

University of California



LOS ALAMOS SCIENTIFIC LABORATORY

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In reply refer to: LS6-80-635

Mail stop:495

December 10, 1980

Mr. John Peel
Idaho Operations Office
550 2nd St.
Idaho Falls, ID 83404

Dear John:

Enclosed are the Monthly Reports on those projects under you low-level waste program.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jim'.

James G. Steger
LS-6 Alternate Group Leader
Environmental Science Group

JGS:tj

Enc: Monthly Report
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1814 Report



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MONTHLY PROGRESS REPORT
LOW-LEVEL WASTE MANAGEMENT PROGRAM

D3-Model SLB Site
D13-Remedial Action Testing
D28-Shallow-Land Burial Barriers-Migration
D29-Biological Intrusion Barriers for SLB Sites
D41-LASL Disposal Site Studies
D47-Arid Site Closure
D50-Alternatives Studies

LOW ALAMOS SCIENTIFIC LABORATORY
ENVIRONMENTAL SCIENCE GROUP LS-6

Work performed for

DIVISION OF WASTE MANAGEMENT
US DEPARTMENT OF ENERGY

University of California



LOS ALAMOS SCIENTIFIC LABORATORY

MONTHLY PROGRESS REPORT - LOW-LEVEL WASTE MANAGEMENT PROGRAM

November 1980

D3-Model SLB Site

ZIA Co. (the Laboratory's support contractor) has been on strike for two months. This has prevented any construction activity from taking place, which has led to our cost underruns. It has also caused us quite a bit of additional work in changing plans, rescheduling activities, and trying to find off-site contractors to fill our needs. When the strike situation stabilizes, we will provide revised schedules to you.

The site fencing plan has been delivered to the contractor and fencing should begin in the near future. The site perimeter and archaeological ruins will be fenced with a 5-strand barbed wire fence and an equipment storage area will be enclosed with a security fence. A general site development plan has been completed. The design work on the experiment clusters is continuing.

D13-Remedial Action Testing

Literature work for information relevant to the moisture cycling experiment design, construction, and interpretation is in progress.

D28-Shallow-Land Burial Barriers-Migration

A method for determining the saturated hydraulic conductivity of intact tuff cores has been evaluated and used to determine the conductivity of several tuff core samples. To support our design effort on experiments for the Model SLB Site, New Mexico State University personnel and attendees of the National Meeting of the Soil Science Society of America were consulted.

Down-hole field instrumentation for soil water, temperature, and bulk density measurements has been procured.

D29-Biological Intrusion Barriers for SLB Sites

Perimeter fencing of the small scale plant intrusion study plot has been initiated and will consist of 6-strand barbed wire with a two foot vertical extension to keep large animals (i.e., mule deer) from entering and destroying the vegetation plots. All equipment and materials required for constructing the small scale test plots are scheduled for delivery by January 1981.

Vegetation species were selected to evaluate bio-barrier effectiveness in limiting root penetrations based upon rooting and growth characteristics. Species suitable for the study are alfalfa (Medicago sativa), a perennial, yellow sweet clover (Melilotus officinalis), a biennial, and barley (Hordeum vulgare), an annual. All three species are fast growing and deep rooted to maximize biological stressing of the bio-barrier within the time constraints placed on the study.

Since final recommendations on biological intrusion barriers must be based on both the plant and animal intrusion studies, we consider it essential that some animal intrusion experiments be initiated along with the small scale plant intrusion experiments.

These small-scale (1.5 x 1.5 x 2m) animal-proof cover plots will be excavated and filled with the same materials and configuration as used in the plant intrusion studies. Burrowing animals will be introduced into the plots and will be allowed to establish burrow systems in the experimental cover profiles. Burrow systems will be excavated and mapped to determine the effectiveness of the bio-barrier. The plans for constructing the animal intrusion plots are now being finalized.

D41-LASL Disposal Site Studies

Field instrumentation was installed, which will be used to observe tritium movement along with information on temperature, pressure, and moisture to determine how these factors affect tritium transport.

Work continues with the map making contractor. Almost all of the problems we had with the first set of master prints have been resolved.

We met with Y. Onishi, PNL, to finalize FY81 modeling work. This year (in conjunction with the TRU program), we expect to be able to add an atmospheric and unsaturated transport models to the biological and surface transport models already underway.

