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Notes on Los Alamos

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Editor's Note

In 1954 an unknown author drafted a report, reprinted below, describing the Laboratory and the community as they existed in late 1953. This report, perhaps intended to be crafted into a public relations document, is valuable because it gives us an autobiographical look at Los Alamos during the first half of the 1950s. It has been edited to enhance readability.

Part I

1. The Site

Los Alamos is, first of all, a nuclear weapons laboratory, The Los Alamos Scientific Laboratory (LASL) and, secondly, the community that supports the Laboratory. Both entities sit on the somewhat isolated Pajarito Plateau of the Jemez Mountains.

It was considered essential in 1942 to establish a nuclear weapons laboratory here, and it was of course equally essential to provide living quarters and mess halls for the crew and to maintain and supply the project. It was found desirable in late 1946 to continue the laboratory at this location, distant from any developed community and thus requiring the development of houses, schools, stores, utilities, warehouses, streets, and other facilities and services.

The University of California Laboratory operates the Laboratory for the Atomic Energy Commission (AEC) under the direction, since October 1945, of Dr. Norris E. Bradbury. It is a principle facility of the nation's atomic weapons program administered by the AEC's Santa Fe Operations Office (SFOO), the field organization charged with research, development, testing, and production of atomic weapons. A subordinate organization, the AEC's Los Alamos Field Office (LAFO), is managed by Frank C. DiLuzio. LASL's mission is to conduct research related to the development and testing of nuclear devices, in contrast to the non-nuclear components, which are the concern of the AEC's Sandia Laboratory at Albuquerque.

LASL's support organization is the Zia Company, a New Mexico corporation created by the Manhattan Engineer District (MED) in 1946 to provide various Technical Area services, operate utilities, and manage the community. The Zia Manager is Wendell L. Miller.

2. World War II Legacy

Many of the current issues and problems, particularly housing, are the direct result of its creation, in early 1943, as a short-term “crash” project of the Manhattan Engineer District (MED). Los Alamos was to be abolished as soon as the original goal of development of an employable atomic weapon had been achieved. Consequently all construction was temporary in character. It was originally estimated that probably no more than 150 scientists, their dependents, and supporting military “housekeeping” troops would be required. However, the technical work required an ever-growing population that quickly outstripped all original estimates. In January 1943, there were 1,500 persons living here. At year’s end, there were 3,500. By late 1945 the population had burgeoned to more than 8,000 persons. There were few amenities of normal American life other than those provided by the residents themselves, but these inconveniences were accepted by civilian and military residents alike as part of their contribution to winning the war. Wartime crowding was an ever-present problem because Laboratory facilities, barracks, temporary quarters, trailers, mess halls, and all other facilities competed for the limited space on the Los Alamos mesa.

At the end of the war, various utility systems, marginal at best, failed completely during the winter (1945-1946), adding to the bleakness of existence in the mud-street and duckboard reservation. There was doubt that the University of California, which operated LASL as a patriotic wartime action, would continue to do so. Nevertheless, a small but determined core of scientists, supporting personnel, and their families stayed on. Their faith was rewarded when, shortly after the passage of the Atomic Energy Act of 1946, the newly created Atomic Energy Commission (AEC) decided to permanently continue operations at the Laboratory.

3. The AEC Inheritance

Although the AEC assumed control of Los Alamos on January 1, 1947, the first manager of SFOO did not arrive onsite until July 16th. His priorities were “stabilization and revitalization of LASL” and the development of a community “satisfactory to the scientists.” Laboratory equipment, although excellent, was housed in cramped, inadequate complexes of wooden buildings and served by an increasingly inadequate utility system. Although the MED had recently begun drilling new water wells and planning for a new power plant, the utilities for the technical and community areas were both a maze and a mess.

Although the community lacked the housing or business buildings necessary to service a modern community that, in mid-1947, numbered almost 5,000 LASL workers and 2,500 dependents, there was a nucleus for expansion. The MED had taken steps in 1946 to improve housing, most notably building 100 houses built in the Western Housing. The MED also developed a master plan for community-wide expansion. The AEC also was fortunate to inheriting the Zia Company, providing continuity in managing services and construction.

4. A Permanent Site

Recognizing that the MED's projection of population was too conservative, the AEC manager instructed his staff to revise the original estimates, which are summarized in the table below.

Population Growth		
Year	Projection	Actual
1949	8500	9513
1950	10,000	11,167
1951	11,000	12,378
1952	12,000	12,664
1953		12,688
1954		12,717

Since there was insufficient space on the mesa to accommodate a growing community without seriously limiting Laboratory construction, the local AEC manager also decided to expand the community northward across Pueblo Canyon and build a new Technical Area on South Mesa. Additionally, he authorized a construction camp in nearby White Rock that would permit less-than-mammoth construction companies to bid on Los Alamos work with the assurance that they could attract and hold workers without the expense of having to build construction camps.

On March 12, 1948, a new five-year, \$65,500,000 master plan for community construction was announced. Soon thereafter a \$107,000,000 Technical Area building program was recommended to Washington. By August 1949, the AEC Commission had authorized initial road and utility construction and by November a full Technical Area program with an estimated cost of \$121,000,000.

The years since 1948 have been characterized by remarkable, steady, and on-schedule growth in step with the plans laid down for the Community and the Laboratory. United States involvement in the Korean War did bring an additional element of urgency to the Laboratory construction program, while causing material shortages that led to postponement or replacement of considerable subsistence-level temporary housing. Consequently, while Laboratory construction on South Mesa is on schedule and nearing completion, the final group of approximately 450 houses needed to complete the master plan for housing did not get under construction until the spring of 1954.

