UCRL-ID-126659

Project LOTSWIFE
Meeting of May 18, 1959

V. Denton

May 21, 1959

Lawrence Livermore National Laboratory

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DECLASSIFICATION STAMP ON REVERSE

21 May 1959

MEMORANDUM

TO: Distribution

SUBJECT: Project LOTSWIFE Meeting of May 18, 1959

A meeting to discuss the preliminary aspects of Project LOTSWIFE was held at LRL on 18 May 1959. Those in attendance included:

G. W. Johnson, LRL
C. E. Violet, LRL
F. Adelman, LRL
J. Nuckolls, LRL
R. G. Preston, LRL
W. Adams, LRL
G. Werth, LRL
W. Heckrotte, LRL
Vern Denton, LRL
R.B. Petrie, LRL
W. Hamilton, LRL
F. J. Warren, LRL
M. Merritt, SC
A. D. Thornborough, SC
B. Murphy, SC
H. C. Walker, SC
T. Pierce, USC&GS
S. Howell, H&N
R. C. Harbert, H&N
J. Rosen, DMA
L. Ayres, SAN
F. Hohner, USAEC, LosA Branch

A set of four documents was distributed to the conferees at the beginning of the meeting. This set included a summary of the project, a trip report, a proposed construction plan, a preliminary cost estimate and general support requirements.

G. W. Johnson opened the meeting with a brief explanation of the project, covering the purpose and proposed method of operation. C.E. Violet then began a more detailed discussion, following the sequence presented in the issued summary. The following paragraphs reflect changes to this summary that were agreed upon during the course of the discussion.

Planning for Phase I and Phase II will be conducted in parallel. The planning and/or construction for Phase I will not be allowed to delay Phase II. Should negotiations with mine owners and subsequent construction schedule development indicate that Phase II could be accomplished on the same or about the same time scale as Phase I, then the program will be reviewed and a new decision reached on the necessity for accomplishing Phase I.

Phase II now consists of 6-10 shots ranging in yield from 100 lbs. to five tons. There is a possibility that some relevant work will be accomplished initially at Site 300, Livermore, that may help in determining the explosive configurations to be fired. Pending possible results of this work, it is now planned that the first shot of Phase II will probably be either a 100 lb. charge

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INVENTORIED

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Indexed W. Rio-file
Date 2-22-59

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Classification (Declassification/Review Date) Changed to:

UNCLASSIFIED

(Insert appropriate classification level or indicate Unclassified)

by authority of R2D2-C0L-59-71 8/22/96 (date)

(Authority for change in classification, e.g., the instruction number)

by [signature] 10/1/96 (date)

(Signature of person making the change)

verified by R June Barrow 10/4/96 (date)

(Signature of person verifying this is the correct document or media)

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21 May 1959

fired as a point source with the second shot consisting of the same yield fired as a distributed source, or the one ton closely tamped shot.

The pressure measurements to be made by LRL will be limited to pressures within the cavity walls, not in the actual cavity. Sandia, however, will measure pressures within the cavity, using sensing heads embedded in the face of the cavity walls.

The permanent displacement measurements mentioned in the summary are now redefined as cavity deformation measurements and will be made by LRL. The method of obtaining these measurements is still to be determined. The seismic program will rely on U. S. Coast and Geodetic Survey to operate the total stations. The spread stations will be operated by the company that owns the equipment, probably United Geophysical.

The acceleration program, to be run by Sandia, is more appropriately described as earth motion measurements. There is a possibility that this program will measure velocity and/or displacement of the medium in addition to acceleration. The final decision as to what measurements will be made will be based on the type and amount of equipment available at the time and with obtaining the best data possible as the project.

The distances from the sphere to the Sandia instrumentation, 20 ft., 40 ft. and 100 ft., apply only to the Phase II portion of the project. If Phase I is held, new distances will be determined by LRL.

Sandia will be responsible for emplacement and arming of the high explosives. It is possible that an X-unit will be used to fire the distributed charges, depending on further study.

Subsequent to the above agreements, the meeting was devoted to a discussion of general problems affecting the program. The first of these was concerned with site selection.

W. A. Hamilton presented a summary of an inspection trip to the four mines conducted during the previous week. Prior to the meeting it was decided that the sites in southern Louisiana were unacceptable from a seismic viewpoint because of typically marshy terrain. Therefore, the conversation was limited to a comparison of the sites at Hockley, Texas and Winnfield, Louisiana. A chart listing some of the major operational criteria for both sites is attached for reference.

