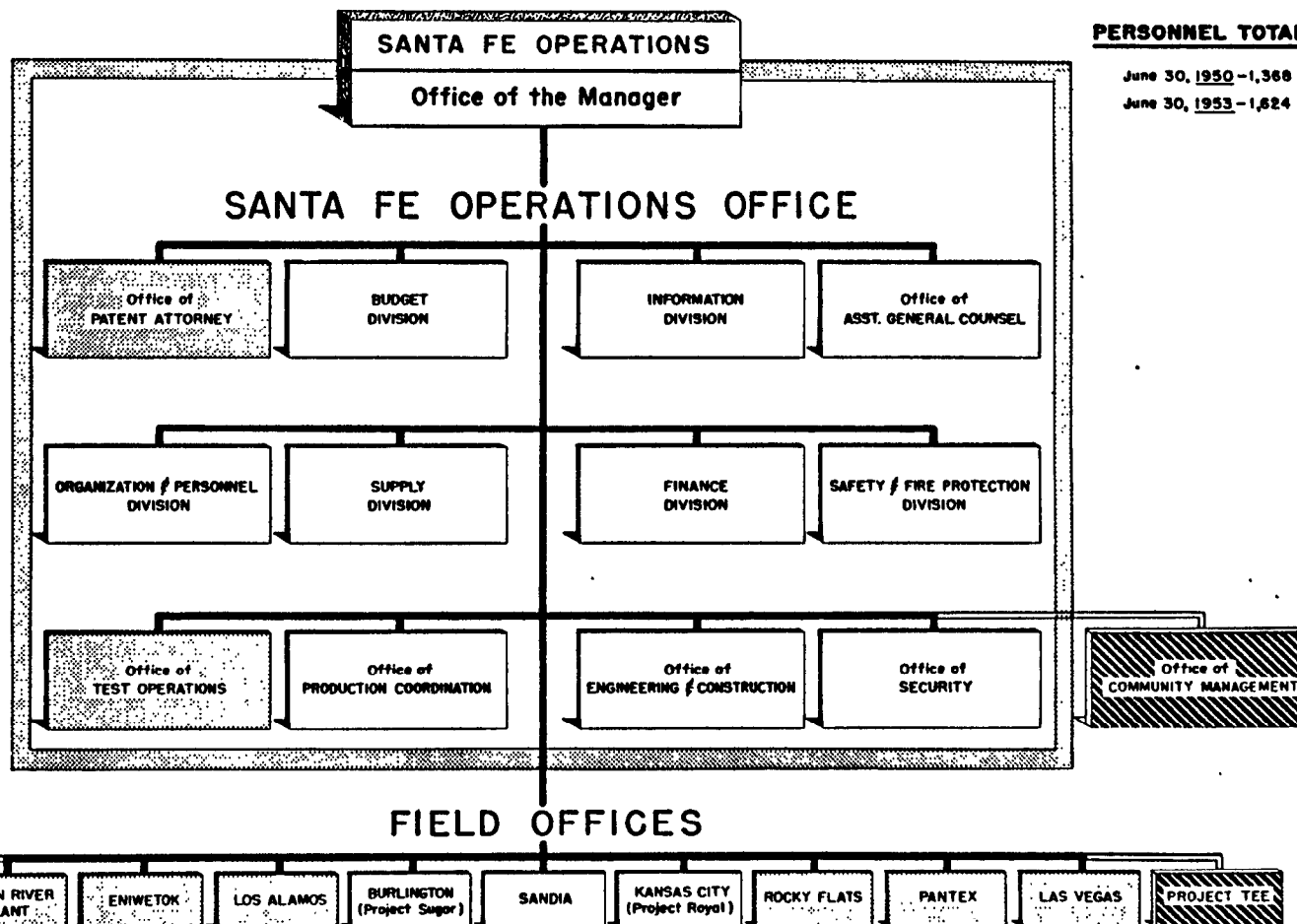
United States Atomic Energy Commission

LEGEND

- OFFICE ESTABLISHED Since June 30, 1950
- OFFICE ABOLISHED Since June 30, 1950

PERSONNEL TOTALS

June 30, 1950 — 1,368
June 30, 1953 — 1,624



SECURITY functions to
Los Angeles Security Branch,
SFOO Office of Security
PROCUREMENT functions to
Sandia Corporation

ST 00, 9-16-53

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SANTA FE OPERATIONS OFFICE



Carroll L. Tyler
Manager
Santa Fe Operations



George P. Kraker
Deputy Manager
Santa Fe Operations



Chester G. Brinck
Assistant General Counsel



Laddie W. Otoski
Director
Budget Division



Reuben E. Cole
Director
Office of Engineering & Construction



Frank D. Peel
Director
Finance Division



Richard G. Elliott
Director
Information Division



Judson Ford
Director
Organization & Personnel Division

ALOO

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~~CONFIDENTIAL~~

HEADQUARTERS EXECUTIVE STAFF



Dudley W. King
Patent Attorney



Paul W. Ager
Director
Office of Production Coordination



Given H. Dugger
Director
Safety & Fire Protection Division



James L. McCraw
Director
Office of Security



George Udell
Director
Supply Division



James E. Reeves
Director
Office of Test Operations



Norris L. Bradbury
Director
Los Alamos Scientific Laboratory

ALCOO



Ralph C. Smith
Los Alamos Scientific Laboratory
Assistant Director of Classification

~~CONFIDENTIAL~~

SFO FIELD OFFICE MANAGERS



E. W. Giles

Burlington Field Office



Paul W. Spain

Eniwetok Field Office



James C. Stowers

Kansas City Field Office



Seth R. Woodruff, Jr.

Las Vegas Field Office



Frank C. DiLuzio

Los Alamos Field Office



Walter W. Staggs

Pantex Field Office



Gilbert C. Hoover

Rocky Flats Field Office



Daniel F. Worth, Jr.

Sandia Field Office



William A. Curtis

Spoon River Field Office

Proposed SFOO Organization

Following a detailed review of the SFOO management operation, assisted by a committee of industrial experts, a plan for the manufacture of implosion-type weapons was proposed by SFO in September 1952. This is discussed in a following section. Accompanying it was a proposal that reorganization of the SFOO headquarters staff be undertaken to reflect more adequately the scope of 1952 operations and to anticipate requirements for providing staff services to match the projected program expansions. It was projected that the reorganization would begin with assignment of three Assistant Managers, one each for operations, for weapons development and production, and for administration. Various modifications of the the proposal have since been considered. Most recently the addition of an Assistant Manager for storage operations has been proposed. Various staff and field offices would report to each Assistant Manager. It was planned that Information, Security, and the Assistant General Counsel would report directly to the Manager. The scope of the Santa Fe Operations activity today will probably require activation of some form of the proposed plan.

Contracts Administered by Headquarters

A few contracts and several inter-agency agreements are administered directly by SFOO. Two contracts are assigned to SFOO by Division of Biology and Medicine solely for contract administration, one being with the Lovelace Foundation for Medical Research and Education, Albuquerque, and the other being with University of California in Los Angeles. Office of Test Operations administers a contract with Edgerton, Germeshausen and Grier for test-supporting technical services, and with Vitro Corporation of America for test related (DBM) instrumentation. The test office and the Office of Production Coordination administer various inter-agency agreements. The Carco contract for aircraft service is handled through Supply Division. For all other operating contracts, field office managers are contract representatives.

6. EXPANSION OF THE TOTAL SFO ORGANIZATION AND PHYSICAL PLANT

The following comparisons indicate the development of the field SFOO and contractor organization and of the physical plant. Date columns are approximately July 1 for the year indicated.

Field Offices			
<u>1947</u>	<u>1950</u>	<u>1953</u>	<u>Projected</u>
None	Sandia Kansas City Burlington Rock Island Los Angeles	Sandia Kansas City Burlington ----- ----- Los Alamos Rocky Flats Pantex Eniwetok Las Vegas Spoon River	ALCO Project Plum-B

[REDACTED]

Operating Contractors *

<u>1947</u>	<u>1950</u>	<u>1953</u>
Univ. of California	Univ. of California	Univ. of California
The Zia Company	The Zia Company	The Zia Company
Navy (Inyokern)	Navy (Inyokern)	Navy (Inyokern)
Army (Rock Island)	Army (Rock Island)	-----
	Sandia Corporation	Sandia Corporation
	Bendix Aviation Corp.	Bendix Aviation Corp.
	Army (Burlington)	Army (Burlington)
	Silas-Mason Co.	Silas-Mason Co.
	Army (Picatinny)	Army (Picatinny)
	Holmes & Narver	Holmes & Narver
	Edgerton, Germeshausen, and Grier	Edgerton, Germeshausen, and Grier
		Dow Chemical Co.
		Thompson Products Co.
		Cambridge Corporation
		American Car & Foundry Co.
		N.B.S. Cryogenics
		Reynolds Electrical Engineering Co. Inc.

* Not including architect, engineering, construction, supply, Los Alamos community, nor Nevada service contracts.

SFOO Personnel and Location

	<u>1947</u>	<u>1950</u>	<u>1953</u>
Headquarters	304	1115 [†]	352
Field Offices	---	212	1138
Other Places	<u>76</u>	<u>41</u>	<u>134</u>
Total	380	1368	1624

[†]454 Los Alamos Protective Force

Operating Contractor Personnel[†]

ALOO

<u>1947</u>	<u>1950</u>	<u>1953</u>
4518	12,589	21,074

[†]Includes: Operations, research and development; design and engineering; and maintenance and service.

REDEPLOYMENT OF SFO-AEC EMPLOYEE STRENGTH, BY ORGANIZATION, 1950-1953

SFO Organizations	Stationed -- June 30, 1950				Stationed -- October 31, 1951				Stationed -- June 30, 1953			
	Los Alamos (LAFO)	SFOO Albuquerque	Other Places	SFO Totals	Los Alamos (LAFO)	SFOO Albuquerque	Other Places	SFO Totals	Los Alamos (LAFO)	SFOO Albuquerque	Other Places	SFO Totals
Office of the Manager	3	-	-	3	3	3	-	6	3	3	-	6
Budget	5	-	-	5	2	5	-	7	5	7	-	12
Information	4	-	-	4	1	3	-	4	-	5	-	5
Asst. General Counsel	11	-	-	11	3	7	-	10	6	11	-	17
Engineering & Constr.	64	-	-	64	40	16	11 ^b	67	20	21	-	41
Organization & Personnel	151	-	-	151	8	31	-	39	8	40	-	48
Finance	106	-	5 ^a	111	6 ^b	85	5 ^a	96	8 ^b	105	8 ^c	121
Production Coordination	15	-	36	51	-	23	38	61	-	46	106 ^d	152
Storage Sites	-	-	(36)*	(36)*	-	-	(38)*	(38)*	-	-	(101)*	(101)*
Custodial Repr.	-	-	-	-	3	-	-	3	3	-	-	3
Security	531	-	-	531	481	18	19 ^a	498	435	27	20 ^e	482
Protective Force	(454)*	-	-	(454)*	(390)*	-	-	(390)*	(382)*	-	-	(382)*
Safety & Fire Protection	113	-	-	113	178	7	-	185	162	9	-	171
Supply	44	-	-	44	145	41	-	186	101	70	-	171
Community Management	68	-	-	68	18	-	-	18	17	-	-	17
Test Operations	-	-	-	-	-	-	-	-	-	6	-	6
Patent Attorney	-	-	-	-	-	-	-	-	-	2	-	2
Santa Fe Operations Office	-	-	-	-	6	239	73	318	8	352	134	494
Los Alamos Field Office	-	-	-	-	862	-	-	862	760	-	-	760
Los Angeles Procurement	-	-	26	26	-	-	-	-	-	-	-	-
Project Tee	-	-	34	34	-	-	-	-	-	-	-	-
Kansas City Field Office	-	-	30	30	-	-	50	50	-	-	69	69
Sandia Field Office	-	-	119	119	-	-	137	137	-	-	175	175
Burlington Field Office	-	-	3	3	-	-	5	5	-	-	17	17
Las Vegas Field Office	-	-	-	-	-	-	14	14	-	-	25	25
Pantex Field Office	-	-	-	-	-	-	7	7	-	-	31	31
Eniwetok Field Office	-	-	-	-	-	-	-	-	2	-	14	16
Rocky Flats Field Office	-	-	-	-	-	-	(11)* ^b	(11)* ^b	-	-	23	23
Spoon River Plant	-	-	-	-	-	-	-	-	-	-	14	14
TOTALS:												
Los Alamos (LAFO)	1,115	-	-	-	868	-	-	-	770	-	-	-
SFOO Albuquerque	-	-	-	-	-	239	-	-	-	352	-	-
Other Places	-	-	253	-	-	-	286	-	-	-	502	-
Total SFO	-	-	-	1,368	-	-	-	1,393	-	-	-	1,624

a at Los Angeles, Calif.

b Payrolled from SFOO.

c 4 at Los Angeles, Calif., 4 at Kansas City, Mo.

d 3 at China Lake, Calif., 2 at Dayton, Ohio.

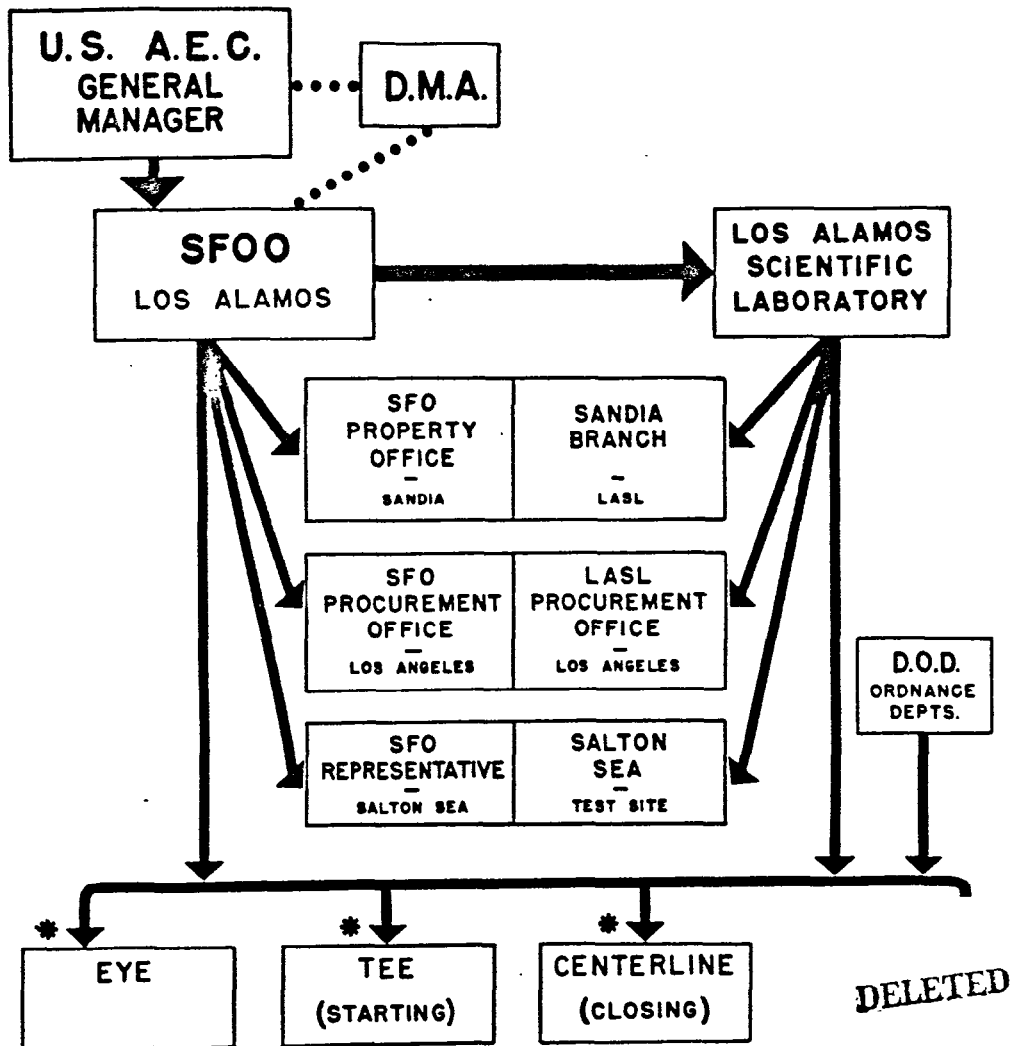
e 18 at Los Angeles, Calif., 2 at New York, N.Y.

*Figures in parentheses not part of total—Included in another grouping.

NOTE: October 31, 1951, in above boxhead, is date of first strength report available after the last unit has moved, per establishment of SFOO, 6/18/51.

SOURCE: Supplement to SFO Monthly Report of Federal Civilian Employment, "Tabulation of Employment by Organization".

SANTA FE OPERATIONS-1947



* D.O.D. Administration

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Completed Physical Plant

<u>1947</u>	<u>1950</u>	<u>1953</u>
\$41,000,000	\$174,154,760	\$471,415,104

7. DEVELOPMENT OF THE ORGANIZATIONAL PLAN FOR
WEAPONS OPERATIONS

Relieving LASL of Inert Development, Production, and Other Functions

In 1947, Los Alamos Scientific Laboratory was the developer, tester, and producer of atomic weapons with a very small total of inert component assembly being performed at its Sandia Branch. Los Alamos was then performing a considerable total of management functions, all technical functions, nearly all production functions, field testing, and was providing both quality assurance and stockpile surveillance.

An immediate objective was to stabilize and strengthen the Los Alamos activity, in part by relieving Los Alamos of all possible functions not associated directly with its essential mission of explosive system research and development. By mid-1953, this objective had been almost entirely accomplished, with transfers of responsibility as follows:

For nuclear component fabrication and assembly, to a complex of other AEC and SFO installations centering in Rocky Flats plant.

For high explosives fabrication and assembly, to other SFO plants.

For detonator fabrication, being transferred to a military arsenal.

For inert component research, development, testing, fabrication and assembly, to SFO and an industrial complex centering in Sandia Laboratory.

For stockpile surveillance, to Sandia Laboratory under LASL standards.

For some phases of test responsibilities, to Sandia, SFOO and others.

By mid-1952, plans had been completed for a sound nuclear component organization centering in Los Alamos as the developmental laboratory and in Rocky Flats as the production agency. These plans were activated as Rocky Flats became operational. Developed to meet implosion-type requirements, the organization could serve equally for gun-type and thermonuclear-type components.

Separating Inert Component Development from Production

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It was obvious in late 1951 that other, non-nuclear implosion-type operations were not as well-planned. Sandia Laboratory was in much the same position as LASL had been a few years earlier, being so heavily loaded with production and production-related responsibilities that it could not concentrate on research and development. Los Alamos was still spending too much time on supervision and inspection of high explosives production. The most simplified chart of the production organization was a very complex maze of lines.

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SFO is essentially an industrial manufacturing operation, although unique in important aspects such as the major stress on research and development. Private industry was asked to help make an objective appraisal. An Industry Advisory Panel was formed early in 1952 including: O. E. Hunt, retired executive vice president of General Motors; Frank Newbury, retired vice president of Westinghouse; and Theodore C. Gerber, Manager of Wabash Ordnance plant for Olin Industries. The Panel was given SFOO's thoughts:

LASL has been divested of production operations, and this has proved beneficial. A nuclear production organization, with Rocky Flats as the agency, is being activated. The philosophy developed and now being activated is sound. The basic framework is capable and flexible.

The reorganized setup for field tests is largely adequate with satisfactory division of staff, technical, and other functions.

Transfer of technical and production functions for inert components to Sandia was a major step in promoting LASL efficiency, but we now face at Sandia much the same problem. Sandia is carrying too big a responsibility and workload in the general field of production. Today's operations are proceeding adequately, but this load raises serious questions of adaptability and flexibility for handling known future assignments.

We are unable to answer the question: "Are we on the right track in production of high explosive and related components, and of inert components?" We feel we are not. Proceeding from the LASL-Rocky Flats solution we incline toward concentration of inert component production in a single agency.

The study determined that the structure for development and production of non-nuclear weapons had one characteristic: A high fence dividing organizations working on HE systems from organizations working on inert fuzing, firing, delivery, and storage systems. It was found, for instance, that man-month expenditures by LASL personnel at Inyokern, Burlington, and Pantex working on production problems in getting two HE systems into production were very high and much of this valuable time should have been devoted to new development. There was similar diversion of development effort from Sandia to help Kansas City and the HE plants get started on processing two weapons' components.

The Panel concluded in August 1952, that:

SFO is on the right track at Los Alamos and in the nuclear-and-initiator production setup.

Sandia Laboratory will benefit equally by concentration on technical functions following divestment of production functions.

Another contractor agency is indicated to manage and operate the non-nuclear implosion weapon production system, including fabrication and assembly, with use of available management and facilities if possible. The agency should preferably have production—but not staff nor technical—control over all non-nuclear production.

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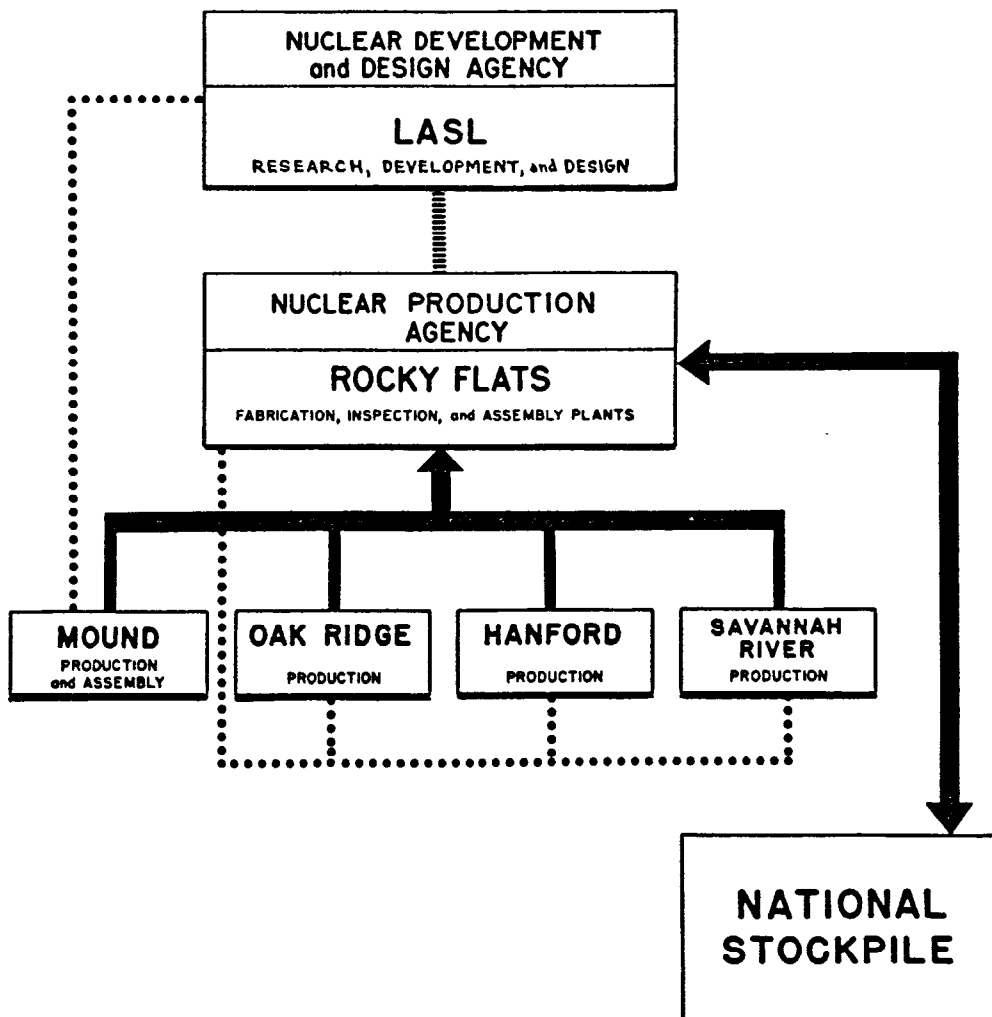
Management of Sandia Laboratory and of the Kansas City Plant prepared separate studies.

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NUCLEAR DEVELOPMENT and PRODUCTION OPERATIONS

||||||| TECHNICAL CONTROL
..... PRODUCTION CONTROL
— MATERIALS FLOW



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The Manager, SFO, presented a resulting "Management Plan for Implosion-type Weapons" to the Commission on September 22, 1952, explaining that the plan would set a pattern for bringing additional production agencies into the program as developments might require. The plan as presented featured two points:

Divesting Sandia Laboratory progressively of production functions, so that it could concentrate on technical functions, applying to Sandia the same principle which had proved resultful for LASL.

Concentrating production function responsibility in a single contractor agency, this principle having been approved as applied to the nuclear production field, conforming with the Panel's guidance, and having been recommended by Sandia and by Bendix.

The plan established that implementing action would begin immediately, with transfer of functions to be progressive, with an overlap of up to two years before a clear cut and complete division would be achieved.

The full details of the plan presented in September 1952, have not been accomplished. There has been some divestment of non-developmental functions from Sandia Laboratory, and plans project accomplishment of this phase. Some production responsibilities have been transferred to the Kansas City plant. An Inter-plant Advisory Committee, of concerned plant, LASL, and SFOO personnel, has been established as a monitoring activity for high explosives fabrication and assembly.

The Mid-1953 Pattern of Operation Developed for Implosion Weapons

The operating philosophy thus proposed had been established for nuclear manufacture and for inert component development. It was uncertain whether it would be adopted for non-nuclear production. The pattern in effect in mid-1953 was as follows:

Los Alamos, as the research, development, and design agency for the basic explosion system of all weapons;

Sandia, as the research, development, and design agency for the inert system for all weapons to the extent that responsibility rests with SFO, and for related functions;

Rocky Flats, as the production agency for nuclear components;

Kansas City, becoming more and more a production agency for mechanical and electronic components; and,

Inyokern, Burlington, Pantex, and Spoon River sharing production of high explosives.

Picatinny Arsenal, producing detonators.

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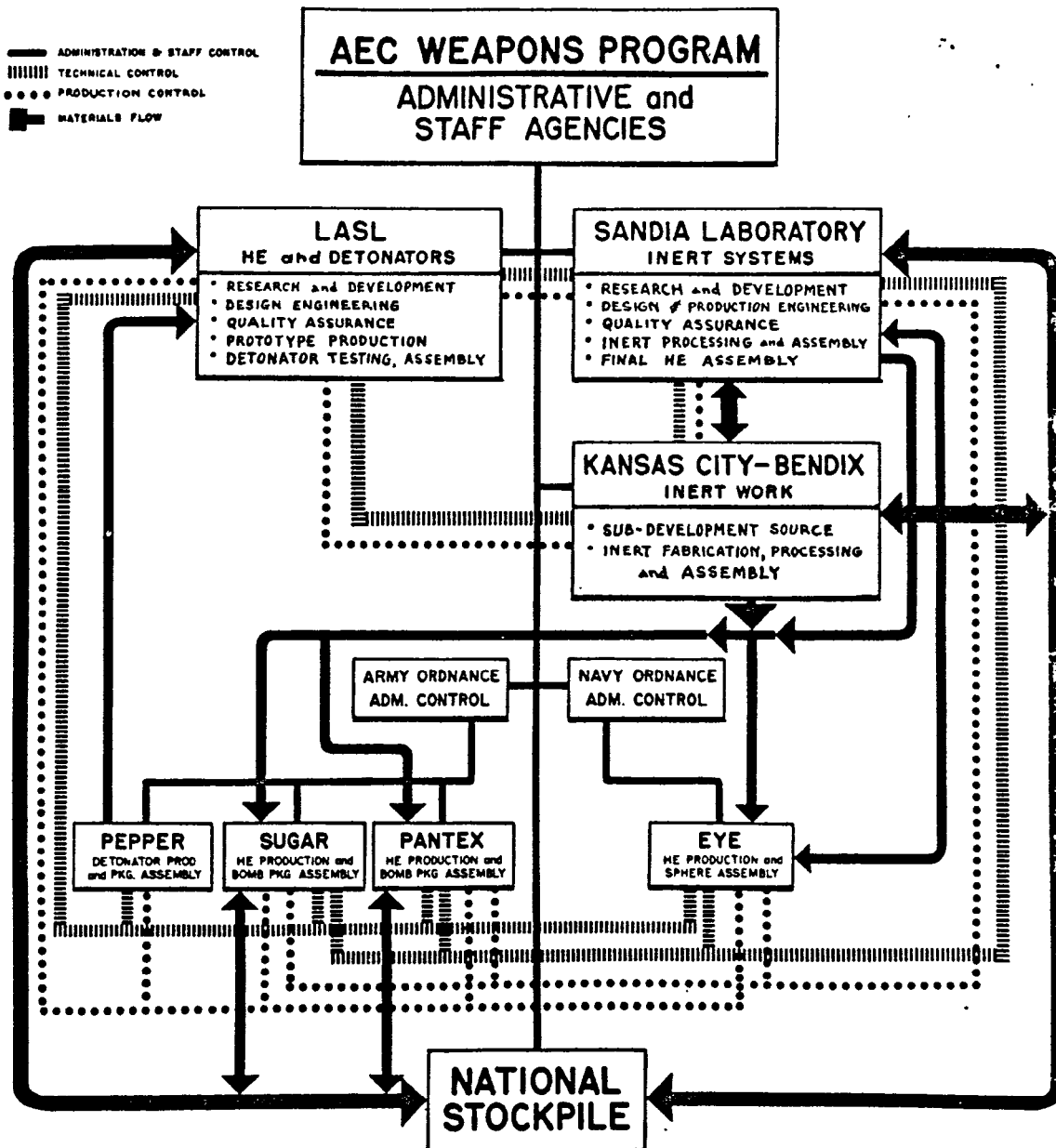
The Nuclear Component System

The accompanying chart presents a clear picture of the system.

LASL, operated by University of California, was the nuclear development agency with full responsibility under AEC program approval and program controls. It had the technical

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NON-NUCLEAR IMPLOSION WEAPONS OPERATIONS - JULY 1953



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functions of: Research and development, product design, test and evaluation, quality assurance, and preparation of standards for stockpile surveillance. It performed only developmental and engineering production, including fabrication and assembly of nuclear components.

Rocky Flats plant, operated by Dow Chemical Company, when fully operative would be the nuclear production agency with full responsibility subject to AEC controls and to LASL technical supervision, probably for all weapons types. It would have responsibility for: Production (process) engineering; fabrication of uranium and plutonium units in its own plant, and procurement from AEC fabrication plants; receipt, inspection, and assembly of nuclear capsules, and shipment to stockpile; other phases of final inspection and assembly; other phases of nuclear production procurement; and assisting Los Alamos in process engineering during development by coordinating startup of new production at the other installations.

Included in the production system were:

Mound Laboratory, for initiator fabrication (reports to OROO);
Industrial sources, for container fabrication;

Oak Ridge (OROO), Hanford (HOO), and Savannah (SROO) for
nuclear fabrication.

Procurement flowed from AEC plants and from private industry to the production agency; and final product flowed from the production agency to stockpile.

The High Explosive System

LASL remained the development agency for HE and detonator components, retaining technical functions only. It performed only developmental or prototype production, including fabrication and assembly. (As of July 1, 1953, shipment of detonators was still from producer to LASL but agreement had been reached to ship from producer to stockpile.)

Inyokern (California) Salt Wells Pilot Plant, operated by Navy Ordnance, performed process engineering, tooling design, and pilot plant for new HE, other HE fabrication and assembly.

Burlington (Iowa) plant, contract with Army Ordnance for operation by Silas-Mason Company, and Pantex (Texas) plant, contract with Army Ordnance for operation by Procter & Gamble Defense Corporation, performed HE production and weapon assembly.

Spoon River (Illinois) plant was under construction, to be operated by Thompson Products Company, initially for HE production and assembly. A second Project Plum was projected, in view of existing requirements, for HE production and weapon assembly, perhaps through addition of production lines at Burlington and Pantex.

Picatinny Arsenal (New Jersey), operated by Army Ordnance, performed detonator production.

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It was projected that over a period of years as Thompson Products developed a capability, responsibility would be transferred there for Inyokern's process engineering, tooling design, and pilot plant operation. Spoon River would thus become the leadoff plant on production of new models and development and procurement for the entire high explosive system.

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The Inert Component System

Sandia Laboratory, operated by Sandia Corporation, remained the development agency for inert bomb and warhead installation components of all weapon types. It would eventually retain only technical functions, plus developmental or prototype fabrication and assembly.

Kansas City plant, operated by Bendix Aviation, was becoming the production agency for mechanical and electronic components. It might eventually have full responsibility, subject to AEC controls and to Sandia technical supervision. As of July 1, 1953, it had responsibility for: Some measure of process engineering; procurement from private industry; logistic support of HE plants; inert fabrication and assembly; and some base spares procurement.

The Pattern of Organization for Other Weapons Types

During the three years prior to July 1953, SFO developed and produced gun-type weapons and missile warhead installations, and conducted an extensive thermonuclear development program. The preceding paragraphs on development of the SFO organization for contractor operations dealt essentially with the organization for implosion-type weapons. There were variations and there were responsibilities assigned elsewhere as far as gun-type, missile warhead installation, and thermonuclear activities were concerned. These are described briefly below.

Gun-Type Weapons Manufacture

A penetration weapon program was operated jointly by SFO and the Navy. LASL was responsible for the nuclear phases. Sandia had responsibility for final design, environmental testing, development of handling equipment, and certain technical studies of fuzing and weapon effects. The Navy performed development and related production of the gun mechanism and ordnance.

Active work on development of an artillery-fired atomic projectile began after mid-1950. It was a joint LASL-Sandia program, with Picatinny Arsenal handling the bulk of the development work under SFO guidance.

As of July 1, 1953, responsibility for future gun-type work was divided: LASL and Rocky Flats, nuclear development and production; and Armed Forces (Army and Navy), non-nuclear design and production.

Missile Warhead Installations

Sandia Laboratory has been engaged actively in the development of atomic warhead installations for missiles, both guided and free ballistic, since October 1950. Inasmuch as the basic explosive system is in general identical with other implosion-type bombs, LASL has not needed to conduct developmental programs, Sandia now acting as the LASL agent in this respect. Future developments may bring LASL directly into the picture, as for anti-aircraft missiles.

Following considerable exploratory work, the Military Liaison Committee requested in November 1950 that atomic warheads be developed for a number of specified missiles. It became immediately apparent that in addition to problems associated with the basic warhead, integration of the missile guidance system and the warhead arming and fuzing system would constitute a major area of investigation and development; and that, aside from technical questions, division of development and production responsibilities between SFO and DOD

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would require resolution. With concurrence of DOD and AEC, the Special Weapons Development Board was designated late in 1950 as the agency to determine division of arming and fuzing responsibilities. The Board did allocate and set up some Ad Hoc Working Groups. Subsequently, it was agreed that after the first four atomic warhead installations, the Military would assume the arming and fuzing responsibilities. As a consequence, the Ad Hoc Working Groups are now in the process of reconstitution into Joint Project Groups reporting to: the CG, FC, AFSWP; President, Sandia Corporation; and the designated DOD agency as principals.

Because of the large number of missiles designated to carry atomic warhead installations, it was evident that a high degree of standardization would be required. Considerable progress has been made in the direction of interchangeable warheads, not only between several missiles but also between a warhead and the associated free-fall bomb. This has resulted in the so-called "Maximum Bomb Availability Plan" whereby all warheads are to be stockpiled with their fuzes in bomb configurations until the bomb requirements are satisfied. Bomb-to-warhead conversion components and complements (analogous to fuzes) will also be stockpiled to provide the conversion capability to missile warhead installations when desired. Lately, considerable development effort has been devoted toward simplification of the bomb-to-warhead conversion process. Employment of standardized weapon components (i. e., baroswitches, radars, etc.), test equipment, and handling equipment has resulted in significant savings in both bomb and missile warhead installation programs.

Thermonuclear Weapons Development

Since an intensified research and development program was directed in January 1950, primary responsibility has rested with Los Alamos Scientific Laboratory. During development an organizational framework was developed which included American Car & Foundry Company, and extensive cryogenics assistance from National Bureau of Standards, Cambridge Corporation, and Herrick Johnston. It may be assumed that the developmental organization will point the way for the production organization. Future production will require the resources of the nuclear, high explosive, and inert production system. Added to this will probably be the ACF, Cambridge, and NBS facilities to meet unique requirements.

The Organizations Developed for Nuclear Field Tests

Los Alamos Scientific Laboratory originally carried almost all of the SFO responsibility for nuclear field tests. LASL still carries very heavy responsibilities but by mid-1953 the technical responsibility was being shared by Sandia Laboratory and to some extent by Livermore, and a considerable measure of administrative responsibility had been transferred to SFOO, and, in certain respects, to military participants.

Overseas Tests

All overseas tests, beginning with Bikini in 1946, have been conducted by a joint task force commanded by a military officer and with responsibility for the scientific and technical phases and, beginning in 1948, many maintenance, construction and other support phases, resting with SFOO and its key contractors.

Executive agent responsibility has been rotated between the military departments with the Chief of Staff, U.S. Army, being agent for Sandstone; the Chief of Staff, U.S. Air Force, agent for Greenhouse; and the Chief of Staff, U.S. Army, agent for Ivy and Castle. During the period between operations, the JTF Commander's responsibility has been limited to planning and coordination of preparations for the operation, and to providing military support in the form of transportation, communication, etc.

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REALIGNMENT OF PLANNED FUNCTIONS, BY FACILITY
 June 30, 1950, June 30, 1953, and Next Three Years

Facility	Functions as of June 30, 1950	Present Functions June 30, 1953	Planned Functions During Next Three Years
Los Alamos Scientific Laboratory	Weapons Research & Development Pilot Nuclear Fabrication Pilot Detonator Fabrication Detonator Fabrication Pilot HE Fabrication HE Fabrication -- -- -- -- -- Technical Manuals	Weapons Research & Development Pilot Nuclear Fabrication Pilot Detonator Fabrication -- -- -- -- -- Pilot HE Fabrication -- -- -- -- -- Pilot TN Fabrication Technical Manuals	Weapons Research & Development Pilot Nuclear Fabrication Pilot Detonator Fabrication -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- Pilot TN Fabrication Technical Manuals
Sandia Corporation	Research & Development Non-nuclear Implosion Weapon Fabrication Implosion Weapon Assembly -- -- -- -- -- Procurement T&H Equipment Base Spares Procurement Technical Manuals	Research & Development Non-nuclear Implosion Weapon Fabrication Implosion Weapon Ass'y (reduced) Pilot TN Fabrication (Non-nuclear) Procurement T&H Equipment Base Spares Procurement Technical Manuals	Research & Development Non-nuclear Implosion Weapon Fabrication (less) Implosion Weapon Ass'y (reduced) Pilot TN Fabrication (Non-nuclear) Procurement T&H Equipment (reduced) Base Spares Procurement (reduced) Technical Manuals
Burlington Field Office (Iowa Ordnance Plant)	HE Production -- -- -- -- --	HE Fabrication Weapon Assembly	HE Fabrication Weapon Assembly
Pantex Field Office (Pantex Ordnance Plant)	-- -- -- -- -- -- -- -- -- --	HE Fabrication Weapon Assembly	HE Fabrication Weapon Assembly
Inyokern	HE Fabrication -- -- -- -- --	HE Fabrication Pilot Plant for new HE	HE Fabrication Pilot Plant for new HE
Rocky Flats Field Office	-- -- -- -- -- -- -- -- -- --	Nuclear Fabrication Nuclear Process Engineering	Nuclear Fabrication Nuclear Process Engineering
Kansas City (Project Royal) Field Office	Logistic Support of HE Plants Inert Fabrication/Procurement and Assembly -- -- -- -- -- -- -- -- -- --	Logistic Support of HE Plants Inert Fabrication/Procurement and Assembly Base Spares Procurement -- -- -- -- --	Logistic Support of HE Plants Inert Fabrication/Procurement and Assembly Base Spares Procurement (increased) Production Agency
Spoon River Field Office	-- -- -- -- -- -- -- -- -- --	-- -- -- -- -- -- -- -- -- --	HE Fabrication Weapon Assembly
Project Pepper	Detonator Fabrication	Detonator Fabrication	Detonator Fabrication

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SFOO and its Eniwetok Field Office have had continuing responsibility for AEC administration, support, control of funds, and inspection of the Commission's various contractors concerned with tests.

Control and direction of the scientific program has been assigned to personnel of LASL, with major participation by LASL and other scientific contractors.

At the time agreed for beginning of the operational period, the Commission designates the JTF Commander as its special representative, and grants him full authority to act for the Commission in all matters which concern the successful execution of the approved plan. This authority is operational in nature, and does not transfer any of the continuing administrative responsibilities of the SFO Field Manager, Eniwetok Field Office, or the normal responsibilities for technical direction of laboratory components participating in the tests.

During past operations the JTF comprised four task groups: Scientific, Army, Navy, and Air Force. The AEC organization responsible for construction, support, and operation activities functioned as a part of the Scientific Task Group. At conclusion of Operation Ivy, the desirability of separating the direct AEC functions from the scientific activities was accepted, and for Operation Castle an additional AEC Base Facilities Task Group was formed with responsibility for performing the AEC administrative, construction, and operation functions.

The Scientific Task Group has been commanded by a person selected by the scientific organizations, approved by AEC, and acceptable to the Joint Task Force Commander. Its staff has been made up principally of members of the staff of J-Division, Los Alamos Scientific Laboratory, supplemented by military personnel on detail to the Laboratory.

The AEC Base Facilities Task Group will be staffed by personnel of SFOO and its Eniwetok Field Office, supplemented by other AEC personnel as required. The Task Group Commander will be selected by the Manager, SFO, approved by the Commission, and acceptable to the JTF Commander. Construction, support, and operation functions have been accomplished through SFO-AEC contract.

Continental Tests

The original concept of such tests was that they would be held solely to support weapons development. Because of this purpose and even more essentially because the AEC cannot be disassociated from final responsibility for nuclear tests conducted inside continental United States, full field responsibility has been assigned to an AEC representative as Test Manager, acting as Executive Agent for all participating Agencies and Departments.

Continental tests have been conducted by a multiple-agency group generally known as the Test Organization. Participants have included: LASL, UCRL, and Sandia Laboratory; DOD and all branches of the Armed Forces; AEC's Divisions of Biology and Medicine, DMA, and Information; the Federal Civil Defense Administration, the U.S. Weather Bureau, the U.S. Public Health Service, and other Agencies.

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The Test Organization for each of the four series was headed by the Manager, SFO, as Test Manager, responsible for over-all conduct of the tests. As finally developed for Upshot-Knothole, the organization included Deputies for Scientific Operations, Military Operations, and Support Operations. The Deputy for Scientific Operations has been the Director, J-Division, LASL, and his organization has been divided into three groups: Weapons Development, Weapons Effects, and Civil Effects. Logistical support—including engineering design,

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construction, operation of camp and test facilities, communications, and security service—has been provided through the Deputy for Support Operations, who has been the Manager, Las Vegas Field Office. The Deputy for Military Operations has been the Director, Directorate of Weapons Effects Tests, Field Command, AFSWP, who has coordinated all military participation and support.

The SFO Organization for Storage Operations

The following summary analysis of the comprehensive stockpile operations gives a general idea of how SFO is organized to do the job, how SFO is preparing to meet changing conditions, and the nature and extent of working relationships with DOD agencies on all aspects of stockpile operations:

Product design preparation for stockpiling is a joint AEC-DOD responsibility in which the AEC contractor-operated weapon design organizations at Los Alamos and Sandia seek to incorporate in each complete weapon system design such packaging concepts and field test and handling equipment systems as are compatible with diverse shipping and storage environments and military concepts of optimized stockpile-to-target sequences. The AEC product acceptance, distribution, and custodial organizations review these product design preparations only to the extent deemed necessary in fulfilling their assigned functions as described later.

