INTERIM REPORT

Accession No.	_
LO-MR-004	_

Contract Program or Project Title: LOFT Program

Subject of this Document: (Title) "LOFT Montly Progress Report for February 1980"

Type of Document: Monthly Report

N. C. Kaufman, et al Author(s):

Date of Document: March 1980

Responsible NRC Individual and NRC Office or Division: G. D. McPherson

This document was prepared primarily for preliminary or internal use. It has not received full review and approval. Since there may be substantive changes, this document should not be considered final.

> Prepared for U.S. Nuclear Regulatory Commission Washington, D.C. 20555

> > INTERIM REPORT

NRC Research and Technical Assistance Report



Report No. LO-MR-004

Date: March 1980

INTERNAL TECHNICAL REPORT

Title: LOFT MONTHLY PROGRESS REPORT FOR FEBRUARY 1980

Organization: LOFT Program

Author: N. C. Kaufman, LOFT Program Director

M.L.

Checked By Mahr

Approved By:

Courtesy release to the public on request.

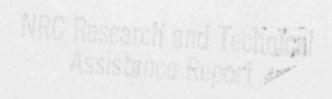
This document was prepared primarily for internal use. Citation or quotation of this document or its contents is inappropriate.

POOR ORIGINAL



CONTENTS

DIRECTOR'S MONTHLY SUMMARY		1
ACCOMPLISHMENTS		2
LOFT OPERATIONS		7
OFT EXPERIMENTAL MEASUREMENTS	* *	7
LOFT FUEL FABRICATION		10
LOFT TEST SUPPORT		11
SUMMARY OF AUSTRIAN-FUNDED (SGAE) TASKS		16
SUMMARY OF NETHERLANDS-FUNDED (ECN) TASKS		16
SUMMARY OF GERMAN/JAPANESE SHARED TASKS		17
SUMMARY OF GERMAN-FUNDED (FRG) TASKS		17
SUMMARY OF JAPANESE-FUNDED (JAERI) TASKS		17
PERFORMANCE ANALYSIS		91
FIGURE		
1. LOFT management summary schedule		19
TABLES		
 Foreign-funded Cost and Summary Schedule		198
2. LOFT FY-80 Summary Budget Status Report Nuclear Regulatory		
Commission		92
3. LOFT FY-80 Summary Budget Status Report of LOFT Foreign Funds		93
4. February Change Control Board Actions		94
I OFT Capital Equipment Status Peport		O.F.



LOFT MONTHLY PROGRESS REPORT FOR FEBRUARY 1980

DIRECTOR'S MONTHLY SUMMARY

The significant event of February was the on-schedule conduct of Test L3-2 on February 7. This was the second LOFT small break test with nuclear heat. It simulated a break of a one-inch pipe in a large commercial plant, whereas Test L3-1 had simulated a break of a four-inch pipe. For Test L3-2, the reactor plant and emergency core cooling system appeared to function as expected, although preliminary data evaluation indicates a higher break flow than expected, with a correspondingly greater depressurization. As the month ended, data evaluation was continuing.

During February, Nuclear Regulatory Commission guidance was received that would require Tests L3-5 and L3-6 to use nuclear heat. Previously these tests, the next planned tests, had been designed as nonnuclear tests with and without operating coolant pumps. This revised guidance will require a replanning of the entire program schedule for better facility use. At the end of the month, replanning was underway.

Costs for February are right on budget, although manpower levels are somewhat greater than budget. This latter variance results from an intentional manpower-material interchange.

ACCOMPLISHMENTS

LOFT TECHNICAL SUPPORT

- Loss-of-Fluid Test (LOFT) loss-of-coolant experiment (LOCE) L3-2, a small break test, was successfully conducted the evening of February 6, 1980.
- The LOFT Technical Support Center has been established and was used effectively for test monitoring during the L3-2 experiment.
- Initial operational evaluation and suggested improvements to the first set of augmented operator capability (AOC) computer displays have been performed.
- 4. Work has started on the software necessary for upgrading plant log and surveillance system (PLSS) computer data logging capabilities. The upgrading will include compressed data storage, real-time trend plotting, and post-incident recall.
- Improvements have been initiated in existing PLSS computer paged data displays. These improvements include better organization of data and the addition of measurement descriptions to the displays.
- 6. The experiment safety analysis (ESA) was initiated for LOFT tests L6-1, -2, and -5.
- 7. Planning discussions were conducted to define the scope and schedule for the LOFT multiple-fault analysis. The work distribution between EG&G Idaho, Inc., and JBF Associates, Inc., is nearly finalized.
- 8. The LOFT safety analysis power distribution for LOCE L2-5, Mode 8, (low-flow, full-power conditions) was computed and transmitted to the thermo-hydraulic task of the LOFT Reactor Systems Branch (LRSB).

- 9. The waste gas processing system (WGPS) safety analysis report (SAR), which resolved Department of Energy - Idaho Operations Office (DOE-ID) concerns, was submitted to DOE-ID for approval.
- 10. The final recommendations of the Technical Advisory Group (TAG) were issued to EG&G management. The recommendations identified deficiencies and potential upgrades of the emergency preparedness of Test Area North (TAN) and LOFT.
- 11. A blowdown analysis was initiated to determine the safety significance associated with the removal of the reflood assist bypass valves (RABVs).
- 12. The ESA off-nominal "as planned" analysis to 1100 seconds for the conduct of the L3-4 test was completed.
- 13. Assembly of the spare 110-degree downcomer was completed.
- 14. Procurement activities for the upper support structure of reload core II are continuing on schedule. Actual fabrication is scheduled to start in March 1980.
- 15. Assembly activites have started on the A-3 fuel module.
- 16. Fabrication of all parts required for the transit time flowmeter rake was completed. The operator qualification program for the thermocouple braze buttons was developed and implemented. The assembly operations, however, were placed on hold, pending further evaluation of the rake's ability to measure low-flow conditions during small break tests.
- 17. Development of procedures and the work package required for checkout of the equipment needed to perform the phase III fuel examination was

- completed. Training of personnel in the TAN-607 high bay training facility is scheduled to be completed by March 21, 1980.
- 18. For the downcomer stalk removal cask, two of the five fabrication and assembly site work release (SWRs) were released to EG&G Manufacturing Division (EMD), and fabrication activites have begun.
- 19. Fabrication of equipment for the LOFT air sweep system has been delayed, pending a decision on whether the work should be done by EMD or by construction. This is not expected to affect the completion date.
- 20. Final drawings were completed for the LOFT fuel storage rack, but sign-offs are being delayed pending completion of a seismic analysis of the support column. Procurement is scheduled to start in March 1980.
- 21. Design of the boron charging system for the fuel module irradiated cask (FMIRC) coolant was completed, and a final design review is scheduled for March 6, 1980.
- 22. Design of the cover, underwater lighting system, and support equipment for the irradiated fuel storage facility (IFSF) was completed, and a design review is scheduled for March 6, 1980.
- 23. Preliminary reports for the operational diagnostics and display system (ODDS) have been received for the L3-2 test. They will be combined and submitted as a final report.
- 24. The ODDS budget for fiscal year 1980 has been reworked and is being input to update the project management system (PMS).
- 25. A video tape and slide program of ODDS displays of the L3-2 test data was prepared for presentation at the LOFT Program Review Seminar in Salt Lake City.

- 26. The Dunn hard copy system has been installed on the Prime computer system and is operational.
- 27. A task has begun to update the reliability and failure analysis of the plant protection system (PPS).
- 28. The accuracy analysis of LOFT instrumentation is continuing. Analyses of crucial PPS and primary coolant system instrumentation and electrical (I&E) channels have been submitted for review.
- 29. A conceptual design for a compensated PPS pressurizer level instrument has been completed, the materials ordered, and a preliminary software and hardware design review date set.
- Installation of filters in the air lines to the containment personnel airlocks was completed.
- 31. A revision to specification P-2 (valve lists) was issued.
- 32. Redesign of the access platform of the polar crane was completed. The redesign was made to comply with the recommendations of the conceptual design review committee.
- 33. The snubber test stand acceptance test was delayed by a malfunction in the active limit system of the test stand. Modification of the microprocessor unit is underway to resolve control problems encountered in the active limit system. Delay of the acceptance test will delay delivery of the test stand one month, until about April 1, 1980.
- 34. A memo was completed showing LOFT class 1 system fatigue status, as of February 4, 1980. The method of evaluation used is based on a "weak-link concept" and is very conservative for some components. The cycle count indicated that a considerable amount of fatigue life remains. The task to improve methods of tracking and documenting fatigue life status of LOFT class 1 piping and components is continuing.

- 35. Design of the gamma densitometer spool piece for use in tests L3-4, -5, and -6 has been redirected for the unit to function in a nuclear test environment.
- 36. System Design Description (SDD) 1.2.12, "Containment Vessel Structure and Dolly Support Foundation", was approved by DOE-ID in February. Thirty-three design descriptions (DDs) are in the LOFT approval chain, with many DDs nearly ready to submit for DOE-ID approval.
- 37. The new thermal printer for the facilty temperature monitoring (FTM) system has been installed, but software requires further "debugging". Work on the FTM SDD is in progress.
- 38. The work package is complete for installation of the meteorological recorder. Actual installation is awaiting a Davis-Bacon ruling to determine which organization will perform the work. Work on the meteorology system DD is in progress, and a recommendation will be made for interfacing meteorological data with the Prime computer.
- 39. Two-out-of-three (2/3) logic coincidence is being installed for the high-pressure injection system (HPIS) and low-pressure injection system (LPIS) pressure signals. This system will require that two-of-three PPS pressure channels be tripped before emergency core cooling (ECC) action occurs.
- 40. The isotope detection system (IDS) is in the conceptual stage, and the conceptual SDD has been written.
- 41. Drawings were completed for SWRs covering the meterological instrumentation waste gas systems cabinet and covering installation of cabling for the small break loop.
- 42. Gathering cost estimate information was completed to support the conceptual design effort to upgrade utilities at TAN/Test Support Facility (TSF) and the Water Reactor Research Test Facility (WRRTF).

43. Loads, size of circuit breakers, size of conductors, and the currents were verified on vital panel boards for the vital power load study. The total study is to determine actual demand vs. rated demand and to determine if additional load capacity is required. Testing is performed, as required, and the LOFT technical report (LTR) has been started that will document the results of the vital power load study.

LOFT OPERATIONS

- The final phases of the L3-2 experiment operating specification (EOS) were completed.
- 2. The second nuclear small break experiment (L3-2) was performed.
- 3. The plant recovery and requalification following L3-2 were performed.
- 4. The LOFT plant was drained, and the work window was opened.

LOFT EXPERIMENTAL MEASUREMENTS

- The modular drag disc turbine transducer (MDTT) prototype period electronics were delivered, operational tests conducted, and the data is being evaluated to determine overall performance.
- Two B3 range MDTTs and two dummy modules scheduled for use in the Exxon flow test program were completed and shipped to Exxon.
- 3. Two drag disc modules and a turbine module are being fabricated for use in a LOFT Experimental Measurements Branch (LEMB) data analysis program. One drag disc is complete and the other two components are nearing completion.
- A rough draft of operation and maintenance manual (OMM 141-26) on the pump speed probe was completed.

- Specification ES-60320 was finalized and released for design of a nuclear hardened densitometer at the PC-3 location.
- A meeting was held to discuss the history of the nuclear hardened gamma densitometer system.
- 7. Ten discrete component preamps have been fabricated for the gamma densitometers and will be tested at Test Reactor Area (TRA).
- 8. The liquid level transducer (LLT) operation and maintenance manual (OMM 141-13) was revised and routed for approval.
- Thormocouples for the S/N 003 transit time flowmeter (TTF) rake were fabricated, brazed into stainless steel mounting cups, and response matched.
- 10. The pulse neutron activation (PNA) system hardware operated satisfactorily during the LOFT L3-2 experiment.
 - Analysis of the data is currently being evaluated, but initial indications are that the PNA flow results are marginal. Flow rates in the hot leg intact loop were determined, but the signal-to-noise ratio was peor; hence the confidence level is low.
- 1]. Preliminary true mass flowmeter (TMFM) measurement system cost and schedule estimates were completed. The total cost will be about \$250,000, and the time will be about 50 weeks including manufacturing feasibility study.
- 12. A meeting was held to discuss suggested changes in the instrumentation planned for the Fl, A4, and A5 bundles. This resulted in a proposal to modify the LOFT core instrumentation by the Fuel Design and Analysis Branch.

- A presentation on handling and installing core instrumentation was given to Exxon personnel in addition to revising specification INC-60040.
- 14. Testing of the production linear variable displacement transducer (LVDT) at Hanford Engineering Developmental Laboratory (HEDL) was completed. This testing defined the cause of the temperature sensitivity to be material differences in the sensing core.
- 15. Six model A and three model B centerline thermocouples were delivered to Exxon Nuclear.
- 16. All zircaloy cladding thermocouple work has been officially stopped pending Change Control Board (CCB) approval for additional funds.
- 17. Test Area North (TAN) Manufacturing has determined a technique for freezing 14-inch pipes for debris control during drilling. Target date for installing permanent thermocouples in the blowdown system is between tests L3-3 and L6-3. A proposal will be submitted to LEMB.
- 18. The test L3-2 EDR has been reviewed and initial condition and operating uncertainties submitted.
- 19. The test L3-2 data integrity review committee and data reduction efforts were supported. This activity is now 95% complete.
- 20. A technical paper entitled, "Analysis of a Transient Load Measuring System", was completed and will be presented at the Instrument Society of America (ISA) conference in Seattle in May.
- 21. Wyle data integrity review continued. This activity is 95% complete. Analysis of Wyle pitot tube rake data continued.
- 22. An uncertainty analysis of test L3-1 break flow was completed. This analysis was on the suppression tank method of obtaining break flow.

23. A program to obtain 'ensity information from the PC-3 densitometer was started and is 90% complete. This program extracts density information from the source stored and exposed condition when this nonnuclear densitometer is used in a nuclear environment.

LOFT FUEL FABRICATION

- 1. Change Orders were issued to Exxon for:
 - a. Fabrication of a vacuum weld chamber for LOFT instrumented fuel rod assembly to provide more efficient welding (less pump down time) and improved support for test instrument cables.
 - b. Precision weighing of all pressurized non-instrumented fuel rods for posttest determination of fuel losses.
 - c. Addition of four dummy surface thermocouples at fuel rod position H-3 (linear variable displacement transducer rod) for evaluation of surface thermocouple effects.
 - d. Preparation of a conceptual design for an instrumented fuel rod featuring two external fuel pellet thermocouples, two active surface thermocouples, and two dummy surface thermocouples.
- Allied Mechanical Company completed fabrication of the control rod spiders, and Precision Coil Spring Company completed fabrication of the control rod cluster coil springs to complete fabrication of the Reload Core II control rod components.
- Exxon received the 58.5 kg of 4.0 w/o U-235 enriched uranium hexafluoride for Reload Core II from ORNL.
- 4. Assembly of downcomer instrument stalk No. 2 was completed at TAN-615.

