

ER IO 05581

*Not recorded in Central records*

This document contains restricted data within the meaning of the Atomic Energy Act of 1946 and/or information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U.S.C. 81 and 83 as amended. Its transmission or the revelation of its contents in any form to an unauthorized person is prohibited and may result in severe criminal penalty.

THIS DOCUMENT CONSISTS OF 18 PAGE(S)  
NO 7 OF 21 COPIES, SERIES A

~~SECRET~~

*cy 8 A destroyed  
6/16/54*

UNCLASSIFIED

UNCLASSIFIED

September 11, 1947

*(18)*

To: The Manager, U.S.A.ETS  
Office of Santa Fe Directed Operations

From: The Director, Los Alamos Scientific Laboratory

Subject: General Background Data Concerning the Los Alamos Scientific Laboratory

Symbol: LAB-A-5

1. Attached for your use are three copies of a compendium of background data concerning the setting, history, and mode of operation of the Laboratory, plus three other copies for Mr. J. F. Brown of Associated Architects Engineers Inc.
2. No attempt has been made here to go into any detail on design considerations for the various types of installations which will be required by the Laboratory, but such data will be forwarded at a later date.

**Best Available Copy**

FOR THE DIRECTOR

*A. W. Betts*  
A. W. Betts  
Associate Director

GLH:lu

Encl. 6 copies (Background Data)

- cc: N. E. Bradbury ←←
- A. W. Betts
  - D. G. Froman
  - J.M.B. Kellogg
  - R. Richtmeyer
  - M. Roy
  - E. R. Jette
  - L. H. Hempelman
  - Smith, R. C.
  - M. G. Holloway
  - Edith Truslow
  - R. C. Hill
  - R. G. Stone
  - G. L. Williams
  - Document Room

Received by ER-RPF  
JUL 14 1992  
*YCG*

Classification changed to Unclassified  
by authority of the U. S. D. O. S.  
Per Eugene Sandoval 2/9  
(Forces: (Specifying change in classification) (date)  
By D. Salazar 9/25/90  
(Signature of person making the change, and date)

UNCLASSIFIED

14108

*1. E. B.*

~~SECRET~~

UNCLASSIFIED

A Technical Maintenance Group Report  
on  
General Background Data Concerning  
The Los Alamos Scientific Laboratory  
Required for Planning Purposes

LAB-A-5

September 11, 1947

Classification changed to Unclassified  
by authority of the U. S. D. C. E.  
By Engine Sandovsk 2/12/4  
(Person authorizing change in classification) (Date)  
By W. Salazar 9/25/90  
(Signature of person making the change, and date)

Best Available Copy

UNCLASSIFIED

~~SECRET~~

<u>PAGE</u>	<u>SECTION</u>	<u>INDEX</u> <u>TITLE</u>
1	I	Preliminary Statement
	II	Delineation of the Problem
	II-A	Technical Area Locations
	II-B	Organizational Relations
2	II-C	Decision on TA-1 Location
	III	Status of the Project as a Whole
	III-A	Boundary Conditions
	III-B	Possibilities for Expansion
3	III-C	General Considerations
	IV	Status of the Community
	IV-A	Population
4	IV-B	Primary Community Areas
	IV-C	Secondary Community Areas
	IV-D	Security Considerations
5	V	Status of the Laboratory
	V-A	Personnel
	V-B	Details Concerning Existing Areas
	V-B-1	TA-1 (Main Technical Area)
6	V-B-2	TA-2 (Omega Site)
	V-B-3	TA-3 (South Mesa Site)
7	V-B-4	TA-4 (Alpha Site)
	V-B-5	TA-5 (Beta Site)
8	V-B-6	TA-6 (Two Mile Mesa)
	V-B-7	TA-7 (Gomez Ranch Site)
	V-B-8	TA-8 (Anchor Site West)
	V-B-9	TA-9 (Anchor Site East)
9	V-B-10	TA-10 (Bayo Canyon Site)
	V-B-11	TA-11 (K Site)
10	V-B-12	TA-12 (L Site)
	V-B-13	TA-13 (P Site)
11	V-B-14	TA-14 (Q Site)
	V-B-15	TA-15 (R Site) <i>only IT Site will exist</i>
12	V-B-16	TA-16 (S Site)
	V-B-17	TA-17 (X Site)
	V-B-18	TA-18 (Pajarito Canyon Laboratory)
13	V-B-19	TA-19 (East Gate Laboratory)
	V-B-20	TA-20 (Sandia Canyon Site)
	V-B-21	TA-21 (DP Site)
	V-B-22	TA-22 (TD Site)
	V-B-23	TA-23 (Nu Site)
14	V-B-24	TA-24 (T Site)
	V-B-25	TA-25 (V Site)
	V-B-26	TA-26 (D Site)
	V-B-27	TA-27 (Gamma Site)
	V-B-28	TA-28 (Magazine Area A)
15	V-B-29	TA-29 (Magazine Area B)
	V-B-30	TA-30 (Electronic Test Area)
	V-B-31	TA-31 (East Receiving Yard)