In summary, it was agreed that the two sites were equal in technical considerations, and operation requirements would probably determine which of the two is to be used. Therefore, the owners of both sites will be approached to ascertain their willingness to cooperate.

J. Howen was requested to obtain DOA approval of immediately beginning negotiations with the two companies. These negotiations are to be on the basis

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of a five ton shot, as opposed to a 25 lb. figure to which the personnel on the initial inspection trip were limited.

The classification of the entire project is still not certain. Because of this, several suggestions were made as to how best to guard the details of the program. These suggestions, and the conclusions drawn, were as follows:

(1) Classify the seismic records - impossible because of uncleared seismic personnel;

(2) Classify the firing times - impossible as the uncleared seismic personnel would require prior notification;

(3) Classify the sphere geometry - impossible because uncleared contractor personnel will probably be used; and

(4) Classify the yields - probably the simplest method possible.

R. B. Petrie presented the preliminary construction plans that had been developed prior to the meeting. With the drawing of the proposed site layout as a reference, several changes were agreed to by the interested parties. These changes are listed below.

The six accelerometers employed with the sphere were relocated on a line parallel to the main entry drift and passing through the horizontal axis of the sphere. The distances to the three instruments on each side of the sphere remain at 20 ft., 40 ft. and 100 ft. Six parallel holes 75 ft. in length, will be required to emplace these instruments, drilled perpendicularly from the main entry drift. They will originate on the upper wall of the main drift to allow for approximately a three-foot drop and still terminate at the vertical center line of the sphere.

The "T" design at the end of the main entry drift is no longer required to accommodate the closely tamped vertical hole. Instead, pairs of vertical accelerometer holes will be drilled in the main drift at distances of 20 ft., 40 ft. and 100 ft. from surface zero. Depth of both the shot hole and the instrument holes was reduced to 100 ft., with the length of the main drift from the sphere access drift to the vertical shot hole increased to 200 ft.

A tentative time schedule was proposed allowing 90 days for construction and an additional two weeks for user occupancy. The representatives of participating agencies were polled, and all agreed that this schedule was possible.

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[redacted] 21 May 1959

Informal discussion accounted for the remainder of the afternoon, and the meeting was adjourned at approximately 3:30 P.M.

VERN DENTON
Group Leader
Test Operations

VD:ar
Enclosure: Site Comparison

DISTRIBUTION:

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F. Hohner, LosA
R. E. Miller, ALO
File

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SITE COMPARISON

Description	Hockley, Texas	Winnfield, Louisiana
1. Ground surface to mine floor	1600 ft.	811 ft.
2. Salt overburden	600 ft.	370 ft.
3. Size of dome	4 miles x 6 miles	1 mile x 1 mile
4. Geology	No visible rock (cap rock does exist)	Rock at surface (old geologically) USGS
5. Quality of Salt	Stock salt USGS 98.8 Mine 92-97	Table salt USGS no record Mine 99+
6. Surface workings	Bulk storage	Complete processing plant and quarry
7. Distance from Oil/Gas wells	More than 2 miles	None in vicinity (10 miles)(quarry)
8. Nearest highways	U.S.90, 10 miles away	U.S.167, 1/2 mile
9. Closest town	Hockley, 4 miles pop. 90	Winnfield, 6 miles pop. 6,000
10. Living site	Houston, 40 miles 1 hour	Winnfield, 2 motels 1 hotel
11. Quality of workings	Fair, elev. cap. 2-1/4 tons, power cap. low	Good, personnel elev. cap.4-1/2 tons to 5 tons salt and equip. elev. cap. 4-1/2 to 5 tons
12. Employee status	Non-union	Union
13. Exp. location available	Sites available if mine agrees to making some faces inactive	Inactive sites, possibly available
14. Interference	IRL work during off shift (8 hours, 6 days)	IRL work during off shift (6 hours, 5 days)
15. Shaft improvement required	Yes, hoist, stairs, tower ventilation	No
16. Normal size of shots	700# (3 x 700# occasionally)	200#
17. Mine water	None - don't want any	Water standing in small pools
18. Existing seismic data	Magnolia Oil Company rock seismic data for oil	None available