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VORTEX

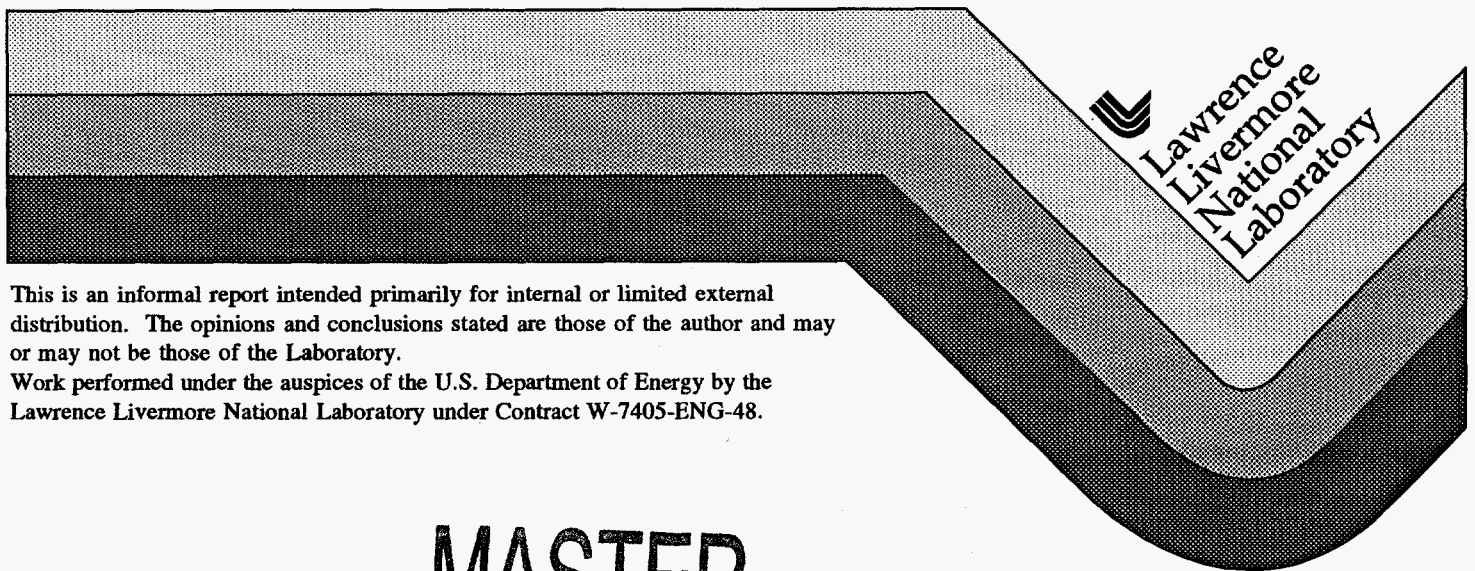
Progress Report for February 1959

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February 28, 1959



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Project Vortex - Progress Report for February, 1959

B. Crowley/L. O'Connell

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Preparation of the second increment of design criteria has been going forward and should be available for release to the A-E by the middle of March. This increment will include outline specifications and preliminary drawings for the following:

1. Containment Building details
 - a. Optics and diagnostics ports
 - b. Hatches
 - c. Process ventilation
 - d. Revised concrete structure specifications
2. Sphere
 - a. Flange and cover plate details
 - b. Probe mechanism

During February two visits were made to the A-E office, the primary purpose to resolve wide differences between project cost as estimated by LRL and the A-E. These differences have now been satisfactorily resolved.

On the second trip we visited Southwest Welding and Fabricating in Alhambra which has served Holmes and Narver as an estimating source for this project. Their facilities include a 2500 ton press with 5 ft. throat, an 84 inch vertical mill, a 16 ft. x 16 ft. x approximately 40 ft. heat treat oven with spray quench and radiographic and magnetic particle inspection.

Several interesting fabrications were in work and others currently under quotation were discussed by Gordon Munson, Sales, and Warren Vetter, Chief Engineer.