Since 1947 the construction of community and general use facilities has been accomplished at the rate detailed in the chart below. With completion of facilities and housing now underway, the AEC will have at Los Alamos an investment with a book value of approximately \$249,326,928. Of this, \$127,580,438 is invested in technical facilities, and the balance of \$121,746,490 in community and general use facilities.

Cost Comparison - Construction Programs (Completed Plant) - By Area FY-1948 through FY-1953						
Los Alamos Field Office						
	1948	1949	1950	1951	1952	1953
Community & General Use Facilities	\$34,970,388	\$16,410,915	\$17,696,631	\$20,082,595	\$4,257,646	\$25,875,543
Grand Total Comp. Plant						\$119,293,718
Total Work in Progress						\$1,500,445
Technical Facilities	\$21,621,876	\$15,743,935	\$1,447,956	\$41,853,741	\$17,678,422 ¹	\$30,913,254
Grand Total Comp. Plant						\$93,902,340

The Cost of construction at Los Alamos has been more expensive than for similar buildings at Albuquerque or Santa Fe, and always will be. With the nearest railhead thirty-five miles away, with no local labor pool, with limited and steep terrain for construction, and the necessity of carrying utilities and roads across canyons, higher costs are inevitable. But it should be noted that two important decisions have held premium costs to a minimum. One decision was to utilize competitive bidding to the maximum extent possible, even for construction of technical facilities. This has been made possible, by careful analysis of plans, to break up classified projects into unclassified that permit issuance of plans and specifications to prospective bidders. The decision to use White Rock was successful in attracting favorable bids from smaller construction firms. It is estimated that White Rock had paid for itself moneywise (the savings in time is of course incalculable).

5. Stabilization

As physical facilities for satisfactory work and home life at Los Alamos have increased, residents have progressively assumed greater responsibility for community life. Many of the services originally provided by the Army, and later by the Zia Company, have been transferred to boards of trustees composed of representative citizens of the Community. Others, like free lawn care have been eliminated. Some, like bus transportation, have been retained but on a revenue basis. Rents and utility charges have been adjusted to conform to those of the surrounding area have that has increased the moneys being returned from real estate operations. AEC expenditures for support of the

¹Completed Plant transferred to SFOO

school system and medical center are being gradually reduced as state school funds and patient fees offset some of the costs of education and medical care.

At present there are 3411 dwelling units at Los Alamos, exclusive of dormitory space and one-room apartments, with 442 replacement dwellings either under construction or programmed. Of the present number, Los Alamos Scientific Laboratory has an allotment of 1985 units, Zia 536, and remainder (890) to the AEC “and others.” The “others” include people employed by the Los Alamos Medical Center, the schools, concessionaires, etc.

Because the Atomic Energy Commission must pay for the costs of commercial buildings, it limits both the number and types of private businesses permitted to operate in Los Alamos and specifies the locations of those businesses. Under this policy, and because the townsite area is strictly limited, only the types of businesses considered essential to the normal needs of the residents are given concessions. The following list shows the number and types of private businesses operating under “prime business space” concessions as of December 31, 1952.

Businesses²			
Type	No. of Outlets	Type	No. of Outlets
Food Store	3	Appliances	1
Cafeteria	2	Laundry Agency	1
Barber Shop	2	Movie Theater	2
Cleaner	1	Department Store	1
Shoe Store	1	Drugstore	2
Women's Clothing	1	Variety Store	1
Tot Shop	1	Men's Clothing	1
Liquor Store	1	Vending Machines	1
Service Station	2	Book and Stationary	1
Shoe Repair	1	Sports Bowl	1
Soft Drink Distributor	1	Photography	1
Beauty Shop	1	Auto Sales and Service	1
Jeweler	2	Sporting Goods	1
Florist	1	Furniture	1
Launderette	1	Curio	1
Tailor Shop	1	Hardware	1
		Pastry Shop	1
Total	41		

² Branch of a business established elsewhere. Other important Los Alamos businesses include a branch bank, locker plant, and milk distributors. In addition, approximately 100 persons are engaged in home business of various types. Excerpted from “New Mexico Business,” University of New Mexico, May 1953.

As a result, community operation expenses, which in 1949 totaled \$4,403,700 more than revenue, have been reduced and community operation revenues increased to the point where income now slightly exceeds outgo. This progress has far out-stripped the expectations of AEC planners who, in 1947 and 1948, dared hope only that cost to the Commission of community operations could be pared of nonessentials and somewhat reduced. The trend is reflected in the table below.

Community Operation Expenses/Revenues³			
FY	Revenue	Expenses	Difference
1949	\$2,683,192	\$7,086,892	(\$4,403,700)
1950	3,311,628	5,195,361	(1,883,733)
1951	4,440,829	5,622,144	(1,181,315)
1952	4,997,199	5,314,456	(317,257)
1953	4,914,084	4,786,295	127,789
1954 (Estimate)	5,067,652	4,956,049	111,603
1955 (Estimate)	5,160,880	5,020,384	140,496

Part II

Safety and Security at the Los Alamos Project

During World War II, when the Los Alamos Project was disguised as Project Y of the Manhattan Engineer District, residents of the “the Hill” were virtual captives living in barracks, Quonset huts, and wooden Laboratory buildings that were crowded side-by-side on the Los Alamos Mesa. “Safety” and “Security” were practically synonymous terms. That is no longer true.

Security today is primarily concerned with the protection against unauthorized access to secret data relating to the atomic energy program of the United States and protection against sabotage. Most of this classified data; whether reports, drawings, photographs, models, or work on atomic weapons; is concentrated in the Laboratory’s Technical Area and in various AEC Los Alamos Field Office facilities. The work of Security Protective Force personnel begins and ends at these locations. The Protective Force personnel are not unlike the “plant protection police” familiar in private industry, except that their duties are more intricate and require more training.

