

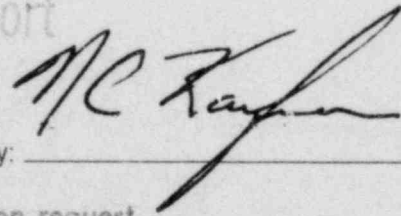
# INTERNAL TECHNICAL REPORT

Title: LOFT MONTHLY PROGRESS REPORT  
FOR APRIL 1980

Organization: LOFT Program

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NRC Research and Technical  
Assistance Report



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## CONTENTS

DIRECTOR'S MONTHLY SUMMARY . . . . .	1
ACCOMPLISHMENTS . . . . .	2
LOFT TECHNICAL SUPPORT DIVISION . . . . .	2
LOFT OPERATIONS DIVISION . . . . .	14
LOFT MEASUREMENTS DIVISION . . . . .	15
LOFT PROGRAM DIVISION . . . . .	23
SUMMARY OF JAPANESE-FUNDED (JAERI) TASKS . . . . .	25
SUMMARY OF GERMAN-FUNDED (FRG) TASKS . . . . .	27
SUMMARY OF JAERI/FRG SHARED TASKS . . . . .	29
SUMMARY OF NETHERLANDS-FUNDED (ECN) TASKS . . . . .	29
SUMMARY OF AUSTRIAN-FUNDED (SGAE) TASKS . . . . .	31
SUMMARY OF SWITZERLAND IN-KIND (EIR) SUPPORT . . . . .	32
FOREIGN COOPERATIVE SUPPORT TO LOFT . . . . .	32
SUMMARY OF KERNFORSCHUNGSZENTRUM KARLSRUHE (KfK) . . . . .	32
PERFORMANCE ANALYSIS . . . . .	107

## FIGURE

1. LOFT management summary schedule . . . . .	34
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## TABLES

1. Foreign Funds Availability at End of April 1980 . . . . .	108
2. Foreign Funded Task Summary at End of April 1980 . . . . .	109
3. LOFT FY-80 Summary Budget Status Report Nuclear Regulatory Commission . . . . .	111
4. LOFT Funding Summary for FY-80 . . . . .	112
5. LOFT FY-80 Summary Budget Status Report of LOFT Foreign Funds . .	113
6. LOFT Capital Equipment Status Report Through April . . . . .	114

LOFT MONTHLY PROGRESS REPORT FOR APRIL 1980

DIRECTOR'S MONTHLY SUMMARY

During April, activities continued in preparation for Tests L6-5 and L3-7, currently scheduled for June 1 and June 23. April activities at the LOFT facility were particularly centered around the installation of new and improved instrumentation.

During April, a new baseline budget was established for FY-1980, the third major change this fiscal year. This baseline plan reflects a revised test sequence and dates reflecting test needs (particularly instrumentation), and current funding. Costs to date are in good agreement with the current budgets and the authorized funding levels.

During April, a revised budget was proposed for FY-1981 and a new budget was proposed for FY-1982. These budgets and their assumptions were presented to NRC in mid-year reviews and important decision elements were identified.

A reorganization of the LOFT personnel was announced this month. The LOFT Experimental Program Division was replaced with the LOFT Program Division, managed by Dr. C. W. Solbrig, and with the LOFT Measurements Division, managed by D. J. Hanson.

NRC Research and Technical  
Assistance Report

## ACCOMPLISHMENTS

### LOFT TECHNICAL SUPPORT DIVISION

1. A document was prepared which provided the detailed basis for the assessment of LOFT relative to the implications resulting from the Three Mile Island (TMI) accident.
2. The blowdown safety analysis for L3-7 experiment was completed which scopes the entire test.
3. A training lecture on the philosophy behind, and use of, the LOFT Technical Specifications was presented to the Key LOFT Technical Support and LOFT Facility Division staff.
4. The L3-7 experiment was reviewed relative to the need for an additional failure modes effects and consequence analysis (FMECA). The review indicated the L3-1/L3-2 test provided bounding analysis.
5. The functional requirements for the isotope detection system has been prepared. These functional requirements define the minimum requirements for subsequent system design and are responsive to NUREG 0578.
6. The design requirements were provided for the gas sampling portion of the isotope detection system.
7. DOE approved Technical Specification changes for the following:
  - A Restoration of coincident emergency core cooling system (ECCS) initiation signals from pressurizer level and primary pressure during shutdown conditions,
  - B. The addition of cycles for reactor vessels filler studs to table 3.1-1, and
  - C. Accumulator valve lineup requirement.



8. The L6-5 experiment Technical Specification changes were submitted to DOE for approval.
9. Evaluation was completed of facility capability to provide up-to-date, accurate information on facility status during an emergency.
10. A task force was participated in to evaluate and provide recommendations for the LOFT plant operations manual (POM) casualty procedures.
11. Recommendations were provided for the LOFT emergency procedures which incorporate recommendations of NUREG 0654.
12. A preliminary LOFT PDQ-7 analysis, performed in April, indicates changing the centerline thermocouple (TC) insulator material from hafnium oxide to beryllium oxide will reduce the power depressing from about 10% to about 5% in those fuel rods with centerline TCs.
13. The preliminary revised reliability analysis (LTR 16-4) of the reactor shutdown system (RSS) has been issued for review.
14. LOFT environmental conditions specification EC-3 has been issued for review and comment.
15. Procurement activities for reload core II upper core support structure is continuing. Final approval of all documentation will be complete by May 20.
16. Assembly activities on A3 fuel module are continuing at TAN-615. Total completion of the fuel module is scheduled for June 15.
17. Assembly of the poison rods for the CRAs for reload core II is continuing as scheduled at Exxon. Final assembly of the rods is nearing completion with shipment to EG&G expected by May 15.

18. Fuel module irradiated recovery cask (FMIRC) was moved to the hangar at TAN for storage, and the training setup for the phase III fuel examination was dismantled. The equipment will be set up in the Hot Shop and the phase III examination started in June.
19. Downcomer stalk removal cask fabrication activities are continuing in the TAN-607 shop with fabrication estimated to be 50% complete. Difficulty is still being encountered in procurement of the required depleted uranium shield blocks due to closure of National Lead by the New York Environmental Protection Agency. The problem is being worked by procurement; however, this is beginning to impact the final assembly schedule.
20. Design of LOFT fuel rod transfer cask is continuing on schedule. The final draft of the requirements document has been released for approval.
21. The Site Work Release (SWR) to replace lightning arrestors in 13.8 kV busses A and B and test all 13.8 kV cables and switchgear from TAN substation to and throughout LOFT is being worked.
22. The SWR for intact loop trace heaters and control cable installation outside the containment for the small break test has been released.
23. The SWR for installation of trace heaters, thermocouples, and wiring to control valves CV-P138-57 and -58 in the containment for use in small break tests has been released.
24. Connectors in both fuel assembly A and B junction boxes have been modified to allow access to tungsten-rhenium thermocouples. The tungsten-rhenium thermocouple extension wire has been received. The modifications are almost complete.
25. An SWR was released to rectify discrepancies found during the vital power system survey to verify loads, size circuit breakers, conductor size, and current of the vital power circuit boards.

26. The small break instrumentation cable installation provides circuits for new experimental measurement instruments needed for L3-4. This includes installation of new facility and containment cabling for a new four-beam nuclear-hardened gamma densitometer. It also includes connecting five new thermocouples, three new pressure transducers, a flow velocity transducer, a flow momentum transducer, and an additional densitometer detector onto existing, borrowed circuits.
27. An SWR has been written to re-install and restore electrical equipment and cabling that was removed or disconnected on the mobile test assembly (MTA) to give adequate access to the PC-2 area for the installation of the new modular drag disc turbine (MDTT) rake sweeplet.
28. The testing of TAN area transformers in the LOFT power distribution system (including various oil and winding insulation tests) is being subcontracted. An SWR is being written for site support. Tests are required to assess the effects of stress on the system caused by transient overvoltages.
29. Consultation is continuing with Energy Inc. on their proposed proposal for electrical power bus A-1 extension.
30. The requirements to install humidistats and heaters to alleviate condensation in the 13.8 kV switchgear and prevent damage by arcing is being reviewed.
31. The new air compressor installation "as-built" drawing documentation is continuing.
32. The work on the graphic symbols standard drawing continues. Sheet one is out for comments. The drawing will be used as the standard for the Electrical Design Branch.

33. Work on the composite drawing for the 13.8 kV power distribution system continues. The drawing will include the 13.8 kV power distribution to all areas of Test Area North with breakdowns for TAN/TSF, TAN/LOFT, and TAN/WRRTF.
34. Design continues on the package to install voltage regulating transformers for power circuits supplying the plant protection system (PPS) cabinets in the main control room.
35. A control power supply design for diesel generator "A" is being worked. The new design will make the present controls free from loss of control power when the station battery is inoperative. Presently the alternate supply is vital battery A.
36. The investigation of frequent failures of the primary system motor generator (PSMG) inverter continues.
37. The output capability of the vital batteries is being investigated to determine if replacement or modifications are necessary. A Gould representative inspected and supervised tests of vital batteries A and B. The written report is being evaluated.
38. A General Electric relay is being evaluated to replace several Federal Pacific protective relays which are in service in switchgear for diesel generator A and 2.4 kV bus A2. A trade-off study between the present relay requirements and the specifications of available seismic-qualified relays is being conducted.
39. The design for the power and control circuits for the containment valves used in the LOFT decontamination system continues. The system is required to decontaminate the blowdown header after L2-5.
40. Junction box JB-6 modification (near the reactor) has been completed. This junction box is where circuits going to the reactor head instrumentation stalks are routed to the proper core penetrator cable. The modification adds six connectors and a shield ground plane.

41. The installation of the new PSMG air handling system has been completed.
42. The study of the LOFT vital loads has been completed; the LOFT technical report (LTR) has been written and is out for review. The total study is to determine actual demand versus rated demand and determine if additional load capacity is required. Testing is being performed as required.
43. Installation of a larger motor for the propane pumps has been completed. This larger motor will improve the pump head size for the air-cooled condenser auxiliary heaters.

Relay B, in the polar crane controls, was rewired so its contacts will be able to interrupt the high transient currents.

44. New facility temperature monitoring (FTM) system drawings are being generated to show the FTM system from end to end. Present drawings are fragmented pieces of the system. The new drawing will integrate all these fragmented drawings into a manageable document.
45. The FTM full-page printer installation was completed. New read only memories (ROMs) were burned in and installed. Final checkout has been delayed due to malfunctioning of the channel A microprocessor.
46. The valve flow monitor has been released for installation. This system consists of acoustical sensors located downstream of the pressurizer relief valve to detect low and high flows.
47. Both control valves CV-P4-90 and CV-P4-91 use a portion of a control circuit previously used by the secondary coolant system condenser fan pitch circuit. The circuits have redundant current-to-current converters. The redundant converters are being removed.
48. A work package (SWR) has been prepared to place power operated relief valve CV-P139-5-A on vital power rather than commercial power.

49. Long lead items have been ordered for the seismic meteorological monitor system. This system will provide seismic and meteorological measured parameters to the data acquisition and visual display system (DAVDS) and Prime systems analog data will be digitized at a local computer automated measurement and control (CAMAC) crate and then sent to the DAVDS and Prime computers by a common serial interface communications link.
50. The preliminary instrumentation design has been completed on the FMIRC. Work on the new system configuration is in progress and selection of hardware is almost complete. This new configuration will use a microprocessor to interface with the load cells.
51. An additional reactor sump level indicator is being installed. The new channel will provide redundant level measurements in the reactor sump. The installation is 50% complete. However, the detector assembly is being returned to the vendor for installation of the proper in-containment-type wire.
52. An oxygen monitoring system is being installed in the waste gas processing system (WGPS). The monitors will provide redundant measurement of oxygen levels for gas being processed. The installation is 60% complete. Additional circuitry is being added to each monitor to provide alarm functions as the vendor-supplied equipment did not fulfill LOFT requirements.
53. Additional continuous air monitors (CAMs) for H&V system 10 are being built. Three CAMs will be built, one for seismic qualification and two for redundant operating CAMs. Work is 90% complete. An installation package is being prepared also. The package will install redundant CAMs at the H&V system 10 north and south air intake areas.
54. Two CAMs are being built for Building TAN-726 to monitor air particulate in the warm waste area. The CAMs will be identical to those used for the H&V system 10 installation. Work is 90% complete.



55. A visitors-display-initiate circuit is being installed for test L6-5. The circuit will initiate the display for small-break series tests.
56. Modifications to the loss-of-coolant experiment (LOCE) panel are being made. The changes will provide interlocks and inhibits for the two small-break valves being installed.
57. Two-out-of-three logic coincidence has been installed for the high pressure injection system (HPIS) and low pressure injection system (LPIS) pressure signals for use during test L6-5. The system will now require two of three PPS pressure channels to trip before ECCs action is initiated.
58. Pressurizer level and pressure coincidence has been reinstalled for the L6-5 experiment. A key switch will provide coincidence between the two signals only for non-critical operation of the plant.
59. A modification of the pressure reduction and decontamination spray pump has been completed for the L6-5 experiment. Motor start interlocks will prevent accidental spray down of the containment.
60. A new type of differential pressure transmitter has been installed in channel "C" of the PPS flow system. The unit will be evaluated during the L6-5 test.
61. A pressurizer level instrument is being designed. The instrument will be microprocessor-based and will provide a compensated-pressurized level measurement. Three such instruments will provide input to three channels of the PPS level measurement system. A single prototype will be installed for use with test series L3-4. A software design review has been held, and the final hardware design review will be held in May.
62. The pressurizer pressure control system is being replaced by a more flexible and more accurate digital comparator system. A final design review will be held in May.

63. The LOCE system upgrade is in the preliminary stage of design. The upgrade will replace the existing system with a more flexible computer-controlled system.
64. The WGPS filter installation instrumentation package is being reengineered due to numerous mechanical scope changes. The package will provide process instruments for the air filter system to be installed on the WGPS vault. A final package is planned for release in May.
65. Preliminary design is in progress on additions to the LOFT radiation monitoring system. A master plan will be made to define the need for new equipment to be installed. Areas of new design are as follows:
  - A. Airlock wide area monitors
  - B. Additional CAM and remote area monitor (RAM) installation
  - C. SPINGS-2A stack monitor
  - D. Radiological release data logger
  - E. Portal monitoring systems
66. Accumulator level instrumentation improvements were completed. A new high pressure sightglass was added to the level instrumentation on Accumulator A.
67. Newly identified instrumentation required for tests L3-7 and L6-5 necessitated modifications to the primary loop piping, the steam generator secondary, and the broken-loop steam generator simulator. Approximately 90% of this work is complete.
68. A new valve was installed in the cold leg warmup line. The valve orientation was configured to ensure the pressure from the intact loop is being applied over the valve plug. Flanges were also added to facilitate maintenance.

69. The valves and associated instrumentation located inside the shielding adjacent to the upper region of the blowdown suppression tank have been allocated to outside the shielded area to facilitate maintenance and calibration.
70. Testing was completed on the new deaerator discharge pressure regulator and the modified air-cooled condenser propane pump.
71. The LOFT spent resin container transport plan has been completed, classifying the effluent package as high level beta-gamma waste. Preliminary construction planning has been completed.
72. The snubber test stand has been delivered. Installation will require approximately three months.
73. Specifications for the isotope detection system are currently in the signature route with all reviews completed. Conceptual design for the entire system is complete. Estimates are now being prepared.
74. On the waste gas processing system, the oxygen analyzer modification and rupture disc installation are complete. The operating procedure and drawings are being updated.
75. In the radiochemistry area, work is continuing to support the new stack monitor installation. In addition, calculations have been completed indicating the volume of non-condensable gases at various sources available to the primary system at various temperatures and pressures. Considerable resources were allocated in response to customer questions pertinent to hydrogen control within LOFT and documented in the LOFT TMI assessment basis notebook.
76. LOFT computer software configuration control standard practice has been drafted and is being reviewed.

77. Phase I display correction and new displays for Phase II have been initiated for the operational diagnostics and display system (ODDS) color displays at LOFT. New displays will include core temperature, decay heat removal water supplies, and some graphical displays of safety-related data.
78. Meteorological and radiological data channels have been added for recording on the LOFT process computer.
79. Containment isolation valves CV-P11-58 and CV-P11-5, re replaced in the high level waste system.
80. Totalizing flowmeters in the cold waste and warm waste effluent lines were replaced.
81. Nitrogen has been piped to the air-cooled condenser fan pitch controls to eliminate the air-line-freezing problem downstream of the regulator.
82. A vent system has been installed from the installed hydrazine storage cabinet to eliminate accumulation of vapors near the secondary coolant water treatment station.
83. A larger reservoir has been installed for jacket water expansion for diesel generator "A". The previous expansion tank was undersized.
84. Controls to pressure reduction and decontamination system pumps were modified to reduce the possibility of inadvertent spray operation in the containment vessel.
85. Installation of an auxiliary air supply system was completed in Room B-239 to provide additional cooling to the PSMG sets.
86. Replacement was completed of reciprocating air compressor with a rotary compressor to eliminate the floor vibration problem in the DAVDS room.

87. Installation was completed of replacement actuators on the H&V System 9, containment isolation valves. The new actuators have a higher torque rating to provide more reliable closure of the valves.
  
88. All sources of service water to the pressure reduction sump were isolated to eliminate the possibility of service water affecting the chemistry of the contents of the sump.

LOFT OPERATIONS DIVISION

1. Primary, secondary and inservice inspection (ISI) testing in preparation for tests L6-5 and L3-7 has started. Tests include PAC-1 check-out, hydros of the 4- and 8-inch IW headers, the 3-inch demineralized water line, and a pneumatic test of the WGPS.
2. Radiography of the welds for the primary coolant system (PCS) hot leg vertical sweepolet has been completed and preparations are being made to fill the primary and secondary coolant systems. Hydros of the primary and secondary systems are scheduled for early May.
3. Vital battery load discharge tests were successfully completed on both batteries "A" and "B" this month.



## LOFT MEASUREMENTS DIVISION

1. A design review of the Modular Drag-Disc Turbine Transducer (MDTT) improvement modifications for the MDTT drag-disc was held. All drawings and assembly and test procedures have been reviewed. The modifications will be incorporated into all future instruments.
2. An investigation of the MDTT bearing failures was completed and the results reported in letter RLD-13-80. As a result of the committee recommendations, a bearing design study has been initiated. The goal of the design study is two-fold. The first goal is to provide a bearing by test L3-4 which will survive the high initial flows and still provide a low flow measurement. In order to have a new bearing this quickly, a modification of the existing design will be necessary which may limit the lifetime of the bearing. The second goal is a complete redesign of the bearing assembly to provide a combination of survivability and long lifetime. Proposals for a design to meet the first goal have been completed.
3. Three MDTTs have been fabricated for use in PC-2 location during the L3-7 test.
4. Repair of the liquid level transducer signal conditioning electronics was completed. Several integrated circuits had to be replaced in order to maintain the synchronization between all timing and control modules.
5. A second draft of the liquid level transducer failure analysis LTR was completed and circulated for comments.
6. Activities were completed to prepare the transit time flowmeter (TTF) rake for optimal operation during the L3-7 small-break test.

7. The first draft of an LTR on the TTF was completed. The report covers the application of a thermocouple correlation type transit time flowmeter for fluid velocity measurements during the LOFT small-break test series.
8. The failed gamma densitometer detectors have been replaced and functionally tested in PC-1 and BL-1. A full complement of four detectors is installed and working at PC-1 and BL-1. All detectors but the C beam are installed and functioning at BL-2. Four detectors will be installed at PC-2 upon completion of the PC-2 sweeplet changeout.
9. A draft of the nuclear-hardened gamma densitometer operation and maintenance manual was released for review.
10. A conceptual design of the nuclear-hardened densitometer for the LOFT PC-3 location was completed. The concept includes an all-tungsten design, vortex cooling, and inert-atmosphere-encapsulated detector assemblies. The mounting technique is such that the entire weight of the densitometer is suspended from the steam generator sliding support plate and physical attachment is made to the primary piping. This conceptual design will be furnished to the designer and fabricator of the densitometer.
11. A contract was awarded to Measurements Incorporated for the design and fabrication of the nuclear-hardened densitometer at the PC-3 location in LOFT. The instrument is scheduled for installation for the L3-6 test.
12. Installation of pressure transducer PdE-SV-01, which will measure level in the blowdown suppression tank level transducer, was completed. Check out of the transducer and control system will take place when the blowdown suppression tank can be filled to a level greater than 55 in., which will occur when the plant is filled.

13. A final design review was held on the small-break upstream and downstream instrument spools and on the instrumentation associated with them. The instruments reviewed were:

A. Low energy nuclear-hardened gamma densitometer, consisting of beryllium composite windows, americium-241 radiation sources, source shutter assembly, low energy radiation detectors, high speed pulse mode preamplifiers, detector canister assembly, collimator block mounting assembly, and a 7-in. thick shield assembly.

F. Three thermocouple pipe inserts.

C. Small-pipe, full-flow turbine (modified from LOFT piping turbine).

D. Small-pipe drag screen (modified from LOFT piping drag disc).

All small-break instrumentation designs were approved contingent upon documentation of analysis performed and release of drawings.

The new densitometer design incorporates the lessons learned from previous LOFT densitometers. This includes air cooling, remote preamplifiers, improved service ability, and improved radiation source shutter assembly.

14. Thirty-five drawings of the two spool pieces and the instruments for the small-break tests were completed. About 22 of these were released to allow fabrication of components. The remainder will be released by the first week in May.

15. Twenty beryllium composite windows were built for fabrication of two gamma densitometer spool pieces for the small-break tests.

16. The thermocouple pipe insert, thermocouples, and conax fittings fabrication was completed for the small-break tests.

17. Review of operation and maintenance manual (OMM 141-26) for the pump speed probes was completed.
18. The zircaloy filler wire has been eddy-current tested and prepared for delivery to Exxon to be used in fabricating the cladding thermocouples (TC).
19. Preliminary Zr-Ti braze button work is being done at TAN. Braze specification and procedure has been written.
20. Forty-six good, titanium-sheathed thermocouples from reworked Control Product and Semco thermocouples have been shipped to Exxon for use on the F1 bundle.
21. The 292 zircaloy tubes have been eddy-current tested and categorized. About 20% of the tubes have defects presently defined as unacceptable (greater than 20% of wall thickness). The balance of the tubing order (558 pieces) has been received at Central Facilities and eddy-current testing has commenced.
22. The design for the small-break thermocouple support has been completed.
23. The LOFT Instrument Attachment Specification, INC 60040, was revised. This revision is directed towards improving instrument handling and care at the fuel fabricator's facility and TAN-615.
24. Three fuel pin plenum pressure transducers were source inspected and shipped to Exxon. All required pressure transducers are now at Exxon.
25. Five model A thermocouples were source inspected and shipped to Exxon. Sufficient centerline thermocouples are available for the F1 bundle. The centerline program is winding down as deliveries near completion.

26. Modification work for L3-7 has been completed on the pulsed neutron activation (PNA) downstream detector shield. This modification called for removal of 4 in. of lead completely around the detector housing and replacing them with poly brick. In addition, a 2-in. poly plug was placed in front of the detector face. The detector was placed in the housing and an end-to-end check made; the detector assembly functioned satisfactorily. Neutron flux monitors were placed in appropriate locations to aid in subsequent analytical work.
27. The L3-2 experiment data report (EDR) was distributed, with special distribution made to Nuclear Regulatory Commission (NRC) and various other national laboratories.
28. The necessity of DE-PC-3 for L3-5 was examined with respect to slug flow phenomenon. Using Semiscale results, it was determined that DE-PC-3 would not be needed for L3-5.
29. "MASFLO" (critical flow study program) was modified to accept varying slip; the program is now operational.
30. Plot request for both L6-5 and L3-7 EDRs were prepared.
31. Two LDRs (BST energy balance and Wyle data K-factor for mass flow calculations) were prepared.
32. Final draft of a LOFT cabling data base manual (CDB-1) has been sent to Configuration Document Control and Services (CDCS) for publication.
33. The quarterly LOFT Instrument Status Report was published and distributed.
34. Design and cooling of the MODCOMP pump coastdown program are complete and the debugging phase has been started.

35. Subroutines have been completed and documented which will permit a least squares-fit to steam table data. This work will be used in the ISDMS EXPERT processor and will be placed on the MODCOMP.
36. The absolute pressure uncertainty analysis is in progress. The nuclear-hardened densitometer uncertainty analysis report is finished except for final editing and printing, which is expected to take until early June. Existing DAVDS documentaion has been reviewed and a requisition and a sole-source justification have been written in preparation for having Science Applications, Inc. (SAI) do the DAVDS uncertainty analysis. Quick uncertainty analyses were done for the LOFT subcooling estimate and for turbines operating in the low velocity range. A draft of a Power Burst Facility (PBF)-proposed, EG&G-wide, standard practice document on estimating uncertainties was reviewed; it is unacceptable because of ambiguities in basic concepts.
37. Two EG&G representatives visited Combustion Engineering in Windsor, Connecticut, to deliver the LOFT instrumented fuel bundle mockup for a two-week display period, and explain and discuss the LOFT program, measurement arrangements, loss-of-coolant-experiment (LOCE) data obtained, and measurement operating experience.
38. An Instrumented Fuel Branch representative presented to the Nuclear Regulatory Commission in Bethesda, Maryland, an explanation of the LOFT suggestion for reconsideration of the light pressurized water reactor (LPWR) fuel rod prepressurization feature for potential improved LOCE resistance.
39. A change order was issued to Exxon Nuclear Co. to discontinue activities on:
  - A. Centerline thermocouple protective sleeves,
  - B. Instrumented fuel rod strongbacks,
  - C. Improved instrument protection in a trailer storage area,



- D. Instrument protection fixtures, and
  - E. Improved instrument cable support during fuel bundle assembly, because Exxon's estimated costs exceeded the budget allowance.
40. Exxon Nuclear Co. completed the following:
- A. Test report for the LOFT core mounting plate orifice sizing,
  - B. F1 fuel bundle guide tube instrumentation assemblies,
  - C. An improved instrumented fuel rod vacuum weld chamber and associated hardware,
  - D. An improved guide tube locking ring weld head tool,
  - E. Improvements to the thermocouple bake out oven, and
  - F. Improvements to the instrumented guide tube weld tooling.
41. Technical reports issued include the following:
- A. LTR LO-14-80-067, "LOFT Reload Core Laser Weld Contamination."
  - B. LTR 20-99, "A Summary and Assessment of Return to Nucleate Boiling Phenomena During Blowdown Tests Conducted at the INEL."
  - C. LTR LO-00-80-68, "Calculations of the Mechanical Stability of the Zircaloy Cladding of the LOFT Peripheral Fuel Rods."
42. Reactor Physics Branch completed preliminary analysis for comparing the fuel rod power depressant effect of the LOFT (hafnium-insulated, rhenium/tungsten-augmented sheath) and PBF (beryllium-insulated, molybdenum/rhenium sheath) centerline thermocouple designs. Preliminary results indicate a 10% power reduction for the LOFT design

compared to a 5% power reduction for the PBF design in the LOFT rod bundle geometry.

43. An Instrumented Fuel Branch representative attended the Nuclear Regulatory Commission (NRC) sponsored core melt experiments discussions in Silver Springs, Maryland, and later recommended that LOFT become involved in the program planning because of its unique facilities for handling and posttest examination of a core-melt test.
44. The Fuel Requalification Working Group post L3-2 recommendation that the LOFT fuel is in acceptable condition for test L6-5 was completed and transmitted to the LOFT Review Group.
45. Mr. Calhoun of Tennessee Valley Authority (TVA) requested that EG&G send personnel to assist with Sequoyah Unit 2 startup rather than Unit 1. Unit 2 startup will be in late 1980. They already have sufficient engineering support people for Unit 1 startup.
46. The second set of DOE/NRC comments have been incorporated into the L3-7 experiment operating specification (EOS).
47. Revised figures being added to the LOFT Experimental Program Division (LEPD) document will then be ready to route for review comments and approval.
48. The L6 series EOS was transmitted to Department of Energy (DOE) for approval.
49. Test L3-4 planning analysis is about 50% complete.
50. The February LOFT Review Group Meeting minutes were distributed.

## LOFT PROGRAM DIVISION

1. A RELAP5 experimental prediction was completed for LOCE L3-7 up to the time when the system went solid.
2. Material circulation calculations for L3-1, L3-2, and predictions for L3-7 were presented to the Advisory Committee on Reactor Safety (ACRS) in Washington.
3. Reformatting of the RETRAN output tape to LOFT data bank was completed and experiment prediction data for L6-1, L6-2 and L6-5 were prepared for the data bank.
4. Two papers were submitted to the American Society of Mechanical Engineers (ASME) for winter annual meeting.
5. A draft of "RELAP5 Base Model for LOFT" was completed and reviewed.
6. A paper, "Modeling a Nuclear Reactor for Experimental Purposes," was completed for presentation at the American Engineering Model Society on May 6.
7. As part of the ACRS meeting on natural circulation, a presentation on the modes, magnitudes, durations, and transitions of natural circulation observed in LOCE tests L3-1 and L3-2 was given.
8. A list of 13 research information letters was defined by the NRC and LOFT personnel. Dates for completion of the drafts by LOFT are tied to the LOFT test schedule and may change.
9. A model of phase separation in a tee (L3-5/6 application) was developed. Calculations compare well with the data. A report is being written.

10. Calculations have been continuing on self-powered neutron detectors (SPND) signal interpretation in the area of coolant density variation sensitivity. The calculation of the coolant density variation in the core that caused the core-wide rewet in L2-3 has been completed. The calculation used void fraction as the independent variable in an iterative scheme involving ANISN-W gamma transport and PDQ neutron flux multiplication calculations. The results indicate the void fraction in the center assembly was 0.16 during the rewet. Analysis of this calculation including determination of the uncertainty is continuing.

## FOREIGN FUNDED TASK SUMMARIES

Foreign funded and in-kind LOFT support projects are summarized in this section.

### SUMMARY OF JAPANESE FUNDED (JAERI) TASKS

#### 1. Task 5F8C1 -- JAERI Management

The JAERI program was reviewed and action was taken towards improving the budget projections. However, the cost graphs for this month do not reflect these changes. Several new projects were funded in April with the recent contribution of JAERI funds.

#### 2. Task 5F8C4 -- Advanced DTT

All equipment related to the use of the pressure-balanced drag turbine was located and arrangements made for forwarding the equipment to LOFT Test Support Facility (LTSF) for future testing in the blow-down facility. Work was initiated to determine testing requirements, prepare conceptual test plans, and develop specific costs associated with testing.

#### 3. Task 5F8C5 -- PBF/LOFT Lead Rod Test

The final draft report was reviewed and comments resolved. A July completion date is expected for issuance of the report.

4. Task 5F8C6 -- Reevaluation of LOFT Experiments

The report was finished, reviewed, and distribution defined. Distribution has not been made.

5. Task 5F8C7 -- Miscellaneous Code Studies

This task was inactive during the month.

6. Task 5F8C8 -- LTSF Suppression Tank

The catch tank was installed in the position required for performance evaluation testing of L3-4 instruments. The header and steam spargers were installed inside the tank.

7. Task 5F8CA -- PC-3 and Small-Break Densitometers

This task includes two subtasks, the PC-3 densitometer and the small-break densitometer. A conceptual design of the nuclear-hardened densitometer for the PC-3 location was completed. Evaluation of responsible, responsive bidders continued. A contract was awarded for the design and fabrication of the nuclear-hardened PC-3 densitometer.

The small-break densitometer task was initially funded by FRG under Task 5F7CA, and most of the April progress is reported under that activity. JAERI support started in April and will continue until task completion. Work supported this month included ordering the



densitometer data system electronics. Also, the inside diameter hole of the downstream side of the turbine-drag screen spool piece was drilled.

#### SUMMARY OF GERMAN FUNDED (FRG) TASKS

1. Task 5F7C1 -- FRG Management

The FRG support program was reviewed with emphasis on the budget status. Corrections to the FRG cost graph budgets are being processed.

2. Task 5F7C4 -- Miscellaneous Tasks

The conceptual design for the vertical test section of the two-phase loop has been reviewed. Final design drawings are being prepared.

3. Task 5F7C5 -- Steam Probe

This task is presently inactive.

4. Task 5F7C7 -- Ultrasonic Density Detectors

One of the final ultrasonic density detectors (UDDs) for the F1 bundle upper structure failed during the acceptance test. Failure analysis revealed a shorted coil. This was repaired and all units are now completed. In addition, the interface electronics drawings are finished. This concludes the effort for the UDD task.

5. Task 5F7C8 -- LOFT State Vector

This task was not initiated in April, but responsibility for the task effort has now been assigned.

6. Task 5F7CA -- Small-Break Instrumentation

The first phase of this task was FRG funded, and the second phase is JAERI supported. The FRG resources were exhausted in April and future work will be reported under JAERI activity. This month a final design review was held on the upstream and downstream instruments and the hardware associated with them. All designs were approved contingent upon documentation of analyses performed and release of drawings. Thirty-five drawings of the two spool pieces and instruments were completed. Twenty beryllium composite windows were built for fabrication of the two gamma densitometer spool pieces. The thermocouple pipe insert was fabricated and fabrication of the thermocouples and conax fittings to be installed was completed. One upstream or gamma densitometer spool piece was fabricated for calibration and counterpart testing at LOFT Technical Support Facility. One small-break turbine and one small-break drag screen were fabricated. The drag screen will undergo oven testing; then, both will be assembled into the downstream spool piece. The tungsten collimator blocks for the gamma densitometer were received. The densitometer radiation detectors were received.

SUMMARY OF JAERI/FRG SHARED TASKS

1. Task 5F9C92 -- Two-Phase, Steady-State Tests

The new facility was transferred from the construction contractor to EG&G Idaho. The system operational (SO) testing program is 90% complete. The subtask to provide as-built drawings remains to be completed. The boiler installation has been likewise completed, and the facility has been transferred to EG&G Idaho. Work continued on preparation of a construction package for installation of a boiler building.

2. Task 5F9C93 -- TRAC Code Studies

No change occurred during the month. A task report has been prepared and is being reviewed within EG&G.

SUMMARY OF NETHERLANDS FUNDED (ECN) TASKS

1. Task 5FNCl -- ECN Management

The ECN support was reviewed this month, with emphasis on budget integrity. Changes are in process to improve the budget and actual cost comparisons.

2. Task 5FNC3 -- RPI Subcontract

The Rensselaer Polytechnic Institute (RPI) LINAC is now operational and neutron tagging studies are expected to start in May. The detector windows were established and the flow measurement orifices were calibrated. The analytical computer program written to calculate critical mass flowrate is running but requires improvements in the iteration procedure. Such improvements are now being incorporated.

3. Task 5FNC5 -- INEL Support to RPI Subcontracts

The data from Wyle tests III A101 and III A102 were reformatted, reviewed, and sent to RPI for use in the DTT modeling effort. RF data needs in support of orifice flow modeling were also discussed.

4. Task 5FNC6 -- Analysis of PNA Techniques

This task is being performed by Rensselaer Polytechnic Institute and the current work consists of performing neutron transport calculations using the ANDYRPI program. A flow condition of single-phase water at 1000 psia, 540<sup>o</sup>F flowing in a 14-in. carbon steel schedule 160 pipe was analyzed over a 1-m length of pipe. The geometry consisted of 119 regions: 112 water regions, 6 pipe wall regions, and the air region surrounding the source and system. The program was run for a total of 50,000 neutron histories, and for each water region, the total <sup>16</sup>N production per cm<sup>3</sup> per pulse was calculated for a source intensity of  $1.3 \times 10^{10}$  neutrons per pulse. The total

$^{16}\text{N}$  produced per pulse in the water was calculated to be  $(14.77 \pm 0.06) \times 10^6$   $^{16}\text{N}$ /pulse from the track length estimator. The collision estimator method resulted in poorer uncertainty and will not be used in future calculations.

5. Task 5FNC7 -- Critical Flow Scaling Studies

No work has been performed on this new task.

6. Task 5FNC8 -- Two-Phase Loop Platform Addition and Stairs

This new task was approved this month; no work has been started.

SUMMARY OF AUSTRIAN FUNDED (SGAE) TASKS

1. Task 5FAC1 -- SGAE Management

The history and scope of the SGAE in-kind support tasks were reviewed. Actions were recommended to enhance the project and give SGAE proper credit for their contributions to LOFT.

2. SGAE In-Kind Support to LOFT

Previously negotiated support tasks include a RELAP4 scaling study, a literature and European vendor review on optical probe materials usefulness in radiation environments, and a data evaluation task related to LOFT downcomer void patterns. LOFT is preparing necessary plots and information for SGAE to perform the void pattern evaluation. The

optical material review is in progress. SGAE has been unable to install RELAP4 on a computer system, so no scaling studies have been initiated. Additional in-kind work proposals have been solicited from SGAE.

