INTERIM REPORT

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Type of Document: Monthly Report

Author(s): L. J. Ybarrondo, et al

Date of Document: April 1980

Responsible NRC Individual and NRC Office or Division: Various

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

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

INTERIM REPORT

THIS DOCUMENT CONTAINS POOR QUALITY PAGES

EG&G Idaho, Inc.
P.O. BOX 1625, IDAHO FALLS, IDAHO 83415

April 15, 1980

Mr. R. E Tiller, Director
Reactor Operations & Programs Division
Idaho Operations Office - DOE
Idaho Falls, ID 83401

TRANSMITTAL OF WRRD MONTHLY REPORT - Ybr-59-80

Dear Mr. Tiller:

Transmitted herewith are 4 copies of the WRRD Monthly Report for March 1980, including all WRR Programs. The NRR Technical portion for Code Development & Analysis Program and Code Assessment & Applications Program is also included.

Please let me know if you have any questions or comments.

Very truly yours,

L. J. Ybarrondo

L. J. Ybarrondo, Director
Water Reactor Research

WEB:dr

Enclosures
As Stated

cc: R. W. Barber, DOE-RSRC
R. M. Bernero, RES-PAS
R. J. Bosnak, DSS-NRR
W. R. Butler, PSYB-NRR
P. S. Check, DOR-NRR
D. M. Crutchfield, NRR-DOR
D. G. Eisenhut, NRC-DOR
S. Fabic, NRC-RSR
W. Farmer, NRC-RSR
B. K. Grimes, DOR-NRR
W. V. Johnston, NRC-RSR
K. Kniel, NRC-DSS
J. P. Knight, DRR-NRR
G. W. Knighton, NRR-DOR
G. C. Lainas, NRC-DOR
R. J. Mattson, DSS-NRR
G. D. McPherson, RES-RSR
S. B. Milam, DOE-ID
T. E. Murley, NRC-RSR
V. S. Noonan, NRC-DOR
S. S. Pawlicki, DSS-NRR
H. P. Pearson, EG&G Idaho - 6
Z. R. Rosztoczy, DSS-NRR
L. Rubenstein, NRC-NRR
F. P. Schauer, NRR-DSS
L. Shao, NRC-RSR
T. P. Speis, NRR-DSS
V. Stello, DOR-NRR
L. H. Sullivan, NRC-RES
L. S. Tong, NRC-RSR
R. W. Kiehn, EG&G Idaho, w/o encl.

bcc: C. A. Abbott
J. V. Anderson
W. E. Bostwick
R. A. Cushman
J. A. Dearien
C. O. Doucette
N. H. Drysdale
J. E. Hansen
J. P. Kester
L. P. Leach
P. E. MacDonald
G. E. Marx
S. A. Naff - 2
P. North
E. L. Pierson
R. E. Rice
J. E. Wilkins
E. L. Wills
H. J. Zeile
Central File

