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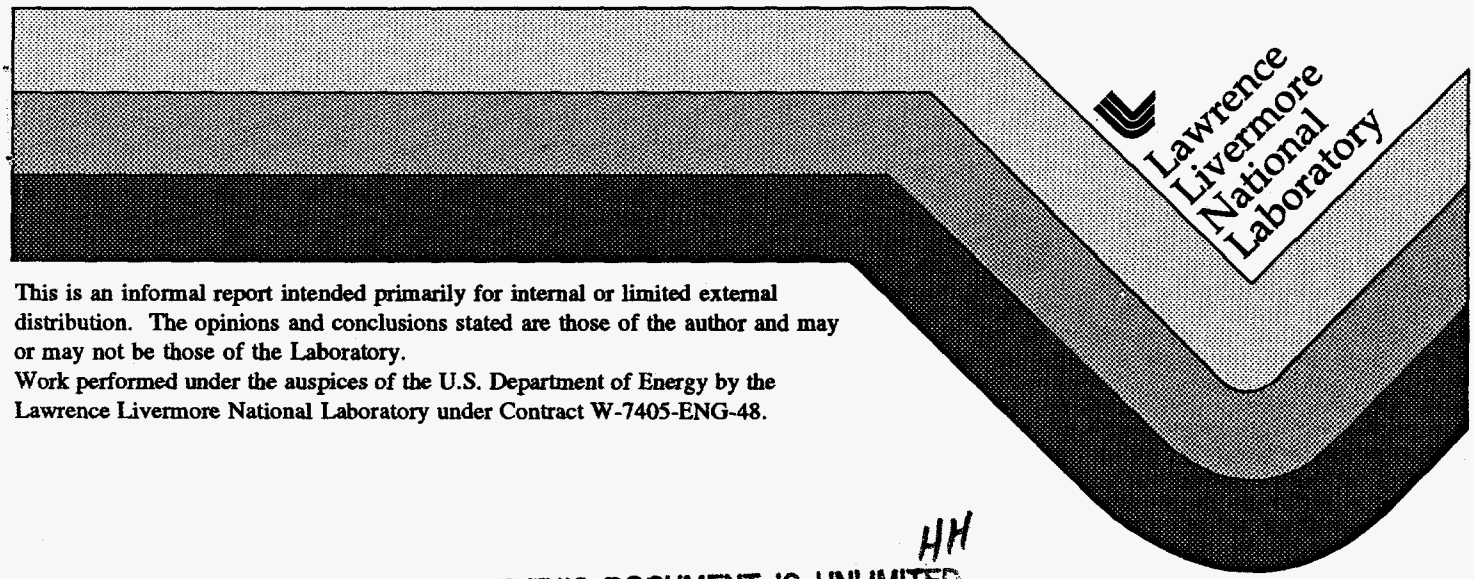
Minutes of the Third Meeting of the Committee on the Use of the Nevada Test Site

C. L. Lindquist

May 28, 1957



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MINUTES OF THIRD MEETING OF

COMMITTEE ON USE OF NEVADA TEST SITE

CN-0003 (OA)

May 28, 1957

22/40

This Document consists of 7 pages.
No. 6 of 24 copies, Series A.

MEMBERS:

Present: Paul W. Ager, Acting Chairman
L. E. Hollingsworth, Sandia Corporation
M. L. Merritt, Sandia Corporation
Reamer E. Schreiber, LASL
William E. Ogle, LASL
Dale E. Nielsen, UCRL
G. W. Johnson, UCRL
Carl L. Lindquist, Secretary

22/96

Absent: Ralph P. Johnson, AEC-ALOO
James E. Reeves, AEC-ALOO
R. A. Bice, Sandia Corporation

VISITORS:

Robert W. Hughey, SAN
J. W. Hadley, UCRL
Robert J. Vetterlein, UCRL
L. J. Yelinek, AEC-LVBO
R. W. McCurtain, AEC-LVBO
Max E. Smith, AEC-LVBO
D. D. Nelson, Marquardt Aircraft Company
H. F. Crouch, Marquardt Aircraft Company
Karl Bernstein, Marquardt Aircraft Company
J. Louis Reynolds, Marquardt Aircraft Company
Francis N. Buck, U. S. Weather Bureau
Philip W. Allen, U. S. Weather Bureau
David B. Hall, LASL
Roscoe H. Goeke, AEC-ALOO
J. F. Cully, AEC-ALOO
William S. Johnson, REECO
Colonel Eugene Blue, DMA, Washington, D.C.