~~SECRET~~  
UNCLASSIFIED

## I. Preliminary Statement

In accordance with a directive of the General Manager, U.S.A.E.C., the Manager, U.S.A.E.C., Office of Santa Fe Directed Operations, has the responsibility of undertaking a complete study of the functioning of the Los Alamos Laboratory in all its ramifications, and of deriving from this study a comprehensive master plan for the housing of the Laboratory's activities in permanent fireproof structures, these structures to be erected at sites so disposed that they will: a. permit successful security protection; b. in general cause no danger to persons or property outside the Project boundaries as a result of their activities; c. will similarly cause no interference one to the other because of these same activities; and d. will be conveniently located with respect to one another. The background against which the study must take place is that at present the major part of the community activities plus the central technical establishment are crowded together almost at the geographic center of the project land area on Los Alamos Mesa, with some thirty other technical areas located to the east, southeast and southwest, some within a half mile or less of the southern Project boundary which runs along State Route #4. The entire northern half of the project area plus the mountainous regions in the Jemez Mountains to the west has been left unused except for the five water sources in the Jemez Range, the military firing ranges along the Gauje water line in the upper regions of Barrancas Canyon about two miles north of the main technical area, and the golf course and other recreational facilities situated about a mile and a half north of the main technical area along the upper reaches of Pueblo and Bayo Canyons. This means, then, that approximately two-thirds of the project area, about forty-five or fifty square miles, has been relatively untouched and should be seriously considered for possible use as the planning work moves ahead.

## II. Delineation of the Problem.

### A. Technical Area Locations

Specially, the activities of the Laboratory must be so situated that reasonably convenient access is to be had among all the parts, and preferably that the major areas of activity can be quickly reached from the community areas. No hard and fast rule can be set on this, but it would certainly seem advantageous to have all of the technical areas within easy driving distance, say fifteen minutes at the most, of the most remote residential areas, so that in the event of an emergency at an isolated laboratory or firing site responsible technical personnel could be summoned to the scene in short order. Also, if at all possible, connecting roadways should be so arranged that it will not be necessary - as it is at present - to transport explosives, active material and classified objects through the residential and business areas or closely adjacent thereto.

### B. Organizational Relations

Organizationally, the master plan will have to be adjusted to best accommodate Laboratory procurement and warehousing problems, maintenance facilities, utility supply and distribution, special shop services, adequate communications, and both normal and contaminated waste disposal. At the present time the arrangements in almost all of these fields are somewhat of a hodgepodge, and necessarily so because of the way in which the Project was organized and constructed during the War years when it was assumed that all installations

UNCLASSIFIED

were temporary and would be removed at the end of the War. Another phase of the organizational planning must necessarily come from higher authority and involves decisions as to methods of community organization and management, including the question of dual or single contract operation of all physical facilities including the Laboratory, with its resultant effect on the manner in which actual work is done, by whom and under what authority; and with further consequent result in the desirability of location for such items as power plants, maintenance shops, sewage disposal units, and even central administration buildings. In this field the Consultant Planning Group must clearly set up the overall results which will follow from varying organizational arrangements so that higher authority can make such decisions with a full understanding of the consequences which will follow.

### C. Decision on TA-1 Location

A decision on the future use of the TA-1 location was forced upon us by the time scale which future planning and reconstruction activities must necessarily follow. The A. A. E., Consultant Planning Group, because of difficulties in the recruiting and clearing of adequately experienced personnel, will not begin to function on any large scale before October or November of this year. If they are to do a thorough job, it is difficult to believe that anything resembling a master plan or several alternative master plans can be produced in less than six to eight months, so it will be perhaps March, 1948 before these plans are ready for discussion and consequent decision by higher authority. Another year will elapse before the first section of buildings for a new area can be completed and occupied, so that it will be around March, 1949 before we can expect any use from the first structures resulting from the planning work. The decision having been made that the central functions of the Laboratory are to be transferred to South Mesa, we can now decide more clearly what should and should not be done to the structures and facilities in TA-1. Any large structures which have to be built here should be as light and temporary as possible, but since all of the present structures will be in use for a period of two years and many of them up to six years, depending on how fast reconstruction progresses, proper maintenance and the provision of certain amenities at least will surely be necessary and will have to be considered as part of the price to be paid for the relocation of the central Laboratory functions.

### III. Status of the Project as a Whole

#### A. Boundary Conditions

The original land acquisitions in Sandoval County which resulted in the Project as it is today were made by the real estate section of the Albuquerque U. S. Engineers Office and the resulting boundaries, roughly, are the Santa Fe County line on the east, State Route #4, and the Bandelier National Monument on the south, Baca location #1 on the west, and the Santa Clara Indian Reservation on the north, the whole comprising a little more than seventy-five square miles.

#### B. Possibilities for Expansion

It is conceivably possible to acquire some land east of Sandoval County to State Route #4. One half is San Ildefonso Pueblo territory, one quarter is

held by the Park Service as part of the Bandelier National Monument but there are no widely publicized Indian ruins in the area and if national policy so dictated, this stretch of territory could probably be ceded to the A.E.C. by Congress, and the remaining quarter is privately owned. For reasons of security patrol, the existence of the boundary along Route #4, rather than one to two miles back up into the canyons and mesas where patrol is almost impossible, would certainly be to our advantage. On the south the land between the Project boundary and Route #4 is privately owned, and could no doubt be procured. On the west, Baca location #1 is privately owned and it is conceivable that the A.E.C. could acquire by outright purchase a considerable percentage of this property. At the moment such acquisition has no great value, but in the future if the Project continues its work in the development of atomic power plants, the Valle Grande would make an excellent location for one and could be connected to the main body of the Project at no too great expense with a tunnel through the Jemez Range, thereby insuring all-weather communication. Conceivably also, should future necessity arise for more stringent security measures regarding the Project as a whole, a fenced line in the lowland of the Valle Grande would certainly make a more easily watched and protected boundary to the west than does the present western boundary, running as it does through the highest part of the Jemez Range. To the north there is little likelihood that Congress could be induced to deprive the Santa Clara Indian Reservation of any of the land now assigned to it, or that it could legally do so should it so desire.