D47-Arid Site Closure

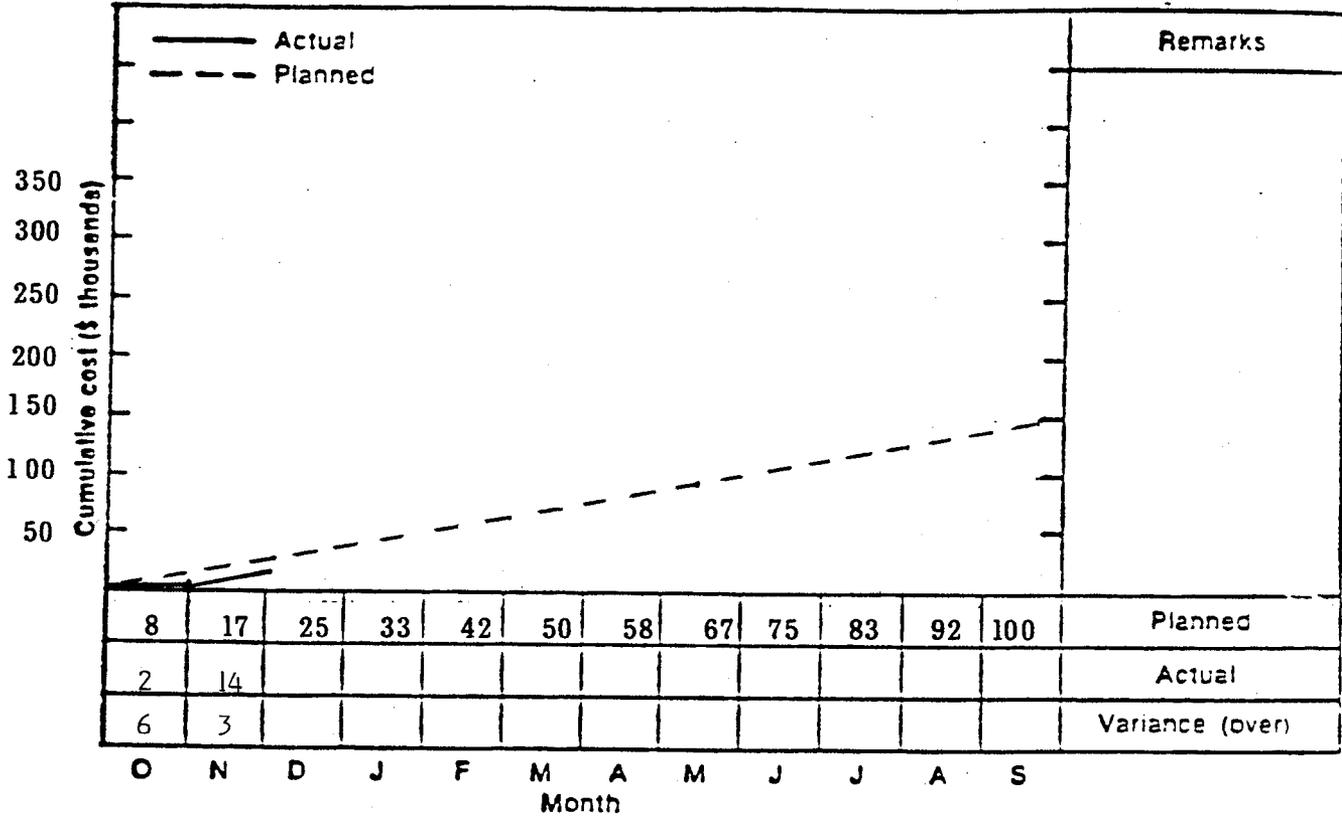
As reported last month the background information being collected and evaluated for the other experiments will be applied to these arid site closure experiments.

D50-Alternatives to SLB

A report from the University of Texas on intermediate depth burial, and a report from the University of Arizona on mined cavities have been received and are being reviewed. A report by Wheeler, Trocki, and Perkins on, "An Evaluation of Alternatives to Shallow-Land Burial for Disposal of Low-Level Radioactive Waste" has been prepared and is in editing.