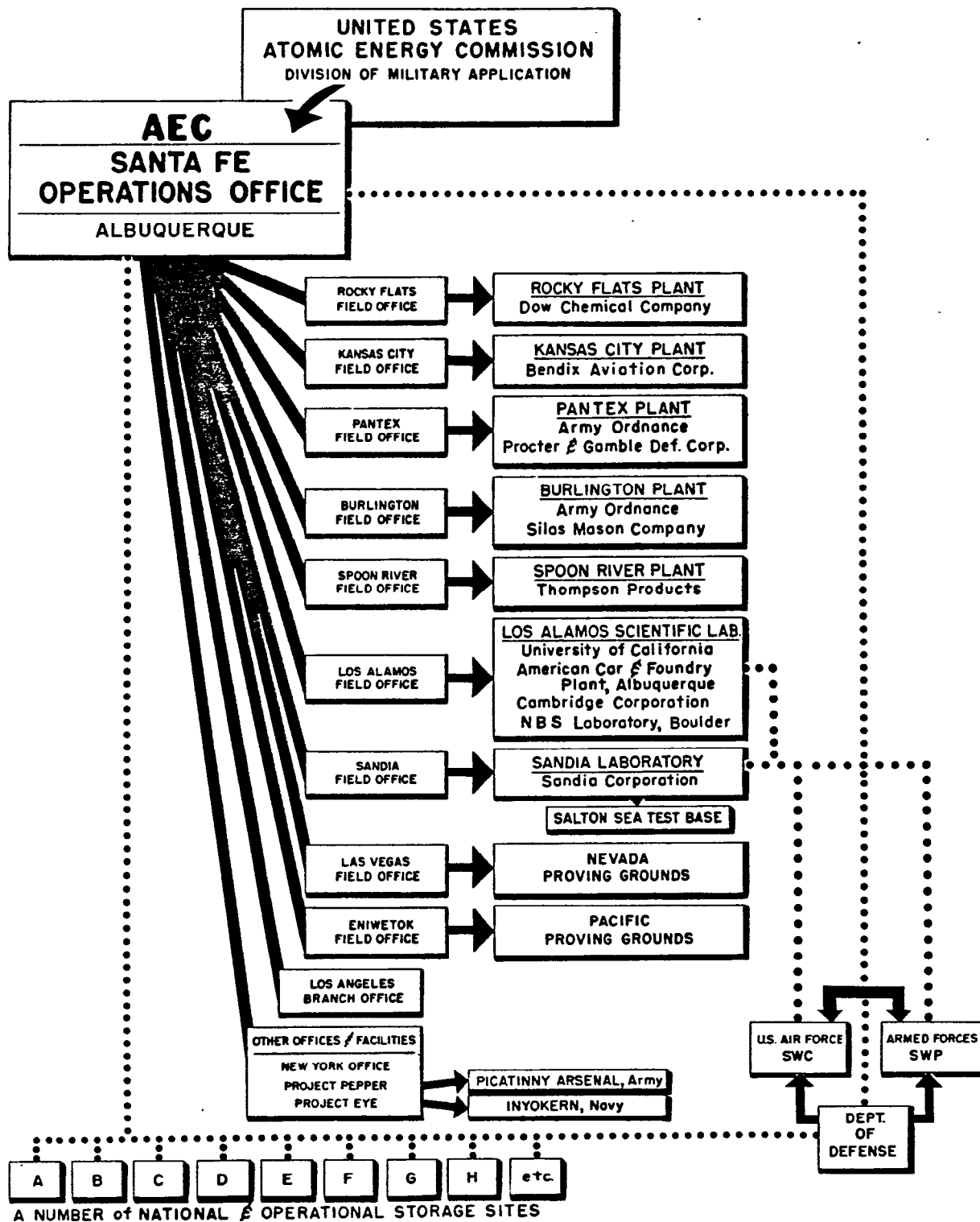
Facility preparation for stockpiling is also a joint AEC-DOD responsibility in which the storage site planning and design agencies of the DOD at Sandia and elsewhere seek to provide facilities in which to store and maintain the growing atomic weapons stockpile under conditions which are acceptable to the AEC design, custodial, and security organizations. As mentioned, new storage concepts to minimize the cost of additional storage capacity and the requirement for stockpiling several new weapons of unusual design have tended to increase the complexity of this phase of the comprehensive storage operations program.

Product acceptance for stockpiling is an AEC responsibility which is now conducted by direct employees of the Commission at all SFO final assembly installations other than Rocky Flats. At Rocky Flats the final inspection and assembly of nuclear products is performed by an autonomous branch of the contractor's organization subject to design controls maintained by LASL and to custodial and security controls maintained by the AEC Field Manager.

At the beginning of the period there was a great amount of material being shipped from source to Sandia Laboratory for final inspection, then being transshipped to storage sites or to the DOD at Sandia Base for distribution to the using service. SFOO coordinated a study of traffic pattern and a study of feasibility of making direct shipment. This led to better and more economical utilization of transport and couriers, and a marked reduction in time from source to the ultimate user.

Product distribution for stockpile in accord with joint AEC-DOD distribution schedules as formulated each month is an AEC responsibility which is planned and conducted by direct employees of the Commission with such assistance from contractor organizations and the DOD as can be provided at the various loading and unloading points or by actual transport in cases where the use of military aircraft is warranted by the value of the products being moved to or from stockpile.

SANTA FE OPERATIONS - JULY 1953



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8. DETAILS OF FIELD OFFICE, CONTRACT, AND PLANT STRUCTURE

Los Alamos

The 1947-1950 Report of the Manager, SFO, sufficiently described management's efforts and achievements in stabilizing and revitalizing the Los Alamos Scientific Laboratory, in building and developing a satisfactory supporting community, and in transferring many phases of weapons manufacture to other installations in order for the Laboratory to concentrate on weapons research and development.

Mission of Los Alamos Scientific Laboratory

Nuclear and high explosive component research and development for all types of nuclear weapons; primary responsibility for technical aspects of active component testing; nuclear, high explosive and thermonuclear developmental and pilot production; and nuclear and high explosives quality surveillance. X

Los Alamos Field Office

The Los Alamos Field Office was activated on June 18, 1951, when Santa Fe Operations Office transferred to Albuquerque, with a personnel strength of 862 which had been reduced by July 1, 1953, to 760.

AEC contract administration applies to: Technical Area, community, and the nearby White Rock construction camp operation; to assisting and supporting some aspects of community and of county government; and to installations elsewhere which support weapons development. This is accomplished by administering various types of contracts including operating, research, development, construction, utility, architect-engineer, and consultant contracts.

Contrary to practice at other installations, the Laboratory is not operated and staffed entirely by the contractor. The Zia Company participates by providing extensive custodial, maintenance, and other specialized personnel and services; and direct employees of the AEC provide fire fighting and all phases of security services including guard force, physical security, personnel security, and security education. Also, contrary to practice elsewhere, AEC employees provide fire fighters and police for the community.

Physical Plant

The value of the physical plant in Los Alamos County owned by the AEC is \$213,200,000. Los Alamos County consists of 108 square miles and coincides with the project boundary. The great majority of land is assigned the AEC under special use permit from the Forest Service.

Technical Area Construction

On March 18, 1948, the Laboratory Technical Board concurred with an SFO decision to relocate, rebuild, and expand the Technical Area. In August 1948, the AEC authorized road and utility construction as an initial phase of a projected \$121,000,000 program. As of mid-1953 there had been various changes, and budgets projected a total of \$118,500,000. Additional facilities now projected will bring the total back to slightly less than the original estimate. On June 30, 1953, \$98,000,000 or 83 per cent of the total program had been

ALOO

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obligated and \$94, 100, 000 or 79 per cent had been accomplished. As the new facilities on South Mesa or at outlying sites were occupied, the vacated structures were converted to other use or were considered for demolition or disposal.

Community Construction

A five-year \$65, 500, 000 program to completely modernize and to expand Los Alamos community was announced on March 12, 1948. The community plant then visualized has been completed, except for replacement of temporary-type housing which was scheduled to begin in fiscal year 1951 but was delayed until fiscal year 1954 because of the Korean emergency.

Community Population

Los Alamos had 7, 500 residents in mid-1947; 10, 620 in mid-1950; and 12, 700 in mid-1953. (Details of community operations are recorded in Chapter IV of this report.)

White Rock Construction Camp

In order to bring more contractors into the Los Alamos construction picture, a temporary (five year) camp was built at White Rock, eight miles south of Los Alamos, prior to December 1949. Cost was \$4, 500, 000. Occupancy was near maximum, 2, 352, in July 1950. As the peak of Los Alamos construction passed, use of White Rock declined. Occupancy for calendar year 1952 was less than 50 per cent and as of June 30, 1953, less than 20 per cent. In the light of this situation, 250 of the 413 dwelling units and 6 dormitories were declared surplus in May 1953 to the General Services Administration. Remaining houses were to be used until no longer required for construction workers. Present plans anticipate transfer of some used White Rock buildings to NPG.

Contracts for Los Alamos Operations

University of California -- For operation of the Los Alamos Scientific Laboratory. A five year contract continuing until June 30, 1957. Provision is made for University of California overhead, but there is no fee. Direct employees totaled 2, 971 in mid-1953 as compared to 2, 488 in 1950. In addition the University of California has subcontracted for off-site work in fields of research, development, manufactured items and supplies.

The Zia Company -- For maintenance and other support of LASL, and for community operation. Zia administers 94 contracts with community concessionaires. Zia has a three-year contract which continues until June 30, 1954. Zia personnel totaled 1, 778 in 1950 and 1, 380 in 1953. In February 1953, the construction work previously performed by Zia was contracted for with Los Alamos Constructors, Inc. (LACI) in order to comply with the Bacon-Davis Act. LACI personnel totaled 75 in 1953. By Congressional instruction, the fee for such work may not exceed \$90, 000 a year. For fiscal year 1954, effective July 1, 1953, the \$90, 000 limitation was allocated \$72, 000 to Zia and \$18, 000 to LACI.

ALOO

The Los Alamos Medical Center, Inc. -- Hospital facilities and services and professional medical and dental services for the community of Los Alamos are provided under a contract with a non-profit corporation composed of nine Los Alamos residents who serve as Trustees of the Los Alamos Medical Center, Inc. The contract, entered into in February 1950, and effective at the end of that month, under present terms will run until June 30, 1957. The corporation receives no fee for the work performed, but the Commission provides funds as needed to pay the cost of the work in excess of the revenues derived. The contractor's working-force at the end of June 1953 numbered 118 full-time and 4 part-time employees.

COST COMPARISON--CONSTRUCTION PROGRAMS (Completed Plant), BY AREA **FY-1948 through FY-1953**

Area	1948	1949	1950	1951	1952	1953	FY-1953	
							Grand Total Comp. Plant	Total Work in Progress
<u>LOS ALAMOS FIELD OFFICE</u> Technical Facilities Community & General Use Facilities	\$21,621,876 34,970,388	\$15,743,935 16,410,915	\$ 1,447,956 17,696,631	\$41,853,741 20,082,595	(\$17,678,422) ^a 4,257,646	\$30,913,254 25,975,543	\$ 93,902,340 119,293,718	\$26,701,174 1,500,445
<u>SANDIA FIELD OFFICE</u> Technical Facilities Community & General Use Facilities	1,114,234 420,259	360,158 1,533,696	5,214,222 8,130,080	6,004,866 3,183,082	12,444,017 (4,961,284) ^c	(2,359,403) ^b 10,615,833	22,778,094 18,921,666	3,273,979 80,150
<u>KANSAS CITY FIELD OFFICE</u> Technical Facilities General Facilities	0 0	2,054,243 0	5,358,129 0	4,622,354 0	3,413,169 ^d 0	(2,494,186) 11,332	12,953,709 11,332	253,422 0
<u>BURLINGTON FIELD OFFICE</u> Technical Facilities	0	0	16,994,290	231,656	9,010,828	(317,995) ^e	25,918,779	221,618
<u>ROCKY FLATS FIELD OFFICE</u> Technical Facilities--Rocky Flats Lab. Fac., Bureau of Standards--Boulder Tech. Fac., Cambridge Corp.--Boulder	0	0	0	6,473	3,050,249	33,285,245	36,341,867 ^f	14,118,072 ^f
<u>PANTEX FIELD OFFICE</u> Technical Facilities	0	0	0	0	11,534,885	7,232,647	18,767,532	74,877
<u>SPOON RIVER FIELD OFFICE</u> Technical Facilities	0	0	0	0	0	0	0	918,859
<u>LAS VEGAS FIELD OFFICE</u> Permanent Technical & Support Facilities	0	0	0	155,078	1,268,317	10,779,107	12,202,502	11,318
<u>ENVIETOK FIELD OFFICE</u> Permanent Technical & Support Facilities	0	0	0	11,643,604	412,024	4,283,972	16,319,800	349,473
<u>SALTON SEA TEST BASE</u> Technical Facilities	0	1,364,148	3,876,559	230,241	203,941	34,196	5,709,085	0
<u>INYOKERN, CHINA LAKE, CALIFORNIA</u> Technical Facilities	0	0	17,480,907	831,396	3,204,591	(2,866,534) ^g	18,660,360	204,292
<u>PEPPER SITE FACILITIES</u> Technical Facilities	0	0	367,531	36,917	187,523	51,051	643,022	397
<u>SANTA FE OPERATIONS OFFICE</u> Technical Facilities, Miscellaneous Research, and Storage Sites	0	1,089,872	884,731	1,618,956	33,080,999 ^h	32,326,640 ^h	68,991,198	337,189
TOTAL	\$58,126,757	\$38,566,967	\$77,461,036	\$90,501,159	\$59,408,483	\$147,350,702	\$471,415,104	\$48,045,245

SOURCE: SFO Office of Engineering and Construction

- a Completed Plant transferred to SFOO
- b Completed Plant reclassification and transfers to AFSWP
- c Special tools expended and Test Facility destroyed
- d Special tools and dies expended
- e Special tools expended
- f Rocky Flats Plant--Completed Plant \$29,495,026; Work in Progress \$13,942,058
- g Bureau of Standards--Completed Plant \$4,731,160; Work in Progress \$11,690
- h Cambridge Corporation--Completed Plant \$2,115,781; Work in Progress \$164,324
- i Physical inventory adjustments
- j Includes inventory adjustments, reclassification of plant, and test facility write-off

DOE/ALD

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Los Alamos County Board of Educational Trustees -- The school system at Los Alamos is operated, under State law, by a statutory agency, the Los Alamos County Board of Educational Trustees. Under successive contracts with the Commission, this Board uses the school plant and related facilities provided by the Commission and administers the Los Alamos Civic Auditorium jointly for school and general public use, as agent for the Commission. Financial grants-in-aid for the support of the work carried on by the Board of Educational Trustees are provided for in the contracts. The Board has no responsibility to the Commission except to operate the county educational system in accord with State law and manage the civic auditorium and, of course, to take reasonable care of the Government-owned property made available. There is no contract fee. A separate contract was entered into for each fiscal year through 1953; the contract for the next period, however, will have a two-year term, covering the fiscal years 1954 and 1955. In June 1953, the Board of Educational Trustees had 198 full-time and 8 part-time employees.

Mesa Public Library -- The community public library is managed by a non-profit corporation composed of five Los Alamos residents serving as Trustees. The operating contract, entered into in January 1951, is for a term of five years. There is no contract fee. Funds are provided by the Commission as needed to pay the cost of the work in excess of the insignificant amount of miscellaneous revenue received (consisting of overdue book fines and charges for the lending of phonograph records). The library staff in June 1953, consisted of 5 full-time employees plus 6 part-time workers whose services accounted for the equivalent time of 1-1/2 full-time employees.

Los Alamos Golf Association -- One of the community recreational facilities at Los Alamos, the golf course and clubhouse, is operated by the Los Alamos Golf Association, an incorporated membership association, under a contract that became effective April 1, 1950, and has been extended to run through the calendar year 1955. There is no contract fee and the Commission makes no payments to the Golf Association. The contractor regularly employs three persons and supplements their work with part-time labor on a seasonal basis as needed.

Contracts for Operations Elsewhere

LAFO also administers the following major contracts in support of LASL thermonuclear weapons development:

American Car & Foundry Company -- For engineering design, prototype production, and component testing facilities in Albuquerque in support of which the American Car & Foundry Company uses parts of other ACF plants such as the Buffalo works, West Milton, etc. The present contract was effective on September 1, 1952, and continues until December 31, 1954. Total fee provision is \$404,819. Employees total 129.

ALCO

National Bureau of Standards -- For operation of the Cryogenics Engineering Laboratory at Boulder, Colorado, for production of nitrogen and hydrogen, and basic engineering research studies of the characteristics of various materials, etc., at cryogenic temperatures. The present memorandum of understanding is on an indefinite basis. Since early in 1953, the arrangements between the National Bureau of Standards and AEC have been administered by SFOO, Albuquerque. The Los Alamos Field Office has had the security responsibility. The Los Alamos Scientific Laboratory has, throughout the period covered by the memorandum of understanding, provided the technical direction. Construction by the AEC on land belonging to the National Bureau of Standards was accomplished in three phases between May 1, 1951, and December 15, 1952. Plant is valued at \$3,800,000. "A" Building houses

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nitrogen and hydrogen liquefaction equipment. "B" Building provides offices, laboratories, and machine shops for the cryogenic work. Both of these phases are operated by the National Bureau of Standards under memorandum of understanding with the AEC. "C" Building is operated by the Cambridge Corporation and provides space for the assembly and testing of refrigerated transport dewars and the testing of cryogenic parts of TN 2-stage weapons.

Cambridge Corporation -- For design, production of refrigerated transport dewars, and cryogenic support services related to thermonuclear program handling equipment on continent and forward area with facilities at Boulder, Colorado, and Cambridge, Massachusetts. In addition, the Cambridge Corporation designed, tested, and produced cryogenic parts of TN 2-stage weapons. The present contract continues until January 1, 1955. Total fee, \$573,661. Employees total 236.

Sandia

LASL established a small assembly operation at Sandia Base, Albuquerque, prior to July 1947. In March 1948, it became a formal branch of LASL: the Sandia Laboratory to perform ordnance engineering and assembly. LASL asked in contract negotiations in 1948 for relief. After considerable study and negotiation the AEC obtained Bell System agreement to operate Sandia Laboratory. Western Electric formed a wholly-owned subsidiary, Sandia Corporation, and Washington-AEC signed the contract under which Sandia took over operation on November 1, 1949, with 1,700 University of California employees transferring to its payroll. The contract provides a maximum of contractor authority and a minimum of government control. It provides full reimbursement for all expenses but includes no fee.

Mission of Sandia Laboratory -- By mid-1950, Sandia was more a factory than a laboratory, much of its resources being devoted to non-nuclear weapon production, assembly, and related procurement. In mid-1952, the emphasis was reversed, in the interest of making Sandia more a laboratory and less a factory. As of mid-1953, Sandia was responsible for the inert system, or ordnance phases, of atomic weapons. Its functions included: Studies of the feasibility of new weapons and components, studies of weapons effects, development testing and evaluation of weapons, training military teams, exchange of information with the Armed Forces, and stockpile and inert component quality assurance and surveillance.

Sandia Field Office -- Was activated as an Area Office November 24, 1947, and established as a Field Office on March 29, 1949. It administers a major contract with Sandia Corporation for operation of Sandia Laboratory and related facilities elsewhere, which became operative November 1, 1949. It also supervises engineering and construction and contacts with the Military.

The Field Manager is responsible for all matters relating to performance of direct and contract activities; for planning and executing a comprehensive program for the design, development, production, and inspection of weapon components; and for construction of technical, community, and other project facilities.

AEC personnel assigned to Sandia in 1947 totaled 4; 119 in 1950; and 175 on July 1, 1953. The mid-1953 staff structure included: Facilities and property management, 18 persons; administrative branch, 38; operations branch, 48; and security, 71.

Physical Plant -- The Laboratory and its supporting community occupy 3420.7 acres encompassed within Sandia Base but owned by AEC. Virtually completed by mid-1953 was a Technical Area, \$24,467,112 construction program; a community construction,

CONTRACTOR EMPLOYMENT, BY TYPE OF WORK
End of Fiscal Year 1950, 1951, 1952, and 1953

Contractor	1950 June 30	1951 June 30	1952 June 30	1953 June 30
<u>GRAND TOTAL</u>	<u>12,589</u>	<u>15,712</u>	<u>22,372^a</u>	<u>21,074</u>
<u>CONSTRUCTION & DESIGN</u>	<u>4,520</u>	<u>4,936</u>	<u>6,935</u>	<u>3,285</u>
Holmes & Narver	1,425	1,208	1,600	1,565
R. E. McKee	247	374	658	74
Haddock-Engineers, Ltd.	343	114	50	0
Utah-Leavell	110	263	365	0
Black & Veatch	127	70	22	16
R. J. Daum Construction Company	226	153	65	0
Silas-Mason	0	125	606	56
The Austin Company	0	0	1,770	281
Reynolds Electric & Engineering	0	0	124	386
Los Alamos Constructors, Inc.	0	0	0	75
Fluor Corporation, Ltd.	0	0	0	122
All Other	2,042	2,629	1,675	710
<u>OPERATIONS, RESEARCH & DEVELOPMENT</u>	<u>6,291</u>	<u>9,114</u>	<u>13,400</u>	<u>16,138</u>
University of California (except Gen-12)	2,488	2,716	2,814	2,971
Bendix Aviation Corporation	1,451	2,840	3,139	3,805
Sandia Corporation	2,046	3,418	4,775	5,406
Edgerton, Germeshausen & Grier	0	0	90	127
Dow Chemical	0	0	369	928
Procter & Gamble	0	0	657	937
Silas-Mason	0	0	1,402	1,249
Cambridge Corporation	0	0	0	236
American Car & Foundry	0	0	0	129
University of California, Gen-12	141	140	154	155
All Other	165	0	0	195
<u>MAINTENANCE & SERVICE</u>	<u>1,778</u>	<u>1,662</u>	<u>2,037</u>	<u>1,651</u>
The Zia Company	1,778	1,662	1,466	1,380
The Nevada Company	0	0	571	0
All Other	0	0	0	271

^aEmployees on Ordnance contracts, not normally shown on AEC-251 report, included for FY-1952. AEC-251 report, beginning Feb. 1953, included Ordnance employees

SOURCE: Monthly Report of Contractor Employment, Form AEC-251, Personnel Branch, SFO

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\$6,933,121 program; and a program for construction of facilities for AFSWP, costing \$6,421,000 in AEC funds. Sandia construction as presently planned will be practically completed in April 1954. Value of the total AEC Sandia physical plant is \$41,699,760.

(Details of housing area and of joint AEC-AFSWP maintenance activities are given in Chapter IV.)

Other facilities operated by Sandia Corporation include: Salton Sea Test Base, Westmorland, California. The Base was constructed originally by the Navy as a seaplane base. It was taken over by the AEC in December 1947, for testing free-fall weapons in order to obtain the aerodynamic characteristics and behavior from maximum altitude to the Salton Sea level of 237.2 feet below mean sea level. Prior to mid-1950, a \$1,631,000 Technical Area program and a \$1,373,000 program for administrative and community facilities were completed. Between July 1950 and July 1953, a total of \$432,680 was spent for new construction, including a new airstrip, and relocation of facilities caused by a rising sea level. Housing facilities are now adequate for 35 permanent employees and up to 75 scientists, technicians, and military personnel required during test periods. Total plant value is \$5,709,085.

Sandia Laboratory operates and maintains the Base through a resident manager. From 1950 to September 11, 1953, the Sandia Field Office had two AEC representatives at the Base, but their functions have now been absorbed by the field office staff.

The continuing rise of the sea level, which has partially inundated the old airstrip, will require protective works around the administration and housing areas and relocation of some buildings and instrument stations. The rise is attributed to increased irrigation with resultant drainage, and is continuing at a rate of approximately one foot a year. Technical studies indicate the rise will continue over a period of years.

Sandia Contract -- The present contract will expire on December 31, 1953. The present contract provides for full reimbursement without fee. Sandia Corporation personnel totaled 5,406 in mid-1953.

Kansas City

Project Royal (now the Kansas City Plant) was established in February 1949, as a prime facility for production and assembly of electrical and mechanical components, and fuzing units. Operations are in a portion of the Naval Industrial Reserve Aircraft Plant, south of Kansas City, Missouri. Kansas City Division, Bendix Aviation Corporation, is the operator.

Mission of the Installation -- Logistic support of high explosives plants, inert production, procurement and assembly, and base spares procurement.

Kansas City Field Office -- It was activated in February 1949. Personnel totaled 30 in mid-1950 and 69 in mid-1953. The staff structure at that time included: Field manager's office, 4; administration, 8; engineering, 5; production control, 7; quality control, 22; and security, 23.

Physical Plant -- The installation now utilizes approximately 800,000 square feet for manufacturing, 125,000 square feet for offices, plus 225,000 square feet of yard area subleased from Westinghouse, another occupant of the Naval plant. AEC plant value is \$12,965,041.

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Contract -- The present contract provides for full reimbursement of costs and a fee. Total employment varies with workloads but as of mid-1953 there were 3,800 employees (2,600 hourly and 1,200 salary) as compared with 1,451 in mid-1950.

Burlington

Project Sugar (now Burlington plant) was activated in late 1947 to manufacture high explosive charges and to assemble mechanical components. Plant rehabilitation, modification and construction of existing facilities began in October 1947, and first production of high explosive charges was on September 20, 1948. It is located at the Iowa Ordnance Plant, near Burlington, and is operated for the AEC by Army Ordnance by contract with Silas-Mason Company.

Mission -- High explosives production and assembly.

Burlington Field Office -- Was activated as a representative office on November 15, 1949, and as a field office on September 9, 1952. Personnel totaled 3 in 1950 and 17 in mid-1953. The staff structure included: product acceptance, 10; production control, 2; and security, 5.

Several studies have been conducted during the past two years as to the position of Army Ordnance as a middleman between the AEC and the operating contractor, a situation duplicated at Pantex. As of mid-1953, the question had not been resolved. Meanwhile, both SFOO and Army Ordnance had sought to develop staffs which would complement each other and not establish, in effect, two duplicating management levels.

Physical Plant -- Total initial expenditure by the AEC for technical and housing facilities was valued at \$13,000,000. Total plant value by mid-1953 was \$25,900,000 including a \$12,700,000 expansion of HE production facilities in 1950 and 1951. The plant is now Ordnance owned, as is the land. The equipment is AEC property. The AEC had contributed \$394,000 toward housing for Silas-Mason employees, with community operation by Army Ordnance.

Contract -- AEC operates with Army Ordnance by a memorandum of understanding. The present Ordnance-Silas-Mason Company contract continues through September 30, 1954, and provides for full reimbursement of costs and a fixed fee to Silas-Mason of \$189,600 for the current year. Army Ordnance had 10 persons assigned to the AEC operation in mid-1953, and Silas-Mason had 1,249.

Pantex

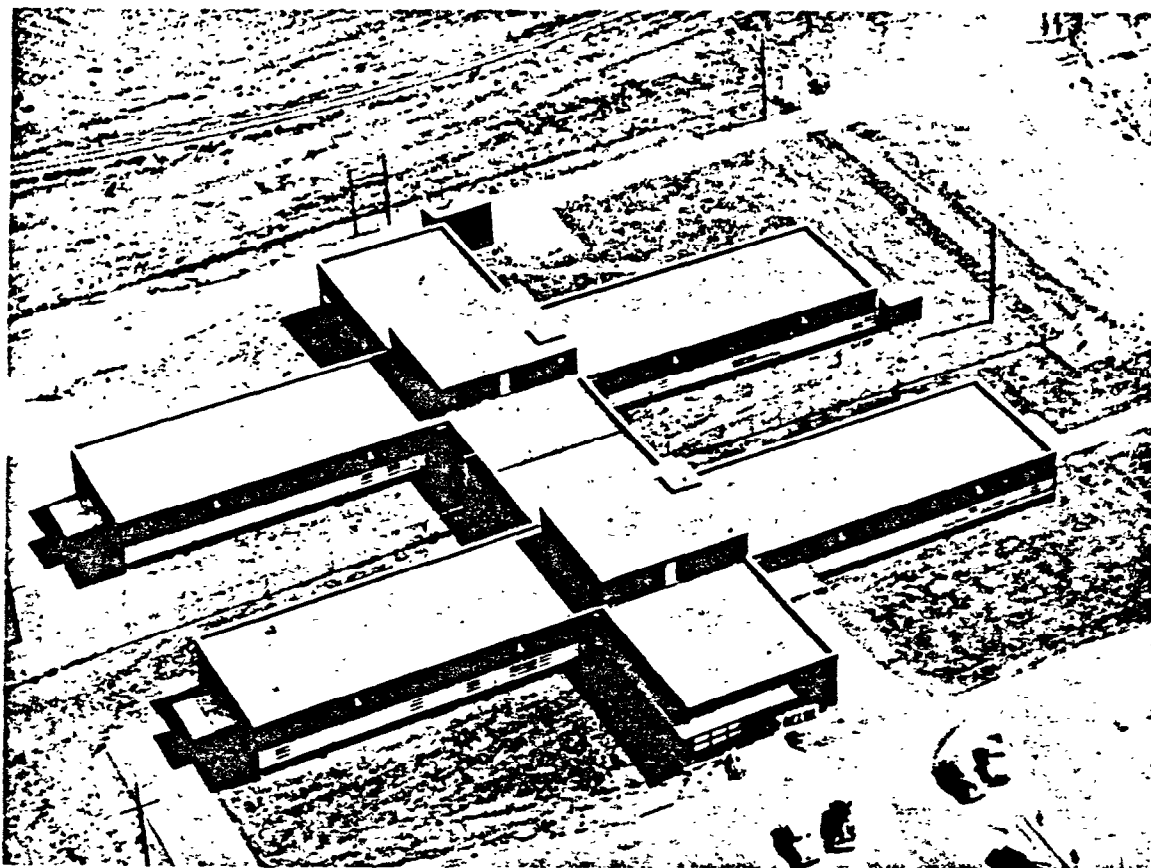
Project Orange (now Pantex Plant) was activated on October 1, 1951, as an HE production and assembly facility. It is located on approximately 4,275 acres of the Pantex Ordnance Plant 17 miles east of the Amarillo city limits in the Texas Panhandle. It is operated for the AEC by Army Ordnance by contract with Procter & Gamble Defense Corporation.

Mission -- HE production and assembly.

ALOO

Pantex Field Office -- Was activated on October 1, 1951. Personnel totaled 23 in mid-1953. The staff structure included: Field manager's office, 2; administrative, 7; product acceptance, 10; and security, 4.

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Administration Building, Pantex

It was intended originally that SFOO, through Pantex Field Office, would operate this facility and SFOO selected Procter & Gamble as operator and negotiated the initial contract. Prior to start of operations it was determined that operation would be through an agreement with Army Ordnance.

Physical Plant -- The acreage utilized was recaptured from Texas Tech in the name of Army Ordnance. Construction was started April 3, 1951, and completed August 1, 1952. The budget estimate was \$29,500,000 but the completed plant as of mid-1953 was valued at only \$18,700,000. Final cost will approximate \$21,000,000.

Contract -- The present agreement with Army Ordnance continues until September 30, 1954, and provides for full reimbursement of costs, including the costs of Procter & Gamble plus a fee. Army Ordnance had 9 personnel assigned to the project in mid-1953, and Procter & Gamble had 937.

Rocky Flats

Project Apple (now Rocky Flats Plant) was activated on March 31, 1951. It is located on 2,545 acres of formerly private land 20 miles northwest of Denver and 12 miles from Boulder. Operation is by Dow Chemical Company, Rocky Flats Division.

ALOO

Mission -- Nuclear component production including: fabrication of nuclear components, final acceptance inspection of all capsule components, assembly of all new capsule production,

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and limited training of military personnel. Many of these production-related functions were formerly performed by the Los Alamos Scientific Laboratory.

Rocky Flats Field Office -- Was activated on July 1, 1952. Personnel totaled 23 in mid-1953. The staff structure included: Manager's office, 3; administration, 7; operations, 4; security, 6; shipment and custodial, 3.

Physical Plant -- The site was selected following extensive surveys. Construction began on July 28, 1951, and was 98 per cent complete by mid-1953. Project was budgeted for \$45,000,000 with estimated completion cost to be \$43,800,000. Plant was valued at \$43,437,084 on July 1, 1953.

Contract -- It continues until June 30, 1954, providing for full reimbursement of costs and a fee negotiated yearly. Contractor personnel totaled 928 in mid-1953.

Spoon River

In order to meet future projections of DOD stockpile requirements for implosion-type weapons, Project Plum-A (now the Spoon River Plant) was activated with final site selection in January 1953. Following an extensive selection procedure, Thompson Products Company of Cleveland was chosen as operator.

Mission -- HE production and weapon assembly.

Spoon River Field Office -- Was activated January 1, 1953, and had a staff of 14 in mid-1953.

Picatinny Arsenal

Project Pepper was activated in 1948 for the sole purpose of manufacturing detonators, relieving LASL of a portion of its workload. Pepper is located at Picatinny Arsenal, Dover, New Jersey. The facilities are owned by Army Ordnance and are operated under agreement with Army Ordnance.

A \$908,000 expansion of production facilities was started in February 1953, and was 38 per cent complete in mid-1953 with completion scheduled for December 1953.

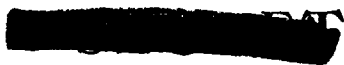
SFO has two inspectors permanently assigned to the Picatinny facility.

Inyokern, California

Project Eye, the Salt Wells Pilot Plant of the Naval Ordnance Test Station, performs HE production and pilot production for new HE. It was activated prior to July 1947.

Management of the operation, including its community, is the responsibility of Naval Ordnance. The Commission contributed financially to construction of community facilities, spending \$4,680,558 up to June 30, 1950. Total AEC investment as of mid-1953 was \$18,660,360.

In mid-1953, SFO had three inspectors assigned to Inyokern.



Los Angeles

The Los Angeles Procurement Office was originally responsible for procurement and for administration of the Salton Sea Test Site. By mid-1950 procurement of scientific, technical, and other materials for the operations centering in Sandia Laboratory had been transferred to Sandia Corporation. Support of Salton Sea was transferred to Sandia Corporation in March 1950.

The Los Angeles Procurement Office was deactivated June 30, 1950, but a Branch Security Office was continued. Its function is to provide security services in connection with West Coast contracts, including Holmes & Narver, Engineers, Inc. Security personnel on duty there in mid-1953 totaled 20. The office also provides space for four auditors assigned from SFOO Finance Division.

New York

One security representative has been stationed in New York City to provide service for the numerous SFO contracts in that area which otherwise would have to be serviced by traveling representatives from other SFOO stations.

Storage Sites

As of July 1, 1953, storage sites were in operation at nine widely dispersed continental locations with three other sites under construction. Initial construction and equipment of sites is budgeted by Division of Military Application with funds turned over to the Army Corps of Engineers, which performs construction through the Kansas City Area Engineer. Selection of sites is by DOD. They are all located on military reservations.

Once the site has been accepted for beneficial occupancy and after correction by the construction contractor of deficiency items, SFOO determines criteria, budgets for and funds additions to or modifications of storage site facilities required because of new developments or concepts to fulfill AEC responsibilities.

There is a three-way operating organization. A military group performs housekeeping, supply, and all physical security. A Sandia Laboratory group performs technical direction for maintenance and modification of weapons, although the Military supplies the bulk of personnel required. AEC-SFO personnel are weapons custodians.

Administration is performed for SFOO by the Storage Operations Branch which is attached administratively to SFOO Office of Production Coordination but which reports directly to the Operations Manager much in the nature of a field office. A total of 36 persons from this Branch was assigned in mid-1950 to storage sites. In mid-1953, three were assigned to Los Alamos as custodial representatives, and 101 were assigned to storage sites.

Nevada Proving Grounds

In response to weapons development requirement, a continental test site was activated January 1, 1951, on a 16 x 40 mile tract of land transferred to the AEC by the USAF from its Las Vegas Bombing and Gunnery Range some 65 miles northwest of Las Vegas, Nevada. Subsequently, a supplemental adjoining tract of three square miles was withdrawn from the public domain as a site for Camp Mercury, the base camp.

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Mission -- To be a site for full-scale nuclear field tests as required to support AEC weapons development and the atomic weapons utilization and defense programs of other national agencies.

Las Vegas Field Office -- Was activated June 22, 1951, to maintain NPG, to support test operations, and to administer various NPG contracts. It now occupies leased office space in Las Vegas during interim periods and at Camp Mercury during tests. Personnel totaled 25 in mid-1953. The staff structure included: Field manager's office, 2; administrative, 7; communications, 3; operations, 7; and security, 6.

Physical Plant -- In addition to the leased space in Las Vegas, the plant includes Camp Mercury, a Control Point and two technical areas—Yucca Basin and Frenchman Flat—at NPG. There was only temporary construction for the Winter 1951 series. Minimum permanent construction began in mid-1951 and was largely completed early in 1952. As of mid-1953, the permanent plant, exclusive of reusable "expendable" items, totaled \$9,600,000. The plant totaled here is exclusive of NPG structures furnished by DOD, of the Army's Camp Desert Rock, and of the USAF's Indian Springs AF Base.

Contracts -- Test construction, including preparation of estimates and cost reports, is a major function of the field office. Such construction requires continuing administration of engineering, architect, and construction contracts. The principal operating and service contracts follow:

Reynolds Electrical & Engineering Co., Inc. -- Operates and maintains Proving Grounds facilities except feeding, housing, security, and permanent telephone plant; performs construction of expendable test facilities for experimental projects; and provides scientific program support to participating test agencies. Personnel requirements for this work in mid-1953 were 349. This contract was effective December 1, 1952, and expires on December 31, 1953, but provides for a year-to-year extension thereafter. It provides for full reimbursement of cost and a fee of approximately \$100,000 for services to be rendered during the initial contract period.

Silas-Mason Company -- Provides architect-engineer services (engineering, design, and field inspection) for all construction work, including both construction of expendable test and permanent facilities; provides engineering support services during test operations; conducts special studies of Proving Grounds operation; and furnishes safety and sanitary services. Personnel requirements in mid-1953 were 56. The contract expired on June 30, 1953, but had an annual extension provision which was exercised. It is a cost reimbursable contract with a fee of \$100,000 for fiscal year 1953.

Universal Food Service, Inc. -- Operates feeding and housing facilities on a unit price basis and Fire and Police Departments on a lump sum basis, with all concession-type services, such as post exchange, recreation hall, barber shop, laundry service, filling station, snack bars, etc., operated on a percentage of gross sales. This was an advertised competitive bid contract for one year, the expiration date being December 31, 1953, and the contractor employed 113 people in mid-1953.

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Federal Services, Inc. -- Provides security services which include operation of the Proving Grounds guard force and the pass and badge office. Forty-two personnel were employed in June 1953. This is a unit price per hour of security coverage contract, awarded after competitive bidding, and covers a term of three years, expiring on December 1, 1955.

[REDACTED]

Bell Telephone Company of Nevada (Pacific Telephone & Telegraph Company) -- Installs and maintains all dial equipment and connecting cable plant to provide telephone and telegraph facilities at the Nevada Proving Grounds. Actual switchboard operation is performed by the Reynolds Electrical & Engineering Co., Inc. This is a continuing lump sum and unit price contract. Employment by this contractor is limited to a minimum of maintenance and installation personnel which fluctuates according to activity at the Proving Grounds.

General Adjustment Bureau, Inc. -- Investigates and adjusts damage claims arising from the operations of the Commission at the Nevada Proving Grounds. Employment varies with the amount of damage to be surveyed at any particular time. This is a continuing contract and all services are rendered on a cost basis with no allowance for profit or fee.

Various Lump Sum and/or Unit Price Construction Contracts -- The number of these contracts will fluctuate with the amount of expendable test facilities required for any particular test operation.

Pacific Proving Grounds

Eniwetok Atoll was used first in 1948 as the site of a ship-based operation. The Atoll is in the Marshall Islands, some 5,500 miles west by south from continental United States. United Nations concurrence was obtained for entry and for use. Immediately after Operation Sandstone, construction of permanent technical and support facilities was begun by Holmes & Narver, Engineers, Inc., under contract to AEC. On September 11, 1952, the AEC approved inclusion of Bikini Atoll in the Pacific Proving Grounds, such extension being necessary to accommodate increased test requirements. Construction at Bikini was started in late 1952. Operation and maintenance is an AEC responsibility with administration assigned to SFOO but with operational control assigned during tests to a Joint Task Force.

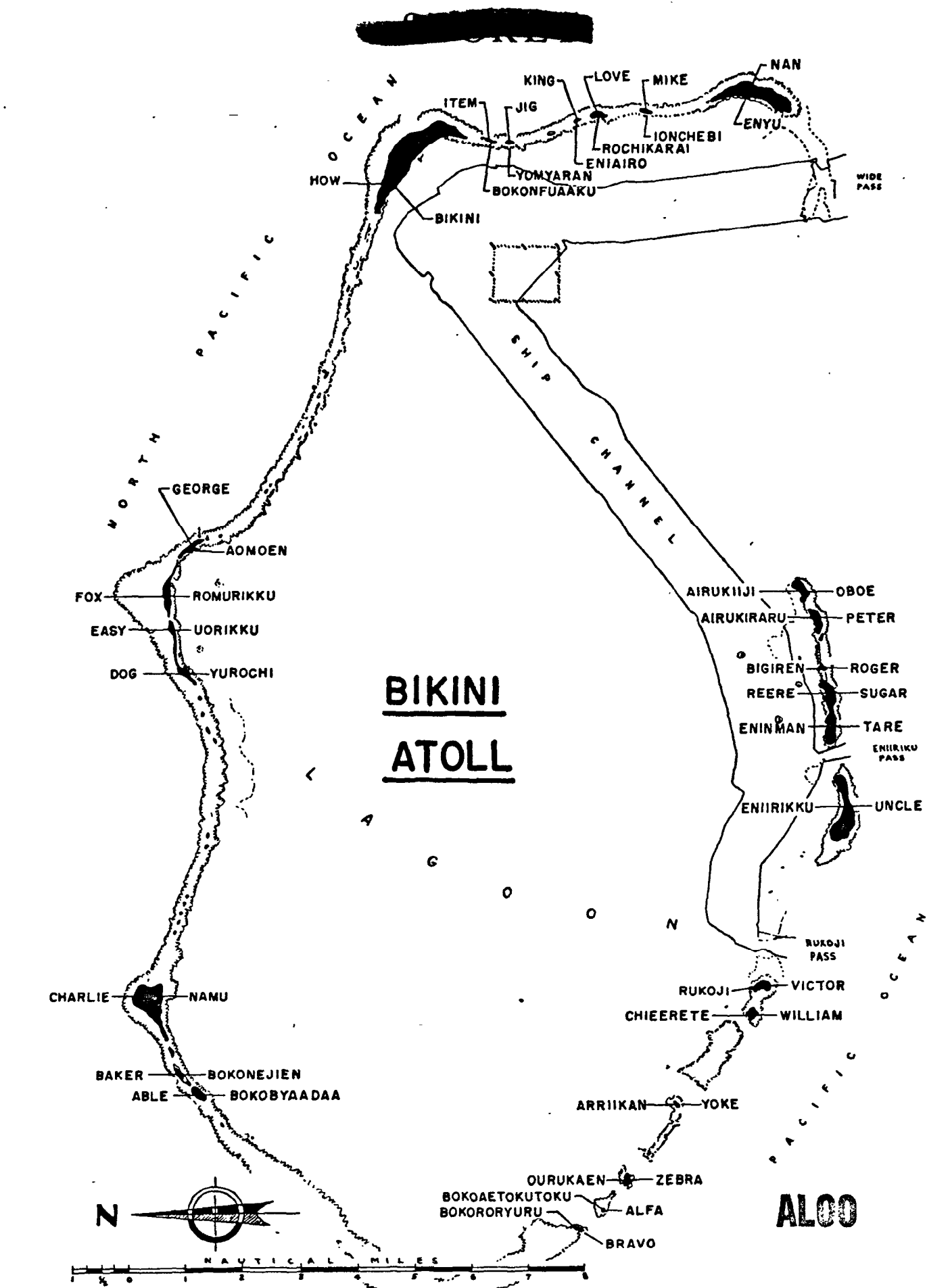
Mission -- To be a site for those full-scale nuclear tests which are not admissible to a continental site, as required to support AEC weapons development and the atomic weapons utilization and defense programs of other national agencies.

Eniwetok Field Office -- Was activated November 15, 1951, to administer the contract for maintenance, construction, and support at PPG. It occupies office space at SFOO, Albuquerque, during interim periods and additionally has a forward office at Parry Island, Eniwetok Atoll. Personnel totaled 16 in mid-1953.

Physical Plant -- Initial construction was started July 1949, on a \$19,295,265 program, of which approximately \$13,015,460 was for base facilities, the remainder being for expendable test structures. Permanent technical and support facilities at PPG were valued at \$16,319,800 as of mid-1953. These totals do not include DOD facilities concentrated on Eniwetok Island.

Contract -- Holmes & Narver, Engineers, Inc., performs engineering, construction, camp operation, and other support activities which are the responsibility of the AEC, under a cost-plus-fixed-fee contract. Scientific and specialized services are provided by participating laboratories and other AEC contractors. Holmes & Narver personnel fluctuates with requirements but as of mid-1953 totaled 1,565 as compared with 1,425 in mid-1950.

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9. THE MILITARY ATOMIC WEAPONS ORGANIZATION

The Armed Forces Special Weapons Project (AFSWP) has its headquarters in Washington and its Field Command at Sandia Base. It coordinates all military assistance to AEC and provides special services to the Army, Navy, and Air Force in the military application of atomic weapons.

It was activated on January 29, 1947, to provide a jointly staffed Army-Navy atomic energy organization. After passage of the National Security Act on July 29, 1947, the Air Force was represented.

Since 1947, the assignments of AFSWP have multiplied steadily. Its earliest functions included military participation in research and development of atomic weapons in coordination with AEC, and coordination through established agencies of the radiological safety measures of the Armed Services. Both of these functions applied to the 1948 overseas tests. In 1949, AFSWP was assigned responsibility for determinations in the field of effects of atomic weapons and participated heavily in the overseas and continental tests of 1950-1953.

On August 1, 1952, Field Command-AFSWP established a Directorate of Weapons Effects Tests. Its Director is a Deputy Manager for continental tests.

AFSWP now functions in the over-all military application of atomic energy for the Army, Navy, and Air Force by providing the following services: specialized training; storage and surveillance in conjunction with AEC; planning of continental and overseas tests with other affected agencies; determination of weapons effects; consolidation of Armed Forces' requirements for procurement of atomic weapons other than War Reserve requirements; assistance, as required, in the development of atomic weapons; assembling of atomic weapons; other technical services to the Armed Forces as required.

Air Force support of the Commission's atomic weapons program is a major factor in many phases of the program. Much of the responsibility, particularly in the testing phase, rests upon the Air Force Special Weapons Center, headquarters Kirtland Field, Albuquerque.

The Air Force Special Weapons Center evolved from the Tactical and Technical Liaison Committee established at Kirtland AFB in 1947 through the activation of the Special Weapons Command in December 1949, and the subsequent transfer of the Command to the Air Research and Development Command. It is now one of eight centers under the jurisdiction of the latter Command.

The mission of Air Force SWC includes development testing and operational suitability testing of atomic and other special weapons; research as related to such tests; the development of associated equipment for nuclear weapons; and planning, control, and operation of special test facilities. It provides support to the Commission and its scientific contractors, including LASL and Sandia Laboratory.