#### C. General Considerations

All of the above discussion is, of course, subject to the eventual disposition which the A.E.C. may care to make of the Laboratory as a whole, but inasmuch as a recent directive calls for the planning and reconstruction which is about to be undertaken, it seems reasonable to expect that the Laboratory will become a permanent institution unless the exigencies of possible future guided missile warfare should render it completely impossible of defense and hence cause its abandonment and/or destruction. This latter grim note should also remind us that in the overall planning scheme it may be wise to completely bury certain key installations such as storage vaults for active material and other important bomb components, so that in the event of destruction of all or most of the community by guided missile attack, we would at least have the essential parts remaining here of the weapons themselves, in such location and in such condition as to be salvaged for retaliation.

#### IV. Status of the Community

##### A. Population

Early in 1943 when construction for this project got under way, the total population was only several hundred. During the War years the civilian population grew to approximately 2500 and another 3000 military personnel were stationed here. Since the end of the War military personnel has declined to about 1,000 men, but the civilian population growth has more than exceeded the loss of military personnel and the total population of the Project is now in the neighborhood of 7,000. An additional 2,000 persons or more commute daily to and from the Hill, the majority of them being construction contractors' employees, janitors, manual laborers, household servants and the like, although a sizable number of more responsible personnel also commute. From the viewpoint of convenience of operations and the growth of community pride and integration,

it is of course desirable that as many as possible of these commuters eventually be housed here at Los Alamos. Preliminary studies prepared for the Manager have indicated that a minimum of 1200 new family housing units above and beyond those presently contracted for will be required in the next two or three years for this purpose. This obviously will only take care of housing units which are not available in any form and will not take care of replacement of the many hundred temporary units in the Morgan, Hanford, McKee and possibly the Leonard Wood areas. As an estimate, perhaps 1000 more units will be required for this purpose some time in the next five to seven years.

#### B. Primary Community Areas

The size of the primary areas required for housing and basic community functions will probably turn out to be between two and three square miles. Approximately two-thirds of this can be taken care of, if it be desired, here on Los Alamos Mesa, including the western housing development and adjacent Denver metal housing development. The remaining one-third could be conveniently situated on North Mesa or in the hilly country north and west of the golf course, this again requiring consideration of possible locations for new technical areas.

#### C. Secondary Community Areas

The size of secondary community areas is a little difficult to define because such recreations as hiking and horseback riding, as well as hunting and fishing, will take people to all but the most inaccessible spots which have not been restricted for Laboratory use. Because of the nature of the terrain, it is often very difficult even to keep them out of such restricted areas unless they know their way around very well and know where they are at all times. For more organized recreation, baseball, golf, tennis and the like, the areas already allocated are probably sufficient with perhaps some slight enlargement, and the whole question of allocating new secondary areas to the community becomes principally one of negative assignment, in that all areas not restricted for Laboratory use, nor directly adjacent to the water sources, are essentially made available for hikers, etc. This would certainly amount to a minimum of thirty or forty square miles and, of course, to all intents and purposes the Bandelier National Monument property to the south and east should come under this same heading because it is likewise open to the public.

#### D. Security Considerations

Basic to all considerations affecting the status of the community and its land allocations is the question of whether or not Los Alamos is to be an open community. Originally an Army post on a Government reservation, it still retains the closed characteristics of an Army establishment, although it is now under civilian control. All persons, whether inhabitants, commuters, or visitors, must have permission to enter the Project and must carry proper passes and identification at all times. There has been some talk that this situation would be eased and that all persons having transportation could enter the Project at will, leaving only the various technical areas, public utility services, etc., restricted to personnel permitted to enter them. This would put the Project on essentially the same status as Boulder Dam and Boulder City, and there is much in parallel. Boulder Dam is a large and valuable Government property which, during the War, was carefully guarded as an essential sector of the War effort, yet Boulder City, where the people responsible for the Dam reside and where the

administrative offices are located, is an open town on a public highway where any tourist may stop and shop around to suit himself. Only when he visits the Dam are his movements restricted. Applying this principle to Los Alamos, it would seem feasible to have the main Laboratory and the community definitely separated physically, by several miles if possible, and in this regard it is unfortunate that the Main Technical Area and most of the community have become located so closely adjacent to one another on Los Alamos Mesa. The ideal arrangement would probably be to place the community two mesas to the north or even in Barrancas Canyon, at least a mile or two from the nearest technical installation, with a new access road built to the community location from the Rio Grande Valley. Even yet it may not be too late to accomplish this because the only large amount of permanent housing thus far constructed in the Western Area is sufficiently off the main Los Alamos Mesa road to serve our purposes, although the early completion of the community center will make this transition a difficult one to decide upon and it may be that sufficient segregation can be obtained simply by creating a belt of park land - say, 100 yards minimum width - around the Main Technical Area on this mesa, and thereby achieve physical separation by this protective belt and by adequate fencing, rather than by a separation of a mile or two. A third method of achieving the desired result is, of course, to move the entire Main Technical Area from Los Alamos Mesa to some other location or locations. This possibility will be taken up in the next section.