5. The Fuel Requalification Working Group met to review the L3-2 test data. The information presented indicated the fuel is in acceptable condition for the next test.

LOFT TEST SUPPORT

- The experimental data report for tests IA101, IA102, and IA103 was completed and transmitted to LOFT Configuration Document Control and Services (CDCS). Processing and analysis continued on data for EDRs from 20 transient tests. Qualification and analysis was completed for 10 of those tests.
- The final report for the single rod quench test has been completed, and the results were presented to Nuclear Regulatory Commission (NRC).
- The final LTR (141-124) for the transient performance of the drag disc turbine and densitometer was completed.
- 4. A technical paper was completed on two-phase pump performance in the full area steady state (FAST) loop.
- A technical paper was completed on RFLAP/MOD6 reflood analysis of the blowdown facility.
- Pitot tube rake test No. BF-PTR-2 was completed in the blowdown facility.
- 7. Results of the nine-bundle regulator checkout test in the blowdown facility showed a leak in the regulator.
- 8. Checkout of the steam generator was completed, and 24-hour initial operation was completed under vendor supervision. Hydro testing was conducted by the factory representative. Checkout of the data system hookup was completed. Acceptance testing was conducted at varying water and steam flows up to 300 kg/s water and 15 kg/s steam at 3.0 megaPascals.

PROGRAM PLANNING AND TEST EVALUATION

- The experiment operating specification (EOS) for the L6 series (operational transient tests) has been internally approved and transmitted to DOE-ID for their review and approval.
- The LOFT experimental program document has been transmitted to DOE-ID for their review and approval.
- Program Planning Branch personnel attended test L3-2 conducted
 February 6, and participated in the posttest data qualification.
- 4. Program planning personnel presented LOFT testing plans at the Review Group Meeting in Salt Lake City, Utah.
- 5. The initial planning and EOS development for the new test (L3-7) was initiated. L3-7 is being developed to confirm initial behavior of L3-2 and to investigate reflux boiling.
- The Idaho National Engineering Laboratory (INEL) version of the ALMOD operational transient computer code evaluation was completed, and the results were transmitted to Germany.
- 7. The Pretest Prediction Consistency Committee review of RETRAN/MOD2 source deck and input model developed by Energy Incorporated for use in L6 series experiment prediction was completed.
- 8. Experiment safety analysis (ESA) evaluation for test L3-4 was completed. Documentation is presently in process.
- The ESA for removal of reflood assist bypass valves (RABVs) was initiated.
- The experimental prediction for L3-2 using both RELAP4 and RELAP5 was completed and published.

- 11. An initial posttest analysis of loss-of-coolant experiment (LOCE) L3-2 was performed to identify suspected flow leakages from the system.
- 12. An analysis of the sensitivity of LOCE L3-1 to core bypass, using both RELAP4 and RELAP5 was completed. A bypass of about 4% will keep the loop seal from clearing.
- 13. Modeling was initiated of Wyle critical flow test facility data using RELAP4 to verify the proper application of the critical flow multipliers determined from Wyle data.
- 14. A new RELAP5 model of the LOFT facility was completed which will be well documented and very general, to be used for both small and large breaks, as well as for operational transients.
- 15. The quick look report for LOFT LOCE L3-2 was issued (EGG-LOFT-5104).
- 16. The correspondence between LOFT and Semiscale in small breaks was the subject of a presentation at the February LOFT Review Group Meeting.
- 17. The design of the LOFT LOCE L3-4, -5, and -5 break configuration hardware and instrumentation was completed. This task was a cooperative effort by several organizations. Members of Experiment Analysis performed the transient analysis of break flow and the definition of proper downstream geometry for mass flow and choking phenomena and for instrument ranging.
- 18. Applications of the German ALMOD code in operational transient analysis have been suspended pending resolution of problem areas in the code by the Germans.
- 19. A draft of an interim report was completed which documents the RELAP4/MOD6 calculations of the Zion pressurized water reactor (PWR). The calculations include LOFT L2-2 and L2-3 conditions, and show the prototypicality of LOFT and the commercial PWR.

- 20. Experimental results of the first two nuclear small break experiments were presented at the LOFT Review Group Meeting in Salt Lake City, Utah on February 27 and 28.
- 21. Experiment Evaluation Section personnel witnessed the L3-2 experiment, participated in the Data Integrity Review Committee (DIRC) activities, and worked on the data analysis.
- 22. The final L3-4 spoolpiece specification was transmitted to LOFT Experiments Measurements Branch (LEMB).
- 23. The course "Design of Experiments," a statistics course, is being conducted by the Experiment Evaluation Section.
- 24. The L-3 experiment data report (EDR) is on schedule, with the review draft out.
- The Tektronix 4052 computer is complete and all the peripherals are operational. Work on the software for the system is continuing.
- 26. The LOFT technical report (LTR-LO-00-79-108) which reviews and evaluates LOFT thermocouple (TC) effects from LOFT lead rod (LLR) test results was completed and published.
- 27. A proposal for internal fuel and cladding thermocouples for the F1 module (test L2-4) was completed and documented in a letter report (ELT-4-80). The purpose of this instrumentation is to provide additional data for assessing the accuracy and possible perturbation effects of the LOFT surface thermocouples.
- 28. Analysis to evaluate LOFT centerline thermocouple response continued.

 Reactor physics type calculations have been initiated to compare Power

 Burst Facility (PE⁻) and LOFT type TCs and to evaluate grouping TCs as

 proposed in the F1 module.

- 29. Progress continued on a report summarizing results of recent tests involving cladding surface thermocouples. A review meeting was held regarding TC tests and status of analysis.
- 30. A first draft of section of the LOFT lead rod test analysis report involving the analysis of fuel centerline temperature and fuel rod elongation was completed and submitted for supervisory review.
- 31. No word has been received on our proposed test plan for NEPTUN (Swiss reflood) program. Problems in heater rod design and system electronics may result in a significant program delay (up to six months).

SUMMARY OF AUSTRIAN FUNDED TASKS

Task 5FAC1 -- SGAE Management

Status: No change.

SUMMARY OF NETHERLANDS FUNDED TASKS

1. Task 5FNC1 -- ECN Management

Status: No change.

2. Task 5NC3 -- RPI Subcontract

Status: Calibration of flow loop instrumentation is nearly complete. Testing will be delayed for at least two months due to upgrading of the Rensselaer Polytechnic Institute (RPI) linear accelerator (not anticipated by Dr. Gay). Modeling activities are progressing. The steam table addition is complete and a new routine has been written to improve the mathematics convergence.

Task 5FNC4 -- INEL Support of RPI Subcontracts

Status: Experimental Data Report (EDR) from Wyle tests IA102, IA102 and IA103 was forwarded to RPI. Processing of data from those tests to be reformatted per RPI requirements was continued. Qualification of data from Wyle IIIA series tests was completed, and processing of data from IIA series tests was continued. This data will be made available for critical flow model assessment upon EDR completion.

SUMMARY OF FRG/JAERI SHARED TASKS

Task 5F9C2 -- Two-Phase, Steady-State Tests

Status: Reported elsewhere.

2. Task 5F9C3 -- TRAC Code Studies

Statue: No change.

SUMMARY OF FRG FUNDED TASKS

1. Task 5f7C1 -- FRG Management

Status: No change.

2. Task 5F7C3 -- Core Instrumentation

Status: This task has been cancelled.

3. Task 5F7C4 -- Misc. Tasks

Status: No change.

4. Task 5F7C5 -- Steam Probe

Status: Task has been completed except for review meeting to be held for discussing results and future plans.

5. Task 5F7C8 -- LOFT State Vector

Status: A CCB is still pending approval.

SUMMARY OF JAPANESE FUNDED TASKS

1. Task 5F8C5 -- LOFT/PBF Lead Rod Tests

Status: The preparation of the final report is in progress with scheduled completion rescheduled for March 1980.

2. Task 5F8C6 -- Re-Evaluation of Loft Experiments

Status: This task is completed except for revision of a final report.

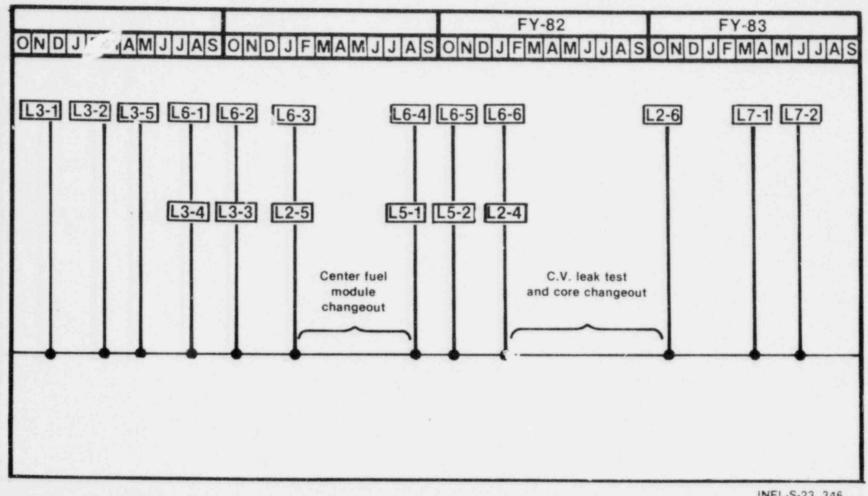
3. Task 5F8C8 -- Suppression Catch Tank

Status: The suppression catch tank is in the fabrication stage with the frame assembly complete and delivered. The tank is currently being fabricated with completion expected next month.

4. Task 5FNC6 -- Pulsed Neutron Activation Studies at RPI

<u>Status</u>: Technical work in progress and initial results will be available next month.

LOFT Three-Year Plan



INEL-S-23 346 1/30/80

Figure 1. LOFT management three-year plan.

Total Proposal Estimate in Thousands Including Contingency	Total Spending in Thousands Authorized by CCB	Funds Spent in Thousands to Date		Items	FY-80 Oct Nov Dec Jan Feb Mar Apr May Jun Jly Aug Sep
			Austr	ian Tasks	
12	12	10.7	5FAC1	SGAE Management	0
135	123	123	5FAC2	Completed Taksk	
			Nethe	rland Tasks	
10	10	8	5FNC1	ECN Management	0
92	92	92	5FNC2	Completed Tasks	
117	114	112	5FNC3	RPI Subcontract	0
10	10	1	5FNC5	INEL Support	0
37.5	32.5	0	5FNC6	PNA Techniques	0
			German	n Tasks	
156	156	152.2	5F7C1	FRG Management	0
1618	1618	1618	5F7C2	Completed Tasks	
1006	1006	941.9	5F7C3	Core Instruments	0
50	50	32.5	5F7C4	Miscellaneous Task	ks0

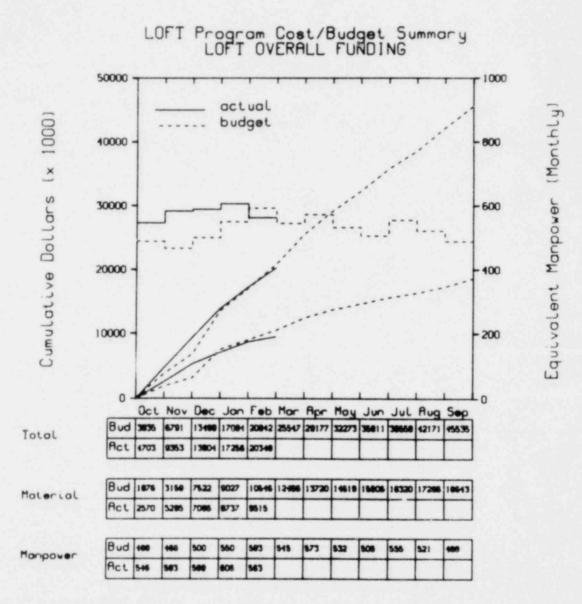
TABLE 1. (continued)

Total Proposal Estimate in Thousands Including Contingency	Total Spending in Thousands Authorized by CCB	Funds Spent in Thousands to Date	Items	FY-80 Oct Nov Dec Jan Feb Mar Apr May Jun Jly Aug Sep
30	30	21	5F7C5 Steam Probe	0
1030	980	776	5F7C92 Shared - Steady State Tests	0
50	50	62.5	5F7C93 Shared - TRAC Code Studies	0
			JAERI Tasks	
202	202	175.5	5F8C1 JAERI Management	0
750	750	750	5F8C2 Completed Tasks	
150	70	70	5F8C3 Additional Insts.	0
154	154	135	5F8C4 Advanced DDT	0
1876	1859	1793	5F8C5 LOFT/PBF Lead Rod	0
25	25	24	5F8C6 Reevaluating of LOFT Experiments	0

TABLE 1. (continued)

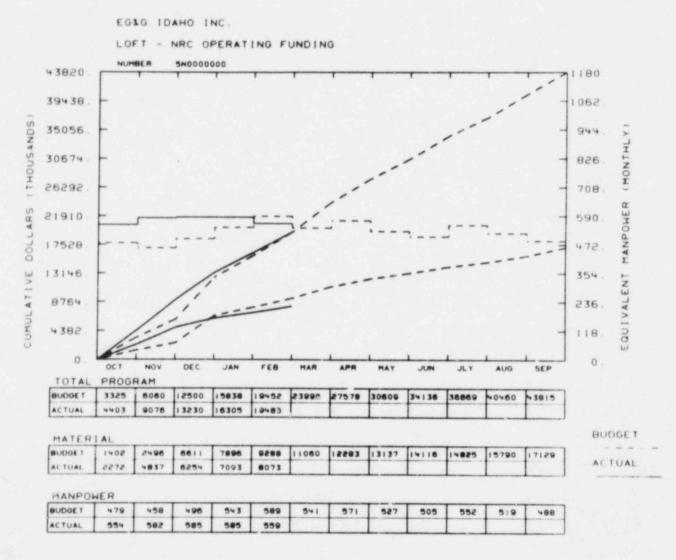
Total Proposal Estimate in Thousands Including Contingency	Total Spending in Thousands Authorized by CCB	Funds Spent in Thousands to Date	Items	FY-80 Oct Nov Dec Jan Feb Mar Apr May Jun Jly Aug Sep
20	20	10	5F8C7 Miscellaneous Codes	0
800	750	776.3	5F8C92 Shared Steady State Tests	0
50	50	62.5	5F8C93 Shared - TRAC Code	0
43	41	5.4	5F8C8 Suppression Tank For Blowdown Facility	

LOFT Overall Funding 5xxxxx

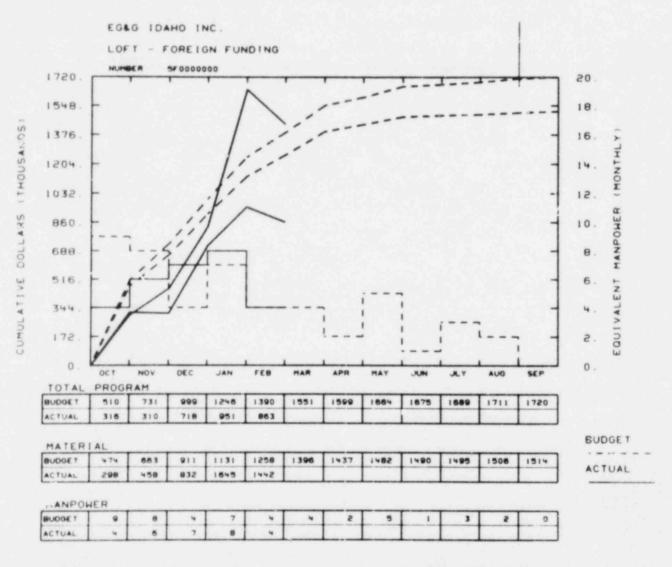


The Nuclear Regulatory Commission (NRC) and foreign-funded budgets reflect the LOFT Q80-3-2 Baseline approved in February. Refer to the Director's Monthly Summary for comments.