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During the last three years, the Commission's relationships with the Military have become progressively more complex. The Department of Defense has entered the development field as a co-equal collaborator with AEC on numerous joint projects, with prime responsibility of its own in substantial areas of weapon development and design. As a result, it has become necessary to establish special direct working relationships with the individual services while being careful at the same time to insure that the values of AFSWP as an integrating agency are not lost.

[REDACTED]

AFSWP liaison officers continue on duty in many departments of Sandia Corporation, and maintain liaison with Los Alamos Scientific Laboratory. The Special Weapons Development Board, comprised of representatives of AFSWP, LASL, and Sandia Corporation, constitutes the official forum at which are developed formal recommendations on the development and standardization of atomic weapons. Guidance of joint AEC-DOD programs rests with Joint Project Groups whose membership comprises representatives of either LASL or Sandia, carrying the technical interests of AEC; the "cognizant service", Army, Navy, or Air Force, which carries the technical responsibilities for DOD; and AFSWP, which coordinates functions on behalf of all the Armed Services. Authority of the Joint Project Groups derives basically from general agreements between AEC and DOD.

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CHAPTER III

Achievements and Nature of Mission Programs

By broad category, Santa Fe Operations conducts programs of research, development, testing, production, and storage, the results of which are measured by the store of knowledge valuable to military application and by the utility and numbers of weapons in stockpile. The purpose of this chapter is to summarize the mission achievements of SFO and to sketch the nature and something of the extent of operations in the Los Alamos and Sandia areas including nuclear field tests, and including with relation to stockpile production an indication of the extent of weapons inspection and scheduling activities.

10. SUMMARY OF DEVELOPMENT, PRODUCTION, AND STORAGE ACHIEVEMENT

X In 1945, only two types of bomb—and only two bombs—were available to the Military. One of the most important fields of development for national defense was to provide wide ranges both in yield and in size and weight in order to allow the Military to select bombs appropriate to the target and to the available delivery vehicles. Another important reason for reduction in size and weight of bombs was to enable the Military to use a wide variety of vehicles to carry atomic bombs and to gain greater range of action through reduction in load.

Progress Made Since 1945 Through Research and Development

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(c) produced a range of implosion bombs now in stockpile varying in diameter from 30 to 60 inches, in weight from 1,600 to 8,000 pounds, and in yield up to [REDACTED] not including a smaller sized model in development; and (d) produced a system of interchangeable cores and bombs so that yield and bomb size can be chosen relatively independently.

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The advantages of flexibility indicated above are difficult to measure numerically, but are certainly comparable with advantages in increased efficiency of utilization of fissionable materials. The effects of the latter could have been accomplished by very large expenditures leading to increased production of fissionable materials, those of the former could not have been attained except through research and development.

STATUS AND NUMBER OF WEAPON PROGRAMS, JULY 1950 and JULY 1953
(Status and Number—see notes)

Program	Stage 1		Stage 2		Stage 3A		Stage 3B		All Stages	
	July'50	July'53	July'50	July'53	July'50	July'53	July'50	July'53	July'50	July'53
1. NEW WEAPONS										
(a) Implosion-Type Bombs	2	1	0	1	3	1	1	4	6	7
(b) Gun-Type Bombs	0	0	2	1	1	0	0	1	3	2
(c) TN-Type Bombs	0	2	0	3	0	0	0	0	0	5
(d) Artillery Shells	0	2	1	1	0	0	0	1	1	4
(e) Warhead Installations	0	9	0	10	0	3	0	1	0	23
(f) TOTAL, a + b + c + d + e	2	14	3	16	4	4	1	7	10	41
2. MAJOR WEAPON-MODIFICATIONS										
(a) Implosion-Type Bombs	0	0	0	1	0	2	0	2	0	5
(b) Gun-Type Bombs	1	0	0	0	0	0	0	1	1	1
(c) Other	0	0	0	0	0	0	0	0	0	0
(d) TOTAL, a + b + c	1	0	0	1	0	2	0	3	1	6
3. GRAND TOTAL, 1(f) + 2(d)	3	14	3	17	4	6	1	10	11	47

- NOTES:**
1. Stage 1 indicates that studies incident to formulation of program are being made.
 2. Stage 2 indicates that full-scale design and development is underway.
 3. Stage 3A indicates that development is completed or nearly completed, and that action essential to getting into production has been initiated or completed, but first unit has not come off the production line.
 4. Stage 3B indicates that production and stockpiling are underway.

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Development achievements in fission weapons have included: _____

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Status of Thermonuclear Development in Mid-1953

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The engineering of these devices into manageable, practical, and convenient bombs will be the major developmental objective.

In planning its work for 1948, LASL noted that there were on-site activities in regard to thermonuclear reactions and that they would be somewhat reduced in keeping with necessity to "firm up" the then existing knowledge of fission weapons and in keeping with the peace-time philosophy of a studied, scientific approach to developmental problems. The plan recorded, however, that thermonuclear "work will continue on theoretical calculations and on experimental observations of appropriate nuclear constants."

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The 1950 program, listing 16 categories of research and 22 categories of specific weapons projects, also reflected the President's decision that development of a thermonuclear weapon would be pushed. The LASL plan for 1950 noted:

"The program proposed ... appears to LASL to be almost the maximum possible effort in the direction of understanding and attaining thermonuclear reactions and, at the same time, to maintain progress in ... fission weapons sufficient to play a real role in the short-range position in this country It must also be clear that the general nature and philosophy of the thermonuclear program will differ from those heretofore employed by Los Alamos in its study of fission weapons. Because of experimental and theoretical necessity, and in an attempt to gamble on the chance of maximum progress, tests at Eniwetok involving the expenditure of sizable amounts of fissionable material will take the place of part of the heretofore extensive model testing and detailed theoretical calculation. The more empirical approach can, with great good luck, materially shorten a development period; on the other hand, the chance of failure in such tests will be appreciably higher than that under the old philosophy."

In March 1950, LASL initiated an accelerated program under which most of LASL personnel worked a six-day week through 1951.

By Spring 1951, LASL had perfected an experiment to determine if a fission bomb would generate enough heat to initiate a thermonuclear reaction in liquefied materials. A Greenhouse series test demonstrated the validity of this approach.

Almost immediately following Greenhouse, LASL began development of an experimental device for a large scale thermonuclear detonation or reaction. Perfection of this device required extensive engineering assistance on the device itself by American Car & Foundry Company, and extensive cryogenics assistance by three groups. National Bureau of Standards, in the AEC-built Cryogenics Engineering Laboratory at Boulder, provided engineering research and produced materials required; Cambridge Corporation developed and provided means of transporting the liquids; and Herrick Johnston engineered and built a liquefaction plant on Parry Island. The device was tested in the Fall of 1952, during Operation Ivy.

On the basis of Ivy results and other basic design determinations, shortly after the test there was initiated a comprehensive program for development of

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In addition to the three weapons for early test and military use, LASL was developing in mid-1953 other experimental devices to prove new concepts of design. (Other developmental work was also underway after June 1952, in the new Livermore Laboratory.)

Stockpile Operations and Problems

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One of the primary objectives of all SFO operations is the stockpiling of atomic weapons in accord with broad directive schedules and military requirements as these are formulated and issued from time to time by higher authority.

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During the three years ending in June 1950, the major events in SFO stockpiling operations were:

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Product specifications and acceptance procedures were strengthened, as were methods of identifying and correcting design or manufacturing deficiencies in stockpiled units.

Military training, maneuvers, and other related military activities placed a heavy load on all custodial, technical, and logistic organizations, particularly toward the end of this period when inadequacies in the procurement and distribution of spare parts became a major problem.

Planning for future stockpile operations assumed major proportions toward the end of this period by virtue of instructions to minimize the capital cost of additional storage capacity and directives calling for the stockpiling of several new weapons of unusual design.

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The new types of weapons delivered to stockpile included two gun-type weapons and one missile warhead installation.

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Warhead Installations

In mid-1953, significant progress was being made in development and, in some cases, production programs for the application of five warheads to the designated missiles with Sandia carrying the major SFO responsibility. Production and stockpiling were in progress on one warhead, and three others were approaching that stage.

Meeting Problems Created by Increased Production

SFO production for stockpile increased between July 1950 and July 1953, not only as to numbers, but also from delivery of a single weapon type to delivery of a complete line of weapon types. This expansion created various major problems other than development of the field organization as discussed previously.

The expansion of production facilities created many new problems of which gauging standards and inspection procedures were among the more important. Standard procedures have been established and are giving the intended results. The quality assurance and quality surveillance programs supervised by Sandia Laboratory, have been extended into all non-nuclear fields. Good progress in being made in assuring parts interchangeability.

The variety and quantity of base spares necessary to support the ever-increasing family of weapon types also created problems not previously encountered. The earlier spares philosophy, which was adequate when there were few weapons, has undergone much study by SFO, its contractors, and the Military, and a new concept of "maintenance spares" is evolving. This concept is designed to meet requirements which might be occasioned by overseas deployment of weapons. The new category of maintenance spares includes sufficient parts to maintain a group of weapons and/or stockpile assemblies for a period of one year, and, in addition, to support strike assembly for a group of weapons. Procurement and delivery of maintenance spares are scheduled concurrently with production and the delivery of the parent bomb, fuze or radar assembly. This procedure will assure an adequate supply of spare parts at storage sites to maintain the stockpile and to guarantee that when weapons are issued to the Military they will be accompanied by a year's supply of spare parts.

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The value of complete weapons in stockpile is dependent upon the capability of the military services to use them. To keep pace with the new types of weapons in stockpile, it was necessary for the Military to accelerate greatly their training programs; it was

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likewise necessary for SFO to accelerate delivery to the Military of seven different types of training weapons with supporting test and handling equipment.

As the quantities of War Reserve and training weapons increased, the need for complete weapons catalogs became more apparent, and at the same time the Military pressed for the direct delivery by the AEC of training weapons and materials to military depots. A requirement for adaption kits to support various missile programs was added.

From these examples, it may be seen that every increase in any phase of the weapons programs has an accompanying impact upon some other phase of weapon production operations.

11. THE NATURE OF LASL DEVELOPMENT OPERATIONS

The development of atomic weapons of all types involves a composite effort including: primary experimental research, theoretical investigations and calculations, component development experimentation, and full-scale nuclear detonations.

It is essentially impossible to apportion credit for progress among primary research, theoretical investigation, component experimentation, and full-scale detonations. Each serves a separate function. If the available effort is divided judiciously among them, results from all are combined for maximum progress. Developmental progress does not depend upon these four activities being related as the links in a chain at any given time. If any one were to be discontinued no large decrease in the rate of progress would be noticeable immediately. As the interval of no work in one activity increased, it is certain that the rate of progress would fall very rapidly, not to three-quarters of the previous value but probably to a virtually insignificant level.

To those immersed in technical development, the law of supply and demand, as applied to pertinent technical information, is a very strong factor governing distribution of effort among the major activities. Progress in some fields gets ahead of that in others. A demand for information from those lagging behind then builds up to the point where it becomes obvious that a shift of effort, with the corresponding increase or decrease in dollar expenditure, is both economically sound and technically advantageous. These forces keep the activities of a laboratory such as LASL in reasonable balance, the function of management being primarily to sense small imbalances and continuously to adjust effort so as to maintain a steady progress in all necessary lines simultaneously.

It is most difficult for one without an intimate and detailed understanding of the part each of these activities plays and the relative efforts being expended on each to judge whether a given one is receiving too much or too little attention at a given time. The best way of judging if the distribution of effort is good is to examine the over-all progress and, if it is satisfactory over an appreciable period, so must have been the distribution of effort.

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In the more distant past, full-scale testing was not well-balanced with other activities. The need for test information at the time of Trinity was so urgent and so obvious that a large fraction of the national stockpile of fissionable material was used up during a hot war in which it might have been put to direct military use. The Crossroads tests were essentially valueless to weapon development and the growing demand for test-type information again became determining in 1947 leading to Sandstone. Another high surge in the

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demand for information arose before Ranger. The very great and sudden improvements in the national stockpile capability resulting immediately after Sandstone and after Ranger are proofs, not only of the value of full-scale testing, but also of the fact that testing activity had been at too low a level compared with the other activities. Other fields were sufficiently far ahead so that even a little information from tests improved the over-all situation enormously. One of the major activities should never again be allowed to fall so far behind progress in all other major lines for, if so, these activities will soon reach the point of diminishing returns. LASL does not yet feel that the rate of testing is as rapid as the generation of new ideas would warrant.

A new factor has recently entered into the general problem of determining the amount of full-scale testing so as to match appropriately progress in other facets of development. In almost any fission weapon configuration, a combination of results from basic experimental physics, theoretical calculations, and component experiments—all of which can be performed at Los Alamos—can give reliable estimates of all pertinent physical conditions at the beginning of the explosion process. This is not true of devices dependent upon newer techniques for assembly and compression. Not only are calculations much more difficult and uncertain for the assembly phases of these newer devices, but basic data are often less reliable (if known at all) and, still worse, simple experimental checks of predicted behavior during assembly cannot be made without a nuclear detonation. Thus, where full-scale nuclear detonations for fission weapon development have been made with the primary objective of obtaining information about the explosive and disassembly phases of the process, similar tests are now required for thermonuclear devices to obtain information upon both the assembly and the disassembly phases. The uncertainty of these two phases of function of a proposed type of device can easily lead to more than twice as much testing as might be required if only one phase were relatively uncertain.

Another factor influencing choice of the optimum amount of testing of thermonuclear, as compared with pure fission, devices involves the great difficulty of measuring the desired quantities affecting the newer techniques during their progress. This means that, in the new field, test experimentation has become much more complicated and costly in manpower and dollars. This factor tends to hold down the number of such tests because the diversion of effort required for a high rate of field testing would handicap other necessary activities to the point of impeding over-all progress. Nevertheless, it is clear that relatively more tests are needed for thermonuclear weapon development than for fission weapon development.

The LASL Organization

The objective of the LASL effort is to obtain knowledge in several areas as to utilization of nuclear energy for explosive purposes: The area of nuclear characteristics, especially with respect to neutrons, of all materials which are employed; the area of physical, chemical, and metallurgical characteristics of these materials; the area of mechanics and dynamics of methods of initiating the nuclear energy release; and the area of the behavior of supercritical systems in which the energy generation per unit volume is very large. In a general way each area corresponds to an organizational division. There have been no major changes in the internal structure of LASL during the three years. The organization includes the following:

Theoretical (T) Division -- Is involved in all areas, especially the behavior of supercritical systems, which is understandably less amenable to experimental investigation than the others.

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Physics (P) Division -- Is organizationally responsible for the area of nuclear characteristics.

Chemistry and Metallurgical (C-M-R) Division -- Performs research on the exotic materials used in arrangements for producing a nuclear explosion, develops processes for fabrication of these materials and for their adequate purification, and carries out pilot plant operations on a production scale adequate to insure continual improvement in process know-how.

Weapons Research (W) Division -- Is responsible for advance design phases in the area of mechanics and dynamics of methods of initiating the nuclear energy release.

Weapons Physics (GMX) Division -- Is concerned with high speed assembly problems as to methods of initiating the nuclear energy release and, in the field of explosives, with physical, chemical, and metallurgical characteristics.

Weapons Test (J) Division -- Is responsible for nuclear and chemical measurements in tests of actual weapons, and also has many other responsibilities in the planning and technical conduct of full-scale field tests.

Crossing the Division lines are project types of operation, the committees and boards which take on the major programs of LASL. The Technical Board establishes the program to be recommended to SFOO, continuously reviews the program, and establishes committees and boards required to carry the program forward. In addition, teams or committees take up individual phases of a program.

There are various inter-laboratory and inter-organization committees and boards. For instance, the joint LASL-Sandia Corporation TX-G committees coordinate weapon development programs and exercise nominal executive authority subject to concurrence by laboratory managements, in directing the weapon development work. There are other LASL-Sandia working committees to coordinate detailed design and testing. LASL is represented on the Special Weapons Development Board at Sandia, along with Sandia Laboratory and FC-AFSWP personnel. LASL represents AEC development on two gun committees, which include the military ordnance corps concerned and FC-AFSWP.

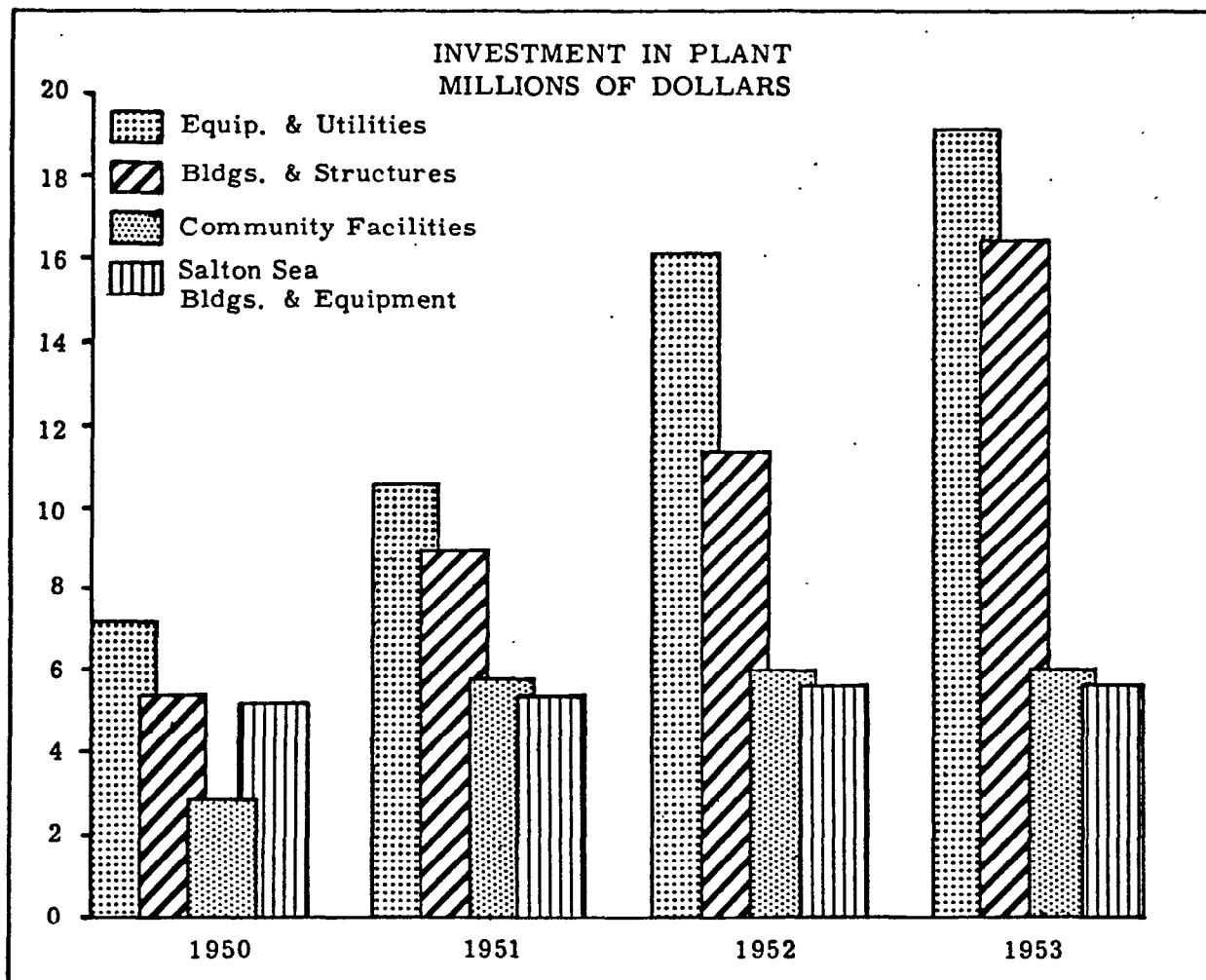
12. SANDIA LABORATORY'S DEVELOPMENT AND PRODUCTION OPERATIONS

Sandia Laboratory carries for SFO the responsibilities for the non-nuclear ordnance phases of nuclear weapons. Its functions as of mid-1953 included: studies of the feasibility of new weapons and components; studies of weapons effects; the development, testing, and evaluation of weapons; the training of military teams; exchange of information with the Armed Forces and other agencies; and quality assurance and surveillance of stockpile weapons.

Research and Development

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During the three-year period, research and development activities increased in emphasis with the introduction of new strategic and tactical weapons, and the development of missile warhead installations. Employees assigned to this work increased from 605 to 1,976 between 1950 and 1953.



The primary objective of Sandia Laboratory research is to contribute to the design of weapons that basic understanding of weapons systems which will provide optimum military worth. More specifically, it is to understand thoroughly the effects of atomic bombs and the methods of delivering them in order to determine the basic requirements of bomb design. In achieving such an understanding, special emphasis is directed toward the fuzing system; toward knowledge of realistic requirements of accuracy and reliability which will in turn permit an intelligent choice to be made between types of fuzing systems. Two related factors have had a marked effect on all aspects of the research program: the increased supply of nuclear material, and the increased yield which can be obtained from a given size of nuclear system. Together they have made possible the economical use of nuclear weapons in tactical applications and the employment of a wider variety of delivery methods. The scope of research problems is extensive as a consequence of the number of tactical weapons involved.

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One base for weapon design is an understanding of the destructive effects of atomic bombs. These effects are far from being completely understood by physicists. They are being investigated by Sandia Laboratory which supplies instrumentation for measuring blast, heat, and nuclear radiation effects in full-scale atomic weapon tests and analyzes resulting data. Studies of small-scale high explosive blasts at Coyote Canyon have contributed additional data, and laboratory shock tube studies have supplied information about the fundamental mechanisms involved in shock wave transmission through the atmosphere.

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The specific information obtained in weapons effects measurements has been interpreted by analytical groups to predict the reaction of various target complexes to atomic bursts. The variation in effect on the target has been studied as a function of bomb yield and burst location, and these studies have provided information on the change in target damage due to burst height and delivery errors. To speed up these studies, which are tedious in practice, the research group has developed analog computing devices, an example of which is the bombing evaluation computer.

An adequate theory of weapon effects will, when it is fully developed, permit an accurate prediction of the military damage achieved when a weapon is delivered under ideal conditions. The degradation in actual use due to unreliability, to enemy countermeasures, and to delivery errors leads to a second major field of study. Weapon analysis is a study of the military worth of a weapon based on knowledge of weapon effects and of the several factors which reduce the performance of a system below the ideal. Functional reliability has been recognized from the start as an important factor in any system. However, improved techniques have been developed for determining the reliability of systems and of individual components, and have in turn pointed out areas for profitable improvement. The dual motor IFI is an example of such component improvements.

An important change during the past three years has been the increased realization that evaluation of a system must also include a study of the human aspects of its expected use. Human engineering studies and close liaison with the Military have led to more realistic requirements and, in turn, to systems of reduced complexity.

The development or improvement of components resulting both from the weapons analysis studies already mentioned, and from engineering requirements, also has been important. Creation of two departments with the direct responsibility in this area has resulted in increased contributions to the weapons program. One department is responsible for radar and test equipment development. The other department concerns itself with mechanical and electrical components. The research organization also has given direct support to the engineering groups in several fields of specialization. For example, an aerodynamics group has been established with responsibility for specifying the shapes of ballistic cases. Extensive use of wind tunnel testing, consultation with leading aerodynamic institutions, and theoretical work has greatly reduced the time and expense necessary for the design and testing of new ballistic weapon shapes.

Tests of Assemblies, Components and Over-All Weapons

During the course of development and evaluation, many tests of a new weapon and its components are made to determine and assure weapon suitability and reliability. For example, the following tests were made of one typical free-fall bomb (Mk 5) and its components:

Over-All Weapons Tests

These include: Drop tests (25 weapon, complete with fuze but without live HE, were dropped to acquire performance and reliability data; and 36 were dropped to acquire ballistic data); catapulting and arresting tests (one weapon complete with fuze was subjected to 17 catapultings, and 12 arrested landings); dynamic stress tests of bomb with fuze (1 tested); temperature distribution tests (1 tested); aircraft compatibility tests (to determine bomb bay clearance and separation characteristics of bomb and 13 carriers).

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Tests of Assemblies and Components

These include: Wind-tunnel ballistic tests (case assembly); static load tests; environmental tests (actual and simulated); vibration tests; climatic tests (arctic, tropic, desert); stability tests (physical stability); functional tests; tool-made sample evaluations.

Tests of warhead installations for missiles and rockets are analogous to those for the free-fall bombs. Complete installations and their components are flight tested with the carriers for which they are being developed.

Some of the tests are made at widely separated places. Warhead installation tests are made at White Sands (New Mexico), Holloman AFB (New Mexico), Inyokern (California), Point Mugu (California), LRPB (Florida), as well as at Salton Sea (California). Environmental tests are made at locations in Minnesota, Florida, and Alaska. Wind-tunnel tests are made at Wright Field, Dayton, Ohio, Cal. Tech. in California, Cornell in New York, and Langley Field, in Virginia; and tests of gun-type weapons were made at Aberdeen, Maryland, and Dahlgren, Virginia. Most of the drop tests of free-fall bombs are made at Salton Sea and at Muroc, California.

In carrying on their development operations and test activities, both LASL and the Sandia Corporation have been assisted appreciably by Bendix-Royal, another member of the SFO family, and by other Government agencies such as the Bureau of Ordnance (Navy), Office Chief of Ordnance (Army), AMC (USAF), NOL (Navy), National Bureau of Standards, and the NACA.

Procurement

The purchasing organization, in addition to its current procurement operations, assumed responsibility on July 1, 1950, for the completion of all open contracts and purchase actions previously negotiated by the AEC procurement offices at New York, Los Angeles, and Santa Fe, for materials and services applying on Sandia Laboratory research and development and production.

At the time the average number of purchase orders placed per month was 1,400 on vendors and 80 on the AEC. The monthly payments averaged \$2,600,000 to vendors, and transfers from the AEC amounted to \$1,100,000.

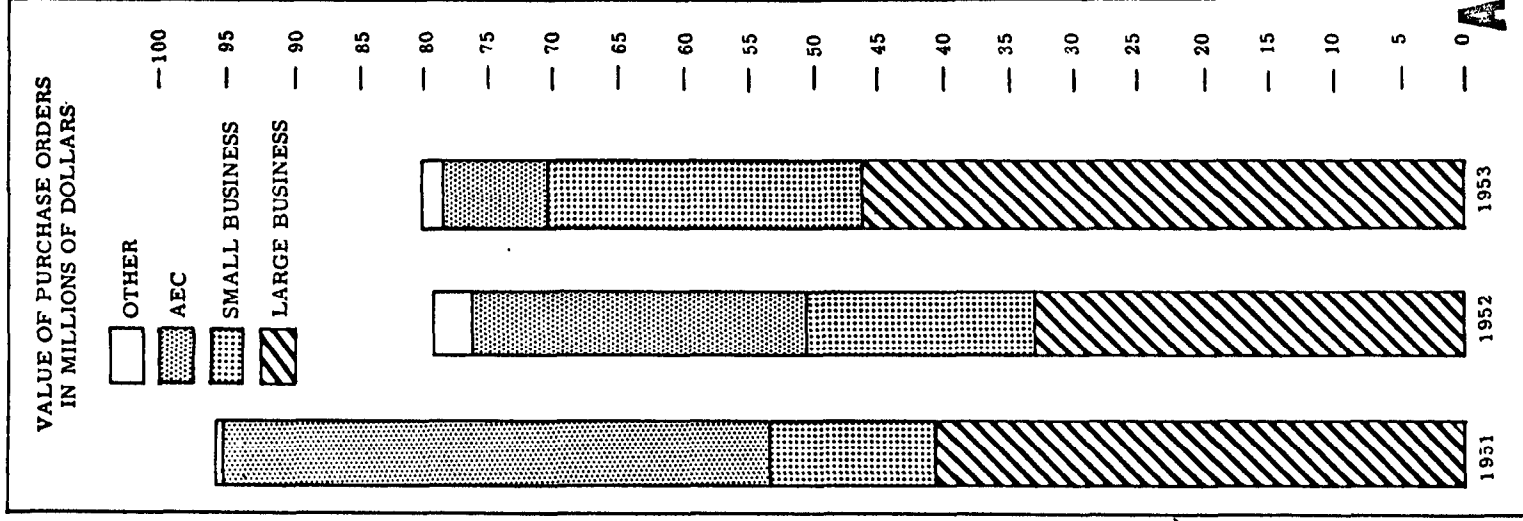
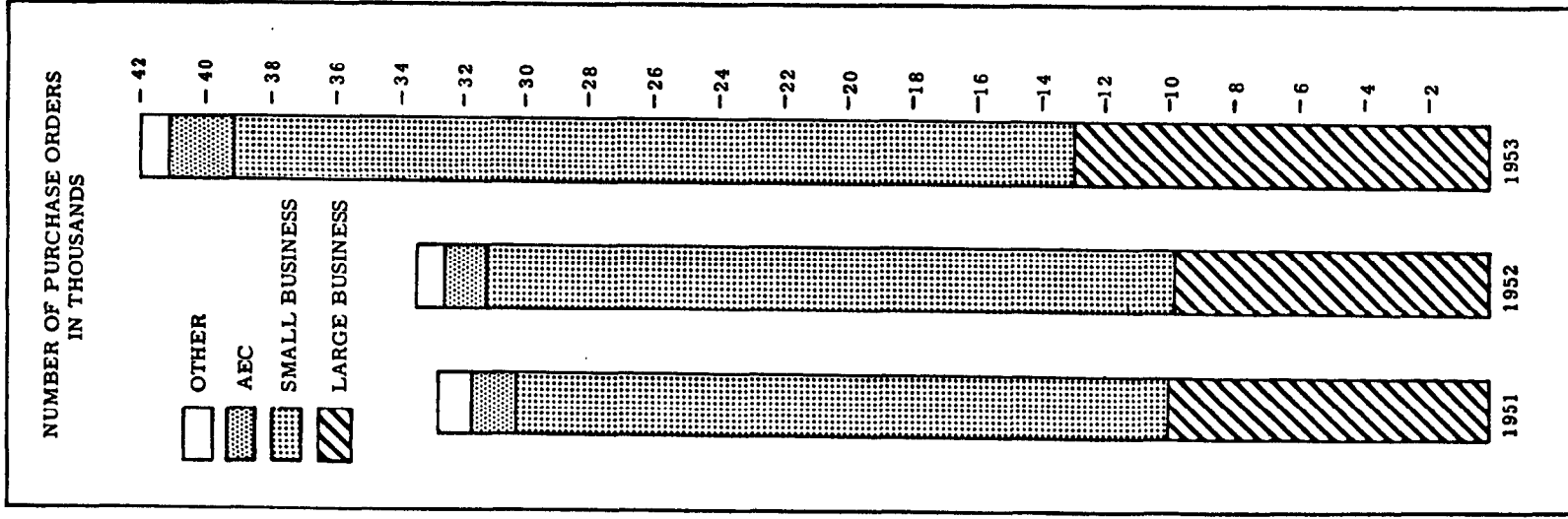
With the rapid increase in the research and development and production programs in the succeeding three years, heavy responsibilities were placed on all organizations to obtain the necessary materials and services required. By June 1953, the volume of orders and contracts placed per month was 3,500 on vendors and 164 on the AEC with monthly payments to vendors of \$7,000,000 and \$2,500,000 for AEC transfers. The number of recorded vendors increased from 4,200 to 5,700 during the three-year period. In placing this increased volume of business, full consideration was given to small businesses qualified to handle the Sandia work. A controlled material plan which provided for the allotment of critical materials, both for the Corporation and its vendors, was placed in operation and as a result no serious delays were encountered due to the lack of materials.

Production

Production activities of the Laboratory were divided between the model shop and the weapons assembly shop.

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Model shop manufacture covered the production of models, apparatus, and parts to support the research and development programs. In November 1951, it took over the additional responsibility for ordering, assembling and testing of TX and TU weapons. The model shop had 180 employees on July 1, 1950, and was housed in scattered temporary areas of approximately 16,000 square feet with limited facilities. It completed its move into the new model fabricating building in June 1951, and now occupies 97,000 square feet of floor space. New facilities have been provided and there are now 600 trained employees. With the increased emphasis now being placed on research and development and the transfer to other contractors of free-fall implosion and gun-type weapons, the manufacture of TX and TU units will be transferred to the weapons assembly shop, leaving the model shop free to devote all of its efforts to the serving of the research and development program.

The weapons assembly shop which assembles, tests, and packages some of each Mark weapon, has similarly grown from 250 to 550 employees, and its floor space has increased from 85,000 to 175,000 square feet. It is housed in a new production building which was completed and occupied in January 1951. The value of production, including deliveries to research and development amounted to \$23,664,000 for the fiscal year 1951; \$60,919,000 for the fiscal year 1952; and \$97,700,000 for the fiscal year 1953. Substantially all major production programs at Sandia were met during this three-year period.

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With the transfer of quantity production of free-fall implosion and gun-type weapons to other AEC contractors, the responsibilities of this shop will be confined in the future to the production of: a small number of free-fall implosion weapons required to prove weapon design, missile warhead installations, and field test and handling equipment. This shop will also be available for emergency retrofit, modification and repair of stockpile materials.

Production Coordination

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Emphasis during the past three years has been placed on: release of designs based on maximum possible standardization and ease of manufacture, strengthened liaison activities with the manufacturers, and adequate inspection and quality control. This was made necessary because of the greater variety of weapons and the transfer of production responsibilities of free-fall implosion type weapons to other AEC contractors. Standardization has been established through uniform drafting methods, materials, process and apparatus specifications, and the increasing selection and use of commercial materials. To the extent that they are available, military specifications have been employed. Not

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only have these recognized standards been adopted, but by cooperation with national standardizing bodies, such as the American Standards Association, Sandia Laboratory has made a definite contribution to the standards of this country.

In addition to this, through a manufacturing engineering type of organization within the Sandia Corporation and their contacts with the AEC manufacturing system, manufacturing comments have been incorporated into designs well in advance of design releases. This early incorporation of manufacturing comments plus the standardization efforts will continue with the result that design specifications will present the best professional expression of a design that it is possible to make. This will result in more efficient procurement of weapons and components and will minimize delays.

With the growth of the AEC manufacturing system, improved liaison has been developed between the Corporation and the non-nuclear production agencies. For example a Bendix-Sandia Joint Production Committee has been established which develops an early and continuing interchange of information on development and manufacturing situations of mutual interest, to expedite weapons production.

With regard to inspection and quality control, the Laboratory has designed and usually has furnished to the non-nuclear manufacturers gauging and production test equipment necessary to control function and interchangeability. It has also developed field and internal inspection agencies which provide inspection control for all of its outside purchases and assembly operations. Quality assurance, in addition to covering Sandia production, has been expanded to all major AEC weapons producers.

Quality Assurance and Surveillance

Weapons are checked by Sandia Laboratory both before and after they enter stockpile. In July 1950, Sandia Laboratory's quality assurance activity was confined to testing small samples of its own finished product. During the last three years a much more adequate program has been developed. Scientific sampling plans were instituted, definitions of defect classifications were made, and methods of presentation were decided upon. The quality assurance program later was extended to other major AEC weapon production units and defined well enough so that some vendors to the Laboratory are, under Sandia Laboratory procedures, assembling data on their own product for Sandia analysis. Early in 1952, the first tool-made sample report was published, an event which signalled the beginning of a program to determine the degree of conformance of the product to design intent. The Quality Survey Program, which was designed to investigate and rate vendor capabilities, was begun in mid-1952.

Stockpile operations have seen three major increases in activity since July 1950. One of these changes results from a decision to do an increasingly greater amount of repair work at the sites rather than at some manufacturing center. Costs of shipping weapons to manufacturing centers have, as a result, greatly decreased. Another area of activity which has grown since 1950 is a calibration program begun about the middle of 1952. Thirdly, the scope of operation has generally increased, in that five new sites have been built, a much greater variety of weapon types as well as a constantly increasing quantity of weapons have been produced, and an increasing number of weapons have been deployed to overseas sites.

Employment

There were 2,046 employees on the payroll as of June 1, 1950, of whom 22 per cent were professional employees, and this ratio has remained relatively constant during the

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past three years. The increase in program requirements for research and development and production activities necessitated a rapid acceleration of employment, culminating in a total of 5,447 employees on a payroll as of June 30, 1953. No appreciable increase over this figure is anticipated during the coming year. In order to obtain the net increase of 3,401 employees during the three-year period, it was necessary to hire 5,570 persons at an average rate of 154 per month. The average monthly separations during this period was 1.5 per cent per month, compared with a national average of 4 per cent per month.

Statistical Highlights

The table below statistically summarizes the major factors entering into the technical phases of the research, development, and production programs.

	Fiscal Years		
	1951	1952	1953
Cost of Research and Development	\$25,149,000	\$39,202,000	\$47,656,000
Cost of Production (other construction & elsewhere)	17,863,000	49,604,000	82,295,000
Cost of Own Production (less sub-contracted purchases)	4,862,000	6,283,000	7,195,000
Orders Placed With:			
Firms employing less than 500	20,388	21,416	25,986
Firms employing more than 500	9,989	9,786	13,170
Educational, non-profit, and other Government agencies	1,022	793	858
AEC	<u>1,334</u>	<u>1,428</u>	<u>1,960</u>
Total	32,733	33,423	41,974
Employment Costs	13,270,000	22,362,000	30,034,000
Payments to Commercial Suppliers	21,909,000	52,366,000	60,415,000
Number of Employees at End of Year			
Research & Development Organization	921	1,505	1,976
Other	<u>2,497</u>	<u>3,270</u>	<u>3,471</u>
Total	3,418	4,775	5,447
Plant at Year End	\$31,821,000	\$40,398,000	\$48,268,000
Building Space at Year End	771,014 (sq. ft.)	904,149 (sq. ft.)	1,011,784 (sq. ft.)

Supporting Services

Numerous supporting services contributed greatly to the success of the technical program.

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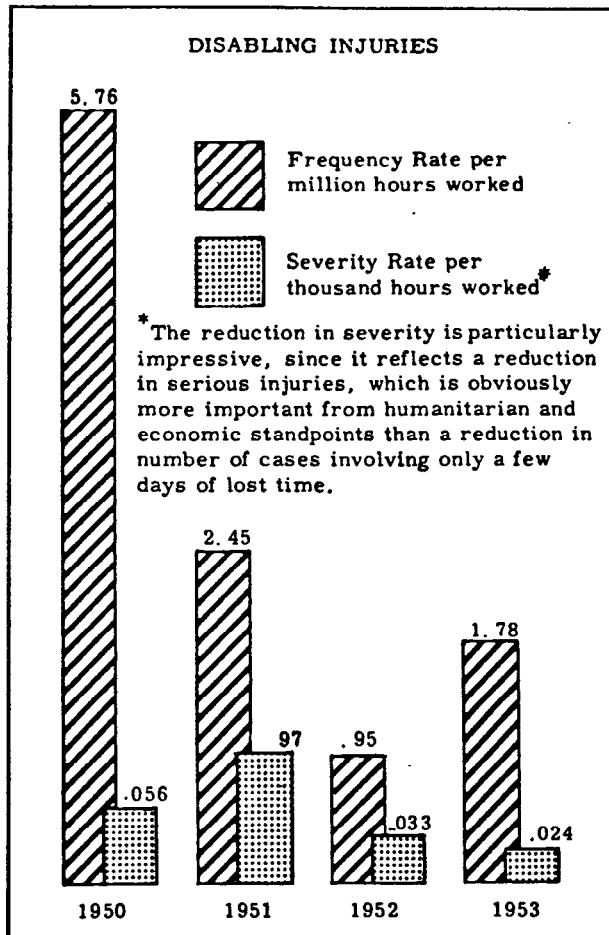
Employee services and benefits were adopted to include a contributory retirement plan, a Corporation-finance group life insurance plan, an insurance counseling service, and payment of a differential allowance to employees entering military service to make up for loss of income during the period of adjustment to military life. An employee review committee was established to review employees relationship problems. A bi-weekly employee newspaper was inaugurated. The training program during 1953 included 50,000 student hours of instruction.

A full-scale industrial health activity, in March 1953, moved into a new modern medical building. Awards of Honor of the National Safety Council for Sandia's outstanding safety record were received for performance for each of the last two years. Sandia's frequency of disabling injuries and the severity rate for accidents has been kept below those of other AEC contractors and the national average for similar industries. In the field of accounting, a major accomplishment was the installation of a cost control system covering expenditures for research and development work. An auditing organization was also established for making internal audits for management's information and control, and for the auditing of vendor's cost type contracts and contracts subject to renegotiation.

Relations with the unions have been good, and the number of grievances has been small. During the three-year period, one grievance was taken to arbitration by the union, involving the Corporation's right to discharge an employee for striking his supervisor. The arbitrator's decision supported the Corporation's action completely.

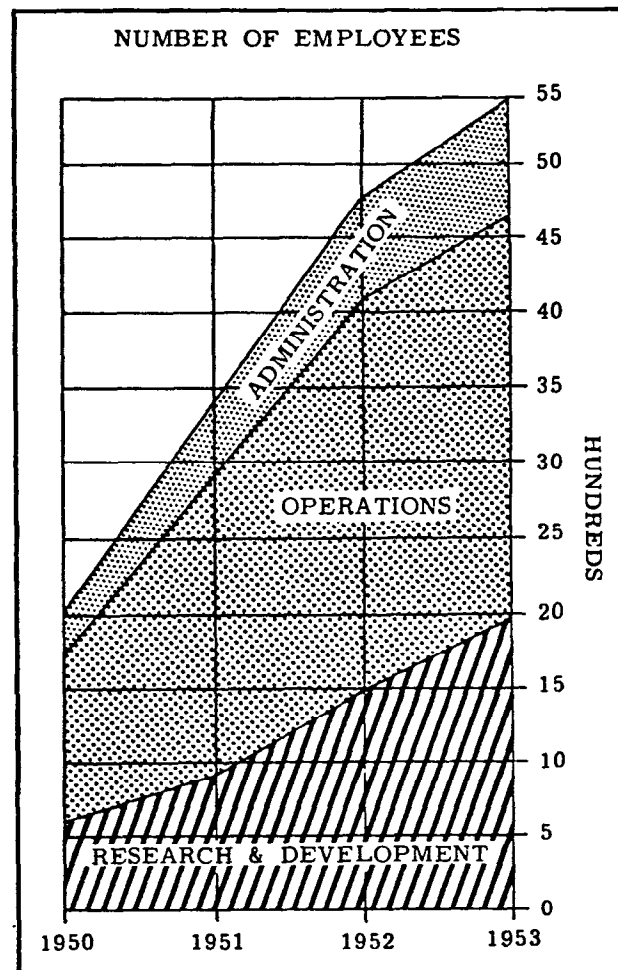
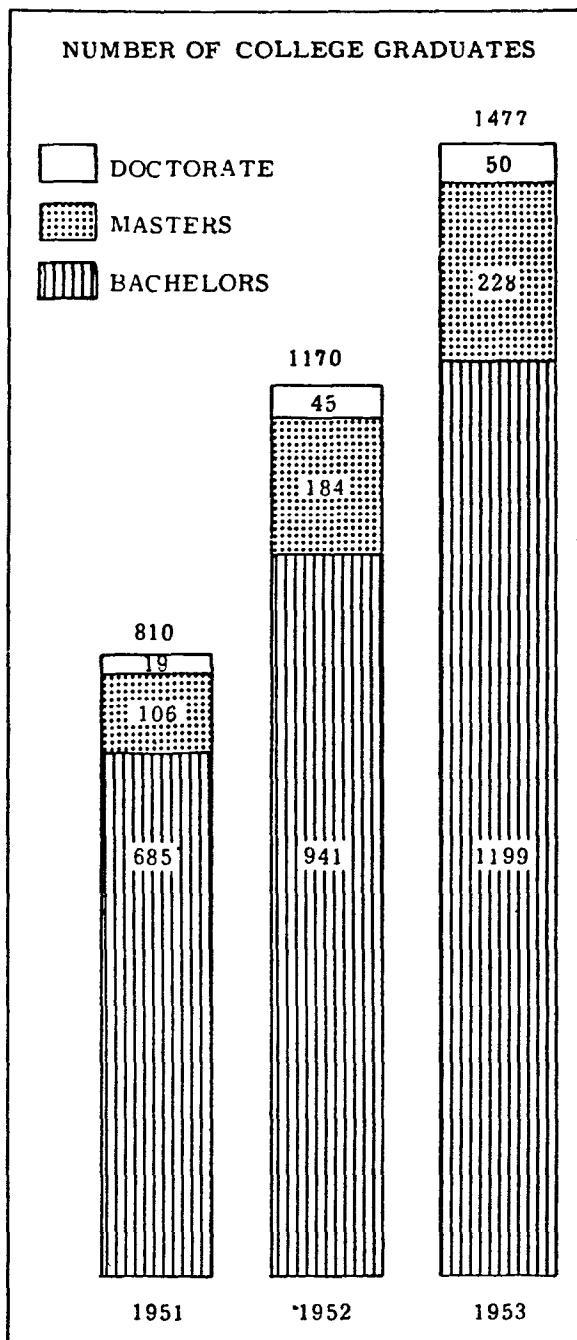
13. WEAPONS INSPECTION AND SCHEDULING IN THE SANDIA AREA

The Sandia Field Office is responsible for technical direction of the weapons inspection program and has other responsibilities in scheduling and distribution. These assignments are in addition to a wide scope of security, support service, and contract administration functions resulting from its association with Sandia Laboratory. A summary of weapons inspection, scheduling, and distribution activities is reported here as it assists understanding not only of SFO Field Office activity but also of the rather extensive scope of production-related SFO activity.