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WRRD MONTHLY REPORT FOR

MARCH 1980

W. E. Bostwick, Officer
Planning & Budgets Branch

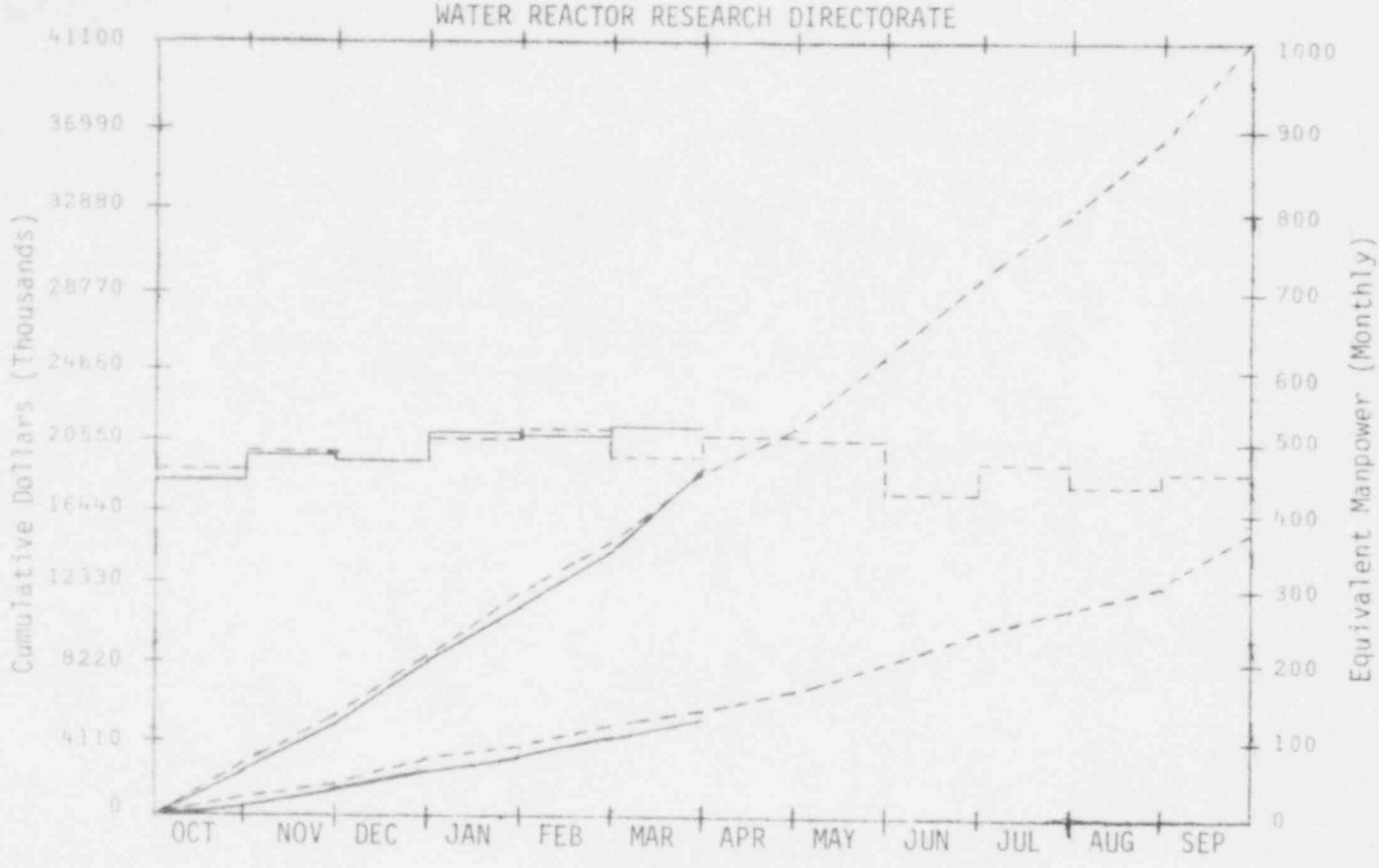
L. J. Ybarrondo, Director

Responsible Manager

L. J. Ybarrondo

EG&G Idaho, Inc.

WATER REACTOR RESEARCH DIRECTORATE



TOTAL PROGRAM

BUDGET	2849	5557	9162	12121	15035	18523	21849	25550	29298	32518	36117	41100
ACTUAL	2383	5291	8560	11307	14549	18622						

BUDGET ----------

ACTUAL ——————

MATERIAL

BUDGET	893	1742	2364	3869	4721	5689	6743	8217	9623	10958	12347	15243
ACTUAL	484	1648	2511	3254	4295	5401						

MANPOWER

BUDGET	462	486	479	502	513	481	511	510	437	479	451	469
ACTUAL	457	481	479	509	508	514						

YTD VARIANCE: <99>

Individual 189a cost graphs will provide variance explanations.

Explanations for major 189a's (>$500K) will be made if the variance exceeds $25K. Minor 189a graphs (<$500K) will explain variance of over $10K.