For the rest of the site, protection is afforded by an excellent but quite conventional community police force, deputized by the elected county sheriff, that provides the same type of law enforcement, traffic control, property patrol, and criminal apprehension services provided by any other good police force. Their salaries are paid for by the AEC.

³In interpreting the above figures, it should be borne in mind that capital assets producing the income were constructed with Commission funds as part of the cost of establishing the Los Alamos Project. The revenue figures do not reflect any deductions for amortization, although maintenance is charged against them.

The Los Alamos Fire Department is unique in that it has the responsibility of providing fire protection to the LASL Technical Area as well as to the community. Some of the radiological materials utilized by the Laboratory require training and preparation in specialized firefighting procedures.

The University of California, operating contractor for the LASL, does not provide plant police or firefighting services. Therefore, members of both the Los Alamos Protective Force and the Los Alamos Fire Department are direct employees of the AEC, rather than of the operating contractor as is the case at most other AEC installations.

In addition to Technical Area and AEC Offices, Protective Force personnel also man the gates, which restrict access to the Los Alamos Reservation. Access to the Los Alamos requires a pass for all individuals above the age of 13 years. Residents and others making regular visits to the Community in the course of their daily business are given permanent passes. Residents and merchants of the community can obtain a temporary pass for their social or business visitors if they are willing to assume responsibility for the conduct of their visitors.

Access to the controlled Technical Area and various Field Office facilities is another matter entirely. In this case persons must have a "Q" clearance. Possession of a "Q" Clearance, however, does not automatically entitle the holder to Restricted Access Areas or Restricted Data at large, but only to those areas and that data necessary to his performance of those duties requiring "Q" Clearance.

The Los Alamos Civil Defense Organization is a volunteer citizens unit having quasi-official stature by virtue of the large amount of moral support it obtains from the AEC and two AEC contractors. Both the Chief of Police and the Fire Chief report to LAFO's Chief of Health & Safety who also serves off-duty as Director of Civil Defense.

Major Governmental Employers			
Agency	1947	1950	1953
AEC	304	1115	770
AEC Security, Fire, Safety, & Police		664	597
LASL	1200	2210	2971
Zia	3308	1777	1777

Part III

Community Facilities and Activities at Los Alamos

First-time visitors to Los Alamos often come with a preconceived notion that they will find something awesome and abnormal about the Los Alamos community. They leave, however, with the feeling of having visited an interesting but a perfectly “normal” American community, whose population of 13,000 come from each of the forty-eight states and many different countries. If transplanted to suburban Chicago, New York, or Philadelphia, Los Alamos would equal its neighboring communities in civic spirit, community facilities and activities.

Housing was one of the most important considerations included in the MED’s master plan. Adequate housing was essential to attract the type of people necessary to the successful operation of the Laboratory. Today accommodations range from dormitories and one-room efficiency apartments up to multiple bedroom houses and apartments. In most cases, housing units are assigned on the basis of family size. For example, a married couple with no children is normally entitled to a one-bedroom unit; a couple with one child, to a two-bedroom unit, and so on. The largest housing units in Los Alamos have four bedrooms (except for two special units, which have five and six bedrooms, respectively). Housing does not include garage space, although a number of the family-type dwellings have carports. Most Los Alamos car owners park their cars on parking pads provided at residential buildings.

The Zia Company maintains all housing at Los Alamos with the exception of routine, upkeep, such as lawn care. Rent for family housing ranges from \$22.00 per month for a very small one-bedroom house to \$135.00 per month for the largest unit. Utilities (gas for cooking and heating, electricity and water) are charged separately, either at a flat charge or on a metered basis. Dormitory type accommodations range from \$25.00 per month to \$45.00 per month including utilities.

The modern Community Center is the hub of commerce at Los Alamos. Here, and at stores in the residential areas, the housewife finds all the services and shopping facilities necessary to comfortable living. All kinds of food, clothing, household goods, furniture, jewelry, sporting goods, drugs, and similar commodities are readily available. Shops are constructed by the AEC and leased to merchants meeting community needs.

Private cars handle most of the transportation in Los Alamos, augmented by a bus system that links residential, shopping, and working areas on regular schedules. However, bus transportation is being curtailed. A commercial airline, Carco, operates several daily flights between Los Alamos and Albuquerque.

The telephone system at Los Alamos, owned by the government and operated by Mountain States Telephone and Telegraph Co., is as modern and up-to-date as any in the Southwest. There is a telegraph office in the Community Center.

The modern Post Office on Central Avenue is a far cry from the wartime days when a resident's address was the obscurity of "P.O. Box 1663, Santa Fe, NM." Mail deliveries are made daily throughout the community daily. The Post Office, in combination with Carco, also offers airmail service.

Next to the Post Office is the Mesa Public Library, stocked with 18,500 books and periodicals, including a special collection of books on the southwest. Wartime residents created the library by donating books from their own collections. Each school maintains a library tailored to their individual needs.

During the war, the radio station, KRSN, broadcast over the community power lines. No call letters were used for security reasons. Music came from private record collections. Today, KRSN, now privately owned and operated, is an ABC affiliate managed by Robert Porton, who also managed the wartime station as a GI. KRSN's large record collection is the envy of many a disc jockey and two hours of broadcasting every day are devoted to symphonic and classical music. The station is also the prime emergency media for reaching the residents. A certain signal asks all residents to tune in their radios at 1490 kilocycles for a community message from KRSN.