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The Weapons Inspection Activity

Inspection personnel utilized in the field office inspection program initiated April 1, 1950, were military officers and enlisted men assigned by AFSWP. Prior to the AEC inspection activity, they served as AFSWP inspectors to assure that military requirements were met in products processed and delivered by Sandia Corporation. Subsequent to July 1950, civilian personnel were hired and trained to replace military inspectors; replacement being completed in June 1951. Concurrently, a liaison section was formed by Field Command to assist in inspection problems.

A site reacceptance inspection program was activated in September 1950. AFSWP with field office approval designated military officers at Sites Able, Baker, and Charlie to serve as AEC Chief and Alternate Chief Inspectors in ZI site reacceptance of bombs which had been temporarily released from AEC custody for the purpose of functional surveillance inspection by Sandia Corporation. In September 1951, AEC reacceptance inspection was similarly initiated at Site Dog.

In the period July-September 1952, AEC inspection at Sites Easy, Fox, and George was instituted subsequent to agreements between AEC-SFOO and AMC. Similarly, inspection at Site How was initiated in April 1953. Inspection at Site Jig was initiated in July 1953, after agreements were reached between AEC-SFO and Navy-BuOrd.

Each site AEC inspection office has a chief and an alternate chief inspector responsible to Sandia Field Office on all matters pertaining to AEC reacceptance activities. AEC-SFOO formulates policy and issues appropriate directives setting forth broad responsibilities of the inspectors. AEC site inspectors are drawn from the local military command for periods wherein plant operations are performed on AEC materiel.

Site inspection groups vary in size depending upon capacity of facilities and equipment and extent of plant operations; ranging from approximately 15 inspectors at Sites Able and Baker to approximately 8 at Site Easy.

The AEC inspection programs, within the field office and at the ZI sites, have been directed toward a final product acceptance concept. In addition to 100 per cent acceptance inspection of delivered materiel, monitoring of receiving and process inspection performed by the contractor is achieved by means of "sampling checks" of material and review of contractor methods, facilities and equipment.

In 1952, a resident AEC inspector was established at Douglas Aircraft in El Segundo, California, to accomplish AEC acceptance inspection on mechanical components processed for Inyokern and Sandia. This joint AEC-Sandia Corporation inspection activity at vendor eliminated need for shipment to Sandia prior to delivery to Inyokern and improved delivery dates for stockpile. Expiration of Douglas contracts with Sandia will allow recall of this inspector in December 1953.

It was felt that considerable savings might be realized by performing AEC inspection at Motorola in Chicago with subsequent direct delivery of radars to stockpile. Consequently a resident AEC inspector was established on a trial basis in May 1952. Technical analysis of radars produced during the period May-August 1952 indicated, however, that reinspection utilizing Sandia facilities was still required; the resident inspector was therefore recalled.

Appreciable savings were realized in accomplishing AEC inspection at Picatinny. An AEC-Sandia inspector made frequent trips to Picatinny to inspect the Mark 9 shells

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produced, thus permitting direct shipment to stockpile. In June 1953, AEC-SFOO installed a resident inspector at Picatinny for acceptance and direct shipment to stockpile of detonators for all bombs. He was also made responsible for acceptance of all Mark 9 shells processed by Picatinny.

Weapon Inspection Methods and Procedures

Assistance was given in formulating inspection manuals and in preparing associated directives for SFOO approval and issuance. As a result, uniformity in AEC inspection operations has been successfully implemented in the past three years. Representatives of Sandia Field Office have coordinated with other field offices in continuing liaison capacities to assure uniformity in the AEC inspection interest. In the administration of the rapidly expanding site inspection program, supplementary procedures in addition to SFO directives have been initiated. These procedures involve detailed systems, reporting requirements, and liaison channels, and are originated and instituted as required for purposes of efficient and uniform site inspection operations.

Weapon Inspection Liaison

SFO Inspection Manual I delegated responsibilities to Sandia in regard to liaison activities in the AEC inspection interest with other field offices. Liaison was initiated in the Summer of 1950 with Kansas City and Burlington, and in 1952 with Pantex. In addition to coordination of inspection criteria and procedures, SFOO has arranged for indoctrination and training of AEC inspectors.

Weapon Specifications Description

In the assembly and inspection of final products for War Reserve, specifications utilized consist basically of engineering drawings, parts lists, inspection and test procedures, packaging procedures, and marking and shipment specifications. In the modification and maintenance of stockpile assemblies, specifications utilized, in addition to the above, include rework instructions and reacceptance inspection and test procedures. Contractor assembly and inspection methods are in conformance with complete and detailed specifications, ranging from parts drawings and related criteria to final assembly gauging and testing specifications. The AEC, however, emphasizes primarily those specifications necessary to assure, through such use, that products delivered to AEC are functional, interchangeable, and basically reliable. Specifications utilized in the AEC interest include combination catalogs and parts lists for major assemblies and packaging procedures, inspection methods instructions and test procedures for final assemblies and certain sub-assemblies, test inspection (certification) and packing sheets.

Weapon Specifications

All specifications for non-nuclear major assemblies are originated by Sandia Corporation except detailed specifications for high explosive material and "pit" assemblies and detonators which are designed by LASL. LASL design requirements are incorporated into production assembly and inspection specifications, however, to provide a single product specification issuance and control agency.

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The staff of the field office has been expanded in the past three years to include engineering personnel to review Sandia Corporation issued specifications and approve those final product specifications which are used as a basis of acceptance of products from contractors.

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Specifications monitoring is achieved by review of all engineering releases and changes thereto concurrent with introduction of such specifications, and by formal approval of end product and testing specifications, those utilized in AEC inspection and test, and revisions thereto, prior to publication. Review and approval of specifications are performed to: insure practicality and workability of such specifications; assure proper function, interchangeability, and reliability of products; conform to approved systems and designations requirements, and achieve compatibility for all affected delivering projects.

In addition to review and approval of specifications for material produced, systems and procedures which govern issue and release of specifications, drawing control systems, deviation procedures, parts numbering systems, etc., are approved or recommended for approval.

Concurrent with the reviewing and approval functions for specifications originated by Sandia Corporation, the field office maintains liaison with engineering and inspection personnel of other field offices, providing technical direction and assistance as required in control of specifications implementation and of use and uniformity of inspection procedures.

Weapon Specifications Control and Introduction of Changes

It is considered of prime importance to AEC to insure uniformity of delivered major assemblies regardless of producing agency. For this reason there was initiated in September 1950, a monthly listing of AEC approved specifications to govern AEC acceptance of major assemblies. This listing is distributed to all affected delivering agencies and ZI sites. The listing is divided into two sections; the first showing which designated types of assemblies are currently acceptable at each agency and site, and the latter section providing listings of pertinent specifications applicable to all acceptable designated types.

The scope of the AEC monthly specifications listing embraces those specifications used for final contractor inspecting and testing by the AEC for acceptance inspection, and changes introduced in subsequent monthly listings are of a major class; i. e., controlled basic design or major remedial changes. The monthly listing is applicable to scheduled rather than calendar rates of deliveries to AEC.

Scheduling, Production, and Deliveries

In 1951, AEC-Sandia inaugurated and placed into effect a comprehensive scheduling system for Sandia Corporation production and deliveries to all ultimate users. This formalized, in scheduling fashion, the deliveries of development, pre-production, and production materiel by item to various military agencies, Sandia Corporation departments, and to War Reserve on a monthly basis.

In late 1952, AEC-Sandia, taking into cognizance the multiplicity of new weapons programs and the activation of additional storage sites, both of which resulted in an attendant increase in the complexity of the modification programs, inaugurated and placed into effect a procedure for definitive scheduling of these programs.

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This procedure has resulted in considerable expediting of modification as well as keeping the AEC continuously informed as to the latest status of all weapons at all sites. Another benefit gained has been the expediting of shipments of modification materiel to overseas operational storage sites for purposes of modifying those weapons in the hands of the Department of Defense to the latest status.

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Working Relations with DOD

An inspection liaison section had been assigned for the purposes of review and recommendation relative to the DOD interest in specifications and inspection. This section is comprised of military officers who review the specifications presented by Sandia Corporation for AEC approval. The arrangement affords the field office a single point of contact on matters of inspection and specifications wherein coordination with DOD is desired or required.

In the administration of AEC site inspection activities, members of SFOO make periodic liaison visits to ZI sites. Site commanders and staff level officers have assisted the AEC inspection program as requested and/or required.

Distribution of War Reserve Material

On July 1, 1950, the production of War Reserve Material was restricted to Sandia Corporation and Burlington, producing only one type of weapon at any one time. The distribution of the material was to Sites Able, Baker, and Charlie. At that time the distribution was performed by one person in the custodial unit of AEC-Sandia. The material was shipped direct from production immediately in order to build up the stockpile as quickly as possible. This was done primarily to meet military requirements and maximum loads; nearest destination was a secondary consideration.

As this operation progressed through 1951, 1952, and 1953, there were several different types of weapons developed; producers increased from two to four, and sites increased from three to nine, consequently, by 1953, the distribution of War Reserve Material developed into a network system of producers, sites, types of weapons and components, which resulted in a centralized distribution point in order to coordinate the production and shipment of the various weapons and their components to the sites in proper ratio to assure the availability of complete weapons.

This centralized distribution point was reorganized in June 1953, into the Administrative Branch of the field office, and it was necessary to reassign personnel in order to perform this function. This was accomplished by changing the duties of certain personnel in the Branch in order that part time could be spent in the performance of this function.

14. NUCLEAR FIELD TEST OPERATIONS

Testing goes hand in hand with each step in the manufacturing process, from research to stockpile. Laboratory testing is continuous, including, for instance, the tests of the behavior of metals at extreme low temperatures conducted at the Boulder Cryogenics Laboratory in recent years.

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Both Los Alamos and Sandia have extensive and specialized programs of field testing which do not involve full-scale nuclear detonations. Sandia has its own backyard testing laboratory in the Sandia Base area, a test site at Salton Sea, and uses many other testing sites throughout the United States. These, as discussed previously, range from ballistic, vibration, and static load tests to catapulting and arresting tests, aircraft compatibility, and drop tests of non-nuclear over-all weapons. One of the major reasons for locating Los Alamos Scientific Laboratory on an isolated New Mexico plateau was sparse population and adequate real estate for explosive, but not full-scale nuclear, tests. Several outlying

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sites have been used routinely by LASL since 1943 for tests involving high explosives and for tests involving radioactive materials. As discussed in the previous section, much of the requisite knowledge up to the point of disassembly of implosion-type weapons could be tested at Los Alamos' outlying sites. With the advent of two-stage thermonuclear experimentation, however, Los Alamos' outlying sites could no longer be used to acquire assembly knowledge; exploration of both the assembly and disassembly phases now require full-scale field tests.

A majority of full-scale field tests is for exploration of what takes place during assembly and disassembly and for nuclear components research and development. Some are held, however, to check the functioning of various components or of the full weapon. Tests for these purposes are utilized additionally by other national programs, such as military and civil defense effects programs. On occasion, tests are scheduled almost entirely to meet military requirements, but are then used additionally for developmental research.

From the viewpoint of AEC programs, full-scale nuclear field tests are held for the following reasons: To

1. Assure the adequacy of a device or weapon before it enters the national stockpile, to provide a firm basis for undertaking the extensive engineering and fabrication effort which must be expended in order to carry a preliminary model to the version satisfactory for stockpile production.
2. Demonstrate the adequacy, or inadequacy and limitations, of current theoretical approaches in order that promising avenues of development may be exploited more fully or given lower priority of attention.
3. Explore phenomena which can vitally affect the efficiency and performance of an atomic weapon, but which are not susceptible to prior theoretical analysis of sufficient certainty.
4. Provide a basis for choice among existing theoretical methods of weapon improvement in order to concentrate attention along lines of the greatest practical significance.
5. Determine the validity of entirely new and untried principles proposed for application to the production of explosive atomic energy at improved efficiency.
6. Provide entirely new information pertinent to weapons development arising as a by-product of scientific observation of full-scale detonations. Experience has shown the significant value of such incidental information obtained in addition to specifically planned objectives.
7. Gain time in urgent development programs by the substitution of full-scale tests for a portion of a possible but lengthy calculational and experimental program in the laboratory.
8. Provide, as a by-product, basic scientific information which becomes a part of the backlog of knowledge more normally obtained in the laboratory. Tests thus contribute to other major phases of weapons development. Another application of this type of information lies in its use in the interpretation from

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studies of bomb debris of the constitution and efficiency of nuclear devices detonated by other nations.

Nuclear field tests are thus important and integral factors in the diagnostic phases of the over-all weapons research and development program. They are also essential in providing the National Military Establishment and Federal Civil Defense Administration with pertinent information on effects, and for training purposes of many kinds. The activation of an overseas and a continental proving grounds, and the progressing frequency and number of tests, are a direct reflection of the rapid development of atomic weapons during the period.

Overseas Tests: Pacific Proving Grounds

During the pre-1947 MED period, the first nuclear device was detonated in July 1945, on a remote section of the Alamogordo (New Mexico) Bombing Range. This first, historic test was followed by Operation Crossroads, conducted in July 1946 at Bikini Atoll in the Marshall Islands of the Pacific. The operation consisted of two tests made to determine the effects of atomic weapons against naval vessels. As early as 1947, when the necessity for more tests was apparent, some consideration was given to selecting a testing site within the continental United States. Due to several deterrent factors, the decision was made to continue using the Marshall Islands.

Accordingly, Eniwetok Atoll in the Marshall Islands was approved by the President of the United States on December 2, 1947, as the site for an atomic proving ground entrusted to the AEC for operation and maintenance. Its isolated location and more usable real estate influenced its choice over Bikini. Three devices were tested during Operation Sandstone in April 1948. As a result of the Sandstone tests, the efficiency and flexibility of atomic weapons were substantially increased. Construction of permanent facilities on Eniwetok and Parry Islands began immediately after the operation, and the Pacific Proving Grounds during the present period has served as the overseas site for two series of full-scale tests.

Operation Greenhouse -- Was conducted during April and May 1951. The series consisted of four tests: the detonation of two nuclear weapons (bombs) and two experimental devices. The first shot, a weapon test, was detonated April 8 on a 300-foot tower on Runit Island, Eniwetok Atoll. The second shot, also a weapon test, was detonated April 21 on a 300-foot tower on Engebi Island. The third shot, a device test, was detonated May 9 on a 200-foot, heavy-load tower, on Eberiru Island. The concluding shot, also a device, was fired on a 200-foot tower on Engebi Island, May 25. The objectives of the operation were to prove: a weapon of higher yield and efficiency, a weapon of smaller size and weight, and to conduct explorations in the thermonuclear field. In addition, eight experimental programs to study the effects of nuclear detonations on structures, equipment, materiel, and animals were included for the benefit of DOD, AEC Division of Biology and Medicine, and FCDA. Long range detection techniques were further studied during the operation.

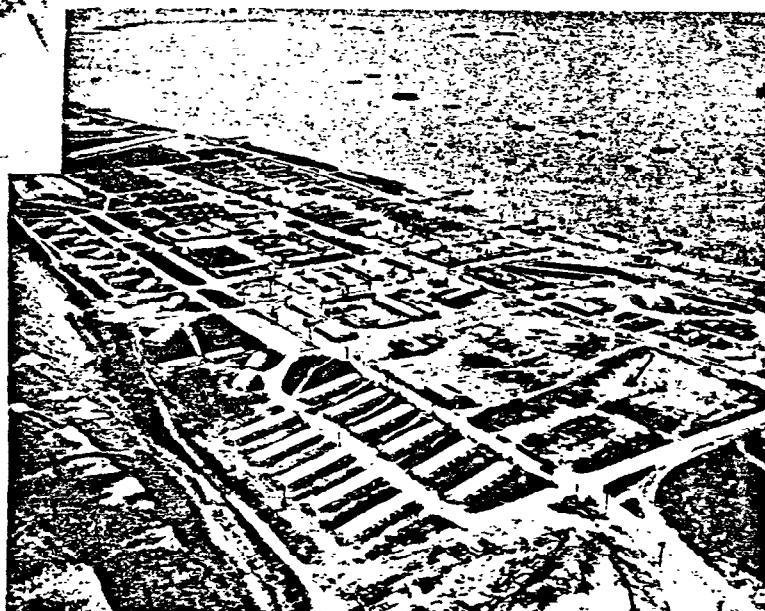
Operation Ivy -- Planning was already under way when Greenhouse was concluded. The series was announced on October 1, 1951. The Ivy series consisted of the detonation of a very high yield thermonuclear device, and a high yield nuclear weapon. The first shot was detonated on November 1, 1952, from a surface platform on Elugelab Island. The second shot was an air-dropped weapon detonated at a height of 1,500 feet over Runit Island on November 16, 1952. The test contributed significantly to work in the thermonuclear field. Eleven experimental programs were also included in the Operation.

Eniman Camp - Bikini Atoll
from Lagoon Side



4500-foot Airstrip at Bikini Atoll
Constructed on Two Islands with
Connecting Causeway

Portion of Parry Island

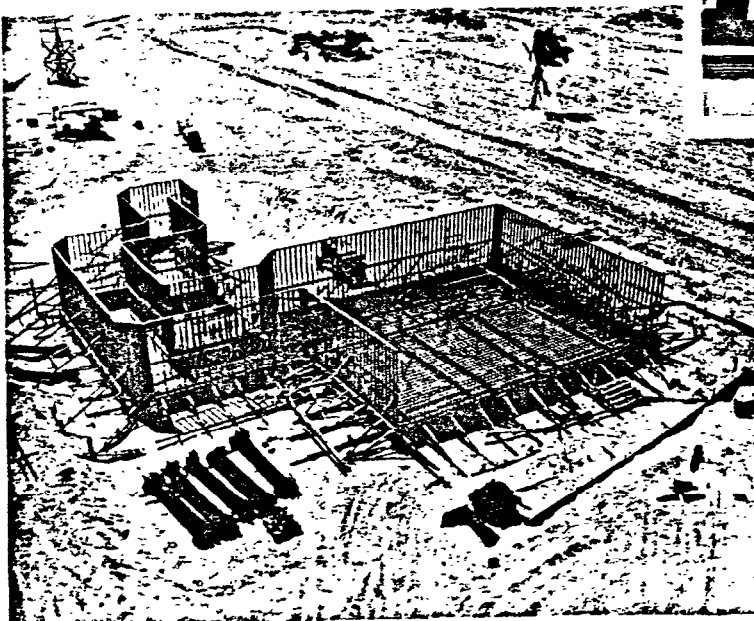
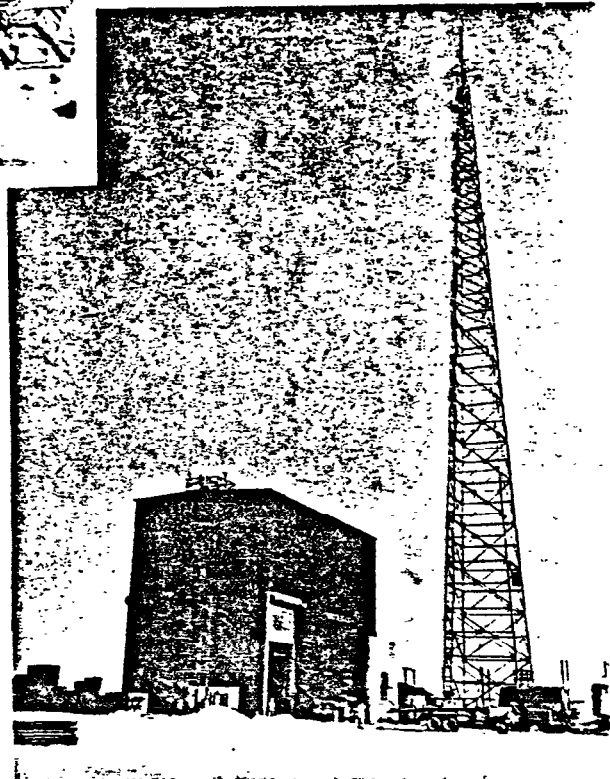


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Beach-head Camp at
Bikini (on Enyu Island)

Zero, Site Elugelab and
Telemetering Tower



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Bogon, Reinforced Concrete
Recorder Station

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Continental Tests: Nevada Proving Grounds

As early as 1947, LASL had proposed that AEC activate a continental test site. It was recognized, however, that continental operations would pose difficult problems, including protection of sensitive information, public safety, and public reaction. It was determined that Operation Sandstone would be held overseas and the question of a continental site was postponed.

More frequent tests became essential during 1949 and 1950. LASL required testing at a rate which could not be satisfied overseas. A related test preliminary to Operation Greenhouse was required in 1950 and, with the outbreak of Korean hostilities, LASL renewed its request for a continental site. Studies and site surveys had continued throughout 1948-1950. It was generally agreed that continental tests would be economical of time, manpower, and money. It was finally agreed that, under feasible controls, tests of devices of limited yield could be held with adequate assurance of public safety. Abandonment of Pacific Proving Grounds was never considered, although the possibility that the overseas area might be closed by the international situation was a factor considered. The projected continental site was to be in addition to the overseas test site.

On November 14, 1950, a memorandum from the National Security Council to the Secretary of State, Secretary of Defense, and the Chairman of the Atomic Energy Commission, notified them that the President had directed the Commission, with the assistance of the Department of Defense, to survey suitable continental sites and to recommend one for early development and use.

Five possible areas had been surveyed and the results were re-evaluated:

The Alamogordo-White Sands Guided Missile Range in New Mexico.

The Dugway Proving Ground, Wendover Bombing Range in Utah.

The Tonopah-Las Vegas Bombing and Aerial Gunnery Range in Nevada.

An area in Nevada about 50 miles wide, and extending from Fallon to Eureka.

The Pimlico Sound, Camp Lejeune Area, in North Carolina.

Selection of these possible sites followed elimination of sites in Canada and Alaska; sites along the northeastern coast; and other sites along the southeastern seaboard. Sites in the arid west seemed desirable because they were sufficiently remote from population, and had sufficient surrounding uninhabited areas to allow conduct of nuclear tests with adequate public safety.

Only the Las Vegas area met the criteria for a continental test site: ready accessibility to Los Alamos Scientific Laboratory and Sandia Laboratory by land and air, good communications, adequate radiological safety for small off-site population, satisfactory weather, reasonably regular topography, prospects of economy of preparation and operation, and sufficient real estate.

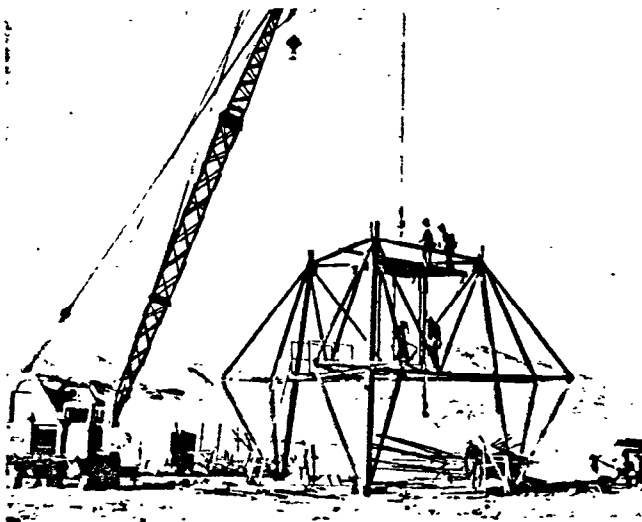
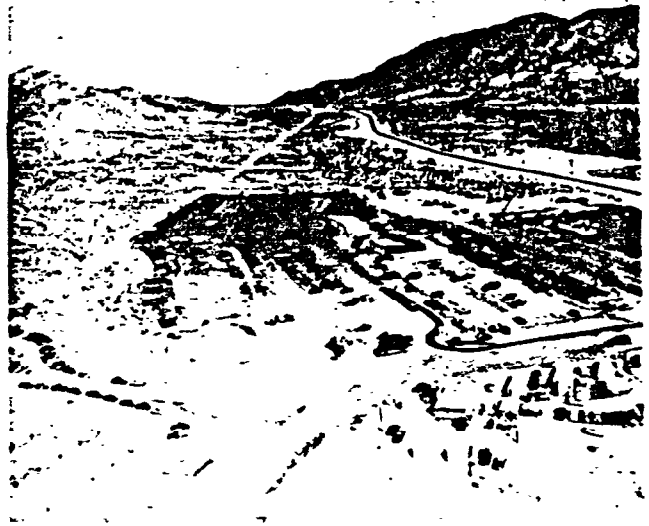
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On December 13, 1950, the Chairman, AEC, submitted recommendations for use of the Las Vegas Bombing and Gunnery Range as an atomic continental test site to a Special

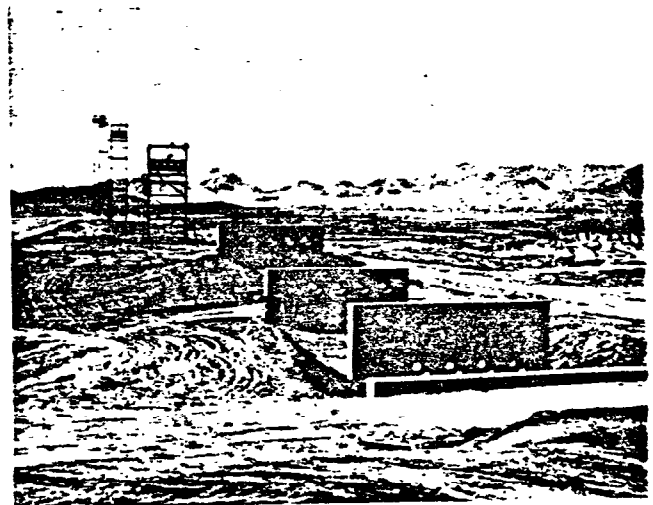
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Camp Mercury, during Construction
Nevada Proving Grounds



Tower Construction, Forward Area,
Nevada Proving Grounds



Tower Construction, Forward Area,
Nevada Proving Grounds



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Horses Injured by Radiological Fallout near
NPG during Upshot-Knothole

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Committee of the National Security Council for Atomic Energy Matters. Five days later Presidential approval was given, and preparations were made to activate the site which subsequently became Nevada Proving Grounds.

Continental Test Operations

The Nevada Proving Grounds was activated January 1, 1951, using temporary construction and the first nuclear test shot was detonated on January 27, 1951. During the current three-year period, four series of continental tests have been conducted:

Winter 1951 Series (Operation Ranger)—five shots. All were experimental devices tested by the air drop technique. The tests were diagnostic in nature.

Fall 1951 Series (Buster-Jangle)—seven shots. Five were primarily diagnostic for the benefit of LASL, and two were primarily of interest to DOD as weapons effects experiments. Shot 1 was a tower shot, the following four were air bursts, and the last two were respectively a surface and an underground burst.

Spring 1952 Series (Tumbler-Snapper)—eight shots. They were equally divided as to air bursts and tower shots; five were experimental devices of primary interest to LASL, and three were sponsored by DOD in connection with weapons effects phenomena.

Spring 1953 Series (Upshot-Knothole)—eleven shots, including air, tower, and the 280mm nuclear projectile shot. Nine shots were diagnostic in nature, seven being of primary interest to LASL and two to UCRL; and two tests were of primary concern to DOD, including proof-testing of the 280mm nuclear projectile. The latter, however, was of particular interest to LASL, and justification for the shot was a joint AEC-DOD responsibility.

During the last three series approximately 37,500 personnel of the Armed Forces, including Army, Air Force, and Marine Corps units, were indoctrinated in the principles of atomic warfare through simulated combat maneuvers conducted in conjunction with the tests. Armed Forces participation, "Exercise Desert Rock" I-V, was conducted by the Sixth Army from a headquarters at Camp Desert Rock nearby. Various groups of officer volunteers during several shots were stationed in advance of the main body of troops at the time of detonation. Also exposed to detonation for Armed Forces effects information were materiel and supplies, above- and below-ground structures, and items such as pine trees and railroad equipment.

Air Force participation for crew indoctrination and experimental test purposes as well as for normal air support—such as cloud tracking and sampling—was equally heavy, particularly in the last series. During Shot 9 (1953 series) a maximum of 100 aircraft participated.

Notable from a public relations viewpoint were the two "Open Shots" of April 22, 1952, and March 17, 1953, during which national news media representatives, public officials, and Federal Civil Defense Administration representatives were permitted, under security control conditions, to witness the detonations as uncleared observers. The resulting wide coverage through all media—press, periodical, radio, TV, and motion picture—provided the public with opportunity to add to its understanding of Commission and of Armed Forces activities and objectives. Federal Civil Defense Administration participation in effects experiments was continued throughout the last series, and was reportedly of great value in the national defense effort.

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Public safety is the primary factor limiting utilization of Nevada Proving Grounds, and public reaction whether justified or unjustified by events is a major management concern. As of July 1953, it had been proposed that a representative committee be formed to review all factors bearing on NPG utilization and public safety and a Committee To Study Nevada Proving Grounds was being organized. Its report will present the details of NPG utilization, of the operating record of full public safety, of factors bearing on future utilization, and arrive at conclusions as to the future. The report may be referred to for further details of NPG operation.

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CHAPTER IV

Community Programs

Camp facilities, housing, and some degree of community services are provided at several SFO installations. There are, however, only two which are classified formally as "community programs," those at Los Alamos and at Sandia Base.

The Los Alamos and Sandia programs are detailed in this chapter. The other support activities of this general type include the following:

Salton Sea Test Base, Westmorland, California

Limited but important all-year housing-community facilities are provided with operation by Sandia Laboratory. The site is on the edge of Salton Sea remote from any established community. A few residences, a lodge, and utilities were constructed prior to July 1950, as part of a \$1,373,000 administrative and community facilities construction program. Present housing is adequate to accommodate approximately 35 permanent employees and up to 75 scientists, technicians, and military personnel during brief operational periods. Recreational facilities include a swimming pool, the importance of which is enhanced by summer temperatures as high as 125 degrees.

Burlington Plant, Iowa

AEC contributed financially to facilities to house employees of the operating contractor, Silas-Mason Company. Community management is a responsibility of Army Ordnance, which operates the Iowa Ordnance Plant at which the SFO plant is located.

Inyokern, California

AEC contributed financially to construction of community facilities supporting the Salt Wells Pilot Plant of Naval Ordnance Test Station. Community operation is a responsibility of Naval Ordnance.

Nevada Proving Grounds

Camp Mercury is the camp which supports NPG, including housing and mess facilities for the small interim population and for the relatively large operational period population. Plans have been drawn for further construction to make Mercury capacity come closer to operating period requirements, including provision of additional barracks and of an assembly-recreation structure. As of July 1953, these plans were being held in abeyance pending Commission review of future NPG utilization.

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Pacific Proving Grounds

Permanent camp-type facilities are provided on Eniwetok Island for military personnel and on Parry Island for AEC and contractor personnel, both providing for population

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expansion during operational periods. During a test series buildup and operations, other support camp facilities are provided in the firing areas on other islands. As of July 1953, construction was in progress on such facilities at several locations on Bikini Atoll.

Sandia Community

This supporting community, located on Sandia Base and in effect a joint AEC-AFSWP effort, has been an important factor in the growth of Sandia Laboratory.

Construction of facilities by the AEC at Sandia started in the winter of 1947-1948, with the Corps of Engineers acting as AEC's authorized representative. The first contract was for erection of temporary housing for AEC and operating contractor employees. This housing was constructed on military land with the understanding that as soon as other AEC housing was available it would be turned back to AFSWP. The Corps of Engineers continued to supervise all AEC-Sandia construction, community or technical, until July 1950, when responsibility was assigned to the Sandia Field Office.

The community construction program was begun and largely completed during the previous three-year period at a total cost of approximately \$5,935,000. Included were housing (235 single units, 136 apartments, and 100 dormitory rooms), and the Coronado Club for recreation. Since mid-1950, 30 additional housing units for single occupancy, second phase landscaping, and some street and utility construction has been completed, at a cost of \$998,000.

An additional total of \$6,421,000 of AEC funds was turned over to AFSWP for construction of community facilities, some of which were joint projects with AEC.

In the period prior to June 30, 1950, the AEC housing area was administered by AEC-Sandia through a housing office which controlled occupancy, collected rentals, utility payments, and generally supervised operations in the area. By agreement with AFSWP, housing maintenance was performed by the Post Engineer, AFSWP, on request of the AEC Housing Office. In the Spring of 1950, the AEC Housing Office was disbanded, and operation and maintenance of the housing area was turned over to Sandia Corporation, the operating contractor for Sandia Laboratory.

In addition to the AEC housing on Sandia Base, AFSWP has a large housing area which has approximately two and one-half times more units than that of AEC. In 1951 there was completed adjacent to the Base a Wherry Housing Area which was a joint project between USAF SWC, Kirtland Field, and AFSWP, Sandia, with a provision that AEC personnel or Sandia Corporation would have access to a limited number of units in this area if needed, and if available after military requirements had been fulfilled.

Effective August 1, 1953, and in conformance with the requirements of the Bureau of the Budget Circular A-45, average rentals were increased by approximately 33.5 per cent.

The following table shows the record of community operation expense for the Sandia Field Office from fiscal year 1949 through fiscal year 1953:

Fiscal Year	1949	1950	1951	1952	1953
Revenue	\$58,005.56	\$259,560.00	\$317,152.00	\$339,557.00	\$339,313.00
Expense	62,889.05	178,340.00	258,489.00	270,387.00	302,986.00
Profit (Loss)	(\$4,883.49)	\$ 61,220.00	\$ 58,663.00	\$ 69,170.00	\$ 36,327.00

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Joint AEC-AFSWP Maintenance Activities

Contracts for electricity and natural gas to supply Sandia Base are under the jurisdiction of AFSWP. The AEC, by means of a contractual agreement with AFSWP, pays for its share of the electrical power and natural gas on a metered basis or as mutually agreed between the parties to the contract.

Steam for heating and processing on the Base is furnished from the AEC-owned steam plant in accordance with the contract agreement described above. AFSWP is charged for steam furnished it on a metered basis at the actual cost of operation to AEC per thousand pounds of steam produced.

The water supply system was constructed jointly by AEC and AFSWP. AFSWP operates the system and AEC is charged 50 per cent of the direct labor and supervision cost of running the water pumping plant.

Fire protection is provided under the contract agreement by AFSWP, with AEC paying 40 per cent of the direct labor cost of the Fire Department.

Police protection is furnished by AFSWP without charge to AEC.

Los Alamos Community

The change of Los Alamos from a makeshift community of 7,150 in July 1947, to a modernized, self-governing, and largely self-supporting community of 12,700 population—the eighth largest city in New Mexico—was an outstanding achievement of the last six years.

Building and developing Los Alamos community was a major management task during 1947-1950. The basic job was completed by mid-1950. Further progress has been made during the past three years in each phase of operations requisite to a modern city—adequate construction, provision of utilities, community operations, business management, schools, medicine, churches, contractor maintenance, etc. There have been definite accomplishments in each, contributing to the over-all achievement which is represented by today's community.

The Construction Program

The community of Los Alamos as envisaged at the time the community building program was initiated in fiscal year 1948 has been completed. Housing units, schools, commercial facilities, hospital and related structures have been built and are operating as permanent parts of the community.

The housing emphasis has turned to replacing the approximately 585 substandard housing units located on the original Town site in the Eastern Area. This was projected in the original 1948 plan but had to be postponed because of the Korean emergency. It is being accomplished in phases over a period of years. As now projected, some 215 replacement houses will be built and with existing housing will support a laboratory total of 3,100 employees and provide for an ultimate community population of 13,000. The first phase of the replacement program, consisting of 120 units, is scheduled for construction in fiscal year 1954.

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Related to replacement of housing is removal of the airport from its mesa-top location to a site at White Rock. It will be constructed in the Summer and Fall of 1954, including a paved runway with a minimum length of 4,000 feet, an access road, control building, field lighting, and other necessary appurtenances.

The report for 1947-1950 emphasized sufficiently the failures of water supply and natural gas facilities, shortage of electricity, and over-loading of sewage treatment plants. For example, the original gas line placed Los Alamos on the far end of a gas transmission line of inadequate size. Los Alamos was served after Santa Fe and Albuquerque had obtained their gas from the same line. This condition resulted in poor gas service at Los Alamos, and was corrected by new construction. This is shown by the fact that in February 1951, the gas transmission line which originally served this area ruptured between Albuquerque and Santa Fe. Prior to the Bloomfield gas line construction, such an accident would have caused a serious gas shortage at Los Alamos, but with the new line in operation the gas supply was adequate.

All such inadequate utility facilities have been reinforced by new construction with the result that fear of failure, which would cause widespread distress to either the technical programs or the community, has been practically eliminated. Minor operating difficulties have arisen, but serious trouble has become a thing of the past.

The major construction projects which have been completed and which have brought about the adequacy of the present Los Alamos utility systems are: multiple-source water development, the TA-3 steam and power plant, the Bloomfield gas line, and the Pueblo Canyon sewage treatment plant. The adequacy of these plants has been proved by the fact that they have met all increased demands caused by the growth of Los Alamos. Minor additions to the utilities systems, in order to keep pace with growth or changed conditions, are all that will be needed in the future.

Owing largely to these construction developments, Los Alamos is now able to support its present population of 12,700. The table below shows the yearly population increase:

	<u>1947</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>
Total							
Population	7,150	8,200	8,643	10,620	12,378	12,664	12,700

Community Operations

One of the first and primary objectives of SFOO was provision of a community at Los Alamos which would fit all essential requirements for agreeable living and which might become self-governing and, to some extent, self-supporting. The Manager, SFOO, projected in 1948 his objective for the community to be eventually self-supporting other than continuing Federal subsidies to the medical center and to the schools. Full self-support, in the sense of no requirement for Federal subsidizing of community operations, was not believed possible although it was a goal. Such full self-support was, however, achieved in fiscal year 1953.

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The decline in deficit (difference between revenues and expenses) for community operation, or in other words, the decrease in "subsidy" and the conversion to a status of self-support, and better, is indicated in the following table:

<u>Fiscal Year</u>	<u>Revenue</u>	<u>Expense</u>	<u>Difference</u>	
1949	\$2, 683, 192	\$7, 086, 892	Loss	\$4, 403, 700
1950	3, 311, 628	5, 195, 361	Loss	1, 883, 733
1951	4, 440, 829	5, 622, 144	Loss	1, 181, 315
1952	4, 997, 199	5, 314, 456	Loss	317, 257
1953	4, 914, 084	4, 786, 295	Gain	127, 789
1954 Estimate	5, 067, 652	4, 956, 049	Gain	111, 603
1955 Estimate	5, 160, 880	5, 020, 384	Gain	140, 496

Many factors contributed to the change reported in the foregoing table. Some free services were discontinued entirely. Other services formerly free were performed at a charge to the residents. At all times a much greater consciousness of costs was generated in all those who had a part in or control over the magnitude of the expenses.

Adjustments in Rental and Utility Rates -- There was also a slight adjustment in residential rental rates which could have caused an over-all increase of approximately 5 per cent in revenue from that source. However, in fiscal year 1953, the anticipated increase in revenue was cancelled by increasing vacancy in residential real estate for reasons that will be described later. The other main source of revenue, namely, that from the commercial establishments, has risen slightly. The income from this source is mostly derived from license agreements for the use of commercial property which provide for the payment of a percentage of gross sales as the monetary consideration for the use of the space.

One of the early approaches to reducing subsidy was to inquire whether rents for residential property were at a proper level. The policy was established by the AEC that residential rentals should be set at an amount which compared with rentals in this geographical area for similar premises, and that the rental scale at Los Alamos itself should be such as to properly reflect the extreme differences in the types of housing units available. After consideration during several months by a local committee, it was finally decided that this problem might best be solved by hiring a residential real estate rental appraiser or appraisers to survey Los Alamos and vicinity and make recommendations. In September 1950, the services of two appraisers—Treadwell and Goldstein—were contracted for and their report was submitted in December 1950. This was reviewed and a recommendation made in January 1951, for the adoption of the appraisers' report as a new rental scale to be put into effect at Los Alamos. During this same time, national policy on the subject of rental rates for Federally-owned housing was being formulated. It was first announced in Circular A-45 issued by the Bureau of the Budget under the date of June 9, 1951. The new residential rental rates recommended for Los Alamos were reviewed in the light of the Directive A-45, were found to be in accord, and were put into effect on January 1, 1952.

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During the period covered by the foregoing, intensive study was also being given to the text of the family housing license agreement which had been in use since Army days at Los Alamos, and it was found that many changes and improvements were desirable. A new form of agreement was devised, following as much as possible normal real estate practice and modified to take into account conditions at Los Alamos. When the adjusted rents went into effect on January 1, 1952, the new form of license agreement was put into effect for all units.

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Similarly, a change in the charges for utilities at residential quarters was made in order to conform with Bureau of the Budget Circular A-45 requirement for comparability with local domestic rates for similar services. The study, research, and investigation that was necessary to comply with the intent as applied to the situation at Los Alamos took approximately six months. Revised rates for utilities and revised monthly charges for utilities, where the consumption was not metered, were announced on May 1, 1953, and were to be effective August 1, 1953.

Report of the Scurry Panel -- Another of the objectives of the Atomic Energy Commission has been the disposal of its communities to the residents if and when feasible. To further that end, the Commissioners appointed a "Panel on Community Operations". That committee was asked to express its opinion and make recommendations on each of three questions:

What course of action should the AEC follow in the Oak Ridge, Richland, and Los Alamos communities so that they will contribute most effectively to the successful conduct of the atomic energy program?

What steps should the AEC take to (a) grant greater local autonomy and responsibility to the residents of these communities, and (b) reduce the cost to Federal Government for the maintenance and operation of the communities?

Recognizing security requirements and limitations on the possibility of the communities becoming self-supporting, what are the contractual, corporate, and other means by which the AEC may carry out Panel recommendations?

The report of the Panel, contrary to what it recommended at Oak Ridge and Richland, was that incorporation and home ownership are not possible in the foreseeable future at Los Alamos, but they should be considered as ultimate goals. As a general conclusion, the Panel stated that the town of Los Alamos was being competently and effectively operated, and that the prevailing policies and programs of the AEC Management were entirely acceptable until factors which made the ultimate goals unfeasible should change.

The report listed several obstacles to incorporation or private property ownership at this time and possibly in the future. These included the following:

The fiscal requirements of Los Alamos, because of its terrain and location are higher than in ordinary communities. Self-support of municipal and utility services cannot be contemplated from usual sources, such as the establishment of new industries. A sizable Federal subsidy would be necessary if the town were incorporated, and real self-government could not be achieved under such circumstances.

Few residents appear to favor more self-government if the assumption of fiscal responsibility is to be the price. Residents generally are satisfied with the present arrangements, and have been unable to visualize a practical system of full self-government.

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The nature of the real estate at Los Alamos is an obstacle to incorporation or property disposal. Less than one-third of the present dwelling units are single-family units. Multi-family units presumably would be bought by investors who would face little competition because of the difficulties of expanding the

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community. As a result, rentals might reach inequitable levels. If the government retained control over rents or occupancy, the objective of local control would not be reached.

The need for security in the form of close area control will remain in some measure. This may delay or create a continuing obstacle to incorporation and disposal of real estate.

Access Controls and Ownership of Property

A Long Range Planning Committee for the Community of Los Alamos, consisting of four members, was appointed by the Field Manager, June 17, 1953. In his letter to each member of the Committee, the Field Manager outlined the problems to be considered by the Committee in two paragraphs of his letter of June 17, 1953, which are quoted as follows:

"It has long been my intention to appoint a committee to tackle one of the most complex problems which faces the Commission at this level; that is, what does the Los Alamos Field Office recommend as the long-range goal for the community of Los Alamos with respect to ownership of property, broadened free enterprise, etc. It is very obvious from the outset that this problem is fraught with very complex, practical, economic, legal and legislative problems in that in the solution and planning of our long range goal for the community of Los Alamos, due regard must be made of the responsibility that the Atomic Energy Commission owes to the Congress and to the taxpayer at large, and further to give assurance that the Atomic Energy Commission project mission is carried out to advantage and that consistent with this, unwarranted obligations are not assumed by the Federal Government.

"These and many other factors present difficulties which require very mature judgment in arriving at workable answers, and, in fact, the first step may be to somehow outline the complex problem with all its many facets and then set up a timetable for study and arriving at conclusions. The Committee has been intentionally set up as a small compact committee in order to avoid the creation of an unwieldy organization, and further the committee appointed contains balance. Quite simply, it could be stated that the purpose of the committee is to form a bridge between the rights and interests of individuals as residents and American citizens... and the responsibilities of the Atomic Energy Commission in accomplishing the project mission with full recognition of AEC responsibilities to the Congress and to the taxpayers of the nation as a whole."

The Committee has had several meetings and has considered the broad aspects of the problem. It has determined that problem No. 1 is the question of an open town, that is, whether or not the use of passes and Security Guards in connection with the community of Los Alamos should be discontinued.

Effect of Housing on LASL Strength

During February 1952, there began a noticeable increase in the number of vacancies in family housing at Los Alamos, which continued until the number of vacancies had doubled. The condition was caused primarily by a steady decrease in the number of Zia Company and AEC employees. During the same period the LASL personnel strength increased somewhat but not in the amount that had been anticipated. However, the amount by which LASL

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did increase its personnel strength and consequently its occupancy of family housing was offset almost exactly by the amount that AEC decreased its payroll and its housing occupancy. Therefore, all of the losses in personnel strength sustained by the Zia Company and the corollary decrease in family housing occupancy became a direct net increase in the number of family housing units vacant. The condition, which was looked upon with alarm for a short time, was later recognized as being of great advantage as will be explained later.