WRRD MONTHLY REPORT FOR

MARCH 1980

SEMISCALE

John P. Crouch

J. P. Crouch
Plans & Budgets Representative

L. P. Leach

L. P. Leach, Manager

SEMISCALE

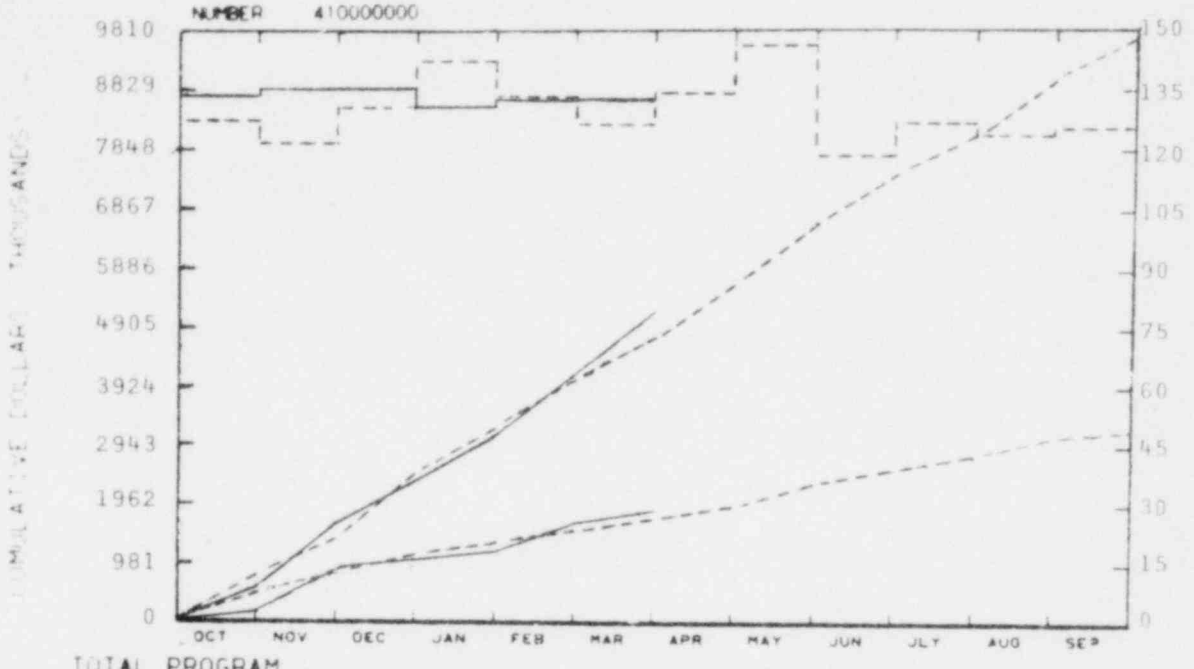
COST SUMMARY & COMMENTS

RESPONSIBLE MANAGER
L P LEACH

EG&G IDAHO INC.

SEMISCALE PROGRAM

NUMBER 410000000



TOTAL PROGRAM

BUDGET	961	1681	2589	3305	3947	4801	5667	6672	7440	8059	8883	9805 *
ACTUAL	656	1799	2568	3190	4078	5054						

MATERIAL

BUDGET	459	741	1050	1228	1369	1575	1890	2296	2464	2616	3016	3179
ACTUAL	147	825	973	1110	1483	1758						

MANPOWER

BUDGET	126	121	128	142	131	125	133	146	118	126	123	124
ACTUAL	131	134	134	128	130	132						

BUDGET

ACTUAL

YTD VARIANCE: <253> (5%)

The Semiscale portion is 100 K under on labor due to a continued effect of the Mod-5 slowdown during BWR proposal work and delays in Series 7, Loss-of-Feedwater Test preparation and Special Studies work due to recent program redirection and continued staffing problems.

The LTSF portion is over cost 353 K due to (1) 230 K for boiler installation was charged against LTSF accounts and should be cost transferred to a foreign account. Additional overrun is caused by accomplishment of work ahead of schedule.

* Included in the total budget figure is $2320 K that is from LOFT 189a A6043 for LOFT Test Support Facility.