Classification (...) Changed to: UNCLASSIFIED
(Insert appropriate classification level or indicate Unclassified)
by authority of: R2D2-CN-0003-OA 5/2/96
by [signature] 5-14-96
(Signature of person making the change)
Verified by R June Barron 5/14/96
(Signature of person verifying the correct...)

SUMMARY OF PROCEEDINGS:

The NTS Use Committee met Tuesday morning, May 28, 1957, at Mercury, Nevada; Paul Ager, Assistant Manager for Advance Planning, ALOO, presided as Acting Chairman.

[redacted]

CN 0003-OA 6A
09-JAN-90 CN CAROTHERS JAMES E

Mr. Ager stated that the purpose of the meeting was to review with the Nevada Test Site Use Committee the possibility of locating permanent or semi-permanent facilities on the Nevada Test Site compatible with other planned uses for the Site. The major purpose was to discuss the possible location of the Pluto and Fast Reactor facilities. The Rover project is pretty well laid out.

Mr. Ager called on a UCRL representative to present the Pluto Program and Dale Nielsen presented the following:

We (UCRL) are just getting our teeth into this program--we have been doing a number of experiments at the laboratory and we now think that what we want in Nevada is:

1. Hot box experiment facilities

2. Tory II--which is a reactor to be run at high temperature, but not a full size reactor.

Area tentatively suggested and most plausible is around the Horn Silver Mine. The hot box and control building would be almost due south of the Horn Silver Mine.

Hazard: The hazard from the hot box would be relatively small--much less from the hot box than from Tory II. Beryllium is the greatest hazard from Tory II and is necessarily a permanent hazard, since it is the most toxic metal there is and dangerous in all forms. But the advantage of the Tory II is that instead of operating in minutes, they are operating in terms of hours and remote monitors could shut it off at any time.

A Tory run is expected to last about 4 hours. At the end of a run it is estimated (based on 10% loss of the fuel) that a cloud with an activity level of 10^6 curies might be released. In addition, about 40 lbs. of Be could be released during a test run. Forty lbs. of Be, in the presently conceived Tory II, is equivalent to 5% of the total Be, and is believed to be the maximum that could be spewed out since the reactor will not run if more than 5% of the total Be is lost.

Mr. Ager asked the question if this would be a permanent operation. Mr. Nielsen replied that both the hot box and Tory II would be permanent facilities; that in designing these facilities they planned to make them in

such a way that they would not grow out of hand, but would be designed so that they could get out of them what they want to accomplish at the beginning.

Mr. Ager then asked Mr. Nielsen what the principal considerations or reasons were for picking the Horn Silver Mine area.

Mr. Nielsen replied that familiarity with the site--good terrain for a railroad between Tory II site and the disassembly building. Mr. Ager asked if UCRL had looked into the area west of the Rover area--Mr. Nielsen stated they wanted to stay somewhat close to the "Y" so that they would not have to run extensive power lines and roads.

Mr. Cully asked if the area to the west of the Rover LASL area would be suitable for the UCRL Pluto Site. Mr. Nielsen replied that the area was suitable but he felt that the site development costs would be higher since roads and utilities would have to be run for a greater distance than in the Horn Silver Mine location.

Mr. Ager then called on LASL to present their desired area for the Fast Reactor Program. Mr. David B. Hall, LASL, talked. He stated that the fast reactor testing was introduced in the meeting held in March. He stated they had looked around at the various areas in NTS and they came up with an area approximately 5 miles from the Pluto area. Maps were produced, drawings made on the blackboard, tape pasted on the big NTS map showing the various locations, deciding on terrain, run-off in case of floods--contamination in case of winds, etc., and it was agreed by both UCRL and LASL that their facilities were of sufficient distance for all work necessary and a certain degree of safety.

The Fast Reactor test area at NTS is large enough to accommodate several reactors at once. LASL will test its reactor first, and then it is proposed that Argonne National Laboratory come in with their own personnel and test their reactors at this site. Hall believes it necessary to build and test a 100 MW (Full-Scale) reactor.

The general features of the required LASL facilities would be an underground well which may be 20 to 30 feet deep with a minimum type structure over it. This facility would be built 1/2 mile or so from a Control Point--one control point would serve several of the reactor testing points. Dr. Johnson asked how far this would be from GZ in FF--the answer by Dave Hall--approximately 10 miles. Mr. Hall was asked

approximately the distance between the Horn Silver Mine and the area that LASL is talking about--his answer was 4 - 5 miles. Mr. Hall went on to state that they have asked for FY 1959 funds for their project and hope by the end of the calendar year 1959 they can be in operation. Mr. Schrieber made the statement that during construction of reactor sites it could be a nuisance to use the FF roads. However, the thinking has changed, since Mr. Hall stated that he had talked to Jim Reeves about this and he (Reeves) offered no objection to the use of the existing FF road for access to the Fast Reactor Testing Site.

