LETTER REPORT

April 13, 1981

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Contract Program or Project Title: INVESTIGATION OF VENTILATION COMPONENT RESPONSE TO LARGE-PRESSURE PULSES

Subject of this Document: Progress reported for February

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Responsible NRC Individual and NRC Office or Division

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NRC Research and Technical Assistance Report

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Prepared for
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Washington, D.C. 20555

NRC FIN NO. A7028

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LETTER REPORT

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IN REPLY
REFER TO: WX-8-4158 (R295)
MAIL STOP: 777

April 13, 1981

Mr. D. E. Solberg, Chief
Systems Performance Branch
Division of Safeguards, Fuel Cycle
and Environmental Research
US Nuclear Regulatory Commission
MS 1130SS
Washington, DC 20555

NRC Research and Technical Assistance Report

Dear Don:

SUBJECT: R295 MONTHLY PROGRESS LETTER FOR FEBRUARY 1981--INVESTIGATION OF VENTILATION COMPONENT RESPONSE TO LARGE-PRESSURE PULSES

We are continuing to use the monthly report format introduced last month. Please let us know if you have any questions or comments.

Sincerely,

W. S. Gregory

H. L. Horak

WSG/tg

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PROGRAM STATUS REPORT

TITLE: Experimental Evaluation of Ventilation System Components During Large-Pressure Pulses

PROJECT NO: R295

FIN NO: A7028

CONTRACTOR: Los Alamos National Laboratory

MONTH COVERED: February 1981

BUDGET STATUS: Annual Budget $260 k (includes FY 1980 carryover of $250 k and planned carryover to FY 1982 of $65 k)

Monthly spending	:	$ 12.9 k
Cumulative Spending:		$119.0 k
Funds Remaining	:	$141.0 k

I. PROGRAM DESCRIPTION

The objective of this program is to experimentally evaluate the performance of ventilation system components subjected to simulated tornado environments.

The high-efficiency particulate air (HEPA) filter is considered to be the most crucial ventilation system component for maintaining the confinement of radioactive particulates. Therefore we selected this component for initial study and evaluation. We have determined the structural response of standard nuclear-grade HEPA filters for major tornado parameters (peak pressure, pressurization rate, and duration) and major filter characteristics (pack tightness, air flow direction, pack thickness, separator type, faceguards, particulate loading, manufacturer, and medium strength).

In FY 1981 we will determine the filtration efficiency of these filters for simulated tornado transients. Other components to be evaluated in FY 1981 are centrifugal fans, axivane fans, dampers, and protective valves.

II. HIGHLIGHTS/SIGNIFICANT MONTHLY ACTIVITITES

Damper Testing - We have decided to do the quasi-steady tests of the inlet-vane damper as part of the 24-in. blower tests. This is a more efficient use of the facility at New Mexico State University (NMSU). The inlet-vane damper must be tested with a fan in place.

Blower Testing - Dynamic testing (simulated tornado response) of the 24-in. centrifugal blower is in progress at NMSU. The steady-state tests and flow calibrations have been completed. Preliminary dynamic tests simulating tornado pressure transients at the exhaust side of a blower are currently being conducted to identify any instrumentation problems and establish test parameters for simulating several tornado models.

Data Acquisition - The design for the axial fan speed transducers is complete. A method of mounting the toothed wheel on the shaft centerbores is being tried and, if successful, it will provide a universal method of mounting.

Modifications to the new sequences have been planned to incorporate a single system clock for any experiments monitored by the PDP11/CAMAC system. These changes will provide synchronization and sequence control of cameras and lights in addition to providing time markers for the computer.

III. PROGRAM DEVELOPMENT VARIANCE

There were no significant program development variances this month (see Fig. 1).