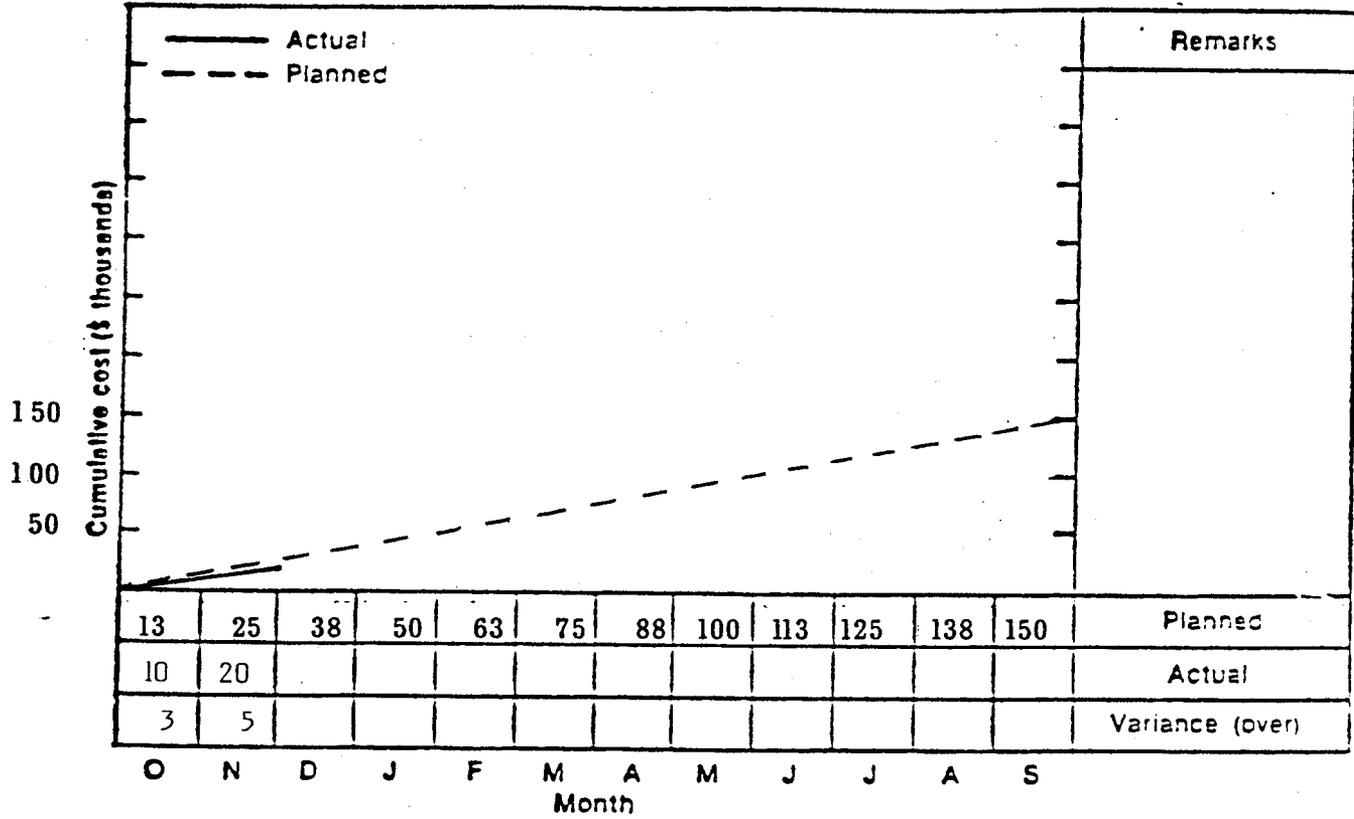
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Operating Dollars in Thousands (BO)