Hall requested a test area of about 2 square miles be reserved for the reactor tests and an expansion area of 2 square miles lying adjacent to the test area. This area is bounded: E670,000--E680,000; N750,000--N760,000 Nevada State Coordinates.

The question of justification to Washington was brought up and Dr. Johnson said that the general location in the present location on the test site for non-interaction between weapons testing and this particular testing would be a good justification; also the three sites so close together would save considerable.

Mr. Phil Allen, U. S. Weather Bureau, gave a discussion of wind and wind velocity in the areas for these facilities. He stated that during the winter months from November through March, there is a high frequency of NE winds in the middle of the site during the day time from 9:00 A.M. to 1700 P.M.

The following chart of percentage frequencies was presented by Mr. Allen; the data are based on readings taken from the wind station located directly SW of the Horn Silver Mine.

Months	Hour	N-E	SW
March thru May	09 - 17	20	50
	21 - 04	35	40
June thru Aug.	09 - 17	6	70
	21 - 04	10	60
Sept. thru Nov.	09 - 17	40	45
	21 - 04	50	30
Dec.	09 - 17	50	(35)
	21 - 04	45	30

Mr. Ager: Looking at this from the long-range planning, we have:

Project Rover (LASL) - operating at least every few months.

Fast Reactor Tests (LASL) - going more or less continuously.

Horn Silver Mine (Pluto) (UCRL) - Hot Box - Tory II - more or less continuously.

These are, at present, generally experimental--will these test areas grow up where full-scale testing of reactors will be developed by AEC contractors, and if so, can we move the testing areas generally to the West.

UCRL stated that definitely they expected to keep an experimental area at all times.

Mr. Ager then brought up, very briefly, an area that would be needed by the AEC and the Air Force--a facility of the general same character as the above three and probably could be kept in the same general line, but further to the west and south.

Fallout was discussed for each of the above projects--Beryllium will present the greatest problem. UCRL was asked how long it would take for Beryllium to lose its dangerousness. They replied--Beryllium is always dangerous; it does not decay, but it does dilute. However, they plan low power runs, especially at first, which would produce very little fallout.

In Tory II, radioactivity dumped into the air could begin to look like 10^6 curies per test run.

LASL Rover fallout contribution might come to 2×10^{21} fissions per 10 minute test run. This is equivalent to approximately 4×10^6 curies. There is no Be contamination problem in connection with the Rover tests.

Mr. Ager then asked about population figures for each of these facilities. During a test of Rover, LASL stated they would have approximately 100 people in the area. During an actual run, no people will be beyond the control point, and no need for more than 25 people to be around, but that too depends on spectators. UCRL stated that very few people would be required for the hot box experiment, and that on Tory II 20 people would be required during a run, and some 30 people for support - making a total of 60 to 70.

Transient or Fast Reactor Site - 50 to 75 people required during an operation.

Mr. Ager then asked if we could get some figures on tentative power and light requirements for each of the three programs.

Mr. Schreiber, LASL, stated that requirements have been submitted for Rover.

Mr. Nielsen, UCRL, stated that power for the hot box - 500 KW for the oven and 100 KW for miscellaneous; on Tory II - 1 and 1/2 megawatts.

Mr. Hall on Fast Reactor - negative; their thinking has not been firmed up on this.

There will also be water requirements for Pluto - not too much as they do not anticipate using water for cooling--just for people, wash down and some clean up.

CONCLUSIONS:

1. That there was developed in this meeting no apparent reason why the areas, as indicated on the attached map, could not be used for the projects discussed without major interference with each other, or with the present principal use of the NTS, i.e., weapons testing.

2. That the area assignments as indicated, and the use of each for its respective project, would probably be recommended to the Manager, AEC.

The meeting adjourned at 12:10 p.m.

Subsequent to the meeting it was decided that LASL and UCRL should each be requested to confirm the statements made during the meeting concerning contamination from its projects; and in addition, to discuss the possible effects that each project's contamination might have on the other projects and on weapon testing.

CN-0003 (OA)

By means of these minutes LASL and UCRL are requested to furnish the above to the Chairman of the Committee.