## V. Status of the Laboratory

### A. Personnel

The personnel presently employed by the Laboratory number about 1,500 and as a conservative estimate, were housing freely available, this would probably be increased to 2,000 or possibly 2,200. Essentially working for the Laboratory, although not its employees, are the numerous janitors, laborers and workmen of the various maintenance and construction crafts, who are required to keep it in running order. These people number perhaps five or six hundred and require provisions in the way of working quarters, offices, shops, warehouse facilities, etc. in or closely adjacent to several of the technical areas. The future working force required by the Laboratory, then, may be set at something like 2,500 to 3,000, barring contingencies such as a major change by the A.E.C. of the basic directives by the Laboratory, in which case this figure might be either halved or doubled as the case might be. Allowing perhaps 300 sq. ft. of overall working space per employee, this means that the Laboratory will require around 900,000 sq. ft. of floor space and with the addition of warehousing and storage facilities, this figure would probably reach a million square feet of floor space. The total ground area set aside for technical purposes will, of course, be far greater than this, because of the necessity for isolation of many operations made hazardous by the use or production of high explosives, radioactive wastes, etc. As we have seen previously, something like twenty or twenty-five square miles is presently set aside for this purpose and some enlargement of the figure may be necessary either due to rearrangement of existing facilities in relation to one another, or because of the construction of a number of new technical areas.

### B. Details Concerning Existing Areas

#### 1. TA-1 (Main Technical Area)

a. This 25 acre area is the seat of all the central functions of the Laboratory. Here are the Director's office, the various administrative and

service groups, the central warehousing, the technical shops, the principal chemical and metallurgical laboratories, most of the experimental physics machines and equipment, the headquarters, shops, and preparation laboratories of the groups which operate the firing sites and other outlying technical areas, as well as the offices of the A.E.C., Security, Safety, Fire Protection, Accountable Property, and Communications personnel.

b. As noted above, all its buildings will still be in use for the next two to six years, while new facilities are being constructed at South Mesa, and considerable money will have to be expended for reasonable maintenance and minor construction, as well as for certain larger construction jobs admittedly temporary in nature. The Sigma Building Addition will be the first of these.

## 2. TA-2 (Omega Site)

a. There is much to be said both for and against the present location of Omega Site. A year ago the necessity of providing an immediate shelter for the installation of a fast reactor by the Physics Division made necessary a decision as to whether or not it should be located at TA-2, already used for three years by the Division. Considerations regarding trained personnel, shop equipment and the like made the decision in the affirmative, in spite of the fact that the site was located in Los Alamos Canyon directly below the occupied Los Alamos Mesa and that a serious accident would probably cause earth and air shock with consequent probable danger to structures on the Mesa, and would also produce a cloud of radioactive smoke and dust which might endanger the inhabitants on the Mesa. The physicists' calculations showed that the probability of such accidents on both counts was remote enough that Dr. Bradbury decided to go ahead with the reactor shelter at TA-2. This in turn involved construction of two other small permanent buildings for guard quarters and standby electric power, so that approximately half of the site is now of permanent construction and the remainder could be made so without too great an expenditure. Basically, the question of whether the site should remain where it is, once the money spent and decisions already made have been discounted, is that of whether or not the installations there are still regarded as having a sufficient degree of safety by the physicists to warrant their retention in a spot so close to the main community functions.

b. One basic problem which will have to be solved if Omega Site is to continue as a permanent location is the problem of the stream which runs through the site from west to east. Apparently the soil on which the main building is situated is of an extremely porous nature and the result has been that the whole underside of the eastern half of the building is under more or less continuous pressure from water which has seeped through from the stream. Some attempt to meet this problem has already been made by deepening the stream slightly and by taking steps to waterproof the main basement of the structure. It is basically a bad condition, however, and the only solution may well be to provide either a large culvert all the way through the site or to line the sides and bottom of the stream with concrete so that no seepage is possible. The former solution is preferable in that it would probably run to little more expense and that it would also make possible a considerable extension of the driveway area which is now somewhat cramped by the location of the stream.

## 3. TA-3 (South Mesa Site)

a. South Mesa Site is a grouping of temporary frame structures of extremely light construction together with some prefabricated hutments, several

small magazines, a few lightly fabricated test chambers and one concrete explosives burning pit. The site was originally built for G Division and upon dissolution of this organization in 1945 was transferred to Group X-7 in the Explosives Division. It has always been used for the manufacture and testing of detonators, this latter usually in such numbers as to amount to less than half a pound of high explosive in any one firing. The entire site is scheduled for abandonment whenever the proposed permanent detonator laboratory is completed on Two Mile Mesa. The existing facilities are essentially useless for any further purpose other than perhaps temporary warehousing or something of that nature. The land on and adjacent to the site, however, is cleared and relatively level, and could be used as a location for some large technical installation should planning studies show that the area was desirable for such. A road through the area will have to be retained in any event to provide access to a. the 44 KV power line coming in from Albuquerque and b. the mast for exhaust gases for Omega Site which is scheduled to be built in the near future on lower South Mesa.