Part of the difficulty encountered by LASL in building up its personnel strength has reportedly been lack of an adequate number of acceptable family-type housing units. The latter is defined as meaning single, one-story, modern houses such as are being built for sale, and to a lesser extent for rent, elsewhere in the country. At Los Alamos there are many apartment-type housing units (built for reasons of apparent economy) and there are also 585 temporary-type, substandard family housing units which were constructed during the war with a life expectancy of about five years. Both the apartment and the temporary housing are shunned by most employees choosing a place to live at Los Alamos. However, a great many of the employees who had arrived at Los Alamos earlier were housed in such type housing, much to their displeasure, and concerning which they have been vocal. During that period new employees were given their choice, within limits, of what was available out of the new houses which were constructed in large numbers during the years from 1947 through 1950. If there were any of those new houses not needed for new employees at the time that they were completed, older employees at Los Alamos who were housed in less desirable quarters were permitted to move into them. Because of the large number of employees it was required to house initially, only a small number of the new houses became available to older employees.

This matter became critical and in February 1952, the Housing Policy Board recommended, and it was approved, that the so-called "convenience" moves, (namely, moves of employees already at Los Alamos from one type of unit to another) should be considered not only as desirable, but necessary in the interest of personnel relations. In short, the Housing Policy Board, at the urging of LASL, expressed a preference for pleasing an employee already in Los Alamos and trained, rather than favoring the new employees. Hence, a definite program was undertaken to utilize the more desirable vacant housing units for convenience moves and the new hires were in most instances offered only the less desirable units.

In August 1952, the Housing Policy Board considered the effect of its new policy. LASL said that the program had removed the most desirable units from availability for new hires, which had all but stopped the LASL recruitment program. There was detailed discussion of the experience of LASL in trying, with practically no success, to get new hires to take less desirable housing. It was said that LASL could not expand under those circumstances, and in fact could not even maintain its personnel strength. Any change in the then existing procedure was opposed by LASL, however, because of the commitments which had been made to people already at Los Alamos who desired to move. LASL representatives asked for sufficient permanent housing to accommodate the needs of the Laboratory and the rest of the employees.

Present Policy on Assignment of Housing

In September 1952, the Housing Policy Board recommended that all of Los Alamos housing be divided into two categories. Category I would include all single and duplex permanent housing and the one bedroom apartments in permanent buildings. This category was considered to be acceptable housing for the type of employee LASL was most anxious to retain and recruit. The Category II housing was to include all temporary and semi-permanent housing and all apartment-type family housing units in permanent housing other than the one

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bedroom apartments. This category was considered by LASL to be undesirable housing, of which the temporary units should be replaced with modern permanent housing.

LASL proposed and it was approved that assignment and utilization of family-type quarters would be as follows:

That all presently occupied family quarters be allocated by specific unit (address) for use by the employer of the present occupant.

That the Laboratory be allocated all of the so-called Category I units which were vacant and unselected or uncommitted.

That the balance of the vacant housing units be distributed among the three allotments (LASL, The Zia Company, and "AEC and Others"), in accordance with the allotment balances.

That the Laboratory be allocated an additional 269 of such Category I units, on a trade basis when such units become vacant in the future by attrition within allotments of the other two employer groups.

That the major employing agencies (LASL, The Zia Company, and "AEC and Others") will, in the future, be responsible for the assignment and utilization of the housing units allocated them in accordance with rules and regulations recommended by the Housing Policy Board and approved by the Manager, LAFO.

The latter item meant that each of the three agencies would administer the housing allocated to it rather than having all the housing at Los Alamos administered as a pool by the AEC Housing Office.

Further discussion at this meeting revealed that LASL considered this to be only a stop-gap proposal and a first move. A representative of LASL stated that "in order for LASL to maintain its present strength it would require all but approximately 500 of the existing family housing units considered as 'Category I'."

By means of such measures it is hoped that the requisite type and quality of housing will be made available in sufficient numbers to permit LASL to retain its trained employees and to recruit additional ones pending the time when additional numbers of acceptable type and quality of housing can be built.

Replacement of Substandard Housing

An appropriation for replacement of temporary housing was first requested in the fiscal year 1950 budget with the first phase of the replacement program as a part of Group 13 Housing. However, the appropriation received had to be diverted for the construction of additional family housing to accommodate an unforeseen expansion of LASL. Likewise, appropriations in fiscal years 1951 and 1952 for Group 14 and Group 15 Housing, which were originally planned as replacement housing, had to be used for additional housing. A supplemental request was made in fiscal year 1953, but funds were not made available. **ALOO**

During January 1953, a Housing Program was planned for fiscal years 1954, 1955, 1956, and 1957 which envisaged the complete replacement of all of the temporary family housing units and the building of 215 additional units to satisfy the requirements brought about by planned expansion at LASL.

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LASL had not been able to expand its personnel as rapidly as had been previously planned. That fact, together with others that have been mentioned, contributed to a growth in the number of vacancies in family housing to a point permitting replacement of temporary housing to be started by demolishing some of the temporary housing and rebuilding on the same site. In this way it may be possible to avoid overbuilding inasmuch as the total number of family housing units available will never be increased beyond what is available at the start of the program until the last increment, which is planned to be built in 1957. Each year before that time the housing requirements can be restudied in the light of changes in the mission or program at Los Alamos. If changes occur which indicate a leveling off or reduction in employment at Los Alamos, the program of replacement of temporary housing can be adjusted accordingly.

Likewise, by being able to build at least some of the replacement housing on the site of the area occupied by the temporary housing, it will be possible to avoid having a "blight" area.

Charges for Use of Public Buildings

In line with the objective of reducing the "subsidy" for the operation of the community and following the principle that "free" services to individuals or small groups should be eliminated insofar as possible, charges were established for the use of space in public buildings. It was felt that a nominal charge that might cover at least some, if not all, of the out-of-pocket expenses for janitorial services, etc., would be equitable and that such charges would not interfere unduly with the activities being carried on by the groups.

It had been the practice to allow the use of this space by these groups on verbal understandings. This lax arrangement did not engender a feeling of obligation or responsibility on the part of the using group and did not protect the Government in the event of an accident. A license agreement form was devised and put into effect October 1, 1952, simultaneously with a nominal charge for the use of space.

Los Alamos Commercial Activities

There are now forty-one major business concessions which pay a fixed percentage of their gross sales as rent. They occupy primary space in permanent buildings which were constructed for commercial purposes, except for the canteen which is located in the TA-3 Shop Building and two vending machine concessions which have machine locations but do not have exclusive occupancy of any space. Percentage concessions include the following: garage, supermarket (3), motion picture theater (2), barber shop (2), furniture store, drug store (2), dry cleaning shop, men's & boys' clothing store, appliance store, shoe store, service station (2), watch repair & jewelry shop, launderette, beauty shop, bowling alley & pool parlor, flower shop, canteen (Shop Area), shoe repair shop, jewelry & gift shop, hardware store, book & stationery store, bakery & delicatessen, photo shop, laundry & dry cleaning agency, department store, toy shop, variety store, sporting goods store, curio shop, radio & TV sales & service, vending machine (soft drinks), vending machine (tobacco & confections, package store, ladies ready-to-wear, and soda bar.

In addition to the 41 percentage concessions, ground floor space in permanent buildings is occupied by a bank, Western Union, newspaper, veterinary hospital, and radio station on a flat monthly rental basis.

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The principal changes in percentage concessions in the past three years have been the addition of a supermarket, drug store, service station, theater, barber shop, package store

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and canteen; the conversion of the Recreation Hall space to accommodate an expanded men's and boys' clothing store; use of space vacated by the men's and boys' clothing store to accommodate a women's ready-to-wear store; discontinuing the tailor shop and substituting in the space a radio and television sales and service; discontinuing the Community Center Cafeteria and converting the space to accommodate the Mesa Public Library. It is not contemplated that additional funds will be requested in order to provide additional space for concessions. All concession operations at White Rock have been discontinued due to the decrease in population.

In addition to concessions in commercial buildings, second floor office space is available in the Hill Theater Building, Concessions Building, and above the jewelry store in the Community Center. Rental rates for office space were established on a flat rate per square foot per month to compare favorably with similar accommodations in Santa Fe or Albuquerque. Rentals are on a first-come, first-served basis. There is no waiting list for office space, but the vacancy factor is very low. Purposes for which office space is being used are as follows: insurance sales, pet shop, photo and hobby shop, accounting and bookkeeping services, automobile sales, dairy office, chiropractor's office, catalogue order office, optometrist, investment services, and sewing machine agency.

A limited number of churches, clubs, and service activities occupy, under flat rate license agreements, buildings of temporary construction or buildings which are not suitable for commercial purposes. Some are as follows: Nursery School, American Legion, Veterans of Foreign Wars, Civic Club, Chapel, Youth Center, Youth Lodge, Girl Scouts, Motor Club, Sportsmen's Club, American Red Cross, Los Alamos County offices, and the Skating Association.

The cold storage building and warehouse, a warehouse at 120 Seventh Street, and a portion of a warehouse at 180 Seventh Street which were constructed for the Army under the Manhattan District have become surplus to official requirements and maximum commercial use is being made of the space which has been vacated. Initially as warehouse space became available the same was advertised for competitive bids. There has been a high turnover among warehouse space tenants and space was advertised frequently until only one bid was received. Competitive bidding established a price of approximately 5 cents per square foot per month, and since there is no longer competition in response to invitations to bid, the space is offered on a first-come, first-served basis. There is no waiting list for warehouse space. A number of primary concessions rent warehouse space for storage purposes in connection with their business activities, and in addition warehouse space is presently rented for the following purposes: Ice sales and storage, moving and storage of household goods, Fix-It-Shop, dairy office and storage, and egg storage.

The following table shows revenue and expense for commercial operations for fiscal years 1951, 1952 and 1953:

	<u>1951</u>	<u>1952</u>	<u>1953</u>
Revenue	\$322,458.00	\$395,820.00	\$401,060.00
Expense	<u>158,683.00</u>	<u>146,703.00</u>	<u>121,800.00</u>
Gain or Loss	+\$163,775.00	+\$249,117.00	+\$279,260.00

ALOO

A sharp reduction in the number of dormitory residents has resulted in a surplus of buildings of this type. The buildings cannot be converted to commercial use due to their floor plan, construction, and location. The surplus dormitories, however, have been made available temporarily to the various religious groups. At present seven buildings are occupied by eight denominations.

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Religious and Cultural Use of Buildings

In order to encourage the various religious, cultural, social, fraternal and veterans' organizations to become a part of the community and to provide facilities necessary for their activities without obligation or expense to the Government, a policy has been adopted whereunder organizations in the category mentioned above, when the same are organized on a non-profit basis, are permitted to select and take under long term lease, or letter of intent to lease, building sites on which to erect their own facilities. The letter of intent to lease is necessitated by the fact that the AEC owns but very little of the land comprising the reservation. On such part as it owns it can give a lease. On the balance it gives a letter of intent to lease. This is a condition that should be changed in order to permit greater local ownership of buildings. Under the above policy four organizations have acquired real estate under lease or letter of intent and have completed and occupied their own structures. They are the Baptist Church, the Catholic Church, Southwest Evangelistic Tabernacles, Inc., and the Masonic Lodge. Four additional organizations are constructing buildings which will be completed this calendar year on land which they have taken under letter of intent or lease. They are the Episcopal Church, the Bethlehem Lutheran Church, the Grace Lutheran Church, and the Independent Order of Odd Fellows and Rebekah Lodge. Three additional organizations have acquired building sites and are actively considering building. They are the Methodist Church, the Christian Science Church, and The Church of Christ. Four organizations have selected sites to be taken under lease or letter of intent in the near future with a view toward building. They are the Calvary Church, the Unitarian Church, the Veterans of Foreign Wars, and the American Legion.

Part-Time Businesses

Merchandise and services available to residents of Los Alamos through regularly established commercial sources are supplemented to a degree through establishment by residents of part-time businesses conducted from the home. Such ventures are the natural outgrowth of the free enterprise system which is inherent in our system of Government. The policy with respect to home businesses at Los Alamos was formulated with the objective of giving tenants the same privileges they would have if they owned their own homes. However, to avoid infringement on the rights of others or activities which would be detrimental to the premises owned by the Government, certain limitations and regulations which may be compared to zoning laws in other communities have necessarily been established. In brief, the home may be used for minor business activities which enable the tenant to act as a part-time salesman or manufacturer's representative. This includes such things as insurance sales or merchandise sales which can be consummated through the use of catalogues or the display of samples. The home may not be used to warehouse or stock merchandise for sale from the premises or elsewhere in the manner of a retail mercantile establishment or for the manufacture or production of items on a large scale commercial basis, or for the performance of major services for hire such as automotive repair, furniture repair or refinishing, or businesses requiring heavy service equipment or machinery.

Maintenance Contractors

The Zia Company continued as the principal maintenance contractor. In February 1953, steps were taken to eliminate "construction, alteration and repairs" from the contract with Zia, to prevent violation of the Davis-Bacon Act. The Zia Company contract was altered to contain "maintenance and operation" only. A second contract for "construction, alteration and repairs" was negotiated with the Los Alamos Constructors, Inc., and was effective February 2, 1953.

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The Los Alamos Constructors, Inc., was organized specifically for this one contract, and the principals are Zia personnel. Both contracts are cost-plus-fixed fee. The Zia contract provides for the furnishing of all the administrative forces and supervision, down to and including superintendents, to administer and supervise all work accomplished under the second contract. The second contract with Los Alamos Constructors, Inc., provides for furnishing labor, direct supervision, and materials, and for reimbursing Zia for administration and overhead.

The functions performed under both of these contracts during this period are essentially those stated in the last report, namely, services to the Laboratory, including utilities, janitorial, maintenance, and minor construction, and services to the community, including maintenance, operation, and minor construction. The accompanying graphs which indicate the combined accomplishments of The Zia Company and Los Alamos Constructors, Inc., reflect the progress made during the period 1950-53. The total employment for The Zia Company as of June 30, 1950, was 1,777 as compared to a total of 1,395 for both contractors as of June 30, 1953. This indicates a reduction of 280 employees engaged in maintenance, operation, and minor construction during the period. The payroll costs have remained more constant, because increases in wage rates have partially offset the reduction in personnel.

The reduction in costs of maintenance and operation is especially noteworthy when it is related to the value of completed plant in use. The accompanying graph shows the 1950 value of Town site plant as \$51.5 million and Tech Area plant \$27.6 million, or a total of \$79.1 million. This compares to a 1953 value of \$79.5 million for the Town site and \$97.4 million for the Tech Area or a total of \$176.9 million for all plant. Therefore, the two contractors are now operating and maintaining more than twice as much in plant facilities at a lower total cost. The new facilities cost less to operate; however, practically all of the old facilities in operation in 1950 were still in operation in 1953. This indicates a marked improvement in quality and quantity of maintenance and an increase in efficiency in the methods of accomplishment.

During the three-year period, there has been an increase in the portion of the effort in support of the Laboratory and a reduction in community items, such as real estate, municipal operations, and Town site improvements. It is believed that the pattern for maintenance and operation work has now become fairly well stabilized.

Self-Government

The previous report for the period 1947-50, detailed the steps by which a county form of government had been established, with Los Alamos (AEC Project Lands) acquiring sixth class county status by act of the State Legislature.

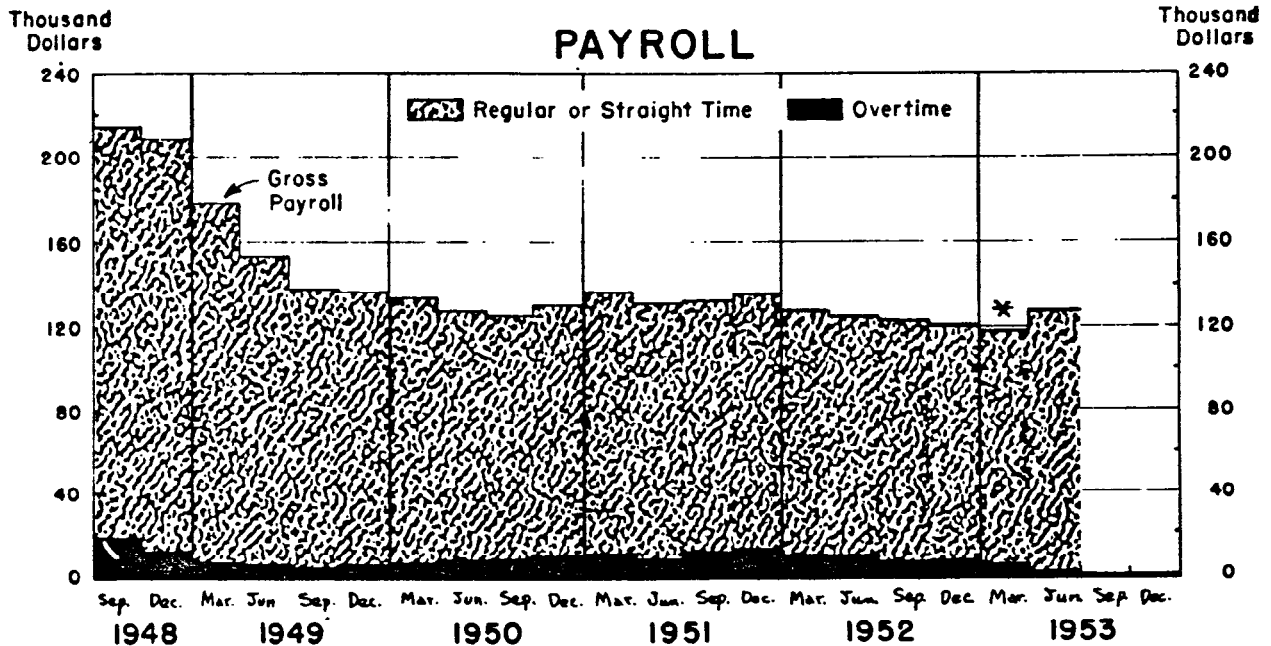
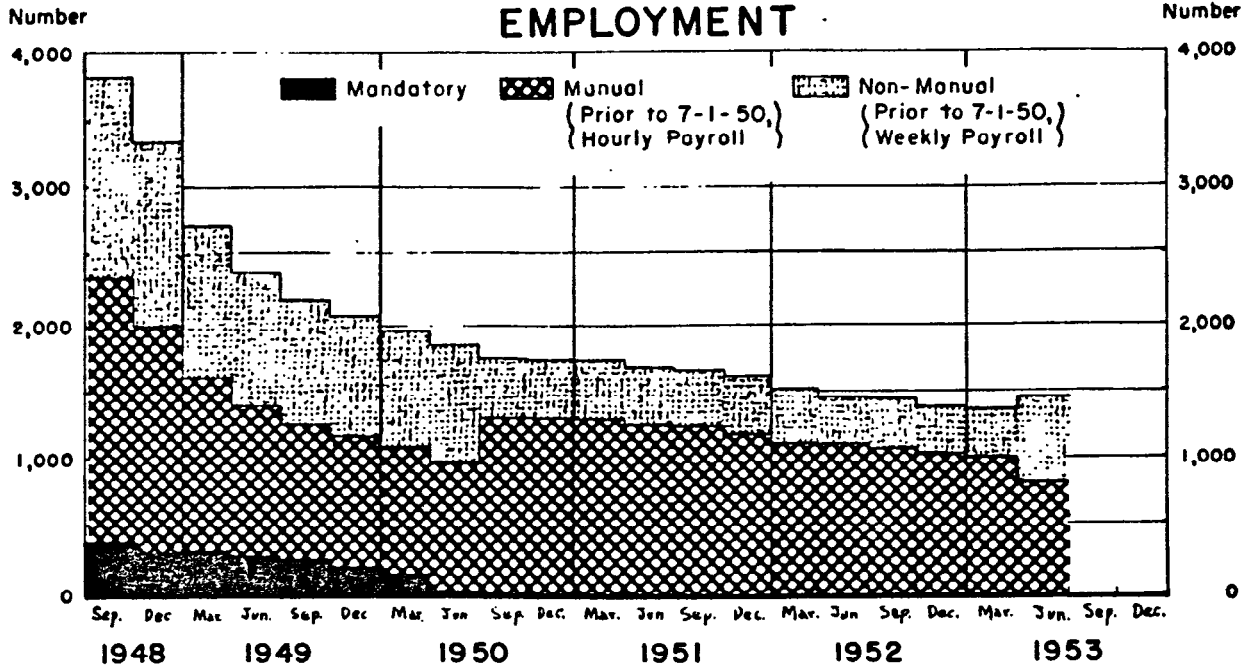
The county commissioners have been serving actively during the present period. County ordinances provide for local misdemeanors and traffic laws. Local justices of peace are performing court duties for minor infractions, including traffic violations. Other county officers include attorney, assessor, clerk, sheriff, and treasurer. The local police officers, although paid by AEC funds and a part of the LAFO organization, derive their authority for law enforcement from the county sheriff as deputies.

The Town Council has continued to function with members still being elected by popular vote, but this body serves primarily as a sounding board for public opinion. It has no authority to make laws or regulations for the community. It discusses community problems and listens to complaints and recommendations of residents and transmits recommendations to the Los Alamos Field Office when appropriate.

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THE ZIA COMPANY

1948 - 1953, Average Weekly Figure, by Quarter
(Calendar)

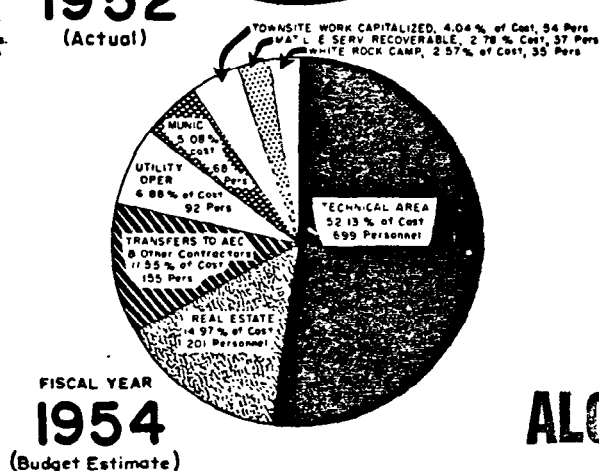
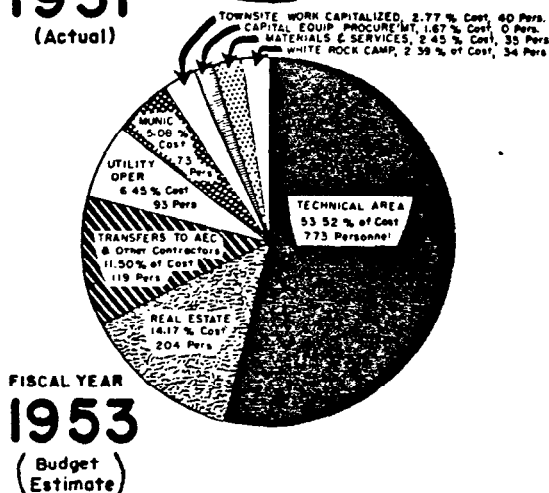
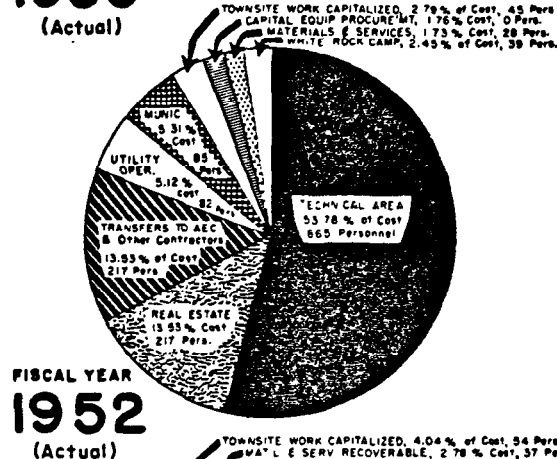
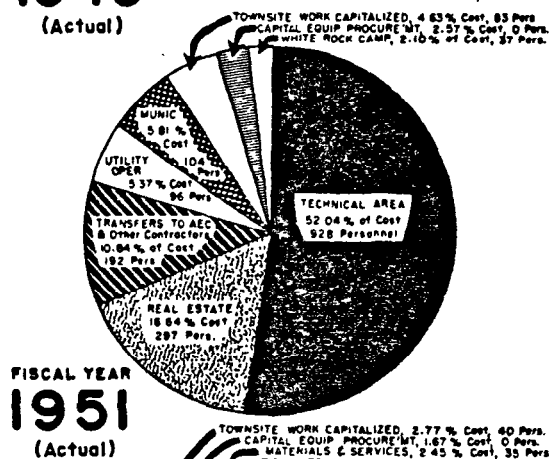
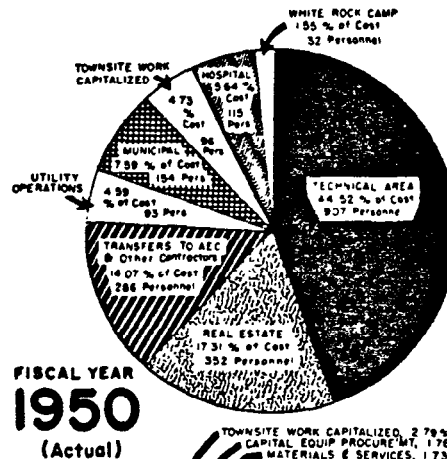
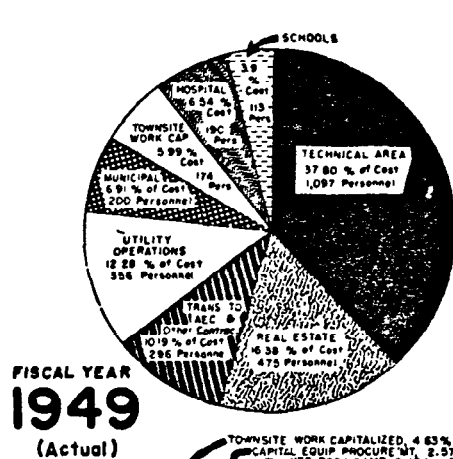


* Includes LACI, beginning Feb. 1953

ALOO

SOURCE: Current Weekly Payroll Figures and Strength Report, Zia Company, Los Alamos

LOS ALAMOS AREA
THE ZIA COMPANY
PERSONNEL* and COST DISTRIBUTION
 (MAINTENANCE and OPERATION BASED ON AVERAGE DOLLAR)
 FISCAL YEARS 1949-1954



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* Equivalent Man Years

SOURCE: Budget Division, The Zia Company, Los Alamos, January 1953

GRAPHICS: Organization & Methods Br., SFOO, January 1953

DOE/ALTY

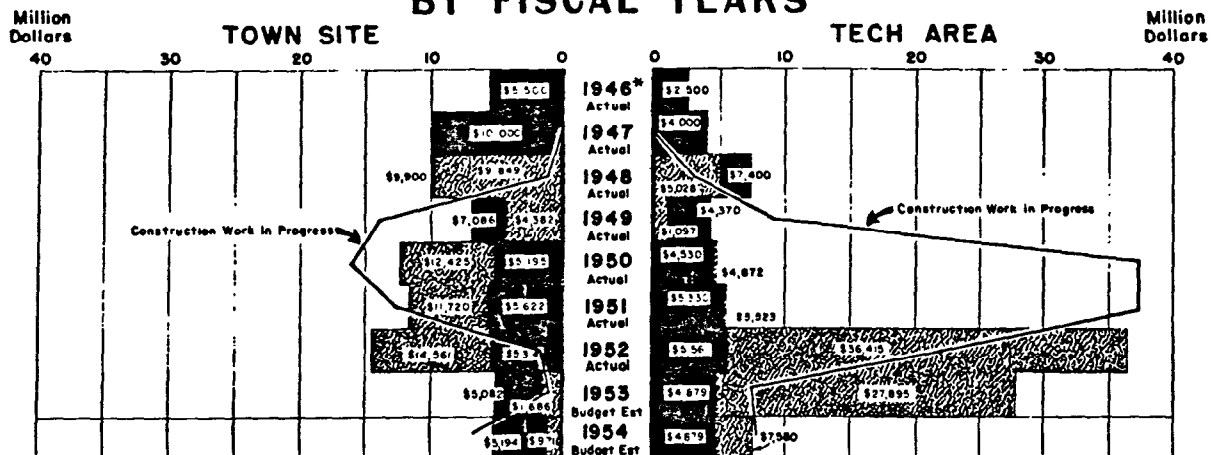
LOS ALAMOS COMPARISON of OPERATION and MAINTENANCE COST to COMPLETED PLANT and CONSTRUCTION WORK IN PROGRESS

(Exclusive of Moveable Equipment)

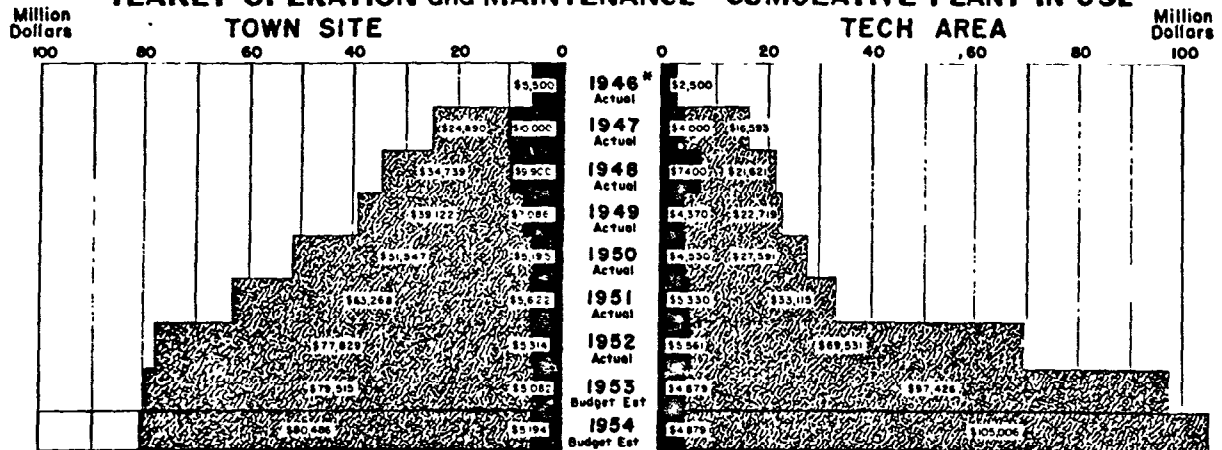
FISCAL YEARS 1946 through 1953

Operation and Maintenance Plant

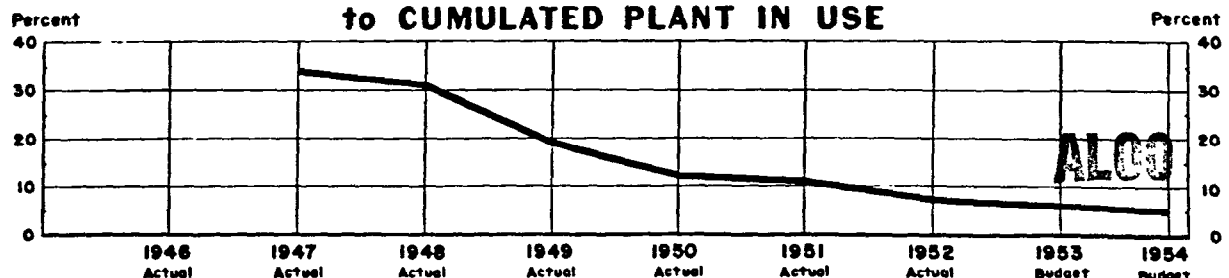
BY FISCAL YEARS



YEARLY OPERATION and MAINTENANCE - CUMULATIVE PLANT IN USE



PERCENT of TOTAL OPERATION and MAINTENANCE COST to CUMULATED PLANT IN USE



* Exclusive of Military

SOURCE: Program Analyst, Community Management Division, LAFO

GRAPHICS: Organization and Methods Branch, SFOO
12/52

[REDACTED]

The Scurry Panel survey in 1952, speaking of the possibility and desire for self-government at Los Alamos, recommended against any immediate sale of government-owned housing or drastic change in the amount of self-government now being carried on. It is believed that it may well take at least many years to attain a status under which all utilities and all real estate will be privately owned and operated.

The Los Alamos School System

Three elementary schools and a high school in Los Alamos and an elementary school at White Rock were in operation when the 1949-1950 school year closed. Two large elementary schools, three four-room neighborhood primary schools, and an intermediate-level school have been added during the three-year period. The White Rock school was closed.

Mountain Elementary School and Little Poplar School, in the North Community, were opened in September 1950. Aspen Elementary School, also in the North Community, was placed in service in the Spring semester of 1951. Two additional four-room units—Little Valley Primary School in the Mesa School District and an annex to the Mountain School—followed in the 1951-52 school year. In September 1952, the first twelve-classroom unit of the intermediate school, Pueblo, was placed in service to accommodate sixth and seventh grades from all parts of the town except the Eastern School District and some fifth grade classes that could not be accommodated in the Mountain School. The four-room Little Forest Primary School also was completed for use during the 1952-53 school year. The second unit of the Pueblo Intermediate School, consisting of a multi-purpose facility that will provide an auditorium-gymnasium and a cafeteria kitchen, was under construction during the Spring of 1953, for use beginning in September 1953.

The school-age and pre-school age population statistics continue to show substantially greater numbers of children in the younger age levels. The rising curve does not level off until the three- and four-year olds are reached; a tapering-off begins to be evidenced with the two-year age-group in 1953. The numbers of children by age-groups in mid-1953 were:

Age	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>
Total	156	351	378	407	409	369	382	309	267	221	217	187	180
Age	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>							
Total	134	133	137	150	124	130	— 4,641						

At the end of the 1952-53 school year the personnel of the Los Alamos County School System totaled 198 full-time and eight part-time employees. Of the former number, 150 were in teaching positions and positions of educational supervision.

ALOO

From September 1949, when local school officials first took office, following the establishment of Los Alamos County by law, until June 1951, the administration of the school system was the responsibility of a County Board of Education, consisting of a County Superintendent of Schools (whose office was elective) and four members appointed jointly by the Judge of the District Court, the State Superintendent of Public Instruction, and the Chairman of the Board of County Commissioners. In the Spring of 1951 the objective stated in the previous three-year report was attained, through enactment by the State Legislature of a new law applicable only to counties of the sixth class (that is, Los Alamos), under which there was substituted an elective Board of Educational Trustees of five members, who are empowered to employ a Superintendent of Schools. The members of the Board of Educational Trustees

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are elected for four-year terms, in the odd-numbered years; the two incumbent members whose terms expired in 1953 were re-elected at the first public election under the new law, in February 1953, and the other three incumbents will serve until February 1955.

The long-time Superintendent of Schools, F. Robert Wegner, under whose guidance the local school system grew to its present size and caliber, died in office in May 1953. The Board of Educational Trustees chose as his successor Dr. Lewis G. Allbee, who had been Assistant Superintendent of Schools.

Prior to September 1, 1949, the entire cost of operating the schools at Los Alamos was borne by the Federal Government (as part of the Zia Company's cost of operating the Los Alamos community). When the schools became part of the New Mexico school system, they began to share in State and County payments for operation of county schools. The proportion of the total cost borne by the AEC has steadily decreased since that time. The total budgeted expense for the operation of the public schools in Los Alamos County during each of the three fiscal years under review, with the percentage of such cost borne by the AEC through grants-in-aid to the boards, was as follows:

	<u>1950-1951</u>	<u>1951-1952</u>	<u>1952-1953</u>
Total Cost of Operating the Schools	\$653,809	\$775,381	\$820,292
Per cent Contributed by AEC	60.6%	45.8%	26.0%

The Los Alamos Medical Center

The transitional aspects of the Los Alamos Medical Center operation to which reference was made in the previous three-year report culminated during the past three years in two major changes, on the basis of which the community services being provided under the Medical Center contract have now been stabilized.

The first of the changes to be realized was the move, during the first week of January in 1952, from the old wooden, Army-type structures in which the Center formerly was housed to the new Medical Center building, expressly designed to meet the needs of the Los Alamos community for hospital facilities and for physicians' and dentists' offices.

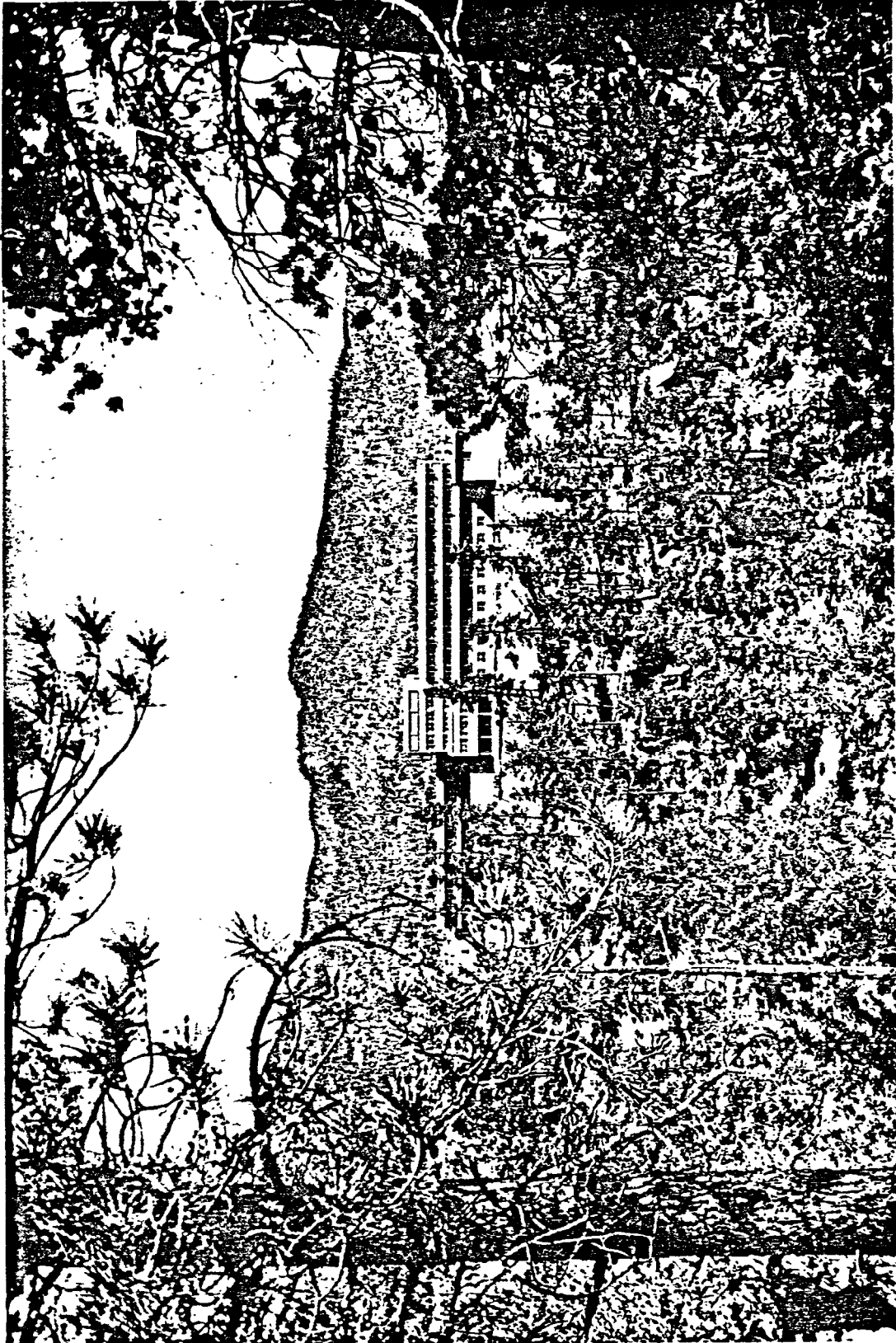
The upper floors of the new building provide a normal complement of 84 hospital beds and 20 bassinets, with four solarium equipped for immediate conversion to five-bed wards to supplement the facilities in the surgical and medical hospital floors. A completely modern surgery is included, as are delivery rooms and an obstetrical floor. On the main floor of the building are the usual hospital out-patient departments (clinical laboratory, radiology department, physiotherapy department, pharmacy); suites for doctors and dentists; offices of the community Health and Sanitation department (not a part of the Medical Center organization); examining-rooms used in the industrial-health program of the Los Alamos Scientific Laboratory; and the business and administrative offices of the Medical Center. The physicians' suites include offices and examining- and treatment-rooms, arranged to group together the services provided in each of the major fields of medical practice, namely, internal medicine, obstetrics-gynecology, pediatrics, surgery, and eye-ear-nose-and-throat practice.

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The second change, for which much exploratory work was done by the Medical Center's Board of Trustees during the first half of this three-year period, was consummated during the Spring and Summer of 1952, when the transition from salaried professional practice to

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Los Alamos Medical Center

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private medical and dental practice was brought about. Negotiations for the formation of a Dental Group were completed in January 1952; and a co-partnership of dentists, styled the Los Alamos Dental Group, took over the dental-clinic space in the new building under a five-year lease with the Medical Center and, concurrently, the responsibility for providing professional dental services to the community of Los Alamos. At about the same time, the first three physicians to establish private practices in the Medical Center left the employ of the corporation and began the leasing of space in the building; one was a surgeon, one a pediatrician, and one an obstetrician. During the ensuing months to the end of the fiscal year 1952, the remaining salaried physicians either completed lease arrangements for private practice in the Medical Center or departed. Thus, at the beginning of the fiscal year 1953, the conversion from salaried practice to private practice was complete.

The continuing efforts of the members of the Medical Staff of the Medical Center and of the organization's Board of Trustees to recruit a full complement of highly-qualified physicians to serve the Los Alamos community on a private-practice basis resulted, by the Summer of 1953, in bringing the number of practitioners to what, with one exception, is regarded as the desirable minimum strength. In September 1953, the lessees included two surgeons, two obstetricians, three pediatricians, and three practitioners in the field of internal medicine (with a fourth likely to arrive next January). An ophthalmologist still is lacking, but negotiations are under way with a qualified specialist in the field of eye-care. In addition to these independent practitioners, the Medical Center employs a professional radiologist and continues to have the half-time services of a pathologist, the latter by arrangement with the Los Alamos Scientific Laboratory.

The number of Medical Center employees has been further reduced, in part by the separation of the doctors, dentists, and supporting clinic personnel, to a total of 118 full-time and 4 part-time employees on July 1, 1953. This reduction reflects some streamlining of Medical Center activities following the "shakedown" period in the new building and the conversion from salaried practice to private practice. Greater attention is being given by the Board of Trustees, the Medical Center Administrator, and the field office staff concerned with the administration of community-service contracts to ways and means of improving efficiency and accomplishing further economies in cost of operations.

The membership of the Board of Trustees was changed in June 1953, by amendment of the corporation's by-laws, to nine residents of Los Alamos, elected for three-year staggered terms. On July 1, 1953, the members, although elected as individuals, included three Scientific Laboratory officials, two executives and a craftsman employee of the Zia Company, two housewives, and an operator of a commercial establishment.

Significant program developments during the fiscal year 1953 included the rapid establishment and activation of a Poliomyelitis Treatment unit within the Medical Center organization in the Fall of 1952 when polio swept the country and reached a very high rate of incidence in New Mexico; and the launching of a Radiation-Therapy section in the Radiology department, which made possible the administration of new therapy procedures to victims of cancer and certain non-cancerous diseases susceptible to treatment by radiation. The polio-treatment work was undertaken at the specific request of State officials of the National Foundation for Infantile Paralysis and was relied upon by that organization to provide expert care and therapy for acute cases of poliomyelitis that arose throughout the state; no other specialized hospital facility of the kind was available in the State of New Mexico for general patients. The unit, fortunately, could be deactivated in the Spring of 1953 and has since been on a stand-by basis.

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CHAPTER V

Staff Supervisory Programs

An active and flexible managerial and staff organization is required to support the weapons manufacturing mission and its extensive and complex operations.

The headquarters and field staffs of Santa Fe Operations Office perform the management staff functions of planning, organizing, directing, coordinating, and controlling SFO mission activity. In certain instances various staff programs necessarily extend to some degree of "doing the job." This is particularly true with regard to controlling source fissionable materials and the custody phase of storage.

SFOO consists of a headquarters staff, largely located in Albuquerque, and a field staff located in field, branch, and representative offices from New York City to the Marshall Islands. The headquarters staff consists of 12 staff offices and divisions, as shown in Chapter II. Each is represented or reflected in field office staffs at the point of contract administration.

Managerial responsibility is exercised within SFO through "line of command" from Operations Manager to Field Manager to Contractor, and not through headquarters or field staff assistants. Authority is delegated to Field Managers and to contractors. On the other hand, the Manager also delegates adequate authority to his staff for performance of the staff supervision functions.

The scope and nature of SFOO staff supervisory programs are reported in this chapter. It will be recalled that throughout the six years there has been no direct AEC employee as technical staff officer. The Manager has consistently held that a person qualified to occupy this position could contribute more by assignment to the operating level. For this reason, the Director of Los Alamos Scientific Laboratory has continued to serve as the Manager's staff advisor on technical matters. The technical program is not reported in the following sections. The Director, LASL, also has responsibility for classification, declassification, and technical information, which he assigns to an Assistant Director, LASL, and these programs are reported. SFOO operations connected with storage have been reported sufficiently in previous chapters. Reporting of certain staff office programs is quite brief in comparison with others. This is particularly true of the reports by the Directors of Office of Production Coordination, Office of Engineering and Construction, and Office of Test Operations. It may be noted that the work done by these offices is reported or reflected in considerable detail in other chapters. The programs of other staff offices, as for instance Supply or Personnel and Organization, are not presented so adequately elsewhere.