5N--NRC Operating Funding
5F--Foreign Funding

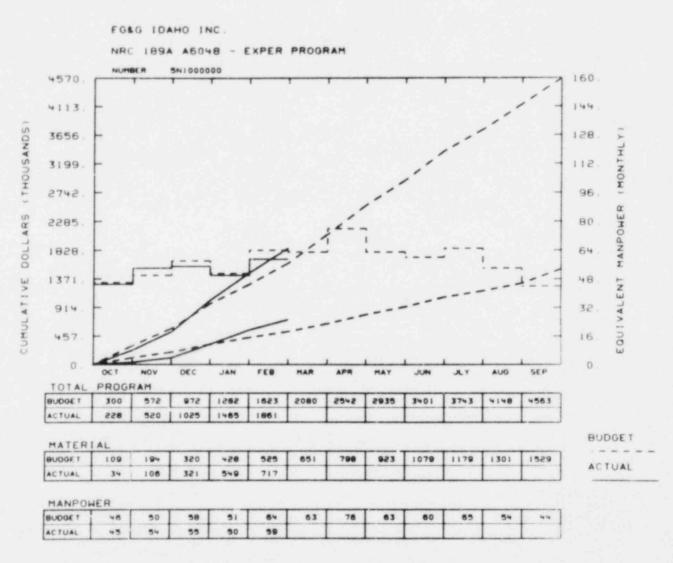


No significant variance.

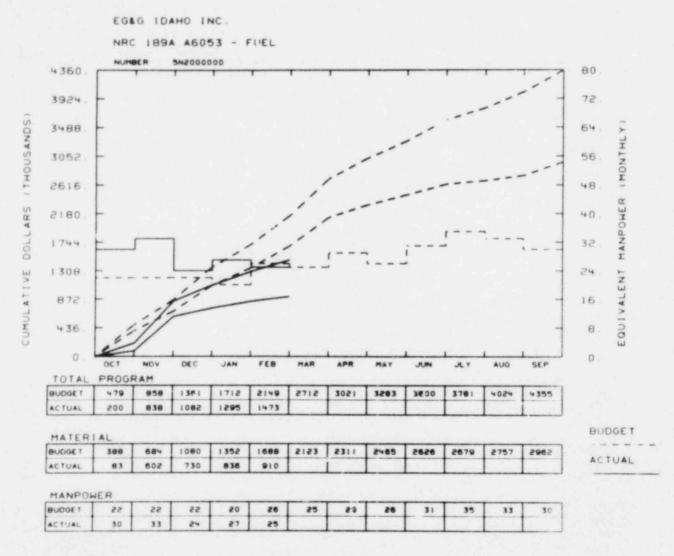


The year-to-date budget includes approximately \$422,000 of management reserve and contingency funds. Corrective action has begun.

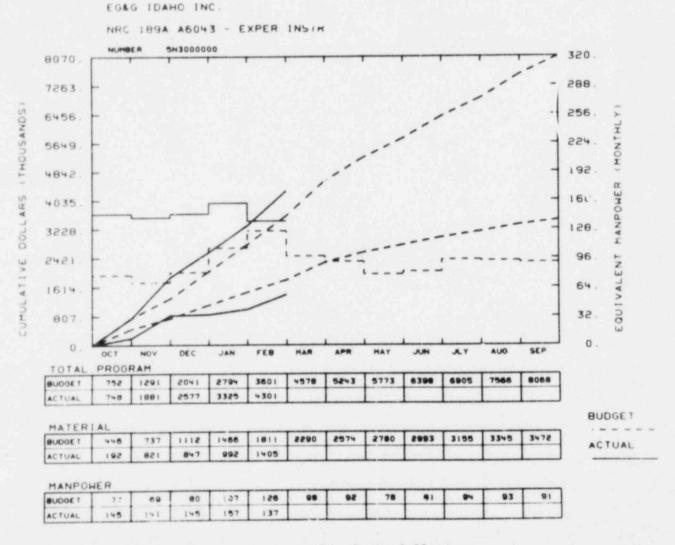
LOFT 189a Summary 5NX--NRC 189a 5FXX--Foreign 189a



The overrun is due to increased computer costs. Accounts will be monitered for corrective action.



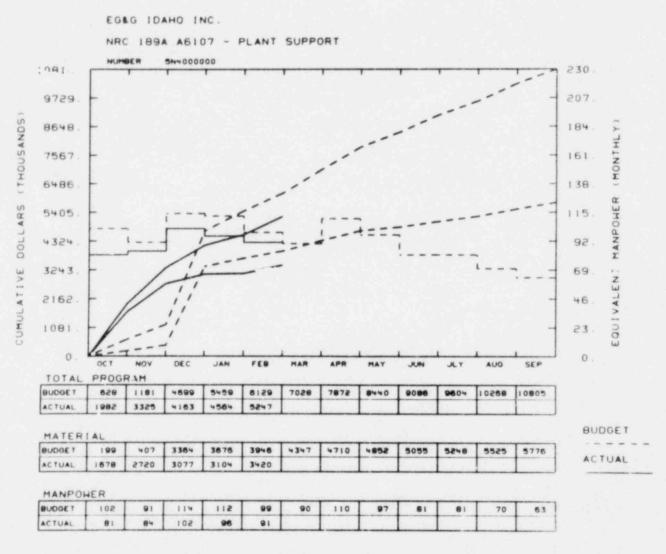
The underrun is caused by delays in fabricating centerline and zircaloy-sheathed thermocouples and supplier submittal of invoices for reload core II fuel bundle and upper support structure fabrication. Recovery by year-end is expected.



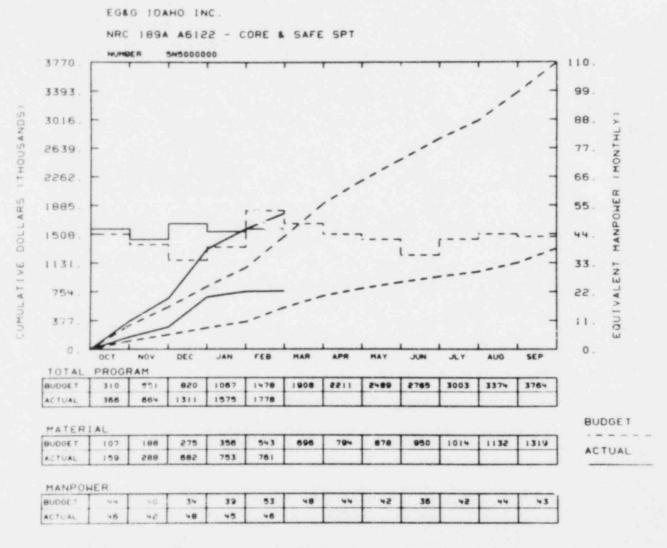
The year-to-date variance is a result of the following:

- The reduction of this budget for items to be funded by other sources.
 The CCB's are in process, however the costs are being accumulated in this Schedule 189a
- The mutual cost credit allocation to the 3-D and Semiscale programs is not reflected.

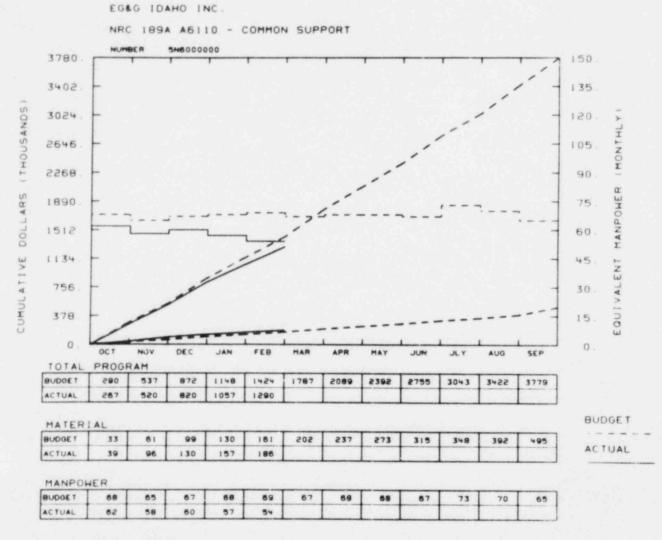
Upon completion of these realignments, targeted for March, the budget verses actual costs will be in better agreement.



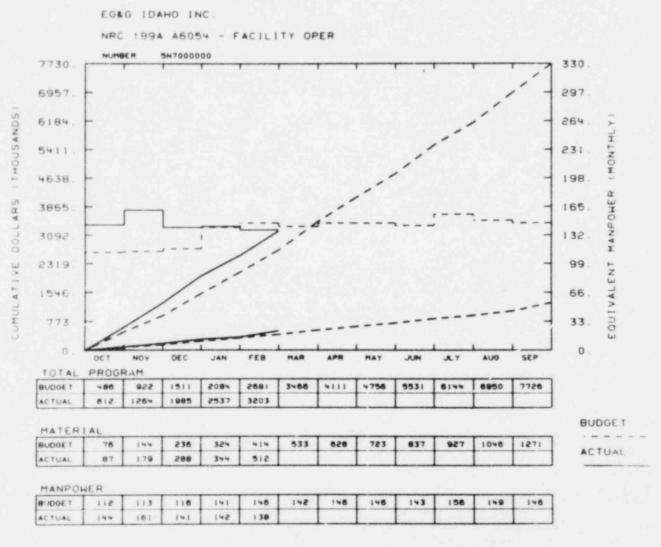
The indicated underrun is associated primarily with work being delayed because of limitations in engineering manpower, work that was frontend loaded, and outstanding material commitments. Corrective action is being started.



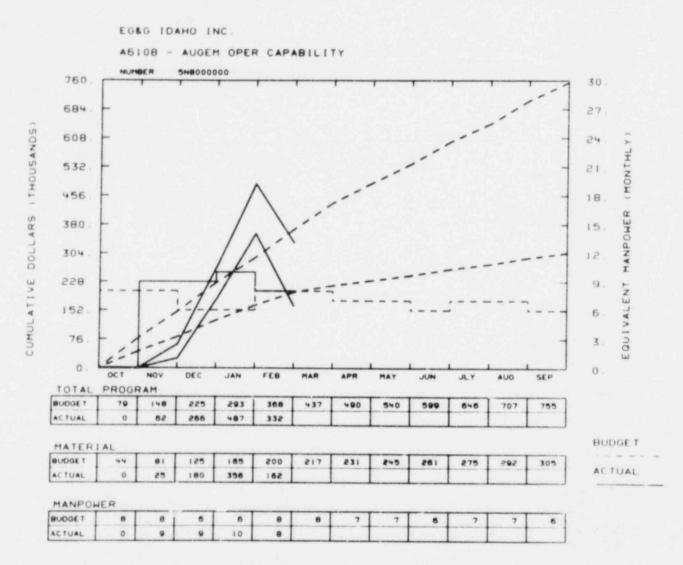
The overrun has resulted primarily from computer costs being in excess of the budget for the initial small-break series safety calculations. Other variances from previous months have been largely resolved. A CCB action is being started to correct this problem.



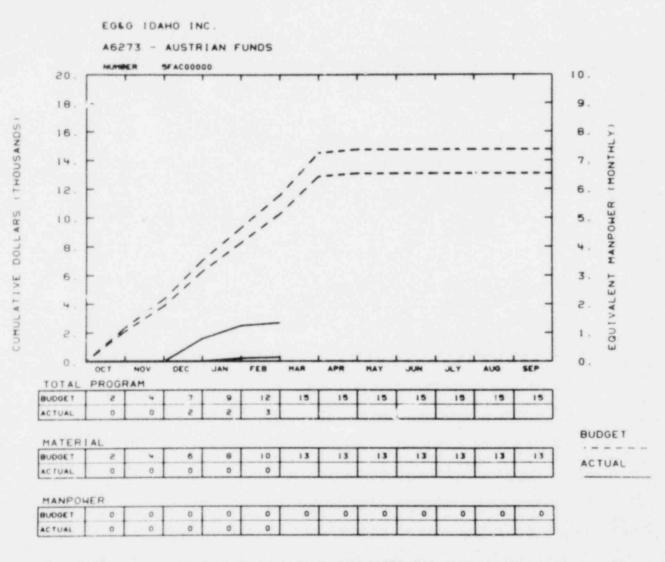
No significant variance. Staffing actions have begun to correct deficiencies.



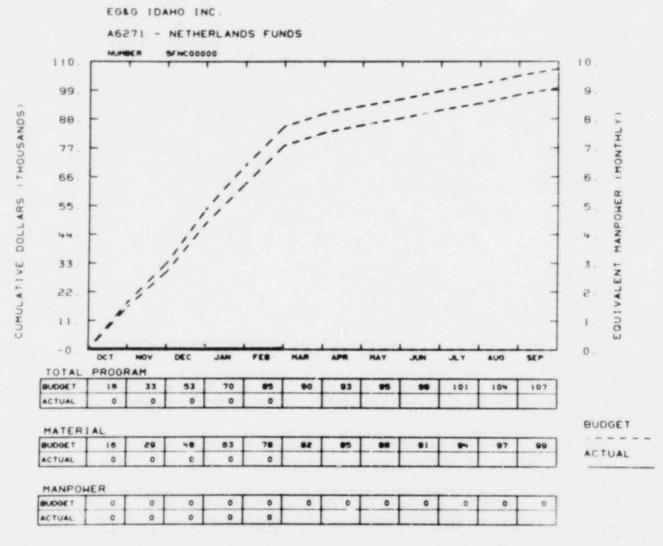
Labor overruns in the first quarter of FY-80 were caused by extensive use of overtime to support the test schedule. It is anticipated that underruns in the balance of the year will correct the problem.