#### 4. TA-4 (Alpha Site)

a. Alpha Site was constructed as a test firing site for small charges by members of G Division in 1944. Upon the dissolution of G Division in 1945 it was transferred to M Division and has continued to be used for its original purpose. The maximum charges fired there amount to 200 lbs. The buildings are all of reasonably light temporary construction, consisting of an underground control building with periscope, a small work shed directly adjacent to the control building, a hutment used as a trimming building, three small magazines and a dark room. Dr. Froman has recently asked that the site be considered permanent, but this should be studied in the light of the overall plan.

#### 5. TA-5 (Beta Site)

a. Beta Site was constructed as an adjunct to Alpha Site in 1944. It was originally used for slightly larger charges than Alpha Site, ranging up to 600 pounds per shot. In the spring of 1945 the site was improved and a firing point was built some 700 feet to the east just off the toe of the mesa, to be used for charges up to one ton. Situated at the end of the mesa as it is, the only visible structures at the site are the control building, together with a trimming building further back along the road and a medium-sized magazine. The firing site is still in use and has three basic disadvantages: a. the types of experiments performed in the course of the firing have caused numerous forest fires in the valley land on both sides of the mesa, which is very narrow at that point, and in spite of numerous fire roads which have been cut through the forest to meet this contingency, recurrent fires still present a very awkward problem; b. being situated on high ground, the air shock from the shots travels directly across the intervening  $3/4$  mile and causes appreciable tremors at the DP Site buildings; c. again, because of its being situated on high ground, it is within fragment range of the Sandia Canyon installation and persons working there must be notified to seek shelter whenever a shot is fired at Beta Site. From this it can be seen that some advantages would certainly accrue were the firing activities now carried on at the site to be relocated either to some wide expanse of mesa land which could be cleared of brush and trees or else to a narrow canyon which could likewise be cleared and whose high walls would prevent the escape of flying fragments. If this were done, the activities presently carried on at Alpha Site could conceivably be removed to the present location of Beta Site and be more happily accommodated there. If the road is used to gain access to Mortandad Canyon, both sites will have to be eliminated. In any event, the Beta

Site location will require a complete rebuilding somewhere before it may be considered usable as a permanent facility.

6. TA-6 (Two Mile Mesa)

a. The Two Mile Mesa Laboratory area has served several purposes during the past several years. It originally consisted of some rough field installations such as bunkers, together with a control building and shop. Ordnance Division personnel used it for miscellaneous test purposes, principally in connection with handling and testing of high explosive. In October of 1944 a test saucer some 200' in diameter was constructed to be the scale model of a lake for the purpose of trying recovery shots. So far as I know, the project was dropped about the time the saucer was completed and it was never used. In the spring of 1945 the area was used for the construction of a detonator testing laboratory consisting of one main building and several test structures, the latter of concrete construction. A number of small magazines have been since added. The lab building and test structure may certainly be considered permanent if activities with detonators are to continue at Two Mile Mesa. At the present time a complete set of plans has been prepared by Black and Votch for the construction of a permanent detonator laboratory and, so far as I know, these plans are ready for bids. In case a permanent detonator laboratory is not built on Two Mile Mesa, the area would furnish as good a building site for some other large technical installation as would South Mesa, again being clear of trees and relatively level.

7. TA-7 (Gomez Ranch Site)

a. Gomez Ranch Site was constructed in 1944 for some type of small explosives experiments involving radioactive material. It consisted of a frame structure of about 600 sq. ft. floor area and two firing pits or stadia about 40' in diameter with earthen banks about 5' high surrounding them. So far as I know, it has not been used since the spring of 1945. It is a small installation and of no great importance.

8. TA-8 (Anchor Site West)

a. This site was established in the fall of 1943 for the Ordnance Division. It is built near what was formerly the residence area of Anchor Ranch which was vacated only a short time before construction work began on the new site. The control building with its periscope tower, machine shop, control rooms and attendant magazines are of concrete construction and are located in an embankment. Being set as they were in a natural drainage area there have, of course, been recurrent troubles after storms with the catch basin and culverts filling or becoming clogged, with the result that large quantities of water and mud were washed down into the site. This was finally eliminated in 1946 by the construction of an earth dam and diversion ditch just west of the site. This site is of permanent construction and now that the drainage troubles have been eliminated, should be seriously considered as a permanent location for some technical activity, possibly for a relocated TA-16 (S Site). In the fall of 1945, it was turned over to the Explosives Division and has since been used for various experimental work in connection with the manufacture of certain types of high explosives.

9. TA-9 (Anchor Site East)

a. Anchor Site East is a motley collection of temporary and semi-permanent structures and was originally a sort of catchall for miscellaneous

experiments in explosives manufacture, explosives test firing, and experimental X-ray work. The main manufacturing and X-ray facilities are directly adjacent to the Anchor Ranch road and the test firing facilities are several hundred yards to the east in the open meadow. One firing site which consisted of an underground hexagonal steel-lined pit with a heavy roof was originally used for recovery shots but was abandoned in the spring of 1945 in favor of a similar but larger chamber at TA-12 (L Site). The other firing location, commonly known as "far point," is still in service, but the concrete structure constituting the control room is now in danger of failing from repeated shock and will shortly be abandoned. There is nothing at this site worthy of being considered permanent construction and the area should be considered as available for some other purpose. If it is determined that it shall continue as an explosives handling area, the new buildings should certainly be located considerably further from the main road than is now the case.