#### SUMMARY OF SWITZERLAND IN-KIND (EIR) SUPPORT

##### 1. NEPTUN Reflood Test Program

The Swiss Federal Institute for Reactor Research (EIR) is building a 37-rod, forced reflood facility to support understanding of reflood phenomena in LOFT. This facility, named NEPTUN, uses heater rods having an active length of 1.68 m, the same length as the LOFT fuel. The LOFT Program is cooperating with EIR in development of the test program and objectives. LOFT is also providing clad surface thermocouples for mounting by EIR on selected test rods. LOFT effort was directed toward obtaining material for the thermocouples. EIR continued facility fabrication and program planning during April.

#### FOREIGN COOPERATIVE SUPPORT TO LOFT

Various foreign organizations provide cooperative support to the LOFT Program. This section summarizes those efforts.

#### SUMMARY OF KERNFORSCHUNGSZENTRUM KARLSRUHE (KfK)

##### 1. LTSF 9-Rod Bundle TC Quench Test

The REBEKA and FEBA reflood programs have both provided full-length (3.9-m) electric heater rods for use in a new LTSF thermocouple (TC) quench test. All rods have arrived at Idaho National Engineering

Laboratory (INEL) in good condition, and laser welding of LOFT TCs onto one REBEKA rod has been scheduled for mid-May. Blowdown loop hardware modifications are in progress.

2. REBEKA Thermocouple Tests

The REBEKA reflood facility at KfK has planned a series of reflood tests to evaluate both TC mounting and rod clad material (zircaloy and inconel) effects. One rod contains both internal TCs and LOFT external TCs. Several tests are scheduled to evaluate the effects of reflood water velocity, initial clad temperature, and peak rod power. The gas gap composition will also be varied to study possible heat transfer resistance effects.

3. COSIMA Thermocouple Tests

The COSIMA high pressure (as PWR) blowdown facility has been used to evaluate possible effects resulting from the presence of LOFT clad TCs during a LOCE. Results have been obtained and a KfK report describing those results is anticipated by LOFT. Related RELAP4 calculations performed by EG&G Idaho have been delivered to COSIMA for review.

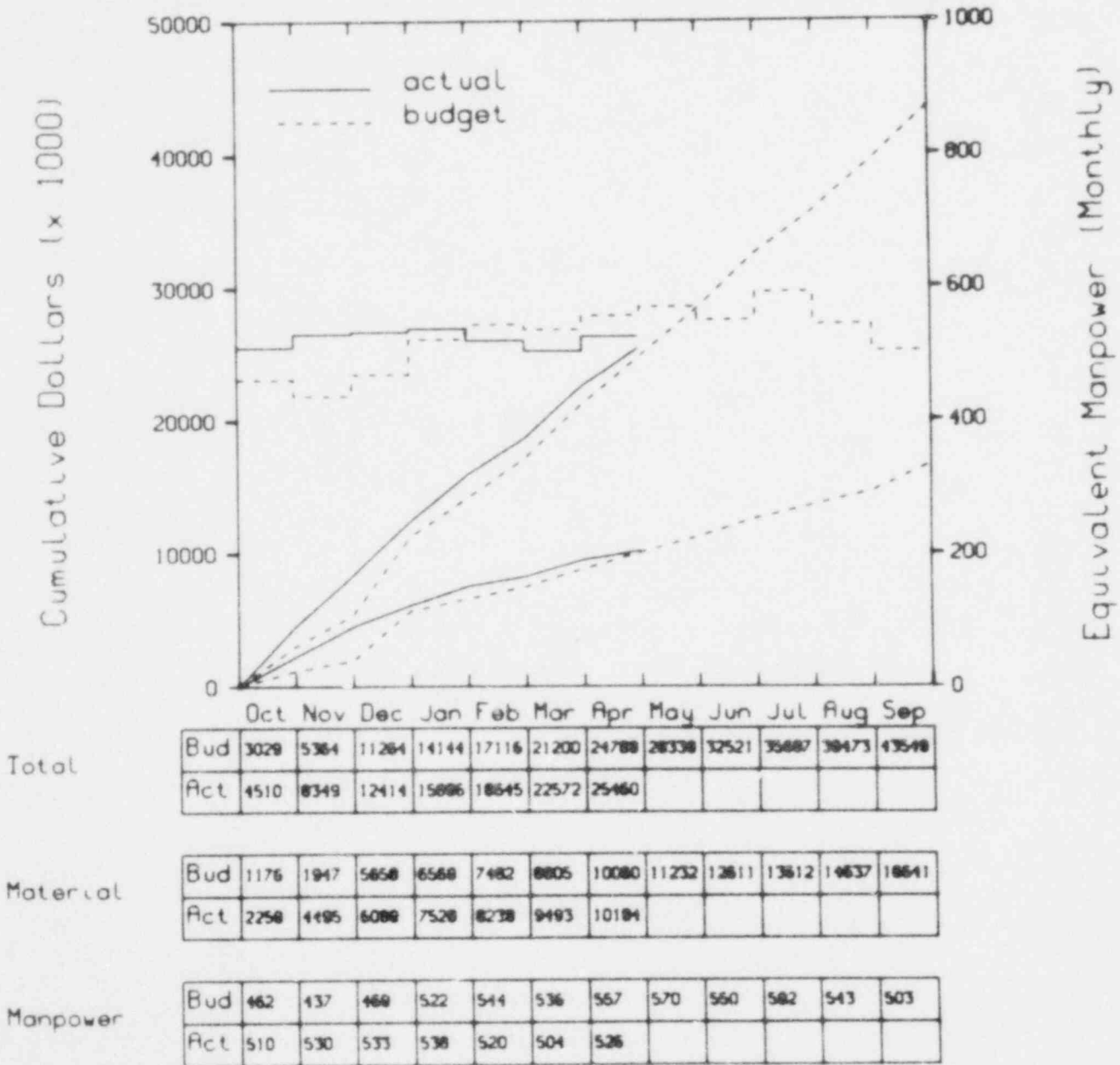




LOFT Overall Funding

5xxxxx

LOFT Program Cost/Budget Summary  
LOFT OVERALL FUNDING



The Nuclear Regulatory Commission (NRC) and foreign-funded budgets reflect the LOFT Q80-4-1 Baseline approved in March. Refer to Director's Monthly Summary for comments.

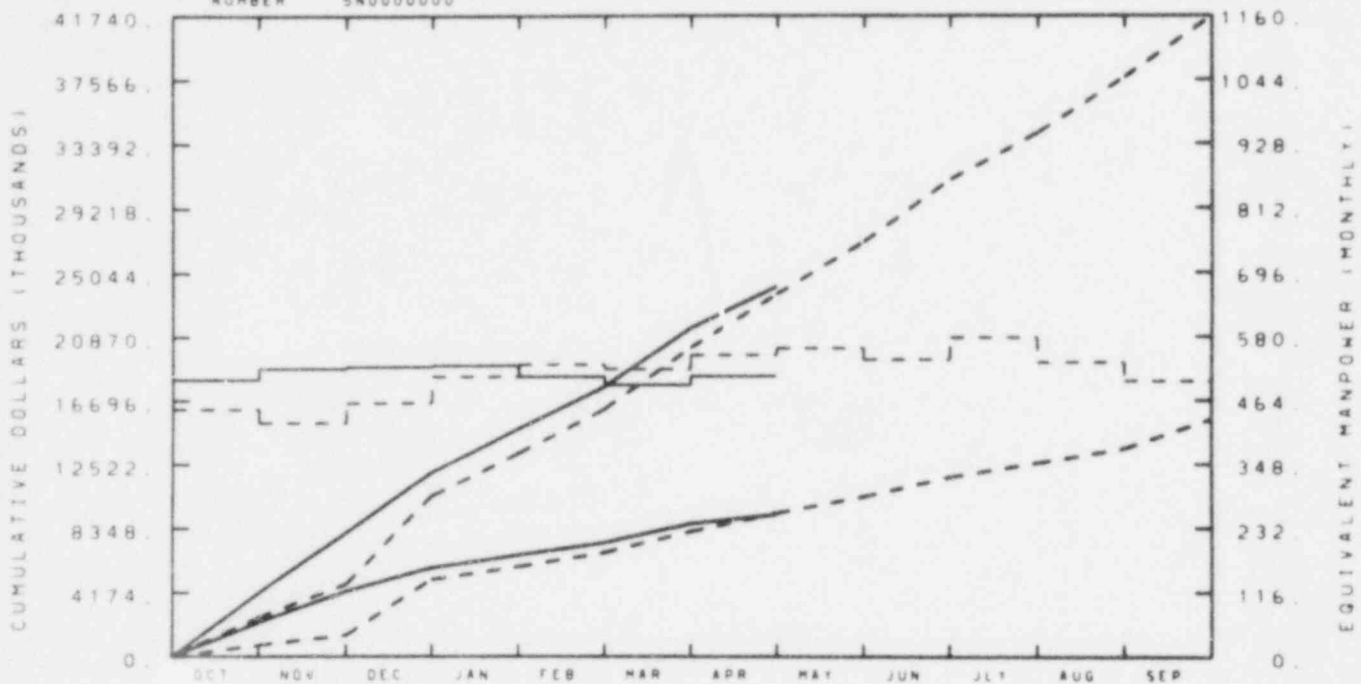
5N--NRC Operating Funding

5F--Foreign Funding

EG&G IDAHO INC.

LOFT - NRC OPERATING FUNDING

NUMBER 5N0000000



TOTAL PROGRAM

BUDGET	2536	4706	10467	13203	16120	20163	23661	27056	31077	34121	37744	41735
ACTUAL	4150	8062	12000	14816	17600	21448	24160					

MATERIAL

BUDGET	744	1402	5022	5846	6762	8123	9329	10391	11672	12595	13521	15457
ACTUAL	2230	4269	5777	6594	7395	8639	9232					

MANPOWER

BUDGET	448	423	459	507	529	521	547	559	538	578	533	499
ACTUAL	502	522	525	527	507	492	508					

BUDGET

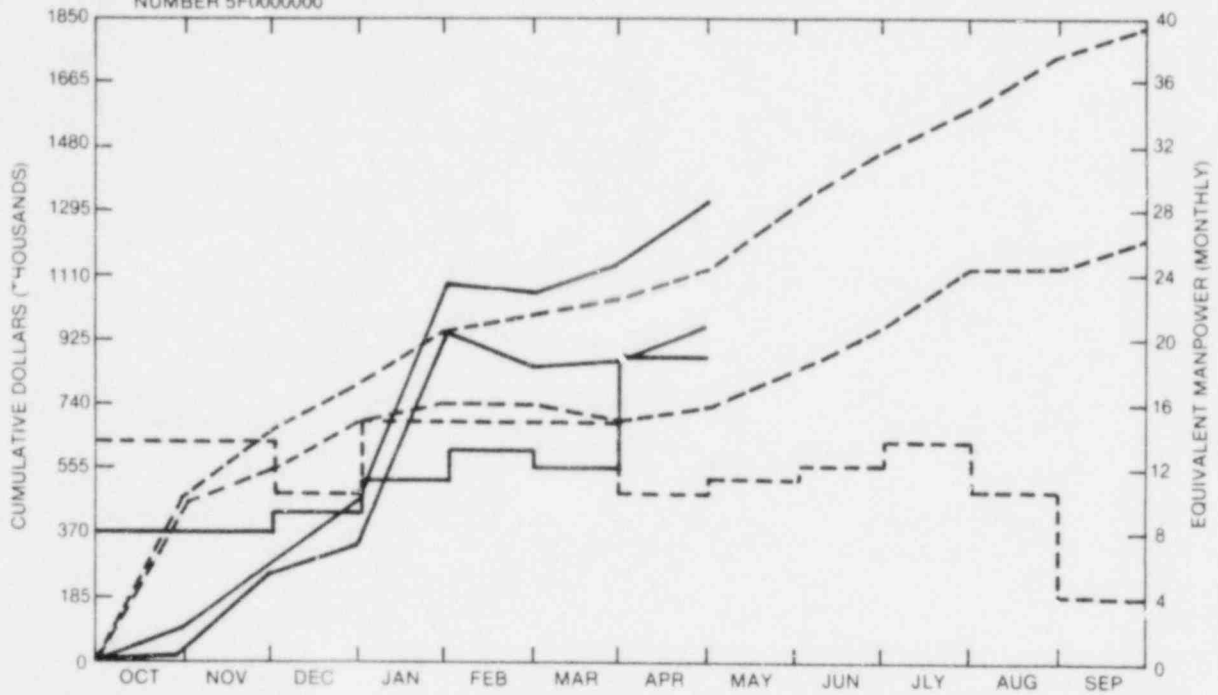
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ACTUAL

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Refer to the summary cost accounts for comments.

EG&G IDAHO INC.  
 LOFT - FOREIGN FUNDING  
 NUMBER 5F0000000



TOTAL PROGRAM

BUDGET	493	658	797	941	996	1037	1127	1283	1444	1576	1729	1814
ACTUAL	60	287	414	1080	1045	1124	1300					

MATERIAL

BUDGET	432	545	636	723	720	682	711	841	939	1017	1116	1184
ACTUAL	29	226	312	934	843	854	952					

----- BUDGET  
 \_\_\_\_\_ ACTUAL

MANPOWER

BUDGET	14	14	10	15	15	15	10	11	12	14	10	4
ACTUAL	8	8	9	11	13	12	18					

Refer to the summary cost accounts for detailed cost versus budget comments.



LOFT 189a Summary

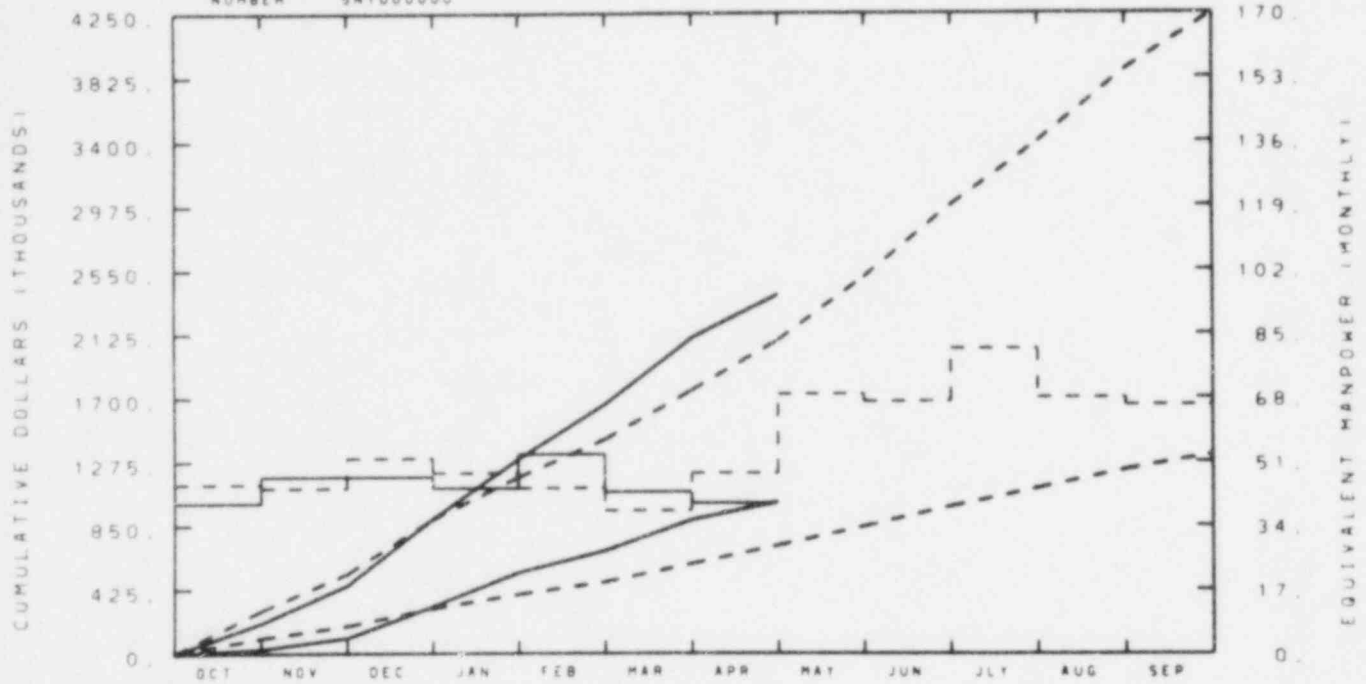
5NX--NRC 189a

5FXX--Foreign 189a

EG&G IDAHO INC.

NRC 189A A6048 - EXPER PROGRAM

NUMBER 5N1000000



TOTAL PROGRAM

BUDGET	287	530	892	1172	1423	1750	2084	2503	2981	3399	3874	4248
ACTUAL	202	453	894	1294	1656	2100	2389					

MATERIAL

BUDGET	103	183	298	392	474	595	717	844	977	1097	1222	1322
ACTUAL	30	103	312	537	682	687	1008					

MANPOWER

BUDGET	45	44	52	48	44	38	48	69	67	81	68	66
ACTUAL	40	47	47	44	53	43	40					

BUDGET

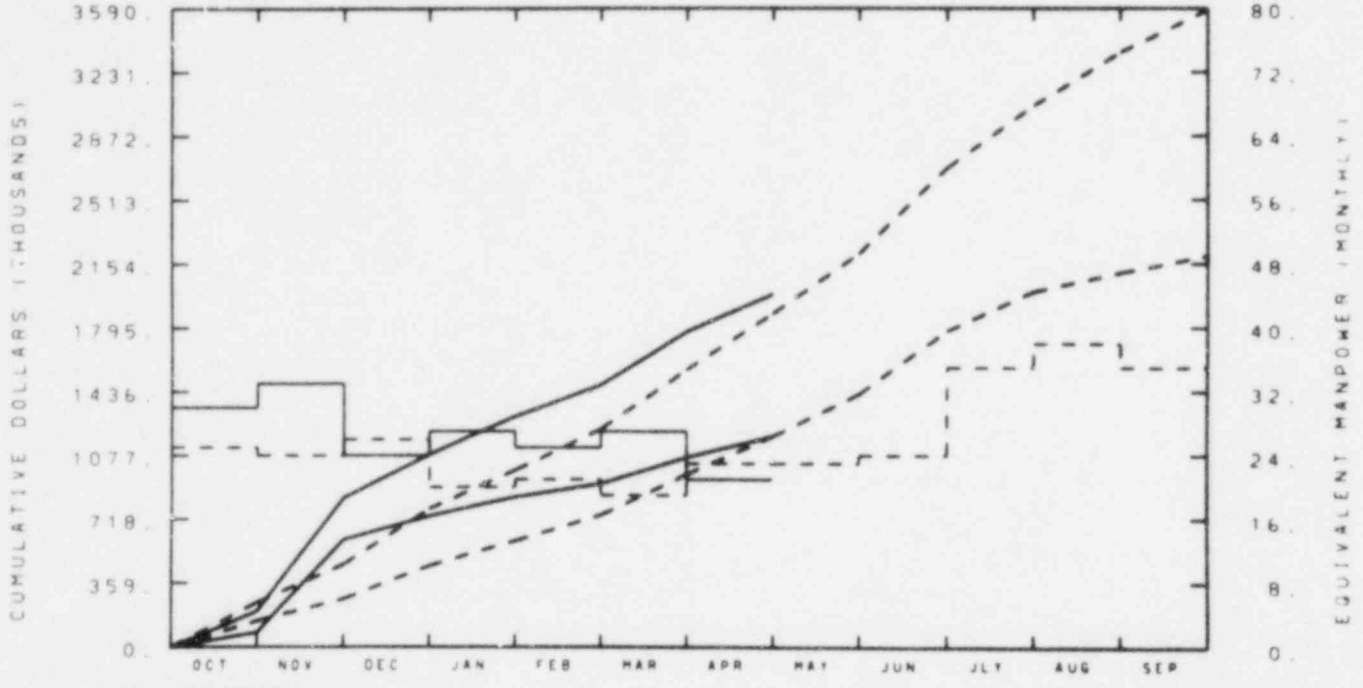
ACTUAL

The spending level has been decreased so that budget and actuals will agree by yearend.



EG&G IDAHO INC.  
 NRC 189A A6053 - FUEL

NUMBER 5N2000000



TOTAL PROGRAM												
BUDGET	250	463	775	994	1225	1559	1876	2211	2694	3043	3343	3593
ACTUAL	200	438	1082	1295	1473	1774	1984					

MATERIAL												
BUDGET	146	271	456	596	742	971	1186	1422	1777	1997	2102	2198
ACTUAL	82	403	735	843	919	1067	1184					

MANPOWER												
BUDGET	25	24	26	20	21	19	23	23	24	35	38	35
ACTUAL	30	33	24	27	25	27	21					

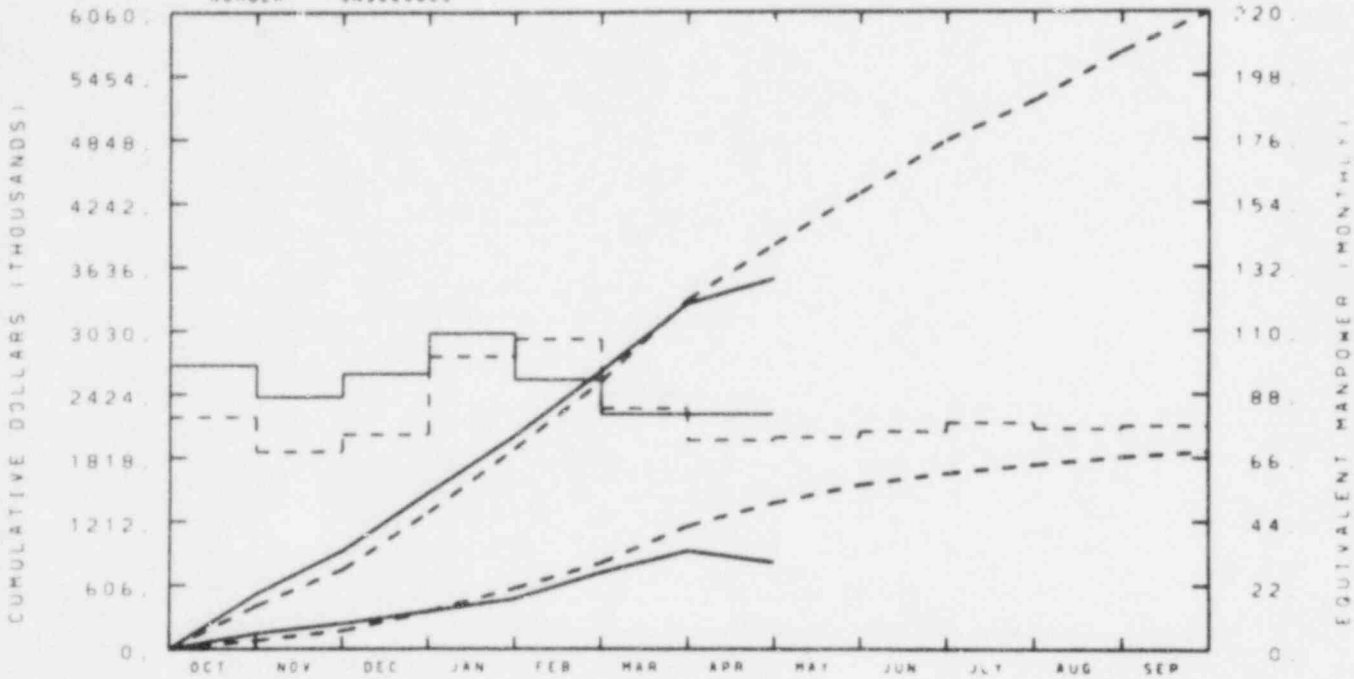
BUDGET  
 - - - - -  
 ACTUAL  
 \_\_\_\_\_

No significant variance.

EG&G IDAHO INC.

NRC 189A A6043 - EXPER INSTR

NUMBER 5N3000000



TOTAL PROGRAM

BUDGET	409	751	1292	1899	2542	3321	3851	4338	4839	5214	5680	6058
ACTUAL	521	930	1482	2022	2643	3287	3525					

MATERIAL

BUDGET	80	173	356	575	815	1167	1387	1559	1669	1751	1826	1877
ACTUAL	147	242	357	478	726	932	822					

MANPOWER

BUDGET	80	68	74	101	107	83	72	73	75	78	76	77
ACTUAL	98	87	95	109	93	81						

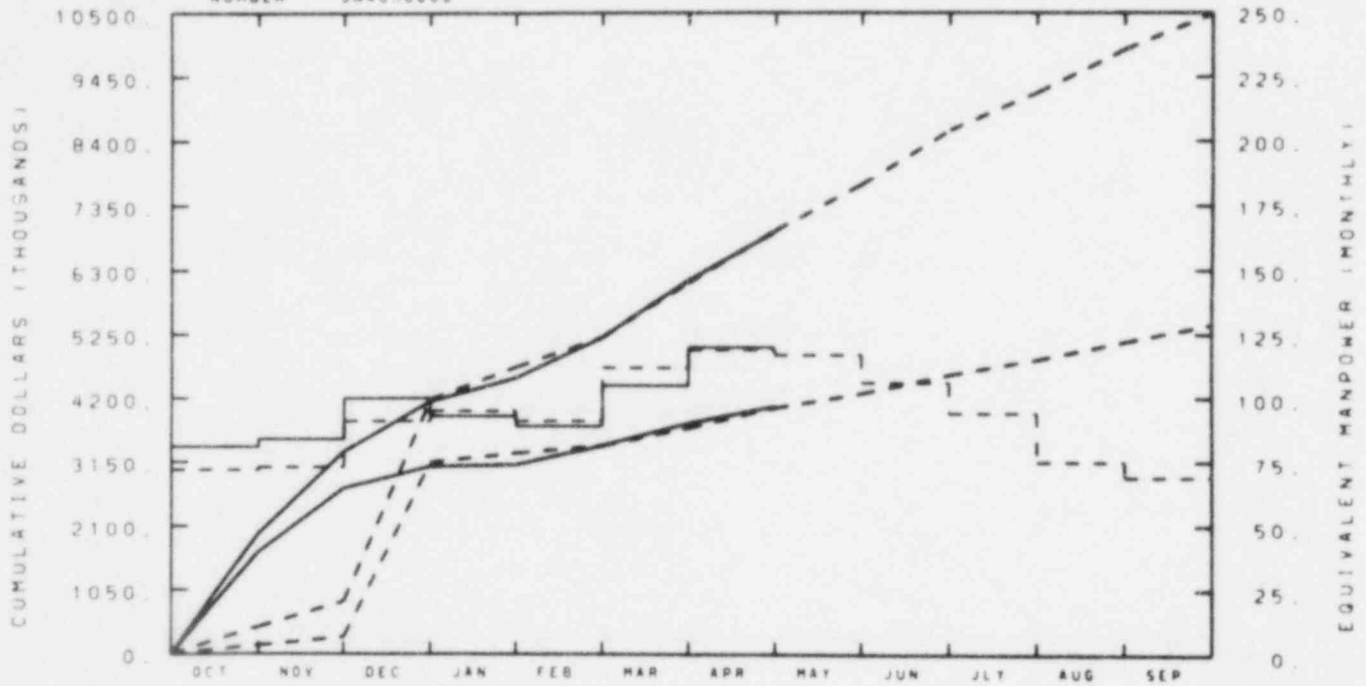
BUDGET  
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ACTUAL  
\_\_\_\_\_

Refer to the summary cost accounts for comments. Corrective action is continuing.

EG&G IDAHO INC.

NRC 189A A6107 - PLANT SUPPORT

NUMBER 5N4000000



TOTAL PROGRAM

BUDGET	448	867	4178	4711	5204	6102	6951	7696	8578	9194	9895	10492
ACTUAL	1982	3225	4149	4534	5204	6144	6932					

MATERIAL

BUDGET	142	283	3146	3295	3419	3712	4043	4277	4584	4830	5124	5407
ACTUAL	1681	2725	3078	3105	3420	3789	4067					

MANPOWER

BUDGET	72	73	91	95	91	112	119	117	106	94	75	69
ACTUAL	81	84	100	93	89	105	120					

BUDGET

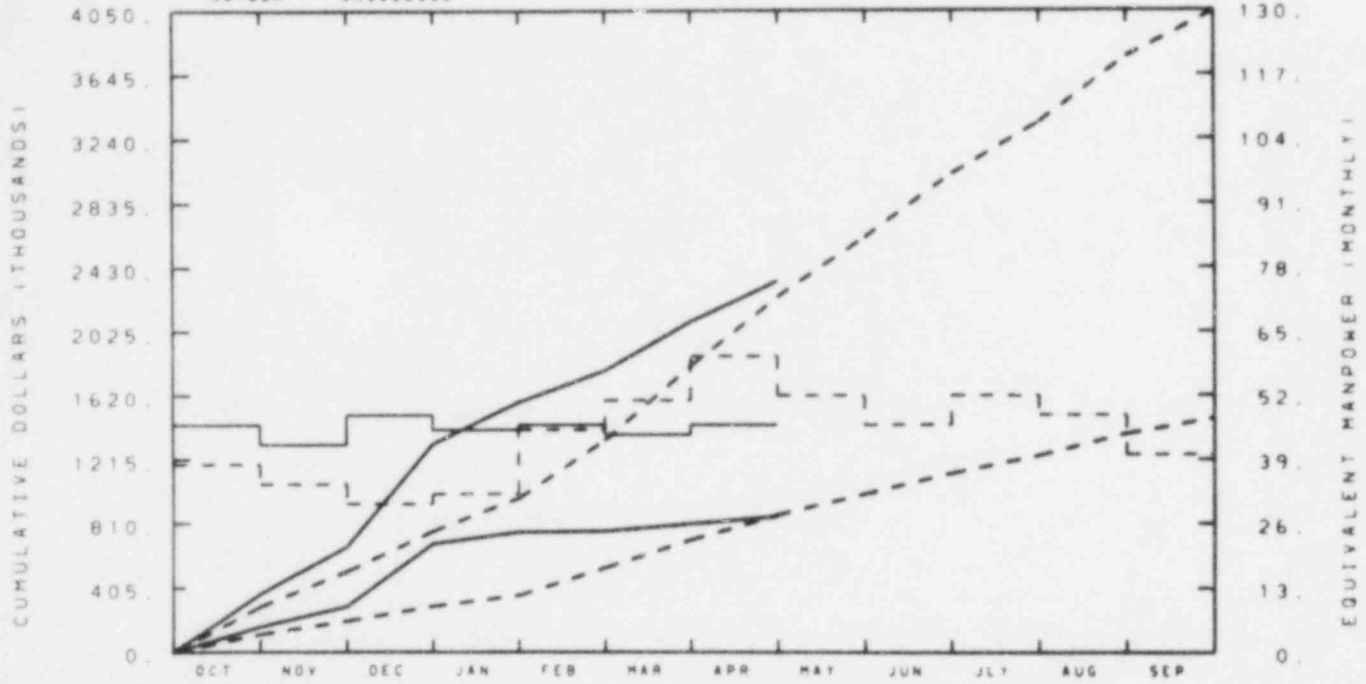
ACTUAL

No significant variance.

EG&G IDAHO INC.

NRC 189A A6122 - CORE & SAFE SPT

NUMBER 5N5000000



TOTAL PROGRAM

BUDGET	285	508	761	968	1334	1806	2246	2623	3020	3346	3761	4045
ACTUAL	366	664	1311	1575	1778	2088	2348					

MATERIAL

BUDGET	112	196	290	357	531	706	864	996	1127	1239	1378	1475
ACTUAL	160	289	684	755	762	808	855					

MANPOWER

BUDGET	38	34	30	32	45	51	60	52	46	52	48	40
ACTUAL	46	42	48	45	46	44	46					

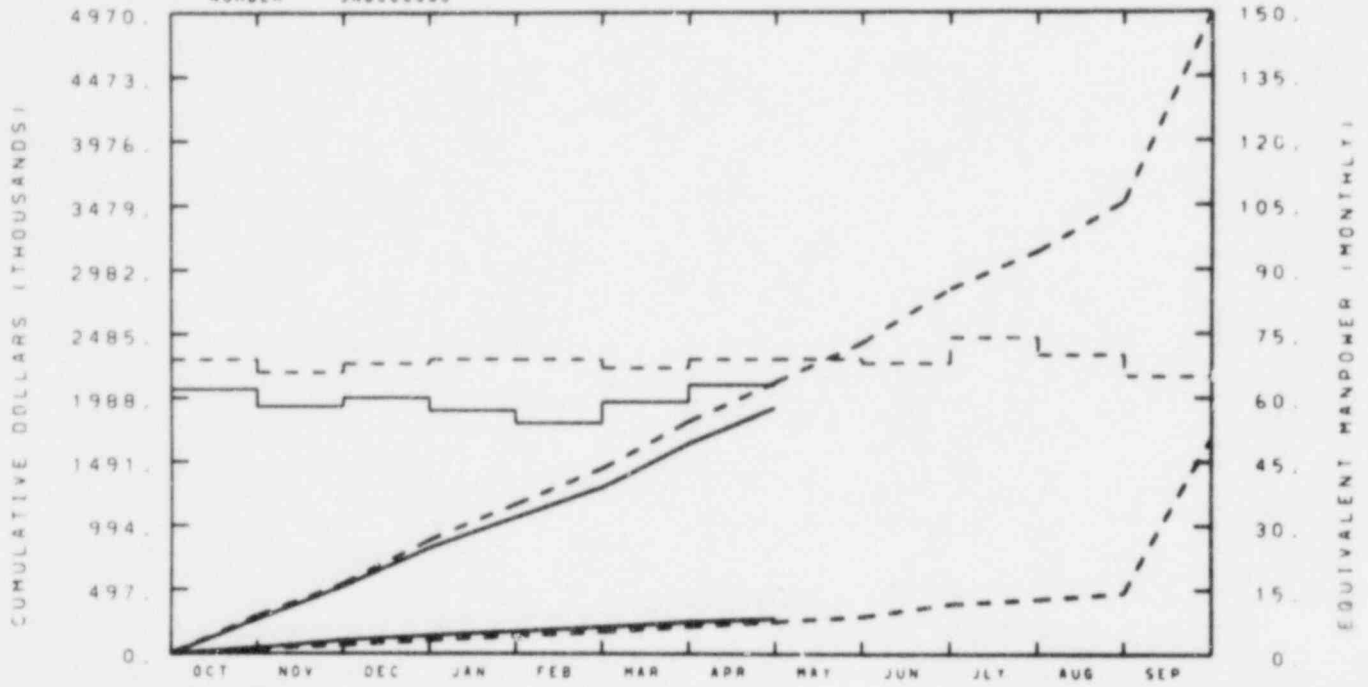
BUDGET  
- - - - -  
ACTUAL  
\_\_\_\_\_

Corrective actions effective. Variance narrowed.

EG&G IDAHO INC.

NRC 189A A6110 - COMMON SUPPORT

NUMBER 5N6000000



TOTAL PROGRAM												
BUDGET	293	542	879	1158	1436	1803	2108	2413	2830	3120	3502	4960
ACTUAL	267	52	820	1057	1290	1629	1910					

MATERIAL												
BUDGET	35	64	104	137	169	213	251	289	385	422	470	1674
ACTUAL	42	103	142	174	207	248	275					

MANPOWER												
BUDGET	69	66	68	69	69	67	69	69	68	74	70	65
ACTUAL	62	58	60	57	54	59	63					

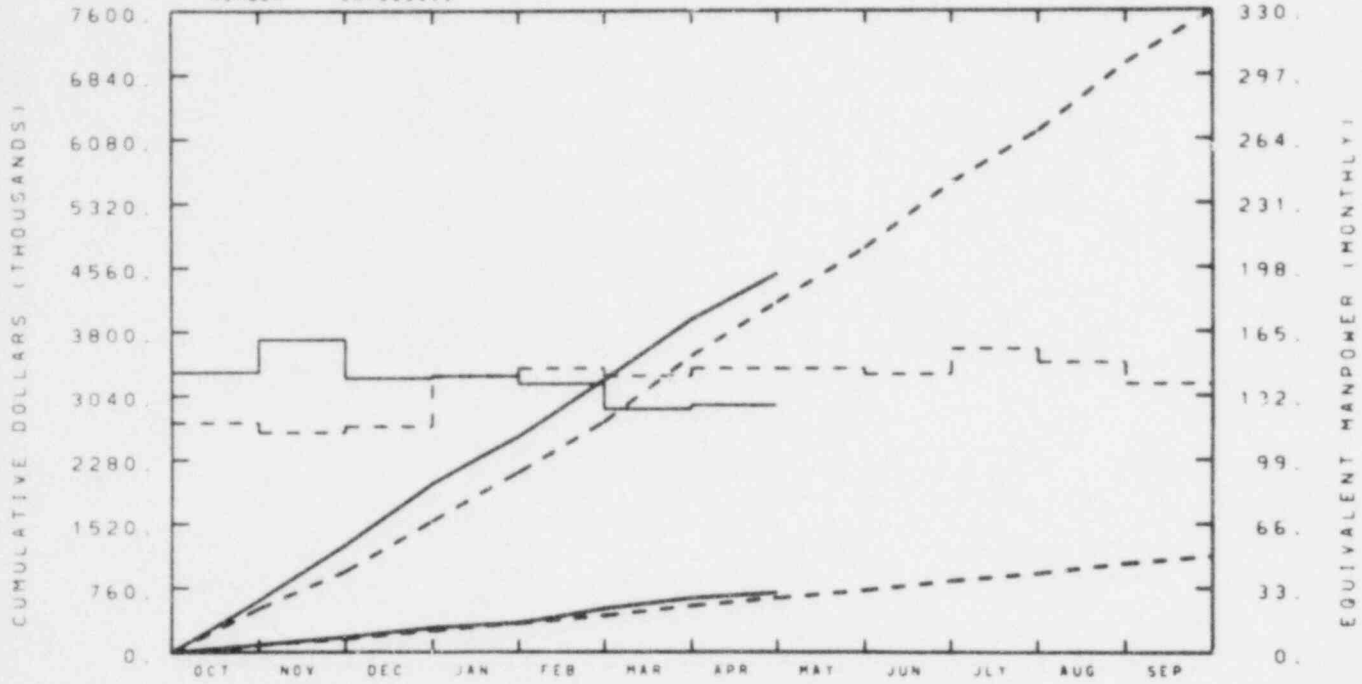
BUDGET  
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ACTUAL  
\_\_\_\_\_

No significant variance. Summary cost accounts are within tolerance levels.