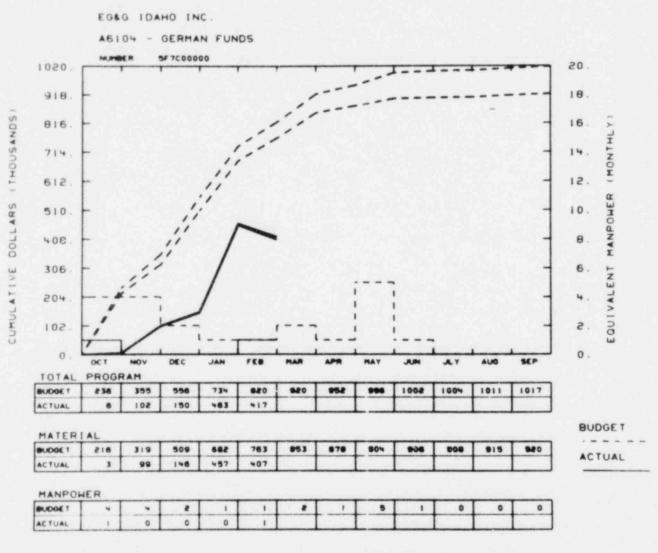
No significant variance.



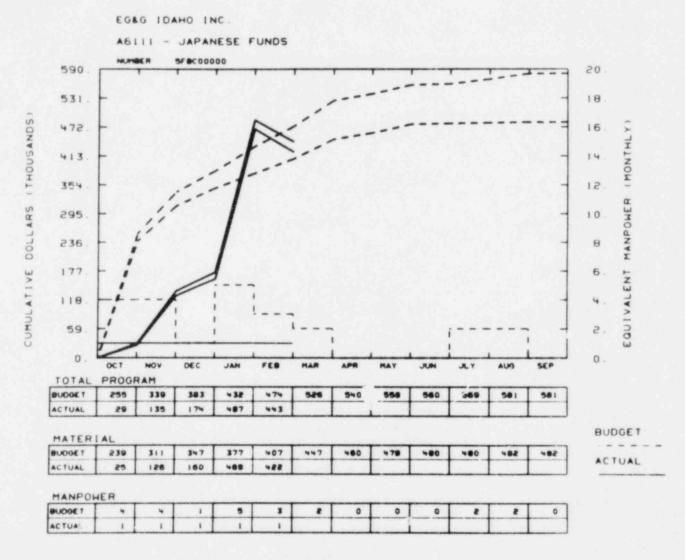
The SGAE management task budget includes a \$12,000 management reserve. No significant variance.



The Netherlands management task budget includes a \$62,000 management reserve and contingency fund. No significant variance.



The FRG management task budget includes a \$350,000 management reserve and contingency fund. The year-to-date underrun is associated with delays in costs of the two-phase loop being properly charged, and work delayed due to changing priorities and the LOFT test schedule.

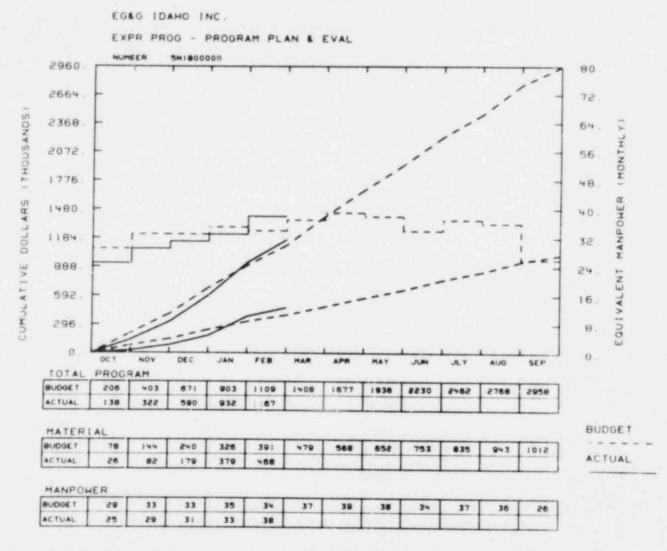


No significant variance. The JAERI management task budget includes a \$79,000 management reserve and contingency fund. The year-to-date underrunts associated with delays in costs of the two-phase loop being properly charged.

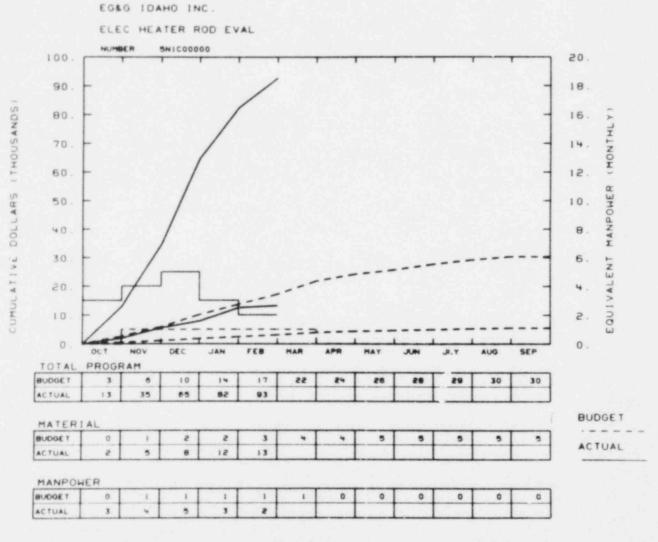
Summary Cost Accounts

5Nxx--NRC Summary Cost Accounts

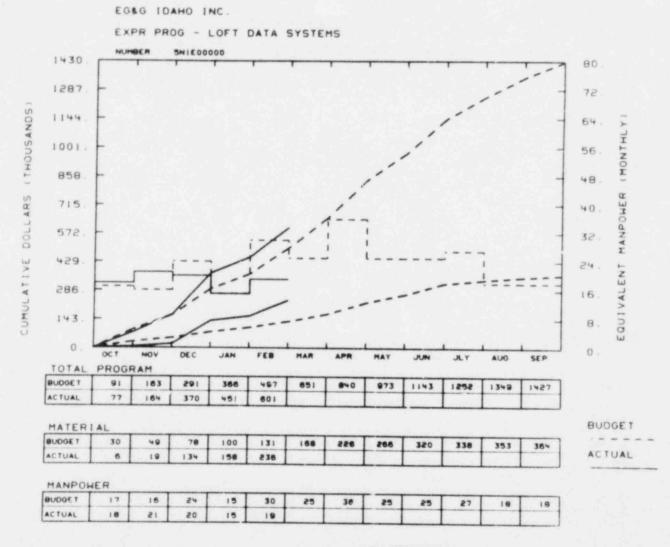
5Fxxx--Foreign Summary Cost Accounts



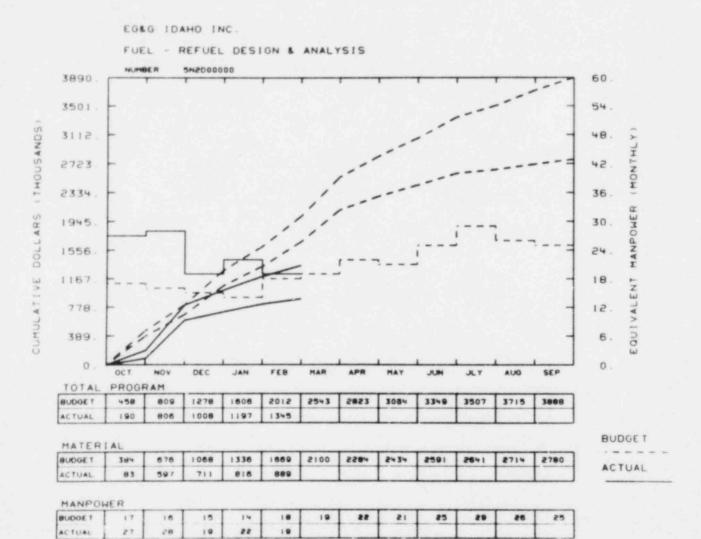
Excessive computer costs in January and early February required to plan a new small-break and operational transient program account for overruns. Also computer unavailability and excessive turnaround time required running computer jobs at higher priorities to meet schedule requirements. This, together with new computer charge algorithm resulted in higher than anticipated computer costs. Adjustments will be made to make budget and actuals agree at year-end.



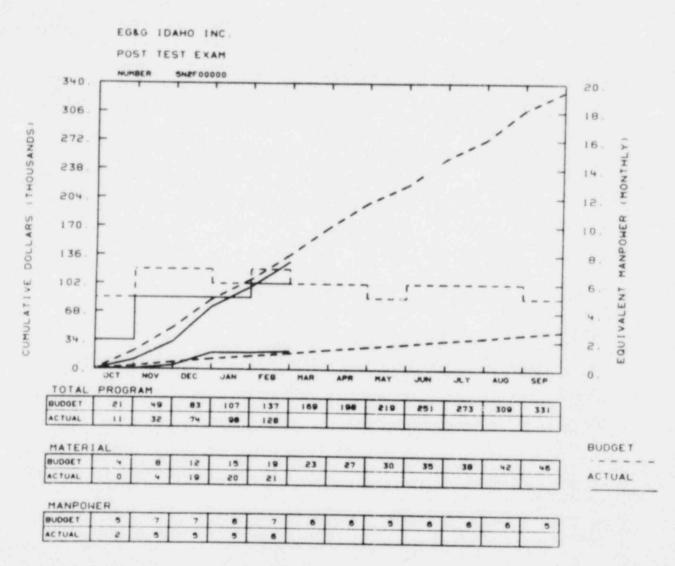
The actual cost to date for the Swiss Reflood work is \$15,000. The costs shown above include \$75,000 of cost associated with the electric heater rod evaluation. The budget for the electric heater rod work was transferred to WRRD per CC3 80-48.



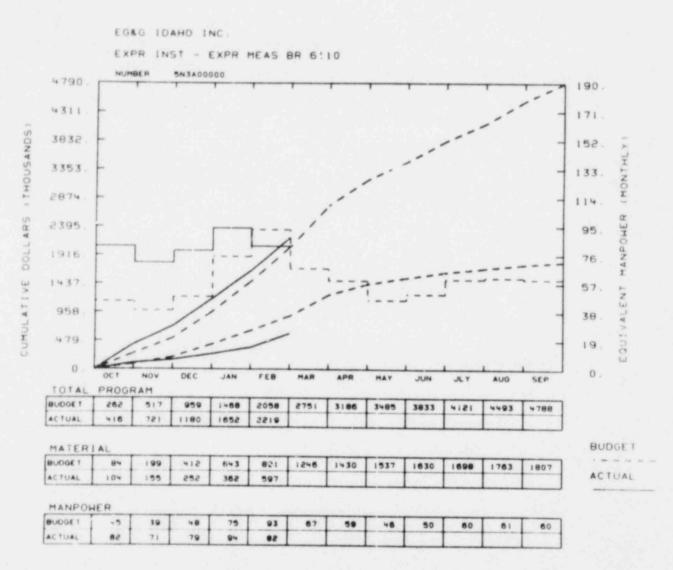
The costs for February remained fairly high due to the L3-2 test data processing. The overall costs will be more in line by May. These deviations are caused primarily by the increased computing costs and secondarily by the changes in schedule.



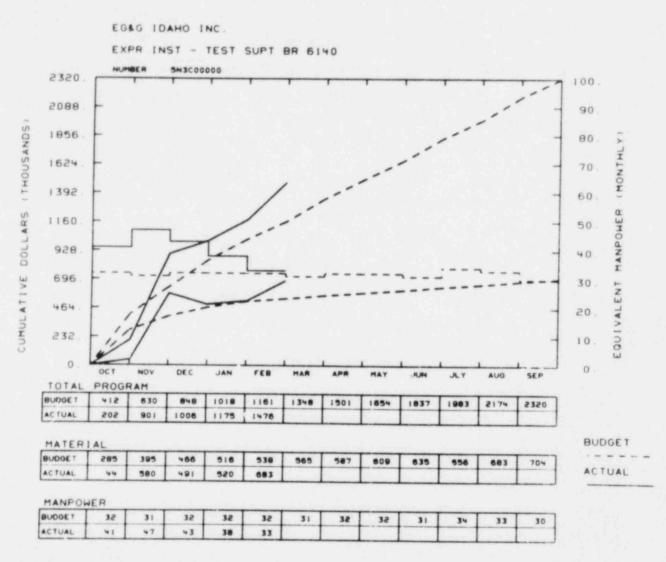
The underrun is caused by delays in fabricating centerline and zircaloy-sheathed thermocouples and supplier submittal of invoices for reload core II fuel bundle and upper support structure fabrication. Recovery by year-end is expected.



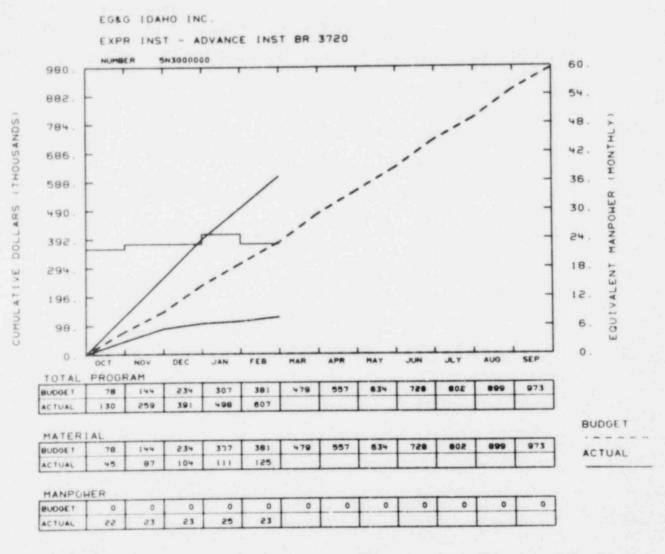
No significant variance.



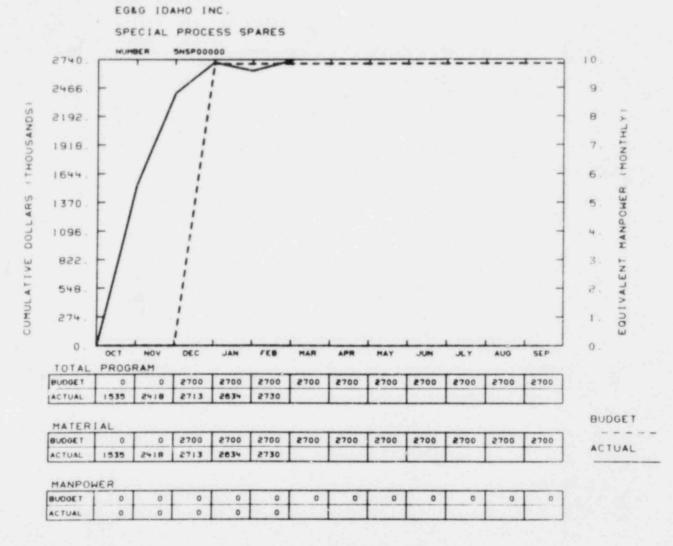
No significant variance.