#### 10. TA-10 (Bayo Canyon Site)

a. Bayo Canyon Site work was begun in Bayo Canyon in September, 1944 using two M4 tanks as mobile control rooms and personnel shelters during the firing. In the early spring of 1945 there were constructed: a. special buildings for the radioactive chemistry work necessary for the experiments and b. a heavily bunkered control building, battery house, magazine, and trimming building to two firing points. In the late spring of 1945 a second firing area was constructed, again having a control building, a battery building and two firing points. Since that time several other minor structures have been completed. The site was originally constructed for G Division and was turned over, upon dissolution of the latter in the fall of 1945, to M Division in conjunction with a group of radio-chemists from CMR Division. The indications are that the type of experiment which has been done here will be continued indefinitely as a standard part of the Laboratory work, and a permanent experimental area of roughly the present dimensions and with the present facilities or improved equivalents will be necessary as far into the future as we can now see. Because of the location of the present site near the eastern sections of North Mesa and Medio Mesa, both of which will almost undoubtedly be seriously considered for either community or Laboratory installations, it would seem quite possible that Bayo Canyon might not remain a suitable location for the present type of experimentation, involving as it does the firing of explosive charges up to 600 pounds in size and the utilization of extremely radioactive sources which produce highly penetrating gamma rays. The general design of the firing points, control buildings and explosives handling facilities has proven generally satisfactory and with some improvement can undoubtedly be used wherever the site may be reconstructed. The chemistry building and attendant facilities have proven very unsatisfactory and at the present time are undergoing a complete redesign study by CMR Division personnel with some help expected on the matter shortly from Black and Veatch. It is exceedingly unlikely that any final design will result from this study in less than eighteen months to two years because of the complex considerations involved.

#### 11. TA-11 (K Site)

a. K Site was constructed in the winter of 1944-1945. It consists of two heavy concrete battleship-type structures, between the armored noses of which charges of high explosive up to 200 lbs. have been fired, a combination control and laboratory building heavily bunkered, and a shop and general purpose building also heavily bunkered. Back along the road leading

to the site a trimming building and a magazine were constructed. Since then a small magazine has been added at the site and several other small modifications have been effected. The site was originally constructed for G Division and upon its dissolution in 1945 was assigned to P Division which has since used it for betatron work. The site is sufficiently isolated to be used again for explosives work if necessary and is of such heavy construction that with minor modifications it may definitely be considered permanent. At the present time its use as what is essentially a pure physics laboratory makes it sort of an odd stepchild in the firing site area in which it is located, and possibly some consideration should be given to the housing of the betatron in some other location more convenient to the general operations of the Physics Division.

12. TA-12 (L Site)

a. L Site was constructed in the early spring of 1945 for the Explosives Division and consisted of a steel-lined hexagonal pit with a heavy earth filled cover of bridge-like construction which was used for certain recovery experiments. An open section of the mesa just east of the pit was used for several months as a more or less unimproved firing site for charges up to 200 pounds, and in connection with this work a hutment was set up as a work shop and two small magazines were installed, together with a small AC diesel generator set. The site was abandoned by X Division in April, 1946 and has not been used since that time. It is our understanding that X Division has plans to reactivate the site and to construct there permanent laboratory buildings of a size and nature yet to be determined, but presumably in connection with some sort of explosives testing or experiment. The location of the site is all right for a permanent installation for this sort of operation, provided the charges fired are relatively small - say, up to 100 pounds - and provided that the area is cleared of trees for a reasonable radius around the site. Because it is just across the canyon from TA-15 (R Site), it has no possibility of being used for the firing of large charges.

13. TA-13 (P Site)

a. This site was constructed in the early fall of 1944, and consists of a frame control building protected by a timber barricade from the firing area some 600' to the east. At the firing area are two concrete battleship-type structures, one of which has been altered to provide a heavy steel blister on one side. These buildings were used for X-ray work in connection with explosives experiments. The site was originally constructed for G Division and, upon dissolution of the latter in the fall of 1945, was turned over to M Division. It has since been used for a variety of miscellaneous experiments for which no other site was quickly available, and as the result of which a fair amount of radioactive contamination has been scattered on the shelf area leading down into the canyon on the northeast side of the firing area. The intention now is to establish a working area for trailers and a hutment for certain mockup arrangements of the experimental equipment required for experiments with highly radioactive sources which are actually to be performed at some other location. The site is located on a broad but heavily forested mesa and the area should be more thoroughly cleared of trees and undergrowth if the site is to be used permanently for any purpose. It is also fairly close to S Site and if the latter becomes a permanent explosives manufacturing area and expands further to the east, P Site may well become too close for comfort and have to be abandoned.