Los Alamos has fourteen churches representing nearly all denominations. Land for church buildings is available on 99-year leases at a nominal fee.

The Lodge at Los Alamos is one of the few remaining original structures of the Los Alamos Ranch School for Boys. It has been remodeled and enlarged in recent years to provide hotel accommodations for visitors to the community. This facility is operated by the The Zia Company.

Los Alamos offers a wide selection of cultural and recreational activities. Presentations are made regularly in the commodious Civic Auditorium by such groups as the Civic Orchestra, the Concert Association, the Little Theatre, the Film Society, and the Los Alamos Concert Band. There are frequent lectures and forums; many distinguished speakers have appeared at the Civic Auditorium. Two motion picture theaters have continuous daily showings.

Much emphasis has been placed on recreational facilities, both indoor and outdoor. The swimming pool at the high school is used by community residents and the Community Center has a commercial recreation area for billiards, ping-pong and bowling.

The Los Alamos golf course, one of the best in New Mexico, is operated and maintained by association of residents. Interest runs high in Los Alamos for baseball and football. Adolescents participate in Little League baseball. Recreational areas for school age children and small fry alike have been provided at the schools and throughout the residential areas. There is even a pond that can be fished solely by children.

Tennis enthusiasts enjoy the courts at Los Alamos and there are other facilities for volleyball, hiking, camping, mountain climbing, horseback riding, softball, handball, target

practice, skiing, ice-skating, horseshoe pitching, archery, badminton, and skeet shooting. There are also match games in basketball and hockey.

One hundred thirty clubs and organizations serve the town's cosmopolitan populace. These groups cover almost every area of religious, fraternal, civic, social, professional, educational, veterans, political, patriotic, and youth activities. There are military reserve units for Army, Navy, and Air Force personnel, and a Civil Air Patrol Group. Boy Scout and Girl Scout groups are most active and a large number of hobby clubs offer a wide variety of activities.

No summary of the community facilities and activities at Los Alamos would be complete without a word about the Civil Defense organization, one of the best in the United States. A recent test evacuation of the community was proclaimed a complete success with residents from all walks of life contributing to the plans and the execution of the test.

One notable sidelight of all these community activities is the democratic processes that govern them. It is not unusual to find, at a typical committee meeting, a housewife standing toe-to-toe with a distinguished scientist.

And all of these ingredients make for a normal, healthy, and wholesome community. Its 13,000 people form a cross-section of America high in the Jemez Mountains of New Mexico.

Part IV

Los Alamos Schools

The first school, Central School, was opened in October 1943 with eight classrooms. From 1943 to 1949, the Board of Education was elected by the residents, who were nominated by the heads of the LASL, The Zia Company, and the AEC. In 1949, when Los Alamos became a Class 6 County in New Mexico, the school became part of the State educational system.

Since all the land and buildings at Los Alamos are owned by the Federal Government, and because the sources of local taxation available at Los Alamos are inadequate to support a large school system, even with normal participation in the sales-tax revenues. The AEC provides all needed school-plant facilities and contributes an annual grant-in-aid for the support of the County educational system. Each grant-in-aid is specifically for the operation of the educational system. The Board of Education acting under State law, has "complete freedom with respect to the application of academic policies and procedures as prescribed by the laws of the State of New Mexico." The AEC, consequently, has nothing to say about the educational program or the employment of school personnel.

Because certain special facilities which the AEC has provided for both school and community use are best administered as integral parts of the school plant control and management of the Los Alamos Civic Auditorium, the Gymnasium, and Swimming Pool is vested in the School Board. General public use of these facilities, when not required for school use, is extensive; and the AEC underwrites the net cost of operation of such facilities for non-school purposes through a supplement to the funds provided for the operation of the school system.

As enrollment continues to grow, the primary financial support of the Los Alamos schools comes more and more each year from the distribution of State sales-tax receipts, with the AEC contributing a gradually diminishing proportion. For the school year 1954-55, it is expected that school funds from the following sources will be received in approximately the amounts indicated:

School Funding	
Agency	Funds
State of New Mexico	\$510,000
Atomic Energy Commission	342,000
County of Los Alamos	24,000
Total	876,000

During the eleven years of its existence, the Los Alamos School System has developed one of the outstanding public school programs that has evolved from a single rigid curriculum to a broad and flexible educational offering in the United States. It has grown from an enrollment of 200 to approximately 3,000; from 9 teachers to 140; from one building housing all grades to 3 primary schools, five elementary schools, one intermediate school (a junior high school in transition), and a high school. The entire plant is spread over fifty acres in the center of the city.

Due to the vision and determination of the successive members of the school board and the desire of residents to obtain the best possible schooling for their children, a broad and flexible program of instruction has been established for the purpose of developing the full potential of each child and for that of this American democratic society. It is school policy to stress the "fundamentals" that are common and unique school experiences for each child. Thus, in addition to supplying a common core of school learning experiences in reading, writing, arithmetic, and other academic subjects, a common core of experiences in special subjects is provided, including swimming lessons; vocal music training; and industrial arts experiences. Furthermore, many other types of learning experiences are offered on a voluntary basis to provide for the development of unique capacities not common to all children. Instrumental lessons of all kinds (band, orchestra, piano); chorus; and foreign languages are offered at the elementary as well as the high school.

To carry out the educational philosophy of the full development of the potential of each child, human and material resources have been provided to get the job done. The key to

successful schooling is the quality of the teaching staff. Very high standards of selection are used to obtain the best possible teachers.