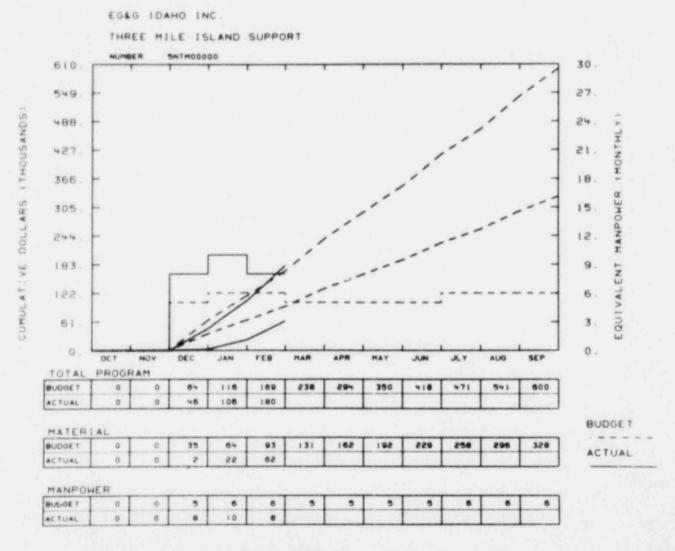
The overrun was primarily consists \$230,000 of two-phase flow loop charges being costed here rather than in foreign-funded accounts. The additional branch overrun associated with work performed early. The rate of spending will be adjusted to balance by year-end.



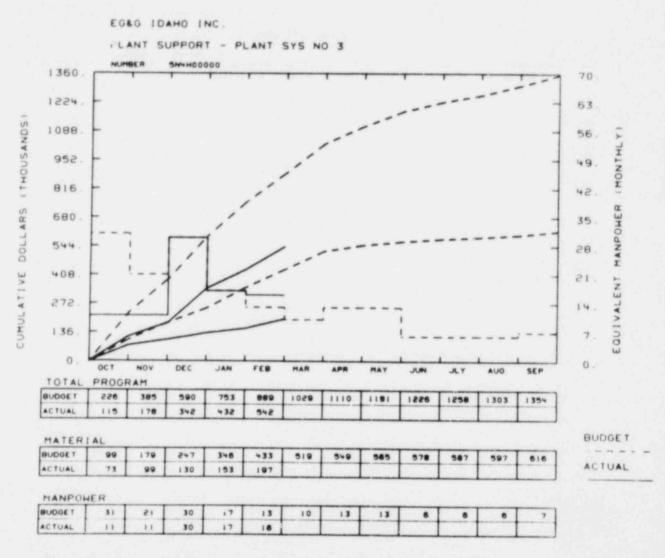
A CCF is in process to reflect the current work scope. The cost allocation to Semiscale and 3-D will begin in March.



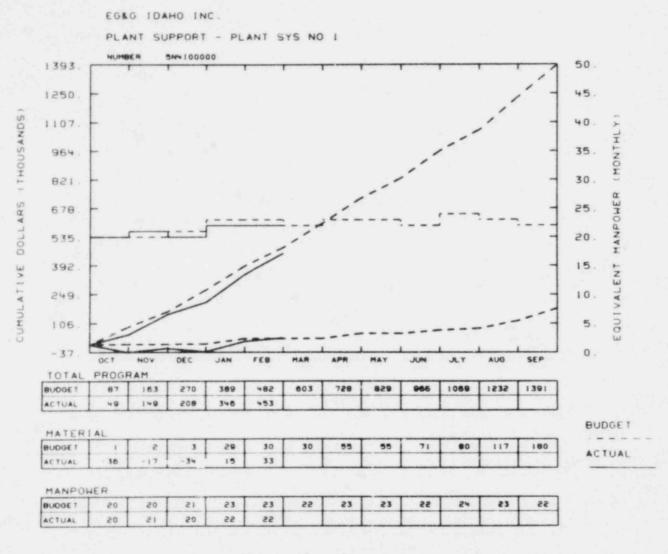
No significant variance.



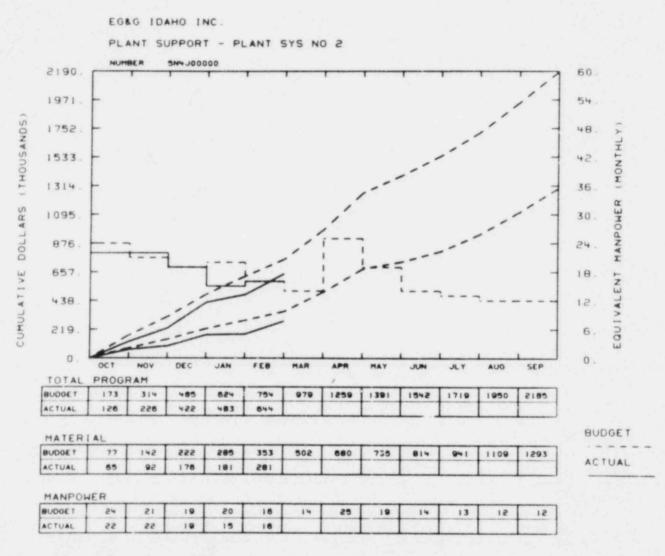
No significant variance.



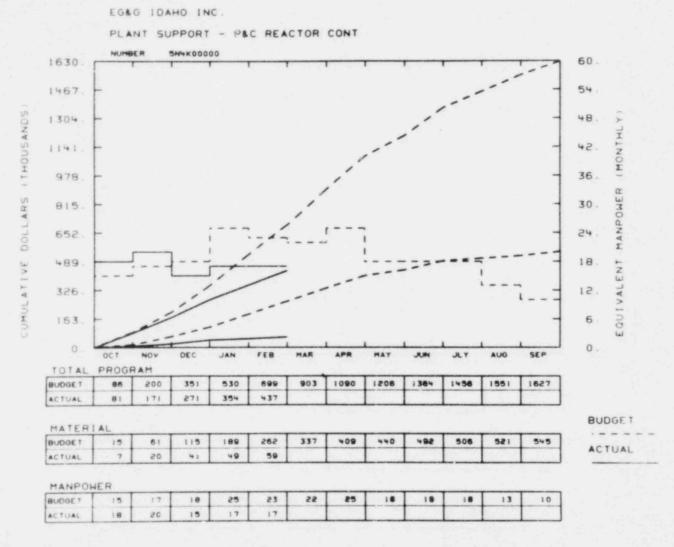
CCBs, 80-76 and 80-77 are in process to correct the frontend labor loading, returning approximately \$135,000 to management reserve. The reamaining variance is attributed to accommodation of the variation in the test schedule. Preparations for the small-break break tests L3-4 and 5 should use the remaining current underrun.



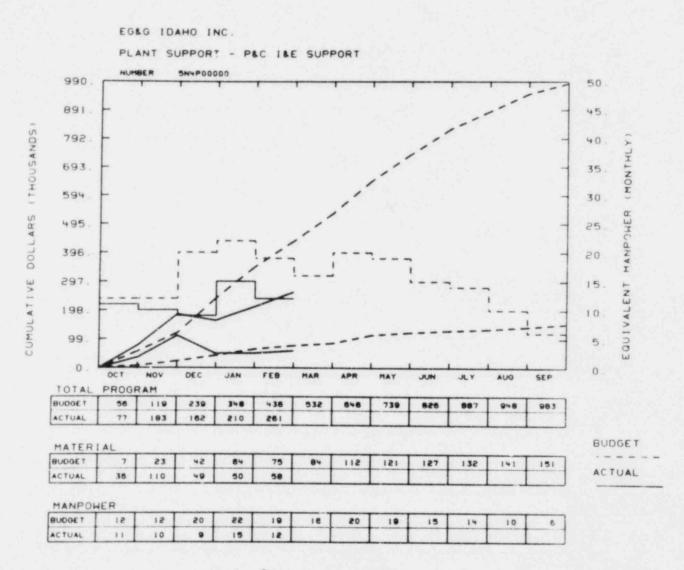
No significant variance.



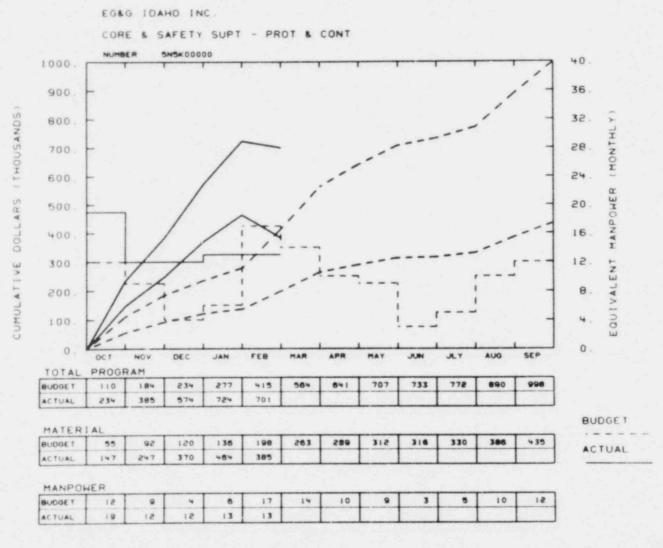
The test schedule change caused a small support manpower depression and will be used through the upcoming work windows. Outstanding material commitments account for the remaining variance.



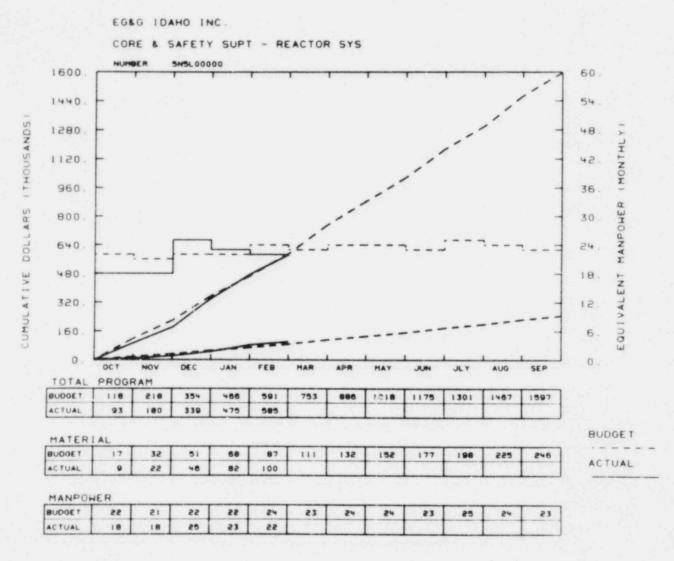
The underrun is due principally to a delayed start on planned tasks (including procurement) because of an engineering manpower shortage. The scope of remaining work for FY-80 is under review at this time to determine needed corrective action.



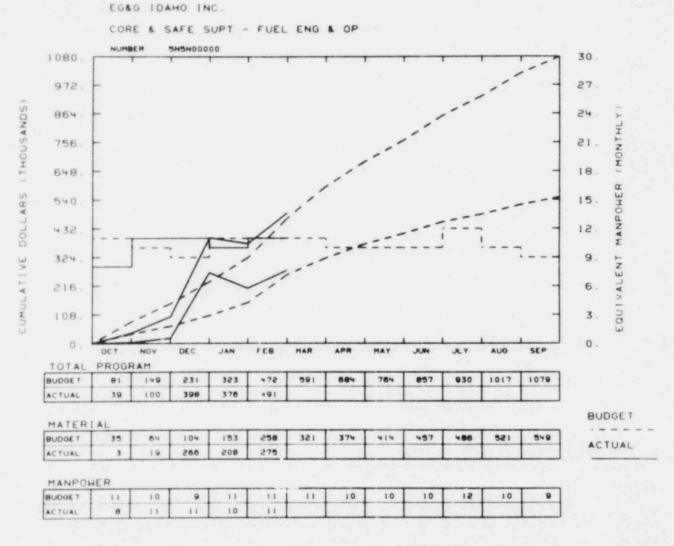
See comment on 5N4K.



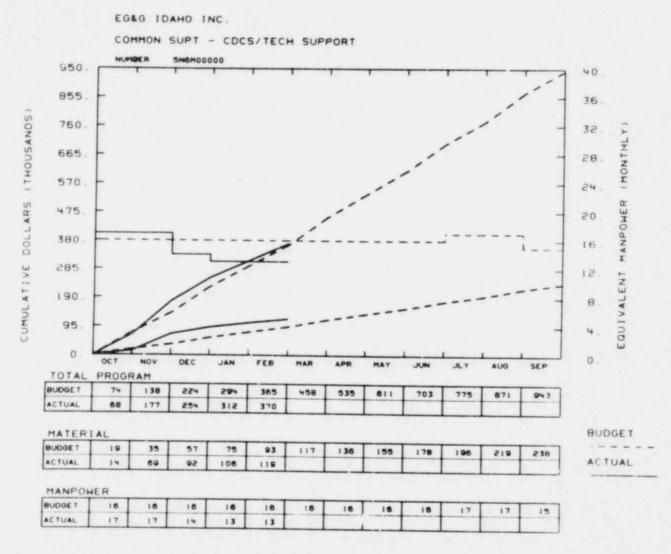
The task is overrun primarily due to an inaccurate estimate of computer charges associated with small-break safety calculations. A CCB action is in preparation that more realistically projects the remaining small-break test safety calculation costs.



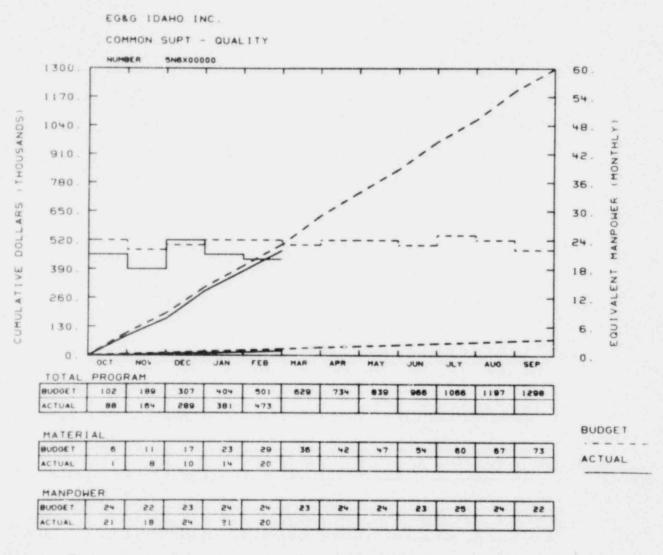
No significant variance.