~~SECRET~~  
UNCLASSIFIED

14. TA-14 (Q Site)

a. Q Site was constructed for X Division work in the fall of 1944. It has a number of small specialized buildings for close observation work on small explosive charges including a closed chamber, an open chamber, a small stadium with a central firing point, and control buildings and rooms for the above, together with several small magazines, trimming buildings and the like. Because of a deviation from specifications, the closed chamber failed structurally after several charges had been fired in it. It was buttressed with steel beams, but has seen little further use. The open chamber and the remainder of the site are still in use. Located on the far side of a ridge parallel to the R Site road, the site location still seems adequate for explosives experiments of the magnitude now employed. All the buildings are either temporary or unsuitable and will have to be completely replaced for permanent occupancy. Probably the simplest thing to do in this regard would be to rebuild the site a short distance east of the present location and then eliminate the original site when the new one is occupied. On the other hand, it is conceivable that the work done at Q Site could readily be combined with work now done elsewhere and a larger firing site with better central facilities established for several types of experimentation, each of which involves the firing of small charges. There are several places on the land leading to R Site where this could be done, provided again that the heavy forest was cleared away sufficiently to make a good sized operating area free from the danger of forest fires.

15. TA-15 (R Site)

a. The first installations at R Site were completed in October, 1944 and consisted of a central control building and laboratory with several firing points, a trimming building, and a couple of hutments and small magazines. Since that time numerous additions have been made, mostly various types of barricade at new firing sites. The site was originally assigned to X Division for the use of Walter Koski and was later transferred to M Division, together with Mr. Koski's group. Late in 1946 general conversations between this office, the Director's office and the M Division people resulted in a general agreement that R Site be considered the permanent location for firing explosives experiments involving charges up to as much as two tons. Since that time a series of small permanent firing control chambers and a completely new large scale firing site with an underground timber control building have been completed. A new cutting building is under construction at the moment and a new permanent magazine is in the hands of W. C. Kruger Co. for the making of contract drawings. Generally speaking, the R Site area still seems to be an ideal location for the purposes to which it is now being put, and the Planning Group should seriously consider keeping it so. With proper layout of facilities it is conceivable that as many as four or five separate firing points could be established and used at the same time, working from a central service and magazine area. Two bad features of the present installation, which should be removed, are the two firing sites directly adjacent to the road leading to the large scale firing point recently completed at the eastern end of the mesa. With as much space as is available at R Site, there is little excuse for the permanent installation of firing sites directly alongside the main road.

UNCLASSIFIED ~~SECRET~~

## 16. TA-16 (S Site)

a. S Site was constructed early in 1944 and consisted of six buildings including a steam plant. Since then the site has been under practically continuous expansion, more or less dignified and delineated under the titles S2 Expansion, S3 Expansion and S4 Expansion. In the course of these progressive additions, the total plant has come to include some eighty buildings of various sizes and uses for all types of explosives manufacture, storage, treatment, and testing. Regrettably, some 85% of the site is of temporary frame construction and is completely unsuitable for use as a permanent explosives manufacturing plant. The area may be viewed both favorably and unfavorably. The cleared expanse originally present has proven sufficiently large for the plant to grow to its present size without additional forest clearing. Should it remain in this location and be expanded in the future, a large amount of such clearing would be necessary. On the unfavorable side is the fact that the site is within easy walking distance of State Route #4 and represents a tempting target for possible saboteurs, especially since Magazine Areas A and B are between the site and Route #4 and the prospective saboteur by breaking into one of these locations could secure ready ammunition for destructive purposes. Also enmeshed in the problem is the question of whether such a major explosives manufacturing installation should be kept here at Los Alamos at all. This is a matter which must be settled at higher levels and possibly by the Commission itself.

## 17. TA-17 (X Site)

a. X Site construction was requested early in the fall of 1944 and was to be used for expansion of X-ray work on explosives experiments then being carried on at Anchor Site East. The work was cancelled shortly after construction began and the site has not been used for any purpose since that time. It is dubious if it can be used for anything, inasmuch as the water line from the Pajarito water source west of the Anchor Ranch area now passes close by.

## 18. TA-18 (Pajarito Canyon Laboratory)

a. This area was developed during 1944 for G Division, three firing points being established, one for small charges of a few pounds each in the west wing of the canyon, a second for charges of several hundred pounds each in the south wing, and a third for testing charges up to two tons in the east wing. A heavily bunkered laboratory was built at the junction of the two canyons, and a trimming building and magazine constructed back along the road toward Anchor Ranch. During 1945 several storage hutments, two magazines, a carpenter shop, and an underground battery building were constructed in the central area, and considerable alterations were made in the second firing point, making it suitable for the firing of charges up to two tons in size. Use of the site passed to M Division in the fall of 1945. Early in 1946 a 26' x 40' addition to the central laboratory building was constructed for integral assembly work involving radioactive material. In the spring of 1947 the permanent Integral Assembly Building was completed in the north wing of the canyon and the area was abandoned as a location for explosives experiment. Because of the isolation of the site it is ideal for integral assembly work and I feel it should continue to be used for that purpose. A permanent laboratory building should replace the present one and the other temporary structures be

removed. The concrete "battleships" and the underground structure might as well be left - some use might be found for them.

19. TA-19 (East Gate Laboratory)

a. This small site, consisting of one frame laboratory building and a storage hutment, was constructed in the summer of 1944 for the use of Dr. Segre, who needed an isolated spot for exacting experimental work on small sources. Because of the rush in which the construction was carried out, the site was located just east of the Project boundary, as indeed was Post One, the east gate to the Project. The past two years the site has been used only upon occasion by the Physics Division. The disposition of it requires no great rush, and it may well be that upon its demolition no replacement will be required.