A fine school plant exists to carry out this kind of education program, but costs have been held down by employment of careful design and simple materials. Kindergartens, libraries, art rooms, industrial art shops, auditoriums, and large playgrounds are found in all elementary schools. The intermediate and high school buildings are modern in every respect: industrial art shops, auditoriums, music rooms, gymnasiums, a Little Theater, and a large indoor swimming pool all help to provide the diversity of educational opportunity that is wanted for all youth. Building construction has been continuous to keep pace with the steady expanding school enrollment. At the present time, work is in progress on a 12-room addition to the Pueblo School Plant (intermediate school) to provide additional classrooms and art, music, and science rooms for the junior high school program, which is planned for Pueblo School commencing in September of 1955.

Part V

Los Alamos Medical Center

In 1943, the MED established an infirmary with ten beds and dispensary to care for Army and civilian personnel. Housed in an Army barrack-type building near the Lodge, the infirmary provided basic medical and dental care. Serious medical cases were sent to Bruns Army Hospital in Santa Fe. In 1946, the operation and maintenance of the Los Alamos Hospital was assigned to the Zia Company. In February 1950 the operation and control of the hospital was transferred by the AEC to a non-profit corporation, The Los Alamos Medical Center, Inc. (LAMC). Governed by a nine-member Board of Trustees serving staggered 3-year terms. Each year nominations for Board membership are solicited from local clubs and organizations and submitted to a representative committee that selects names to be passed on to the Board. From this list three Trustees are elected each year. Managed by a professional hospital administrator, LAMC provides hospital, medical, dental, and public health services to the community.

On January 27, 1952, the new Los Alamos Medical Center was formally dedicated. Constructed at a cost of approximately \$2,750,000, the building houses:

- The Alamos Dental Group in the east wing of the building.
- Physicians' Offices located in the east and west corridors of the main floor.
- 110 regular employees, plus a varying number of other persons called in for relief, substitution, etc. The annual cost of operation of the Medical Center is approximately \$675,000, of which approximately 70% is represented by payroll
- Hospital rooms including private and semi-private rooms, each with a bathroom. The west wing of the second floor is devoted to maternity patients and newborn babies. The east wing of this floor houses medical patients. This

separation of OB patients from medical patients is in keeping with approved hospital practice. The third floor houses the pediatrics and surgical patients.

- The medical staff of physicians (the same physicians who treat patients in their private offices), Pathologist, Radiologist, and three physicians employed in the Health Division of the Los Alamos Scientific Laboratory.

The Los Alamos Medical Center is one of the fifty-three approved Cancer Detection and Treatment Clinics in the United States. For three years, tests have been given to residents on a voluntary basis and detection techniques have been utilized. Treatment using isotope therapy became available at the end of 1952.

During the fiscal year ended June 30, 1954, more than 2,400 patients were hospitalized at the Medical Center for a total of approximately 11,200 patient-days. During this same year, 366 babies were delivered at the Medical Center.

Part VI

The Zia Company

The Zia Company was formed at the request of the MED in April 1946 to perform maintenance and certain operating services for the town of Los Alamos and the Los Alamos Scientific Laboratory under a cost-plus-fixed-fee contract. Zia operated the schools, hospital, cafeterias, radio station, veterinary hospital, and a newspaper until private concessionaires were contracted to for businesses, the school system became part of the New Mexico school system, and LAAMC assumed operation of the hospital.

The present Zia contract expires August 1, 1954, and a new three-year contract is in the process of negotiation. The scope of the contract has changed through various negotiations and re-definitions, and at the present time The Zia Company performs the following services:

1. Housing and building management and maintenance.

The Zia Company acts as landlord for the AEC. The Commission specifies the policies in regard to management and maintenance services performed for tenants, etc., and The Zia Company carries out those policies. The Zia Company has approximately 3,800 license agreements with people who live in everything from dormitories to a six-bedroom house. There is an attempt made to make the relationship between tenant and landlord much similar to that relation which would exist in other places. However, The Zia Company is the electrical serviceman, gas serviceman, carpenter shop, etc. the tenants call on The Zia Company for service and repairs as outlined in the license agreement which, in turn, follows the policies stated by the AEC.

2. Rental and Utilities Collections.

The residents at Los Alamos pay flat monthly rental, depending on the type of house, to The Zia Company. They also pay flat rate gas bills and flat rate or metered electrical bills. Most of the water is charged for on a metered basis, the remainder on a flat rate basis. The funds so collected are used to offset the expense in connection with Zia's contract and are in reality Government funds.

3. Maintenance of Roads and Parks.

The Zia Company has a Roads Section and a Parks Section which operate much similar to any city road and parks department. There are approximately 100 miles of roads maintained in the town area. The same crew also maintain all of the roads in the Technical Areas. Considerable snow removal is done by the road crew in the wintertime, as Los Alamos gets a lot more snow than the surrounding valley.

4. Operation of Utilities in Town and Technical Areas.

(a) Electric Power Generation and Distribution.

The Zia Company operates a power plant with a capacity of 20,000 KW. The plant is a steam turbine type and uses natural gas as fuel. Steam for heating Laboratory buildings, the hospital, the high school area building and some apartments is produced at the same plant. The AEC has a reciprocal agreement with the New Mexico Public Service Company for furnishing a limited amount of electricity in the event of failure. A line connects Los Alamos and Santa Fe and in the event of an emergency in either place, a limited amount of electricity could be transferred either way. A line crew maintains the distribution lines throughout the community and the Technical Areas. The incidence of lightning is very high at Los Alamos, but over a period of years many safeguards have been added and outages now are rare even in a heavy electrical storm.

(b) Water Production, Treatment, Pumping, and Distribution.