EG&G IDAHO INC.

NRC 189A A6054 - FACILITY OPER

NUMBER 5N7000000



TOTAL PROGRAM

BUDGET	517	957	1551	2130	2725	3508	4151	4795	5567	6179	6083	7595
ACTUAL	612	1269	1996	2553	3224	3945	4492					

MATERIAL

BUDGET	85	157	255	343	431	548	641	735	847	935	1052	1141
ACTUAL	87	179	288	345	514	641	706					

MANPOWER

BUDGET	118	113	116	142	146	142	146	146	143	156	149	138
ACTUAL	144	161	141	142	138	125	127					

BUDGET

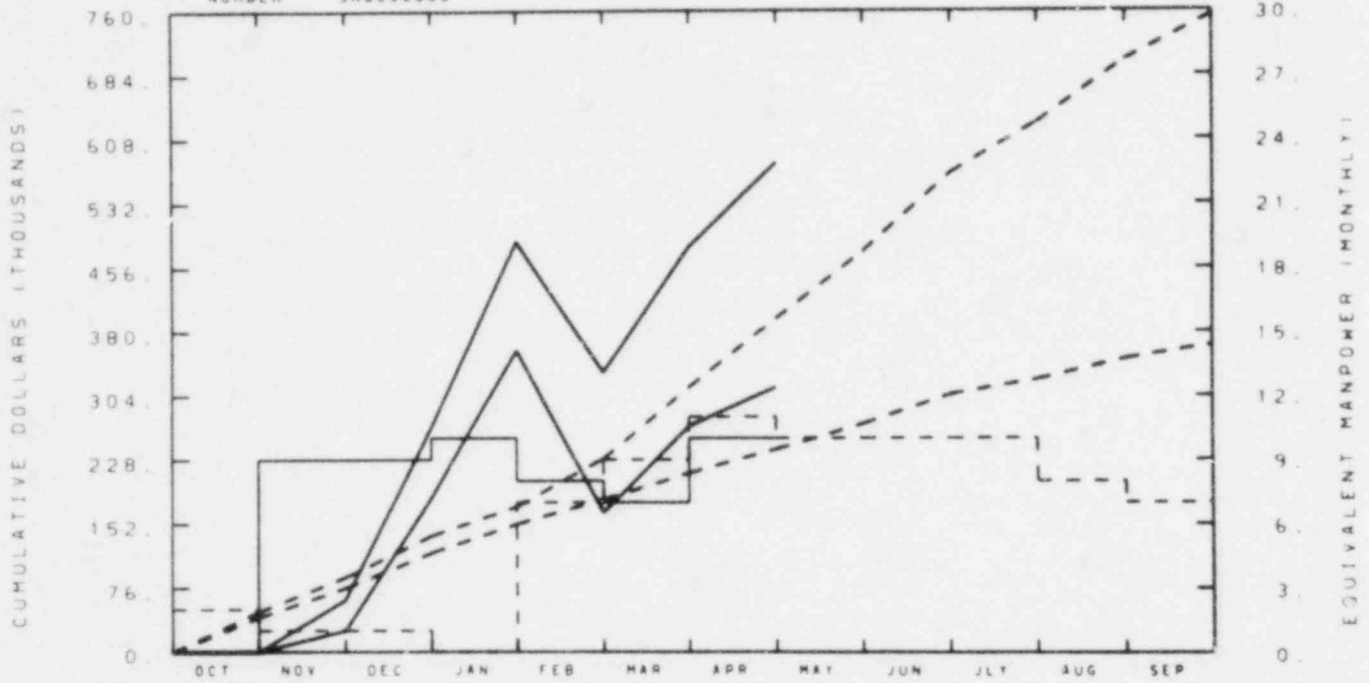
ACTUAL

No significant variance.

EG&G IDAHO INC.

A6108 - RUGEM OPER CAPABILITY

NUMBER 5N8000000



TOTAL PROGRAM

BUDGET	48	88	138	172	229	314	396	475	568	628	702	755
ACTUAL	0	42	266	487	332	480	580					

MATERIAL

BUDGET	41	76	117	152	181	212	240	270	305	323	348	364
ACTUAL	0	25	182	358	166	267	314					

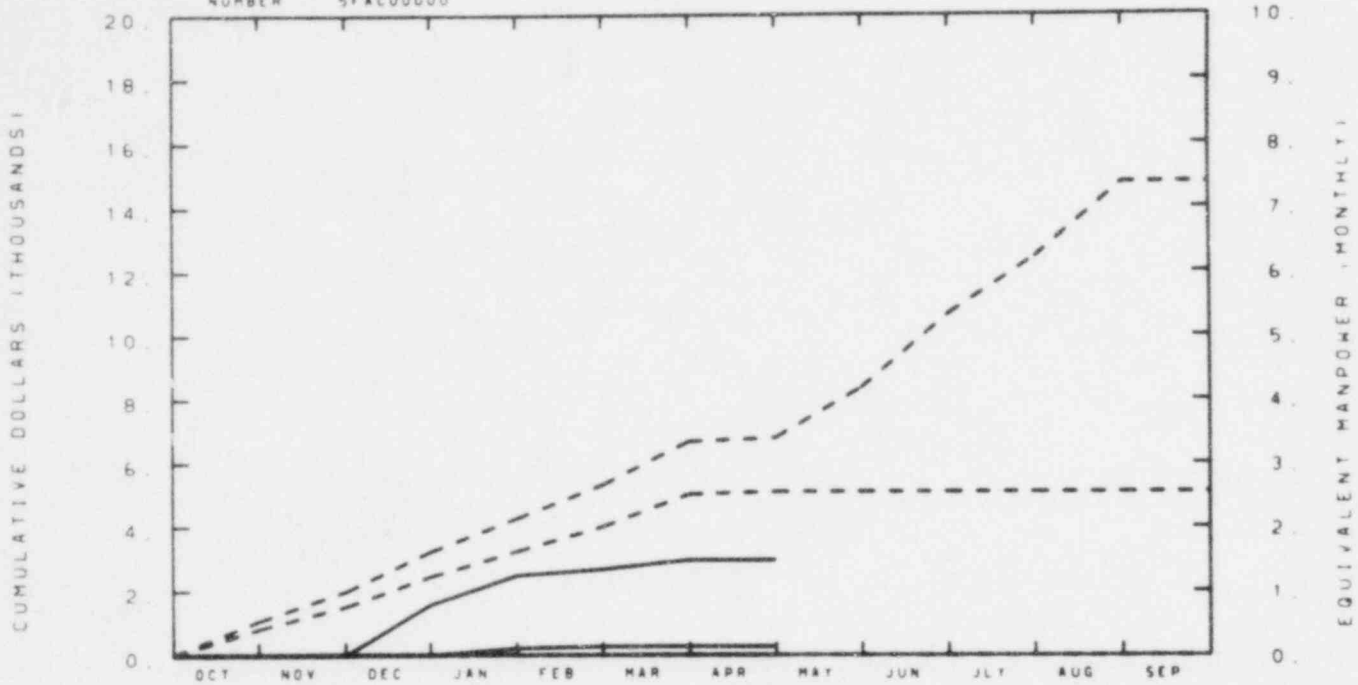
MANPOWER

BUDGET	2	1	1	0	7	9	11	10	10	10	8	7
ACTUAL	0	9	9	10	8	7	10					

BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

Actual costs are \$70,000 high, due to accruals. Program manpower levels are being reduced to correct for higher-than-estimated labor rates.

EG&G IDAHO INC.  
 A6273-AUSTRIAN FUNDS  
 NUMBER 5FAC00000



TOTAL PROGRAM

BUDGET	1	2	3	4	5	7	7	8	11	12	15	15
ACTUAL	0	0	2	2	3	3	3					

MATERIAL

BUDGET	1	2	2	3	4	5	5	5	5	5	5	5
ACTUAL	0	0	0	0	0	0	0					

MANPOWER

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

BUDGET  
 - - - - -  
 ACTUAL  
 \_\_\_\_\_

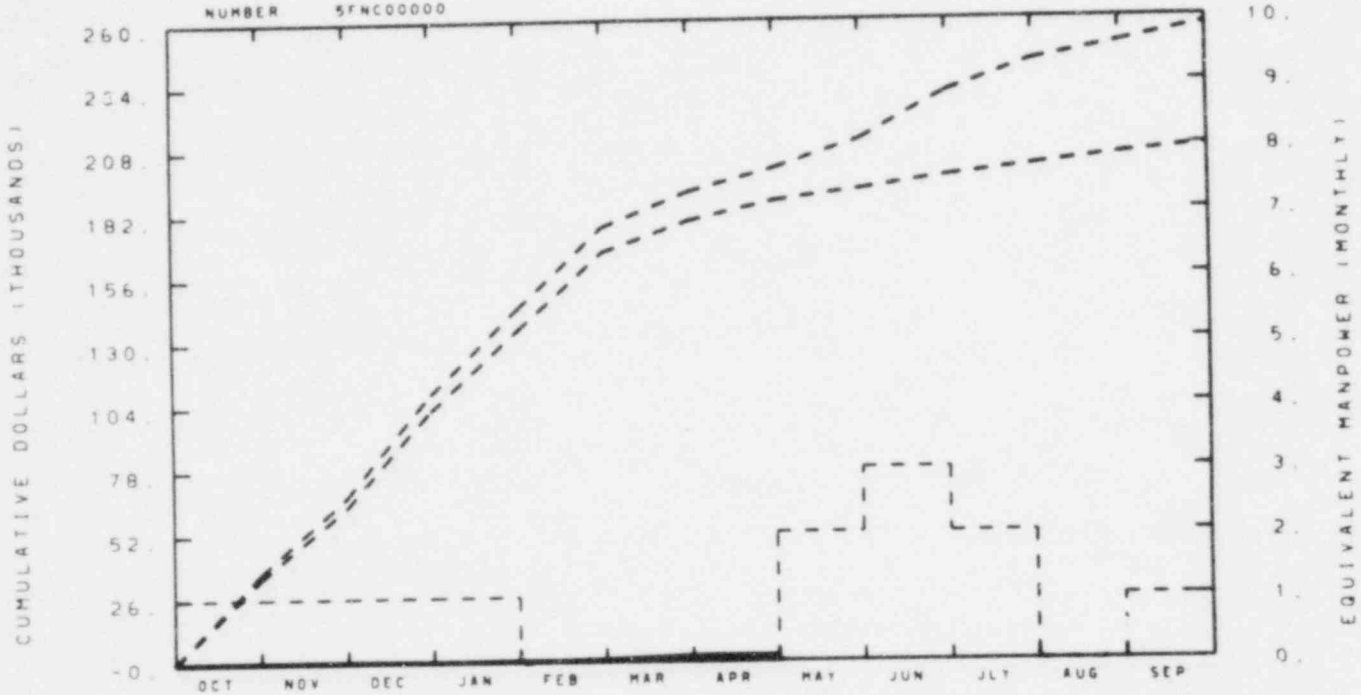
The Austrian funds include a \$12,000 management reserve and contingency. Task budgets are being changed to reflect planned usage. No significant variance exists.



EG&G IDAHO INC.

A6271 - NETHERLANDS FUNDS

NUMBER 5FNC00000



TOTAL PROGRAM

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET	36	67	108	143	176	190	199	211	230	242	249	257
ACTUAL	0	0	0	0	0	2	2					

MATERIAL

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET	34	63	102	134	166	178	186	191	196	200	204	207
ACTUAL	0	0	0	0	0	0	0					

MANPOWER

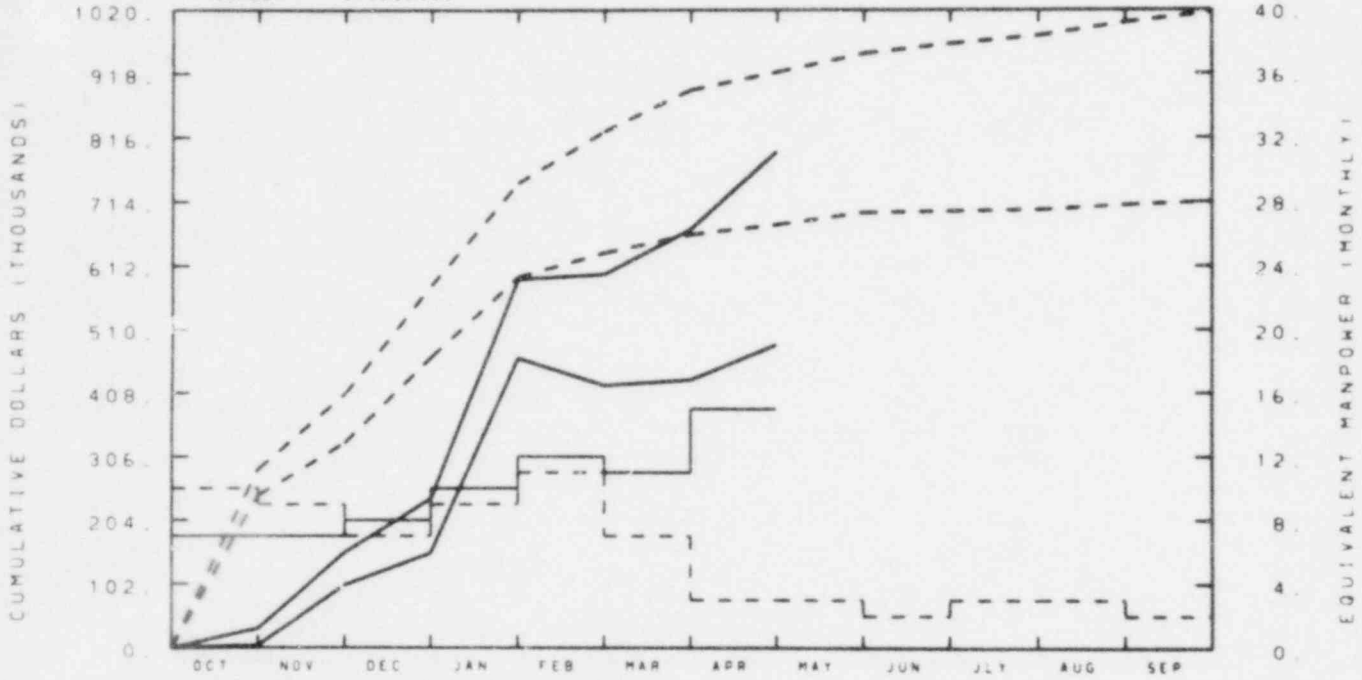
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET	1	1	1	1	0	0	0	2	3	2	0	1
ACTUAL	0	0	0	0	0	0	0					

BUDGET

ACTUAL

The budget graph does not reflect planned expenditures. Corrective action is being taken.

EG&G IDAHO INC.  
 A6104 - GERMAN FUNDS  
 NUMBER 5F7C00000



TOTAL PROGRAM												
BUDGET	285	406	581	744	826	893	921	950	966	979	1000	1016
ACTUAL	31	152	238	591	599	671	794					

MATERIAL												
BUDGET	244	328	465	594	633	663	678	697	699	701	709	714
ACTUAL	4	100	151	464	420	429	486					

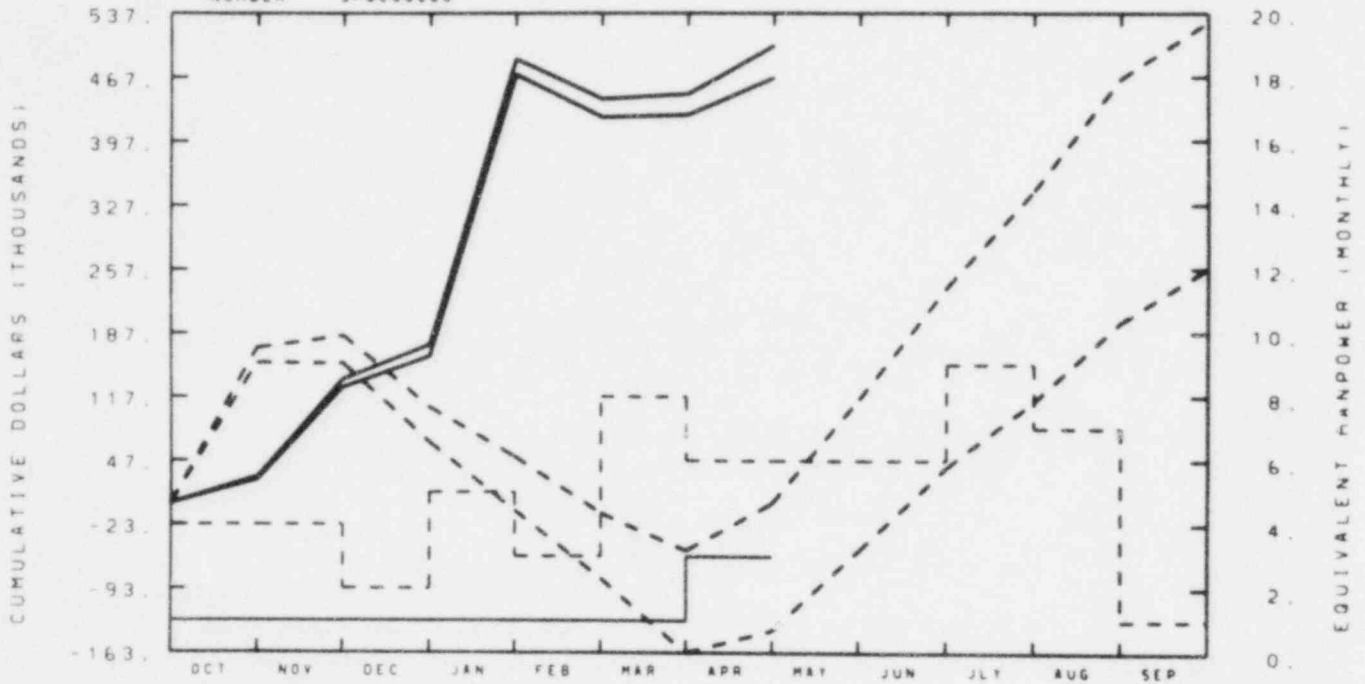
MANPOWER												
BUDGET	10	9	7	9	11	7	3	3	2	3	3	2
ACTUAL	7	7	8	10	12	11	15					

The variance is due primarily to (1) being \$210,000 under budget on the two-phase steady state loop task, (2) being over budget on the UDD task (\$26,000), the TRAC code studies (\$53,000), and temporarily on the small break instrumentation (\$77,000), and (3) including a current management reserve and contingency of \$70,000. Corrective actions have been initiated and are discussed on the appropriate Summary Cost Account graphs.

EG&G IDAHO INC.

A6111 - JAPANESE FUNDS

NUMBER 5F8C00000



TOTAL PROGRAM

BUDGET	170	183	105	51	-10	-51	0	114	237	342	465	527
ACTUAL	29	135	174	487	443	448	501					

MATERIAL

BUDGET	154	153	66	-7	-82	-162	-138	-51	39	111	198	258
ACTUAL	25	126	161	470	423	425	466					

MANPOWER

BUDGET	4	4	2	5	3	8	6	6	6	9	7	1
ACTUAL	1	1	1	1	1	1	3					

BUDGET  
- - - - -  
A  
- - - - -

The budget graphs are in error and will be corrected. No significant variance exists with the planned expenditures.

Summary Cost Accounts

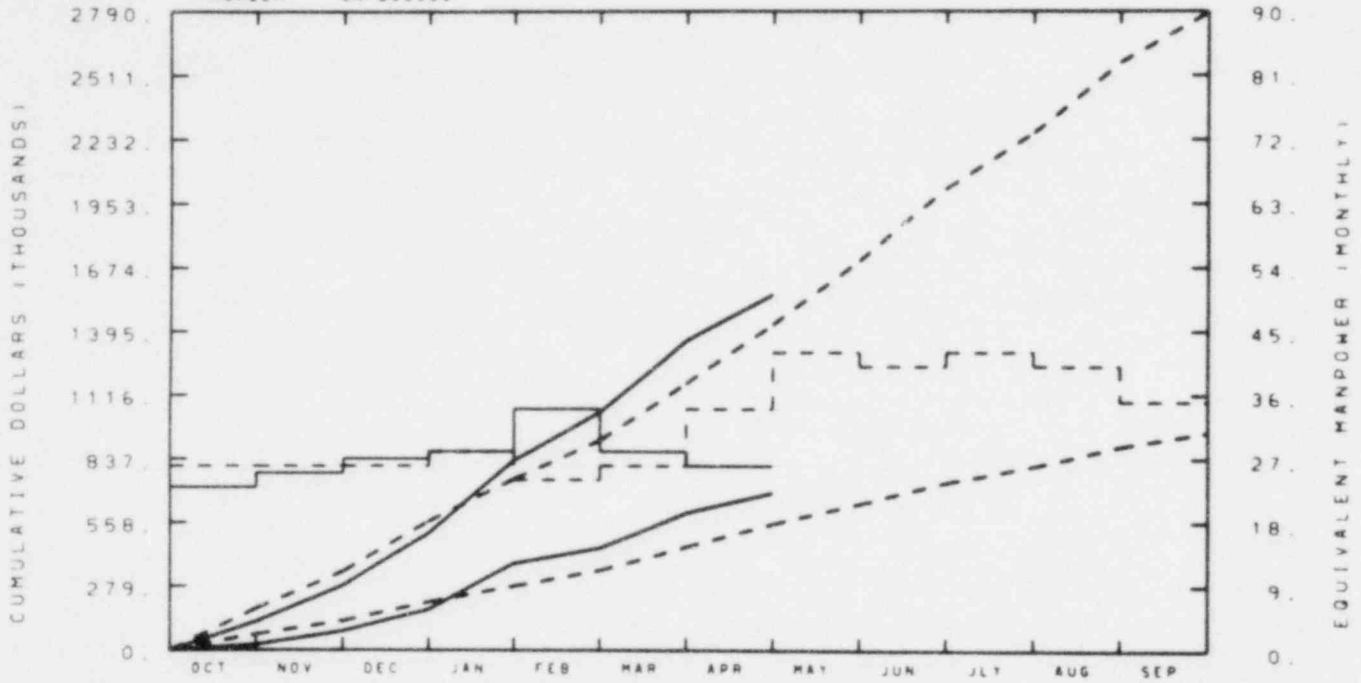
5Nxx--NRC Summary Cost Accounts

5Fxxx--Foreign Summary Cost Accounts

EG&G IDAHO INC.

EXPR PROG - PROGRAM PLAN & EVAL

NUMBER 5N1800000



TOTAL PROGRAM												
BUDGET	182	344	563	748	917	1167	1425	1705	2019	2259	2566	2786
ACTUAL	125	282	511	829	1040	1355	1557					

MATERIAL												
BUDGET	69	127	210	280	348	451	552	640	733	803	890	953
ACTUAL	24	84	178	379	446	600	689					

MANPOWER												
BUDGET	26	26	26	28	24	26	34	42	40	42	40	35
ACTUAL	23	25	27	28	34	28	26					

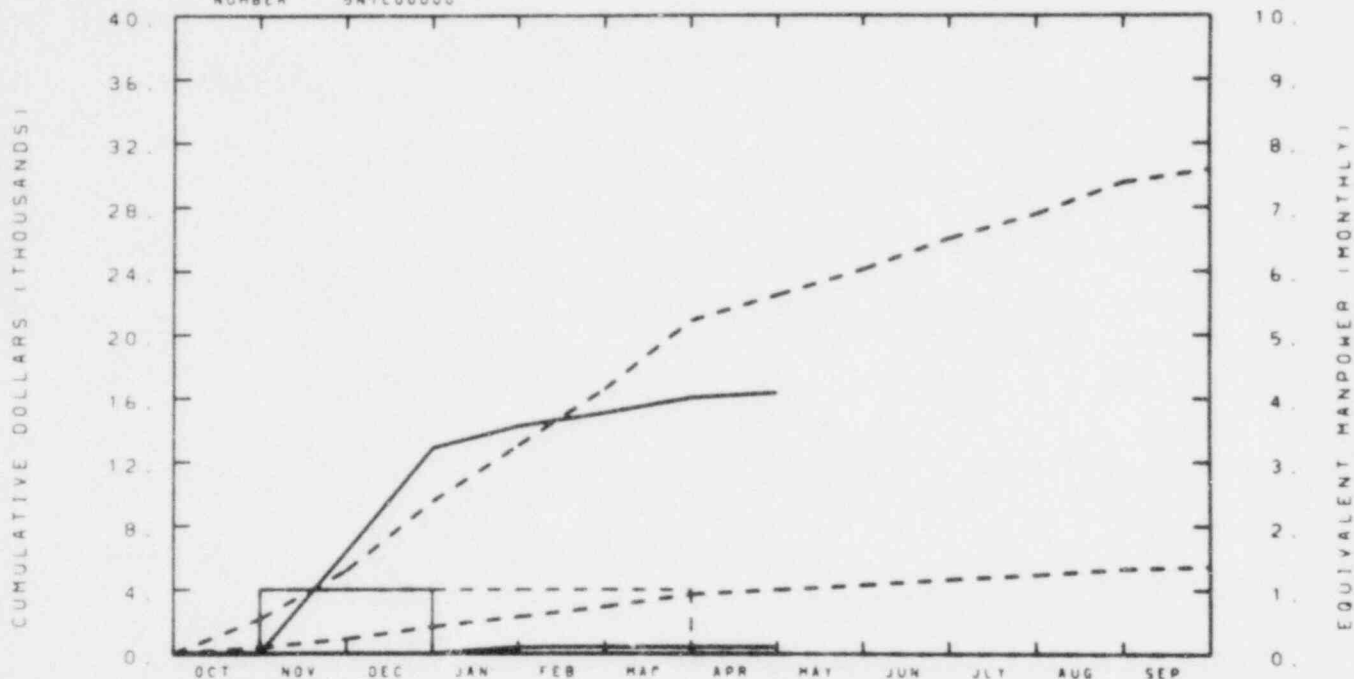
BUDGET  
- - - - -  
ACTUAL  
\_\_\_\_\_

No significant variance.

EG&G IDAHO INC.

SWISS REFLOOD

NUMBER 5N1C00000



TOTAL PROGRAM

BUDGET	2	5	10	13	17	21	23	24	26	28	30	30
ACTUAL	0	6	13	14	15	16	16					

MATERIAL

BUDGET	0	1	2	2	3	4	4	4	5	5	5	5
ACTUAL	0	0	0	0	0	0	0					

MANPOWER

BUDGET	0	1	1	1	1	1	0	0	0	0	0	0
ACTUAL	0	1	1	0	0	0	0					

BUDGET

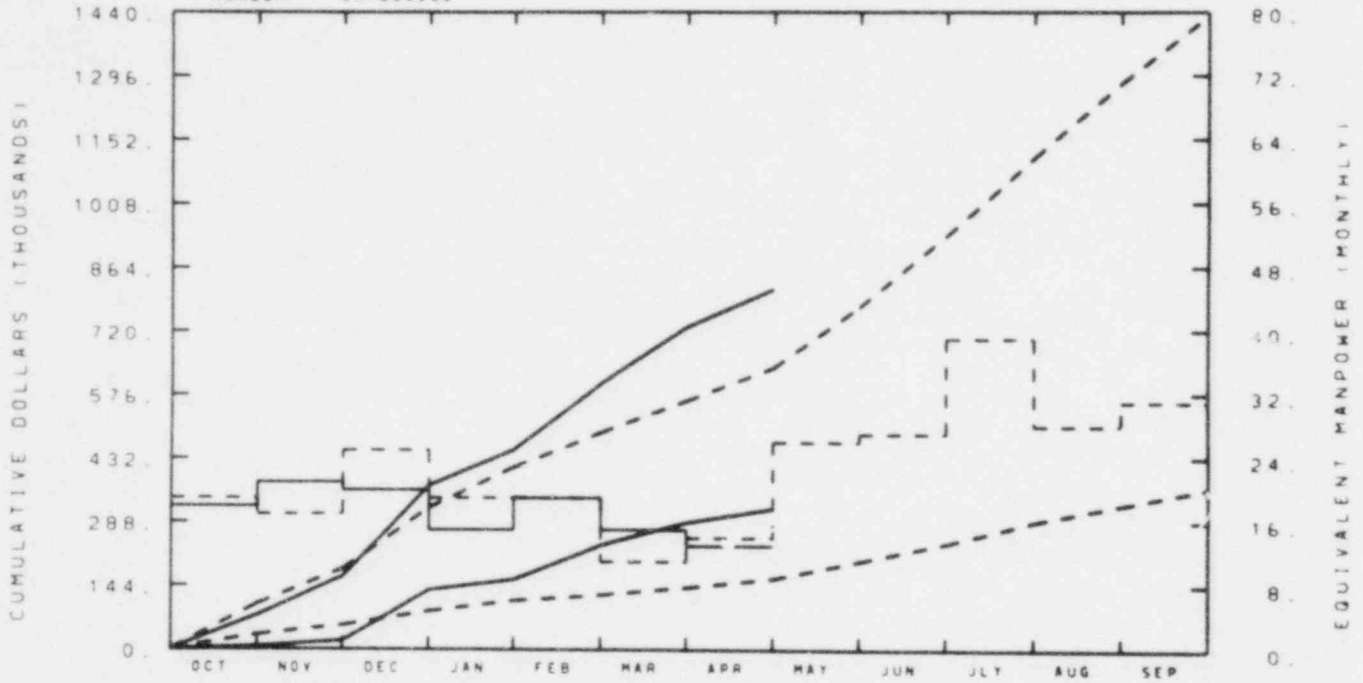
ACTUAL

The underrun is due to some unanticipated delays in current projects and/or scheduling difficulties. Rescheduling of current and new tasks indicates that projected expenditures will compensate for the present situation and that spending requirements will be more in line with the budget.

EG&G IDAHO INC.

EXPR PROG - LOFT DATA SYSTEMS

NUMBER 5N1E00000



TOTAL PROGRAM												
BUDGET	102	181	320	411	490	562	636	775	936	1112	1278	1432
ACTUAL	77	164	370	451	601	729	815					

MATERIAL												
BUDGET	33	54	86	110	123	140	160	200	240	289	327	364
ACTUAL	6	19	134	158	236	287	319					

MANPOWER												
BUDGET	19	17	25	19	19	11	14	26	27	39	28	31
ACTUAL	18	21	20	15	19	15	13					

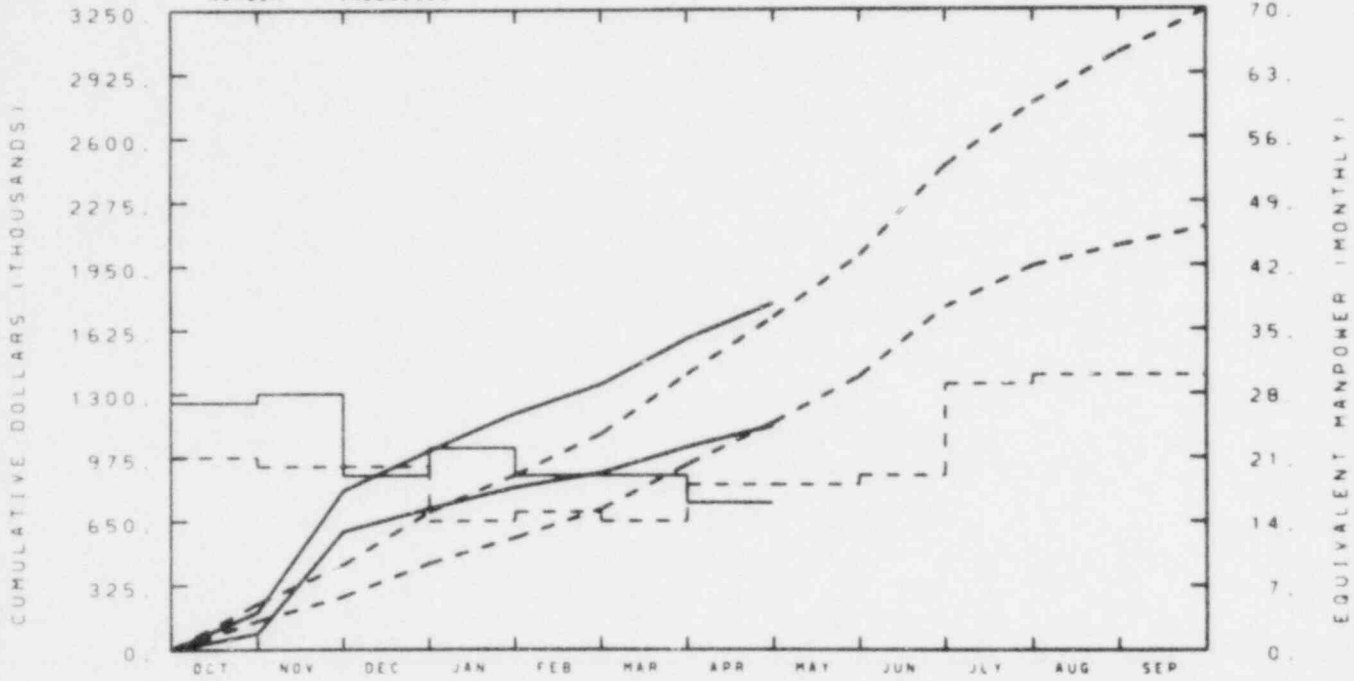
BUDGET  
- - - - -  
ACTUAL  
\_\_\_\_\_

The overrun would have been recovered in April but a change in schedule, resulting in a change in budget, will delay the recovery to July.

EG&G IDAHO INC.