ALOO

15. CONTROL OF INFORMATION

Control of information on the development and utilization of atomic energy is one of the basic AEC missions under the Atomic Energy Act of 1946. The various related provisions of the Act are defined and interpreted in GM-INF-2, "Policy for Control of Information." Both of these basic papers state firmly that critical information must be protected and then, recognizing the value of the free exchange of ideas and criticisms and the dangers of security blanketing, they state as firmly that non-critical information must be made available to the public. An unusual provision of the Act, Section 3 (a), underlines this by providing that research and development contractual arrangements "shall not contain any provisions or conditions which prevent the dissemination of scientific or technical information, except to the extent such dissemination is prohibited by law."

Four distinct programs have been developed which support the information control objective. Two have as their primary function the protection of classified information (in the sense of all data): Classification and Security. Two have as their primary function assuring that non-critical information is made publicly available: Declassification and Information.

Responsibility and authority for the control of information programs is assigned by the Commission to the General Manager and by him to Operations Managers, these assignments being all-inclusive as part of in-line management except as specifically limited in official papers. Operations Managers may in turn delegate more limited responsibility and authority to their field offices and to contractors.

Washington staff supervision has been assigned by the General Manager to: Office of Classification (including its Declassification Branch), Office of Security, and Division of Information Services. Each has a counterpart, either fulltime or added duty, performing staff supervision in SFOO headquarters and each has a counterpart or is reflected in field offices and contractors.

Summary of SFO's Information Control Programs

Four programs of SFO are concerned directly with the control of information:

The mission of SFO Classification is to determine the weapons information which could be used by inimical interests to the detriment of United States security, and as part of the same process to establish the data which may remain unclassified. A continuing review of both categories is performed to determine if developments require protection for previously-unclassified items, or if protected items may be downgraded to lower classifications or should be considered for declassification.

A primary mission of SFO Security is to protect classified weapons information, assuring that unauthorized persons do not have access to critical data. A related objective is to assure that security fences are not put around unclassified information. The mission goal is expressed in a variety of operations, such as personnel clearance and control, document control, visitor control, and protection of physical property including fissionable materials.

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The mission of SFO Declassification is to determine if and when previously-protected weapons information may be published without adversely affecting the nation's security. The original mission related only to the declassification of Restricted Data. The present assignment includes, however, declassification action on all categories of classification and has been extended by Washington directive to include some measure of control over photography which is unclassified or over photography in which the Military may have an interest.

The mission of SFO Information is also dual: To withhold classified weapons information from unauthorized persons while encouraging and facilitating the dissemination of non-classified information generally and of classified information to authorized persons to advance the national welfare and satisfy the national interest. Because it is the sole program concerned with putting out material, the balance between Information's two operating objectives should favor dissemination. This balance has seesawed during the past three years with progressive withdrawals of field authority on release of unclassified information while requirements for dissemination were multiplying.

The nature of the weapons manufacturing mission requires that all four programs be conducted in intimate association with the Armed Forces and, to some extent, with other Federal agencies. The four programs' functions are such that they cannot be operated as a fully-delegated field activity; they require detailed, day-to-day coordination with like program divisions in the AEC headquarters. Likewise, the functions may not be fully delegated to field offices and to contractors, requiring detailed, day-to-day coordination between SFOO and its field operators.

It is of interest to note that two of the programs and a major phase of a third are almost exclusively contractor operations. Classification and Declassification are represented at the SFOO staff level and in the field by contractor personnel. Control and dissemination of scientific and technical information is almost exclusively a contractor operation, although some phases of the public release of such information are conducted by the SFOO Information Division and by field offices.

There has been little basic change since mid-1950 in the mission functions of the four programs, Security having perhaps changed most through a searching re-evaluation and clarification of its objectives.

In keeping with the rest of SFO, the requirements—the workload and scope and geography—have been expanded materially.

The all-essential goals common to the four programs are to segregate and to protect critical information and to segregate and encourage dissemination of the non-classified information. During 1947-1950, Classification and Declassification progressed measurably toward information control goals, resulting in a considerable accomplishment in the realistic protection and dissemination of scientific and technical information. Security and Information lagged somewhat in 1950 with too much non-classified material and information being withheld or protected.

ALCO

The primary achievement in SFO control of information during the past three years has perhaps been the development of understanding within all four programs of the duality of mission and an integration of attitude and effort. The result has been a sharper definition and a narrower total area requiring protection, permitting better protection. The result has also been a much broader area which did not require the costs and effort of

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protection and which could be released safely. The effect on information released publicly has been especially noticeable in the continental test activity, but it has been just as real throughout the research, development, production, community and other management structure of SFO.

Classification

Santa Fe Operations, having the major field responsibility within the AEC for the weapons mission, originates a large volume of data requiring classification. The scope of the activity is indicated by the fact that more than 1,500 formal, written decisions were rendered by the SFO Classification Board during the past three years, and by the Security report that 15,000,000 classified documents have been originated within SFO each year.

In the period since mid-1950, the SFO classification organization has been decentralized to some extent and at the same time formalized as a SFO-wide activity. The position of Dr. Norris E. Bradbury, Director, LASL, as the staff Classification Representative for the Manager, SFO, was made formal and shown on organization charts. Dr. Bradbury serves as Director of the SFO Classification Board with Dr. Ralph Carlisle Smith, Assistant Director for Classification and Security, LASL, as his executive officer in both capacities.

The Manager, SFO, arranged for the appointment of a local classification board at Sandia Laboratory. As a result, the SFO Classification organization as of July 1, 1953, included:

- a. The SFO staff Classification Representative: Dr. Bradbury, with Dr. Smith as his executive.
- b. The SFO Classification Board: Dr. Bradbury, Director; Dr. Smith, Executive Secretary; and special panels serving as members according to the nature of matters to be considered.
- c. The Los Alamos Scientific Laboratory Classification Board: Same as above.
- d. The Sandia Laboratory Classification Board: J. R. Townsend, Chairman; William H. Lawrence, Secretary.

Consideration is being given to establishing like boards in other contractor and field office organizations.

Decisions of the local area boards are submitted to the SFO Classification Board for information, or for review and final determination. For uniformity of classification policy and interpretation of existing guides, the SFO Board is the final authority within SFO on all classification matters subject to SFO determination. By this interchange of decisions, the boards have established a more uniform policy and have minimized possible compromises of information. The practice has proved especially valuable in control of information relative to the various high explosives processing plants within SFO.

ALSO

A major activity has been providing guidance to the new contractors who have entered into the program including: Dow Chemical, National Bureau of Standards, Procter & Gamble, Thompson Products, Cambridge Corporation, American Car & Foundry, etc.

In his capacity as SFO Classification Executive, Dr. Ralph Carlisle Smith has acted as the classification officer for all weapons test operations, including Operations Greenhouse,

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Ivy, Ranger, Buster-Jangle, Tumbler-Snapper, and Upshot-Knothole. In Operation Ivy and the forthcoming Castle, he has been designated not only as classification representative for the AEC but also for the Armed Forces, serving on the staff of the Joint Task Force Commander. In this manner it has been possible to maintain a rather uniform classification policy throughout the weapons and weapons test programs.

Within SFO, a series of classification guides for the several weapons test organizations has been prepared, all of which guides have been approved by the Armed Forces and the AEC. In addition, a few specific guides have been prepared for certain of the contractors because of the peculiar problems involved. These special guides cannot be incorporated entirely within a general guide for the AEC because they take into consideration peculiar circumstances particularly associated with the contractor.

The office of SFO classification representative has maintained detailed and almost continuous contact with the AEC Office of Classification in the preparation of a revised AEC-DOD Classification Guide, a General Classification Guide, a Critical Materials Classification Guide, and in the interpretation of data related to apparent compromise of information.

The Nuclear Weapons Classification Subcommittee, organized mainly of SFO personnel under the leadership of Dr. Alvin C. Graves, has made two major recommendations on information classification which, if adopted, would materially assist SFO activities and result in reduced security costs and no loss or weakening of national security. The first of these is classification recognition that there is no security involved in the approximate yield of nuclear detonations within the continental limits. It is not proposed that these yields should be publicly announced, but that no information should be classified merely because it gives an approximation of such yields. The second recommendation is to adapt to the nuclear weapon program a principle which has been adopted in the reactor field and is now identified as the "black box" idea. This is especially applied to those items of the nuclear weapon which are clearly of a military nature and not essentially an AEC matter, such as the ballistic case and fuzing system for nuclear weapons and the outer case of an aerial bomb, guided missile, artillery projectile, and the like.

Declassification

Dr. Norris E. Bradbury, Director, LASL, in his capacity as Coordinating Organization Director for all activities within SFO, is in direct charge of the SFO Declassification program. Dr. Ralph Carlisle Smith, LASL, is his Executive Officer for declassification.

There is no field organization as such. The individual, contractor, or AEC unit proposing declassification of a report or other material routes it to the Coordinating Organization Director. Field Classification Boards usually provide an advisory opinion to reflect thinking in the operational area immediately concerned.

ALOO

The Coordinating Organization Director is advised by Responsible Reviewers, recommended by the Manager, SFO, and appointed by the General Manager, AEC. One member of the LASL staff is also a Senior Reviewer for the AEC and assists on SFO matters as required. Responsible Reviewers are recognized authorities in their respective fields and review documents submitted for declassification which fall within their fields of specialization. Appointment in the 1950-1953 period of Responsible Reviewers at Sandia Laboratory recognized that the work of that laboratory was sufficiently specialized to require specially-trained reviewers in order to expedite the declassification review of specific documents.

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To maintain a uniform policy to avoid compromise of program information through declassification of several separate but related items by different organizations, the Director, LASL, and his staff continue to be the channel for forwarding material to AEC Declassification Branch for final action.

During the last three years, there has been a considerable increase in the number of technical items considered for release by Sandia Laboratory. Many of these items have been processed as declassifiable scientific information but might readily fall within the more recent Industrial Information program.

With the policy of classification boards at various field installations, there has been a lesser tendency to overclassify with subsequent declassification required. However, there has been a continuing program to review previously-issued material for downgrading or declassification.

In the three-year period of this report it is estimated that there has been formal declassification on approximately 585 items from LASL and 16 items from Sandia Laboratory. In addition, 34 Los Alamos items have been reduced to Official Use Only. There have not been many items for formal declassification from the other SFO contractors, but it is anticipated that in the future, particularly in view of the Industrial Information program, there will be a sizable quantity of items from them.

The publication of "The Effects of Atomic Weapons" by the Los Alamos Scientific Laboratory early in 1950 and the release of information involved in the Rosenberg-Greenglass cases has made it feasible to consider for public release many items previously considered classified. However, it is recognized fully that on the newer developments the classification of the information might be even stricter than that applied to the wartime and immediately postwar data.

Security

The report of the Office of Security operation is presented separately later in this chapter.

Public and Technical Information

Staff supervision and certain operating functions at the headquarters and the national levels are assigned by the General Manager to the Division of Information Services. Basic assignment in GM-O&M-23, Serial 107, April 24, 1950, is still applicable although there have been various changes not yet formalized in a GM. Organization Chart, DIS, January 21, 1952, is the most recent expression of functions and supporting activities, although it is not current. Similar assignment of both staff supervision and of operating functions, and of supporting activities, prevails in Operations Offices.

ALCO

By organizational division at the Washington level, there are two formal supporting programs: Technical Information and Public Information. Technical Information is concerned with the preparation and official dissemination of classified information and with preparing, controlling, and making publicly available to specialized audiences non-classified scientific, technical and industrial (including management) information; with the industrial (or technological) activity actually being a separate sub-program placed under Technical Information. Public Information is concerned with the controlled public release of scientific, technical, and general information.

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SFO activity encompasses both programs, and through assignments to the SFOO Information Division extends further to sub-programs such as internal information and special projects. Responsibility for staff supervision and for the essential SFOO-level operations are divided between the Director, Information Division, SFOO, and the Assistant Director, LASL, serving essentially as Technical Information Officer for SFOO. Both programs are supported by added duty personnel in field offices and contractor organizations, and by technical or other information personnel in the two weapons laboratories.

The Technical Information Program

This is almost exclusively a contractor activity and one which is presently conducted almost entirely by Los Alamos and Sandia laboratories. Primarily because of its close relationship with declassification procedures, the staff supervision function is performed by LASL's Assistant Director. SFOO Information Division is responsible only for maintaining a degree of awareness of the activity.

Classified Information -- There is a large volume of classified scientific and technical papers and of reports which are distributed throughout the AEC and to some extent to DOD, FCDA, U. S. Weather Bureau, U. S. Public Health Service, etc. The service provided includes: Preparation, coordination and review, and dissemination; and provision of library, document control, and bibliographical services.

Within the Los Alamos Scientific Laboratory there has been an increased effort to put more of its reports into a form so that they will not contain critical weapon data and may be distributed more widely through the AEC classified projects. Title lists of the reports are included with the Laboratory Monthly Report and receive substantial distribution directly to several Armed Forces headquarters. There has been established in LASL a Weapons Test Report Office as a service group for continental and overseas test organizations to provide centralized, expeditious, and uniform handling of weapon test reports. Before this was done, each Joint Task Force had set up a group for handling the reports of its individual operation. Arrangements have been made with the Oak Ridge Extension of Division of Information Services for routine editorial and reproduction services, thus removing the load of reproduction from various field groups and reducing the cost of reproduction of reports through the Government Printing Office. This was accomplished when the workload of the National Nuclear Energy Series was removed from the Oak Ridge extension. It is understood that this avoided the disbanding of an effective organization. About 275 weapons test reports were issued prior to mid-1953.

Sandia Laboratory distributes its reports to a substantial extent within the Department of Defense, such dissemination being facilitated by the close liaison between Sandia and Field Command, AFSWP. The technical reports published by Sandia Corporation cover two broad areas of activity which are conveniently separated into reports covering the development of new weapons, and reports, more properly called manuals, covering storage and use of stockpile weapons.

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Development reports are prepared by the design groups. There is a series of reports for each development program. The series begins normally with a feasibility study report, which is followed in a normal program by a proposed ordnance characteristic report. The series includes a number of design status reports, culminating in a report entitled "Design Status at Design Release." The final development report is a weapon evaluation report, normally published some months after design release and late enough in the development program to permit a complete evaluation of the weapon's performance and capabilities.

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While development reports are written for both the AEC and the DOD, the manuals for stockpile weapons are prepared primarily for the weapon users, the DOD. They include manuals of weapons, weapon assemblies, fuze tests, aircraft loading tests, surveillance, aircraft modification, and handling equipment, assembly and maintenance. They include not only manuals for the assembly, inspection, storage, and use of atomic weapons, but also manuals which serve as catalogs of information and miscellaneous indexes of publication. This large second group of reports is prepared by those most closely in touch with the actual users of the weapons in the field, the military liaison and training organization. The manuals are prepared in close coordination with the groups who train teams to use weapons in the field and with the field engineers of this organization. In this way the manuals' writers are aware of problems which arise in the field and are in a good position to modify manuals rapidly in accordance with changes suggested by field experience.

In both of the large areas of publication, the development schedules and the need for up-to-the-minute information place a premium on meeting tight deadlines.

Other SFO contractors deal almost exclusively with weapons information and hence do not distribute their reports as widely within the AEC organization.

Declassified or Unclassified Technical Information -- The AEC program on non-classified scientific and technical information is primarily not one of public dissemination, but is one of facilitating an individual's dissemination to specialized audiences and of making information available to anyone interested.

Unclassified reports are distributed according to Technical Information Division directive 4500 "Distribution Lists for Non-Classified Reports."

The need to make atomic energy technological information available to American industry was recognized in 1952 with establishment within Technical Information Service in Washington of an Industrial Information Branch. This new sub-program acts primarily to stimulate field organization dissemination of the subject information. It varies from other contractor-operated phases of technical information by assigning final coordination and clearance responsibility within an Operations Office to the AEC information officer. Of the contractors other than LASL and Sandia, Holmes & Narver, support service contractors for Pacific Proving Grounds, has perhaps led in the preparation and dissemination of the industrial type information. The industrial program has not been fully activated within SFOO. It is anticipated that in future years more information now being processed along with scientific information will be separately identified. Three SFO representatives are members of the AEC-wide Industrial Information Committee: Richard G. Elliott, Director of Information, SFOO; Dr. Ralph Carlisle Smith, Assistant Director, LASL; and H. J. Wallis, Superintendent, Staff Services, Sandia Laboratory.

ALOO

In keeping with GM-CLA-2, "Classification Procedures for AEC Research Contractors," there is a continuing flow of information on unclassified areas of research. Specified off-site research requires no reference of information material to higher authority. Specified on-site research may be issued by scientific personnel concerned or published upon authorization by a Laboratory Director. SFOO, for instance, administers a contract with University of California at Los Angeles and the medical school's work is generally unclassified; its reports receive wide dissemination within the AEC and in journal articles.

Public dissemination may be through: an unclassified formal report; a paper in a scientific, professional, or trade journal; a paper with or without visual aids for presentation before a specialized group; etc.

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Volume of Output -- In the aggregate, there is an extensive outflow of non-classified information—whether scientific, technical, or industrial—by means of reports, papers, visual materials, and to a lesser extent, articles. This is illustrated by the fact that LASL issued 436 formal reports during the past three years, and that Sandia Laboratory issued 57 formal technical reports during the past two years.

The Public Information Program

The major activity of SFOO Information Division by assignment is providing staff supervision and, to a considerable extent, conducting the program for the controlled public release of non-classified information. This is paralleled however by an advisory service to AEC, within SFO, and to associated military organizations on public attitudes and on public communications; and by a distinct activity to disseminate information within AEC and within SFO.

AEC program information may originate in the SFO area with an individual, with supply or operating contractors, or with the AEC. Program-related information may originate in other Agencies' atomic energy programs and require SFO evaluation or clearance. It may originate outside SFO with individuals or organizations previously connected with the program, or with other individuals or organizations who voluntarily refer the proposed action to the AEC for review. The information action may by nature or source be scientific, industrial, or general; it may be proposed for oral, written, or visual issuance; it may be intended for any specialized or general public audience.

In general, the areas of activity may be defined as: supporting AEC-Washington, supporting the SFO field organization, assisting associated Armed Forces installations, conducting the headquarters SFOO activity, and conducting the multiple-agency continental test activity.

Public Information Services

An indication of the scope of services provided may be gained from the following summaries of activity:

News Media Service -- Replying to inquiries, issuing SFO- or AEC-originated materials, or arranging interviews, appearances or visits, concerning the full extent of SFO activity and, to some degree including other AEC and Operations Office activity, such as exploration and mining. This category of service extends to newspapers, magazines, still photography, news reel, documentary, or entertainment motion pictures, and television.

Public Reports -- SFO issues few such reports, but has in the past participated heavily in the preparation of materials for AEC reports such as the Semi-Annual Reports to Congress. SFOO distributes the semi-annual reports to a list of 750 - 1,000 news media, school and public libraries, officials, contractors, etc.

Speeches -- SFOO Information schedules and helps prepare texts for public appearances of SFOO personnel, and to some extent assists field offices and contractors in their more extensive speaking activities.

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Press Digests -- SFOO monitors receipt and distribution of digests of newspaper and magazine articles prepared by AEC. Within its own area, SFOO is handicapped in that the major share of the AEC budget for purchase of periodicals is utilized by the AEC headquarters including the purchase of periodicals within the SFO area. SFOO has funds sufficient only for purchase of one Albuquerque newspaper and relies otherwise on newspapers

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bought with its own funds, and on clippings forwarded by field installations taken from periodicals purchased by field personnel's personal funds or purchased by contractors. Information concerning SFO-related activity is disseminated throughout the organization.

Motion Pictures -- A library of AEC, DOD, and contractor or commercial motion pictures is maintained for orientation of direct and contractor employees, families and SFO communities, and for the use of civic and educational groups. As an indication of use, a six-months report in 1953 showed that 24 prints of 16 subjects were shown from 3 to 22 times per print, and from 3 to 62 times per subject for a total of 183 showings to audiences, not including preview showings.

Educational Services -- This is largely a headquarters-AEC service, other than discussed under motion pictures. SFOO and contractor personnel have participated, however, in events such as teacher seminars in Idaho.

Library of Released or Releasable Materials -- A fairly complete file of materials released by the AEC and its contractors is maintained in SFOO.

Exhibits -- There have been no SFO-originated exhibits during the three years, although AEC-sponsored exhibits have been displayed within the SFO geographic area. One of unusual interest arranged by SFOO featured exploration and mining for the 1953 Navajo Indian Fair.

General Information -- There is a fair degree of activity occasioned by continuing requests for printed or other releasable information, originating with civic groups, officials, schools, or others as for instance school and college students writing term papers or theses.

Continental Test Information

SFO Information conducts a continuing sub-program with regard to Nevada nuclear tests, including planning and coordination of the multiple-agency activity. During operational periods SFOO Information directs and, to a considerable extent, staffs and operates the Test Information Office in Las Vegas, Nevada.

The SFO Director of Information has served as Director of Test Information through four continental series during the last three years, and through three series has served additionally as an Assistant to the Test Manager for public affairs generally.

The organization which has been developed through experience is multiple-agency in nature. The information office for Ranger was staffed entirely by SFOO and LASL personnel, assisted on occasion by Washington Division of Information Services. With the advent of Army participation for Buster-Jangle, a Sixth Army representative worked in the office but reported to the Army. A fully unified information operation was developed for Tumbler-Snapper including DOD representatives serving on the Director of Test Information's staff and with the full activity the responsibility of the Test Manager. That pattern was more fully developed for Upshot-Knothole and will probably be applicable in the future. It included:

Director of Test Information: SFOO Director of Information.
Deputy for AEC: A SFOO information specialist.
Deputy for DOD: A DOD officer.
Desert Rock liaison: Sixth Army personnel.

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USAF liaison: A USAF Special Weapons Center officer.
Declassification: The Test Classification Officer serving in effect as a Declassification Assistant, and supported by an FC-AFSWP declassification officer.
Radiation information specialist: A NYOO specialist.
Office staff: 2 SFOO secretaries and 2 military typists.

This continuing staff was supplemented for more limited periods by AEC and other Operations Office information personnel, by SFOO secretarial and typing personnel, and by military task groups such as that for Marine participation.

One shot of Tumbler-Snapper, April 22, 1952, was opened to uncleared observers from news media, public officials, and Civil Defense. Another in Upshot-Knothole, March 17, 1953, was opened to comparable groups. On-site news coverage included live radio and television. For these special events, a separate task force was organized with responsibility still assigned to the Test Manager. Each was directed by the AEC Director of Information Services, with deputies for DOD, AEC, Test Organization, and FCDA, and with extensive supporting personnel and services.

It is probable that FCDA will be represented in the future in the continuing Test Information staff, reflecting its continuing participation in tests and public interest in the subject.

Special Projects

Various activities are assigned to SFOO Information and are grouped in this category.

Field and Contractor Activities

In keeping with the philosophy that public information may not be disassociated from concerned management and that it is of most mission value if applied at the point where the problem exists, considerable authority has been delegated to managers of field offices. The authority delegated parallels, essentially, other management authority delegated. Field offices are required to keep SFOO-Albuquerque continuously informed of actions taken even though they are fully within the area of local management responsibility.

Each SFO contractor performs some degree of public information, and by contract is usually made responsible for conducting community relations activity. In general the implied delegation of authority for public information conforms with other delegations.

Assigned Personnel

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The Director, two information specialists, and two secretary-typists were the maximum personnel strength of SFOO Information Division during the past three years. For two months in mid-1952, there were two additional positions in Los Alamos Field Office. Eight positions were budgeted for fiscal years 1951, 1952, and 1953, primarily to provide more resources for headquarters coordination and other action on technical and industrial programs, but various freezes have prevented assignment of personnel. The Information Division is too limited in resources to attempt conduct of a fully-centralized SFO activity, and in any case has judged that action should preferably be taken at the field point of concern. The Division obviously relies heavily on the supporting staff of extra duty personnel in field offices and of contractor public relations and technical information staffs.

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16. PATENT ATTORNEY

Throughout the first three-year period of SFO, a qualified member of the LASL staff represented SFO in the field of Patent Law, authority being delegated for him to deal directly with the opposite office in AEC, Washington. By the time of the establishment of SFOO in Albuquerque, the volume of matters arising in or related to the field of Patent Law increased to an extent requiring an office to take care of such activities for all SFO offices and related contractor installations other than LASL. Accordingly, an Office of Patent Attorney was established on June 16, 1952, at the Headquarters, SFOO.

The Patent Attorney advises and assists the SFO organization on patent matters, in accordance with the Atomic Energy Act, the Commission's patent policies and rules, and patent laws, regulations, and rules. In general, he negotiates, interprets, reviews and verifies clauses and agreements pertaining to patent rights, patent procedures, and the reporting of inventions; furnishes advice and assistance as to patent policy relating to contracting and subcontracting, assignment and reporting of inventions; considers questions of patent infringement; performs investigations requisite to patent clearance of agreements containing patent provisions in favor of the Government and assists contractors in reporting discoveries and inventions; reviews contractors' technical reports for disclosures of inventive subject matter and advises contractors as to reporting such material; analyzes and evaluates subject matter of reported discoveries and inventions, and advises as to preparation and filing of patent applications; and prepares and prosecutes patent applications.

Until June 1950, an Office of Patent Attorney Advisor was maintained in the Sandia Field Office. In February 1951, the office was deactivated, and the functions of the Patent Attorney Advisor were transferred to SFOO. Patent matters at Los Alamos Scientific Laboratory continue to be handled by the Los Alamos Patent Group.

During the present reporting period, the SFOO Patent Attorney opened 142 patent dockets on probable inventions, including those of the now defunct Sandia Patent Group. The Los Alamos Group opened 99 patent dockets during the period. The SFOO Patent Attorney filed 20 patent applications in the U. S. Patent Office, including those filed by Sandia; and the Los Alamos Group filed 29.

17. SECURITY

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The task of providing security for the SFO complex of laboratories, manufacturing plants, procurement programs, and test operations has increased greatly in scope and difficulty during the last three years. Although considerable program stabilization has been achieved, much expansion and development has continued to be planned and necessarily executed on a "crash" basis. Too infrequently was there time for wholly satisfactory advance planning and orderly program development, and the security organization and its program have continued to suffer growing pains.

A significant increase in over-all program effectiveness since 1950 has been achieved, however, accompanied by organizational changes to meet the rapid expansion in SFO activities.



Organizational Scope

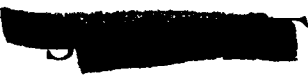
The key development in this respect was the establishment of the regional-field office organizational structure and the emergence of the Office of Security as essentially a staff organization providing over-all direction to the security program throughout SFO. In mid-1950 Los Alamos remained the focal point of SFO security interests and activities. The security programs at other SFO offices, the Sandia and Kansas City Field Offices, and the then existing special projects, tended to lack effective and coordinated direction as component organizations of SFO.

The SFO Office of Security had been established in April of 1950, with an assignment of functions SFO-wide in character and on a broad staff level, as distinguished from operational functions related principally to Los Alamos. The Los Alamos Security Branch, however, remained at that time a component of the Office of Security, with the SFO Director of Security continuing to supervise the Branch directly, serving in the capacity of a Field Manager for that purpose.

In 1951, the Office of Security's regional staff character was more effectively established when the Los Alamos Security Branch took its place in the new Los Alamos Field Office organizational structure, and the SFO regional office moved physically from Los Alamos to Albuquerque.

Beginning in 1951, rapid expansion took place in SFO security activities in the field, with establishment of new security branches at the Rocky Flats, Pantex, Eniwetok, and Las Vegas installations. With the establishment of the Eniwetok and Las Vegas branches, the AEC-NME Test Security Branch, which as a component of the Office of Security had been responsible for operational functions in overseas tests, was abolished, thus further strengthening the regional field office structure.

The necessity for providing coordinated security servicing for numerous facilities separated geographically from SFO field offices has required establishment of a Security Branch of the SFO Office of Security in Los Angeles, and assignment of two SFO Security representatives to New York City. The Los Angeles Security Branch was formally established in October 1950, to continue, on a larger scale, security servicing for various SFO field offices that had theretofore been performed by security personnel reporting administratively to the Chief of the Los Angeles Procurement Office, which office had been abolished a few months earlier. The New York Security Representative was appointed in early 1953, after an analysis of the nature and number of SFO security obligations in the east indicated that more effective servicing and a substantial reduction in travel—principally from Sandia, Los Alamos, and Kansas City—could be provided by that means. Subsequent events have justified the appointment, although budget cuts have forced postponement of a planned addition of a security assistant there, which will be necessary for realization of maximum effectiveness.



Another branch of the Office of Security, the SFOO Headquarters Security Branch, was established in 1952 to handle operational matters pertaining to the SFOO headquarters in Albuquerque.

The present SFO security organization was completed in early 1953 by the establishment of the security branch for the new Spoon River Field Office.

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As of July 1953, SFO had security responsibility in a total of 423 security facilities throughout the United States—25 per cent of the facilities of the entire AEC program. Comprising this total were the 8 prime contractor operations at the field offices, and other contractors, subcontractors, and consultants whose contracts or work involved Restricted Data.

AEC security employees engaged in program administration as of mid-1953 number 156; 53 engaged in general management, 45 in personnel security work, 23 in physical security, and 35 in information and visitor control and other activities. Guards numbered 369, and couriers 67. For comparison, AEC security personnel in mid-1950 were: program administration 112, personnel security 29, physical security 22, information and visitor control and other administrative work 24; and there were 442 guards and 63 couriers. Los Alamos is the only SFO installation at which guards are or have been direct employees of the AEC; they are contractor employees at the other installations.

Data as of July 1953, on prime contractor operations, at the SFO field offices (except Eniwetok, where the operation is not amenable to this statistical grouping), are outlined as follows:

Administrative and clerical contractor security personnel	121
Contractor security guards	673
Total personnel employed in prime contractor operations considered in these statistics (not all of SFO)	16, 979
Plant or installation area in acres	430, 319
Number of buildings in areas	1, 527
Security fencing in feet	334, 125
Access doors and gates manned by guards	158

Statistics for mid-1950 were not available for each category above. Those available indicate a total contractor security guard personnel for prime contractor operations of 959 and total personnel of 8, 250 employed by such contractors.

Similar data on military participation in joint AEC-DOD test and development work are not available, but considerable staff and operational effort has been required in this respect. Comprehensive policies and detailed procedures have had to be developed to fulfill AEC security responsibilities, and the complex requirements in this area have been a major concern of the security staff during this period.

Security Survey System

The great number of SFO facilities requires particular emphasis on maintenance of a system of continuous review, evaluation, and coordination of security programs and measures throughout the entire operation. Basic security servicing of subcontractor and consultant facilities is provided generally through the responsible field office, and the Office of Security staff provides comprehensive periodic surveys and evaluation of all facilities. Formal reports are prepared on the results of each survey, and a "satisfactory" or "unsatisfactory" determination is made, as prescribed by GM-SEC-9. Any deficiencies are, of course, given immediate attention and appropriate corrective measures are developed and followed up in a supplemental survey.

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SFO facilities increased from 340 in 1950 to 458 at the end of 1951. Although many new facilities have been established in the expansion of activities outlined above, the number was decreased to 423 by June of 1953 through realignment and consolidation of survey activities; e. g., in 1952 the individual sites at Los Alamos were dropped as individual facilities and were considered for survey purposes as parts of their related divisions.

The survey program has progressed considerably in effectiveness in the past three years. Experience has permitted emphasis to be shifted, from assuring that minimum security measures are in effect at each facility, to the areas of coordinating all programs and measures throughout SFO to provide increased effectiveness and economy in the overall operation.

Guard Forces and Physical Security

One indication of the results of the above efforts may be seen in the marked reduction in the relatively expensive use of guards in physical security. Careful analysis of security interests and tailoring of protection to requirements, "building in" advanced physical security measures at new installations, relocation of security areas, efficient utilization of alarm devices, fencing, etc., have made possible a more than 50 per cent reduction in the ratio of guards to the total Q-cleared work force at major SFO installations. In 1950, there was one guard for every seven employees at the then existing major installations; in mid-1953 that ratio was approximately one guard per 17 employees.

In fiscal 1952, an intensive study of the security area setup at Los Alamos resulted in significant reduction in the size of limited areas (unescorted access to which requires Q-clearance), with no decrease in effectiveness of security protection. This, in conjunction with institution of personnel security safeguards to prevent unnecessary processing of requests for Q-clearances, permitted a 3,750 reduction in the number of Q-clearances processed as compared to the previous year, with no concurrent decrease from the previous year in the total work force or hiring activities.

Personnel Security

The basic personnel security policy has remained unchanged since the 1950 report. Security clearance for access to Restricted Data is granted only after the AEC has determined, based upon full background investigative reports, that permitting the individual such access will not endanger the national defense and security. Personnel security files, including investigative reports, continue to be screened in local security branches. Cases involving substantially derogatory information, "Holds," are referred to the regional office, for review and determination as to whether the information is in fact substantially derogatory. "Hold" cases are then submitted to Washington with recommendation as to further processing. As authorized by Washington, further processing is normally either to an informal interview of the individual to extend and clarify the record if it appears that the question of eligibility could be resolved satisfactorily by that method, or to a formal regional Personnel Security Board hearing and subsequent review, if necessary, by the Personnel Security Review Board in Washington. The hearing process is referred to as the "Administrative Review Procedure."

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Important procedural changes have been made in the program, however, that are of interest here.

In the latter part of 1950, detailed instructional outlines for processing personnel security cases were issued by Washington, widening the scope of the program and systematizing procedures throughout the AEC.

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The most important provision was extension of the Administrative Review Procedure privileges to applicants as well as to employees. This resulted, of course, in a marked increase in the number of cases processed toward hearings.

Another provision prohibited preliminary confidential discussion of "Hold" cases with employers, without specific authorization from Washington. Such discussions had previously been conducted by some local security offices in cases involving character and habits rather than loyalty information, with a view to determining if the employer would still wish to have the request for clearance processed. This new provision was good in net effect—the Commission was potentially open to criticism and embarrassment in the former practice—but it also resulted in an increase of the number of cases given the expensive and time-consuming "Hold" processing.

In November 1950, Washington issued official "Personnel Security Clearance Criteria for Determining Eligibility," setting forth specific types of information that were to be considered substantially derogatory. The issuance of these criteria made possible more uniform evaluation of investigative reports at all offices and processing levels.

In 1950, two permanent panels of Personnel Security Board members were set up in SFO, one in New Mexico and one in California. These board members, who serve on a consultant basis and are selected from representatives of scientific, legal, educational and business fields, provide the regional office with an "outside," objective evaluation in the Administrative Review process.

In April 1952, the Atomic Energy Act was amended by Public Law 298, 82nd Congress, to provide that the Civil Service Commission conduct background investigations of all contractor personnel except those in vitally important or sensitive positions. The Federal Bureau of Investigation, which previously had investigated all atomic energy clearance cases, continued to be assigned responsibility to investigate all AEC personnel and contractor personnel in sensitive positions. This division of investigative responsibility required an extensive study of all contractor operations and categorization of positions according to degree of access to sensitive information. The FBI also retained investigative responsibility for cases involving possible disloyalty, and arrangements were set up for referral to the FBI for completion of any such cases that are initially investigated by the Civil Service Commission.

From the time this program went into effect, on July 1, 1952, through June 30, 1953, 7,268 requests for background investigation were submitted to the Civil Service Commission and 3,692 to the FBI. In the two prior fiscal years approximately 21,000 requests had been submitted to the FBI.

During the past three years an estimated 700 "Hold" cases have been processed through the regional office. Fifty-six cases have progressed to formal hearings. Favorable clearance determination has been made in 28 of these cases, unfavorable in 18, in 2 no decision was made due to cancellation, and 8 cases are currently pending final determination.

The personnel security field is regarded in SFO as being of extreme importance, and continuing effort has been directed to increasing the over-all effectiveness of the program. Staff supervision of field office activities has been extended past the mechanical processing of "Hold" cases to broad areas of guidance in evaluation of investigative reports, analysis of the security significance in various types and circumstance of derogatory information, methods of conducting effective informal interviews, etc. Coordinating guidance has

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been given to field office programs for P-approval (security approval for access to controlled areas but not to Restricted Data). A formal SF Bulletin on P-approval processing, including a much-needed set of criteria for determining eligibility, is now being developed for issuance at an early date.

In addition to the basic clearance function, the SFO personnel security program provides controls over various other functions involving the individual employee. These include handling of security violation cases, and the security processing involved in foreign travel and military assignment of employees who have had access to Restricted Data.

Document Control and Security Education

As indicated in the 1950 report, document control problems inherited from MED days were considerable, and in 1950 the major effort was to assure that minimum AEC controls were placed in effective operation at all facilities. During the continuing expansion in the last three years document control measures in SFO have been increased. Present controls at Sandia, Kansas City, and Rocky Flats, in particular, exceed minimum standards by providing for accountability controls down through the Confidential and, in some cases, the Restricted classifications. An idea of the magnitude of this program may be gained from estimated data developed recently as follows:

	<u>Top Secret</u>	<u>Secret</u>	<u>Confidential</u>	<u>Restricted</u>	<u>Total</u>
Classified Documents Currently on Hand in SFO	21, 069	5, 245, 083	12, 878, 239	34, 900, 681	53, 045, 072
Yearly Production of Documents	7, 470	1, 451, 355	2, 731, 625	11, 422, 638	15, 613, 088

The extensive accountability controls in effect at the larger installations have provided a relatively accurate check on unaccounted-for documents, which as of mid-1953 were as follows:

<u>Top Secret</u>	<u>Secret</u>	<u>Confidential</u>	<u>Restricted</u>	<u>Total</u>
2	580	258	0	840

With respect to the above, it should be explained that reporting requirements are such that a document is reported as "unaccounted-for" in any circumstances wherein it cannot be located immediately, and documents so listed are generally misplaced within security areas, rather than missing in the sense that the information contained is exposed to compromise. Even though unaccounted-for documents are few as compared to the number existing, intensive effort has been directed to locating or accounting for them. Recent studies of the over-all document situation, disclosing the tremendous volume of classified paperwork in our operation, has indicated the need for a re-examination and revision of the Classification and control systems, with goals of eliminating an apparent widespread tendency to overclassify, and assuring that accountability and control practices are realistic and economical as well as effective.

ALOO

Security education programs designed to insure knowledge and awareness of security requirements by all personnel have been extended throughout SFO. All employees at all major installations are given special security indoctrination upon entrance, at intervals

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while employed, and at termination of employment. The lecture and procedural guides are media most heavily relied upon, and are augmented by motion pictures, reminder cards, posters, and other such aids.

It has been recognized that in SFO, as in AEC as a whole, the security education field offers opportunity for considerable improvement in the effectiveness of the entire security program. There are recurring problems of non-compliance with security requirements, on organizational as well as individual levels, arising from unfamiliarity or unawareness of these requirements as applied to specific activities. Plans were begun in 1953 for an SFO-coordinated program with the following principal target areas:

Contractor Organizations -- Clear specification of contractual security obligations. Precise explanations, on a continuing standard practice basis, of applicability of GM and SF regulations to specific contractor operations and activities.

Contractor and AEC Employees -- Increased effort toward assuring that each individual is informed and kept aware of his security obligations and the particular requirements of his position.

Responsibility -- Definite and specific assignment to supervisors of responsibility to take positive action to assure familiarity with security requirements of all personnel. Such assignment of responsibility to be made by written directive, as an integral part of the SFO security education program.

18. ASSISTANT GENERAL COUNSEL

On July 1, 1950, the Office of Assistant General Counsel had its main office in Los Alamos where there were seven attorneys, two of whom were assigned to work on Los Alamos community affairs exclusively. One additional attorney lived in Los Angeles where he served as counsel to the Los Angeles Area Office. The position in Los Angeles was abolished in April 1951, the work being handled thereafter by the Los Alamos office. In the Summer of 1951, the work of the office at Los Alamos was divided between two attorneys assigned exclusively to Los Alamos Field Office problems and the remaining attorneys assigned exclusively to Santa Fe Operations problems. In October 1951, the latter attorneys moved to Albuquerque, leaving the two attorneys in Los Alamos. With one exception to be noted later, the two offices have continued to function on the basis of this division, and on June 30, 1953, there were seven attorneys in the Office of Assistant General Counsel and four attorneys in the Counsel's office at Los Alamos.

ALCO

Otherwise, the work of the Office of Assistant General Counsel is not extensively compartmentalized. One or two attorneys in the Albuquerque office are assigned as counsel to each field office other than the Los Alamos Field Office. The same is true with respect to each office and division in the Santa Fe Operations Office. In addition to these assignments there are several assignments by subject matter in fields so specialized that day-to-day contact is a prerequisite to the efficient handling of problems in such fields as taxation, suretyship, and construction contracts and appeals. The policy of the office is to avoid, where possible, rigid compartmentalization on the basis of subject matter due to the frequent necessity, in a small office such as this, of assigning all attorneys to problems in each of the various fields at various times.

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Since July 1, 1950, SFO developments and achievements in which this office has participated have been numerous. Many were initiated and/or handled by this office, the more significant of which are briefly summarized below.

Test Damage Claims

During the first Nevada test series it was determined that blast damage claims should be investigated and, when justified, settled promptly. It was concluded that an administrative finding of liability under the Tort Claims Act could properly be made without embarrassment. The AEC cleared the SFOO-proposed action with the Justice Department and the General Accounting Office, and SFOO payment was approved in advance by the AEC. A contract was entered into with General Adjustment Bureau, a corporation furnishing adjustment services to participating insurance carriers, and initial administrative arrangements made by which normal adjustment procedures were adapted to Government administrative requirements.

Because the Justice Department intends to urge the courts to adopt a different interpretation of the Tort Claims Act, in early 1952 a statute was drafted under which SFOO authority to pay certain claims would be unquestionable. The Commission has recommended Congressional action.

Opinions have been rendered or other participation undertaken on all unique claims, particularly those alleged to have resulted from radiation.

California Employees Retirement Funds

In 1951, a member of the staff conceived the idea of attempting to persuade California to return contributions made by the AEC through the University of California to the California State Employees Retirement System for employees who worked for the University at Sandia Base prior to the time Sandia Corporation took over. In July 1952, primarily as a result of the efforts of this office, the State Employees Retirement System returned an amount of \$399,751.49 for the benefit of Sandia Corporation employees formerly employed by the University. Since there was no legal claim to this money, the payment was made in accordance with an Act of the California Legislature, this office assisting in its passage.

Construction Contractor Appeals

Owing to the lack of personnel in the Counsel's office at Los Alamos, the Albuquerque office has handled all construction and architect-engineer contract matters for SFO, including Los Alamos. A large construction program in Los Alamos, the construction at Pantex, Rocky Flats, and Las Vegas have resulted in numerous claims and appeals by lump-sum construction contractors. With the increased familiarity of SFO lump-sum contractors with the AEC appeal procedures, the frequency and size of these appeals has increased greatly during the three-year period. Further, the practice of retaining legal counsel to prosecute the appeals has developed and become standard. This office has represented SFO contracting officers in approximately 30 appeals during the period, and on June 30, 1953, approximately 20 additional appeals were pending or about to be taken. The amount of money involved in the appeals handled during the three-year period was more than \$500,000, and the amount involved in the appeals pending or imminent at the end of that period was more than \$200,000.

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Contract Drafting

A large amount of work consists of drafting various non-routine formal documents for SFO. Most important of the drafting work is contract drafting, although considerable time has been spent on ordinances for the County of Los Alamos, concessionaire and other licenses, and leases. Many of the large SFO operating contracts were drafted by this office, for example, the Dow Chemical Company contract. Large cost-type construction contracts, such as the Austin Company's contract, have been drafted. Among the unusual contracts drafted are the fixed price security contract at Las Vegas, unique because this type of contract is not normally advertised for bids on a fixed price basis. Another contract was unique because it was an advertised fixed price contract covering feeding and housing at the Nevada Proving Grounds.

Hearings, Negotiations, and Advice

In the Spring of 1951, this office appeared for and represented the AEC at a Federal Power Commission hearing in Washington, D. C., pertaining to a proposed withdrawal of natural gas from the San Juan basin (the source of gas for Los Alamos) by the El Paso Natural Gas Company.

In the Spring of 1953, the Teamsters Union in Las Vegas set out to organize the guards employed by the fixed price guard contractor at the test site. Had the organizational efforts of the Teamsters Union succeeded, the normal turbulence connected with contract negotiation would have occurred during the 1953 Spring series of tests. For this reason, and because of the danger of divided loyalty, it was the desire of management to keep the guards out of the Teamsters Union if possible. A provision of the Taft-Hartley Act seemed to prohibit the representation of guards by the Teamsters Union, but decisions of the National Labor Relations Board interpreted this provision in such a way that the prohibition would not apply in this case. Through this office's efforts, in cooperation with Personnel and Organization in Albuquerque and Washington, the National Labor Relations Board eventually decided that the Taft-Hartley Act did forbid NPG guards from being represented by the Teamsters Union.

In 1952, the Carson Case was decided by the Supreme Court of the United States. The opinion in this case contained an extremely broad interpretation of the tax exemption provision in Section 9(b) of the Atomic Energy Act. Many problems arising out of the application of the language of that opinion to the SFO situation in various states were created. Particular problems arose in connection with the sales and use taxes of California and Iowa. These latter problems were eventually resolved primarily by personal conferences between members of this office and state taxing authorities. The positions adopted by this office in these conferences have for the most part eventually been accepted by the state taxing authorities. The only major exception, the application of the California sales tax to construction goods purchased in California for subsequent repackaging in California prior to shipment overseas, has been referred to the Department of Justice which will probably seek an exemption from the tax in the courts.