SEMISCALE

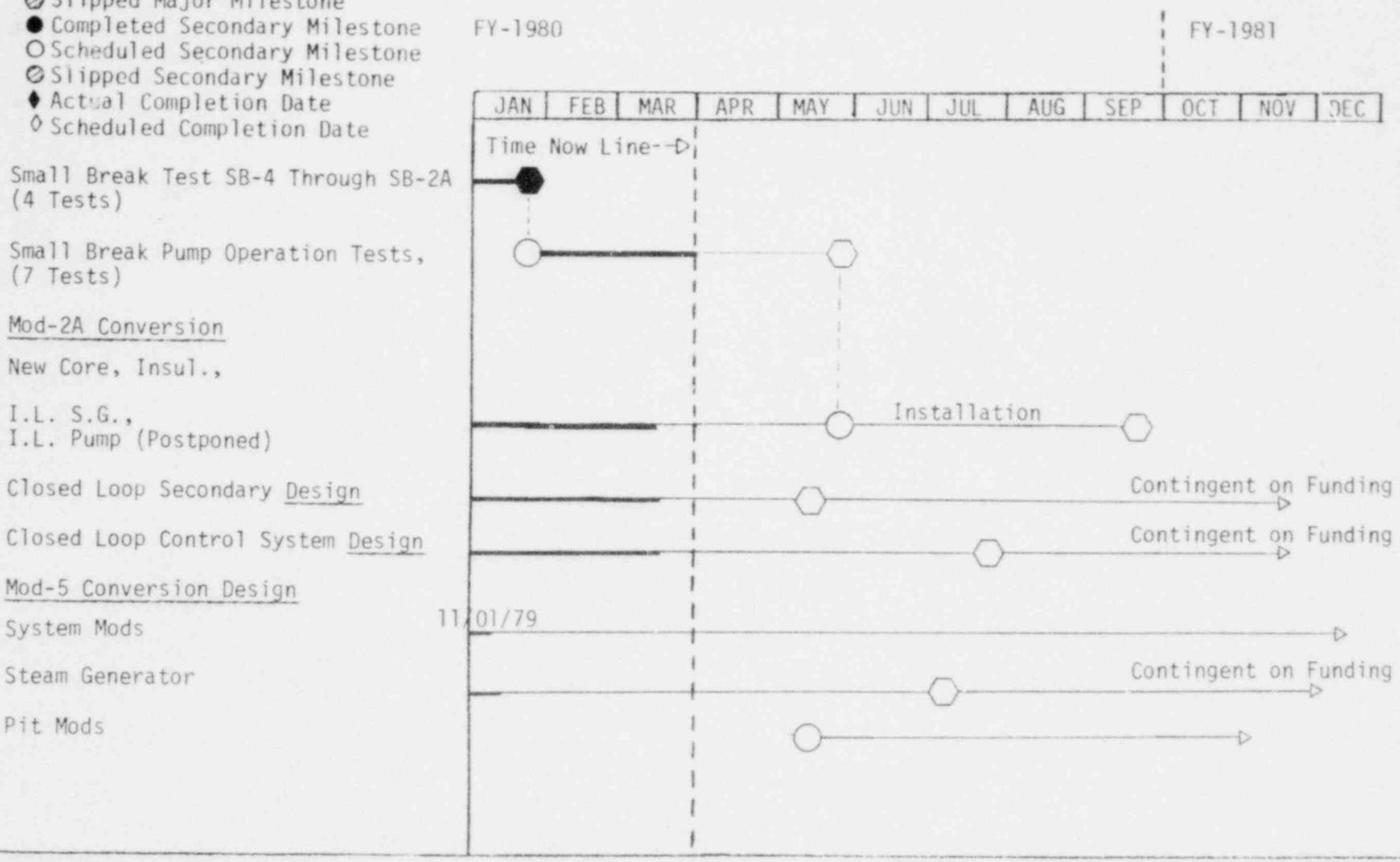
CURRENT WORKING SCHEDULE

SEMISCALE PROGRAM

March 1980

LEGEND

- ● Completed Major Milestone
- ○ Scheduled Major Milestone
- ⊘ Slipped Major Milestone
- ● Completed Secondary Milestone
- ○ Scheduled Secondary Milestone
- ⊘ Slipped Secondary Milestone
- ♦ Actual Completion Date
- ◊ Scheduled Completion Date



NOTES:

SEMISCALE
CAPITAL EQUIPMENT

EG&G IDAHO, INC.