FUEL - REFUEL DESIGN & ANALYSIS

NUMBER 5N2000000



TOTAL PROGRAM

BUDGET	232	429	696	884	1091	1397	1689	2002	2457	2774	3029	3247
ACTUAL	190	806	1008	1197	1345	1579	1760					

MATERIAL

BUDGET	145	268	435	565	710	937	1150	1385	1739	1949	2051	2145
ACTUAL	82	598	714	821	895	1027	1136					

MANPOWER

BUDGET	21	20	20	14	15	14	18	18	19	29	30	30
ACTUAL	27	28	19	22	19	19	16					

BUDGET

ACTUAL

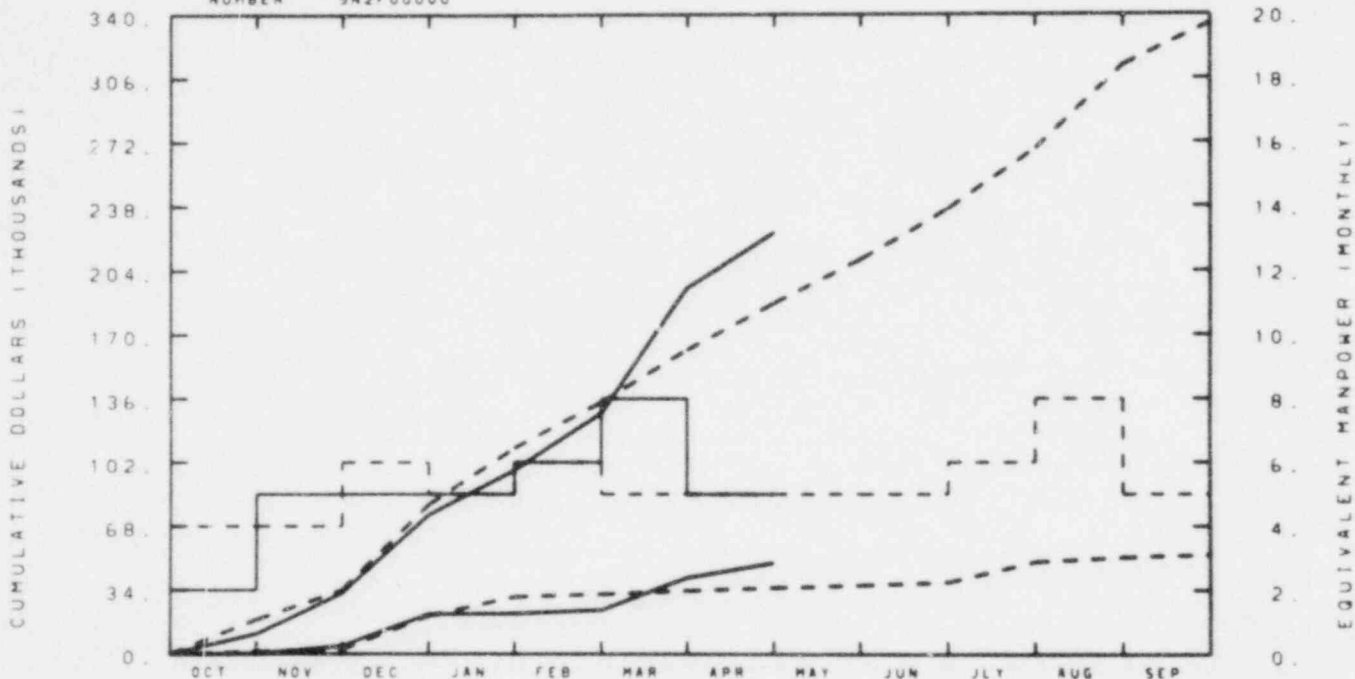
No significant variance.



EG&G IDAHO INC.

POST TEST EXAM

NUMBER 5N2F00000



TOTAL PROGRAM

BUDGET	18	34	79	110	134	162	187	210	237	269	313	335
ACTUAL	11	32	74	98	128	15	224					

MATERIAL

BUDGET	1	2	20	30	32	34	35	37	38	49	51	53
ACTUAL	0	4	21	22	23	41	49					

MANPOWER

BUDGET	4	4	6	5	6	5	5	5	5	6	8	5
ACTUAL	2	5	5	5	6	8	5					

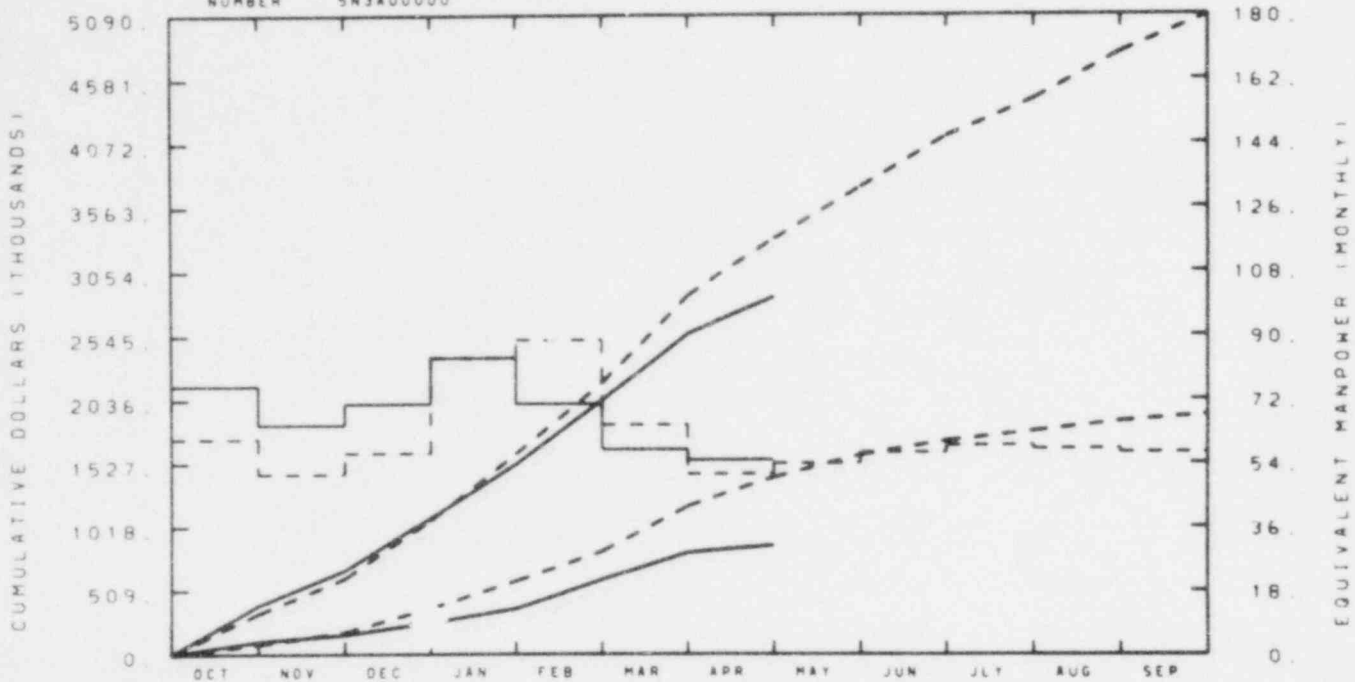
BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

The overrun is caused by (1) the unanticipated "facility rate" (\$57/hr) charges for the consulting services of Nondestructive Engineering Branch engineer (\$34/hr), (2) concentrated effort on the Fission Gas Collection and Analysis System in March by Mechanical Design Branch and (3) a disparity (138%) between the Fuel Technology Branch engineer labor rate and the Branch average labor rate used in the PMS labor rate file. The corrective actions are to reduce or eliminate the NDE Engineering Branch participation and curtail activities as necessary to satisfy the year end budget value.

EG&G IDAHO INC.

EXPR INST - EXPR MEAS BR 6110

NUMBER 5N3A00000



TOTAL PROGRAM

BUDGET	325	606	1073	1605	2174	2865	3312	3722	4127	4422	4793	5084
ACTUAL	391	5	1091	1523	2037	2562	2852					

MATERIAL

BUDGET	79	176	368	583	820	1184	1413	1591	1702	1781	1858	1912
ACTUAL	103	156	253	363	594	811	867					

MANPOWER

BUDGET	61	51	57	84	89	65	51	54	57	59	58	57
ACTUAL	76	65	71	84	71	58	55					

BUDGET

ACTUAL

The variance is a result of the following:

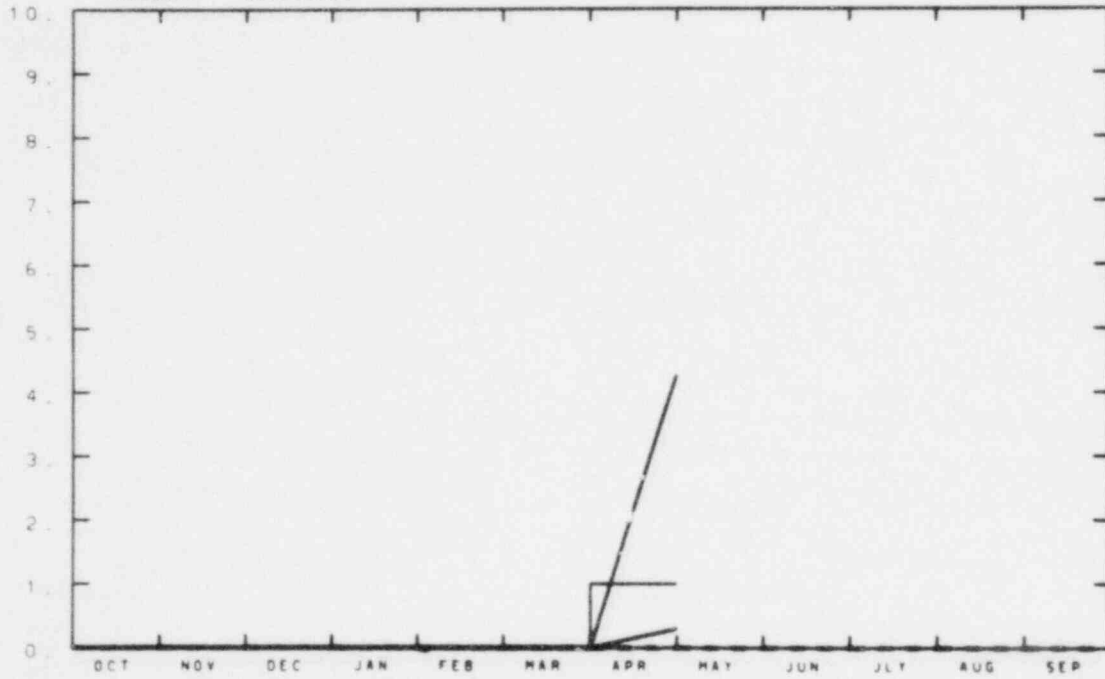
1. Underspending in the Experimental Measurements Section "B" which consists of the following: (a) An incorrect start date had been entered in PMS, starting the cladding TC task in FY-1980 instead of FY-1981. A CCF has been approved changing the start date and returning \$73,000 to management reserve. (b) The rework of an incorrect CCB returned an additional \$13,000 to management reserve. (c) A portion of 53AMB09 was inadvertently rescheduled into FY-1980 during the transition from Q80-3-3 to Q80-4-0. This resulted in the transfer of \$69,000 from FY-1981 into FY-1980. A CCB has been approved to transfer 69K from FY-1980 back into FY-1981. (d) \$40,000 owed to Sandia Corp. for PNA generators is not reflected in April actuals. (e) A CCB returning \$51,000 to management reserve from the Fuel Rod Instrument Task (\$53AMB03) is in process.
2. Drag disc turbine rakes scheduled to be built (for L2-5) at this time, have been delayed until later in the year. A CCF has been submitted to reflect this change.

EG&G IDAHO INC.

EXPR INST - TEST SUPT BR 6140

NUMBER 5N3C00000

CUMULATIVE DOLLARS (THOUSANDS)



EQUIVALENT MANPOWER (MONTHLY)

TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	4							

MATERIAL

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0							

MANPOWER

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	1							

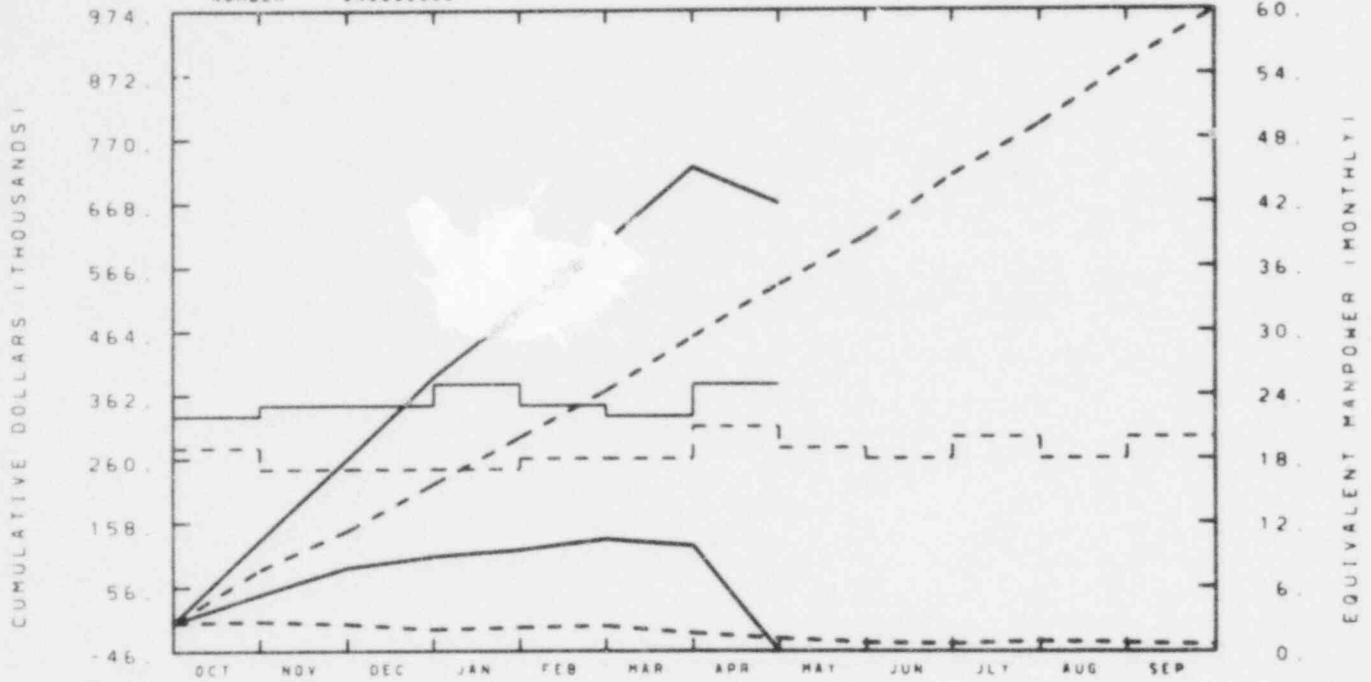
BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

No significant variance. Costs are being transferred to the proper accounts.

EG&G IDAHO INC.

EXPR INST - ADVANCE INST BR 3720

NUMBER 5N3600000



TOTAL PROGRAM

BUDGET	84	145	220	294	369	456	539	615	712	792	887	973
ACTUAL	130	259	391	498	607	726	668					

MATERIAL

BUDGET	2	-2	-11	-7	-5	-16	-24	-31	-33	-29	-31	-34
ACTUAL	44	86	104	115	132	121	-45					

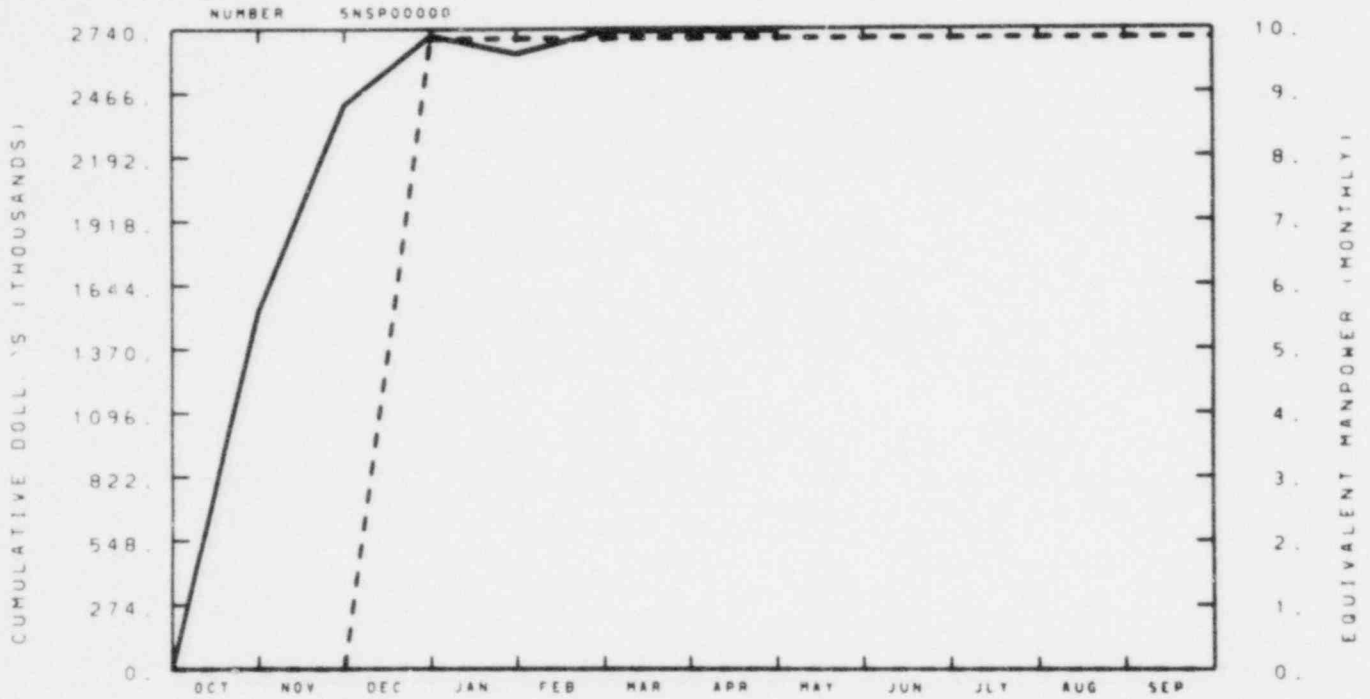
BUDGET  
- - - - -  
ACTUAL  
\_\_\_\_\_

MANPOWER

BUDGET	19	17	17	17	18	18	21	19	18	20	18	20
ACTUAL	22	23	23	25	23	22	25					

Semiscale and 3-D allocations are now being made. Branch is overrun and a management recovery plan has been initiated to meet budget.

EG&G IDAHO INC.  
SPECIAL PROCESS SPARES



TOTAL PROGRAM												
BUDGET	0	0	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
ACTUAL	1535	2418	2713	2634	2730	2731	2731					

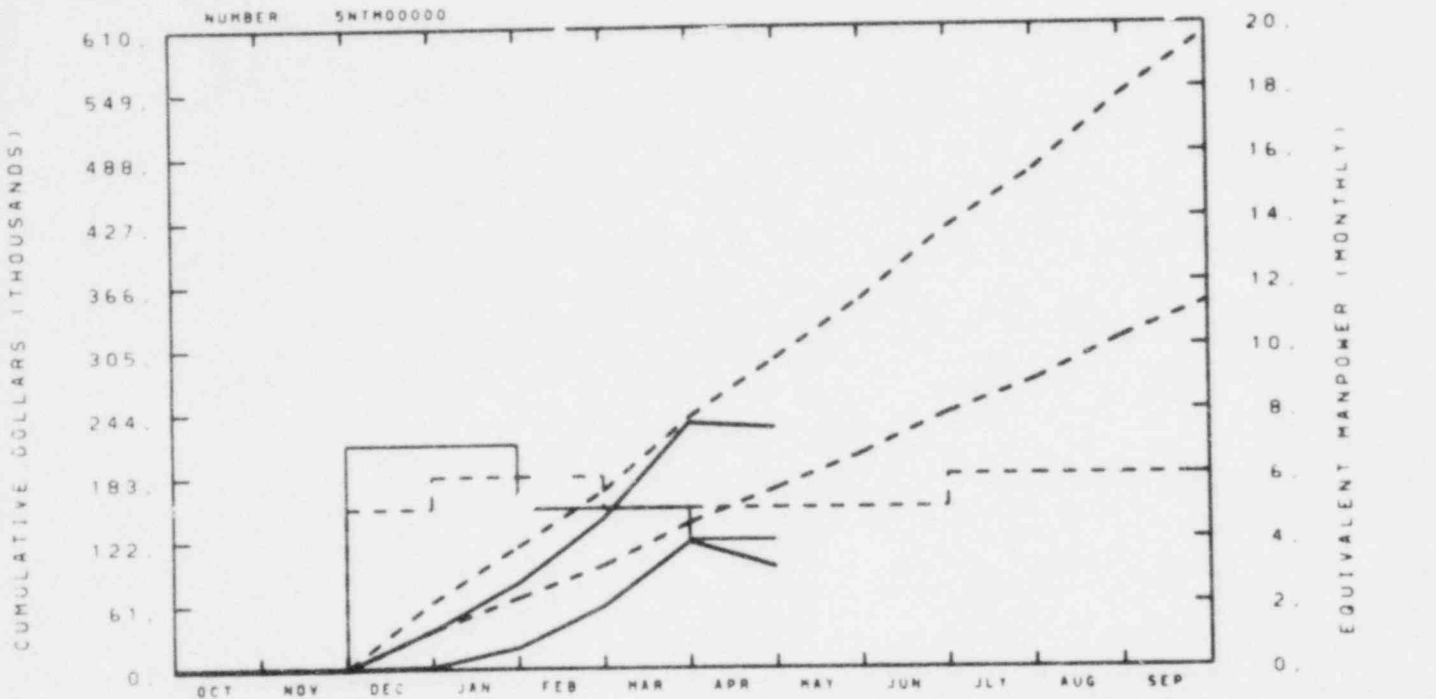
MATERIAL												
BUDGET	0	0	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
ACTUAL	1535	2418	2713	2634	2730	2731	2731					

MANPOWER												
BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

No significant variance.

EG&G IDAHO INC.  
THREE MILE ISLAND SUPPORT



TOTAL PROGRAM												
BUDGET	0	0	64	116	169	238	294	350	418	471	541	600
ACTUAL	0	0	37	92	143	233	228					

MATERIAL												
BUDGET	0	0	37	68	98	138	170	203	241	272	312	346
ACTUAL	0	0	2	20	59	120	96					

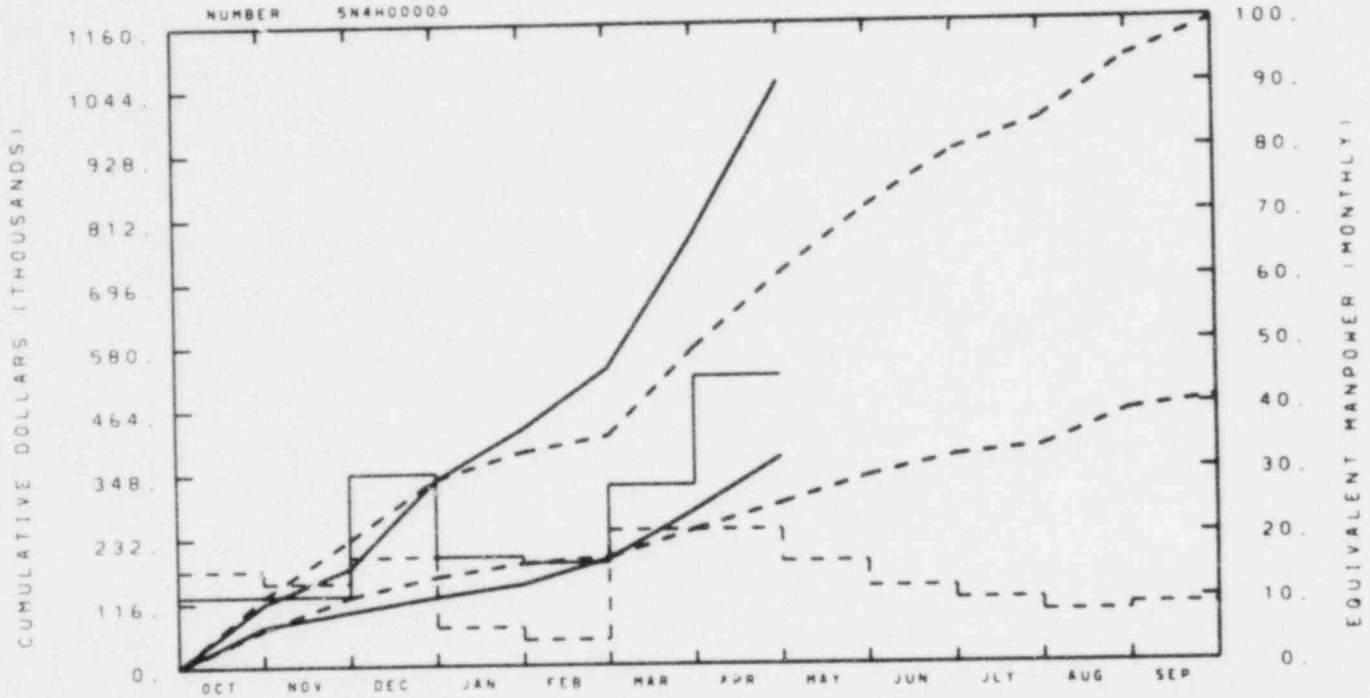
MANPOWER												
BUDGET	0	0	5	6	6	5	5	5	5	6	6	6
ACTUAL	0	0	7	7	5	5	4					

Starting with February, EG&G Accounting makes an accrual entry for Exxon charges to the 5TMI00100 account, since the actual costs do not reach EG&G records until the following month. In April, the entry was made as \$80,195 credit. The actual credit on Exxon's books for April is \$45,291. The year-to-date cost total should read \$263,240.

EG&G IDAHO INC.

PLANT SUPPORT - PLANT SYS NO 3

NUMBER 5N4H00000



TOTAL PROGRAM												
BUDGET	126	229	337	385	414	573	707	825	926	980	1091	1154
ACTUAL	115	178	336	427	537	778	1053					

MATERIAL												
BUDGET	69	126	161	185	195	244	290	338	374	389	453	474
ACTUAL	73	99	125	147	192	279	374					

MANPOWER												
BUDGET	15	13	17	6	4	21	21	16	12	10	8	9
ACTUAL	11	11	30	17	16	28	45					

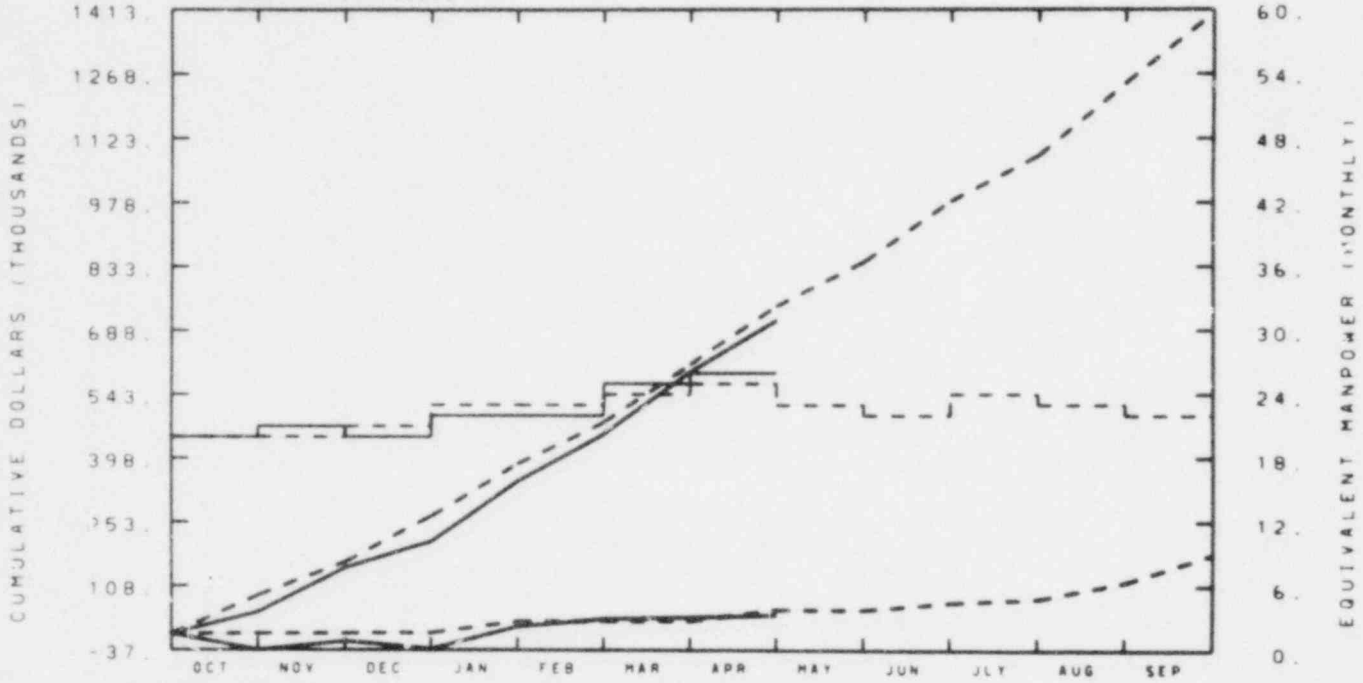
BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

The previous underrun has been returned to management reserve. The additional instrumentation requirements for small-break test L3-7, and adjustments in the test schedule, has caused a cost overrun. Approximately \$235,000 of test related costs are outstanding, plus \$110,000 attributed to test acceleration. Corrective action is being taken.

EG&G IDAHO INC.

PLANT SUPPORT - PLANT SYS NO 1

NUMBER 5N4100000



TOTAL PROGRAM

BUDGET	87	162	266	385	479	611	744	844	981	1085	1248	1406
ACTUAL	49	149	208	346	453	594	712					

MATERIAL

BUDGET	0	1	2	28	29	30	55	55	71	80	117	180
ACTUAL	-36	-16	-33	16	34	38	43					

MANPOWER

BUDGET	20	20	21	23	23	24	25	23	22	24	23	22
ACTUAL	20	21	20	22	22	25	26					

BUDGET

ACTUAL

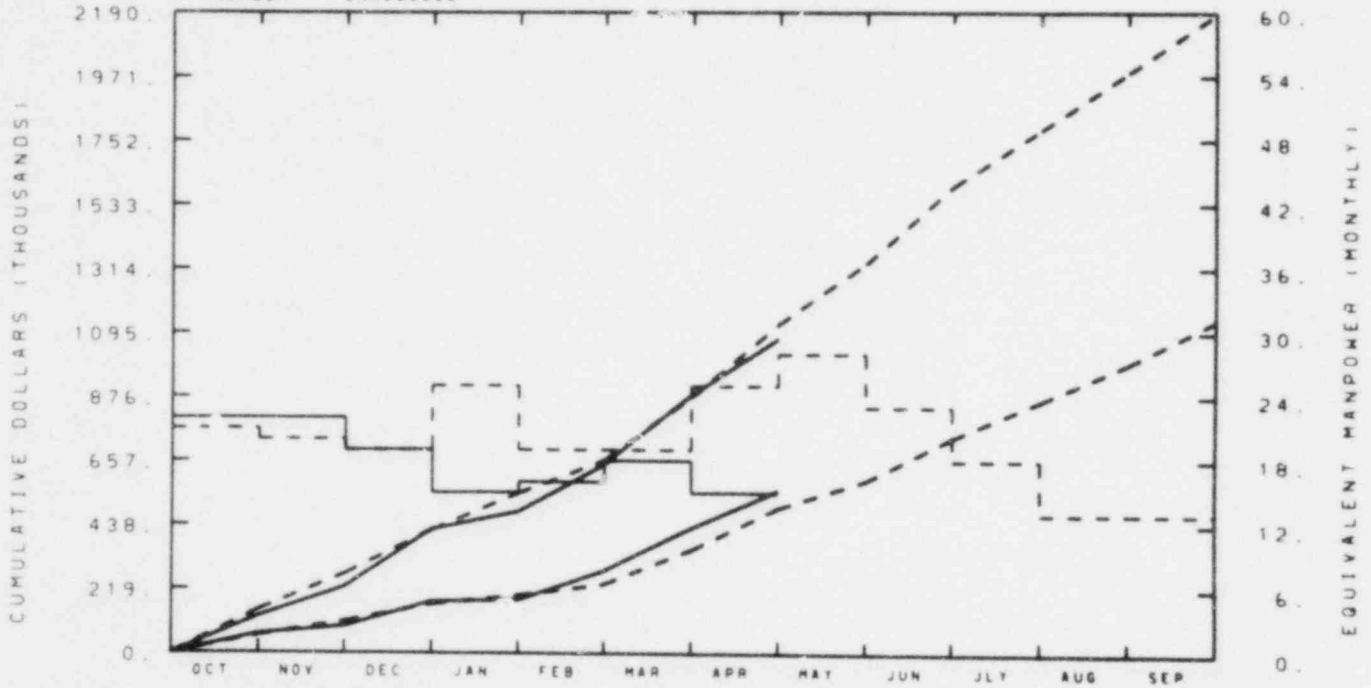
No significant variance.



EG&G IDAHO INC.

PLANT SUPPORT - PLANT SYS NO 2

NUMBER 5N4J00000



TOTAL PROGRAM

BUDGET	148	270	419	545	658	874	1125	1333	1597	1789	1985	2186
ACTUAL	126	226	422	483	644	882	1076					

MATERIAL

BUDGET	60	109	167	198	236	353	496	589	736	862	990	1137
ACTUAL	65	92	177	182	282	428	556					

MANPOWER

BUDGET	21	20	19	25	19	19	25	20	23	18	13	13
ACTUAL	22	22	19	15	16	18	15					

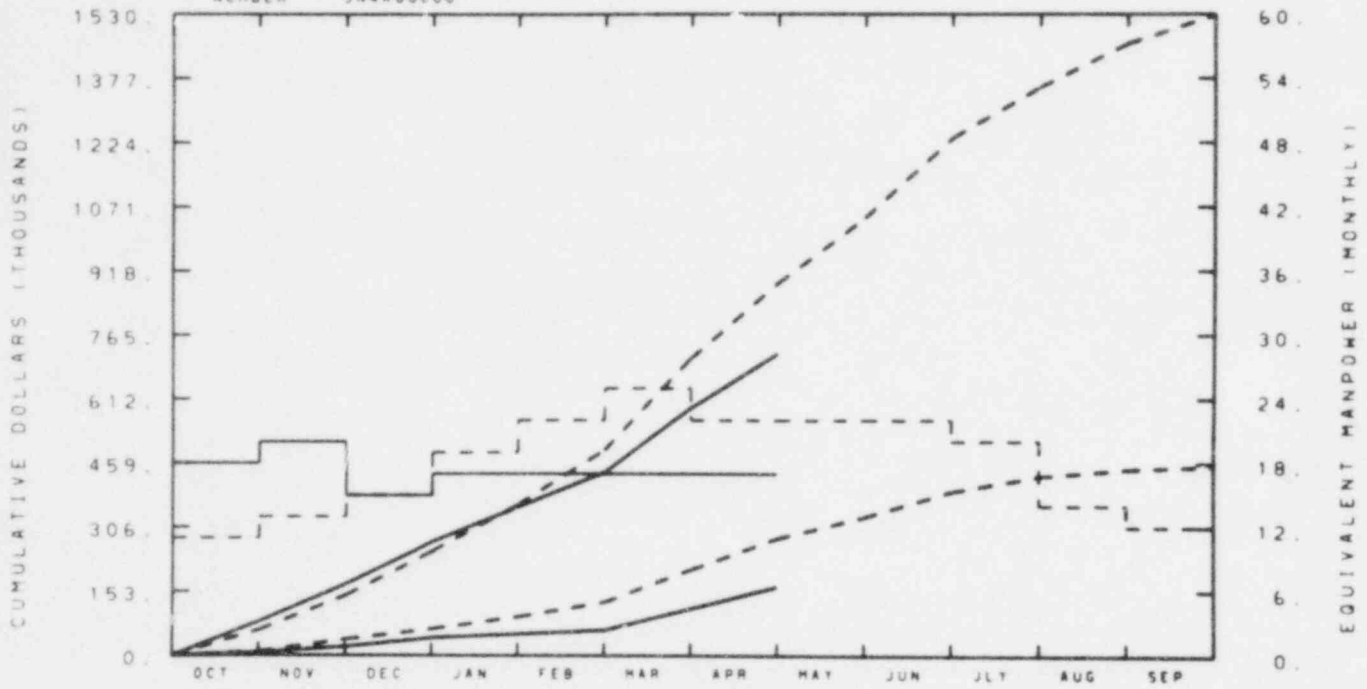
BUDGET  
- - - - -  
ACTUAL  
\_\_\_\_\_

No significant variance.

EG&G IDAHO INC.