The water supply for Los Alamos comes from surface sources as well as deep wells. The surface sources in the mountains are retained by dams and catch basins and there is a gravity flow into the tanks and reservoirs located on the project. The surface sources furnish less than one-tenth of the water used. The majority of the water comes from deep wells and is pumped from 6 to 10 miles and lifted approximately 1,400 feet into the tanks on the project. The water usage in the winter at Los Alamos will vary from 12 to 14 million gallons a week. In May and June, which are the dry months, usage may reach as high as 35 to 37 million gallons a week. Water usage drops off in July because of the rainy season and the usage for the remainder of the summer and autumn will be about the same as it is in the winter months.

(c) Natural Gas Distribution.

Natural gas is brought into Los Alamos from the Northwestern part of New Mexico through a gas line owned by the AEC and maintained by the Southern Utah Gas Company. The Zia Company takes over the distribution of the gas after it reaches the project. There is a propane stand-by arrangement so that if the natural gas were cut off for some reason, propane could be furnished in the town for cooking and heating purposes. The power plant and the steam plants all use natural gas, but can be converted in a few minutes to use oil in the event of a failure of the gas supply.

(d) Sewage Collection and Treatment.

The Zia Company operates modern and efficient sewage collection and treatment plants. The dry sludge is used by the Parks Department as fertilizer in parks and lawn areas. The effluent water from the plants, after treatment to restore its purity, is used to water the Golf Course and is also used as make-up water in the power plant. During the dry summer months there is very little effluent, if any, lost, but in the rainy season and in the winter a small portion is allowed to run down the canyons.

(e) Steam Production and Distribution.

As noted before, the power plant produces steam for heating purposes as well as for generating electricity. The Zia Company also operates four large high-pressure steam plants which are used for heating in the community center and in outlying Technical Areas.

(f) Operation of City Bus System and Official Taxi.

Los Alamos, like other towns, has a bus system. It is limited to 30-minute service on one long route through the city, but because of very limited utilization, effective August 1, 1954, service will be limited to peak morning and afternoon hours. The Zia taxi service is used by the Laboratory, The Zia Company, the AEC, Schools, and Hospital as official transportation. The taxi service also meets incoming planes and furnishes transportation for official visitors to Los Alamos.

5. Garbage and Refuse Collection and Disposal.

The Zia Company collects and disposes of garbage and refuse from both the town and Technical Areas. Twice a week pickups are made in residential areas and daily pickups in business areas. Load packers are used in the residential areas and large dumpster boxes in the business areas and areas around multiple dwelling units. The disposal of the garbage and refuse is accomplished by filling up a steep canyon and no excavation is necessary. The refuse is burned and occasionally dirt is hauled in to

cover. This is a very economical way of disposal and is made possible because of the steep canyons.

6. Storage, Dispatch and Maintenance of Official Vehicles.

There are approximately 900 Government-owned vehicles at Los Alamos. These are all carried on The Zia Company books for insurance purposes and are, in turn, dispatched to the LASL, the AEC, and users within The Zia Company. The Zia Company maintains and services the entire fleet. In addition to the automotive vehicles, The Zia Company maintains and services all of the heavy equipment used in connection with roads and building maintenance.

7. Janitorial Services for Dormitories, Administrative Offices and Laboratory Facilities.

The Zia Company furnishes janitorial services for all of the dormitories, the AEC administration buildings, and the LASL administration buildings and laboratories. The janitorial force numbers approximately 300 people, most of whom live in the valley and the Indian Pueblos, and commute daily in car pools to Los Alamos.

8. Operation of The Lodge – Hotel, Dining Room and Lounge, and The Lodge Residential Hall.

The main building of The Lodge was built during the days of the Los Alamos Ranch School. Several additions have been made and it is now the only hotel at Los Alamos. The majority of the people who stay at The Lodge are consultants and other official government visitors to the project, but it is open to anyone that comes to Los Alamos and is less crowded on weekends than during the week. Supplementary accommodations are provided in a dormitory-like building called The Lodge Resident Hall.

9. Architect – Engineering Services.

The Zia Company has an Engineering Division that maintains record drawings of all community facilities as well as the utility plants. They also make up plans and specifications for major repair jobs that might be let out on contract, as well as done by The Zia Company forces. They also direct and inspect much of the maintenance activity.

10. Maintenance of Facilities, Buildings, and Equipment within all Technical Areas.

A great portion of The Zia Company work is done behind the fences in the Technical Areas. Skilled craftsmen maintain buildings and equipment in all of the laboratories. Since the completion of many of the new laboratories, where permanent concrete buildings have replaced the wooden, wartime laboratories, building maintenance on the latest types of equipment has increased.

11. Laboratory Modifications and Gadgeteering within all Technical Areas.

From time to time The Zia Company performs modifications in buildings and laboratories, depending on the current program of the LASL, and also does direct support work with skilled craftsmen.

12. Procurement, Storage and Issue of Materials and Supplies for the Above Operations.

Naturally, in the course of performing the work outlined above, The Zia Company purchases a great many items. The inventory levels are kept as low as possible consistent with good business practice. The latest and most efficient methods are used in the procurement and storage of materials and supplies.

13. Cost and Property Accounting of the Above Operations.

The Zia Company employs an IBM punch card installation in connection with accounting, property control, inventory records, payroll, etc. Records are kept in accordance with the AEC's requirements and everything is done by machine, if possible, so that the cost of keeping those records is kept at a minimum. The IBM section of The Zia Company also does the payroll work of the Los Alamos Medical Center on a service basis. They also calculate and print telephone bills for the AEC.