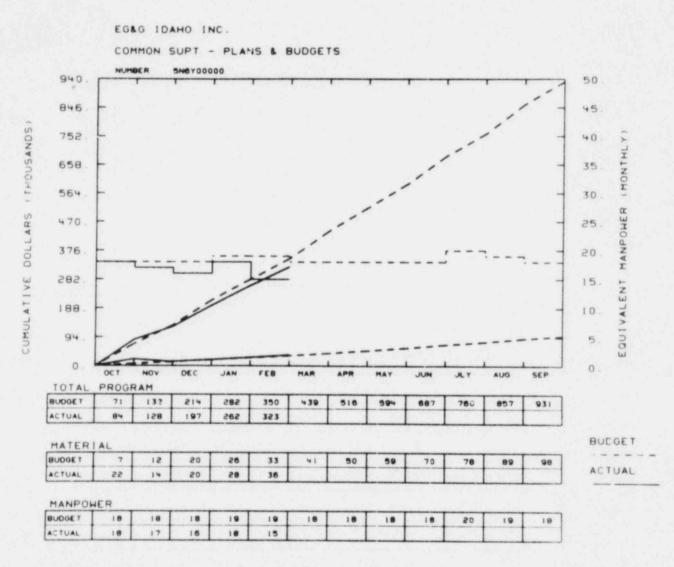
The budget overrun is specifically due to task 55N9468. This task overran when the Hot Shop spent \$180,000 in two months for fuel examination. The present \$19,000 overrun is a result of the \$180,000 charge and task 55N9441, which is ahead of schedule.



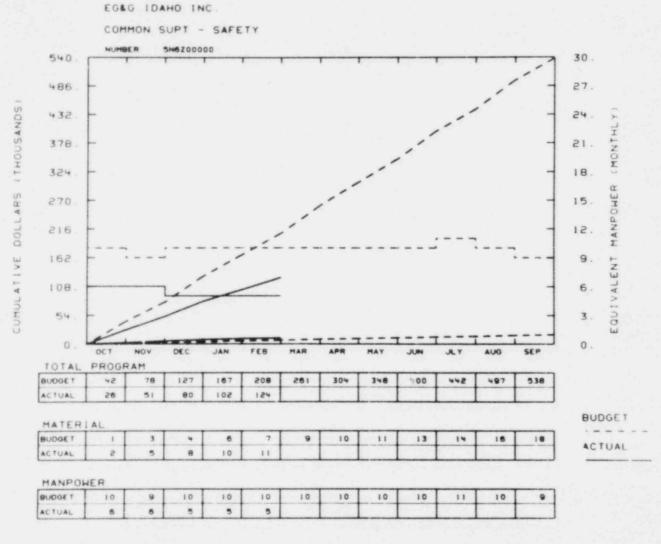
No significant variance. A personnel shortage is causing manpower to move below the budget line. Action to fill vacancies is in process.



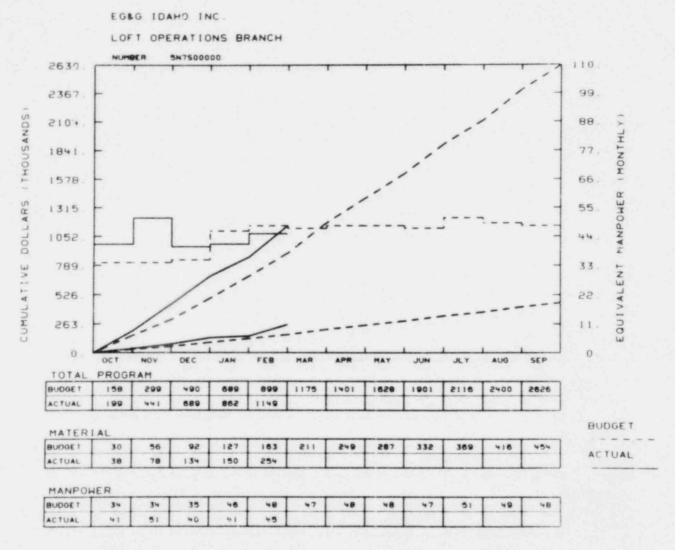
The underrun is a result of not staffing to the level reflected in the budget. Action has begun to fill the vacancies.



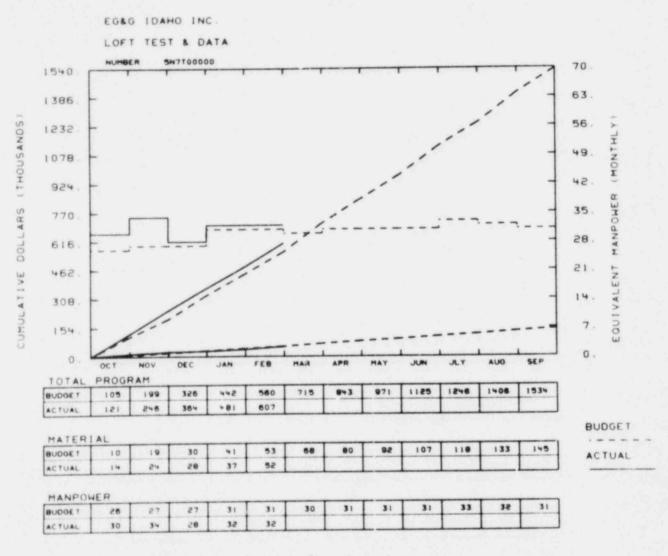
No significant variance.



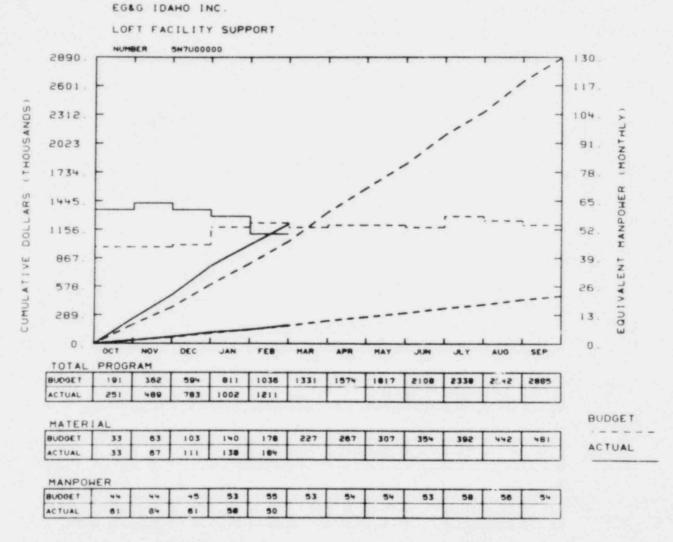
The underrun in this summary cost account is the result of not staffing to the target level in the budget. Safety has recently increased their staff. Budget and actual costs should be more in line by year-end.



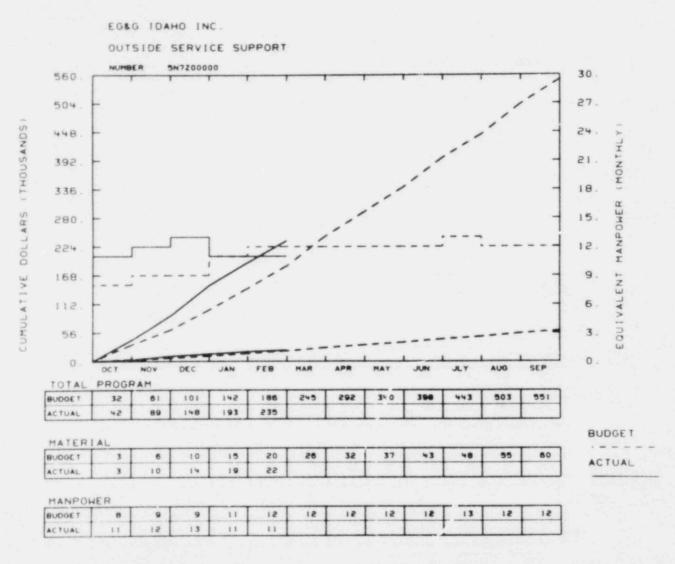
Labor overruns in the first quarter of FY-80 were caused by extensive use of overtime to support the test schedule. It is anticipated that underruns in the balance of the year will correct the problem. The material overrun in February was caused by an accounting error, resulting in a two-month power bill.



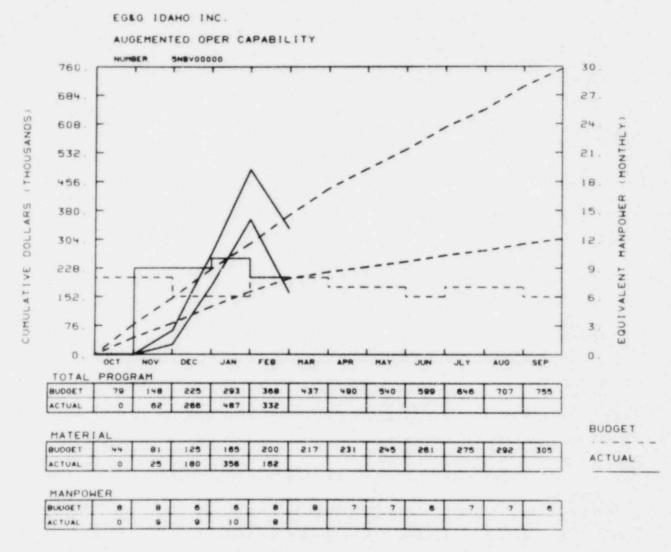
No significant variance.



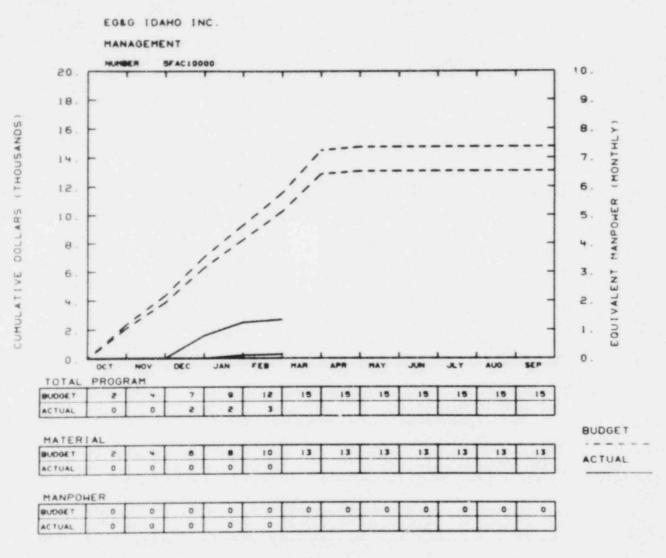
Labor overruns in the first quarter of FY-80 were caused by extensive use of overtime to support the LOFT test schedule. It is anticipated that underruns in the balance of the year will correct the problem.



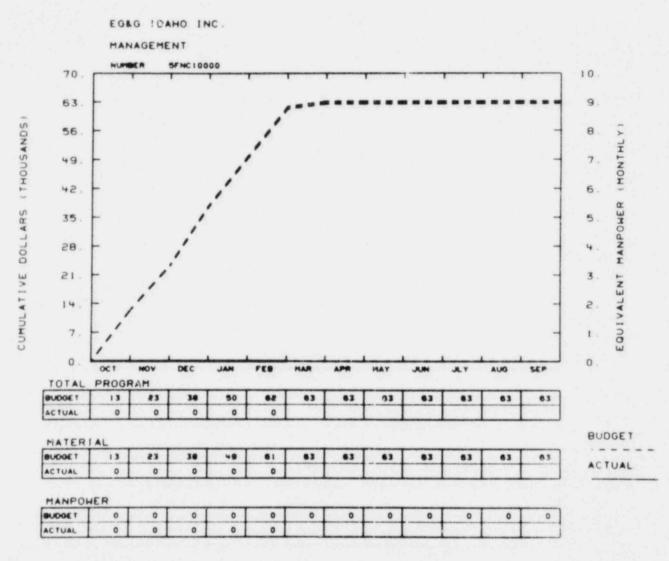
Labor overruns in the first quarter of FY-80 were caused by extensive use of overtime to support the LOFT test schedule. It is anticipated that underruns in the balance of the year will correct the problem.



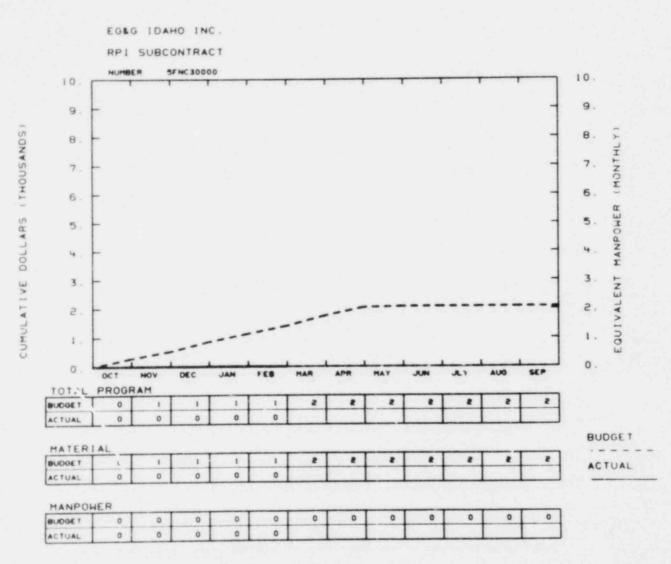
No significant variance.



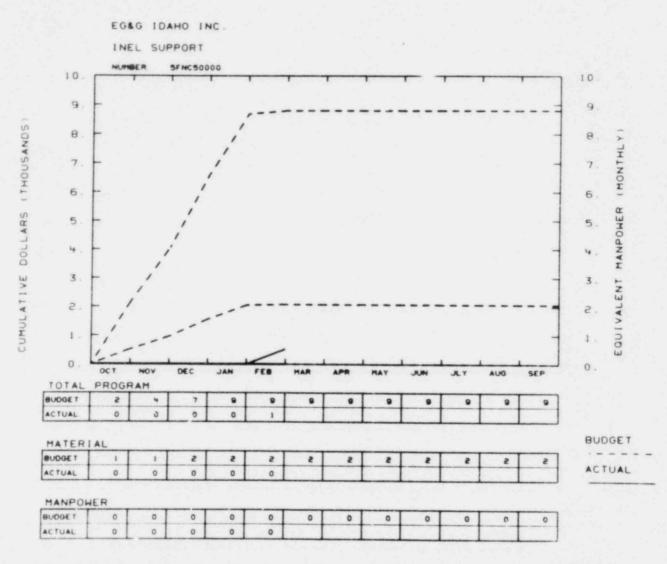
No significant variance.