CAPITAL EQUIPMENT PRIORITY LIST

CARRYOVER

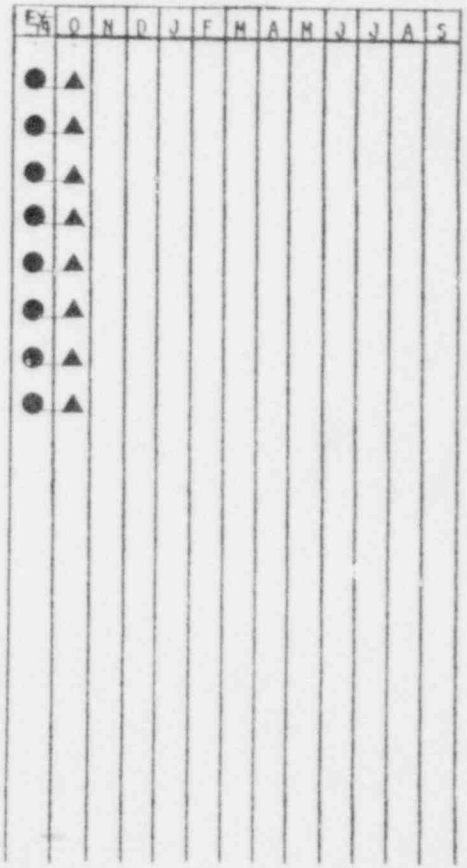
Program SEMISCALE

189 Number A6038 (A6059)

Manager L. P. Leach

EA No.	Item Description	Authorized Amount	March YTD Costs & Commit.	Project to Date	<Over>/Under Balance
98772	Data Acquisition Equipment	156,000	146,573	165,915	<9,915>
98974	Intact Loop Pump	324,000	166,401	441,835	<117,835>
98978	Intact Loop Steam Generator	225,000	237,780	242,092	<17,097>
98983	ADPE - Integrated Data System	148,000	6,177	7,988	140,012
98984	Operation Monitor Display	30,000	5,332	29,529	471
99023	Low Energy Support Electronics	100,000	98,121	101,073	<1,073>
	Closed EA's	314,000	23,384	254,925	59,075
	Misc. from Prior Years	15,975	---	---	15,975
		1,312,975	683,768	1,243,362	69,613

Item Authorized o
Money Committed Δ
Equipment Received, Account Closed ■



Carryover Budget	753,381
YTD Costs & Commit.	<683,768>
Balance	69,613

CAPITAL EQUIPMENT PRIORITY LIST

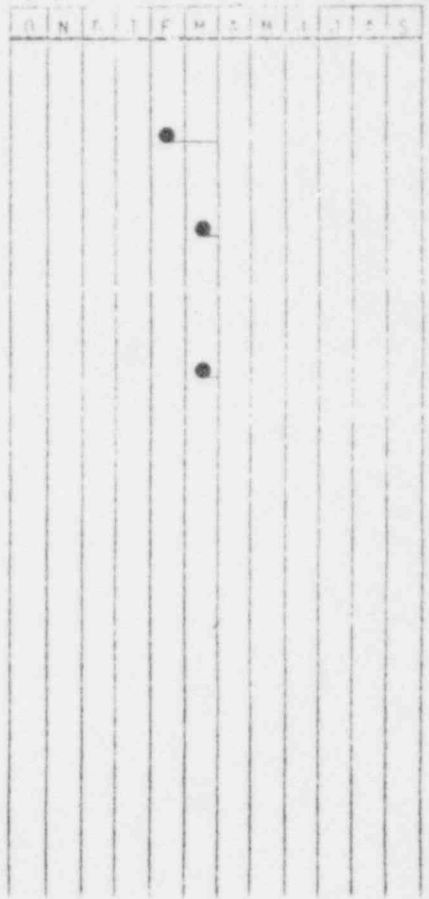
FY-1980

Program SEMISCALE

189 Number A6059 (A6038)

Manager L. P. Leach

Item Authorized ○
Money Committed △
Equipment Received, Account Closed ◪



Priority Number	EA No.	Item Description	Authorized Amount	March YTD Costs & Commitments	<Over>/Under Balance>
1		Data Acquisition System Support	45,000	---	45,000
2	99152	DDAPS Support and Replacement Equipment	255,000	---	255,000
3		Multibeam Gamma Densitometers	100,000	---	100,000
4	99168	ADPE (WRR FY-79 Procurement Plan)	5,000	---	75,000
5		Control System Support Equipment	15,000	---	15,000
6		Systems Maintenance/Modification Misc. Tools, etc.	10,000	---	10,000
7	99165	Air-Water Loop Upgrade Equipment	100,000	---	100,000
			600,000	-0-	600,000