PLANT SUPPORT - P&C REACTOR CONT

NUMBER 5N4K00000



TOTAL PROGRAM

BUDGET	61	143	248	360	490	709	889	1045	1235	1356	1460	1528
ACTUAL	81	171	271	354	437	590	721					

MATERIAL

BUDGET	9	39	63	92	127	205	280	331	391	427	444	452
ACTUAL	7	21	42	51	61	112	165					

MANPOWER

BUDGET	11	13	15	19	27	25	22	22	22	20	14	12
ACTUAL	18	20	15	17	17	17	17					

BUDGET

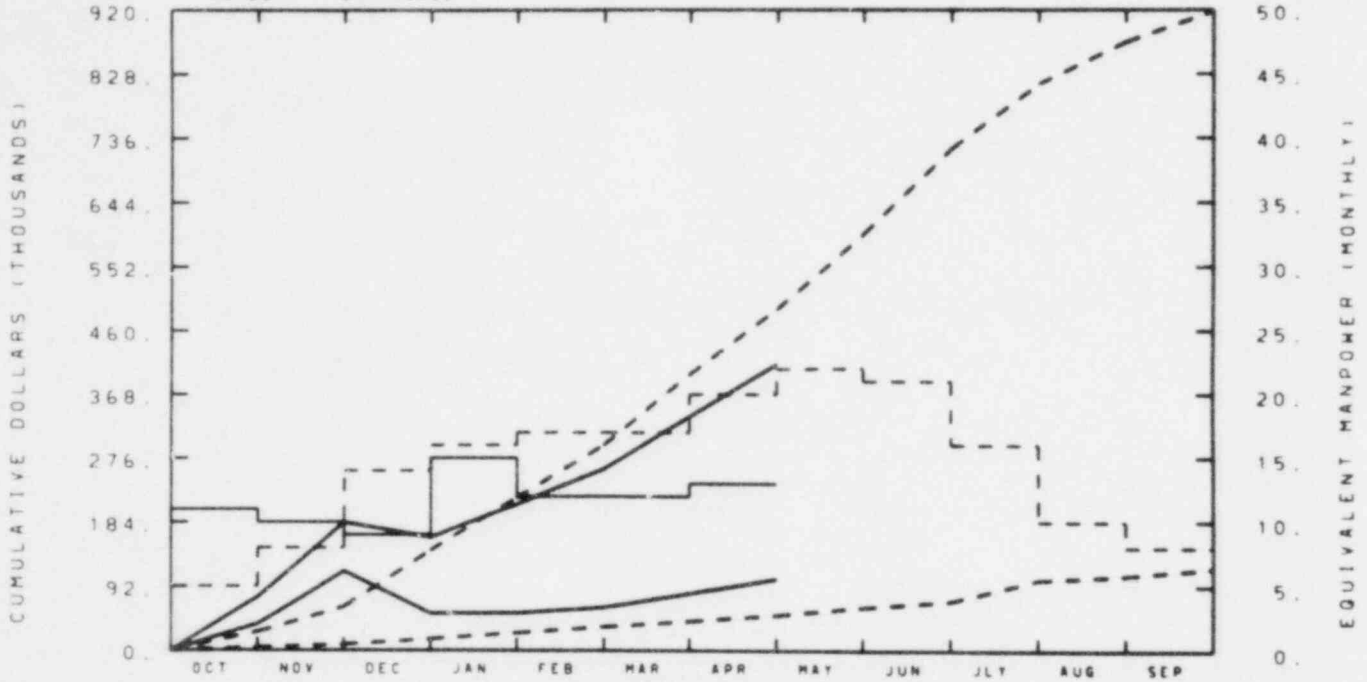
ACTUAL

Engineering manpower support continues to be below budgeted levels.

EG&G IDAHO INC.

PLANT SUPPORT - P&C I&E SUPPORT

NUMBER 5N4P00000



TOTAL PROGRAM		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		27	63	144	219	295	397	491	599	721	813	874	918
ACTUAL		77	183	162	210	261	336	412					

MATERIAL		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		4	8	17	25	34	42	51	62	71	101	108	118
ACTUAL		38	114	53	54	62	82	103					

MANPOWER		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		5	8	14	16	17	17	20	22	21	16	10	8
ACTUAL		11	10	9	15	12	12	13					

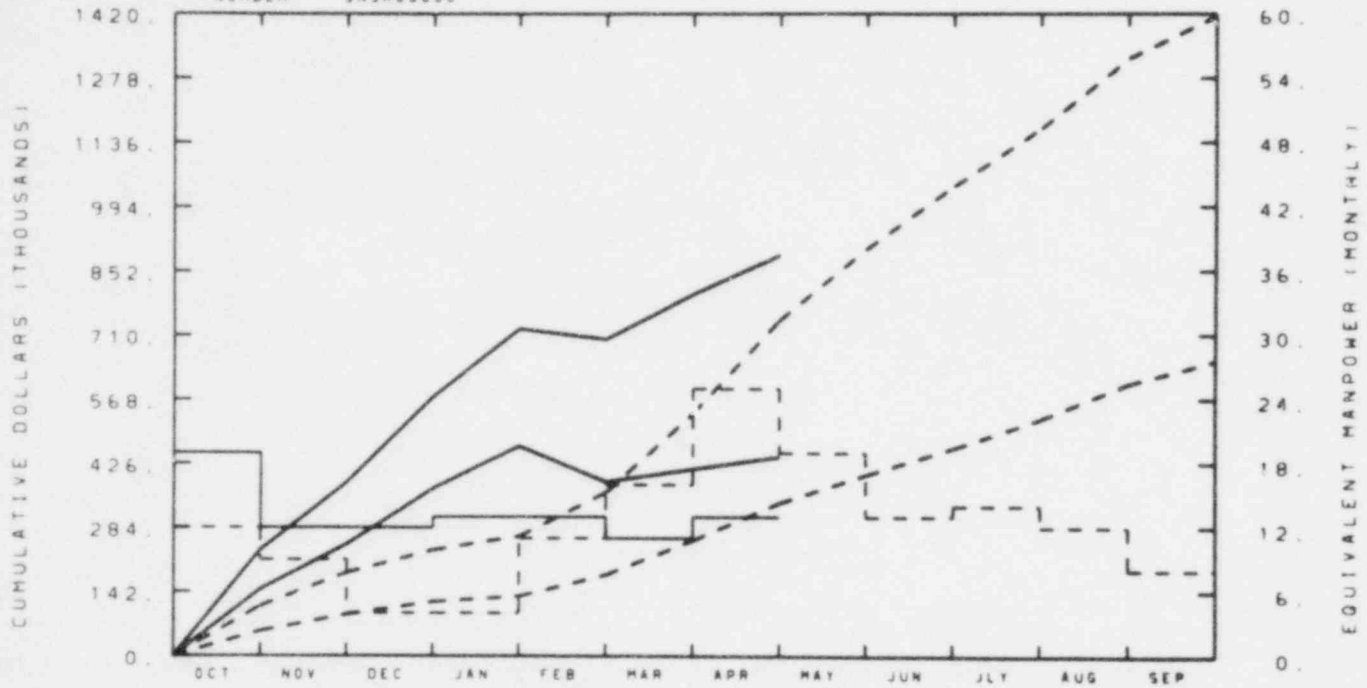
BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

No significant variance. Engineering manpower support continues to be below budgeted levels.

EG&G IDAHO INC.

CORE & SAFETY SUPT - PROT & CONT

NUMBER 5NSK00000



TOTAL PROGRAM

BUDGET	110	184	234	264	362	536	744	902	1039	1167	1321	1415
ACTUAL	234	385	574	724	701	801	888					

MATERIAL

BUDGET	55	91	120	132	179	256	339	401	460	524	602	653
ACTUAL	147	247	370	464	385	414	441					

MANPOWER

BUDGET	12	9	4	4	11	16	25	19	13	14	12	8
ACTUAL	19	12	12	13	13	11	13					

BUDGET

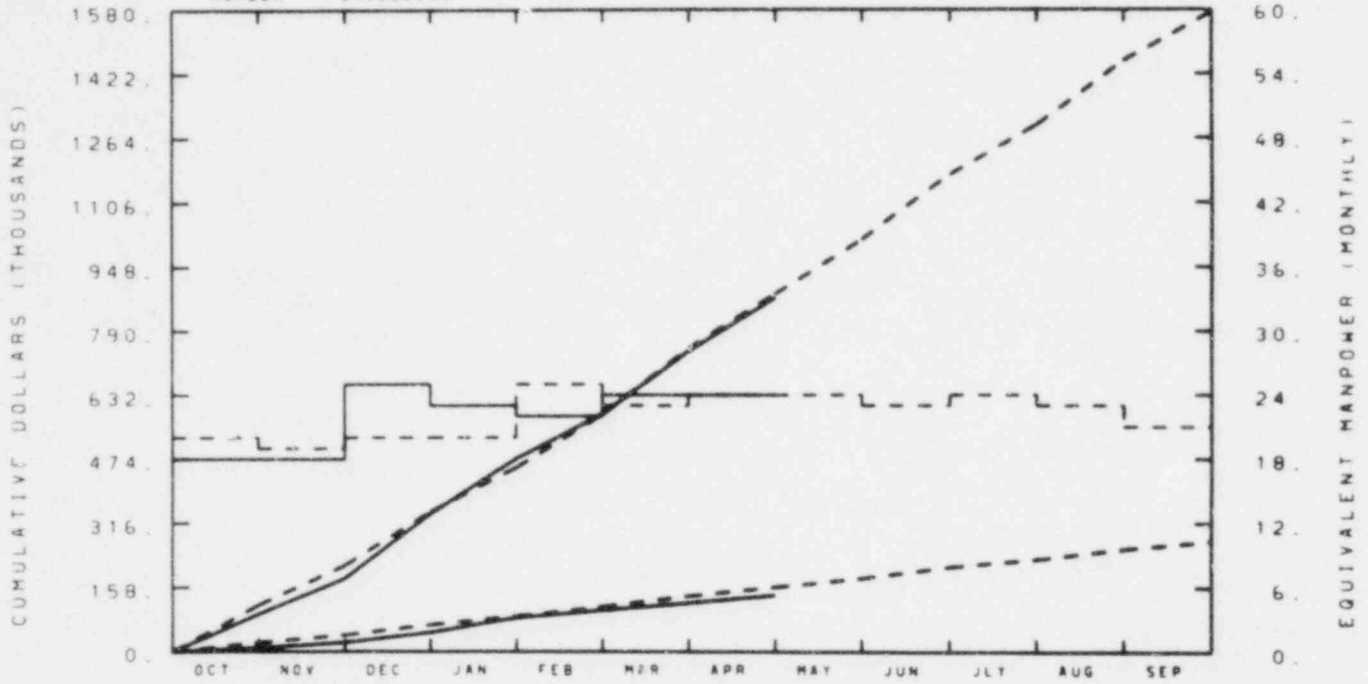
ACTUAL

CCB 80-112 was approved and recovery is underway.

EG&G IDAHO INC.

CORE & SAFETY SUPT - REACTOR SYS

NUMBER 5N5L00000



TOTAL PROGRAM

BUDGET	115	212	344	453	584	748	882	1016	1176	1296	1454	1575
ACTUAL	93	180	339	475	585	741	872					

MATERIAL

BUDGET	22	41	66	87	111	137	159	181	209	228	253	272
ACTUAL	9	22	47	84	102	120	140					

MANPOWER

BUDGET	20	19	20	20	25	23	24	24	23	24	23	21
ACTUAL	18	18	25	23	22	24	24					

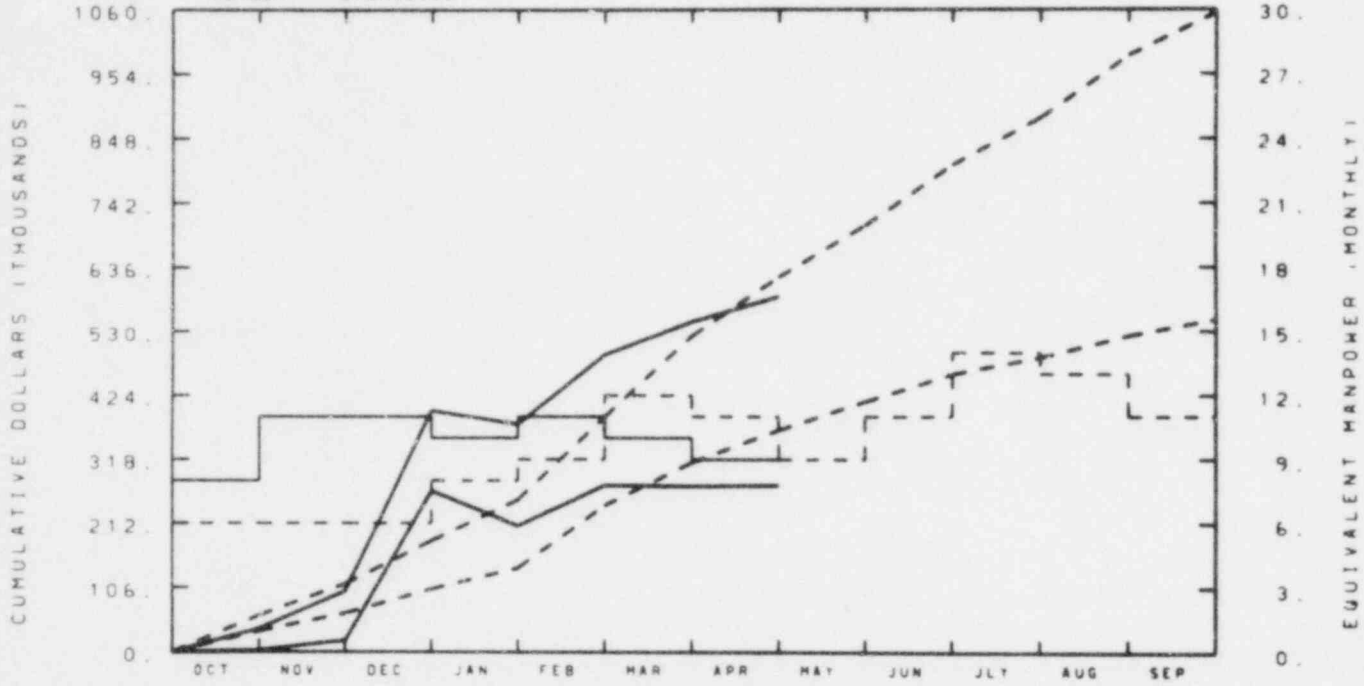
BUDGET  
- - - - -  
ACTUAL  
\_\_\_\_\_

No significant variance.

EG&G IDAHO INC.

CORE & SAFE SUPT - FUEL ENG & OP

NUMBER 545N00000



TOTAL PROGRAM

BUDGET	60	112	183	251	389	522	621	706	805	883	985	1055
ACTUAL	39	100	398	376	491	546	588					

MATERIAL

BUDGET	35	64	104	138	242	313	367	414	459	487	523	550
ACTUAL	3	19	266	208	275	274	275					

MANPOWER

BUDGET	6	6	6	8	9	12	11	9	11	14	13	11
ACTUAL	8	11	11	10	11	10	9					

BUDGET

-----

ACTUAL

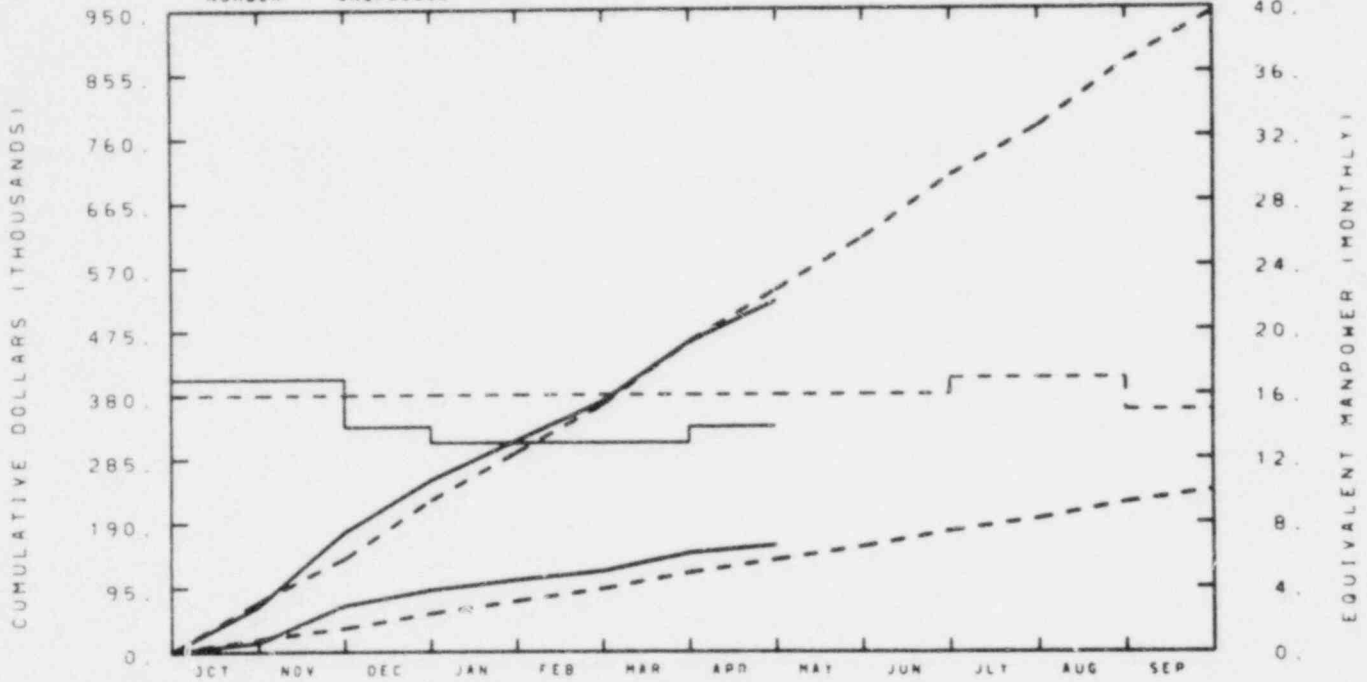
\_\_\_\_\_

No significant variance.

EG&G IDAHO INC.

COMMON SUPT - CDCS/TECH SUPPORT

NUMBER 5N6H00000



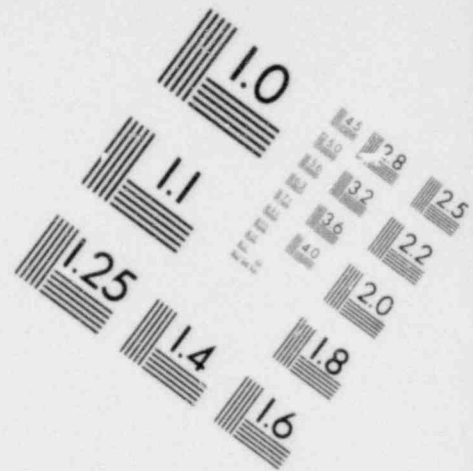
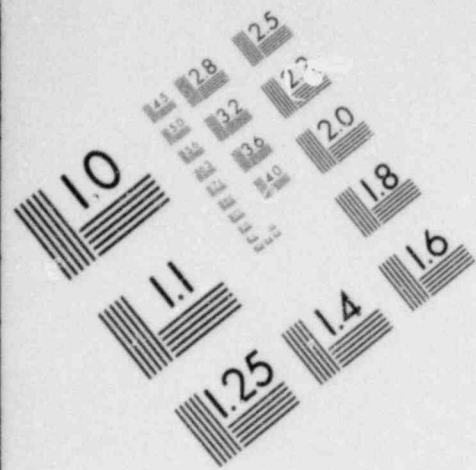
TOTAL PROGRAM												
BUDGET	74	138	224	294	365	456	535	611	703	775	871	943
ACTUAL	68	177	254	312	370	458	518					

MATERIAL												
BUDGET	19	35	57	75	93	117	136	155	178	196	219	238
ACTUAL	14	69	92	106	119	146	157					

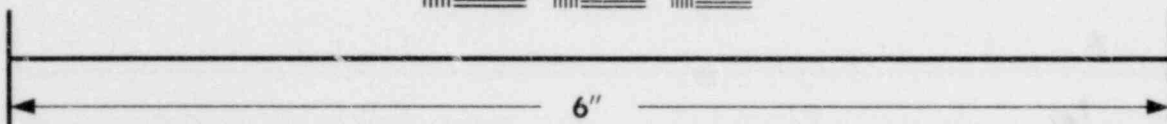
MANPOWER												
BUDGET	16	16	16	16	16	16	16	16	16	17	17	15
ACTUAL	17	17	14	13	13	13	14					

BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

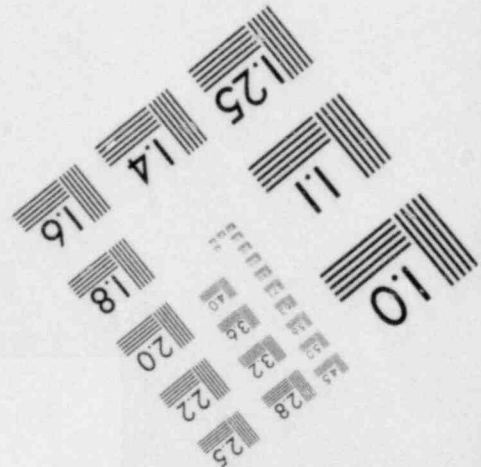
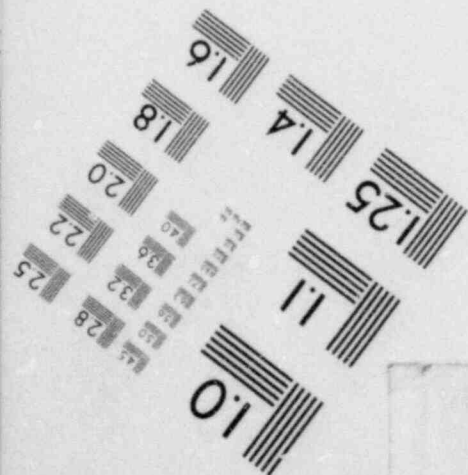
No significant variance.



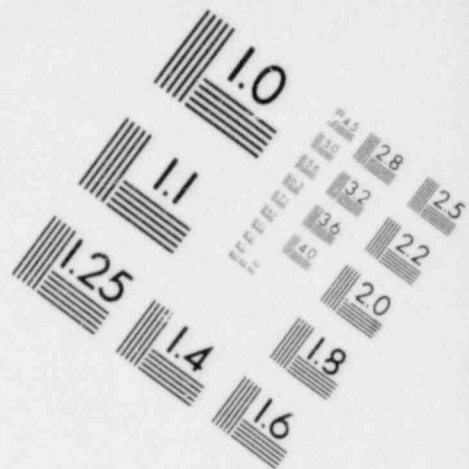
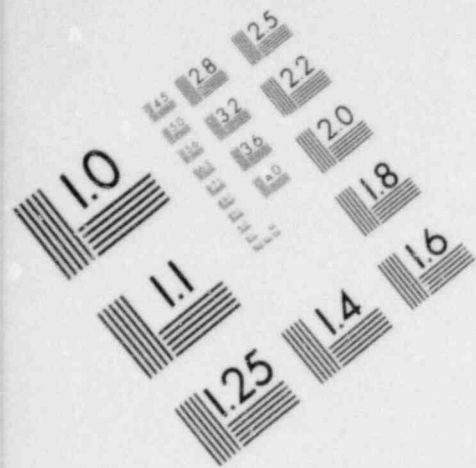
**IMAGE EVALUATION  
TEST TARGET (MT-3)**



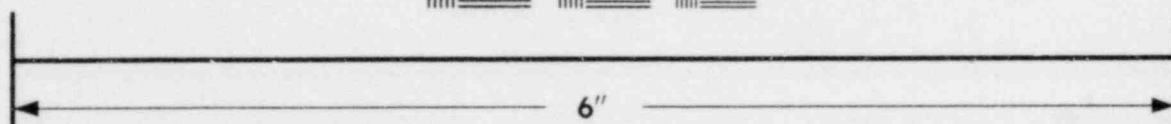
**MICROCOPY RESOLUTION TEST CHART**



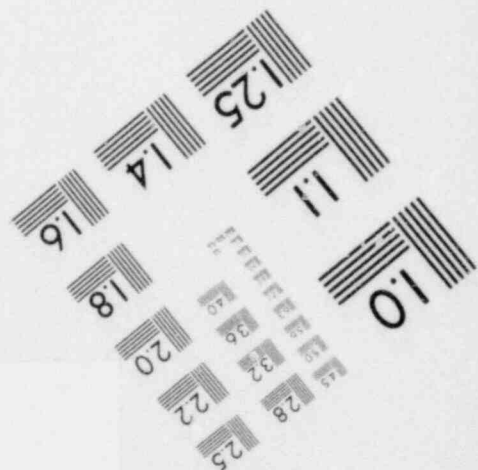
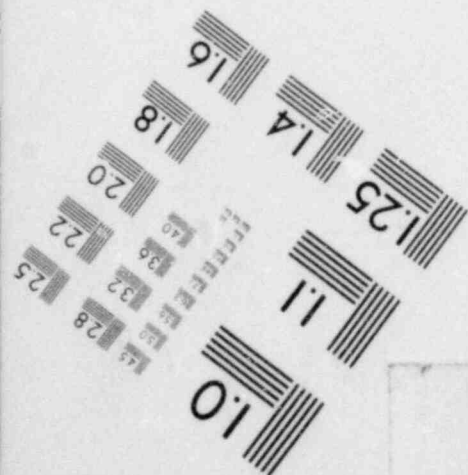




**IMAGE EVALUATION  
TEST TARGET (MT-3)**

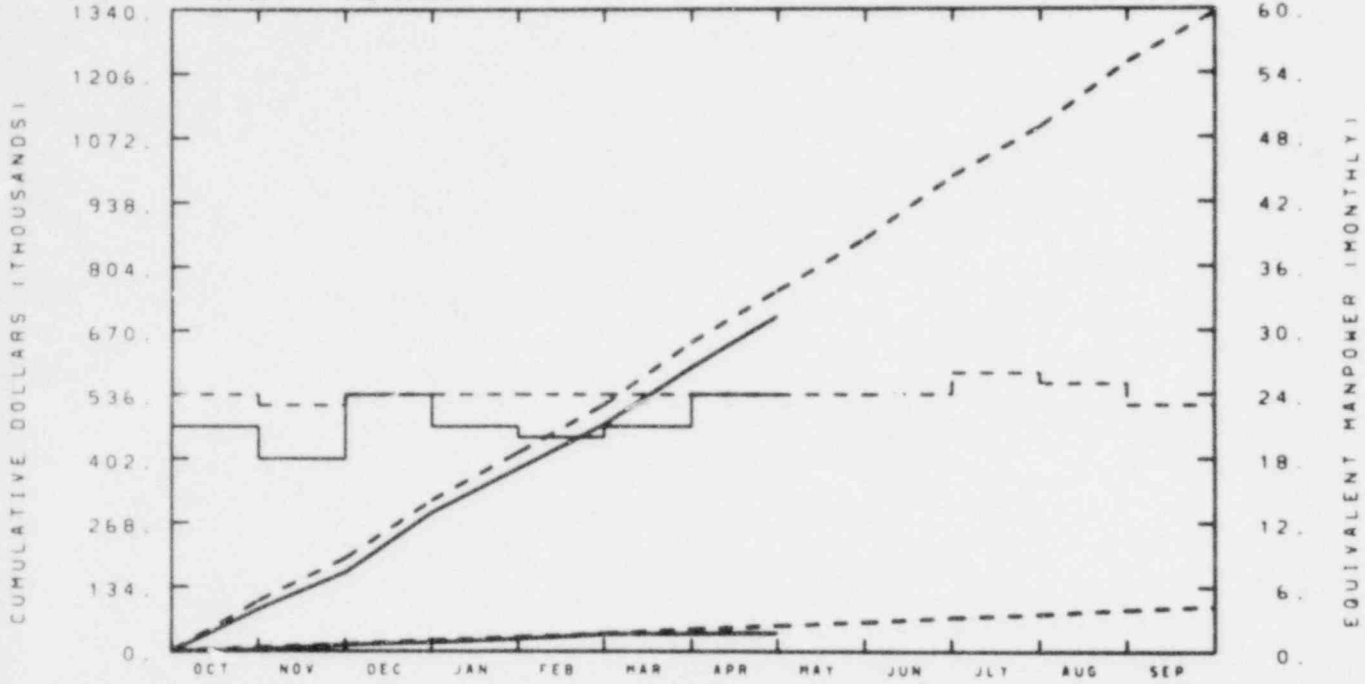


**MICROCOPY RESOLUTION TEST CHART**



EG&G IDAHO INC.  
COMMON SUPT - QUALITY

NUMBER 5N6X00000



TOTAL PROGRAM

BUDGET	105	194	315	415	514	645	754	862	992	1094	1229	1332
ACTUAL	88	164	289	381	473	593	700					

MATERIAL

BUDGET	8	14	23	30	37	47	54	62	71	78	88	95
ACTUAL	3	13	18	26	36	37	39					

MANPOWER

BUDGET	24	23	24	24	24	24	24	24	24	26	25	23
ACTUAL	21	18	24	21	20	21	24					

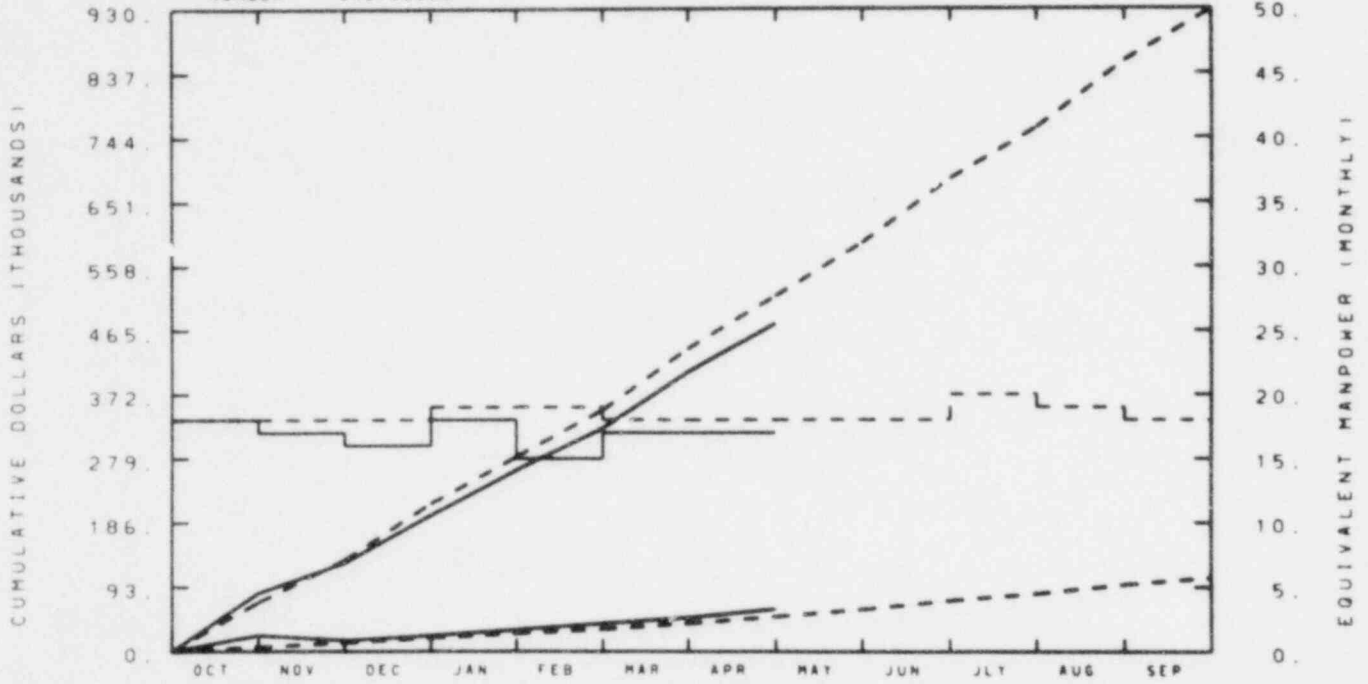
BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

No significant variance.

EG&G IDAHO INC.

COMMON SUPT - PLANS & BUDGETS

NUMBER 5N6Y00000



TOTAL PROGRAM

BUDGET	71	132	214	281	349	438	515	592	685	758	855	928
ACTUAL	84	128	197	262	323	404	475					

MATERIAL

BUDGET	7	12	20	26	32	40	51	61	74	84	97	107
ACTUAL	23	16	23	32	40	49	61					

MANPOWER

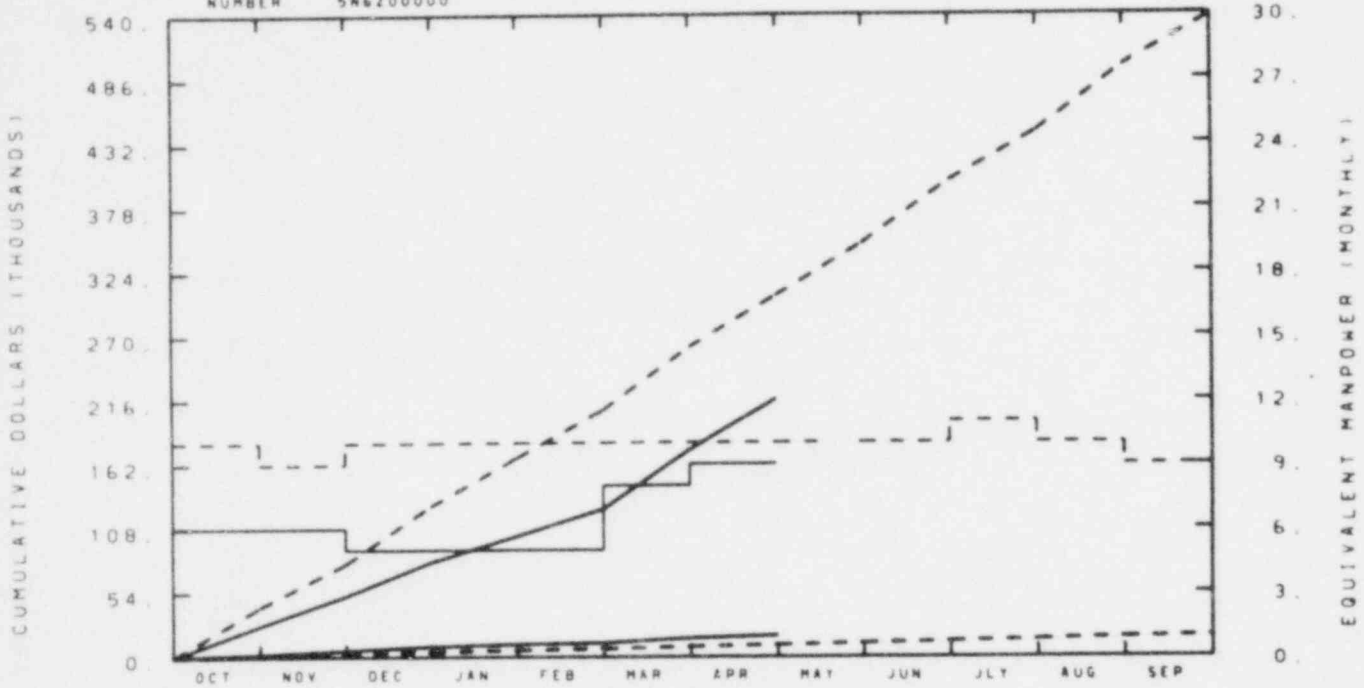
BUDGET	18	18	18	19	19	18	18	18	18	20	19	18
ACTUAL	18	17	16	18	15	17	17					

BUDGET  
- - - - -  
ACTUAL  
\_\_\_\_\_

No significant variance.

EG&G IDAHO INC.  
COMMON SUPT - SAFETY

NUMBER 5N6200000



TOTAL PROGRAM

BUDGET	42	78	127	167	208	261	304	348	400	442	497	538
ACTUAL	26	51	80	102	124	174	217					

MATERIAL

BUDGET	1	3	4	6	7	9	10	11	13	14	16	18
ACTUAL	2	5	9	11	12	16	18					

MANPOWER

BUDGET	10	9	10	10	10	10	10	10	10	11	10	9
ACTUAL	6	6	5	5	5	8	9					

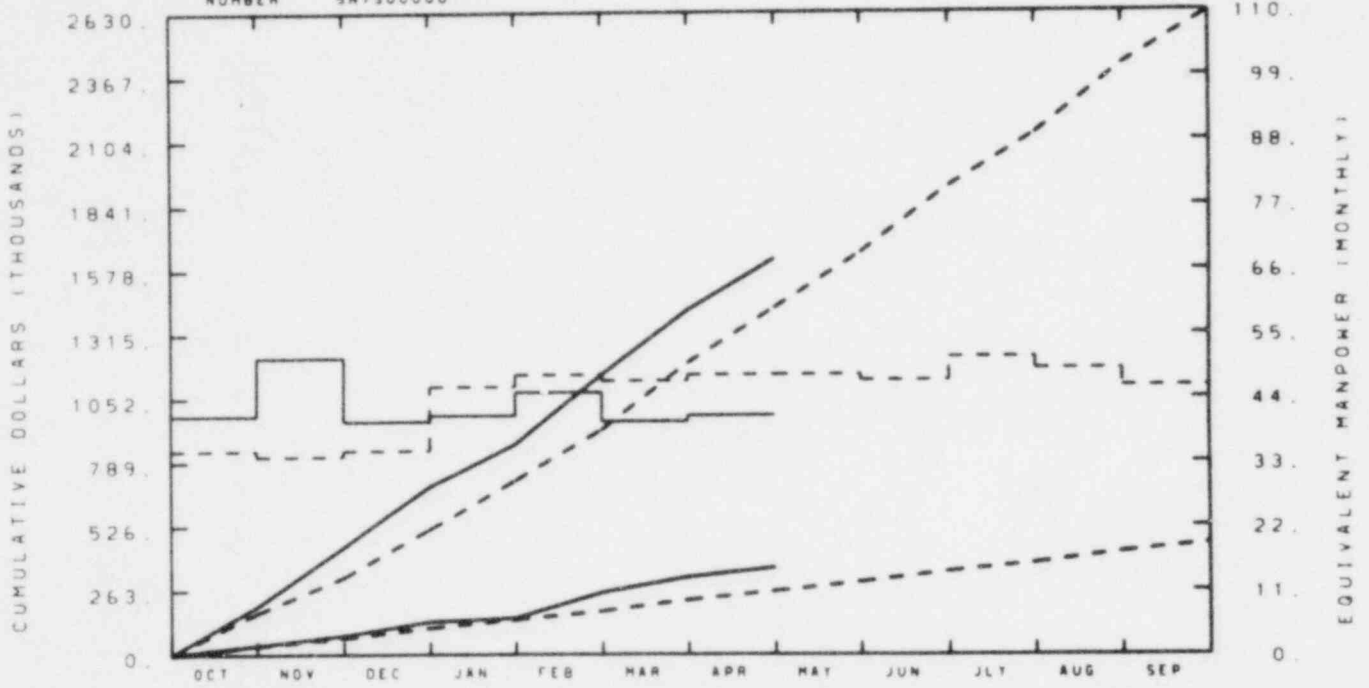
BUDGET

ACTUAL

Staffing has been considerably below budget until current month. Actuals are expected to approach budget by June.