14. Contractual Relations with Concessionaires.

The stores and other business houses at Los Alamos have concession agreements with The Zia Company. Most of these agreements are on a percent of gross receipts rental. Other service type businesses, such as insurance companies, transfer companies, etc. are on a flat rental basis. The holders of concessions of the former type, as a general rule, were awarded those concessions on competitive bidding. The funds collected from the concessionaires, like the rentals collected the residents, are used to defray other expenses of running the town. Most of the prices charged at Los Alamos by the business people are in line with prices in similar stores in Santa Fe, Albuquerque, and other New Mexico towns.

In order for The Zia Company to carry out all of the above functions, it employs approximately 1,400 persons. On the payroll are carpenters, electricians, sheet metal workers, plumbers, power plant operators, asbestos workers, laborers, teamsters, mechanics, engineers, lawyers, accountants, clerks, etc. The American Federation of Labor and its local unions represent both skilled and unskilled craftsmen. The Zia Company conducts extensive training courses so that it can keep up with the latest developments in its field of work.

While most people think of The Zia Company as the operator of the town of Los Alamos, approximately 60% of its effort is directly connected with the Technical Areas in support of the University of California who operates the Los Alamos Scientific Laboratory.

Part VII

Los Alamos Scientific Laboratory

1. Its Mission

LASL's basic mission is to carry out research, design, and development of nuclear weapons. In addition, a large amount of research is conducted in the fields of reactor, biology and medicine, mathematics, handling of radioactive materials, pure and applied physics and chemistry, and instrumentation. These latter programs produce a considerable amount of declassifiable information of general interest to scientists, and the Laboratory has made a number of important contributions in these fields. Hence the Laboratory is also playing a very large part in the development of peaceful uses of atomic energy.

In its weapon program, the Laboratory is primarily concerned with development of nuclear components. The inert components – bomb case, fuze, and so on – are developed elsewhere.

2. Its Size and Location

The Laboratory employs about 3,100 people. All of them are paid by, and are responsible to, the University of California, which in turn is responsible to the AEC as a prime contractor.

The Laboratory's Technical Area covers 77 square miles. The temporary wartime facilities adjoining the Los Alamos Canyon Bridge. As early as 1946, when it was still housed entirely in makeshift, temporary-type wooden buildings and served by a nightmarish maze of utility lines, the LASL was recognized as one of the world's best-equipped nuclear science research facilities. The value of the buildings, facilities and equipment (before depreciation) as of June 30, 1954, is \$119,854,611.00. Another \$14,672,440.00 covers construction work in progress or programmed.

Within the Technical Area are several sites where various experiments are carried out. Some of these experiments utilize radioactive materials. They are operated by remote control and watched by means of television.

3. Its Organization

For maximum efficiency, the Laboratory carries on its work through an organization of tightly knit units.

- (1) T Division (Theoretical Physics) carries out theoretical studies in the field of nuclear research and development. The problems are so complex that huge electronic computers (among them the Los Alamos MANIAC) are in constant use. A number of contributions to mathematical theory have come out of this division's work.

- (2) P Division (Experimental Physics) does fundamental work on nuclear characteristics – nuclear forces, neutron capture and fission cross-sections. This division employs particle accelerators such as Cockcroft-Waltons, cyclotrons, and large Van de Graff's. It designs, constructs, and operates nuclear reactors ("piles"). This division has made significant contributions to the study of nuclear physics and the engineering of reactors for peacetime use.
- (3) GMX Division (Weapons Research) is principally concerned with the mechanics and dynamics of nuclear energy release. In the course of its work, GMX Division has developed some startling new instruments and techniques. The recently released "Model 8" camera, capable of taking up to 100 pictures at the rate of 15,000,000 (fifteen million) pictures a second, is a good example.
- (4) W Division (Weapons Physics) performs experiments with critical and super-critical assemblies – that is, with amounts of fissionable material large enough to sustain a chain reaction. These experiments are carried out to study the behavior of neutrons in such assemblies. This division also coordinates the development of inert weapon components by other laboratories.
- (5) CMR Division (Chemistry and Metallurgy) investigates the physical, chemical, and metallurgical nature of materials used at Los Alamos, and carries out pilot plant operations on new weapon designs, reactor components, and so on. CMR Division has made basic contributions to low-temperature physics, hydrodynamics, the chemistry of highly radioactive substances, and to the use of extremely refractory substances.
- (6) J Division (Weapons Tests) is responsible for all scientific work connected with full-scale field tests of fission and thermonuclear devices at the Nevada Proving Ground and at the Pacific Proving Ground. Because of nuclear explosion offers a unique opportunity to study basic phenomena under extreme conditions of heat and pressure, and because the duration of the reaction is so short, each test of a device involves the use of hundreds of instruments and analysis of all results.
- (7) H Division (Health) covers a broad group of activities: radiological safety advice; monitoring of all Laboratory activities involving radioactive substances; radiological health checks of personnel; studies of the effects of radioactivity on animals; biological research with radioactive tracers; and the synthesis of various biological substances with "tagged" atoms (such as radioactive carbon) for use by other laboratories. Since local weather is of considerable importance in certain Los Alamos work, H Division also supplies detailed forecasts through its Weather Section.
- (8) D Division (Documentary) is responsible for the preparation and issuance of internal and external Laboratory papers. D Division supplies the following services: technical editing, distribution control, technical library, report library, declassification, invention reporting, technical information, and public information.

In addition to the foregoing, the Laboratory is supported by machine shops, specialized shops such as a glass shop, a photographic laboratory, a print shop, and various administrative departments.

4. Its Nature and Atmosphere

Despite the nature of the Laboratory's mission, the atmosphere within the Laboratory is much like that in the graduate school of a large university. The term "Doctor" is seldom used, except for MD's; even officers on the directoral level are addressed as "Bill," "Smitty," or "Al."