ALCO

During the last three years, procedures were finally developed for handling lump-sum construction contracts where the contractors failed financially during the course of their work and defaulted on their contracts. Probably due to higher prices and scarcity of materials following and resulting from the outbreak of the Korean War, plus the unusual conditions created by the relative isolation of Los Alamos and other differences between Los Alamos and more normal cities, several contractors failed financially at Los Alamos during the height of the Los Alamos construction program. Problems related to having the jobs completed by others, what to do with earned and unearned money

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under the contracts and damages to be charged against money held by SFO on the jobs, all required extensive research. Eventually answers were furnished to these various questions, and all of these cases have now been disposed of so far as SFO is concerned.

19. TEST OPERATIONS

Prior to establishment of the Office of Test Operations in 1951, staff functions for full-scale weapons tests were performed by individuals on the SFOO staff or by contractors.

Two continental and one overseas test series were conducted during calendar year 1951. By completion of the second Nevada series, Buster-Jangle, it had become obvious that the increasing frequency, scope, complexity, and number of participants had exceeded the staff resources provided.

The Office of Test Operations was organized to provide staff supervision for full-scale weapons tests in collaboration with the Scientific Test Director and others concerned. The office was established in January 1952, and staffing was completed in April 1952. Assisting the Director and Deputy Director are one representative each for overseas and continental tests, and for administration. There is a single secretary.

The office administers contracts and inter-agency agreements for test support common to both proving grounds. The CPFF contract with Edgerton, Germeshausen and Grier and the agreement with Naval Reserve Laboratory fall in this category.

In fulfilling directives from DMA and the requirements of scientific laboratories, extensive liaison and coordination are required between the Los Alamos Scientific Laboratory, the University of California Radiation Laboratory, and the Department of Defense. Arrangements are also made by this office for participation by other Government agencies, such as United States Weather Bureau, United States Public Health Service, and Federal Civil Defense Administration, all of which contribute significantly to the test program. Within the limits of SFO responsibilities, supporting military groups are obtained as are specialists in certain instances from other Operations Offices, such as Oak Ridge and New York.

The Director has served as Assistant Test Manager of continental tests, and will serve as Commander, Task Group 7.5, on Castle. Some staff positions in the test organizations are filled by OTO.

20. PRODUCTION COORDINATION

ALCO

The Office of Production Coordination has trebled in size during the three-year period. Established in 1948 to coordinate all aspects of production operations under the jurisdiction of SFOO, it has grown from 51 persons as of June 30, 1950, to 152 as of June 30, 1953. Office of Production Coordination personnel, excluding Storage Operations Branch, grew from 12 to 33; Storage Operations Branch in headquarters grew from 3 to 9; and Storage Operations Branch in the field grew from 36 to 110.

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The responsibilities of the office now embrace a wide field. It coordinates weapons research, development, production and storage operations; participates in technical studies and procurement planning on an AEC basis; participates in the planning of technical program objectives; develops production schedules, coordinates and reports progress thereon; provides information for and directs compilation of budgets for the entire weapons program; controls and supervises accountability for stockpiled weapons components, source and fissionable materials; and other critical items.

The organization includes: Director's office; Budget and Administrative Branch; SF Materials Audit Branch; Planning division, including a Development Engineering Branch and a Production Planning Branch; Operations division, including a Manufacturing Operations Branch with an Inspection section and a Storage Operations Branch; and Contracts Administration division.

In 1952, the Contracts Administration division was added to plan, direct, and coordinate for the Office of Production Coordination the negotiation and administration of prime operating contracts in the development and production fields. A major task was the selection of the operating contractor for the projected Spoon River Plant.

The Inspection section of the Manufacturing Branch was also added to perform the function of performing final acceptance inspection of explosive and mechanical components manufactured or assembled at DOD installations. Two members of the section are now stationed at Picatinny Arsenal, and three at Inyokern.

Necessary reorganization of the Planning division was also made during the period, including the establishment of the Production Planning Branch.

21. SAFETY AND FIRE PROTECTION

Safety and fire protection in 1947 was criticized by a Commission Advisory Board, which concluded that the wartime policy of close direct supervision must be modified to emphasize and apply the principle of contractor responsibility for safety and health, encourage contractor initiative, provide incentive, and give maximum freedom to those showing the best operating conditions and results. The Board recommended, in effect, that SFOO provide staff leadership to insure development of adequate contractor programs. Subsequent industrial safety and health activity has conformed with the recommended approach.

By June 30, 1950, SFOO was able to report that the attitude of contractor managements, referred to by the Board as "fair to poor", had become "good to excellent" and that accident rate trends were downward.

The Advisory Board Chairman re-surveyed SFO during August 1952. He reported to the General Manager that: "Management attitude, and safety organization and personnel, seemed excellent; tremendous improvement in five years; practically all items criticized in the 1948 report seem to have been remedied."

A staff of 17 directly supervised SFO safety as of July 1, 1947. The activity consisted essentially of construction safety inspection and vehicle driver training and testing, all at Los Alamos. The organization had no industrial safety nor fire protection engineer.

ALOO



By mid-1950, a Safety and Fire Protection Division, SFOO, had been organized with almost a complete change in personnel. Industrial safety, traffic, and fire protection engineers had been added, while total personnel had been cut to 12. Employment of two additional fire protection engineers in the Fall of 1950 increased total personnel to 14.

In July 1951, SFOO staffs at Kansas City and Sandia Field Offices included one safety engineer each plus a clerk-stenographer at Sandia. These three positions had been eliminated by the end of 1951.

In the general reorganization of July 1951, the operation was divided into an SFOO headquarters staff and a Los Alamos Field Office staff. SFOO staff personnel were cut to eight. This was raised to nine with the addition of a sanitary engineer in April 1953, to provide staff assistance in radiological safety, industrial hygiene and sanitation, and contaminated waste disposal. A Health and Safety Branch was established in the Los Alamos Field Office to direct industrial safety, community and traffic safety, and the project fire department. It also was assigned responsibility for operation of the Police department, the Health and Sanitation Branch, and later the Industrial Wastes section. As of mid-1953, the administrative staff of Los Alamos Branch totaled 7.

SFO field installations coming under Safety and Fire Protection division cognizance more than doubled between 1950 and mid-1953. The workload was further increased by assignment of responsibilities at all domestic storage sites, and in 1952, of radiological safety and industrial health.

The Division works closely with the field offices, and other SFOO and contractor installations in the fields of industrial, public and camp safety, health, and fire protection; reviews plans for all new construction and modifications for compliance with established codes and standards; advises and assists SFO offices and contractors in establishing criteria and developing and carrying out health, safety and fire protection programs; and makes periodic surveys of all facilities to assure that Commission standards of physical conditions and performance are being maintained.

Safety and Health

Direct safety supervision of contractor operations had been withdrawn by Fall 1951, with but one exception. In application of a new concept of construction safety program administration, the architect-engineers were assigned responsibility on all work under their direction. This worked well at Pantex, Rocky Flats, Eniwetok, and Nevada Proving Grounds where one architect-engineer supervised all construction and was justified in employing a qualified safety engineer. At Los Alamos, where the work was divided among several architect-engineers and the employment of a safety engineer by any one of them was not warranted, the LAFO Health and Safety Branch exercises part time safety supervision over construction activities while delegating much of the responsibility to the architect-engineers' construction inspectors. The emphasis placed on contractors' responsibility for safety and health together with the new controls have produced results that are quite satisfactory. Attitudes have changed and occupational injury and disease rates had decreased by over 54 per cent during the three-year period ending June 30, 1953.

SFO occupational injury and disease records prior to calendar year 1949 were kept on a basis which does not permit comparison with subsequent years. Since 1949, the records have conformed strictly to the American Standards Association Code. Accompanying charts present SFO occupational injury, disease, and Government vehicle accident rates.

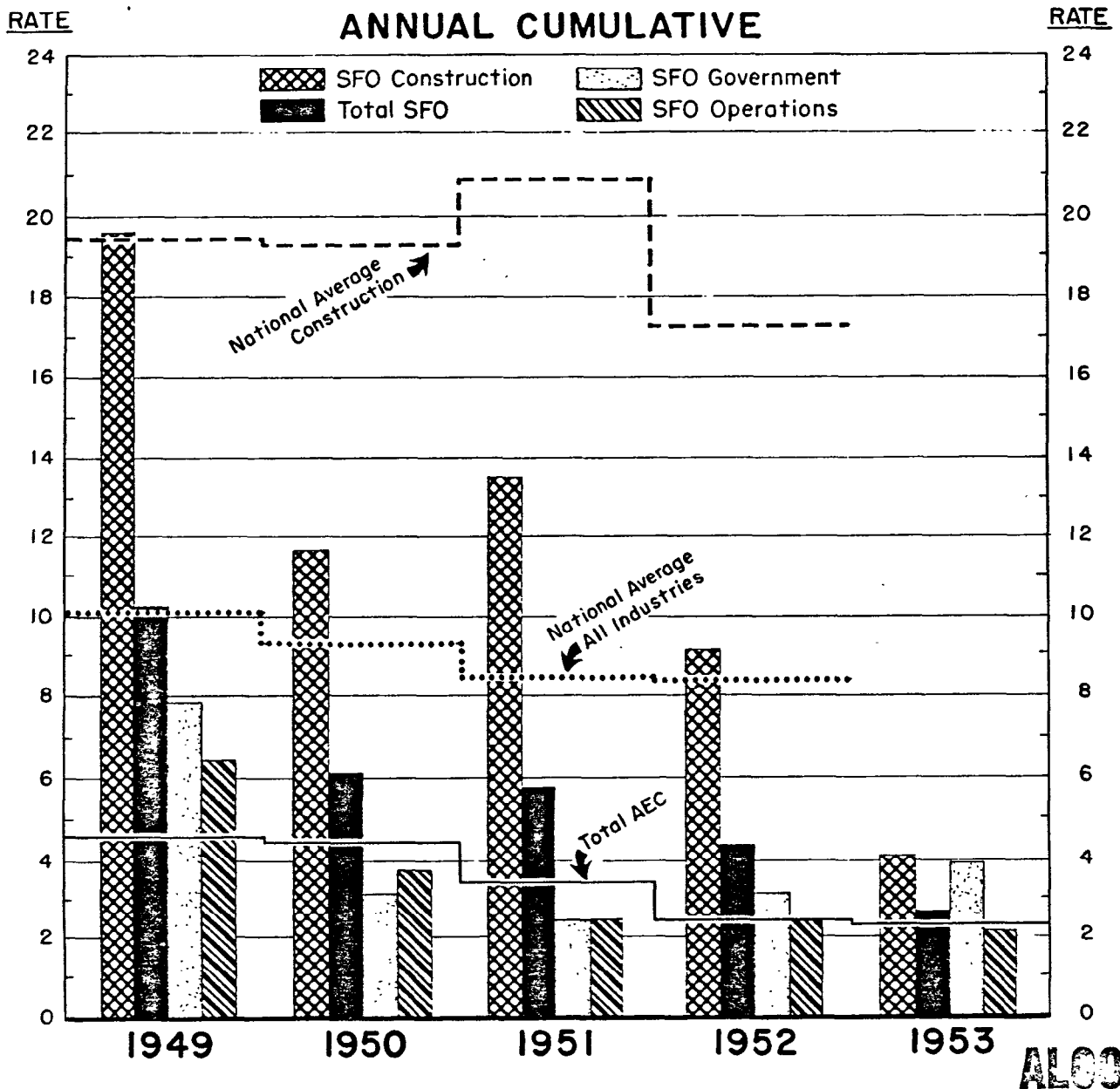
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AEC and CONTRACTOR SFO ACCIDENT FREQUENCY RATES

(FREQUENCY RATE = Number of Disabling Injuries per 1,000,000 Man-hours Worked)

Calendar Years 1949, '50, '51, and '52.
1953 through June

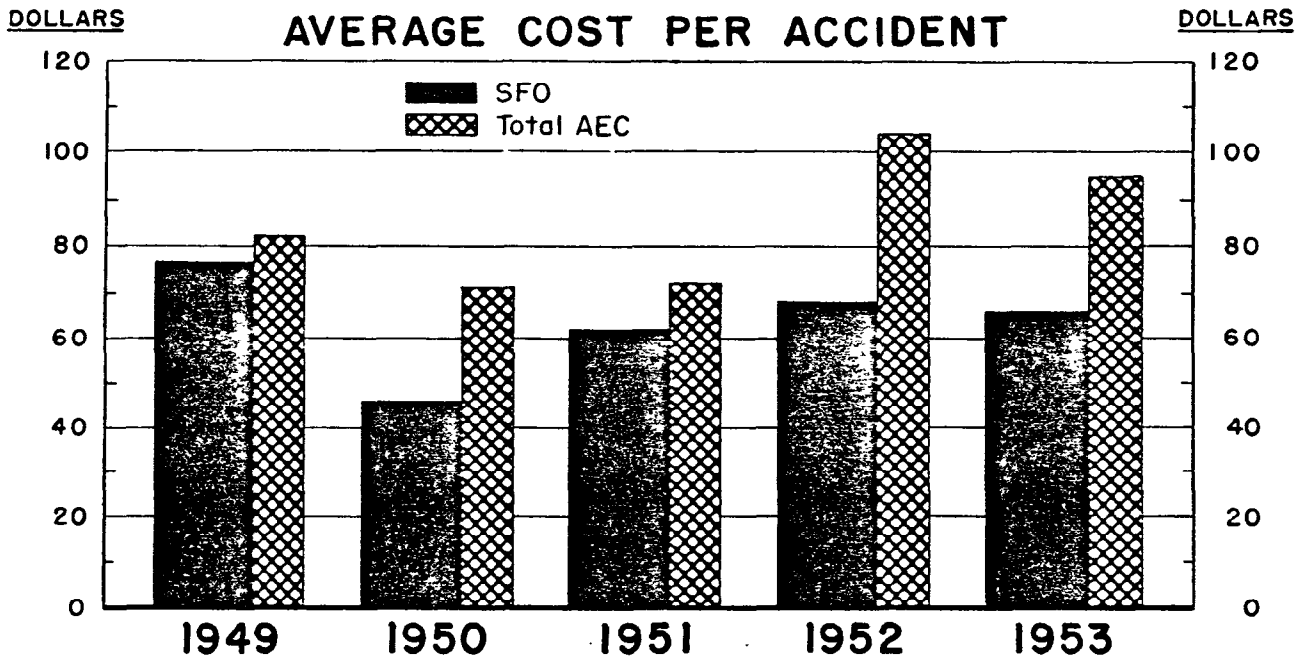
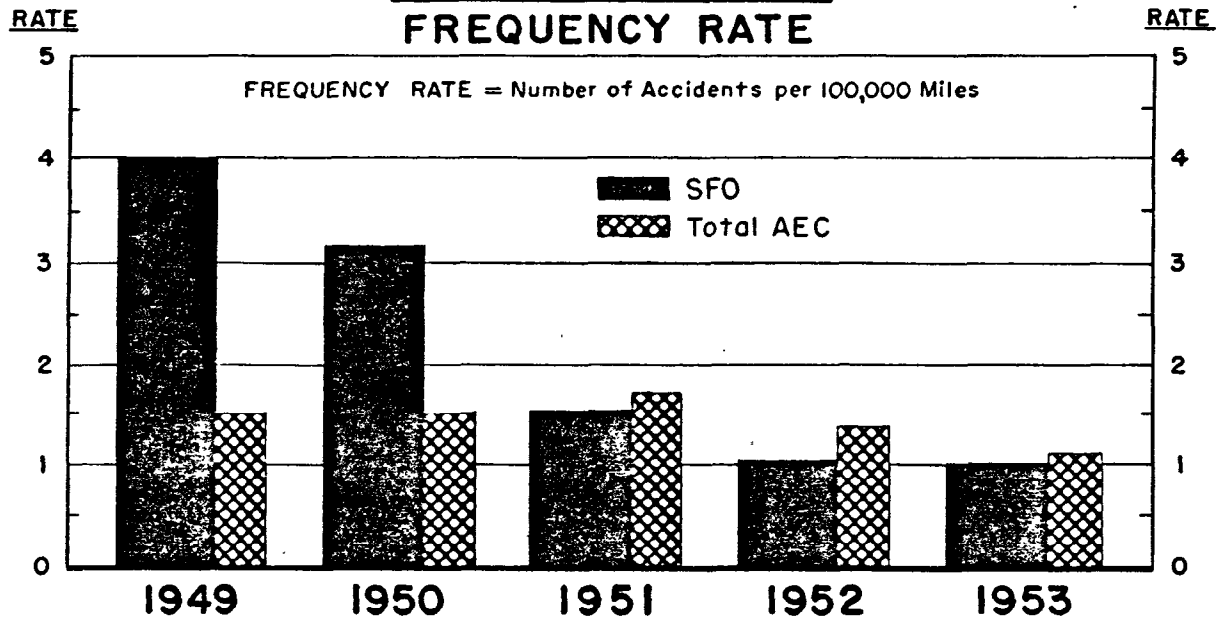


SOURCE: National Safety Council, AEC Summary of Accidents and Fires,
and SFO Safety and Fire Protection Division

SFO GOVERNMENT VEHICLE ACCIDENTS

Calendar Years 1949, '50, '51, and '52.
1953 through June

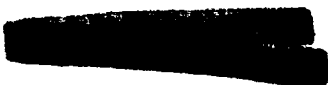
ANNUAL CUMULATIVE FREQUENCY RATE



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SOURCE: SFO Safety and Fire Protection Division,
and AEC Summary of Accidents and Fires

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Fire Protection

As in safety and health, contractors' responsibility for fire prevention has been emphasized. Except at Los Alamos, fire prevention forces are employed by the contractors. It has not been practical for the contractors to employ fire protection engineers as no one installation is large enough to warrant full time service. SFO now provides fire protection engineering coverage for all its installations and many of its supplier contractors where there is a large AEC investment much in the same manner as major industrial fire insurance companies provide such coverage for their assureds.

In the years 1947 to 1950, the need for the services of experienced fire protection engineers was realized and initial steps were taken to develop a practical and comprehensive fire protection engineering program. Prior to fiscal year 1951, the fire protection engineering work was largely confined to review of construction plans to insure proper compliance with established fire protection codes and standards, and occasional review of physical conditions at facilities which were known to be substandard.

Subsequently the problems encountered in achieving a degree of fire protection commensurate with importance and value have been numerous due to the severe combustibility of many of the older structures housing important operations, and a lack of built-in fire protection. The problems have been further intensified by the necessity for isolation of many facilities and the diversity of special hazards and materials, many of which are peculiar to SFO and AEC.

A formal inspection procedure has been standardized and a program placed in effective operation for the coverage of all important SFO direct and contract activities by annual or semi-annual fire protection engineering surveys. The frequency of visits is determined by the importance of a facility to the over-all mission of SFO. The engineers inspect each property and its protective equipment and fire protection organization thoroughly, evaluate the quality and adequacy of the property's over-all fire protection and submit to management a written report of their findings and recommendations. Progress of the inspection program is shown on the chart "Industrial Fire Protection Surveys."

It has been estimated that "Improved Risk" fire insurance companies expend about \$1.00 for fire protection engineering services for each \$10,000 of insured property. Expenditures by SFOO for fire protection engineering services approximated \$0.72 per \$10,000 of AEC-owned property in 1952, and is being further reduced in calendar year 1953.

Santa Fe Operations Office and its contractors expended \$652,691 in 1951 and \$866,416 in 1952 for industrial fire department wages, equipment usage and travel. When expressed in terms of dollars spent for services per million dollars of AEC property evaluation, these costs are equivalent to \$2,109 for 1951 and \$1,765 for 1952. The net cost per million dollars of AEC property evaluation was reduced in 1952 by 12 per cent. An additional reduction is anticipated for the year 1953.

Considerable improvement has been accomplished during the past three years in fire protection at SFO facilities. This has resulted from compliance with recommendations made in survey reports. The construction of new and replacement facilities, in which adequate fire protection has been incorporated, also has been a major factor. Several older locations need additional improvement to approximate "Improved Risk" status. Delay in improvement of these locations is due to lack of funds or to plans for relocating the occupying projects to new and permanent facilities.

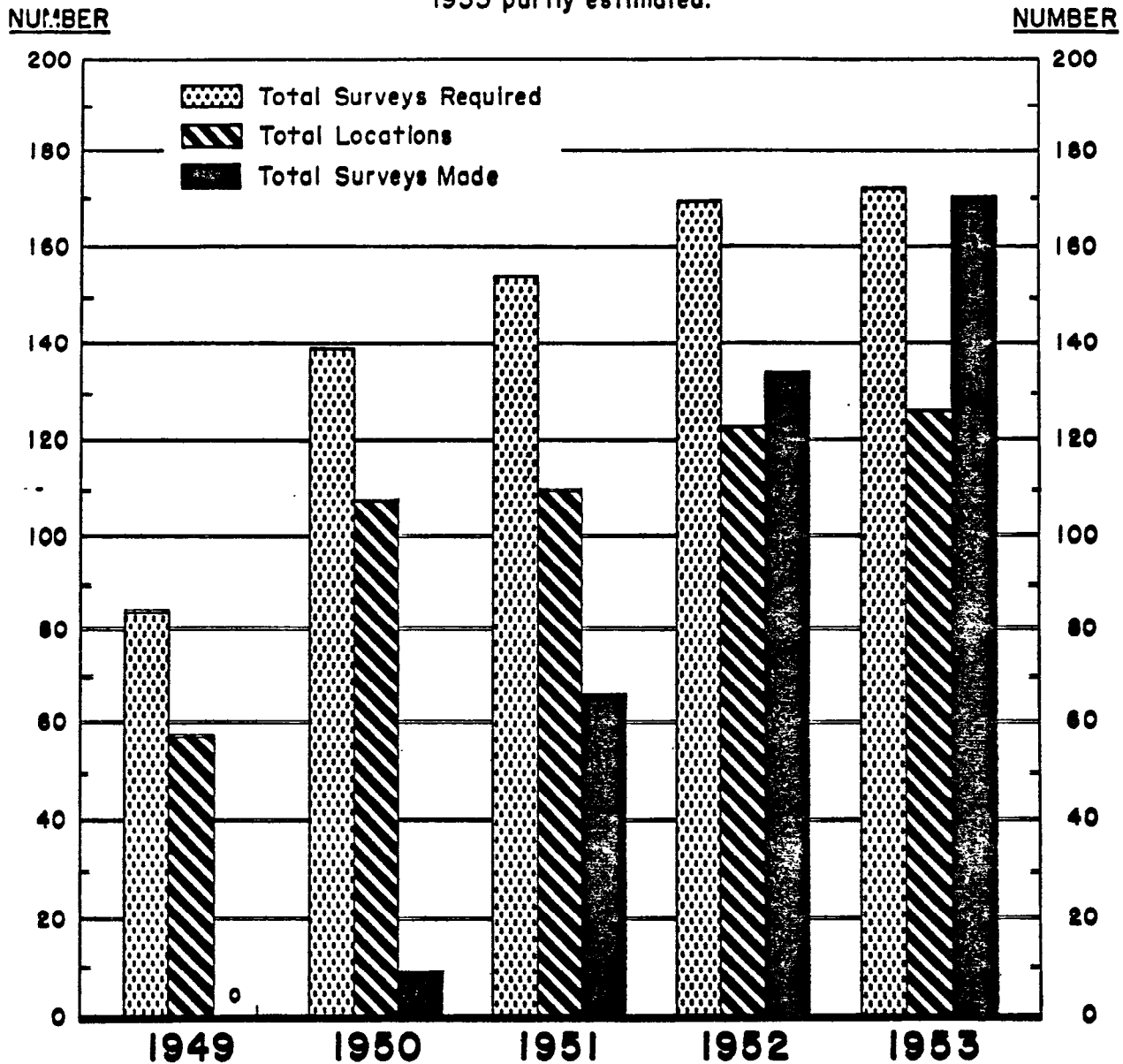
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SFO INDUSTRIAL FIRE PROTECTION SURVEYS

Calendar Years 1949, '50, '51, and '52.

1953 partly estimated.



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SOURCE: SFO Safety and Fire Protection Division

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It is believed that, with few exceptions, facilities of SFO are now relatively immune to fire disaster. The SFO industrial fire loss record experience of \$0.0011 for the last three years has been extremely low compared to the national average of \$0.15 per \$100 evaluation or as compared to major insurance company "Improved Risk" average experience of \$0.028 per \$100 evaluation. The SFO industrial fire loss experience is shown on the accompanying chart, "SFO Industrial Fire Loss Ratios."

22. SUPPLY

When SFOO moved to Albuquerque in July 1951, the contract and procurement activities were consolidated under the Supply Division. The division now handles the advertising and award for architect-engineer, construction, research and development, and operational contracts, as well as those contracts and procurement actions pertaining to obtaining services, equipment, and supplies for the regional office and seven of the nine field offices. More effective utilization of personnel has been achieved by the consolidation.

Prior to the 1951 move to Albuquerque, the Supply Division had 44 filled positions. Certain local supply responsibilities were given to the Los Alamos Field Office, but the division, reorganized with 30 positions, assumed responsibility for the preparation of all SFO prime contracts, documentation in support of contracts and establishment of central contract files and, in addition, provided support for field offices by the preparation of contracts, with the exception of Los Alamos and Sandia Field Offices. The division also established a Traffic Coordinator to effect better utilization of the facilities of Carco Air Service, especially use of the C-54 and C-47 planes used in the movement of air freight. In 1952, Office Services activities—including mail and records, central files, reproduction, telephone, teletype, and custodial responsibilities—were placed under the Supply Division, the personnel totaling 37. Subsequent workloads in handling correspondence and reproduction made necessary some personnel additions. Although responsibilities progressively increased, on June 30, 1953 the Supply Division had only 70 assigned personnel.

Contract Review Board

In August 1952, certain changes were effected in the organization and responsibilities of the SFO Contract Board. A new Board "charter" appointed Board members and assigned responsibility for reviewing and making recommendations to the Manager on all contract and subcontract actions requiring the Manager's approval or signature. The new "charter" changed the name to Contract Review Board and placed new emphasis on the "review" nature of its responsibilities as distinguished from a "negotiating panel" type of board.

A full-time, non-voting Executive Secretary was provided, responsible for preliminary review of all contract matters coming before the Board and for advising Board members with respect to various aspects thereof; also, for acting as business manager for the Board in coordinating and scheduling its contract review activities, preparing agenda, records, and minutes, and in acting in a liaison capacity with contracting officers and contract representatives on contractual matters.

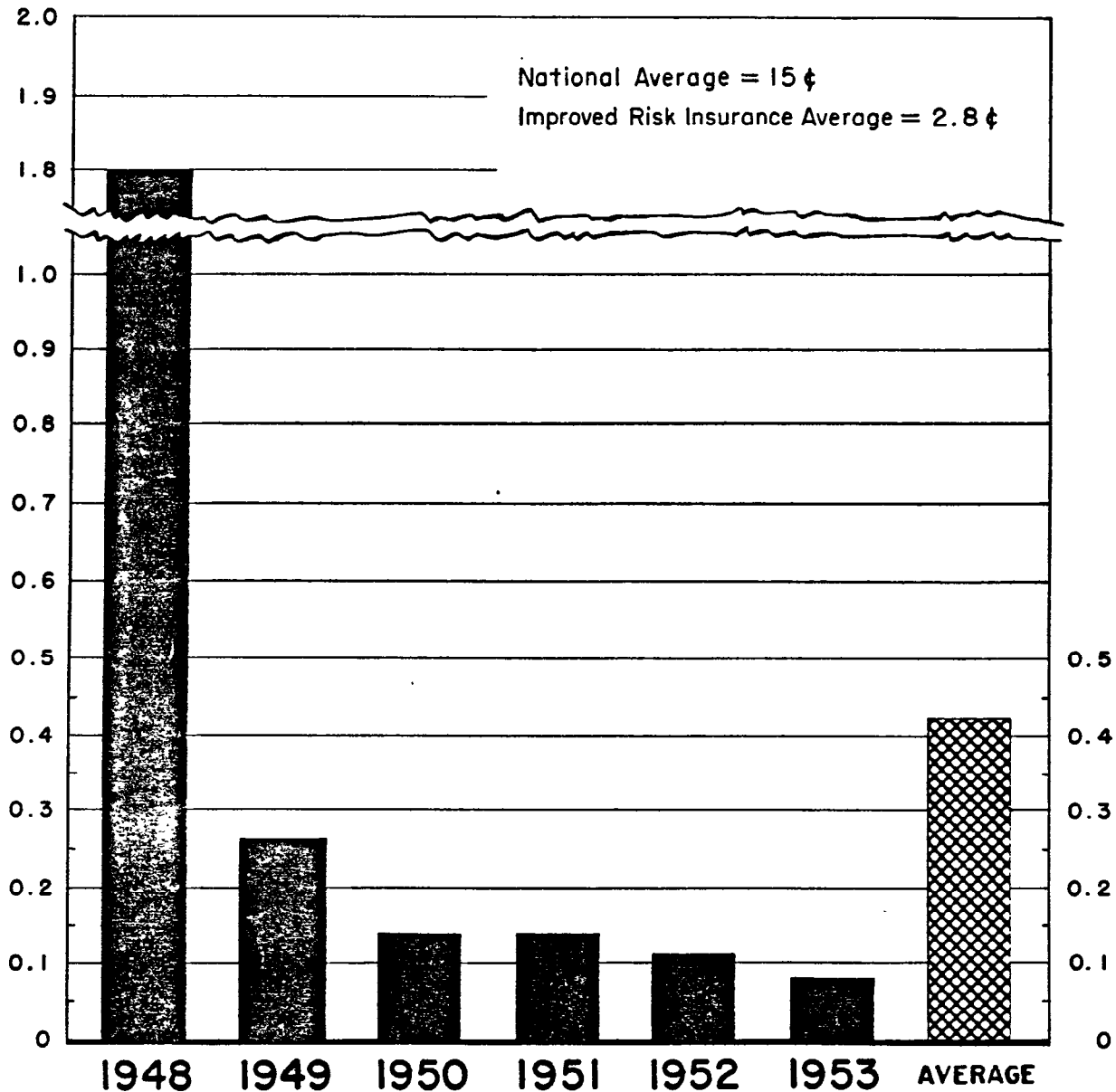
During fiscal year 1953, the Board considered 98 separate agenda items involving contracts in excess of \$100,000, in addition to furnishing recommendations on general contracting policy.

SFO INDUSTRIAL FIRE LOSS RATIOS

(Cents per \$100 Evaluation)

Calendar Years 1948, '49, '50, '51, and '52.
1953 projected from September 1.

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SOURCE: SFO Safety and Fire Protection Division

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The Board's review function determines that negotiations are competently conducted, based on adequate information and documentation, in conformance with established policies and procedures, and will result in contracts or subcontracts that adequately protect the Government's interests. It also determines that proposed awards resulting from competitive bidding are based on adequate competition, appear reasonable under all the circumstances, and if to other than low bidder are in the best interests of the Government.

By having such a review provided for, an effective alertness for good and adequate negotiations has been instilled in all negotiators. It has resulted in definitely improved justification documentation of contract files; uniformity has been achieved in contract terminology (clauses) and in negotiated basic contract provisions; more adequate and complete staff review of contracts has resulted, as well as divergent staff views having been reconciled; and a focal point has been provided for discerning and accumulating contracting problems for later crystallization into SFO contract policy.

Establishment of the Position of Procurement Specialist

In the early part of 1951, the position of Procurement Specialist was established as a staff function under the Director of Supply. The responsibilities of this position included the inspection and examination of procurement operations of SFO cost-type-contractors and procurement functions of direct AEC operations. In addition to providing staff assistance, the purpose of the reviews is to assure that cost-type-contractors are purchasing under their established procedures as approved by AEC and to further insure that procurement accomplished is in the best interest of the Government. It was not until April 1952, that the position could be filled. The Procurement Specialist has critically reviewed procurement procedures of the then existing contracts as well as the procedures furnished under new contracts. Procurement inspections have been made on eight cost-type contracts with 15 cost-type contractor inspections scheduled through fiscal year 1954. In addition, inspections are scheduled on direct AEC procurement at three locations. The principal activities of the Procurement Specialist are now a part of a Commission-wide policy established by GM-S&S-45.

Property Management

Despite the progress that had been made in the field of Property Management prior to June 1, 1950, much remained to be accomplished in the reduction of stores inventories, establishment of adequate stock levels and controls so as to meet SFO programs and to maintain realistic inventory turnovers. Although over-all supply management policies were fairly well developed, detailed procedures and arrangements in the field of redistribution so as to better utilize property and establish procedures for the disposal of property by cost-type contractors, were yet to be developed.

To further add to the responsibility of the SFO Property Management Branch, an accelerated SFO expansion program was emerging from the planning stage. During the past three years this increased the number of major AEC and contractor operated supply facilities from eight to more than 21 locations which now include 18 contractors.

Property Management Examinations

It was evident that if SFO was to accomplish the work indicated as needed in the field of Property Management, the staff, in order to provide the advice and assistance required, would have to become more familiar with the contractor's operations and ascertain the effectiveness of its management. To accomplish this, emphasis was placed upon the development of sound and comprehensive procedures and techniques to effectively examine the

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receipt, storage, issue, utilization, redistribution and disposal operations of those responsible for the custody and care of Government-owned property.

In no small measure these property examinations have contributed to the strides which have been made in the control of materials, reduction of inventory investments, increased turnover ratio, and in more prompt determination and declaration of excess stocks available for redistribution as well as disposal by sale of surplus property, salvage and scrap materials. This also contributed to more efficient warehousing operations including a reduction in the requirement for acquiring additional storage facilities.

These examinations, which document contractor deficiencies and outline recommendations, provide a basis for negotiation with contractor management to adopt more adequate procedures and take desired corrective action. SFO began these examinations over three years ago, and now such examinations are required to be conducted throughout the Commission by GM-S&S-45 effective January 1, 1953. Under the present program property management examinations will be made at least once each year and where significant deficiencies are found, partial surveys will be made at three-month intervals.

Long Supply

Contributing to heavy inventories were many categories of items with quantities on hand far exceeding current needs and obviously it was not considered economical to dispose of these items at a loss to the Commission when repurchase within the next 12 months was probable. However, if another AEC activity was currently contemplating buying identical material, in the interest of conserving warehousing space, obtaining materials immediately which would otherwise involve a long procurement time, and husbanding current appropriated dollars, it was desirable to provide a vehicle to redistribute such items. In accordance with AEC policies, contractors were requested to screen their stocks for long supply items and prepare long supply lists for circularization throughout the Commission. This system was inaugurated in SFO during the month of August 1952, and from that time to the end of fiscal year 1953 the dollar value of redistribution of items in long supply was as follows:

Transfers within SFO Installations	\$ 67,918.52
Transfers from SFO to other AEC Operations Offices	27,973.93
Transfers from other AEC Operations Offices to SFO	210,600.77
Transfers from other Government Agencies to SFO	<u>183,875.10</u>
Total Redistribution of Items in Long Supply	\$490,368.32

Disposal by Cost-Type Contractors

In the interest of economy and to expedite the disposal of excess and surplus property, procedures were developed for cost-type contractors to sell surplus personal property including scrap and salvage within the framework of the Commission's property disposal policies. This provided a method to greatly accelerate disposals at single contractor locations and relieve the AEC field offices of detailed responsibilities which in part would have been duplicated by the contractor.

Recovery of Strategic Material in Classified Form

ALOO

A segregated "melt" program was installed to recover aluminum, copper, tungsten, and steel from obsolete classified items which could not be disposed of through the usual salvage channels and were being stored, destroyed, or buried. This method recouped valuable storage space as well as cash dollars for the Commission and prevented the loss of large quantities of such critical materials to the national economy during the Korean War.

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Excess and Surplus Property

Continued close attention has been paid to the prompt disposal of excess and surplus property generated from newly completed construction facilities, stocks and components rendered obsolete by research, development and test programs and by the reduction of operating inventories within reasonable levels as well as excess generated prior to 1950. This has accounted for the redistribution and disposal of this property bearing a book cost of approximately \$6,000,000 during the past three years.

Inventory Control

Reduction of stores inventories and the increase in turnover ratio have been a major accomplishment within SFO during the past three years, and have brought about direct savings to the AEC in the following manner: smaller investment in stocks required; better utilization of property on hand; prevents the generation of large quantities of excess and obsolete material which in many instances have to be disposed of at a loss to the AEC; reduction in the cost of storage space; and requires fewer personnel for supply operations.

For comparative purposes the following table shows the progress made during the past three fiscal years in the reduction of stores inventory investments for the major cost type operating contractors within SFO. This information was taken from financial reports "Analysis of Stores Inventory."

<u>Contractor</u>	<u>No. of Months Investment by Fiscal Year</u>		
	<u>1951</u>	<u>1952</u>	<u>1953</u>
The Zia Company	19.7	9.2	6.90
Los Alamos Scientific Laboratory	14.0	11.2	7.15
Sandia Corporation	15.3	10.8	7.10
Bendix Aviation Corporation	9.0	10.6	9.00
Project Eye	*	5.5	7.90
Silas-Mason Company	12.0	7.8	5.80
Dow Chemical Company	*	*	4.00
Procter & Gamble Defense Corporation	*	*	8.40
Holmes & Narver, Inc.	4.4	6.5	6.30
Reynolds Electrical & Engr. Co., Inc.	*	*	5.90
Nevada Company	*	5.9	†

*Not in operation

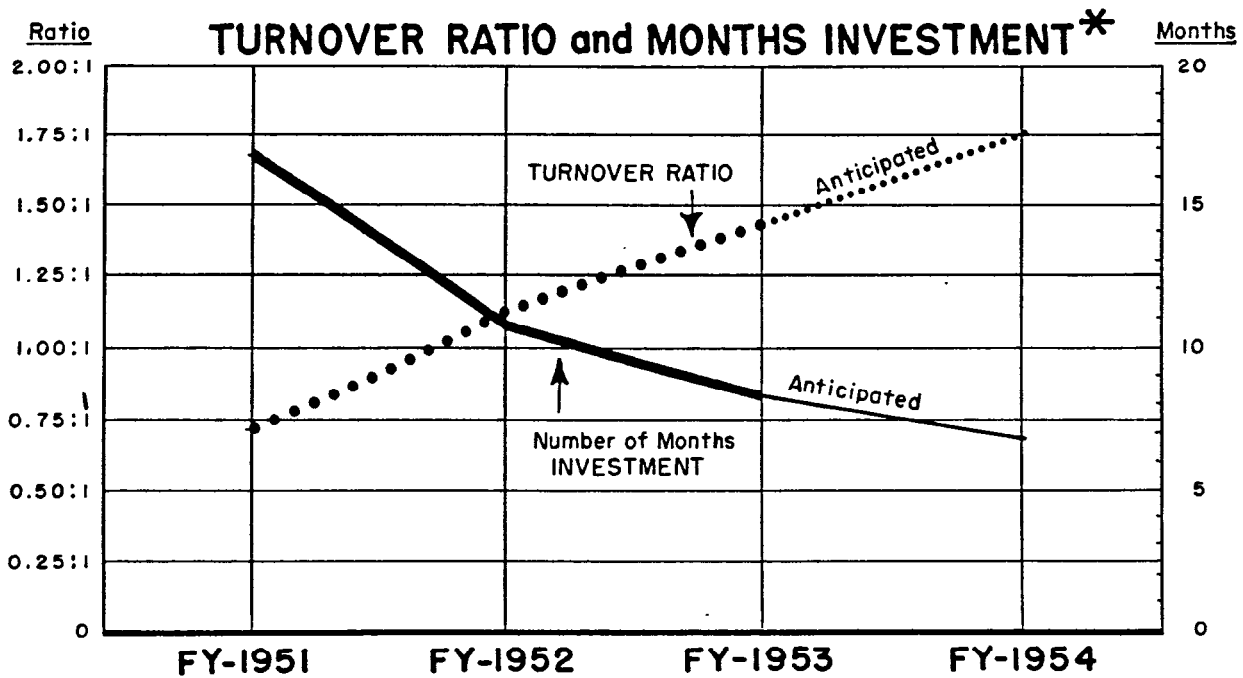
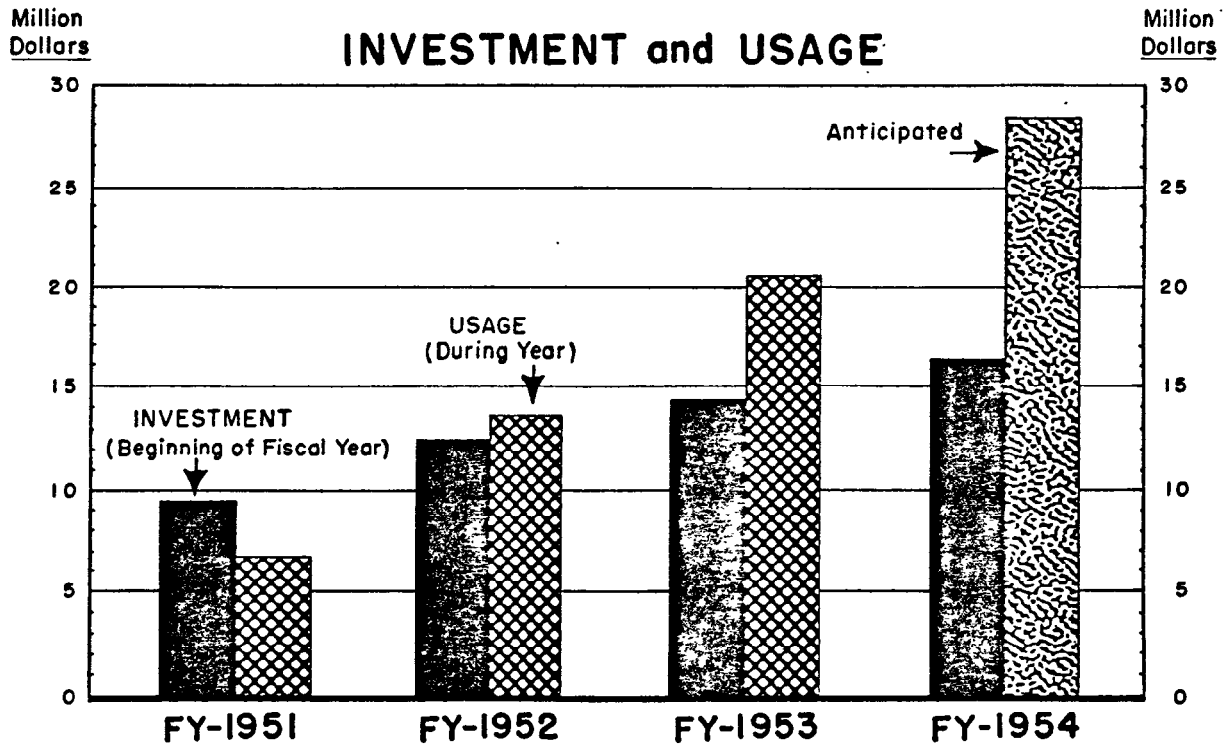
†Contract terminated

Anticipated average number of months investment for the above-listed contractors for the fiscal year ended June 30, 1953, is 6.9 months.

ALOO

Another method of presenting the progress in stock control and inventory utilization is to illustrate the total actual annual usage in relation to inventory investment at the beginning of the applicable fiscal year. Because the past three fiscal years cover an expansion period, the total inventory investment has increased and consideration must be given to the fact that inventories are established for anticipated consumption in connection with new

SFO STORES INVENTORY POSITION



* Number of months supply on hand based on usage.

ALOO

SOURCE: Property Management Branch, Supply Division, SFO

[REDACTED]

projects which tends to mask the tremendous reduction in inventories of the older contractors. Progress in the management of SFO inventories is shown as follows:*

	1951	1952	1953	1954
SFO Inventories beginning fiscal year	9, 588, 347	12, 404, 455	14, 352, 294	16, 269, 231
Actual Usage during Fiscal Year	6, 867, 392	13, 854, 705	20, 542, 156	28, 463, 136 ^a
Turnover Ratio	0. 72:1	1. 12:1	1. 43:1	1. 75:1 ^a
Number Months Investment	16. 75	10. 74	8. 38	6. 90 ^a

a - Anticipated

The present aim is to reduce the investment to a six-month supply or less, thereby accomplishing further reductions in the cost of handling stores inventories.

Property Management Meetings

Property management meetings with representatives of AEC field offices and of contractor organizations in attendance are held annually at SFO headquarters. Through these meetings and through the personal discussions of the most current problems and policies, a much closer understanding and spirit of cooperation has been developed. These meetings have replaced the previous procedure of the conduct of affairs through a Property Management committee.

Special Assistance and Requirements

As the Mobilization Planning merged into the period when important materials were becoming scarce and SFO's program was being greatly accelerated, a Defense Requirements Branch was established in the Spring of 1951. This group assumed the planning and execution of the National Production Authority and the Controlled Materials Plan (now Defense Materials System) programs, provided special assistance in obtaining NPA directives, locating scarce materials and supplies, and providing expediting assistance.

During the Korean War, many SFO "crash" programs were executed including establishment of permanent facilities in Nevada, construction at Pantex and Rocky Flats, and expanding continental and overseas testing together with research, development and production activities which were considered to be in the vital or critical category.

No essential activity was prevented from accomplishing its mission due to SFO's inability to obtain the required material, equipment or supplies.

With the expansion of the national economy and stretch-out of the defense production, the pressure in this field has reduced, resulting in a reduction of required personnel to a skeleton staff.

ALOO

* Figures obtained and computed from Finance Division reports entitled "Analysis of Stores Inventory" and "Summary of Stores Transactions."