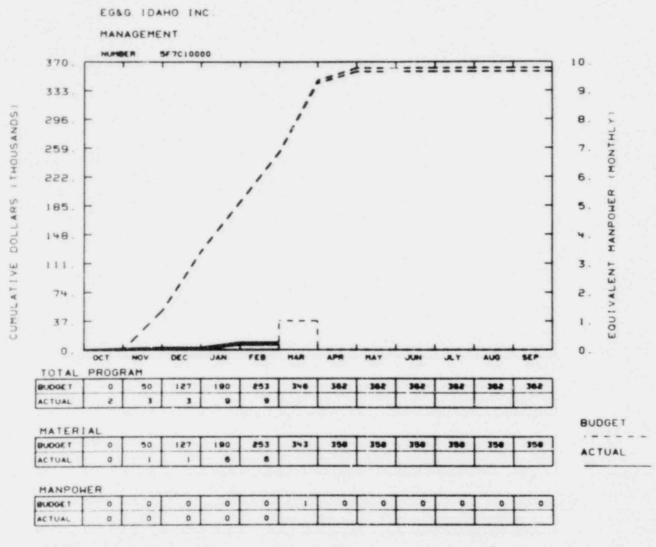
No significant variance. Presently inactive.



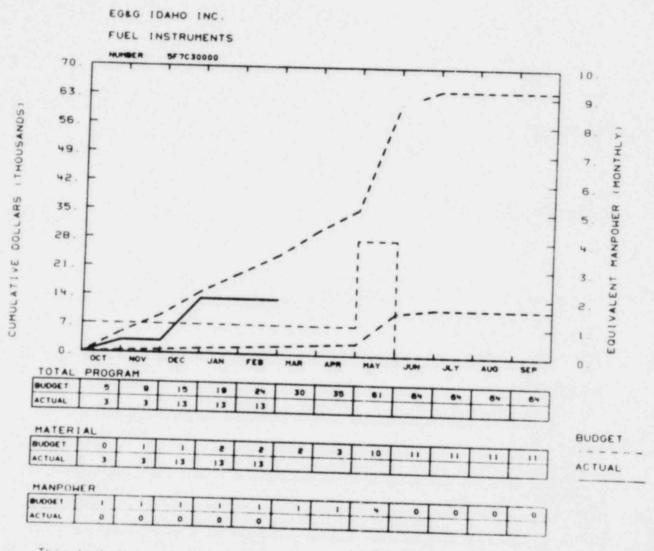
No significant variance.



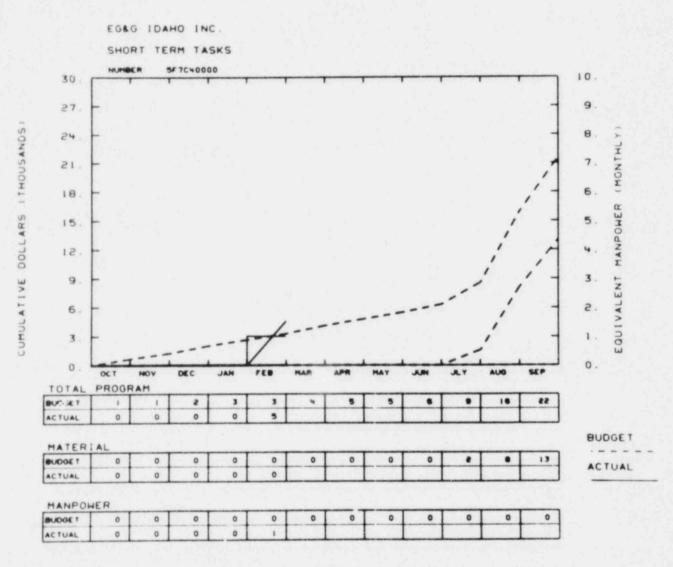
Work has been delayed. This task will be reduced in scope and the balance of 4,500 will be returned to the management reserve.



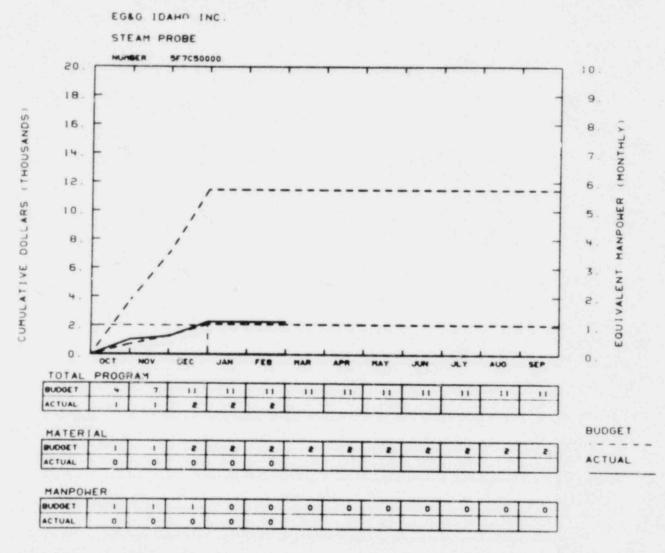
No significant variance. A \$350,000 management reserve and contingency fund is included in this budget.



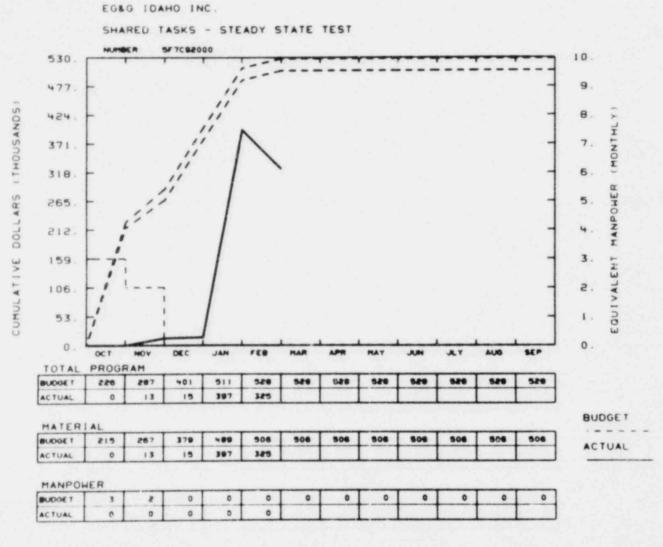
This task is completed and the balance of the budget will be returned to reserve.



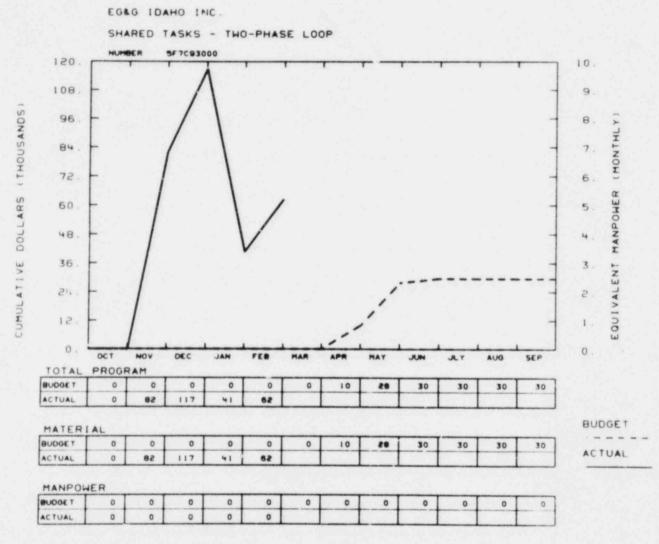
No significant variance.



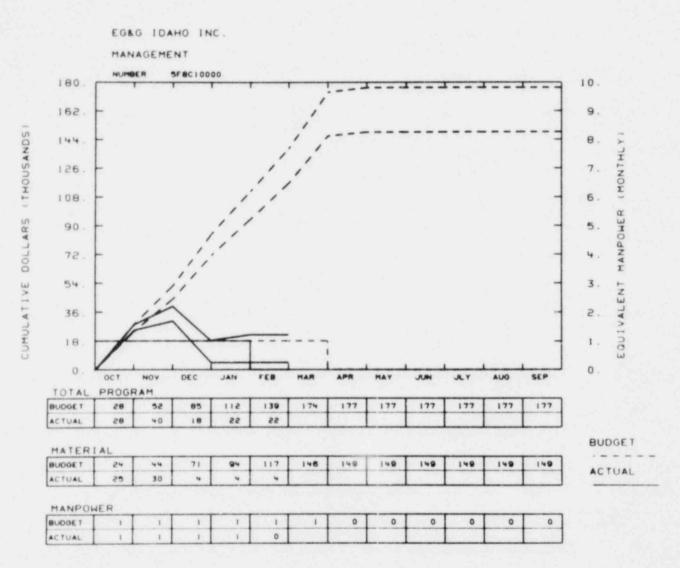
This activity has incurred delays due to higher priority work associated with the Wyle test data reporting.



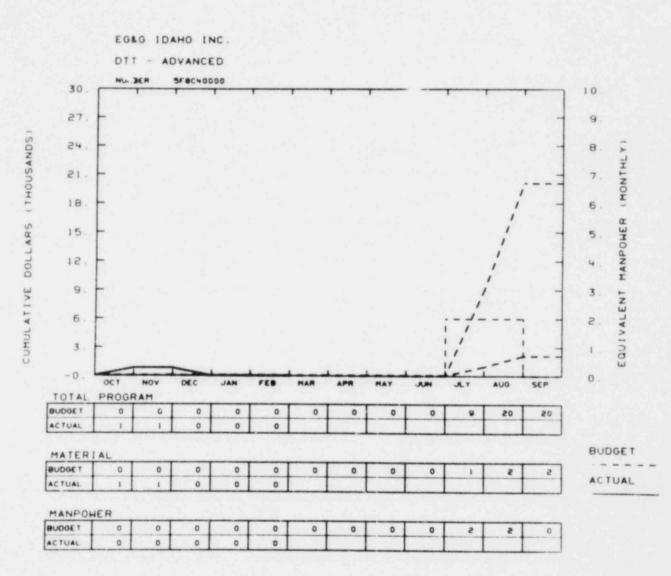
The decrease in costs is due to reversal of overaccrual of Morrison-Knudsen payments for December 1979 and January 1980.



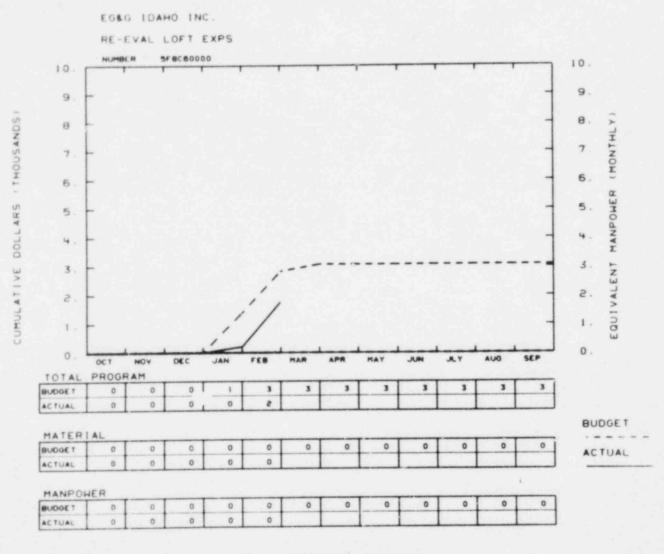
The task has overrun the budget due to charges in computer charging algorithms. Costs are under investigation.



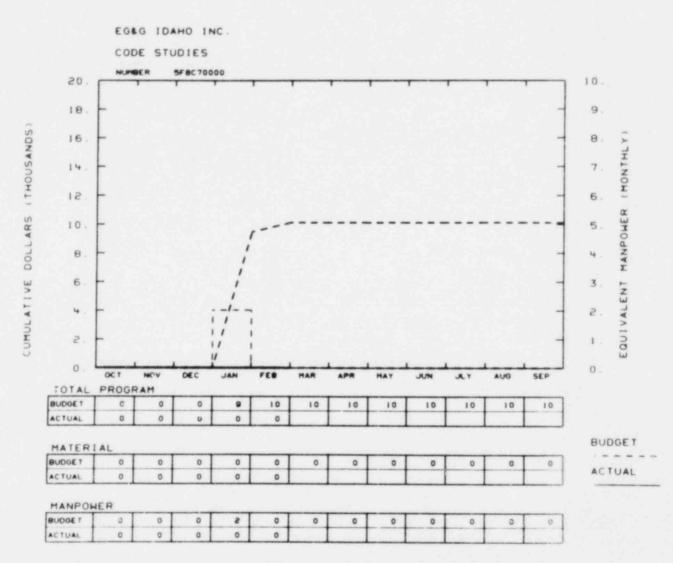
No significant variance.



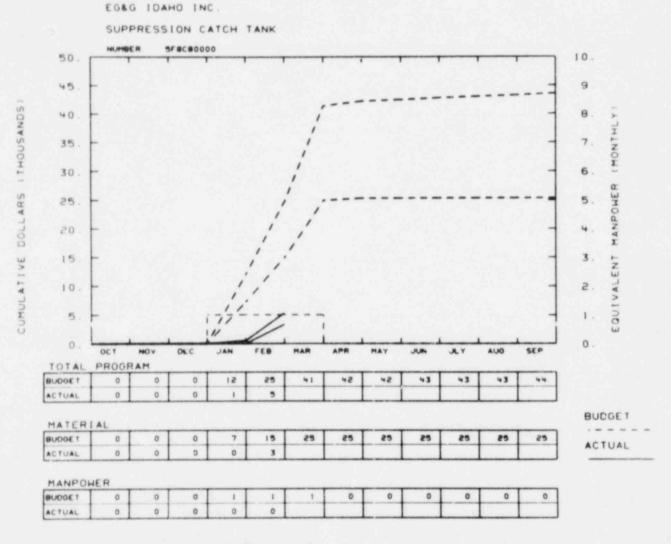
No significant variance.



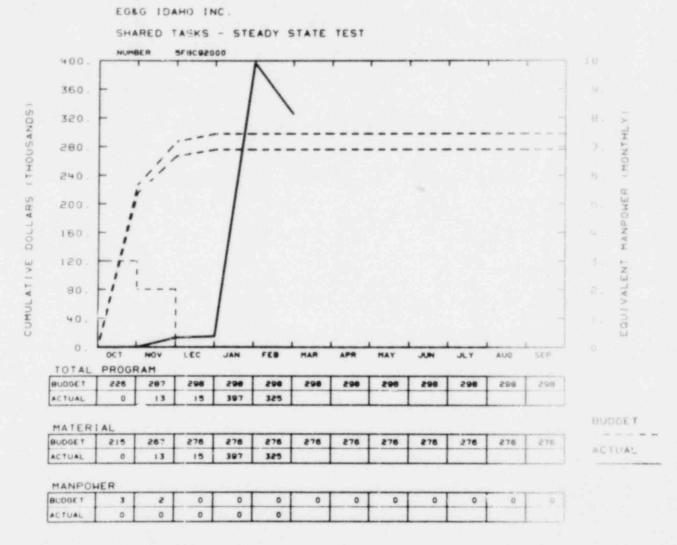
No significant variance.