1. In Fabrication
 - a. 12 ft. I.D. x $4\frac{1}{2}$ " wall. Type 347 stainless steel vessel designed for 2000 psi for rocket fuel testing, "orange-peel" construction, maximum peel width about 4 ft, 137 passes of $3/16$ " rod required for production weld. Reputed cost about \$300,000.00.
 - b. About six stainless steel cylinders, 8 ft. I.D. x $2\frac{1}{2}$ " wall x about 60 ft. long, also for rocket fuel testing.
2. Under Quotation

A mild steel sphere, A212 material, 9 ft. I.D. x 8" wall, about \$60,000.00 F.O.B. Santa Fe.

Vetter claims shop capability up to 3" thick T-1 alloy and estimates approximately twenty passes of $3/16$ " rod for the production weld.

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FEB 11 '63 NY

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ENGINEERING NOTE

END 44-59

2

Project Vortex - Progress Report for February 1959

B. Crowley/L. O'Connell

February 28, 1959

Test Work:1. Basic Design Data

No shots fired. S-10 (5 $\frac{1}{2}$ #) and S-11 (6#) are assembled.

2. Shrapnel Damage and Chemical Recovery

1504 -- 1 $\frac{1}{2}$ # H.E. equivalent Wren hydro device fired 2-5-59.

1514 -- 3# H.E. equivalent Wren hydro device ordered for delivery in April.

1515 -- 3# H.E. equivalent Robin X-1 hydro device ordered for delivery in April.

The spare 4' sphere of SA 285C is 80% complete.

3. Jet Control Study

1506A - Optical shot fired 2-5-59.

1507C - Optical shot fired 2-13-59.

1502 -- Robin 'A' hydro device assembled in ready magazine.

1503 -- Robin 'B' single ended hydro device assembled in ready magazine.

4. Sphere Support Study

1510 -- A(1 $\frac{1}{2}$ #), B(1#), & C(1 $\frac{1}{2}$ #). Bare H.E. charges fired 2-18-59, 2-19-59, and 2-20-59, respectively, in snow with 4' sphere supported on tangential shock mounts.

1511A - 1 $\frac{1}{2}$ # bare H.E. charge fired 2-27-59 in snow with 4' sphere supported on radial shock mounts.

1511 -- B(1#) & C(1 $\frac{1}{2}$ #) assembled. To test same mounts as 1511A.

1512 -- A(1 $\frac{1}{2}$ #), B(1#), & C(1 $\frac{1}{2}$ #) assembled. To test radial shock mounts on 4' sphere in air.

1513 -- A(1 $\frac{1}{2}$ #), B(1#), & C(1 $\frac{1}{2}$ #) assembled. To test tangential shock mounts on 4' sphere in air.

ENGINEERING NOTE

END 44-59

3

Project Vortex - Progress Report for February 1959

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5. Scale Verification

- 1508 -- 14 bare H.E. charges (scaled versions of charges fired in 4' sphere) to be fired in 2' sphere in snow. 80% complete.
- 1509 -- 14 bare H.E. charges (scaled versions of charges fired in 4' sphere) to be fired in 2' sphere in air. 80% complete.
- 1517 -- 14 bare H.E. charges (scaled versions of charges fired in 4' sphere) to be fired in 3' sphere in snow. Ordered.
- 1518 -- 14 bare H.E. charges (scaled versions of charges fired in 4' sphere) to be fired in 3' sphere in air. Ordered.

Two 3' spheres of SA-285C were ordered for delivery in April.

6. Cable Entry

Tests of the four different schemes for sealing diagnostics cables have been designed and the parts ordered. They should be statically tested in March and dynamically tested in April.

7. Chemical Engineering Sphere

The 19" I.D. sphere was hydrostatically tested and is scheduled for dynamic testing with five 100 gram H.E. charges in early March at Site 300.

8. Snow Particle Size

In order to learn the effect of snow particle size on shock attenuation, three new sets of cutting blades were ordered for the ice crushing machine. The actual snow particle size resulting from each blade will be measured and then the shock attenuation effect will be tested in the 4' sphere.

1519 -- 16 (1# & 2#) bare H.E. charges have been ordered.

WBC:LOC:da

Distributions:

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