EG&G IDAHO INC.  
LOFT OPERATIONS BRANCH

NUMBER 5N7500000



TOTAL PROGRAM												
BUDGET	171	317	513	714	923	1196	1422	1647	1917	2131	2412	2626
ACTUAL	199	441	689	862	1149	1413	1624					

MATERIAL												
BUDGET	36	67	109	143	178	223	260	296	340	374	420	454
ACTUAL	38	78	134	150	254	317	356					

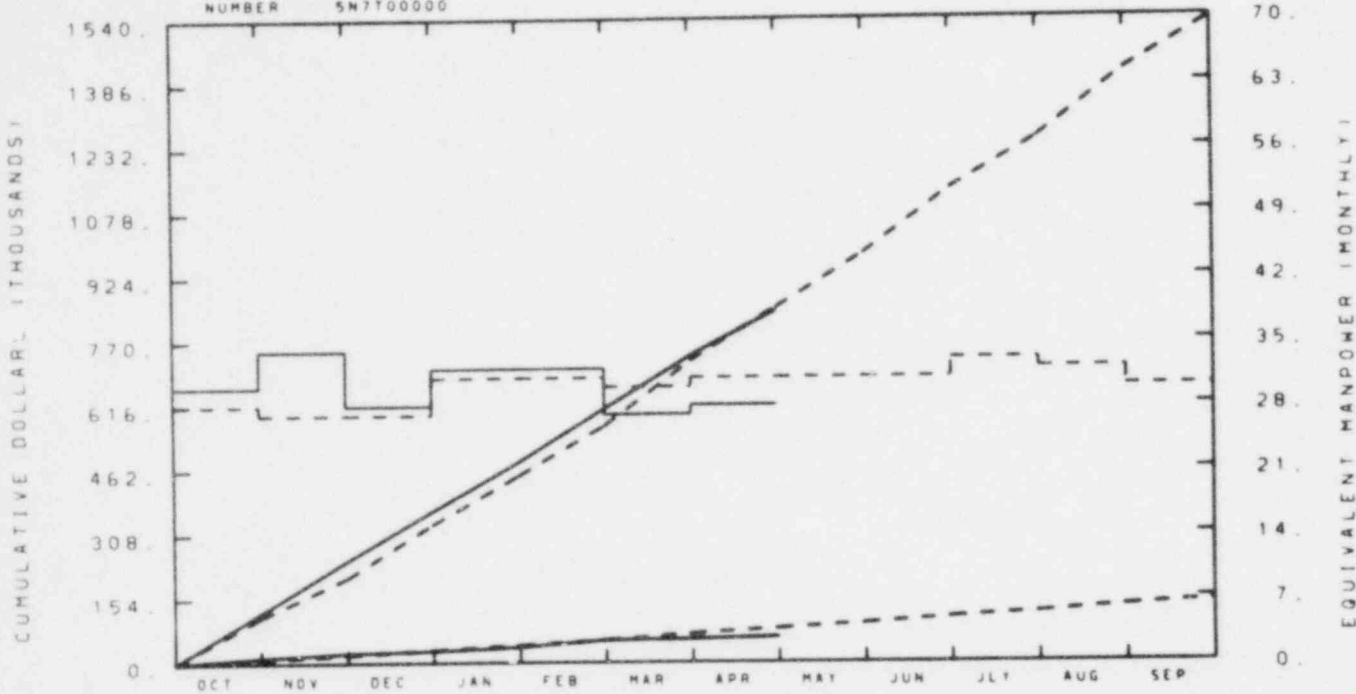
MANPOWER												
BUDGET	35	34	35	46	48	47	48	48	47	51	49	46
ACTUAL	41	51	40	41	45	40	41					

BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

Labor overruns were incurred in the first quarter of the fiscal year in order to support the test schedule. Underruns in the balance of the year are expected to correct the problems.

EG&G IDAHO INC.  
LOFT TEST & DATA

NUMBER 5N7T00000



TOTAL PROGRAM

BUDGET	111	205	332	448	566	722	849	977	1131	1252	1412	1524
ACTUAL	121	246	364	481	607	734	842					

MATERIAL

BUDGET	10	19	31	42	54	69	81	93	107	119	134	145
ACTUAL	14	24	28	37	54	55	60					

MANPOWER

BUDGET	28	27	27	31	31	30	31	31	31	33	32	30
ACTUAL	30	34	28	32	32	27	28					

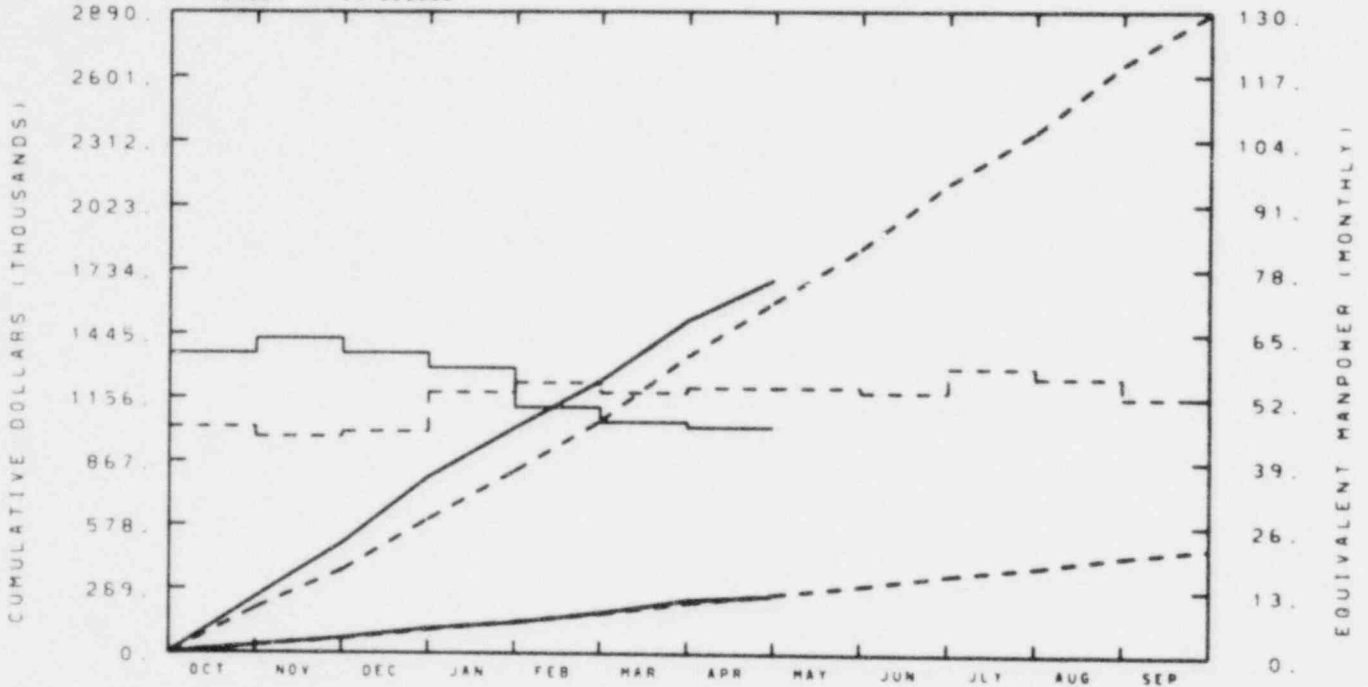
BUDGET

ACTUAL

No significant variance.

EG&G IDAHO INC.  
LOFT FACILITY SUPPORT

NUMBER 5N7U00000



TOTAL PROGRAM

BUDGET	201	372	604	823	1048	1343	1586	1828	2120	2350	2554	2884
ACTUAL	251	494	794	1018	1232	1505	1689					

MATERIAL

BUDGET	35	65	105	142	180	229	269	309	356	394	444	481
ACTUAL	33	67	111	138	184	242	263					

MANPOWER

BUDGET	46	44	45	53	55	53	54	54	53	58	56	52
ACTUAL	61	64	61	58	50	47	46					

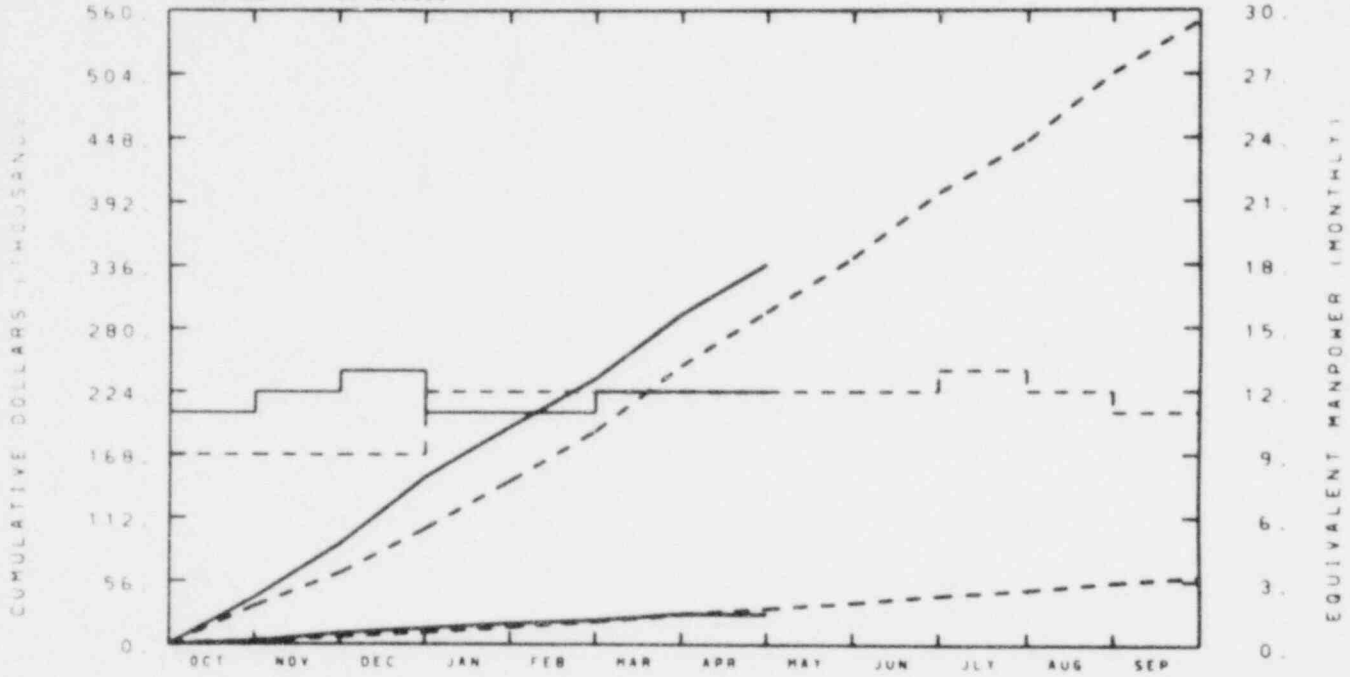
BUDGET

ACTUAL

The actuals for this cost account are \$31,000 overstated, due to a computer problem. No significant variance.

EG&G IDAHO INC.  
 OUTSIDE SERVICE SUPPORT

NUMBER 5N7200000



TOTAL PROGRAM

BUDGET	34	63	102	145	189	247	295	342	400	445	505	551
ACTUAL	42	89	148	193	235	293	337					

MATERIAL

BUDGET	3	6	10	15	20	27	32	37	44	49	55	60
ACTUAL	3	10	14	19	22	27	27					

MANPOWER

BUDGET	9	9	9	12	12	12	12	12	12	13	12	11
ACTUAL	11	12	13	11	11	12	12					

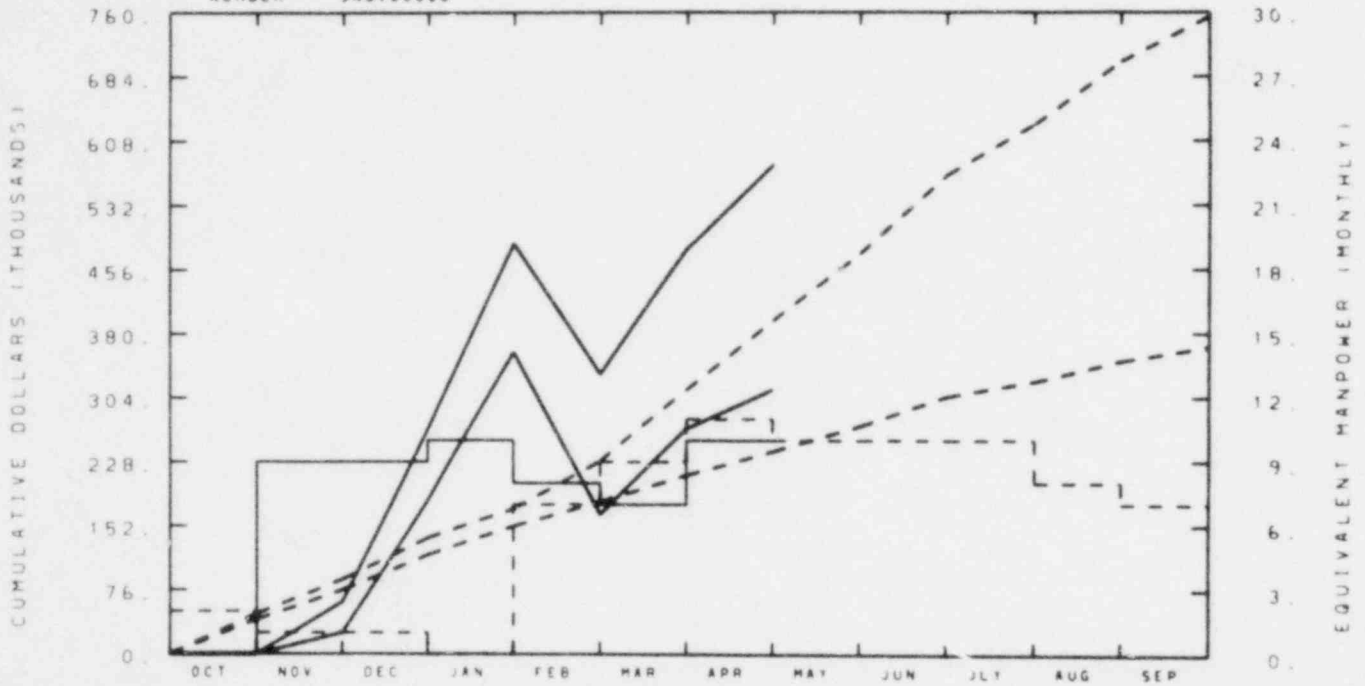
BUDGET  
 - - - - -  
 ACTUAL  
 \_\_\_\_\_

Cost overruns were incurred in the first quarter of the year to support the test schedule.



EG&G IDAHO INC.  
 AUGMENTED OPER CAPABILITY

NUMBER 5NBY00000



TOTAL PROGRAM												
BUDGET	48	88	138	172	229	314	396	475	568	628	702	755
ACTUAL	0	62	266	487	332	480	580					

MATERIAL												
BUDGET	41	76	117	152	181	212	240	270	305	323	348	364
ACTUAL	0	25	182	358	166	267	314					

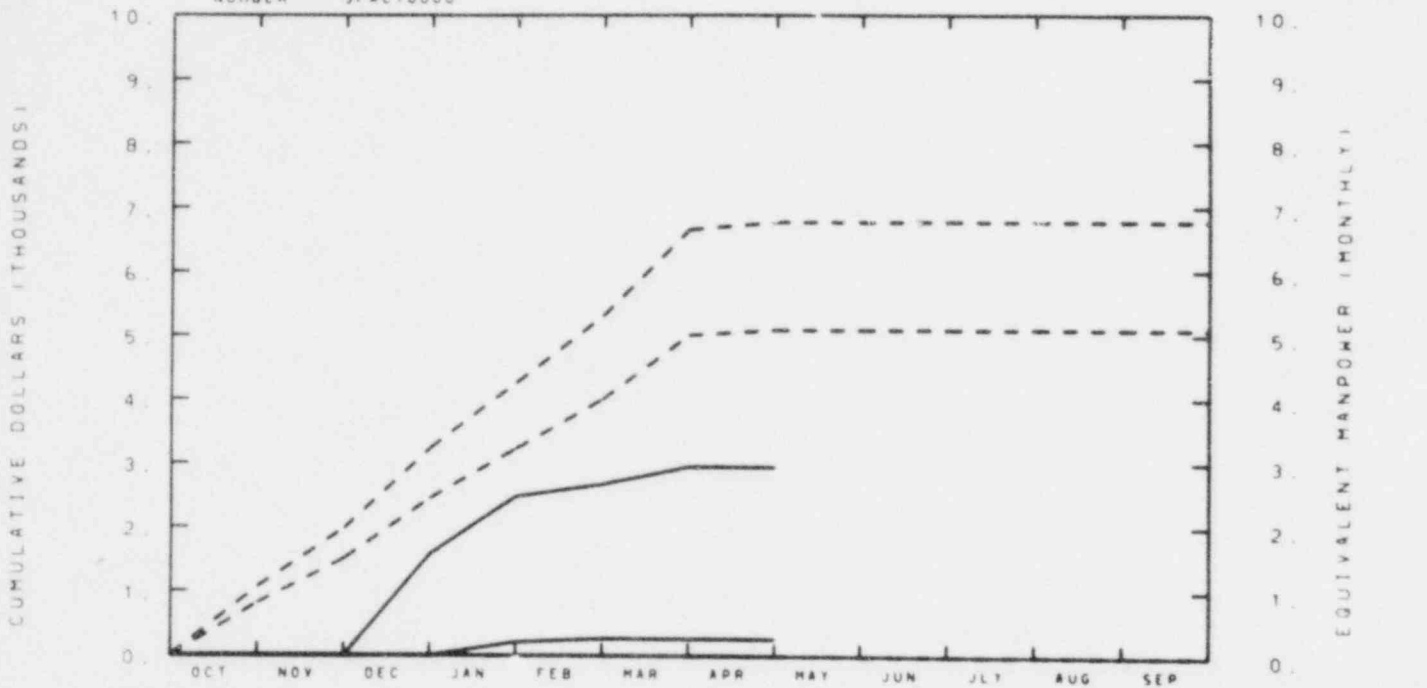
  

MANPOWER												
BUDGET	2	1	1	0	7	9	11	10	10	10	8	7
ACTUAL	0	9	9	10	8	7	10					

Program manpower levels are being reduced to correct for higher-than-estimated labor rates.

EG&G IDAHO INC.  
MANAGEMENT

NUMBER SFAC10000



TOTAL PROGRAM

BUDGET	1	2	3	4	5	7	7	7	7	7	7	7
ACTUAL	0	0	2	2	3	3	3					

MATERIAL

BUDGET	1	2	2	3	4	5	5	5	5	5	5	5
ACTUAL	0	0	0	0	0	0	0					

MANPOWER

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

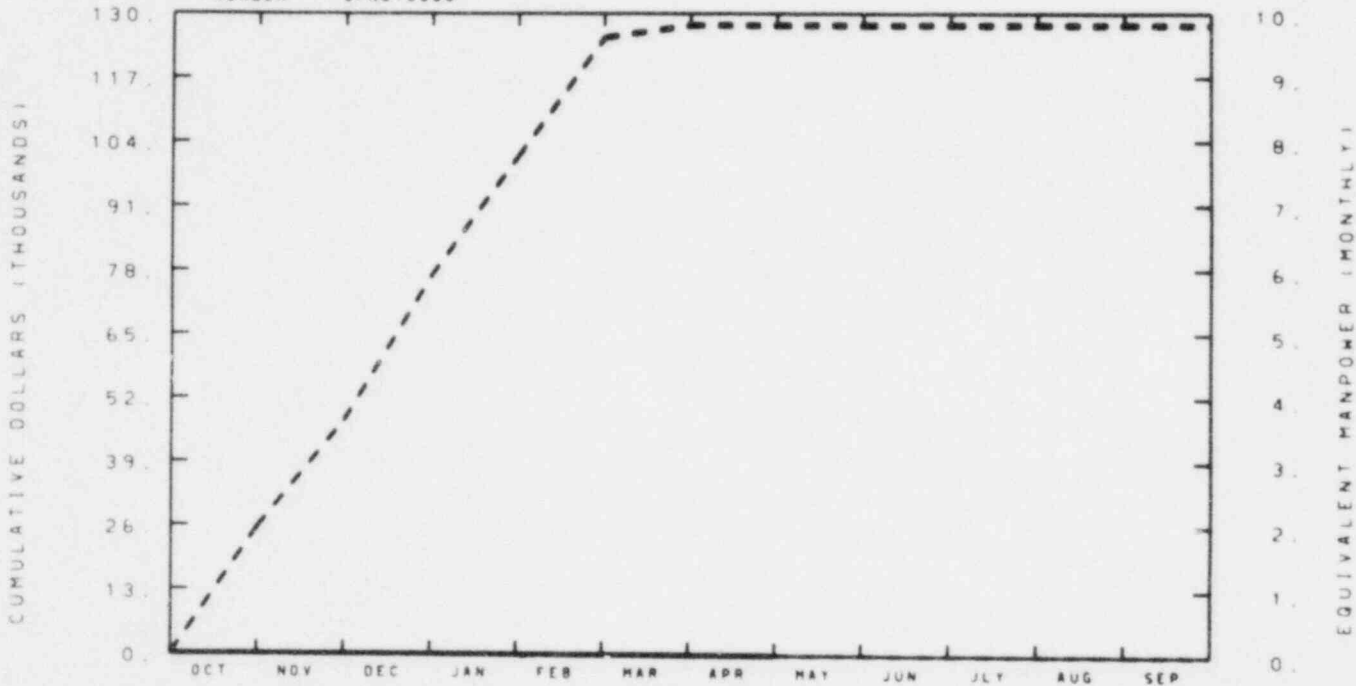
BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

The SGAE management task includes a \$12,000 management reserve and contingency. Task budgets are being changed to reflect planned usage. No significant variance exists.

EG&G IDAHO INC.

MANAGEMENT

NUMBER SFNC10000



TOTAL PROGRAM

BUDGET	26	47	77	101	125	128	128	128	128	128	128	128
ACTUAL	0	0	0	0	0	0	0					

MATERIAL

BUDGET	25	47	76	101	125	127	127	127	127	127	127	127
ACTUAL	0	0	0	0	0	0	0					

MANPOWER

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

BUDGET

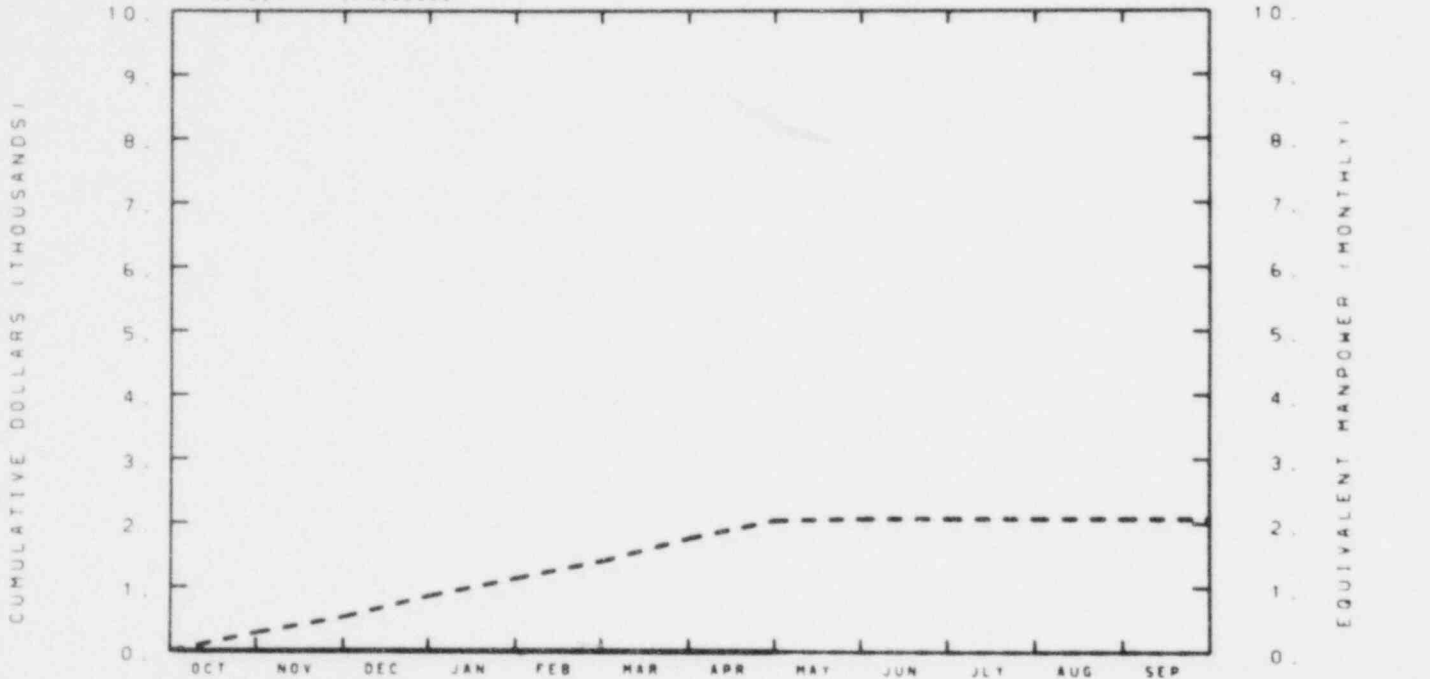
ACTUAL

This task presently includes \$107,000 in management reserve and contingency, and \$2,000 in staff support. The budget graph is being changed to reflect planned usage.

EG&G IDAHO INC.

RPI SUBCONTRACT

NUMBER 5FNC30000



TOTAL PROGRAM

BUDGET	0	1	1	1	1	2	2	2	2	2	2	2
ACTUAL	0	0	0	0	0	0	0					

MATERIAL

BUDGET	0	1	1	1	1	2	2	2	2	2	2	2
ACTUAL	0	0	0	0	0	0	0					

MANPOWER

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

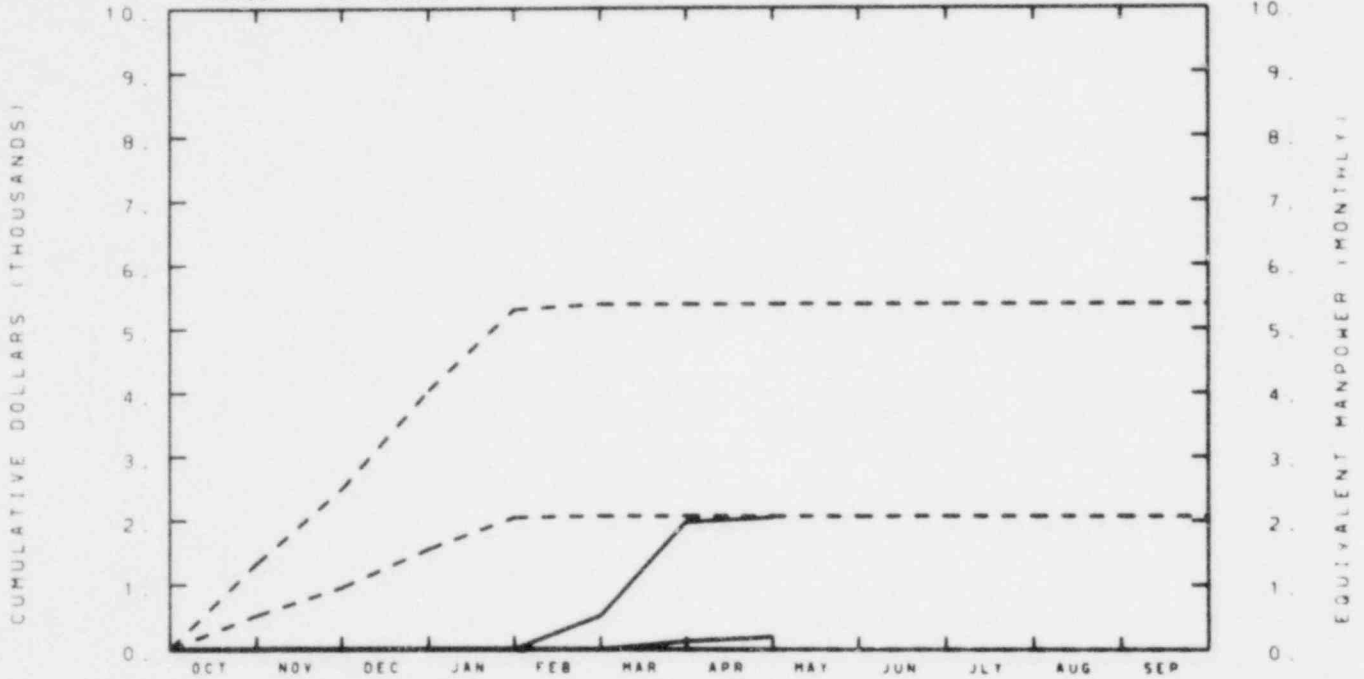
BUDGET  
- - - - -  
ACTUAL  
\_\_\_\_\_

No activity yet in this support task. No significant variance.

EG&G IDAHO INC.

INEL SUPPORT

NUMBER 5FNC50000



TOTAL PROGRAM

BUDGET	1	2	4	5	5	5	5	5	5	5	5	5
ACTUAL	0	0	0	0	1	2	2					

MATERIAL

BUDGET	1	1	2	2	2	2	2	2	2	2	2	2
ACTUAL	0	0	0	0	0	0	0	0				

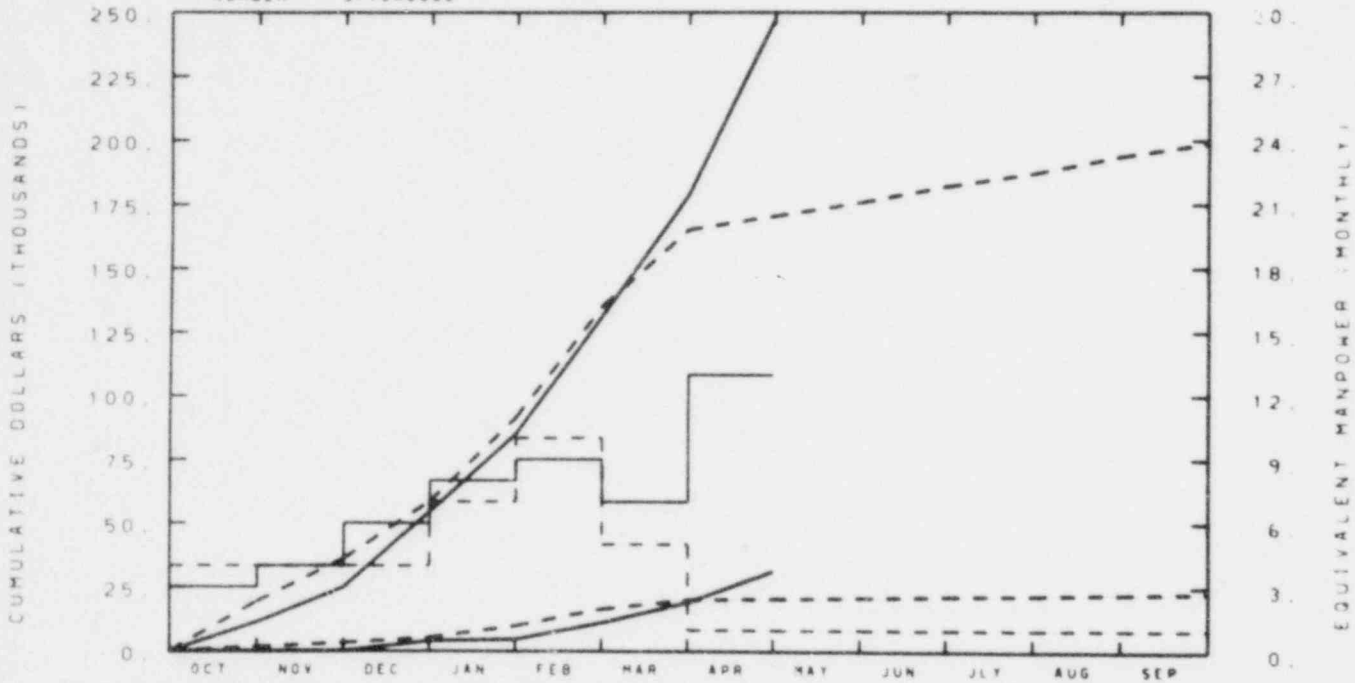
MANPOWER

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0	0				

BUDGET  
- - - - -  
ACTUAL  
\_\_\_\_\_

The budget for this level of effort task will be spread throughout the year. Budget and actual costs will then be in agreement.

EG&G IDAHO INC.  
 SMALL BREAK INSTRUMENTS  
 NUMBER 5F7CA0000



TOTAL PROGRAM

BUDGET	19	36	59	91	135	165	171	176	182	187	194	199
ACTUAL	11	25	54	85	132	179	248					

MATERIAL

BUDGET	2	3	5	10	16	20	21	21	22	22	22	23
ACTUAL	0	0	4	5	11	19	31					

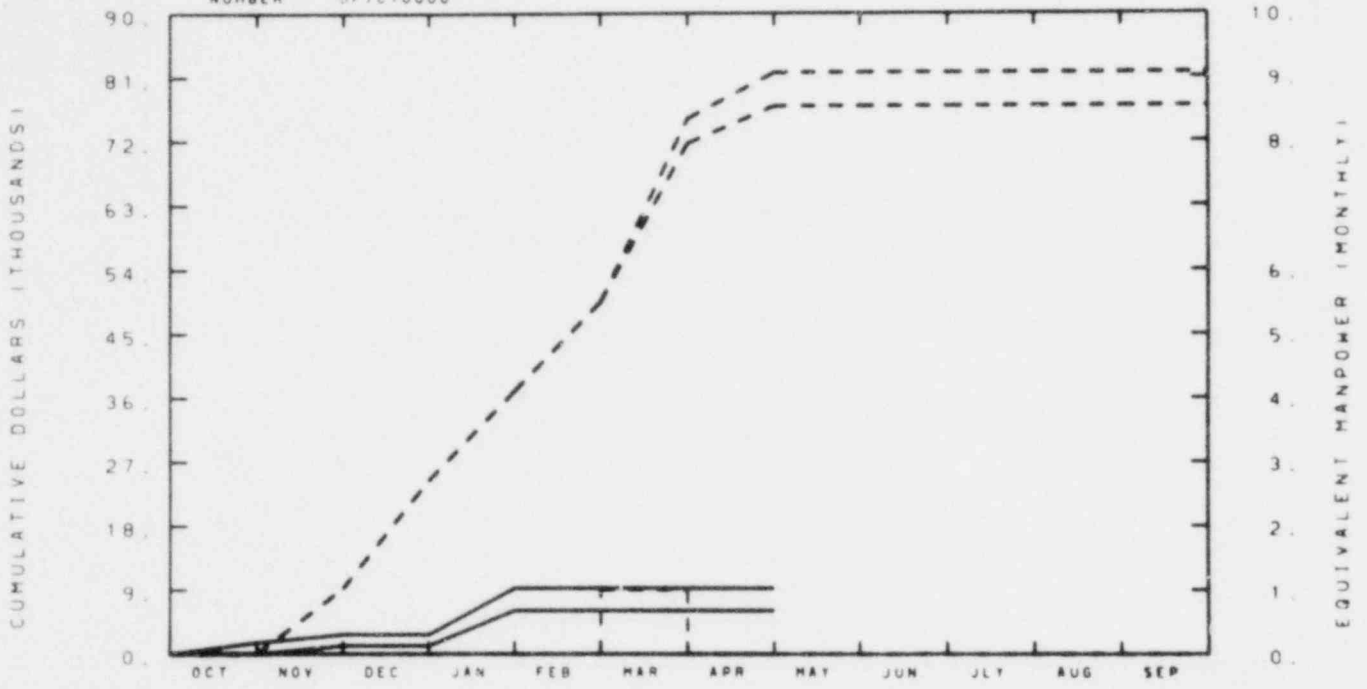
MANPOWER

BUDGET	4	4	4	7	10	5	1	1	1	1	1	1
ACTUAL	3	4	6	8	9	7	13					

BUDGET  
 - - - - -  
 ACTUAL  
 \_\_\_\_\_

The small break instruments work is funded with this account plus one from JAERI funds. This account will be reduced to \$206,000 and further costs accrued in the JAERI account. The task contingency of \$6000 will be added to fund this account at the \$206,000 level, leaving no variance.