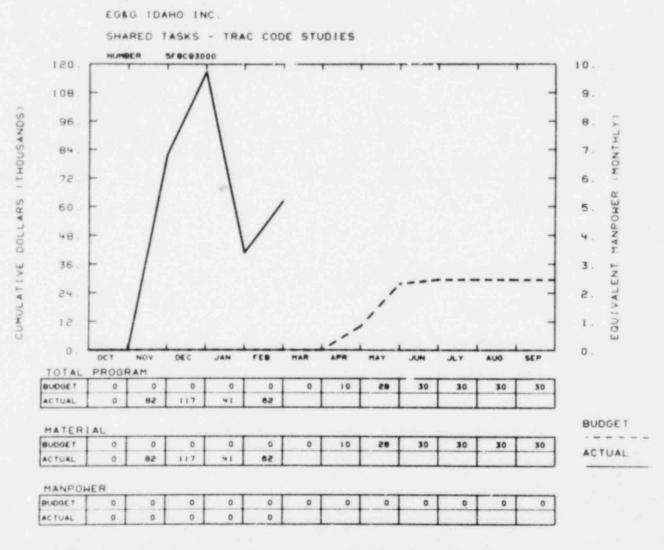
Work associated with this task has been delayed.



No significant variance.

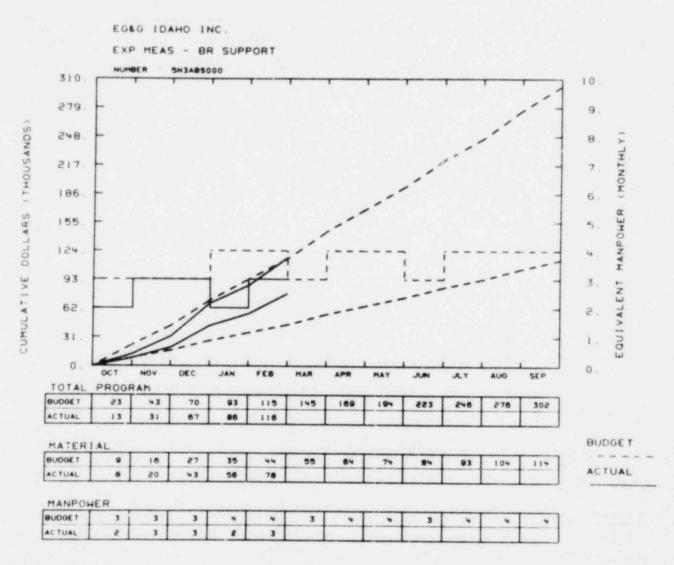


The decrease in costs is due to reversal of overaccrual of Morrison-Knudsen payments for December 1979 and January 1980. Two-phase loop construction costs have overrun the budget. A CCB will be written to use contingency as soon as total costs are finalized.

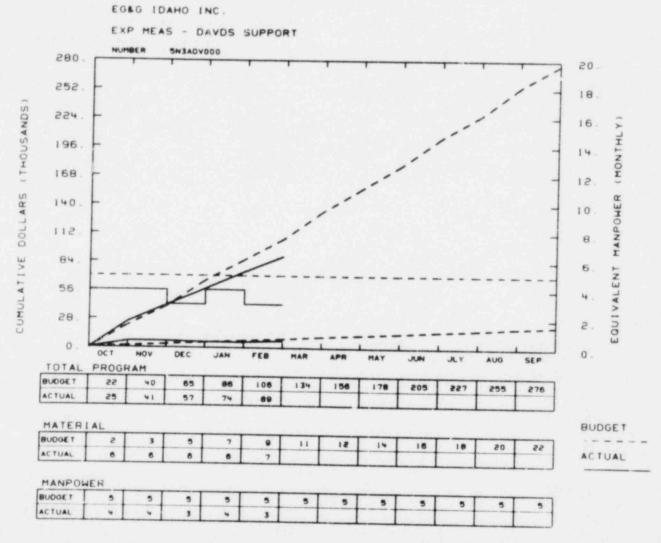


The task has overrun the budget due to changes in computer charging algorithms. Costs are under investigation.

LOFT Cost Accounts
5N3Axx--NRC Cost Accounts

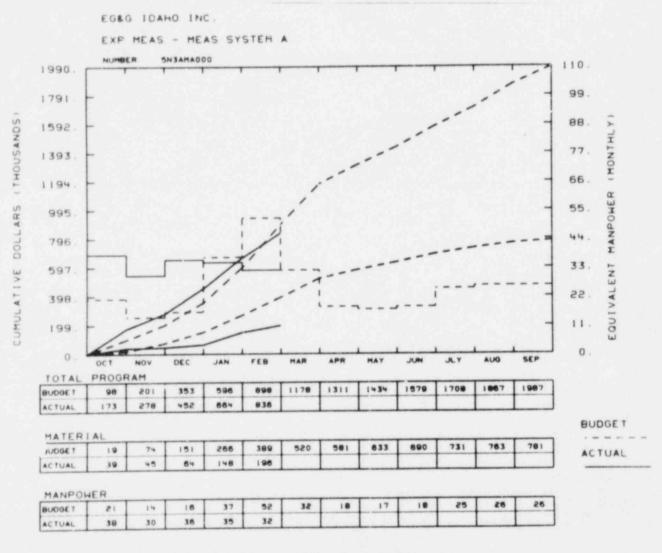


No significant variance.

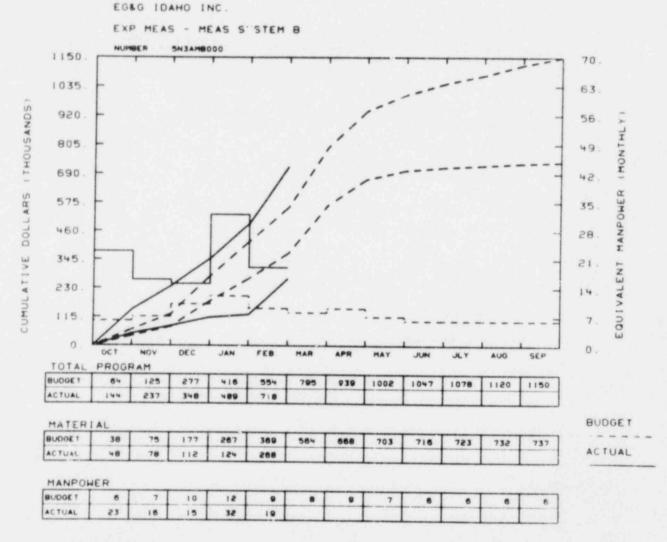


Understaffing for of February contributed to the underspending variance; another person, who will be funded from this task, has been hired.

The task is being reevaluated and may require the preparation of a $\ensuremath{\mathsf{CCB}}$ action.



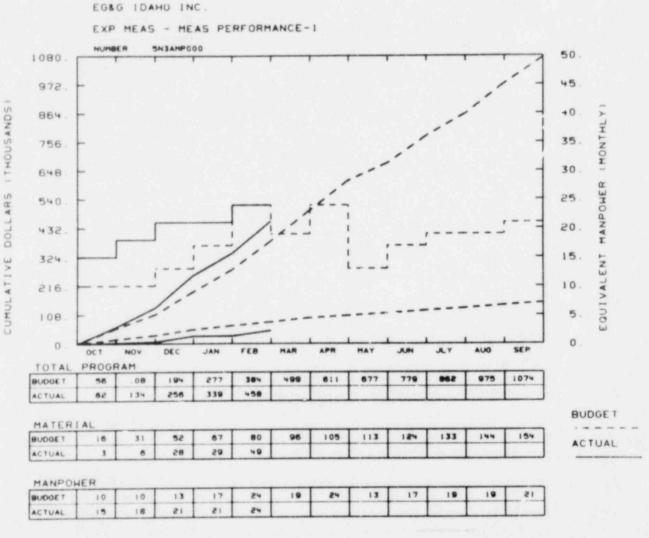
No significant variance.



The pulsed neutron activation task for L3-2 required an extensive effort that was not originally scheduled, therefore a CCB action is in process but is not reflected in the graph.

Development costs for qualifying vendors to produce zircaloy thermocouples has been excessive. CCBs are in process to adjust the funding and to request additional funding for this task.

Funds for the ultrasonic density detectors were transferred to management reserve. A CCB action is in process, requesting foreign funds for this task, while costs are still being accrued against the original charge number.



The majority of expected instrument procurement, fabrication, and testing was completed in the first part of the year.

Manhours are high and materials dollars low because fabrication was costed as manhours rather than as materials dollars as budgeted.

A CCB action is in process, adjusting the PMS-IV files to reflect the spending rate.

PERFORMANCE ANALYSIS

The LOFT Performance Measurement System provides timely, valid project status information that combines cost and schedule performance data for trend analysis. The Budgeted Cost of Work Scheduled (BCWS) forms a Performance Measurement Baseline for subsequent comparisons with the Budgeted Cost of Work Performed (BCWP). The BCWP also is compared with the Actual Cost of Work Performed (ACWP).

	BCWS			BCWP	ACWP		
	Month	Year-To-Date	Month	Year-To-Date	Month	Year-To-Date	
5N2D000	406	2012	234	1457	148	1345	
5N4K000	169	699	128	495	83	436	
5N4P000	88	436	74	268	51	260	

For 5N2D000, refer to the comment on the summary cost account chart.

For 5N4K000, refer to the comment on the summary cost account chart.

For 5N4P000, refer to the comment on the summary cost account chart.

BUDGET STATUS REPORT

TABLE 2. LOFT FY-80 SUMMARY BUDGET STATUS REPORT NUCLEAR REGULATORY COMMISSION (In Thousands of Dollars)

LOFT WBS#	189	Q80-3-0 (CCB 80-50)	Approved CL.I CCBS	Current PMB # Q80-2-2	Approved CL.II CCBs	Current BAC
5N1XX	A6048	4,741		4,741		4,741
5N2XX	A6053	4,219		4,219		4,219
5N3XX	A6043	8,010		8,010		8,010
5N4XX	A6107	10,805		10,805		10,805
5N5XX	A6122	3,674		3,674		3,674
5N6XX	A6110	3,710		3,710		3,710
5N7XX	A6054	7,596		7,596		7,596
5N8XX	A6108	755		,755		,755
5NXXX		43,510	-0-	44,933	-0-	43,510
		NRC discre		50		
		NRC manage		580		
		Total NRC		44,140		

TABLE 3. LOFT FY-80 SUMMARY BUDGET STATUS REPORT OF LOFT FOREIGN FUNDS (In Thousands of Dollars)

-							
LOFT WBS	189	Q80-3-0 (CCB 80-50)	Approved CL.I CCBS	Current PBM # Q80-3-1	Approved CL.II CCBs	Current FY-80 Budget	Authorized Spending Limit
5FAXX	A6273	3		3		3	3
5FNXX	A6271	45		45		45	45
5F7XX	A6104	443 ^b	230 ^C	673		673	673
5F8XX	A6111 a	453		453		453	453
5F9XX	A6104S	0		0		0	0
5fXXX		944	230	1174	0	1174	1174
			tingency rese			127 376	127 376
		Total FY-80	LOFT foreign	1,677	1,677		
		Foreign fun	ds spent thro	6,860	6,860		
		Foreign fun	ds budgeted i	n FY-81		170	170
		Total forei	gn funds rece	ived to date		8,707	8,707

a. PBF lead rod tests are budgeted in FY-80.b. Adjustment due to data input error.c. Authorized by action of CCB 80-50.

TABLE 4. FEBRUARY CHANGE CONTROL BOARD ACTIONS

CCB#	WBS#	Title	Action		
80-29	55N9431	FMIRC	Cancelled		
80-29					
Rev. 1	55N9431	FMIRC	Approved		
80-31	5N4J060	Sample System Shielding	Deferred		
80-46	54J040A	WGPS Vault Exhaust	Approved		
80-47	53AMB04	Cladding Thermocouples	Approved		
80-50	5N00000	LOFT Q80-3 Baseline	Approved		
80-59	54J040H	WGPS Third Isolation & Pressure			
		Reducing Valves Mod.	Approved		
30-60	54J040E	WGPS Remote Oxygen Anal. Mod.	Approved		
80-64	5F7C700	Ultrasonic Density Detectors	Deferred		
30-65	55LPY01	Experimental Physics	Approved		
30-66	54K460A	Initiation of CIS on High CV			
		Radiation Level	Approved		
80-67	54JTM01	Evaluate Critical Valve Position			
		Indication	Approved		
30-68	53AMA11	Transit Time Flowmeter	Approved		
30-69	5N8VMXX	Real Time Computer Models For			
		LOFT Oper. Augmentation Program	Deferred		
30-70	4292C00	189 A6048 Program Planning and			
(PBF 80-	13)	Analysis	Approved		
30-71	5N6X000	Common Support - Quality	Approved		
80-73	54J04^	WGPS Redundant Cam Task	Approved		
80-74	54J04L	WGPS Spare Parts Task	Approved		
80 - 78	54H0180K	BS-RABV Removal	Deferred		
80-79	54JTAN001	Line Item Support TAN-TSF			
		Upgrade	Approved		
30-81	5XXMR80	Revision of Management Reserve			
		Alignments	Cancelled		
80-84	51BEP01R5	RELAP 5 Support	Approved		

LOFT CAPITAL EQUIPMENT STATUS REPORT THROUGH FEBRUARY

Schedule 189a	TITLE	Prior Year Uncosted	Current Year Funds	Total Available to Cost	Current Year Costs	Outstanding Commitments	Balance less Costs & Corm.	Estimate to Complete	Balance
500001	Integral System Design & Fab.	101,730	-0-	101,730	4,562	32,991	64,177	93,283	3,555
500004	LOFT Operations	126,419	-0-	126,419	48,240	-0-	78,179	76,849	1,330
500005	UT & Requalification Program	218,034	-0-	218,034	-0-	158,722	59,312	220,400	[2,366]
	TOTAL DOE	466,183	-0-	466,183	52,802	191,713	201,668	390,532	2,519
A-6061	Experimental Measurements	788,769	789,421	1,578,190	446,261	231,008	900,921	1,120,379	11,550
A-6084	Integral System Design & Fab.	689,139	1,421,579	2,110,718	141,971	198,262	1,770,485	1,972,725	[3,978]
A-6088	LOFT Operations	18,091	89,000	107.091	14,880	-0-	92,211	91,480	731
	TOTAL NRC	1,495,999	2,300,000	3,795,999	603,112	429,270	2,763,617	3,184,584	8,303
	TOTAL LOFT	1,942,182	2,300,000	4,242,182	655,914	620,983	2,965,285	3,575,116	10,822