Title D28 Shallow Land Barriers-Migration B&FC No. AL 3.5.4 AR
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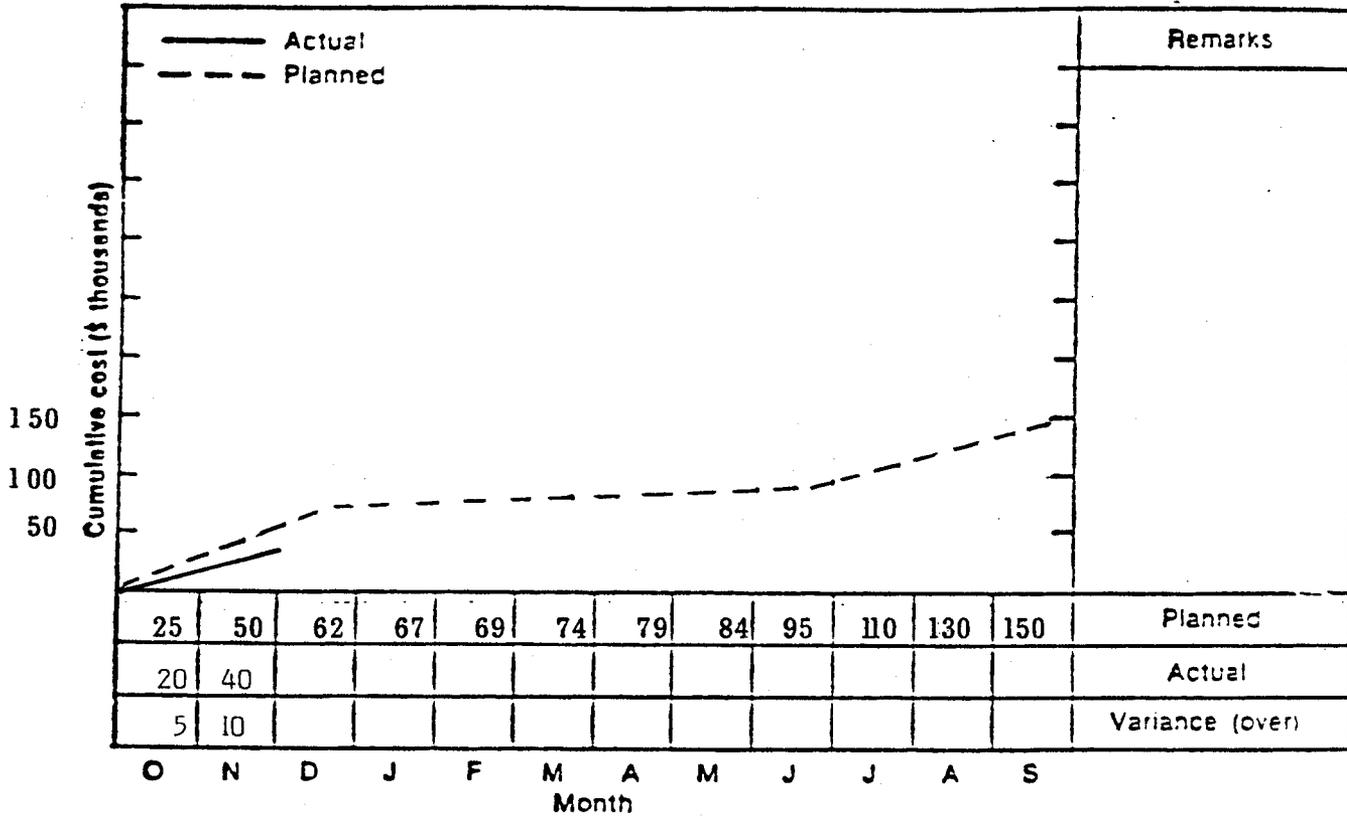
