everything of importance to the test was ready.

2. A study of the weather indicated that a variety of wind directions at slow speeds going in general N.W., and N.E. could be expected with different

2. A study of the weather indicated that a variety of wind directions at slow speeds going in general N.W., and N.E. could be expected with different directions and speeds at different levels for 16 and 17 July 1945. These slow winds would be advantageous in localizing the outfall of active material from the cloud to the site and nearby desert areas. They would also dilute the cutfall most effectively in the early hours of the life of the cloud when it would help the most. The monitoring problem would be worse hosever, because of the wide area covered.

3. In the two days available, the population of the surrounding areas was located by G-2 on large scale maps for a radius of 75 to 100 miles. The deserted areas corresponded fortunately to the most probable courses of the outfall from the cloud as predicted by the directions of the winds at the various altitudes. Troops under Major Palmer were available if monitoring indicated that evacuation was necessary.

4. At zero minus five hours, five cars with Dr. J. Hoffman in charge were stationed with Fajor Palmer and troops at the cutlet road near the east-west, highway #350. They were in radio communication with Base Camp and Post #2. Cutlying monitor cars were in San Antonio, Roswell, Carrisezo and Fort Summer to cover these areas in case the speed of the cloud was greater than predicted.

5. Fr. Aebersold was in general charge of the monitoring at Base Camp and the three shelters at 10,000 yards, with local telephone and radio communication. There was a technician monitor and doctor in each shelter and at Base Camp.

- 6. Er. Hempelmann in charge of all the monitoring program was at S 10,000, the center of communication and final decisions (also Brig. Gen. Ferrol, Dr. Oppenheizer, Dr. Bainbridge, Mr. Hubbard, etc.)
- 7. This efficer acted as liasion in a secondary communication center in Base Camp. Lt. Col. Friedell was located with C-2 at Albuquerque as another communication center via long distance for controlling the field monitoring in case Fase Camp communications broke down. All groups were keyed in by identical maps showing preliminary locations of the monitors, their presumed course, the two possible paths of the cloud, WNW and NNW (depending upon the altitude which it reached) houses and nearby ranges, etc.

8. Accessory equipment and other preparations were in keeping with the preliminary plans submitted in the preliminary report ASSIFICATION CANCELLED.

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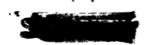
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- The shot was fired at 0530 on 16 July 1945.

 The energy developed in the test was several times greater than that expected by scientific group. The cloud column mass and top reached a phenominal height, variously estimated as 50,000 to 70,000 feet. It remained towering over the northeast corner of the site for several hours. This was sufficient time for the majority of the largest particles to fall out. Various levels were seen to move in different directions. In general the lower one-third drifted eastward, the middle portion to the West and northwest, while the upper third moved northeast. Many small sheets of dust moved independently at all levels and large sheets remained practically in situ. By zero plus 2 hours, the main masses were no longer identifiable except for the very high white mass presumably in the stratosphere.
- 10. By 0300 hours the monitors reported an area of high intensity in a canyon 20 miles northeast of zero. Since this was beyond the telerance set and equally high intensities were expected in other areas, four more monitor cars were sent into this northeast area from Base Camp. The roving monitors in this area were each accompanied by a trooper in a 4 wheel drive and authorized to evacuate families if necessary. At no house in this whole north and northeast area between 20 miles and 40 miles from zero was a dangerous intensity found. The highest found intensities fortunately, were only found in deserted regions. The highest found is shown in detail attached #1. Intensities in the deserted canyon zero high enough to cause serious physiological effects.
- 11. The distribution over the countryside was spotty and subject to local winds and contour. It skipped the nearby highway #380 (20ml. N.E.) except for low intensities which were equaled at twice and three times the distances. It is presumed that the largest outfall occurred in the N.E. quadrant of the site. This can only be explored by horseback at a later date.
- 12. The monitors all took considerable risks knowingly and many have received exposures of considerable amounts, i.e., &r total. This is safe within a considerable margin. They should not be exposed to more radiation within the next month.
- 13. The dust could be measured at los intensities 200 miles north and northeast of the site on the 4th day. (Attached #2) There is still a tremendous quantity of radioactive dust floating in the air.
- 14. Meither the Base Camp or the shelters were contaminated very much.
- 15. Partially evicerated dead wild jack rabbits were found more than 800 yards from zero, presumably killed by the blast. A farm house 3 miles away had doors torn loose and suffered other extensive damage.
- 16. Details indicating blast, heat and other effects cannot be worked out until the area around the crater "dools down".

It is this officer's opinion, however, that lethal or severe casualities would occur in exposed personnel up to two miles from a variety or combination of causes, ie., blast, heat, ultraviolet and missles.





The light intensity was sufficient at nine siles to have caused temporary blindness and this would be longer lasting at shorter distances. Several observers at 20 miles were bothered by a large blind spot for 15 m inutes after the shot. The light together with the heat and ultraviolet radiation would probably cause severe damage to the unprotected eyes at 5-6 miles; damage sufficient to put personnel out of action several days if not personnelly. All of the personnel obeyed the safety precautions suring the test so that no such injury resulted.

- 17. A great deal of experience was obtained on the requirements for quick and adequate monitoring. Excellent radio communications, good transportation and better and more rugged meters are required.
- 18. It is this officer's opinion based on the darage to "Jumbo" (2400 ft), the extent of the glazed sand area (up to 500 ft.), the extent of the cleaned off arear (about 1 mile), the farm house (at 3 miles) that this explosion was a great many times more violent than the 100 ton test. "Conservative" estimates by the scientific groups put it at least equivalent to 10,000 tons of T.N.T.
- 19. Thile no house area investigated received a dangerous amount, ie., no more than an accumulated two weeks dosage of 60r, the dust outfall from the various portions of the cloud was potentially a very dangerous hazard over a band almost 30 miles wide extending almost 90 miles northeast of the site.
- 20. It is this officer's opinion that this site is too small for a repetition of a similar test of this magnitude except under very special conditions. It is recommended that the site be expanded or a larger one, preferably with a radius of at least 150 miles without population, be obtained if this test is to be repeated.

SL7/fo

cc/ Maj. Gen Groves (2) R. Oppenheimer (1)

R. Oppenheimer (1) Col. Warren (1) Colonel Stafford L. Farren-Chief of Medical Section Manhattan District

