Plowshare Program Goals

G. C. Werth

March 13, 1967

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Work performed under the auspices of the U.S. Department of Energy by the Lawrence Livermore National Laboratory under Contract W-7405-ENG-48.
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TO: Division Leaders Working on Plowshare Program
FROM: G. C. Werth
SUBJECT: Plowshare Program Goals, 4 Quarter, FY 67

The purpose of this memorandum is to state the primary goals for the fourth quarter for each division working on the Plowshare Program. The assumption is made on this writing that Cabriole will not be fired. If Cabriole is not fired, it will mean that the excavation program is more-or-less in a standby condition moving forward only in the explosive development area. Except for that area, excavation effort should be rapidly shifted into underground engineering.

By primary goal, it is meant that these are the minimum goals that should be achieved by the end of the fourth quarter; i.e., the top priority objectives.

K Division

Gasbuggy - Close support to the Test Director in Field Execution, including refinements of Post-shot Program.

- Continued progress on the development of a gas production code and its use in interpretation of the pre-shot production and post-shot predictions of production for Gasbuggy.

- Continued progress on the understanding of cracking through use of SOCTENSOR codes applied to Gasbuggy.

Dragontrail - Preliminary operation plan complete.
Gas Stimulation - Report on explosive requirements for Gas Stimulation.

Copper Leach - Report on copper leaching by nuclear means. (Rabb)
- Support to SAN on Sloop Feasibility Study.

Gas Storage - Support to SAN on Ketch Feasibility Study.

Marvel - Hopefully underway for an August 1 detonation.

Excavation - Distribution of Radioactivity Report issued.

Pile-Driver - Exploration of Chimney Top underway if funds permit.

Manpower for fourth quarter - Not over 234 man months
Major Procurement for fourth quarter - 25 K - Gasbuggy, 125 K - Marvel
Equipment for fourth quarter - 35 K available for Gasbuggy

Radiochemistry Division

Gasbuggy - Development of Gas Sampling Program including coordination with PMD on equipment and analysis of pre-shot gas.
- Development of materials to add to explosive in order that the debris may be unclassified.

Gas Stimulation - Unclassified professional paper on expected radioactive concentrations under the assumption of various models including pre-and-post shot collapse entry of methane. Gasbuggy, Dragontrail, and Rulison used as examples. Paper suitable for presentation at a chemical society meeting.

Laboratory Measurements of Tritium-Methane exchange.
- Hydrocarbon add-on to Oakland analysis and interpretation.

Copper Leaching - Support to the K-Division report on copper leaching by nuclear means. (Rabb)
- Glenn Adams vs Pauls Adams
- With PMD a classified and unclassified review.
the KCC-ORNL copper leach plant design and assessment of the radioactivity problems of Sloop.

Marvel - If on August 1, support to K Division on not doing this

Switch - Support to A Division. Drill back is scheduled for July unless funds become available.

Manpower for fourth quarter - 66 man months (will charge less to accommodate RM)

Major Procurement for fourth quarter - none

Equipment for fourth quarter - completed

Refactory Materials Division (RM)

Gas Stimulation - Explore the concept that chemical modification of the fireball, with the intent of immobilizing the Tritium, may be possible. Initial calculations favor oxidizing the Tritium so it can be combined into stable compounds. The alkali metal hydroxides are stable even in the gaseous state; thus, the Tritium might be condensed directly from the cooling fireball. Both experimental and calculational work in this area will be initiated.

Switch - Support to A-Division.

Manpower for fourth quarter - 1 man month (will borrow from Radiochemistry allocation)

Major Procurement for fourth quarter - None

Equipment for fourth quarter - Completed

Process Material Development Division (PMD)

Gasbuggy - Continued progress on material properties relevant to the understanding of cracking. Continued close coordination with K Division.

- Continued development of equipment for gas sampling and use of such equipment in the field pre-shot.
Continued support to K-Division and Test Director on drill back, flaring and dilution problems.

- Hydrocarbon add-on to Oakland - Analysis and Interpretation.

Sloop - With RC, a classified and unclassified review of the KCC-ORNL copper leach plant design and assessment of radioactivity problems of Sloop.

- Switch - Support to A-Division.
- Marvel - Supply tracers.

Manpower for fourth quarter: 44 man months
Major Procurement for fourth quarter: none
Equipment for fourth quarter: completed

A-Division

Switch - Execute
Stoddard - Design

Heavy Element - Continue design for Stoddard add-on.

Manpower for fourth quarter: 78 man months
Major Procurement for fourth quarter: Additional Switch hardware - 50 K
Equipment for fourth quarter: none

B-Division

Gasbuggy - Explosive system including refrigeration equipment.

Switch - Explosive support to A-Division.
Marvel - Explosive if Marvel is scheduled for August 1.

Operational
System Analysis - Support to Test Director.

Manpower for fourth quarter: 84 man months.
Major Procurement for fourth quarter: 80 K if funds are transferred for Switch, 50 K Gasbuggy, 35 K Marvel.
Equipment for fourth quarter: none
L-Division

Gasbuggy - Services of Test Director on 1 Field Services individual
- Design of explosive performance check system.

Switch - Diagnostics and execution.

Marvel - If scheduled, assist K-Division in designing and fielding of explosive performance check system. The Genius experiment may be included as an add-on under normal add-on rules.

Scientific Experiment - Design of physics experiment.

Manpower for fourth quarter - 80 man months*
Major Procurement for fourth quarter - 50 K Gasbuggy, 30 K Marvel
Equipment for fourth quarter - completed

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GCW:pjp

* Probable reduction to 51 man months and convert 50 K to Major Procurements.