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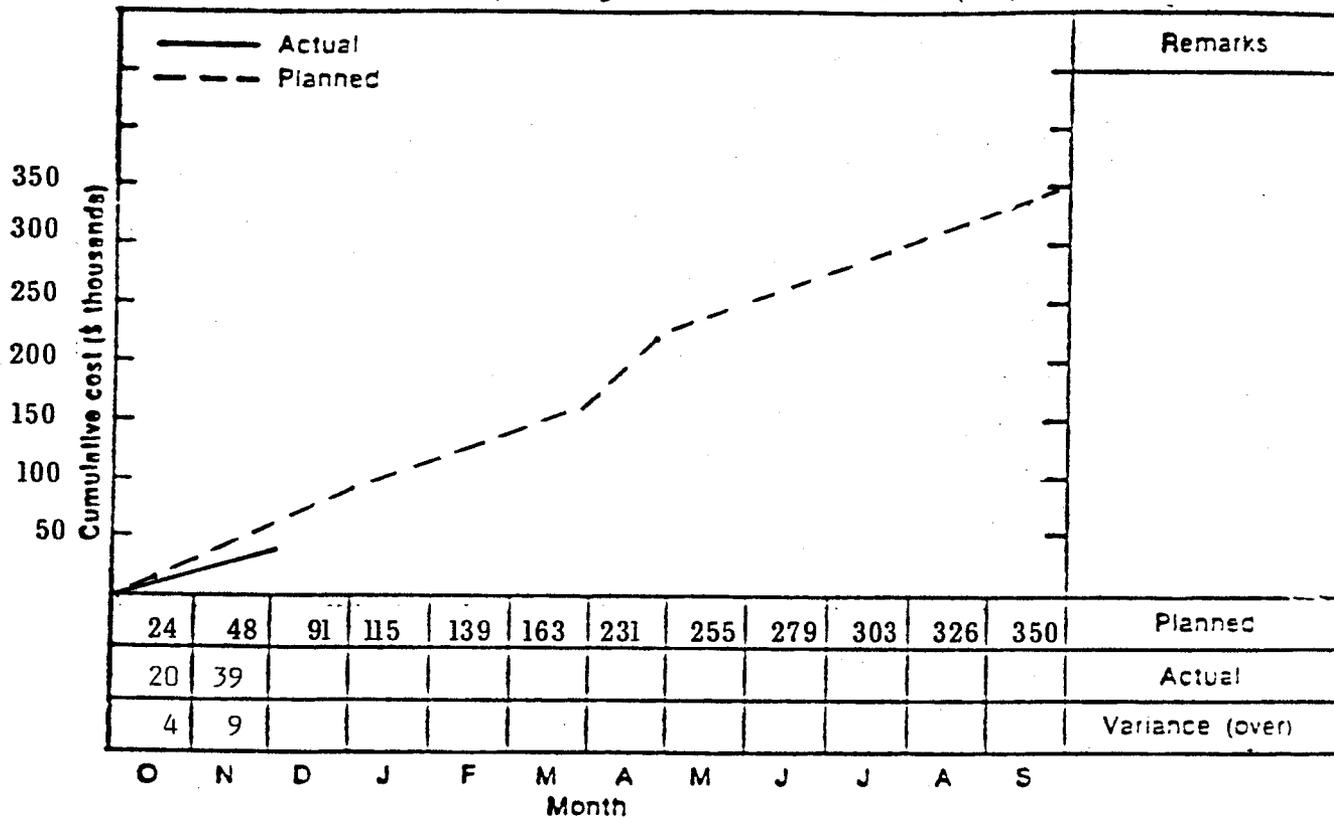
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