C. L. Lindquist
Secretary

June 14, 1957

Enclosure:
One (1) map

Distribution:
1/24A - Ralph P. Johnson, Asst Mgr, EC&TO, ALO
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13/24A - Dr. Alvin C. Graves, LASL
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15/24A - Max E. Smith, Mgr, LVB
16,17,18,& 19/24A - Paul W. Ager, Asst Mgr, Adv Planning, ALO
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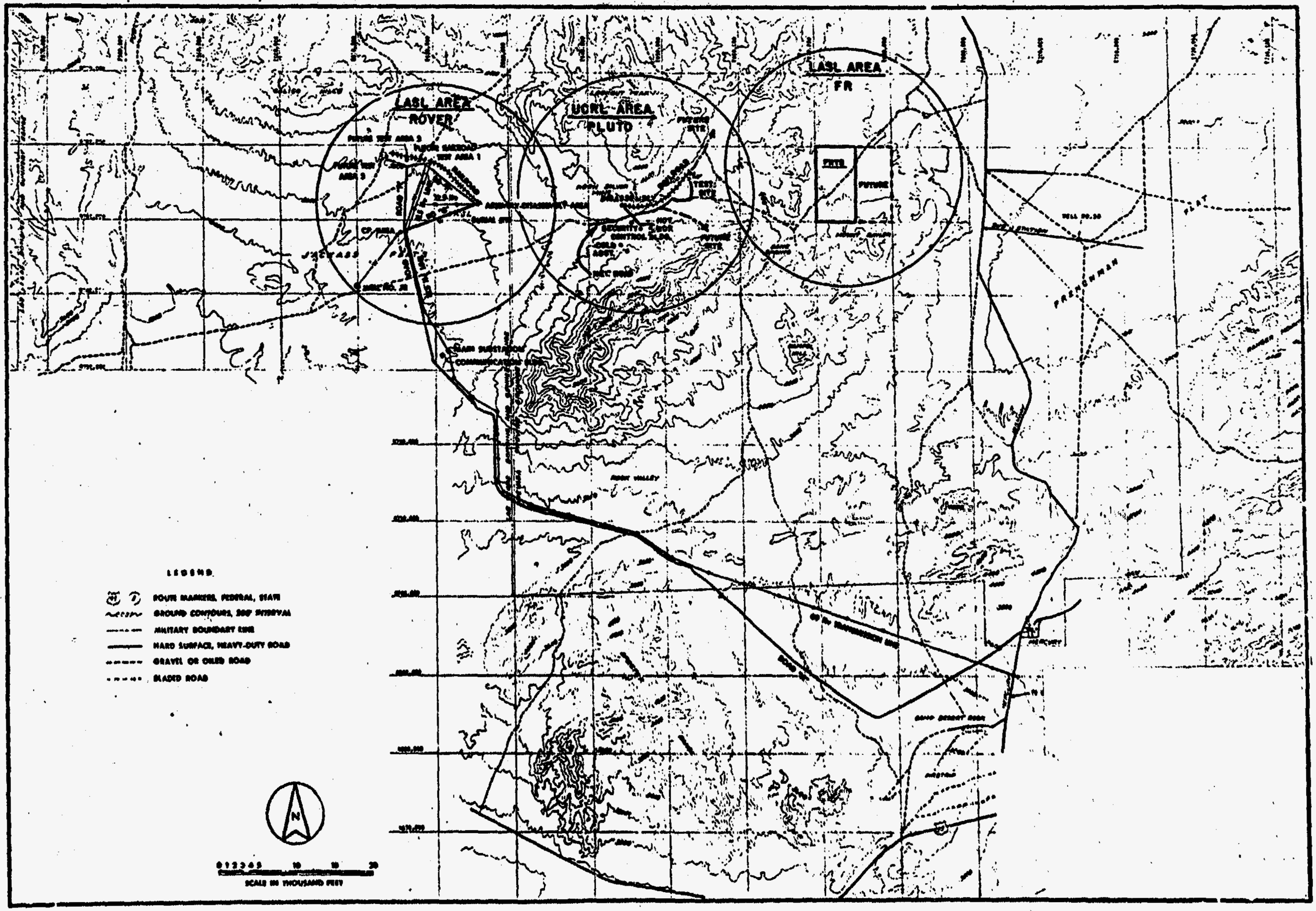
LASL AREA
ROVER
UCRL AREA
PLUTO
LASL AREA
FR
FUTURE
FRENCHMAN
MERCURY
LEGEND
ROUTE MARKERS, FEDERAL, STATE
MILITARY BOUNDARY LINE
HARD SURFACE, HEAVY-DUTY ROAD
GRAVEL OR OILED ROAD
BLADED ROAD
N
0 1 2 3 4 5 10 15 20
SCALE IN THOUSAND FEET