The Laboratory encourages the free exchange and discussion of ideas, since it has been found that ideas of value frequently come from unexpected sources. For this reason, little compartmentalization exists within the Laboratory, and there are frequent seminars and colloquia. Laboratory members are encouraged to publish as much information as can be declassified.

5. Its History

The site of the Laboratory was originally the Los Alamos Ranch School for Boys. After consideration of a number of possible locations, this site was chosen for atom-bomb experimentation because of its isolation (for security), its climate (permitting outdoor work all year round), and its topography (permitting dispersal of many facilities). The site was taken over by the U. S. Army's Manhattan Engineer District under the command of Major General Leslie R. Groves, in January, 1943. The University of California, operating the Laboratory itself as a prime contractor on a non-profit basis, as it still does, supplied the scientific and technical staff. Dr. Norris E. Bradbury has been the Director of the Laboratory since October 1945.

Part VIII

Authoritative News Sources at Los Alamos

AEC Los Alamos Field Office	
Name	Number
Frank C. DiLuzio, Field Manager	2-5501 or 2-2950 (home)
John J. Burke, Chief, Organization and Personnel	2-5293 or 2-2174
Paul A. Wilson, Director of Community Operations	2-5551 or 2-5814

The Zia Company	
Name	Number
Wendell L. Miller, Manager	2-5551 or 2-2850
Harry F. Brown, Assistant Manager,	2-5551 or 2-2958

Los Alamos Fire Department	
Name	Number
James R. Maddy, Chief of Health & Safety,	2-5577 or 2-4521
John J. Burke	2-5293 or 2-2174

Los Alamos Police Department	
Name	Number
Ralph M. Kopansky, Chief of Police	2-4176 or 2-2818
Senior Police Officer-on-Duty	2-4176
James R. Maddy (personnel matters	2-4521

Los Alamos County Sheriff	
Name	Number
W. T. McDaniel, Sheriff	2-4596

LASL	
Name	Number
Frank J. Waters, D Division	2-6811 or Santa Fe 3-5057
Robertson Osborne, D Division	2-6811 or 2-3306
Mrs. Dorothy McKibbin, Personnel at Santa Fe,	2-4343, Santa Fe 2-0561 or Santa Fe 2-1593

LAMC	
Name	Number
Charles T. M. Murphy, Administrator	2-4201
Los Alamos Medical Center Operator	2-4201
Dr. J. O. Logan, M.D., Chief of Medical Staff	2-4201

Community Health	
Name	Number
Dr. John W. Schroer, D. V. M.,	2-4201 or 2-5681

Los Alamos County Schools	
Name	Number
Lewis G. Allbee, Superintendent	2-2635 or 2-6626
Bruce K. Moore, Assistant Superintendent,	3287 or 2-5907
Harold M. Agnew, President, Board of Educational Trustees	2-6147 or 2-3881

County of Los Alamos	
Name	Number
H. E. Wilcoxon, Chairman, Board of Commissioners	2-5191 or 2-6222
Jessie B. Siglow, Deputy Assessor,	2-1181 or 2-4792
Abner Schreiber, Attorney	2-1161 or 2-2614
Donna Dickinson, Clerk	2-5191 or 2-4438
Mary Lou Lyon, Office Deputy	2-5191 or 2-4019
Mrs. H. E. Roser, Treasurer	2-1171 or 2-3211

Justices of the Peace	
Name	Number
Snyder Downs	2-2270
R. E. Armstead	2-3262
H. L. Bradshaw	7-4709

Los Alamos Town Council	
Name	Number
Kenneth Walsh, Chairman	2-2558 or 8-5427
Marjorie Allen, Secretary	2-5203 or 2-6260

Los Alamos Merchants Association	
Name	Number
Robert O. Draggon, President	2-6189 or 2-3186

Churches		
Church	Pastor	Number
Los Alamos Ministerial Fellowship	Rev. Dale L. Knudsen, Chairman	2-5806
Assembly of God	Rev. J. G. Crittenden	2-5801
Baptist	Rev. Charles J. Ashcraft	2-3712
Methodist	Rev. J. C. Sprouls	2-6277 or 2-6405
B’Nai B’Rith Association	Sherman Sweet	2-4366 or 2-5017
Community Bible Church	C. Donald Montgomery	2-5166 or 2-5017
Church of Christ	Rev. Brooks A. Taylor	2-4636
Christian Scientist	Mrs. Norma E. Kelch	2-5760
Episcopal	Rev. Kenneth K. Shook	2-6509 or 2-6391
Latter Day Saints	Robert A. Clark	2-5477
Lutheran-Evangelical	Rev. Dale L. Knudsen,	2-5806
Lutheran-Missouri Synod	Rev. Arthur A. Ledebuhr	2-5347
Roman Catholic	Fr. Francis L. Schuler	2-2149
United	Dr. Archer E. Anderson	2-2971 or 2-6531
Calvary	Rev. Jordan K. Elwood	2-3104
Unitarian Fellowship	H. F. Schulte	7-44281 or 2-2940

Additional Useful Numbers	
Organization	Number
The Lodge	2-4151
Carco Air Service (Los Alamos)	2-4031
Carco Air Service (Albuquerque)	3-1891
Civic Club	2-3855
American Legion	2-4845
Radio Station KRSN	2-4422
Veterans of Foreign Wars	2-5740 or 2-3845
The New Mexican LA Office	2-4422
Federal Bureau of Investigation	2-4261
Mesa Library	2-5193
The Photo Shop	2-2523
Radio Service Company	2-5825
AEC Santa Fe Operations Office (Albuquerque)	5-8771
Western Union Telegraph Company	2-5585
AEC SFOO Office of Information (Albuquerque)	X-227