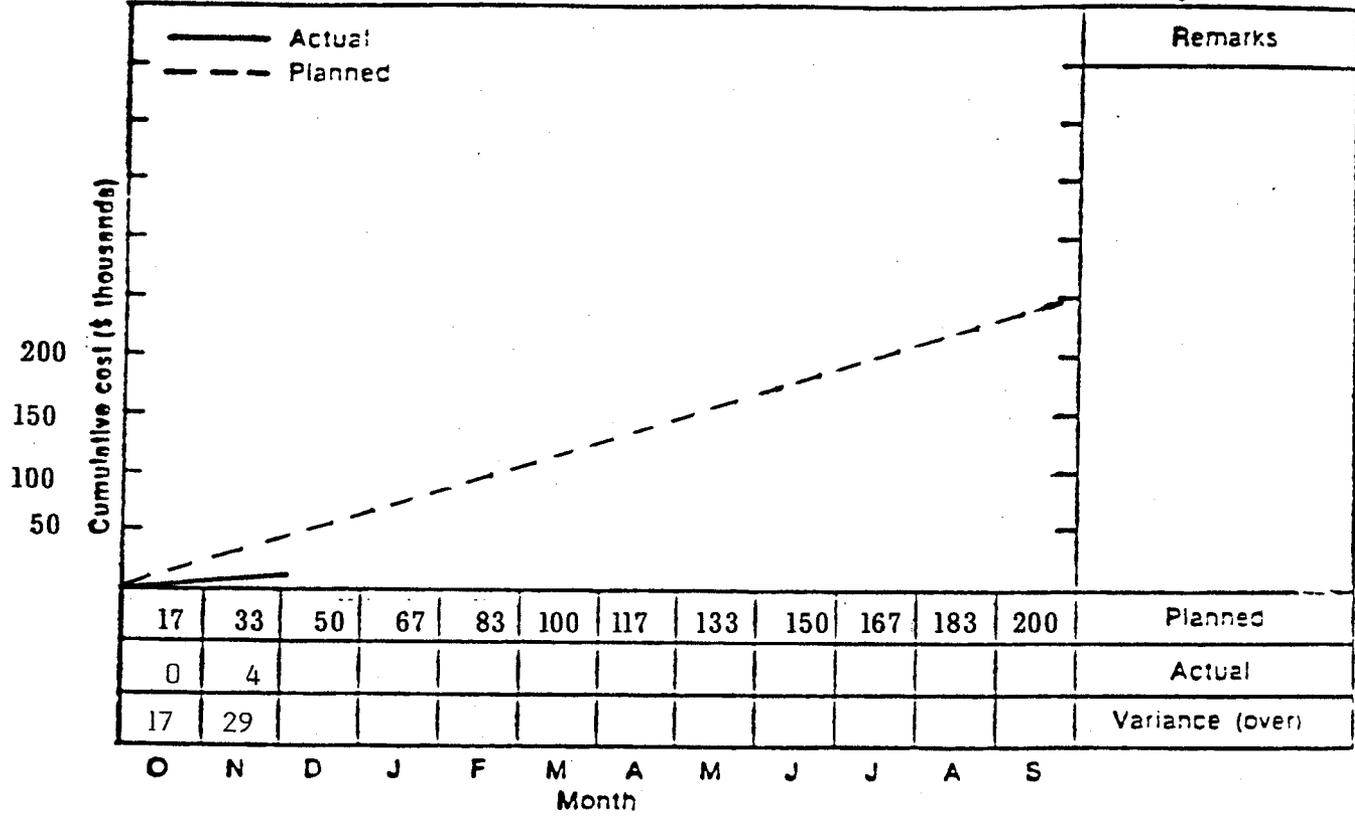
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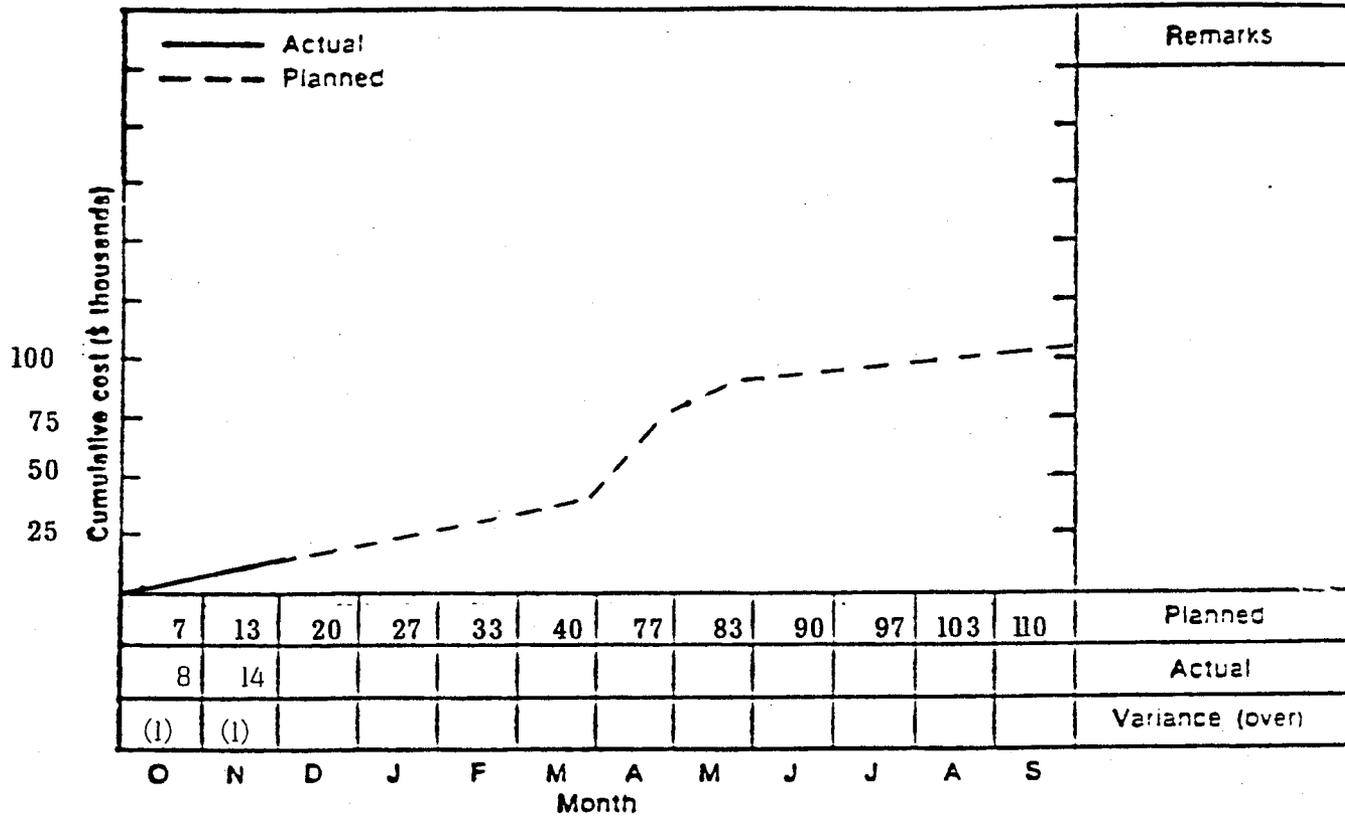