20. TA-20 (Sandia Canyon Site)

a. This explosives field test site was built for G Division in the spring of 1945. Installations consisted of a laboratory and control building adjacent to a firing point for charges up to 50 pounds, two "Dumbo" metal vessels for small recovery shots, a small magazine, a trimming hutment, and an underground pit with a metal mesh cover (which failed after the first few shots) for larger recovery shots. In April a 22 mm gun setup, together with a second magazine and a small workshop, was constructed in a side canyon to replace a similar setup previously installed in an armored room on the south side of Building B in the Main Technical Area. The site was assigned to W Division in the fall of 1945 and since then has been used for a miscellany of experiments without much change in the original installations. The canyon could be reached by a properly constructed road from the mesa land to the west, and the necessity for using the Route #4 approach thereby be obviated. All the construction is temporary in nature and will have to be replaced if the site becomes permanent.

21. TA-21 (DP Site)

a. This important site was conceived and built during the spring and summer of 1945 for major chemical and metallurgical work. At that time it consisted of ten major structures together with twenty-odd smaller ones. Later a concrete vault and several other maintenance and storage buildings were constructed. This site is the nearest thing to a permanent working area now used by the Laboratory, and with replacement of several frame structures by fireproof ones can be made completely so. Most of the planning work required will be in this category.

22. TA-22 (TD Site)

a. This site was constructed in the summer of 1945 for O Division as a center for the handling of special assemblies, replacing V Site. It consisted of two prefabricated stran steel buildings, two large frame magazines (unbarricaded) and one improved ranch building. The assembly work was transferred from Los Alamos in 1946, and the site has since been used by X Division as an additional storage area for high explosives.

23. TA-23 (Nu Site)

a. This firing site was constructed in the spring of 1945 for X Division, to relieve the crowded firing schedule at "far point," Anchor Site

East. Up to a short time ago it was used for camera work but is now being re-equipped for X-ray work, still in connection with high explosives experiments. The battleship-type concrete structure at the firing point may be considered permanent, but the control building, magazine, and small laboratory are not. This site could well take on greater importance, and is not badly located. Decisions made regarding it will have to be in conjunction with those regarding the other firing sites in the same vicinity.

24. TA-24 (T Site)

a. This site, directly adjacent on the north to S Site, was constructed in the fall of 1944 as a service area for the X-ray examination of high explosive charges. A year later a large storage magazine was constructed and general alterations and additions made to the main laboratory building and the several hutments. On November 19, 1946, a fire allegedly resulting from improper wiring destroyed the center portion of the laboratory building. The latter was subsequently repaired with considerable improvements during the spring of 1947. All buildings at the site are temporary and will eventually have to be replaced. Any decisions as to the rebuilding of the area will have to be tied in with the plans for S Site.

25. TA-25 (V Site)

a. This area, having two main buildings, and now essentially an integral part of S Site, was constructed in 1944 for experimental work in connection with special assemblies. When this work was transferred to TD Site in 1945, the site underwent extensive alterations (delayed several weeks by a fire in a newly constructed section) to fit it for S Site process work on explosive charges. As is the case with TA-24, its fate must be settled along with that of S Site.

26. TA-26 (D Site)

a. D Site, constructed in the summer of 1946, consists only of a concrete storage vault built for CMR Division, plus a small sentry building and guard tower. Located about 300 yards from Post I, it has recently been subjected to criticism from the Security People, and will probably be replaced by a vault elsewhere, after which we should be able to turn it to some new purpose, as it is certainly permanent in nature.

27. TA-27 (Gamma Site)

a. This area was originally used for field testing of H. E. assemblies and was the third area noted in the Pajarito Canyon construction. In the fall of 1945 it was considerably improved for the use of G Division in test firing of two ton charges, and renamed Gamma Site. After being in use for several months, a faulty explosion scattered unburned H. E. for a considerable distance up and down the canyon, subsequent to which the area was isolated with protective fences and abandoned. A thorough spraying with oil followed by burning would seem to be the only feasible method of rendering the area safe for use again.

28. TA-28 (Magazine Area A)

a. This site consists of five permanent magazines constructed as part of the S3 expansion on the isolated mesa directly south of S Site. If

~~SECRET~~  
UNCLASSIFIED

-15-

properly fenced and guarded, it could be a good permanent installation, but it is too close to Route #4 for comfort.

29. TA-29 (Magazine Area B)

a. This area is an abandoned CCC Camp directly adjacent to the west gate of the Project at Route #4, in which two permanent magazines were constructed in 1944. Both are still used by S Site. The area can be reached by anyone who cares to cross or crawl through a cattle fence along Route #4. It should be abandoned as soon as possible regardless of the fate of S Site.

30. TA-30 (Electronics Test Area)

a. This small site consists of a single hutment erected in the spring of 1945 on the Anchor Ranch Road at the intersection with the Pajarito Canyon Road. It is shortly to be removed.

31. TA-31 (East Receiving Yard)

a. This area was set up for use of the Navajo Van Lines in the summer of 1945 with the construction of a roofed receiving dock. Since then four other buildings have been added for general warehouse and salvage work. All are temporary. Any planning regarding this area will of necessity have to tie in with the overall plans developed for the Tech Procurement Group operations.

UNCLASSIFIED  
~~SECRET~~