Automotive and Heavy Equipment

Vehicle inventory for Santa Fe Operations has increased from 1,188 in fiscal year 1950 to 1,213, 1,510*, and 1,629* for fiscal year 1951, 1952, and 1953 respectively. Vehicle operational and maintenance costs averaged 0.098 per mile for fiscal year 1950 as compared to costs per mile during fiscal year 1951, 1952, and 1953 of 0.076, 0.075*, and 0.076*, respectively. The cost per mile of vehicle operation for fiscal year 1952 and 1953 compare favorably with the Government average of 0.0719 for fiscal year 1952 despite increased costs of material and labor.

Usage tables for fiscal year 1951, 1952 and 1953 indicate that efforts to increase vehicle utilization were successful in that during fiscal year 1952 and 1953 the average Santa Fe Operations vehicle miles per year exceeded that of the Government's fleet average of 8,466 miles for fiscal year 1952.

<u>Fiscal Year</u>	<u>Cost Per Mile SFO</u>	<u>Cost Per Miles Govt. Avg.</u>	<u>SFO Veh. Density</u>	<u>SFO Average Mile Per Yr.</u>	<u>Govt. Average Mile Per Year</u>
1950	0.098	0.050	1,188	6,112	7,815
1951	0.076	0.066	1,213	7,536	8,115
1952	0.075*	0.0719	1,510*	8,690	8,466
1953	0.076*	Not Available	1,629*	8,890	Not Available

Seventy-five excess vehicles were transferred from other AEC Operations Offices during fiscal year 1951 eliminating the expenditure of an estimated \$242,958 for like vehicles to be used by a construction contractor.

Twelve units of construction equipment were transferred from other AEC Operations Offices during fiscal year 1951 at an estimated saving of \$50,999 over the cost of purchase of new equipment for a construction contractor.

Interoffice and other AEC Operations Offices transfers of automotive and construction equipment in the amount of \$700,207 were made during fiscal year 1952.

Eighty-six interoffice transfers of automotive equipment were made during fiscal year 1953. Thirty-two of these vehicles were excess and their transfer eliminated the purchase of like units at an estimated cost of \$122,000. Fifty-four units were transfers from construction to operation phases without change of location.

Interoffice transfers of construction equipment were made during fiscal year 1953 at a saving of \$82,000 over the cost of procurement of new units.

Preventive Maintenance Programs have been implemented at all Field Office installations to the end that the cost of vehicle operation will be reduced.

ALOO

* 86 vehicles used on construction are not included as their use was not comparable to operational vehicles.

[REDACTED]

Traffic

On November 1, 1951, the position of Traffic Specialist under the Supply Division was established. In January 1952, a new Branch to handle the traffic activities was set up. This Branch is "responsible for policy recommendations and establishment of programs to promote the economical movement of traffic by rail, highway and air; coordinates Carco flights and makes reservations; reviews SFO traffic operations and furnishes staff assistance to field offices.

The coordination of Carco non-scheduled flights has resulted in more efficient utilization of planes. Hours flown and ton miles carried have increased with a reduction in the cost per ton mile. As a result the Commission renegotiated the Carco contract as of July 1, 1952, revising downward the rates per flying hour. However, effective as of February 2, 1953, it was necessary to partially reinstate the higher rates due to increased costs which Carco has to pay for labor and operation of planes.

The Chief of the Branch makes reviews of contractor traffic activities and provides staff assistance pertaining to traffic matters, obtains Section 22 Quotations, supports carriers' applications for operating authorities and represents both the contractors and the Commission at rate hearings. Traffic operations are evaluated and investigation made as to proper rate application; for example, one contractor, over a long period of time, had not been receiving the benefit of a Section 22 Quotation. As a result of the examination, reimbursement has been agreed to by the carrier. The contractor, who has a considerable traffic volume, has now employed a traffic manager who is actively negotiating for more favorable rates and service, and otherwise paying close attention to the contractor's traffic activity. As a result of these surveys, other contractors are becoming more cost conscious in their traffic operations and are taking steps to handle these matters more effectively.

Records Management

The Records Management program has been greatly accelerated during the past three years to keep pace with the expanding AEC program. The Records Management staff has spent a great deal of time assisting field offices and cost-type contractors in: installing uniform mail control procedures, installing standardized filing procedures, developing and establishing records retention and disposal schedules, installing microfilming procedures, and making surveys for the purpose of insuring proper utilization of filing equipment. Several cost-type contractors have appointed records officers who are placing special emphasis on the Records Management program.

To date there have been 241 Records Retention and Disposal Authorizations submitted by AEC offices and cost-type contractors. These schedules will permit eventual destruction of approximately 13,800 cubic feet of records. There have been 832 microfilm reels of vital records processed and forwarded to permanent storage. This microfilming program is continuing on a current basis. Through equipment surveys and reviewing requests for additional filing equipment, AEC offices and contractors have prevented expenditures of approximately \$61,300 during the past three years.

Action is being taken by SFO Management to see that all new renegotiated contracts contain a records clause that provides adequate protection to the Commission, as well as permitting the destruction of administrative records with no enduring value. Expenditures for filing equipment and space has been greatly reduced as a result of this clause. Heretofore, most cost-type contracts contained a clause which prevented destruction of any records prior to three years after termination of contract.

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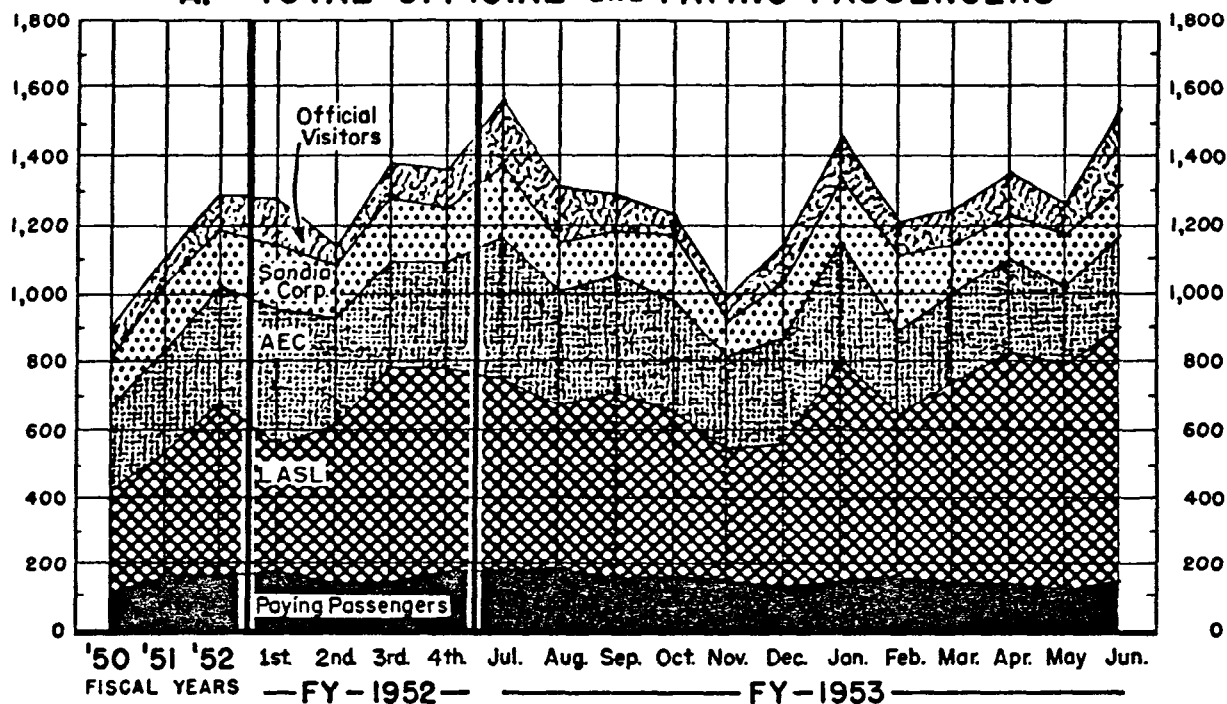
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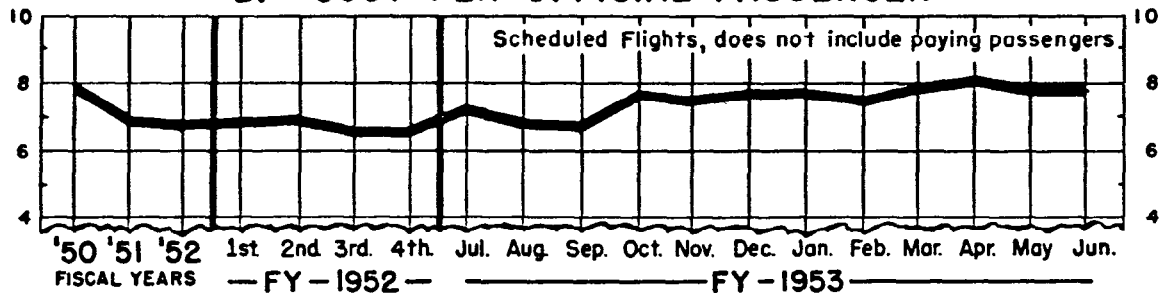
LOS ALAMOS and ALBUQUERQUE CARCO AIR SERVICE - SCHEDULED FLIGHTS

MONTHLY AVERAGE - FISCAL YEARS 1950, 1951, 1952.
MONTHLY AVERAGE - QUARTERLY FY-1952. MONTHLY FY-1953.

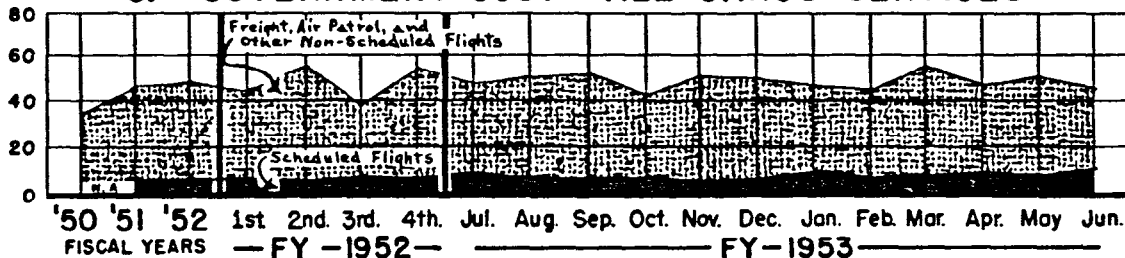
Passengers **A. TOTAL OFFICIAL and PAYING PASSENGERS** Passengers



Dollars **B. COST PER OFFICIAL PASSENGER** Dollars



Thousand Dollars **C. GOVERNMENT COST - ALL CARCO SERVICES *** Thousand Dollars



* Includes AEC, U. of C., and Sandia Corp. Payments

SOURCE: SFOO Supply Division, Travel Clerk

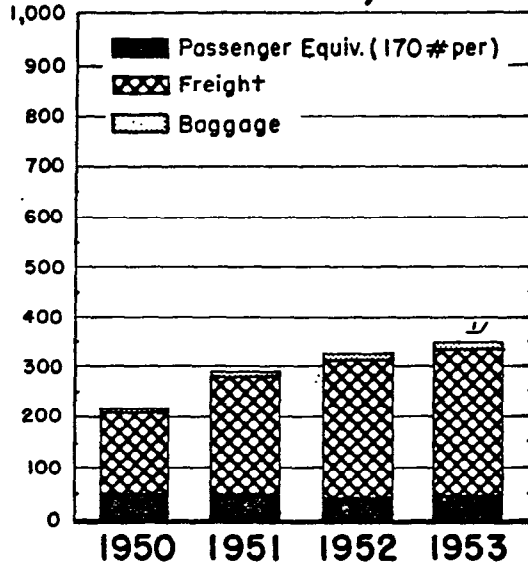
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CARCO AIR SERVICE OPERATIONS

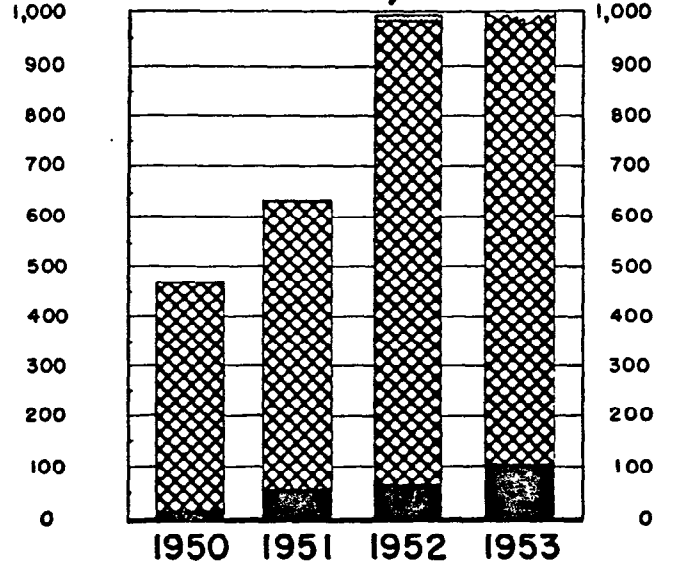
TONNAGE and COSTS, C-47 and C-54

Calendar Years 1950, 1951, 1952, and 1953 ^{1/}

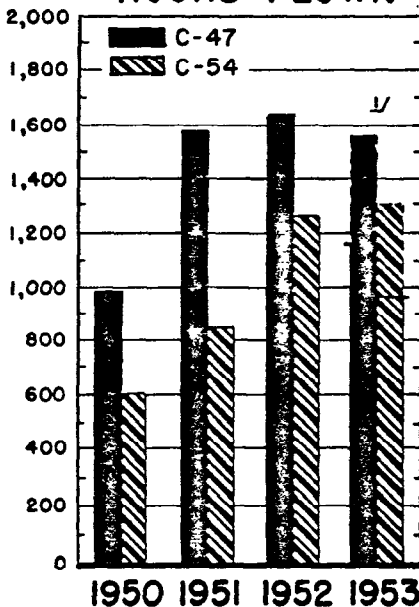
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Hours
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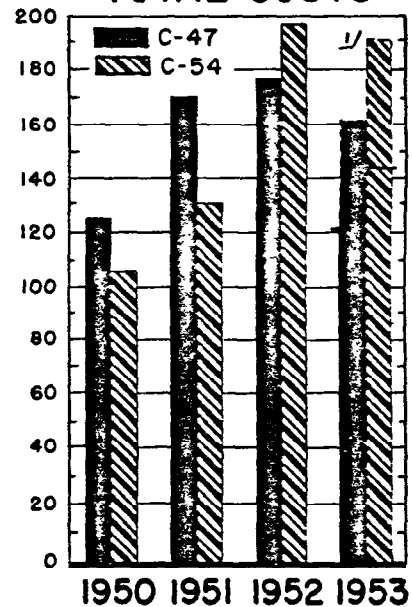


COST PER TON MILE

Year	C-47	C-54
1950	\$0.574	\$0.221
1951	0.592	0.206
1952	0.549	0.199
1953*	0.469	0.156

* on 9 month basis

Thous.
Dollars **TOTAL COSTS**



^{1/} 12 months estimate based on first 9 months actual

SOURCE: Statistical Report of Operations, Carco Air Service;
and Traffic Branch, Supply Division, SFOO

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[REDACTED]

The Records Service Center, which was established in 1949, has expanded its facilities. The addition of a vault became a necessity by the Fall of 1950, to meet security requirements for the storage of classified records. The vault completed in March 1951, now contains 766 cubic feet of classified records.

Since July 1950, SFO records personnel have visited AEC field offices and contractor offices to arrange for the retirement and disposal of terminated contract records and other inactive AEC records. As a result, 911 cubic feet of terminated contract records and 429 cubic feet of Personnel Security files have been stored at the Records Service Center. The total floor space for storage of records is now approximately 3,903 square feet.

During the past three years, 7,342 cubic feet of both classified and unclassified records have been received at the Records Service Center, 3,468 cubic feet of which have been destroyed. This leaves an amount of 3,874 cubic feet accumulated during this time. Tangible savings resulting from the retirement and disposal of these records are: \$153,531 for filing equipment released for re-use and \$12,844 rental cost for office space released for re-use.

The centralized service provided by the Records Service Center has been of eminent value to SFO officials requiring historical and investigational information, even going back into Manhattan Engineer District days. Prompt availability of any retired record from the Service Center has encouraged the use of this facility for retirement of important records of AEC and Contractor organizations under SFO jurisdiction. There have been 22,138 reference requests serviced by the Service Center since July 1950.

23. ENGINEERING AND CONSTRUCTION

The magnitude of the construction job in providing the vastly expanded plant facility structure has been accentuated throughout this report. It is emphasized by the accompanying statistical summary which shows, year by year throughout the last six years, a cost comparison of the increasing programs.

Inheriting from MED on July 1, 1947, fixed assets totaling \$41,737,987 including \$41,483,518 in completed facilities and \$254,468 in construction work in progress, SFO has built up to a total of \$471,415,104 in completed plant and \$48,048,245 in work in progress, as of June 30, 1953—roughly a ten-fold increase.

As shown on the chart, the peak of construction activities was reached during 1952-1953, with \$147,350,702 plant completed in 1953. Outstanding construction during the period included construction of facilities at Pantex, Rocky Flats, Cryogenics Laboratory, Pacific and Nevada Proving Grounds, and expansion of facilities at Sandia Laboratory, LASL, and Burlington.

Major construction yet to be accomplished includes the Spoon River Plant, completion of LASL technical facilities, and Los Alamos permanent housing facilities.

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As the construction peak activities have declined during the period, there has been a corresponding decline from 64 SFOO personnel in the Office of Engineering and Construction as of June 30, 1950, to 21 employees as of June 30, 1953. The Director of the Office of Engineering and Construction directs SFO staff supervisory activities relating to real estate,

[REDACTED]

engineering, construction, community management and operation, communications, plant maintenance, and improvements; and directly supervises planning, engineering, design and construction at installations other than field offices, to which he also renders staff assistance on construction related matters.

24. BUDGET

Due to SFO management's unfamiliarity with the operations which it inherited from MED, together with lack of data on past performance from which to project an enormous expansion program, it was natural that the budgeting process operated under great difficulty during the first three-year period of SFO's operation.

Not until the end of fiscal year 1950 had both the organizational structure and the accounting system of SFO developed to the stage where definite patterns were becoming apparent, making it possible to use a reasonably consistent approach in establishing a practical budget system.

Consequently, a great deal of effort was devoted after fiscal year 1950 to budget methods and system development and increased participation by responsible operating personnel in budget preparation and review in order to enhance the effectiveness of budgets as direct management tools. Another area receiving considerable attention was the indoctrination of AEC and contractor personnel in SFO budget procedures and practices.

Early in fiscal year 1951, the system of formal quarterly budget reviews was instituted, and responsible operating officials were designated as expense coordinators to review and approve all aspects of contractor and field office budgets. As AEC and contractor personnel gained a better understanding of SFO budgeting and reporting requirements, the formal quarterly review was reduced to two reviews a year, one at the beginning of the current fiscal year and another at mid-year. The expense coordinator concept has been continued throughout this period.

Budget procedures and practices necessary to meet Washington requirements, and at the same time to serve the needs of SFOO management without placing an undue reporting burden upon contractors, were developed during this period, along with criteria basic to review of budget estimates. This area requires additional study, particularly with respect to furnishing top management with more meaningful summaries, trends and rates of progress, and to utilization of contractor internal budgeting and reporting systems in AEC management controls.

In general, contractor budget staffs have been strengthened since fiscal year 1950, and noticeable improvement in budget submissions has resulted.

Major projects requiring further study are those relating to improvement and simplification of the budget system to provide a more meaningful operating tool to all levels of AEC management and development of additional standards and refinement of existing criteria for use in budget administration.

[REDACTED]

25. FINANCE

As of June 1950, a thorough 18-month examination had been completed of Finance programs and activities with a view toward initiating more effective service for management and better procedures for developing the SFO-wide weapons program. The examination indicated the advisability of a reorganization to distinguish between accounting and auditing functions, to improve the compilation and analysis of cost data, and to transfer greater responsibility to contractors.

The reorganization, with the attendant improvements, is reflected in two major changes made during the present period.

Unit Cost System

The accounting system has been expanded to include a production or unit cost system. This is in line with commercial accounting practices and is a major step forward. For the first time it is possible to determine what weapons and weapon components cost, and to bill AFSWP with a reasonably accurate cost of items furnished to them. A basis is provided for comparison to the costs of contractors performing similar work, and data are available which are invaluable in support of budget requests. The short period during which the system has been in operation has indicated refinements which are necessary, but which will prove the system to be of even greater value.

Audit Procedure

Audit procedures also have been greatly improved. Detail examinations have been eliminated, and commercial auditing practices have been substituted. This has permitted a much greater flexibility, resulting in better audits at a decrease in man-hour requirements. In addition to normal financial audits, there has been superimposed a series of management or procedural audits which will develop the extent to which both SFO contractors and SFO offices are living up to instructions and directives.

In line with these improvements, the Finance Division has increased its staff only from 111 as of June 30, 1950, to 121 as of June 30, 1953. Its main branches, whose names readily identify their respective functions, are: the Accounting Branch and Audit Branch, each with its sections, and the Payroll and Accounts Payable sections.

In addition to the Finance Division staff at Albuquerque, SFO maintains duty-stationed auditors at Kansas City, Denver, Los Angeles, Las Vegas, and Los Alamos. These duty stations have been selected at strategic points in order to make service more readily available and to decrease the cost of operation.

Operating Program Costs (Fiscal Years 1951 through 1953)

Program	1951	1952	1953
Weapons	\$123, 702, 475	\$179, 908, 742	\$233, 668, 356
Biology & Medicine	1, 455, 839	1, 546, 085	2, 070, 809
Community	1, 100, 898	235, 331	(199, 899)
Administrative	4, 060, 497	5, 188, 855	5, 270, 093
	\$130, 319, 709	\$186, 879, 013	\$240, 809, 359

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Alotments, Obligations, Expenditures (Fiscal Years 1948 through 1953)

<u>Fiscal Year</u>	<u>Alotments</u>	<u>Obligations</u>	<u>Expenditures</u>
1948	\$ 116,958,131.53	\$ 116,640,396.72	\$ 58,700,316.28
1949	185,404,536.60	182,532,982.98	130,457,553.71
1950	180,653,820.80	178,701,118.24	167,062,469.07
1951	278,807,753.80	278,399,319.71	226,411,621.45
1952	334,802,790.52	332,446,065.14	315,327,253.34
1953	306,002,953.11	299,824,868.18	319,211,395.63
	<u>\$1,402,629,986.36</u>	<u>\$1,388,544,750.97</u>	<u>\$1,217,170,609.48</u>

U. S. ATOMIC ENERGY COMMISSION
SANTA FE OPERATIONS OFFICE

COMPARATIVE BALANCE SHEET
June 30, 1953

<u>ASSETS</u>	<u>June 30, 1953</u>
Cash:	
Cash in U. S. Treasury	\$107,112,744
Cash with integrated contractors	<u>11,101,792</u>
	<u>118,214,536</u>
Working Fund Advances with Other Federal Agencies:	24,910,509
<u>Working Capital Advances with Non-Integrated</u>	
<u>Contractors</u>	<u>1,237,072</u>
<u>Accounts Receivable:</u>	
Inter-Contractor	88,706
All Other	1,108,579
Less: Allowance for Uncollectible Accounts	
Receivable	<u>(95,037)</u>
	<u>1,102,248</u>
<u>Inventories:</u>	
Stores	20,158,917
Less: Allowance for Loss on Stores -	<u>(2,456,603)</u>
	<u>17,702,314</u>
Surplus and Salvage Materials (Sandia Corp.)	- 0 -
Production Inventories:	
SF Materials	38,895,258
Weapons Operational Costs	62,309,287
Weapons Depreciation	2,113,332
SF Materials at Research Installations -	44,989,334
Special Reactor Materials	148,019
Other Special Materials	335,167
Total Inventories	<u>166,492,711</u>
<u>Prepayments</u>	<u>1,185,260</u>

ALOO

ASSETS

June 30, 1953

Plant:

Completed Plant and Equipment	471,415,104
Less: Accumulated Depreciation	(70,769,784)
	<u>400,645,320</u>
Plant & Equipment Changes in Progress	48,045,245
	<u>448,690,565</u>
Collateral Funds and Other Deposits	1,148,078
	<u>1,148,078</u>
Total Assets	<u>\$762,980,979</u>

LIABILITIES AND AEC EQUITY

June 30, 1953

Liabilities:

<u>Accounts Payable:</u>	
Inter-Contractor	\$ 6,330
All Other	24,428,417
<u>Accrued Expenses:</u>	
Accrued Leave or Vacation Pay	* 3,527,099
Other Accruals	5,424,373
<u>Working Fund Advances from Other Federal Agencies</u>	45,136,870
<u>Funds Held for Others</u>	1,497,742
<u>Deferred Credits</u>	22,384
Total Liabilities	<u>80,043,215</u>

AEC Equity

	682,937,764
Total Liabilities and AEC Equity	<u>\$762,980,979</u>

*Liability for AEC Employees' Annual Leave
not Included

\$ 977,778

SUMMARY OF CHANGES IN AEC EQUITY

Fiscal Year ended June 30, 1953

AEC Equity, June 30, 1952 \$404,052,686

Additions:

Appropriations or Allotment Cash (Net)	330,284,777	
Working Funds Received from		
Other Agencies	\$48,707,839	
Less: Transfer of Related	<u>48,707,839</u>	
Liability		- 0 -
Non-Reimbursable Transfers from Other		
Federal Agencies	46,356	
Inter-Office Transfers Received	<u>257,570,476</u>	
		<u>587,901,609</u>
		<u>991,954,295</u>

Deductions:

Net Cost of Operations and Adjustments to		
Cost of Prior Years	287,843,662	
Funds Returned to U. S. Treasury	512,897	
Inter-Office Transfers Issued	<u>20,659,972</u>	
		<u>309,016,531</u>
AEC Equity - June 30, 1953		<u>\$682,937,764</u>

ALCO

26. ORGANIZATION AND PERSONNEL

Staff supervisory responsibilities of Organization and Personnel Division may be roughly divided into programs relating to the utilization of personnel in connection with SFOO proper, and programs supporting SFO contract administration requirements that relate to the reimbursable costs for personal services.

The Division functions on a staff basis, recognizing that Office and Division Directors and Field Managers in their quality as line operating officials are fully responsible for all elements of management in organization, personnel and related expense matters. On this basis, the staff of the Organization and Personnel Division advises, guides and assists these operating officials, following through to insure compliance by the operating officials with the policy standards and procedures so directed, and performing only such centralized operating services as are more economically performed on a centralized basis. However, certain aspects of processing personnel actions and maintaining records have not as yet been decentralized to field offices to the fullest extent possible. It is expected this will be accomplished during the current fiscal year.

On contract administration matters the Division (Personnel Branch) staff deals with certain office and division directors and with all field managers to whom the Manager has delegated responsibility and authority to act as contract representatives in administering the SFO prime operating, construction and support contracts.

Utilization of SFOO Personnel

These programs generally involve appropriate coordination of all activities relating to personnel control, organization control, and expense control.

The objective is to make it characteristic of the organization for operational economy to be the basic criterion in all organization and personnel determinations. It is recognized that placement of properly qualified people will insure the greatest economy in work output; that appropriate definition of lines of authority and communication, functional assignments, and job assignments is essential to the economy of work output or progress in advancing work programs; and that the general efficiency of the working force and of its use is also reflected in the economy with which costs are incurred for communications, travel, supplies, equipment, space, etc.

Therefore, in addition to staff supervisory responsibility for the AEC personnel and organization program the Director is assigned responsibility as Coordinator for direct AEC expenses, administering procedures for expense budget planning and exercising over-all controls as to compliance by operating officials with approved financial plans. Responsibility for compliance with the financial plan for their own AEC direct expenses is fixed with office and division directors and field managers. Thus, the basic staff responsibility of the Organization and Personnel division in this area is to insure that the related programs for personnel placement, for planning and control of the organization structure and for expense planning and control are invariably directed toward the end objective of maximum operational economy.

The qualitative aspects of personnel administration, including job evaluation, are a staff supervisory responsibility of the Personnel Branch, and involve related staff services and operating activities, such as documentation of personnel actions, recruitment and record-keeping.

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The aspects of organizational definitions—such as charting, administrative issuances, and management studies—as well as coordination of organization and expense control procedures are staff service responsibilities of the Organization and Management Branch.

Contract Administration

In addition to the necessary staff development work relating to personnel programs for the Operations Office, staff in the Personnel Branch undertake all technical staff assistance to contract representatives respecting reimbursable costs for personal services and insurance and employee benefit plans.

There are at present 21 prime contracts, a number of which will ordinarily be in various stages of negotiation or renegotiation during any fiscal year. The related work activity of the Personnel Branch involves assistance to contract representatives in developing and negotiating contract appendices relating to the costs of personal services and reviewing and endorsing contract modification and Reimbursement Authorizations as submitted by the contracting officers based upon requests from the contracting organizations. There is involved the accumulation and analysis of current salary and wage survey data and economic factors respecting conditions of work (fringe benefits) relating to the atomic energy industry and to job classifications and localities which have significance in making comparative analyses of reimbursable costs for personal services of interest to SFO. The staff also obtains for contract representatives approvals of the Department of Labor respecting wage schedules required for new construction work, and have responsibility for assuring compliance by contract administrators with agency responsibilities for insuring compliance on the part of contracting organizations with Federal labor laws.

All matters affecting contractor labor relations situations, where appropriate AEC representation or influence at the local level or at the level of "international" union jurisdiction may be helpful in resolving local problems, become matters of concern to this staff. Where an AEC position must be determined for establishing jurisdiction of the Atomic Energy Labor-Management Relations Panel, the staff follow-through will be effected through this Branch.

A particular responsibility relating to cost-plus-fixed-fee contracts involves insuring determination, in advance of labor agreement renewal dates or possible reopening date, the AEC economic position respecting possible increases in wages or benefits which might be negotiated, particularly as to their effect on current or future negotiations of other contractors or with other unions, and whether AEC's need for continuity of production will require some constraint on the contractor to forego taking a strike in support of his bargaining position. It is desirable that contractors take a position in negotiations that is consistent with that regarded by the AEC as prudent and desirable under existing circumstances and which can have AEC approval.

Principal Activities During the Reporting Period

The principal emphasis of the Division since the Fall of 1951 has been placed on the following matters:

Organization

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One problem was identification of the Manager's staff structure as a purely staff echelon, distinguished from the combination staff and operating activity which had characterized the work of the Division while at Los Alamos. Prior to the emergence of additional field

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offices, a principal concern at that time was with what is now the activity of the Los Alamos Field Office. In connection with the establishment of SFOO as a staff echelon, there were concurrent problems, organization-wise, of redefining various delegations and issuances to establish appropriately the staff relationship of the SFOO headquarters to the field offices.

Machine Records

Introduction of machine records procedures for accumulating personnel budgeting, machine tool inventory, weapons storage, Los Alamos telephone directory and housing data has resulted in significant economies in terms of time, expense, and accuracy.

Placement

An approach has been made to some refinement of the in-service placement activity for more precise compliance with the principles set forth in GM-PER-1 respecting assurance to employees that they are not by-passed for consideration for better opportunities, and including appropriate use in identifying employee candidates of the occupational coding devices developed for purposes of job-sheet control, as well as for purposes of recruiting. Initial phases have been completed of a plan to validate the present applications of objective testing devices now used in employing secretarial and protective force personnel, and to determine whether appropriate extension in the use of such devices would prove economical and of value in connection with all office jobs, with custodial jobs, and with inspector jobs. The latter program will be carried out with consultant assistance from Civil Service Commission technicians.

Expense Control

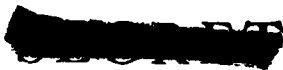
The total personnel utilization program has been developed with reference to coordinating direct AEC costs and applying principles of decentralization to develop expense consciousness and fix responsibility for economy in operation with the respective operating officials. The significance of realistic hiring plans in relation to economic utilization of personnel was emphasized. Tendencies to over-plan personnel requirements, and tendencies toward over-optimism in anticipating early hiring dates for additional employees required in a constantly expanding program have been corrected.

Reductions of personnel and their re-employment elsewhere is illustrated in the following table:

SFO-AEC Employment by Program
(Fiscal Years 1950, 1951, 1952 and 1953)

<u>Program</u>	<u>1950</u> <u>June 30</u>	<u>1951</u> <u>June 30</u>	<u>1952</u> <u>June 30</u>	<u>1953</u> <u>June 30</u>
3000	648	569	727	700 ^a
6000	0	0	3	0
7000	120	150	123	129
8000	600	689 ^b	814 ^c	795
TOTAL	1,368	1,408	1,667	1,624

- ALOO**
- a Increase in storage site personnel, 65
 - b Addition of 2 field offices and related personnel, 21
 - c Addition of 3 field offices and related personnel, 51; plus 35 additional personnel for field offices identified under b



Job Evaluation

The program for converting to the new Job Evaluation program brought problems relating to the down-grading of the Protective Force at LAFO and the related security positions, including Shipment Security positions at other field offices; of insuring that operating officials understood and carried out the technical requirements of the system; and of exercising adequate controls on the application of the system on a decentralized basis, including the device of accumulative audit and plans for appropriate field audits.

Conversion to the AEC Job Evaluation program had a special significance in Santa Fe Operations particularly with respect to the Protective Force. For one thing, SFOO had been the first Operations Office to initiate the idea of a job evaluation system based upon factor analysis and point rating. It was primarily because of this initiative and the identification of SFO with this type of an approach that SFOO sponsored experimental activity by the AEC "Workshop Group" in developing the present AEC system. In the Summer of 1950, the AEC Workshop Group consisting of personnel technicians from all of the Operations Offices spent something over two weeks at Los Alamos. The top staff of SFOO made a significant contribution to the development of the present system by undertaking the first trial application of the tentative system developed by the Workshop Group.

The earliest questions raised or the indication of apprehension on the part of members of the Protective Force at Los Alamos as to possibility of down-grading their jobs emerged during the course of this trial application. The conclusion of the Workshop Committee at that time was that a special study of AEC Security Inspector and Guard positions was clearly indicated because of the apparent overgrading of the Los Alamos Inspector position considered in relation to guard positions at Idaho Falls and Oak Ridge.

Pending issuance of the official AEC Salary Administration Handbooks in April of 1952, SFO continued to utilize, for job evaluation purposes, the tentative standards and procedures utilized in this trial application, except that the tentative system developed no standards suitable for application to the Protective Force at Los Alamos. Inasmuch as the AEC system, when finally released, represented in many respects significant refinements of the tentative system which was in current use, extreme care was exercised in converting to the official system when it became necessary to develop new descriptions of duties and responsibilities and to make the required factor analyses relating to the job descriptions. The conversion program, initiated in July 1952, resulted in a considerable process of rewriting and rereviewing job descriptions and analyses. Conversion was accomplished effective June 21, 1953.

There were 1,479 encumbered positions in SFO which were evaluated under the AEC Salary Administration program for salaried positions, and 46 additional encumbered positions were pending conversion until current organizational questions had been resolved by the responsible operating officials. Altogether there were 1,539 positions evaluated under this conversion program, including 60 vacant positions. Of the 1,479 encumbered positions, 83 were revised upward in grade, and 471 were revised downward.

Inspector Positions at Los Alamos

The downward revisions included readjustment of all of the Inspector positions on the Los Alamos Protective Force. The possibility that downward revision of the grade value of these particular Protective Force positions would have an impact had been anticipated for some time. It had been considered and understood by SFO and Washington management that the possibility of downgrading these jobs would have a serious effect on the morale and

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perhaps on the maintenance of an adequate Protective Force during the conversion period. Initially it had been agreed that such application of job evaluation to the Protective Force jobs might be justifiably delayed and handled on an entirely special basis. It was considered by the Fall of 1952, that examination of the duties and responsibilities and relative values of this position would have to be considered in relation to similar positions elsewhere in the AEC and in the Federal service as a whole, due to the fact that there was considerable question whether the difference in grade between other Federal guard positions and that established for the LAFO Protective Force was really warranted. There had been considerable pressure on the Civil Service Commission to upgrade other guard positions throughout the Federal service because of comparisons with the LAFO job, particularly at military installations such as Inyokern. This situation indicated a need for a very careful and extensive study of all related positions in the Federal service. However, the Los Alamos Field Office recommended that, rather than delay the special study of the guard position, the SFOO would be better situated if it made any adjustments indicated at the same time other indicated adjustments for other SFO jobs and other AEC jobs were accomplished. Consequently, a special study was initiated by the AEC Washington headquarters in October 1952. In addition, in order to do everything possible to offset the evident impact of such a downward revision, a very carefully devised program of orientation and participation by members of the Protective Force was initiated early in October 1952.

The entire approach was explained through supervisory channels to members of the Protective Force, and the redefinition of the duties and responsibilities of the basic inspector position at LASL was the subject of rather thoroughgoing participation by all elements of the Protective Force. The final description of the duties and responsibilities, it is believed, reflected every possible consideration that was a matter of knowledge and experience on the part of the members of the Force engaged in carrying out the assigned duties and responsibilities. This redefinition was accomplished prior to the time that the special committee appointed by the General Manager to make the guard survey initiated its schedule of auditing various positions throughout the AEC and in other government installations by visits and investigation at the various locations.

It was further recognized that a reasonable period of time should be allowed to administer this changeover in the manner best calculated to insure an orderly adjustment and replacement, bearing constantly in mind the stringent security requirements necessitated by the weapons program, and secondarily, giving consideration to the personal situations of the inspectors seriously affected economically so as to preclude hasty or premature resignations. It was considered that assurance must be given that pay cuts would not take place until the pay period nearest October 31, 1953, and that in the interim every effort would be made through in-service placement to such vacancies as SFO or the AEC might have and through out-placement services to accomplish necessary adjustments on the work force in an orderly manner and to insure maintenance of all security requirements while replacements were being trained.

Recognizing these problems, two precautions were undertaken. The first of these was to insure as indicated above that approximately a six-months period of time would elapse after the initiation of the outplacement program during which every possible effort could be made on the initiative of the affected members of the Force and on the initiative of the AEC, particularly SFOO personnel staff, to insure possible relocation of personnel, rather than adjust to the new downgrading and loss of income.

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Announcement of the new lower grade, GS-5, was made and the outplacement program was initiated in May 1953. Every possible assistance was provided. One of the most significant problems relating to this effort had been that of insuring continuity of the minimum

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staff essential to maintain security services during the period July 1952 to May 6, 1953 when the GS-5 grade determination was pending and firm hiring commitments were not possible. Attrition during this period reduced the force from 425 to 365 and recruitment was resumed to introduce the first class of 25 inspectors at the GS-5 level on June 8, 1953.

While the out-placement program resulted in transfer or promotion within SFO of some 36 members of the Protective Force after April 1953, there remained 224 personal history statements of members of the force who expressed a desire for out-placement consideration and assistance. As normal recruitment and hiring plans for necessary replacements (at the GS-5 level) were resumed, it was possible to extend out-placement activities; and copies of the personal history statements were forwarded to Washington Division of Organization and Personnel for coordinating consideration of these candidates on an AEC-wide basis.

Despite all of these precautions, there was a coterie of inspectors on the Guard Force who, recognizing the inevitability of the downgrading action, sought to find ways of arresting or otherwise precluding accomplishment of such action by various appeals to top levels of the AEC management, as well as to the President and to the Congress. The basic concept underlying this approach for relief from application of any downgrading action by the Manager, SFO, took the form, in general, of an attempt to develop high-level concern for the basic integrity of the security administration at the installation at Los Alamos. Consequently, every effort was made by members of the group to establish for consideration by the higher authorities, implications that significant security requirements were being ignored and that the management decisions relating to downgrading action stemmed from judgments made by a management alleged to be incompetent to recognize the security needs of the installation, and that the evidence of such incompetence would be found, upon examination, reflected in mal-administrative security practices and in deficiencies in application of personnel policy alleged to be characteristic of the Los Alamos operation, if not indeed of SFO as a whole.

The final step in what appears to have been a concerted plan of action on the part of this particular coterie, was to publicize in the local press all of the allegations which, up to that time, had been presented to higher authority, including additional allegations respecting breaches of AEC security requirements on the part of supervisory personnel. This press release was made prior to the time that appropriate internal administrative determinations through grievance procedure or other administrative investigations could be accomplished by the AEC. The emergence of the press release happened to coincide with the arrival of investigators for the Joint Committee who had been assigned responsibility to examine the circumstances surrounding the allegations previously made directly to the Committee by certain members of the Protective Force.

Under these circumstances, it was necessary to arrest internal administrative investigations seeking to identify the source of the allegations and to assess them appropriately as to validity and as to necessary corrective action. It developed that certain individuals, who had identified themselves as spearheading the action undertaken by the aforementioned coterie, were willing to make disclosures directly and in confidence to members of the Joint Committee staff, but these individuals refused similarly to respond to administrative inquiries on the part of the AEC. The AEC inquiries were being conducted at the instance of the Manager of Operations by members of his staff, and at his request by members of the Investigative Staff of the Controller. Similar recalcitrance was subsequently manifested in the course of inquiries by members of a Special Investigative Committee appointed by the General Manager. This resulted in a situation where, despite every effort to encourage the members of the Force involved to proceed in an orderly and responsible fashion to assist the administrative investigation of the AEC, two individuals assumed an insubordinate position and disciplinary action resulting in separation of the two individuals became necessary.

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On the other hand, in the course of the normal procedure for notifying employees of the adverse action in downgrading the Security Inspector position, a significant number of the Protective Force sought, through orderly means and administrative procedures established by the AEC for protecting employees or giving employees every opportunity to respond or object to adverse administrative action, to establish their reasons for believing that their downgrading action was either not warranted or to establish other considerations which they felt had been overlooked by AEC management in their particular cases and which would have the effect of retaining their job status. Specifically, these procedures involve the requirements for 30 days advance notice of an adverse action, the opportunity to respond thereto, and the final opportunity to appeal to higher authority through the AEC Grievance Procedure, as well as to appeal to the Civil Service Commission under the provisions of the Veteran's Preference Act.

With the exception of the two special instances of discharge for reasons of insubordination, all of the questions raised by other members of the Protective Force, and in some cases other security positions which were downgraded based on a comparison of their relative value to the new base job, have been resolved within the purview of the administrative procedures provided under AEC personnel policies.

Activities Requiring Particular Emphasis in the Immediate Future

Personnel Problems

There remain to be resolved individual personnel problems resulting mainly from downgrading actions after conversion to the AEC Job Evaluation program, particularly those stemming from the LAFO Protective Force situation. Considerable continuing emphasis must be placed on the out-placement program to further assist members of the Protective Force who have difficulty in adjusting to the new grade and pay.

Job Evaluation Audit

Determination is needed of administrative procedures to be followed within the AEC in following up on application of the Job Evaluation program, with respect to development of current benchmark standard jobs in the Manuals, the SFO audit of job evaluations, and the relationship of this local responsibility to audit procedures expected from the Washington level.

Decentralizing Personnel Operations

An administrative plan is required for decentralizing to field offices responsibility for maintaining personnel records relating to the employees on their staff, for processing personnel actions, and for recruitment and employment for all positions for which candidates may be found in the local employment area. This plan will recognize that the personnel operations at SFOO will be limited to centralized services for employment on the Headquarters staff and such coordination of in-service placement and outside recruiting as is indicated for positions representing opportunities for merited consideration of other SFO and AEC personnel, or which require recruitment outside the field office locality. Preparation will include publication of operating manuals and administrative procedure for installing and operating the decentralized procedures.

Development of Key Personnel

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Following management determination of changes in alignment on the Manager's staff of functions for weapons program management, including reduction in the Manager's span

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of control through introduction of several Assistant Manager positions, a specific program for orienting all key personnel to the significance of these changes will be in order. It is expected that, proceeding from this program, additional AEC programs for appraisal and development of key personnel will be introduced on a developmental basis.

Management Review of Contractor Personnel Utilization

There is under consideration, contract administration-wise, the appropriate development of an over-all periodic "management review" approach to evaluation of contractor performance. At present contracts include an auditable appendix which catalogs the classifications of positions required to accomplish the work and the pay rates to be applied, as well as other recurrent items of personnel costs, which represent a translation of the Corporation's personnel policies into specific payments for travel, vacation, pensions, pay increases, and the like. However, there is no basis upon which the specialized attention of the Organization and Personnel division is brought to bear upon any administrative review of the contractor's determination of its budget estimates, nor upon an appropriate interim follow-up review, consistent with the administrative practices of the contractor, of evidences and results of their management control of operational economy in personnel utilization. In short, while the Organization and Personnel division contributes to the management determination as to the reasonableness of the rates to be paid by the contractor for various personnel services, it makes no contribution with respect to the frequency with which payroll or other obligations are made from the standpoint of continued operational economy. In connection with this it appears necessary to examine the method presently utilized by contract representatives in reviewing budget estimates and securing approval of contractor financial plans relating to reimbursable costs for personal services, in order to formulate a recommended management position respecting review of contractor personnel utilization and endeavor to establish a policy.

Atomic Energy Labor-Management Relations Panel

Questions have been raised by major prime contracting organizations respecting how realistic the proposed Panel procedures are likely to be under present procedures of the Federal Mediation and Conciliation Service, as contrasted with some of the results regarded as somewhat undesirable under the original procedures of the "Davis Panel" when it was attached to the Office of the President.

AEC Budget Cycle

There are current questions relating to the planning of the AEC Budget Cycle. Increased refinement on the timely determination of program assumptions and instructions for budget submittals on an AEC-wide basis will contribute further to devoting the greater portion of staff time during budgeting periods to substantive considerations and realistic planning; and at the same time comply with AEC budgeting procedures for physically accumulating and consolidating data to meet deadlines for submittal of budget estimates in the form and quantity required.

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