EG&G IDAHO INC.  
 MANAGEMENT  
 NUMBER 5F7C10000



TOTAL PROGRAM												
BUDGET	0	9	24	37	49	75	82	82	82	82	82	82
ACTUAL	2	3	3	9	9	9	9					

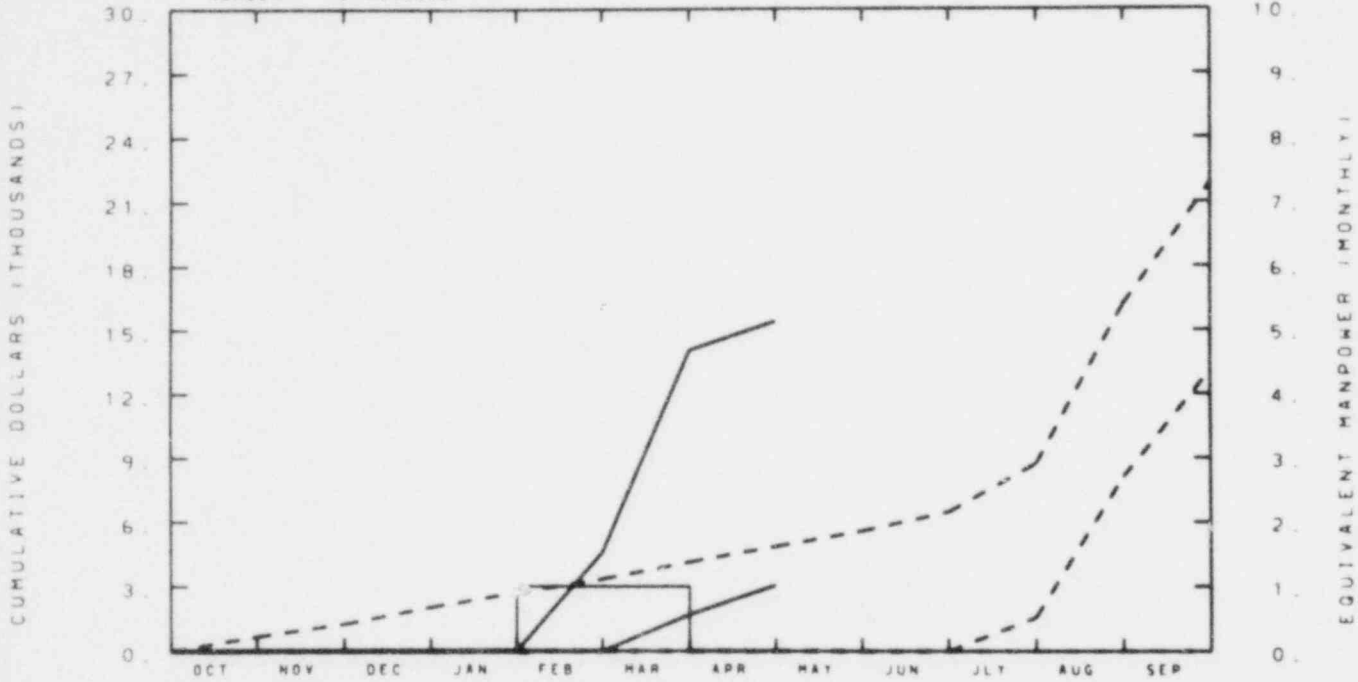
MATERIAL												
BUDGET	0	9	24	37	49	72	77	77	77	77	77	77
ACTUAL	0	1	1	6	6	6	6					

MANPOWER												
BUDGET	0	0	0	0	0	1	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

BUDGET  
 - - - - -  
 ACTUAL  
 \_\_\_\_\_

This task includes \$70,000 in management reserve and contingency funds which are being rebudgeted to reflect planned usage. No significant variance exists.

EG&G IDAHO INC.  
 SHORT TERM TASKS  
 NUMBER SF7C40000



TOTAL PROGRAM

BUDGET	1	1	2	3	3	4	5	6	6	9	16	22
ACTUAL	0	0	0	0	5	14	15					

MATERIAL

BUDGET	0	0	0	0	0	0	0	0	0	2	8	13
ACTUAL	0	0	0	0	0	2	3					

MANPOWER

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	1	1	0					

BUDGET  
 - - - - -  
 ACTUAL  
 \_\_\_\_\_

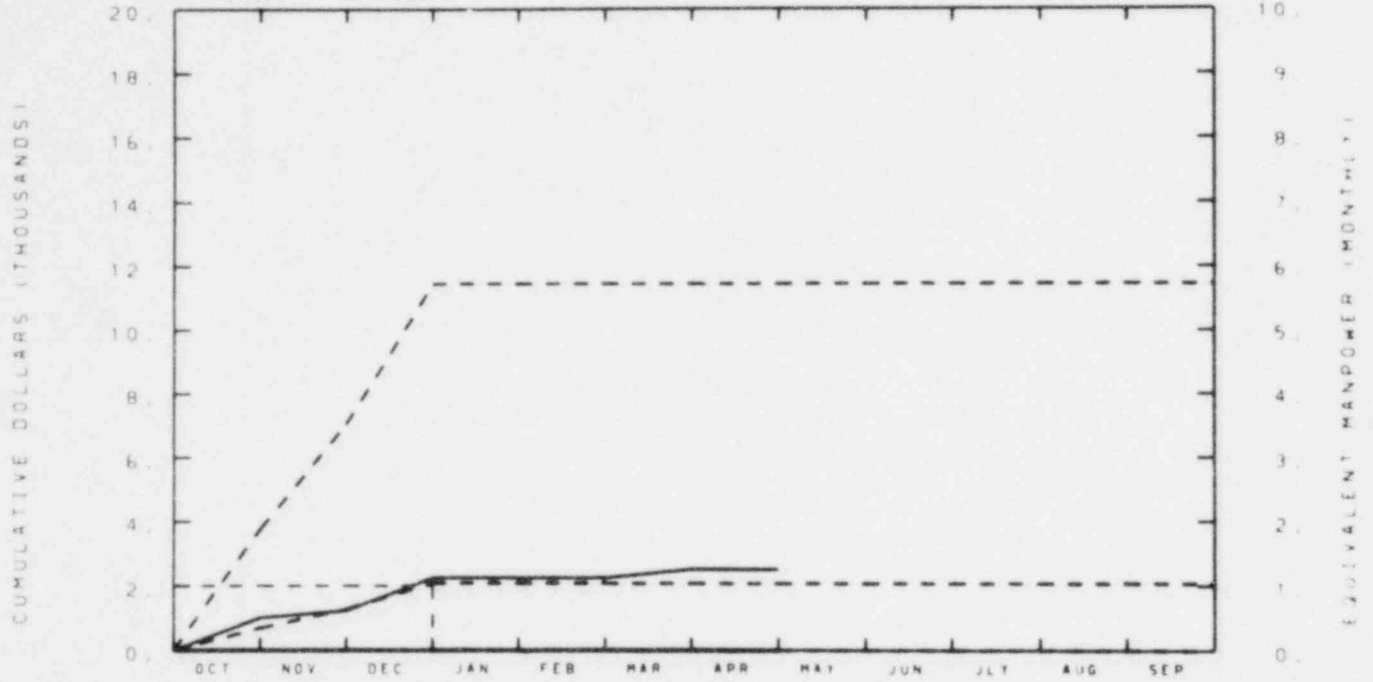
The variance is due to completion of work ahead of schedule. A CCB action is necessary to realign budget to actual expenditure rate.



EG&G IDAHO INC

STEAM PROBE

NUMBER 5F7C50000



TOTAL PROGRAM

BUDGET	4	7	11	11	11	11	11	11	11	11	11	11
ACTUAL	1	1	2	2	2	3	3					

MATERIAL

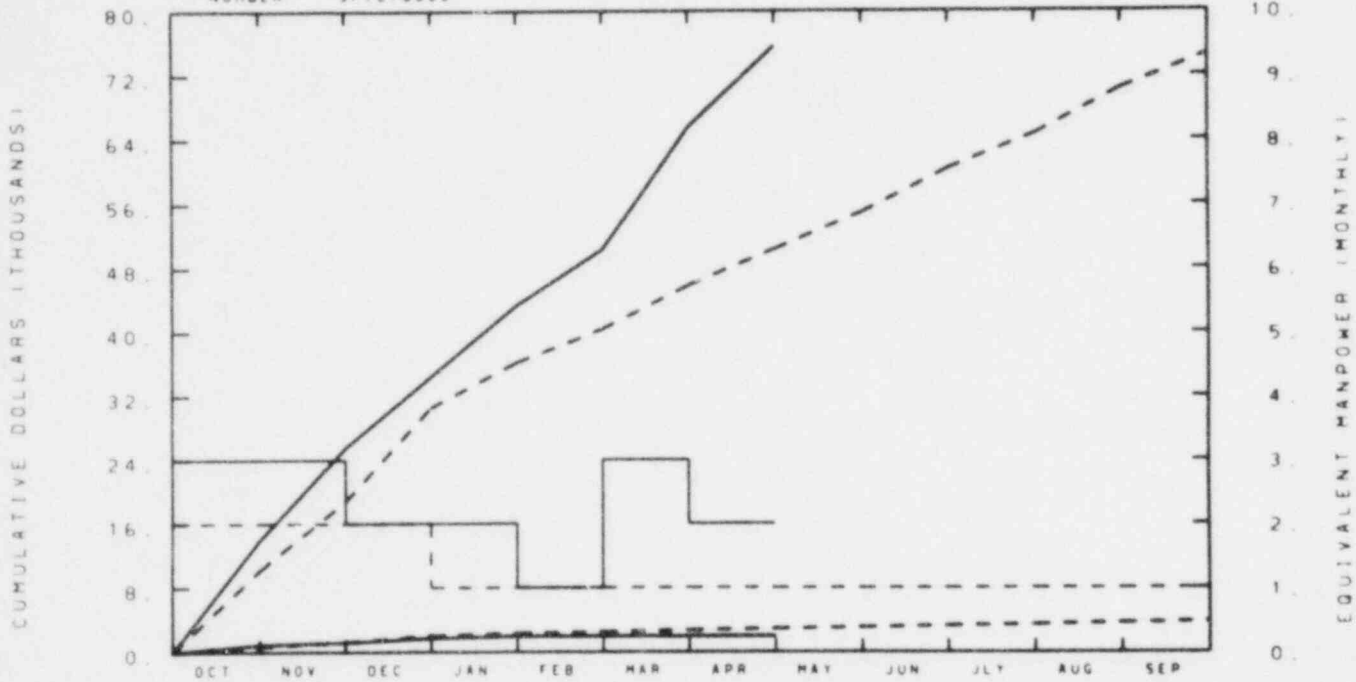
BUDGET	1	1	2	2	2	2	2	2	2	2	2	2
ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0

MANPOWER

BUDGET	1	1	1	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0

The task is presently inactive.

EG&G IDAHO INC.  
 ULTRASONIC DENSITY DETECTOR  
 NUMBER 5F7C70000



TOTAL PROGRAM

BUDGET	10	19	31	36	40	46	50	55	60	65	70	75
ACTUAL	14	26	34	43	50	66	76					

MATERIAL

BUDGET	1	1	2	2	2	3	3	3	3	3	4	4
ACTUAL	1	1	2	2	2	2	2					

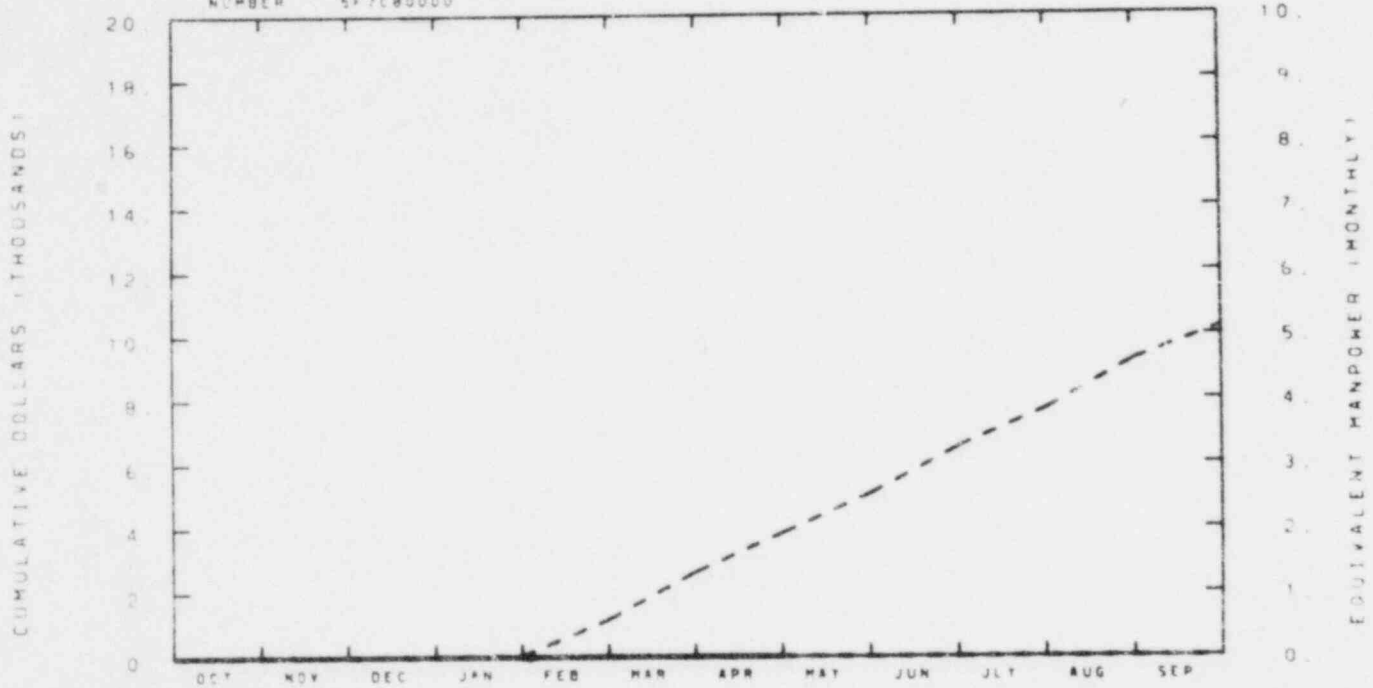
MANPOWER

BUDGET	2	2	2	1	1	1	1	1	1	1	1	1
ACTUAL	3	3	2	2	1	3	2					

BUDGET  
 - - - - -  
 ACTUAL  
 \_\_\_\_\_

The variance is due to completion of work ahead of schedule. Corrective action will be taken for realignment of budget.

EG&G IDAHO INC.  
 LOFT STATE VECTOR D&T  
 NUMBER 5F7C80000



TOTAL PROGRAM

BUDGET	0	0	0	0	1	3	4	5	7	8	9	10
ACTUAL	0	0	0	0	0	0	0					

MATERIAL

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

MANPOWER

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

BUDGET

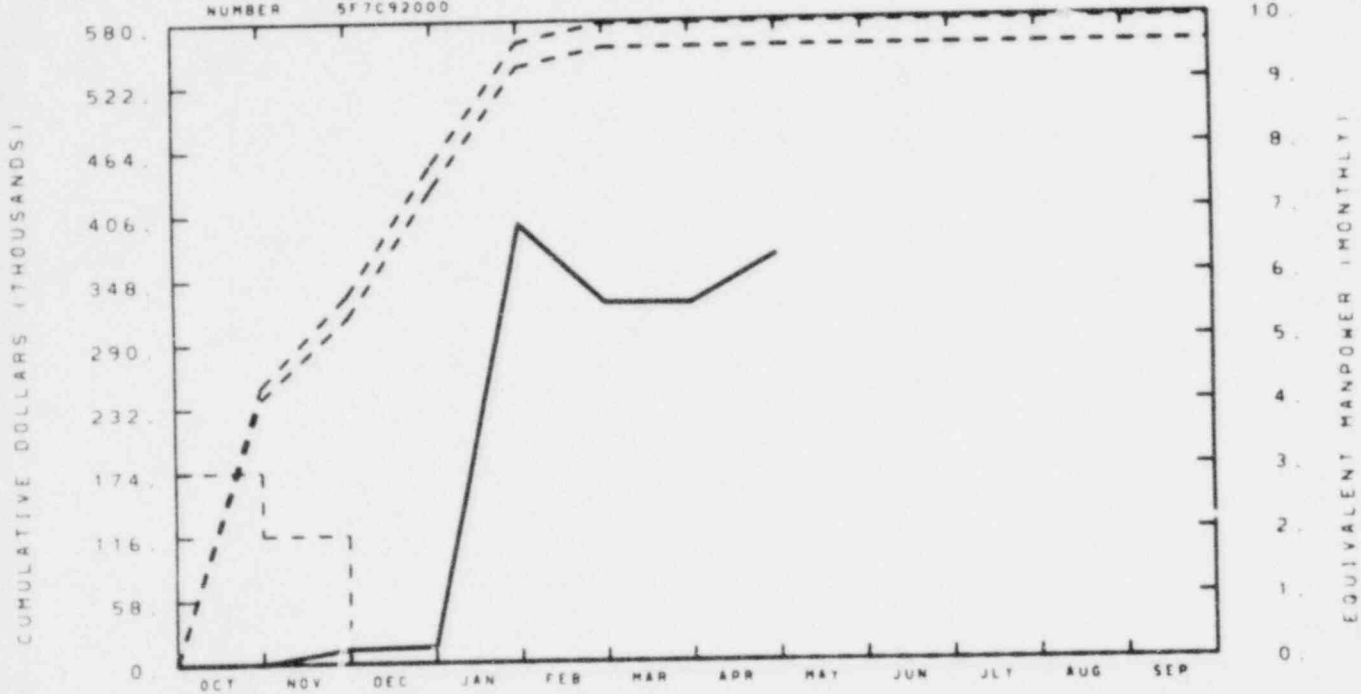
ACTUAL

The task has not started been due to other higher priority work assignments.

EG&G IDAHO INC.

SHARED TASKS - STEADY STATE TEST

NUMBER 5F7C92000



TOTAL PROGRAM

BUDGET	251	333	451	561	578	578	578	578	578	578	578	578
ACTUAL	0	13	15	397	325	324	368					

MATERIAL

BUDGET	240	313	429	539	556	556	556	556	556	556	556	556
ACTUAL	0	13	15	397	325	324	368					

MANPOWER

BUDGET	3	2	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

BUDGET

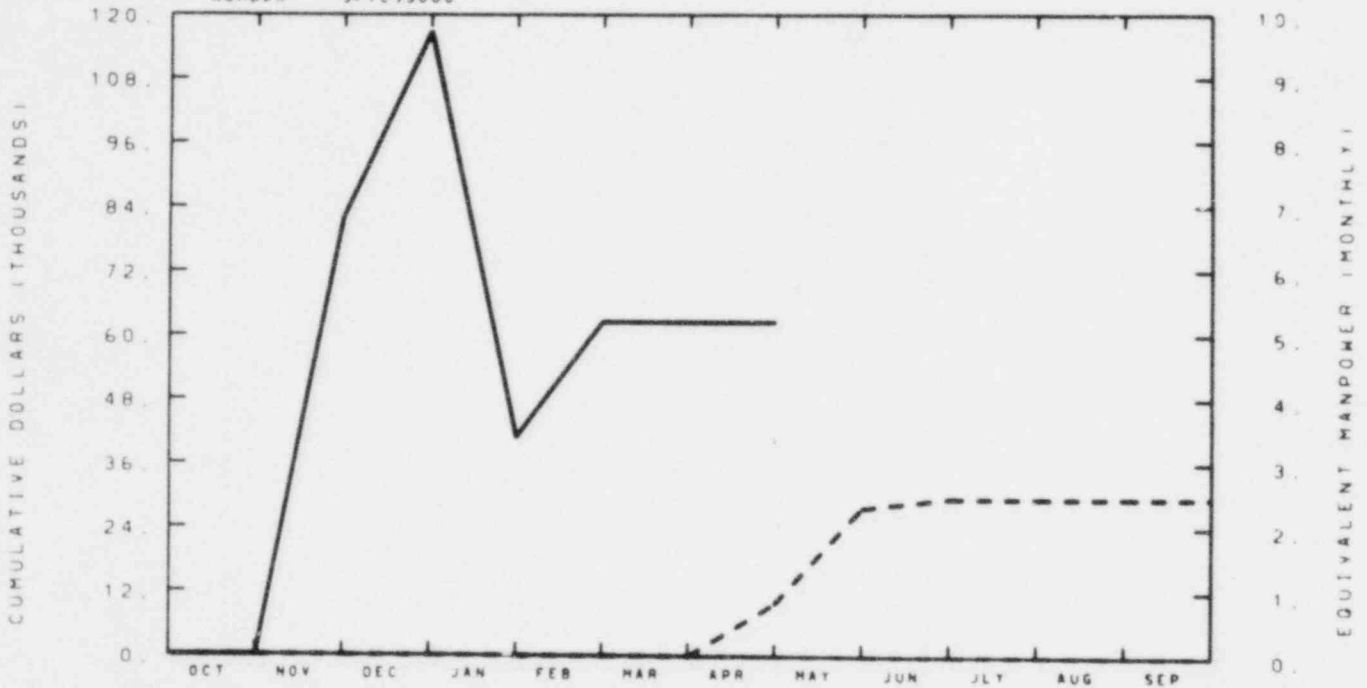
ACTUAL

Some completed work and material charges have not yet been properly charged to this task. When these adjustments are made, it is expected that no significant variance will exist.

EG&G IDAHO INC.

SHARED TASKS - Trac Code Studies

NUMBER SF7C93000



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	10	28	30	30	30	30
ACTUAL	0	82	117	77	62	62	62					

MATERIAL

BUDGET	0	0	0	0	0	0	10	28	30	30	30	30
ACTUAL	0	82	117	41	62	62	62					

MANPOWER

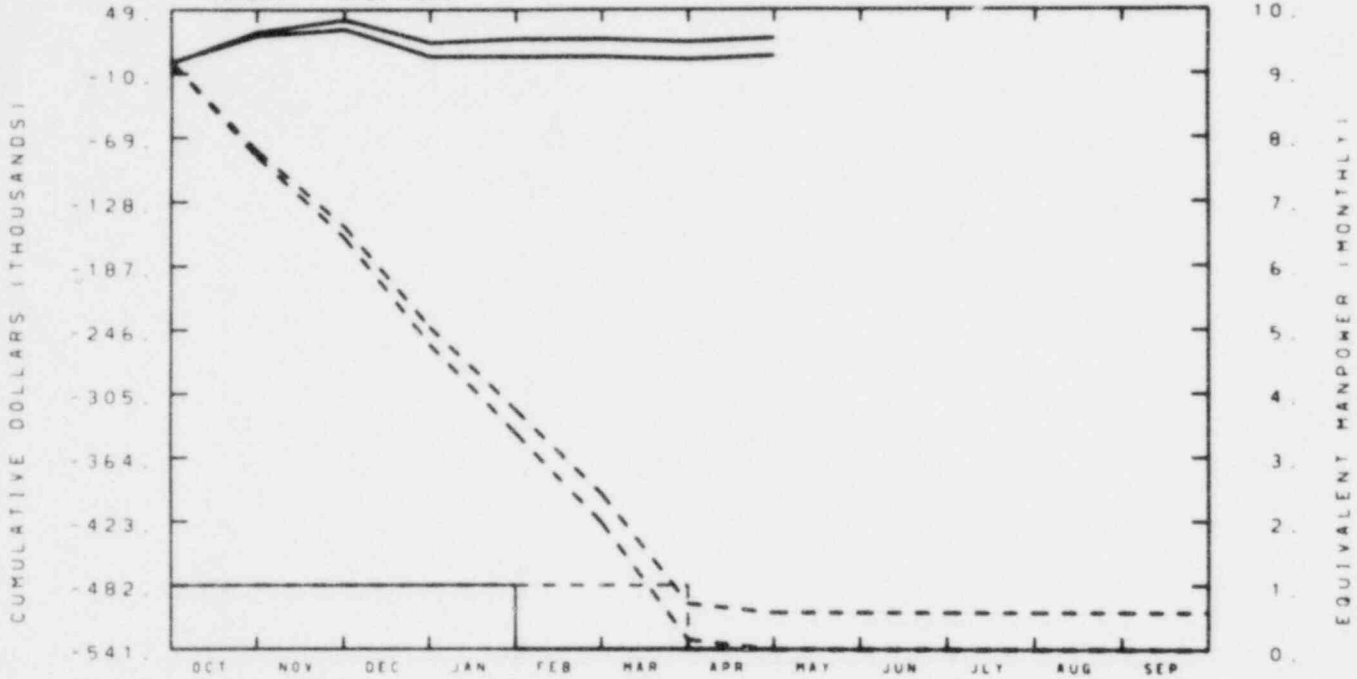
BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

The overrun is due to changes in computer charging algorithms. A CCB correcting this is in process.

EG&G IDAHO INC.  
MANAGEMENT

NUMBER 5FBC10000



TOTAL PROGRAM

BUDGET	-80	-149	-242	-319	-397	-498	-506	-506	-506	-506	-506	-506
ACTUAL	28	40	18	22	22	19	22					

MATERIAL

BUDGET	-86	-159	-259	-341	-423	-532	-540	-540	-540	-540	-540	-540
ACTUAL	25	31	5	5	5	3	6					

MANPOWER

BUDGET	1	1	1	1	1	1	0	0	0	0	0	0
ACTUAL	1	1	1	1	0	0	0					

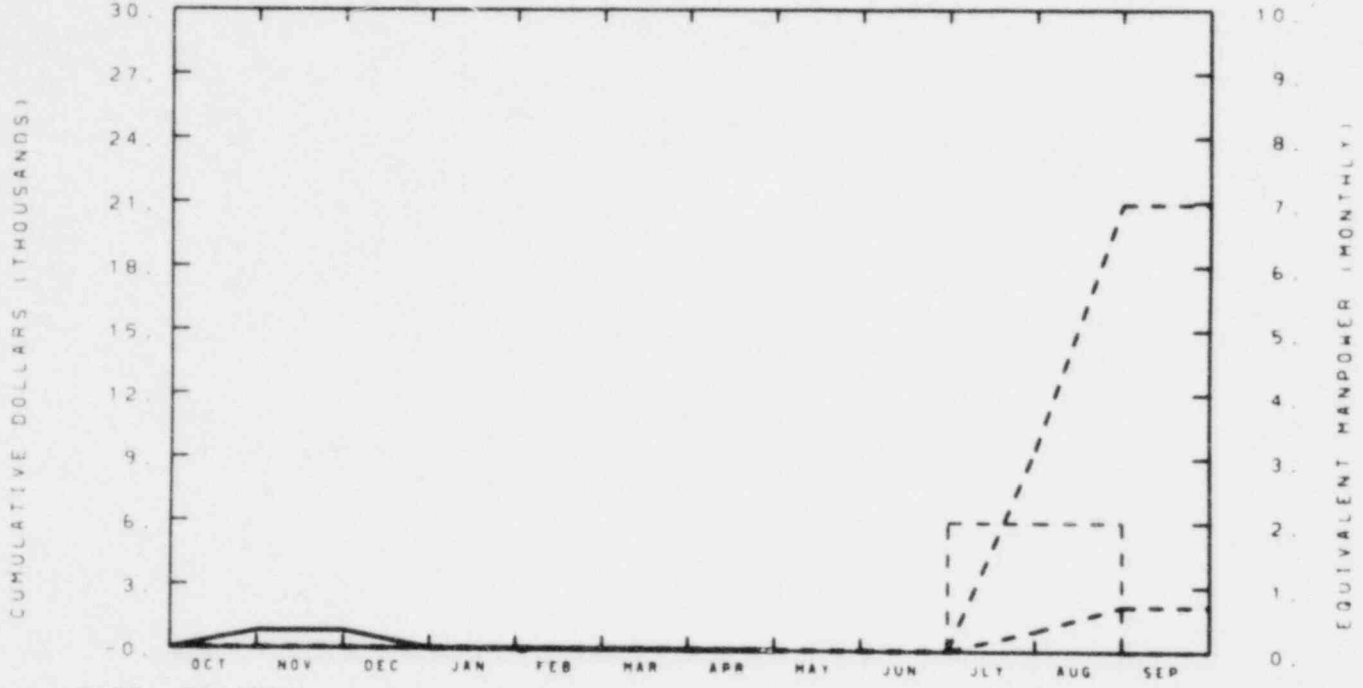
BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

The budget graphs are in error and will be corrected. No significant variance exists between cost and actually planned expenditures.

EG&G IDAHO INC.

DTT - ADVANCED

NUMBER 580710000



TOTAL PROGRAM													
BUDGET	0	0	0	0	0	0	0	0	0	0	9	21	21
ACTUAL	1	1	0	0	0	0	0	0	0	0	0	0	0

MATERIAL													
BUDGET	0	0	0	0	0	0	0	0	0	0	1	2	2
ACTUAL	1	1	0	0	0	0	0	0	0	0	0	0	0

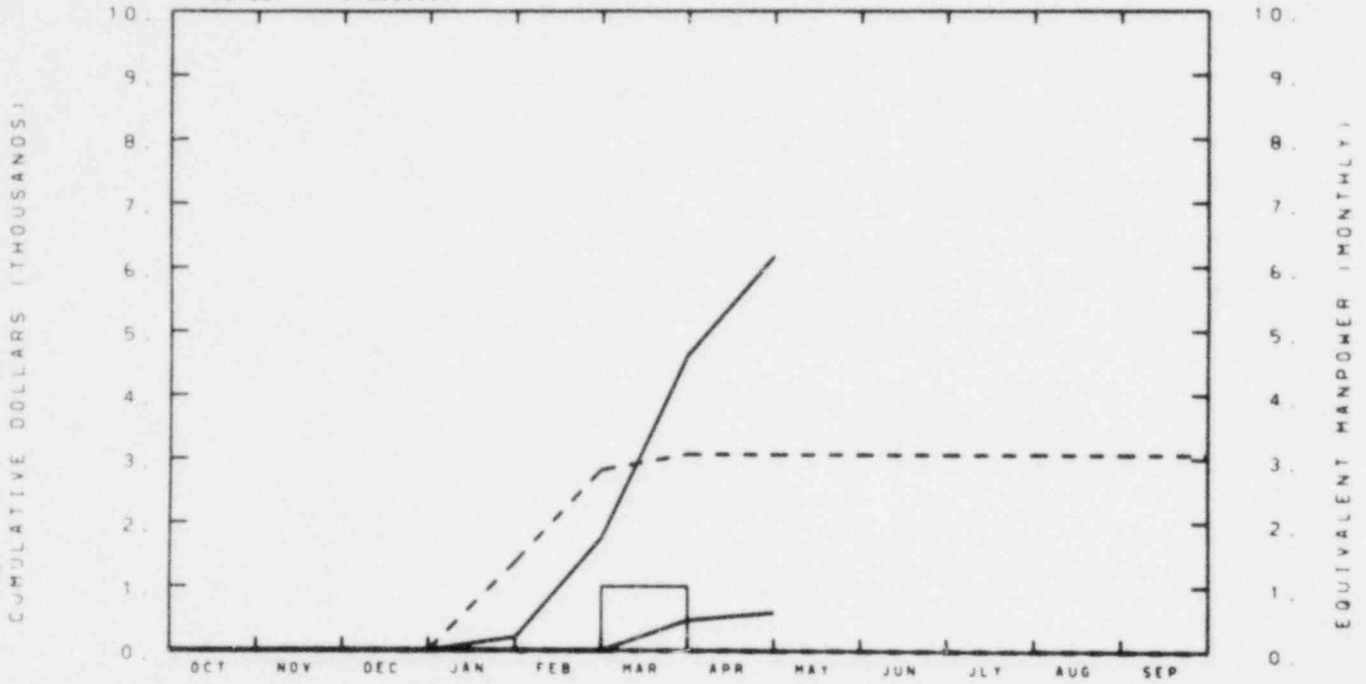
  

MANPOWER													
BUDGET	0	0	0	0	0	0	0	0	0	0	2	2	0
ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0

BUDGET  
-----  
ACTUAL  
-----

No significant variance.

EG&G IDAHO INC.  
 RE-EVAL LOFT EXPS  
 NUMBER 5F8C60000



TOTAL PROGRAM

BUDGET	0	0	0	1	3	3	3	3	3	3	3	3
ACTUAL	0	0	0	0	2	5	6					

MATERIAL

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	1					

MANPOWER

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	1	0					

BUDGET  
 - - - - -  
 ACTUAL  
 \_\_\_\_\_

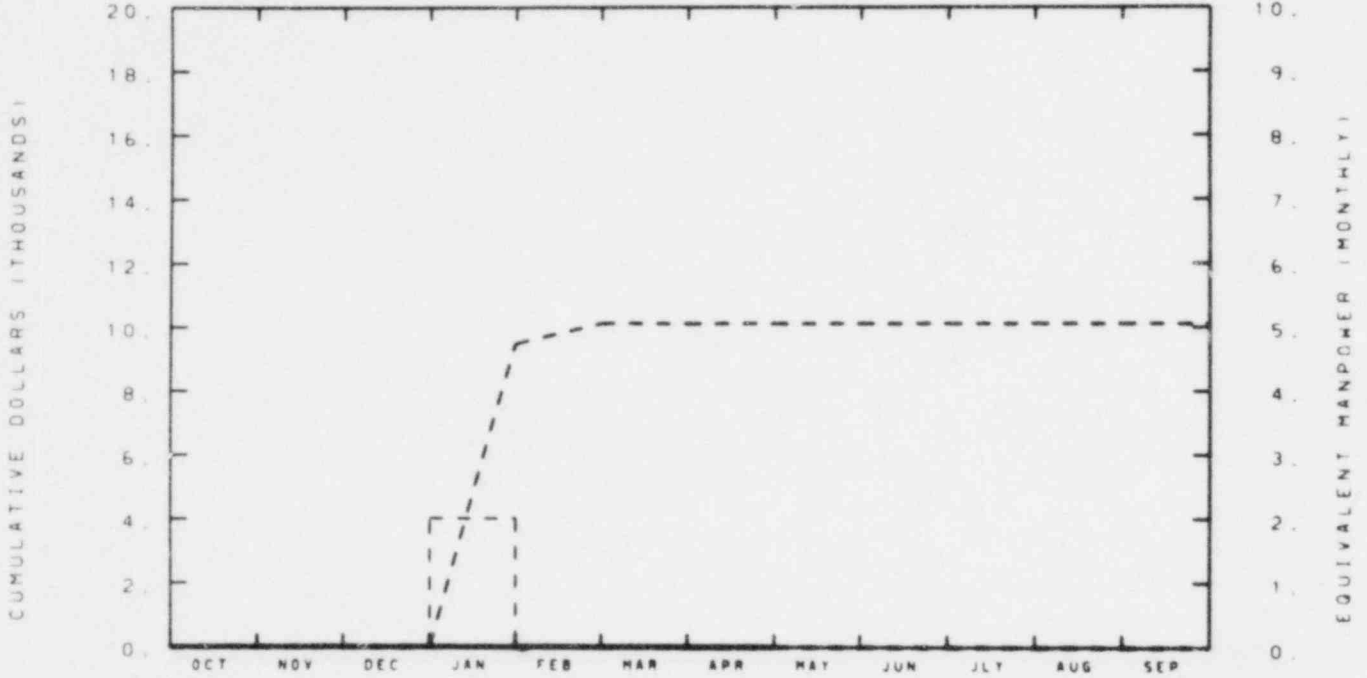
The task is complete except for issuance of a final report. Corrective action is in process to remove the task variance.



EG&G IDAHO INC.