IV. BUDGET VARIANCE

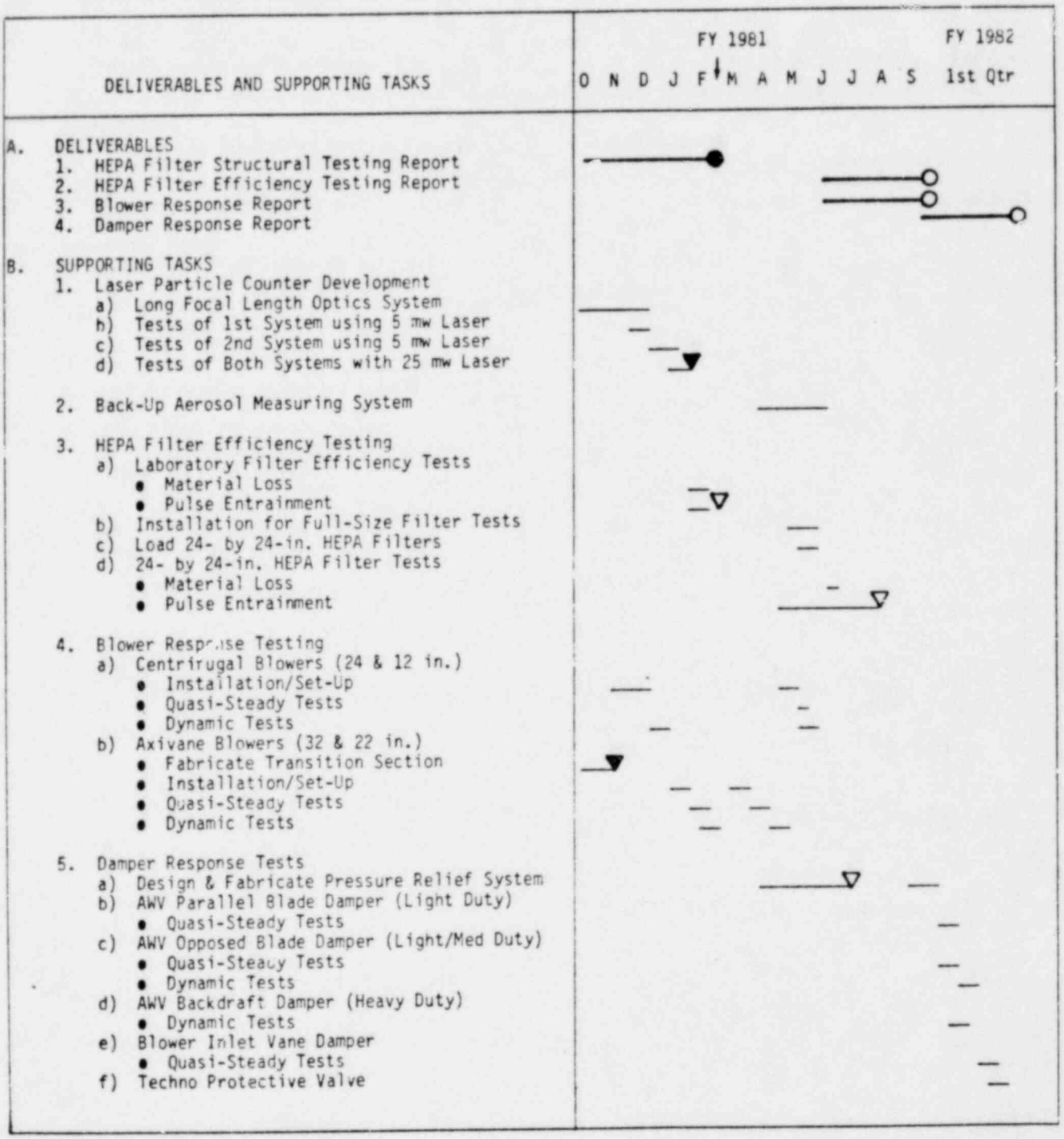
The actual and planned budgets are shown in Fig. 2. This month our cumulative budget is running $19.0 k under the planned budget. As reported

last month, this is caused mainly by a change in the timing of the NMSU subcontract billing.