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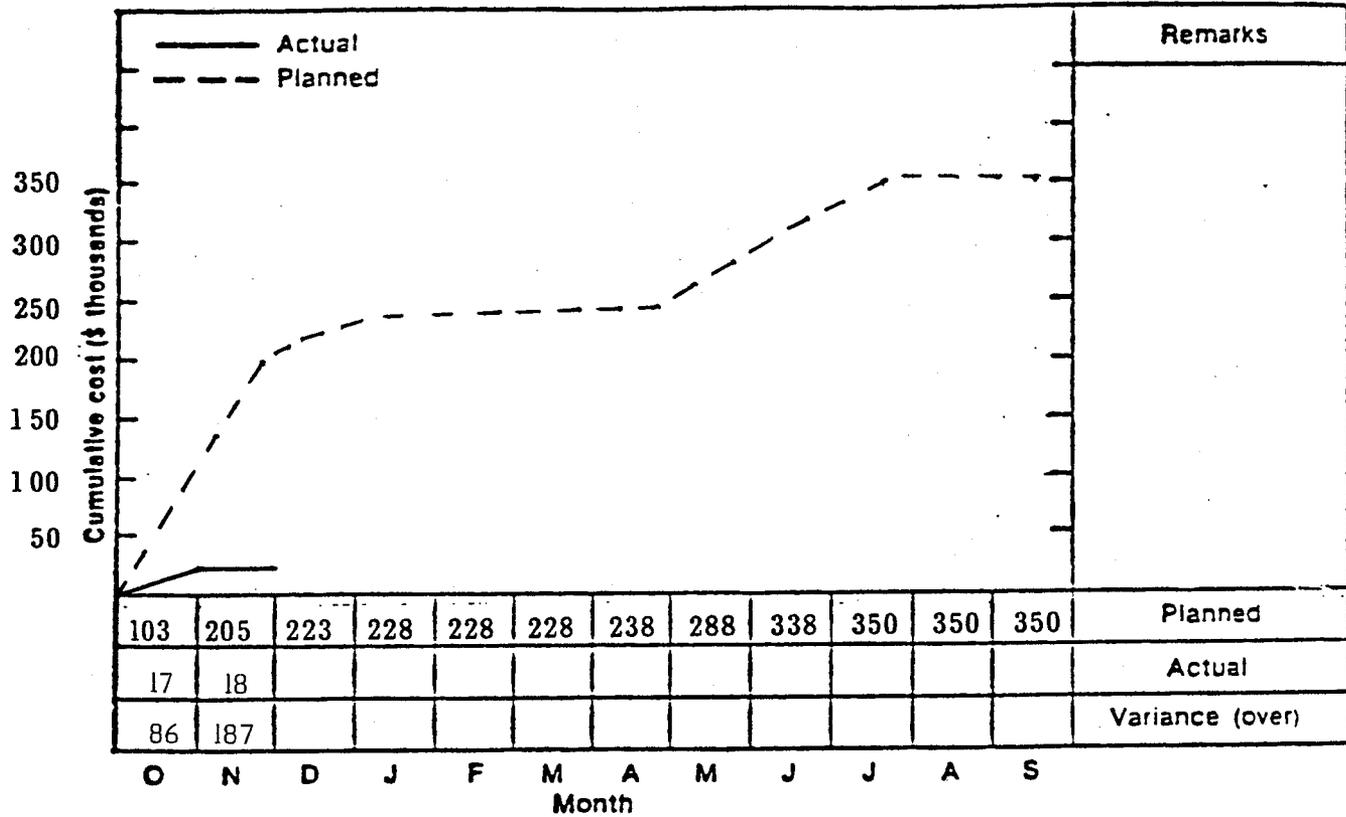
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