May 21, 1959

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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. Mackolla, LRL
- F. G. Preston, LRL
- W. Adams, LRL
- G. Werth, LRL
- W. Heckrotte, LRL
- Vera Denton, LRL
- B. B. Petrie, LRL
- W. Hamilton, LRL
- F. J. Warren, LRL
- M. Merritt, SC
- A. D. Thornborough, SC
- E. Murphy, SC
- H. C. Walker, SC
- T. Pierce, USCG
- S. Howell, MS
c- R. C. Barbert, MS
c- J. Rosen, DMA
- L. Ayres, SAN
- F. Hohner, USAEC, LosA Branch

A set of four documents was distributed to the conference attendees 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...
Classification/Unclassified (Reprint Date) Changed to

UNCLASSIFIED

[Handwritten note:]

R202-C02-59-71 8/22/96

by authority of

[Signature:]

F. J. pudding 10/4/96

[Signature:]

verified by

F. J. pudding 10/4/96
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 appropri-
ately 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 pro-
ject. 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 conversa-
tion was limited to a comparison of the sites at Bockley, 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 could probably:
take which of the two is to be used. Therefore, the owners of both sites will be
approached to ascertain their willingness to cooperate.

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

DISTRIBUTION:

G. W. Johnson
C. E. Violet
F. L. Adelman
J. H. Buckells
R. G. Preston
W. M. Adams
G. Worth
W. Heckrotte
R. B. Petrie
N. Merritt, SC
A. D. Thornborough, SC
H. C. Walker, SC
T. Pierce, USCamAGS
G. Howell, H and N
R. C. Herbert, H and N
J. Rosen, DMA
L. Ayres, SAS
F. Hohner, LosA
R. E. Miller, ALO
File

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