V. PROBLEMS AND ISSUES

At this time we have no problems or issues to discuss.

Fig. 1.
FY 1981 PROGRAM DEVELOPMENT SCHEDULE



LEGEND

- ○ Topical Report, ● Topical Report Completed
- △ Progress Report, ▲ Progress Report Completed
- ↓ Time Now
- ▽ Intermediate Milestone
- • Identification of Task Causing Variation
- ___ Activity Line
- --- Scheduled Variation

POOR ORIGINAL

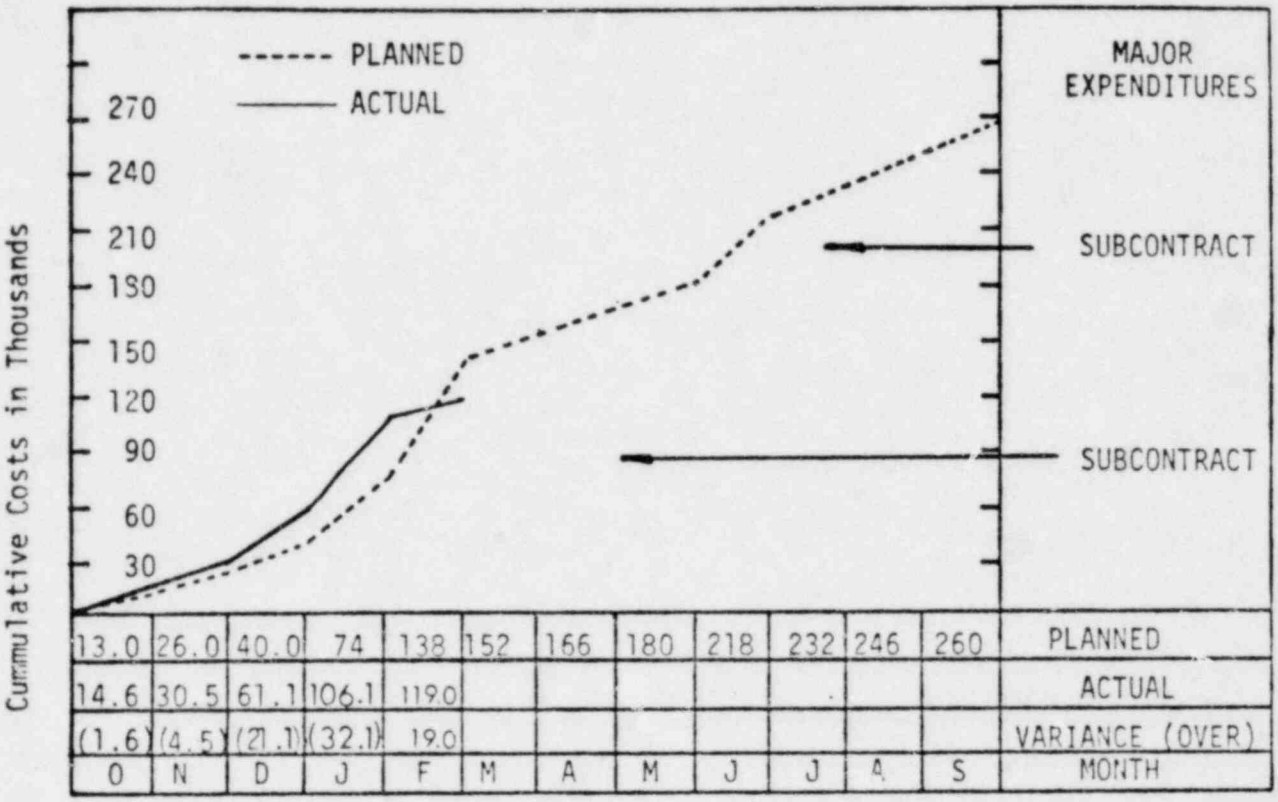


Fig. 2.
OPERATING COSTS IN THOUSANDS