CODE STUDIES

NUMBER SF8C70000



TOTAL PROGRAM

BUDGET	0	0	0	9	10	10	10	10	10	10	10	10
ACTUAL	0	0	0	0	0	0	0					

MATERIAL

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

MANPOWER

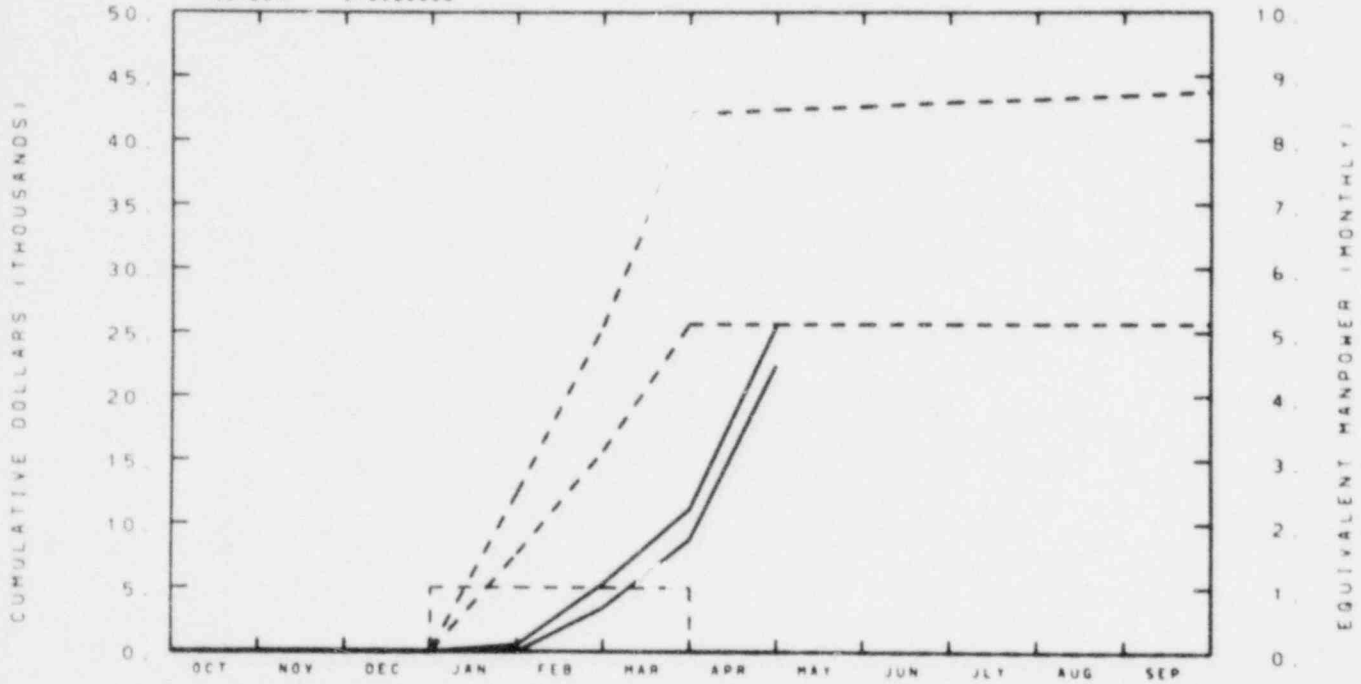
BUDGET	0	0	0	2	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

BUDGET  
- - - - -  
ACTUAL  
\_\_\_\_\_

This task has been delayed. Budget realignment is necessary.

EG&G IDAHO INC.  
 SUPPRESSION CATCH TANK

NUMBER 5F8C80000



TOTAL PROGRAM

BUDGET	0	0	0	12	25	42	42	43	43	43	43	44
ACTUAL	0	0	0	1	5	11	25					

MATERIAL

BUDGET	0	0	0	8	16	26	26	26	26	26	26	26
ACTUAL	0	0	0	0	3	9	22					

MANPOWER

BUDGET	0	0	0	1	1	1	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

BUDGET

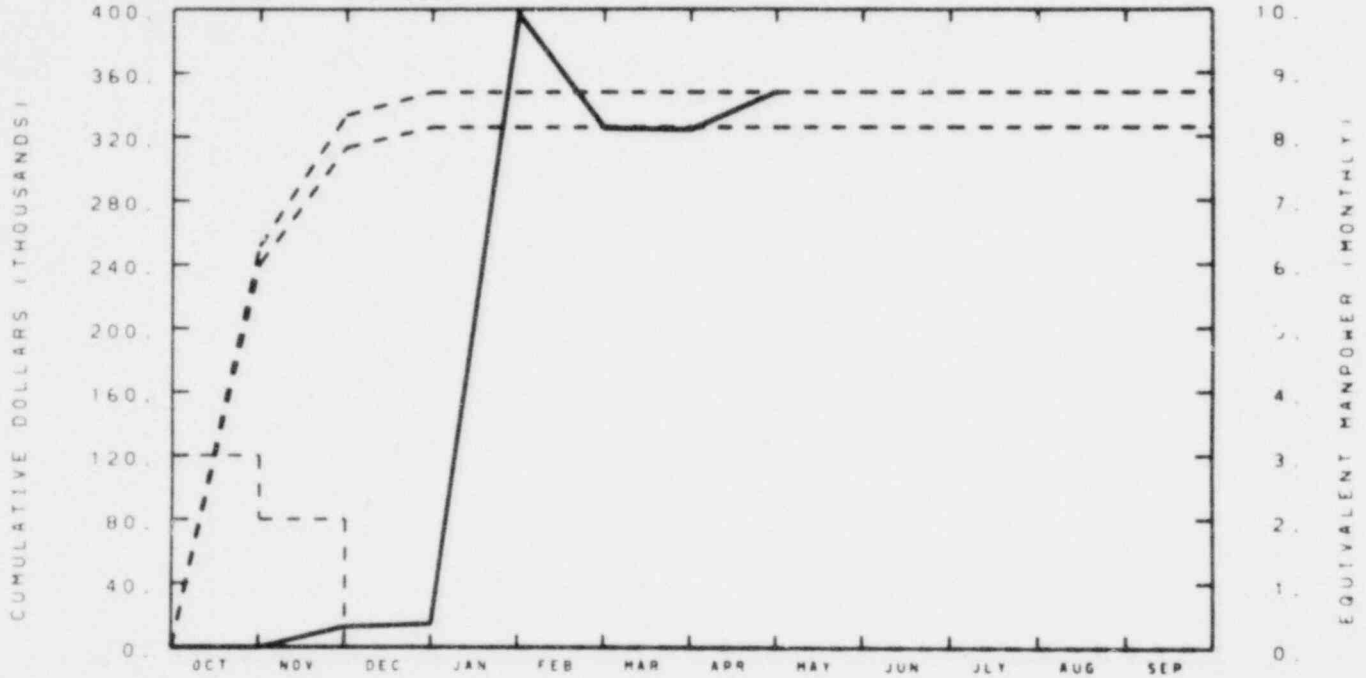
ACTUAL

Variations have been reduced and the task is expected to be completed within budget estimates.

EG&G IDAHO INC.

SHARED TASKS - STEADY STATE TEST

NUMBER 5F8C92000



TOTAL PROGRAM												
BUDGET	251	333	348	348	348	348	348	348	348	348	348	348
ACTUAL	0	13	15	397	325	324	348					

MATERIAL												
BUDGET	240	313	326	326	326	326	326	326	326	326	326	326
ACTUAL	0	13	15	397	325	324	348					

MANPOWER												
BUDGET	3	2	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

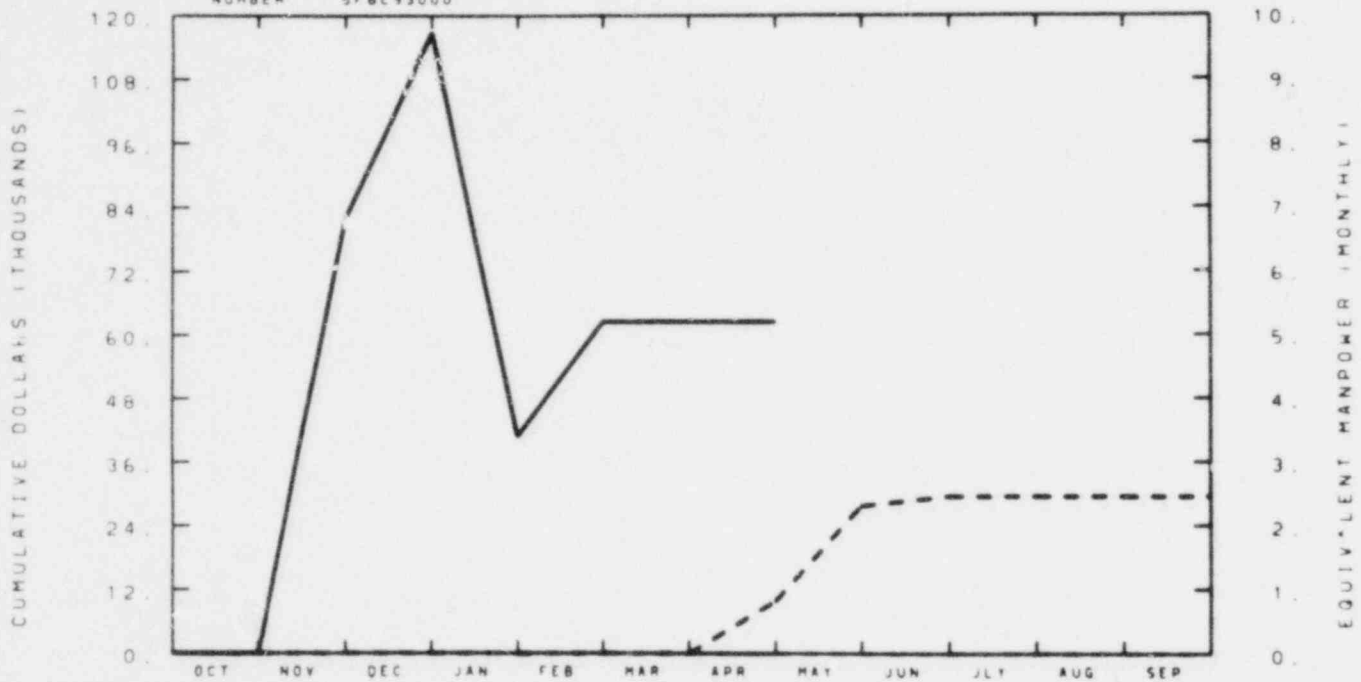
BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

No significant variance.

EG&G IDAHO INC

SHARED TASKS - TRAC CODE STUDIES

NUMBER 5F8C93000



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	10	28	30	30	30	30
ACTUAL	0	82	117	41	62	62	62					

MATERIAL

BUDGET	0	0	0	0	0	0	10	28	30	30	30	30
ACTUAL	0	82	117	41	62	62	62					

MANPOWER

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0	0	0	0	0					

BUDGET  
-----  
ACTUAL  
\_\_\_\_\_

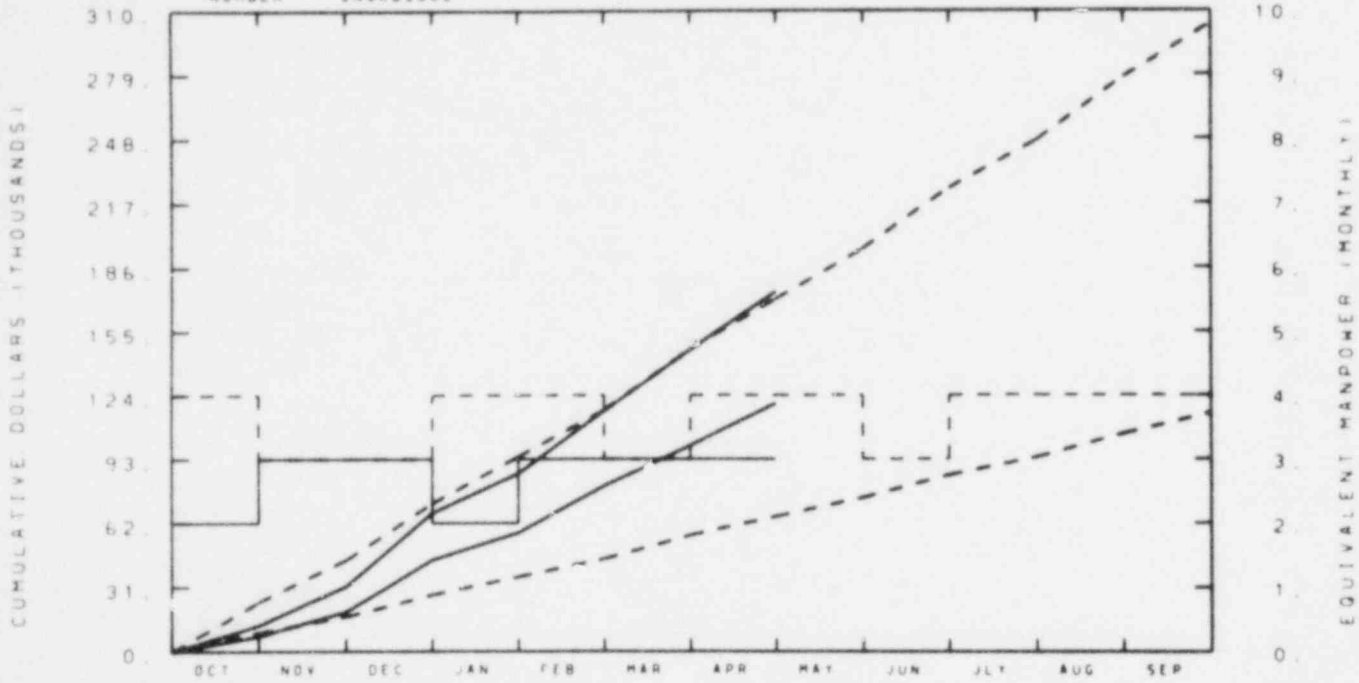
The overrun is due to changes in computer charging algorithms. A CCB correcting this is in process.

LOFT Cost Accounts

5N3Axx--NRC Cost Accounts

EG&G IDAHO INC.  
 EXP MEAS - BR SUPPORT

NUMBER 5N3AB5000



TOTAL PROGRAM

BUDGET	24	44	71	94	117	146	171	195	224	247	278	304
ACTUAL	13	31	67	86	116	146	174					

MATERIAL

BUDGET	9	17	27	36	45	56	65	74	85	94	105	115
ACTUAL	7	19	44	57	80	100	120					

MANPOWER

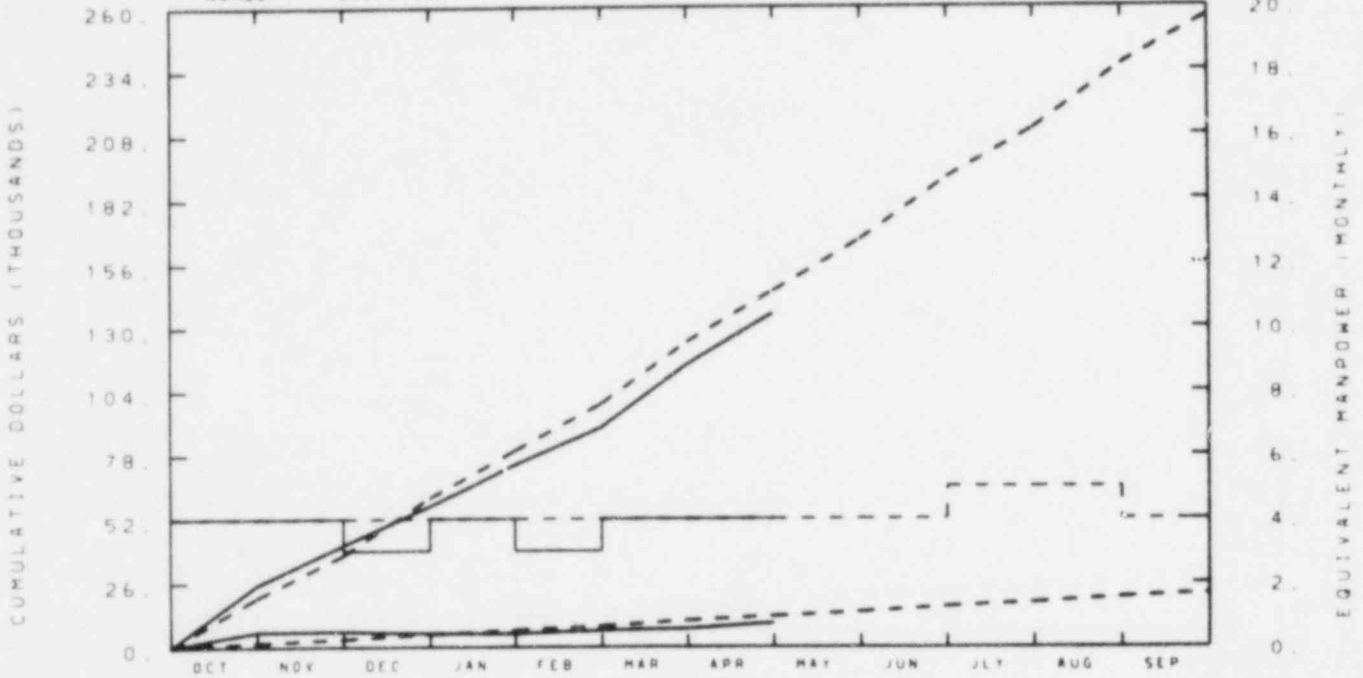
BUDGET	4	3	3	4	4	3	4	4	3	4	4	4
ACTUAL	2	3	3	2	3	3	3					

BUDGET  
 - - - - -  
 ACTUAL  
 \_\_\_\_\_

No significant variance.

EG&G IDAHO INC.  
 EXP MEAS - DAVDS SUPPORT

NUMBER 5N3ADY000



TOTAL PROGRAM

BUDGET	20	37	61	80	99	124	145	166	191	210	236	256
ACTUAL	25	41	57	74	89	115	136					

MATERIAL

BUDGET	2	3	5	7	9	11	12	14	16	18	20	22
ACTUAL	6	6	6	5	7	7	10					

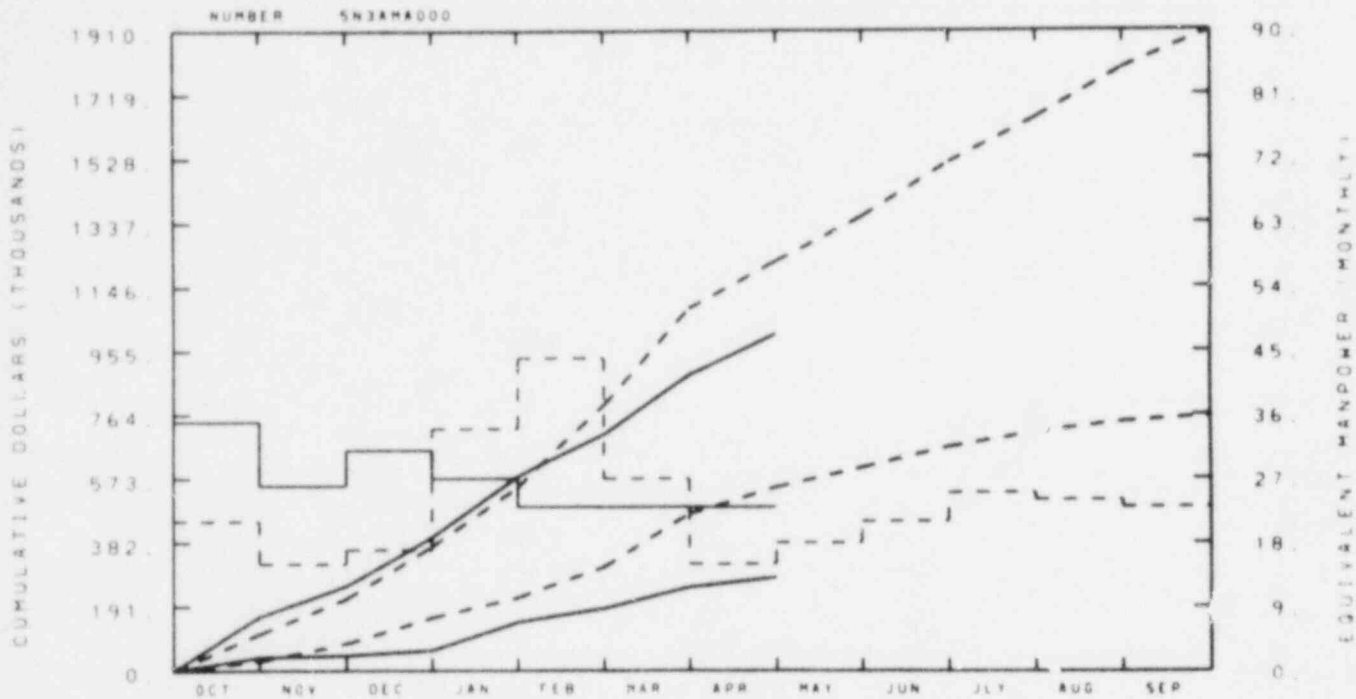
MANPOWER

BUDGET	4	4	4	4	4	4	4	4	4	5	5	4
ACTUAL	4	4	3	4	3	4	4					

BUDGET  
 - - - -  
 ACTUAL  
 \_\_\_\_\_

No significant variance.

EG&G IDAHO INC.  
 EXP MEAS - MEAS SYSTEM A



TOTAL PROGRAM

BUDGET	109	214	370	547	793	1083	1224	1356	1518	1650	1798	1908
ACTUAL	161	253	397	579	705	883	1006					

MATERIAL

BUDGET	29	81	158	217	309	468	547	605	667	710	742	760
ACTUAL	40	45	60	145	186	249	279					

MANPOWER

BUDGET	21	15	17	34	44	27	15	18	21	25	24	23
ACTUAL	35	26	31	27	23	23	23					

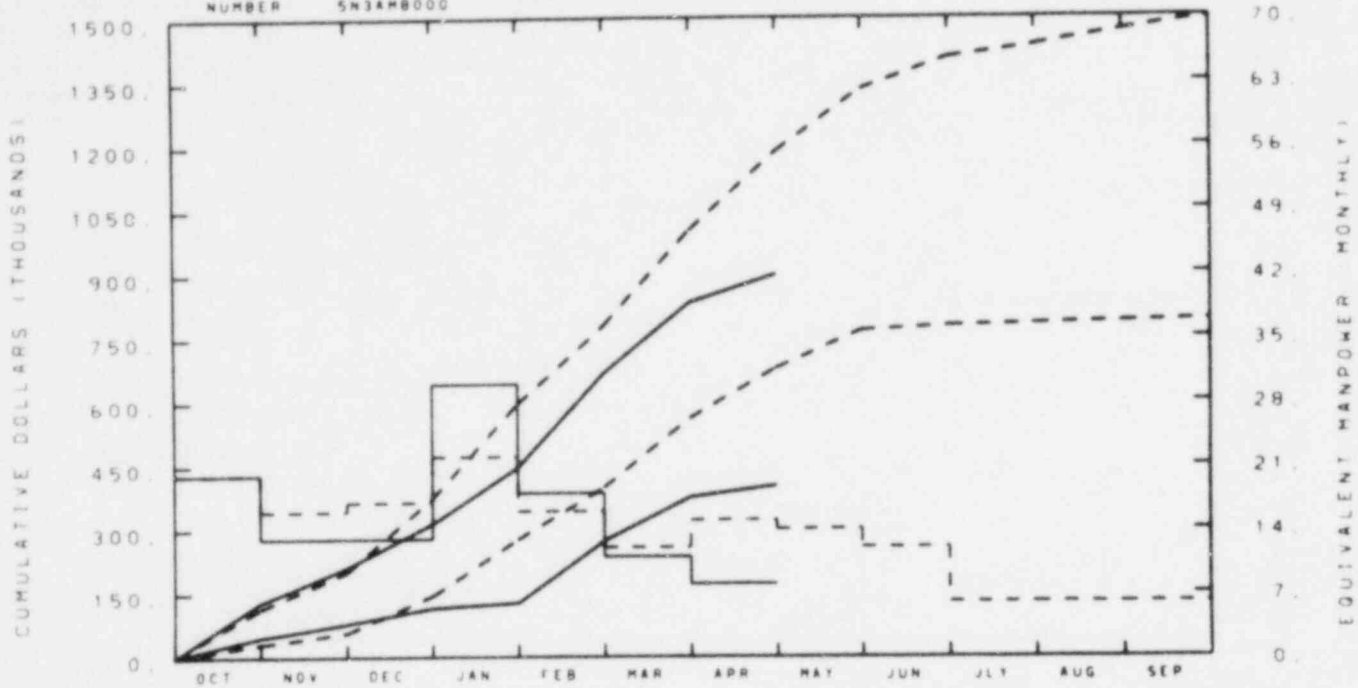
BUDGET

ACTUAL

Drag disc turbine rakes scheduled to be built for L2-5 have been delayed until later in the year. A CCF has been prepared to reflect this change.



EG&G IDAHO INC.  
 EXP MEAS - MEAS SYSTEM B  
 NUMBER 53AMB000



TOTAL PROGRAM

BUDGET	115	201	374	595	780	1004	1186	1332	1406	1434	1469	1498
ACTUAL	130	212	314	446	668	834	898					

MATERIAL

BUDGET	31	57	144	277	398	561	678	766	777	781	786	790
ACTUAL	47	79	115	127	272	375	402					

MANPOWER

BUDGET	20	16	17	22	16	12	15	14	12	6	6	6
ACTUAL	20	13	13	30	18	11	8					

BUDGET  
 - - - - -  
 ACTUAL  
 \_\_\_\_\_

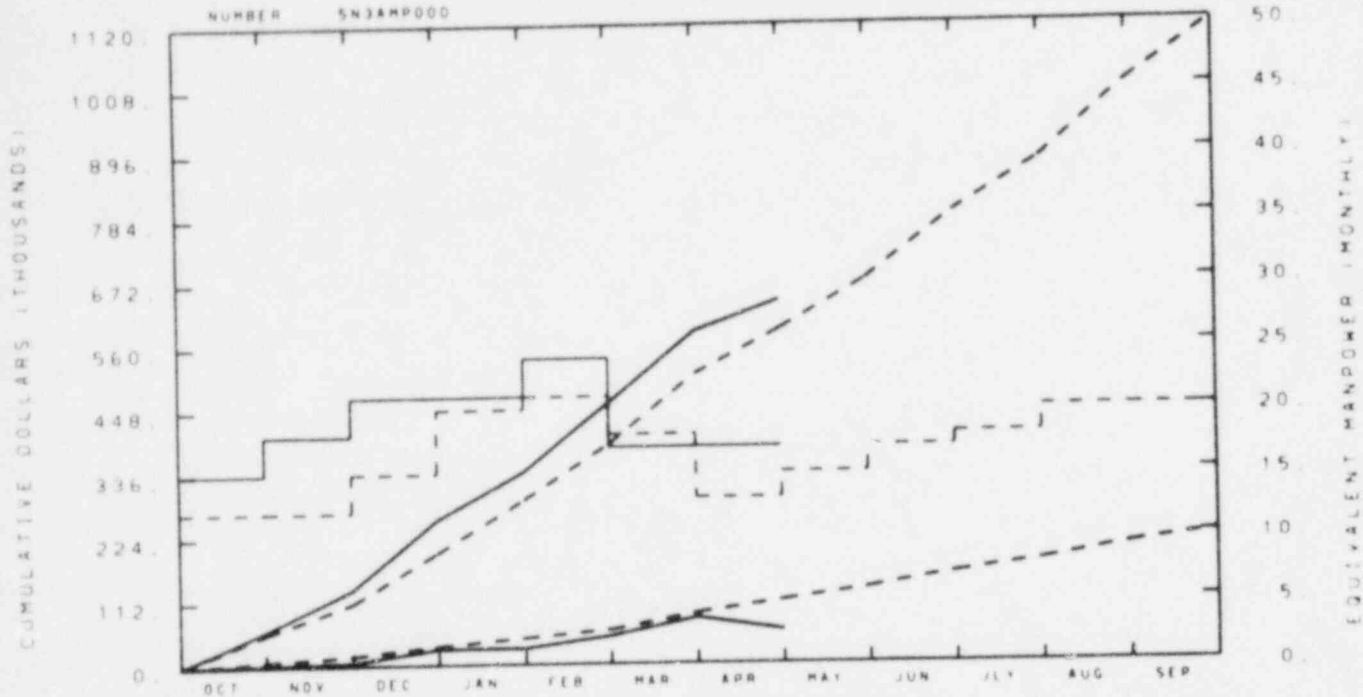
The underspending reflected in the graph is the result of the following items: (1) An incorrect start date had been entered in PMS, starting the cladding TC task in FY-1980 instead of FY-1981. A CCB has been approved changing the start date and returning \$73,000 to management reserve. (2) The rework of an incorrect CCB returned an additional \$13,000 to management reserve. (3) A portion of 53AMB09 was inadvertently coded into FY-1980 during the transition from Q80-3-3 to Q80-4-0. This resulted in the transfer of \$69,000 from FY-1981 into FY-1980. A CCF has been approved to transfer 69K from FY-1980 back into FY-1981. (4) \$40,000 owed to Sandia Corp. for PNA generators is not reflected in April actuals. (5) A CCB returning 51K to management reserve from the Fuel Rod Instrument Task (53AMB03) is in process.

With the above incorporated, the Experimental Measurement Section B's variance is 5%.

EG&G IDAHO INC.

EXP MEAS - MEAS PERFORMANCE - 1

NUMBER 5N3AMP000



TOTAL PROGRAM

BUDGET	57	109	197	289	385	508	587	674	784	880	1012	1118
ACTUAL	62	134	256	339	458	584	638					

MATERIAL

BUDGET	8	18	33	46	60	98	110	131	157	178	205	225
ACTUAL	3	6	28	29	49	80	57					

MANPOWER

BUDGET	12	2	15	20	21	18	13	15	17	18	20	20
ACTUAL	15	18	21	21	24	17	17					

BUDGET

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ACTUAL

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The majority of expected instrument procurement, fabrication, and testing was completed in the first part of FY-1980. A CCB to adjust PMS is not reflected in the baseline. A cost transfer of \$27,000 from material dollars to various accounts was made, explaining the decrease in material actuals.

## 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	294	1688	279	1539	181	1758
5N4K000	180	891	182	758	128	720
5N4P000	93	490	82	494	76	411

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.

TABLE 1. FOREIGN FUNDS AVAILABILITY AT END OF APRIL 1980  
(In Thousands of Dollars)

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<u>Participant</u>	<u>Actual Reserve</u>	<u>Contingency</u>
JAERI	318	71
FRG	57	13
ECN	107	25
SGAE	<u>12</u>	<u>0</u>
Total	494	109

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TABLE 2. FOREIGN FUNDED TASK SUMMARY AT END OF APRIL 1980

Project Description	Total Proposal Est. Inc. Contingency (\$K)	Total Spending Auth. by CCB (\$K)	Funds Spent to Date (\$K)	Expected Task Completion Date
<u>JAERI TASKS</u>				
5F8C1 JAERI Management	202	202	176	Sept. 80
5F8C2 Completed Tasks	820	820	820	Done
5F8C4 Advanced DTT	154	154	135	Sept. 80
5F8C5 PBF/LOFT Lead Rod	1876	1859	1864	July 80
5F8C6 Reevaluation of LOFT L1 Exper.	25	25	28	June 80
5F8C7 Misc. Code Studies	20	20	10	Sept. 80
5F8C8 LTSF Suppression Catch Tank	43	41	25	Sept. 80
5F8CA Small Break Densitometers	692	640	51	Sept. 80
5F8C92 Shared Two-Phase Steady-State Loop	800	800	799	May 80
5F8C93 Shared-TRAC Code Studies	50	50	83	June 80
<u>FRG TASKS</u>				
5F7C1 FRG Management	150	150	143	Sept. 80
5F7C2 Completed Tasks	2570	2570	2570	Done
5F7C4 Miscellaneous Tasks	50	50	43	Sept. 80
5F7C5 Steam Probe	30	30	22	July 80
5F7C7 Ultrasonic Density Detectors	81	74	76	May 80
5F7C8 LOFT State Vector	10	10	0	Sept. 80
5F7CA Small Break Inst.	206	200	206	May 80
5F7C92 Shared Two-Phase Steady-State Loop	1030	1030	819	May 80
5F7C93 TRAC Code Studies	50	50	83	June 80

TABLE 2. (continued)

<u>Project Description</u>		<u>Total Proposal Est. Inc. Contingency (\$K)</u>	<u>Total Spending Auth. by CCB (\$K)</u>	<u>Funds Spent to Date (\$K)</u>	<u>Expected Task Completion Date</u>
<u>ECN TASKS</u>					
5FNC1	ECN Management	10	10	8	Sept. 80
5FNC2	Completed Tasks	92	92	92	Done
5FNC3	RPI Subcontract	117	114	112	Sept. 80
5FNC5	INEL Support	5	5	3	Sept. 80
5FNC6	PNA Techniques	37	32	0	Sept. 80
5FNC7	Critical Flow Studies	53	48	0	Sept. 80
5FNC8	Two-Phase Loop Platform	59	47	0	June 80
<u>SGAE TASKS</u>					
5FAC1	SGAE Management	12	12	11	Sept. 80
5FAC2	Completed Tasks	123	123	123	Done

BUDGET STATUS REPORT

TABLE 3. LOFT FY-80 SUMMARY STATUS REPORT  
 NUCLEAR REGULATORY COMMISSION  
 (In Thousands of Dollars)

WBS#	189 #	Q80-3-3	Approved CL.I CCBs	Current PMB # Q80-3-4	Approved CL.II CCBs	Current BAC
5N1XX	A6048	4,741	29	4,770	--	4,770
5N2XX	A6053	4,219	131	4,350	--	4,350
5N3XX	A6043	8,266	64	8,330		8,330
5N4XX	A6107	10,877	129	1,006	--	1,006
5N5XX	A6122	3,656	404	4,060		4,060
5N6XX	A6110	3,745	0	3,745	--	3,745
5N7XX	A6054	7,596	0	7,596		7,596
5N8XX	A6108	755	0	755		755
5NXX			<924>	<924>		<924>
5NXXX		43,855	<.67>	43,688	0	43,688
NRC discretionary reserves						50
NRC management reserves						1,168
Total NRC funding (FY-80)						44,906

TABLE 4. LOFT FUNDING SUMMARY FOR FY-80  
(In Thousands of Dollars)

Funds	Current FIN Plan No. 6	Current Budget File (Q80-4-1)
LOFT Foreign Funds	1,867	1,814
LOFT Lead Rod Tests	170	170
Total	2,037	1,984
NRC Operating Funds	44,941	41,735
Electric Heat Rod Evaluation		328
Computer Code Support		233
TC-2 Tests		234
LTSF		2,320
PWR/BWR Task Group		700
Standard Problem Analysis		150
Total	44,941	45,700
Total LOFT Funding	48,845	47,684



TABLE 5. 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	4	8	12		12	12
5FNXX	A6271	45	90	135		135	135
5F7XX	A6104	673	278	951		951	951
5F8XX	A6111	453	690	1,143		1,143	1,143
5F9XX	A6104S	0	0	0		0	0
5FXXX		1,175	1,066	2,241	0	2,241	2,241
						109	109
						<513>	<513>
						1,837	1,837
						6,860	6,860
						170	170
						8,867	8,867

TABLE 6. LOFT CAPITAL EQUIPMENT STATUS REPORT THROUGH APRIL

Schedule 189a	Title	Prior Year Uncosted	Current Year Funds	Total Av. lable to Cost	Current Year Costs	Outstanding Commitments	Balance Less Costs and Commitments	Estimate to Complete	Balance
4CA101	Integral System Design and Fabrication	111,731	[10,000]	101,731	4,562	33,075	64,094	93,613	3,556
4CA102	LOFT Operations	194,419	[68,000]	126,419	71,183	35,781	19,455	53,908	1,328
4CA103	UT and Requalification Program	140,034	78,000	218,034	41,599	123,797	52,638	178,001	[1,566]
	Total DOE	446,184	0	446,184	117,344	192,653	136,187	325,522	3,318
A-6061	Experimental Measurements*	788,769	800,000	1,588,769	707,488	169,550	711,731	867,963	13,318
A-6084	Integral System Design & Fab.	689,139	1,400,000	2,089,139	285,375	333,280	1,370,484	1,726,254	[22,490]
A-6088	LOFT Operations	18,091	1,000,000	118,091	17,172	1,691	99,228	89,200	11,719
	Total NRC	1,495,999	2,300,000	3,795,999	1,110,035	504,521	2,181,443	2,683,417	2,547
	Total LOFT	1,942,183	2,300,000	4,242,183	1,227,379	697,174	2,317,630	3,008,939	5,865

\* Includes A-6085, A-6086, and A-6089.