FY-80 Budget 600,000
YTD Costs & Commit. <-0->
Balance 600,000

SEMISCALE

TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S SUMMARY AND HIGHLIGHTS

Three of the six small break tests to evaluate pump operation in the Semiscale Mod-3 system were completed by the end of March 1980. Detailed planning for conversion to the Mod-2A system was continued. The measurement requirements document for the Mod-2A system was completed. Numerous options for Semiscale Mod-5 (B&W Semiscale) were evaluated and presented to NRC and B&W, resulting in a single option choice for further conceptual design.

The LOFT Technical Support Branch conducted two blowdown tests in the LOFT Test Support Facility in preparation for nine-rod quench tests. Preparation of an implementation plan for automatic control and graphics display for the two-phase flow loop was completed. Data integrity review, analysis, and preparation of an experiment data report for Wyle Transient Test Program data were continued.

1. 189a A6038 - Semiscale Program

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date
	Perform Small Break Test S-SB-P2	03-20-80	03-06-80
	Perform Small Break Test S-SB-P7	03-27-80	03-18-80
	Delivery of New Intact Loop Pump	03-10-80	03-11-80

3. Summary of Work Performed in March 1980

a. 411AW00 Air-Water Loop

411AW1200 Panel layout, signal, and control requirements have been determined through meetings with Instrumentation personnel. A cost estimate for the chassis has been obtained from Acadia Corporation, Idaho Falls, Idaho, who is now building the pump control and display chassis. Some material has been ordered.

b. 411CL00 Closed Loop Secondary System

(1) 411CL1100 Work in support of the closed loop secondary design activities was continued. Further analysis of possible secondary side transients which might be performed with the closed loop secondary was initiated.

(2) 411CL1200 Detailed specifications were and are being generated for the outside procurement items including pumps, heat exchangers, and condenser. Engineering sketches and layouts of hardware locations for the system were made.

c. 411DA00 Measurements Engineering

(1) 411DA1100 A hardware failure occurred in the DDAPS-II

A-D converter resulting in the loss of Channel 1. This problem has been repaired. A hardware failure also occurred in the DDAPS-I hard copy unit and has also been repaired.

(2) 411DA1200 Work is in progress on setting up and checking out new signal conditioners and amplifiers received from Bay Labs and repairing failed units. Problems with compatibility of new and old units were resolved, the result being that there is module, but not mode card, interchangeability. Pulse mode amplifiers for use in densitometer signal conditioning were received and in-house receiving inspection checkout sheets were generated in preparation for conducting inspection.

(3) 411DA2100 Work was continued on upgrading the Air-Water Loop. Data acquisition and loop flow control software work was initiated. The clearing of miscellaneous equipment from the loop area was completed. Shipment of the prefabricated control room was being expedited although the vendor had not released the unit as of month's end. Preliminary versions of loop schematic flow and equipment layout drawings were completed, as was an associated equipment characteristics list. A review of the proposed Air-Water Loop components and operation is scheduled for April 10, 1980.

Considerable progress was made in defining steam generator instrumentation procedures and installation requirements through some preliminary checkout testing.

(4) 411DA2200 Work continued in modification and development of the latest versions of specialized plotting and fast burst data acquisition for the Air-Water Loop.

(5) 411DA2300 Dr. J. Cole (University of Arkansas) coordinated with Instrumentation Division and Semiscale Program personnel on his hydrostatic bearing turbine status and incorporation of the optical pickup probe and electronics into the prototype measurement system. His test facility was installed and checked out. Some bench testing of the first suspension concept was accomplished.

(6) 411DA3200 Signal/noise ratio problems in the optical-electrical interface were resolved and bread boarding of the final prototype design is underway. Current expectations are that schedule requirements for checkout of the optical system with the hydrostatic bearing turbine in the University of Arkansas test facility will be met satisfactorily.

d. 411LE00 Semiscale Operations

(1) 411LE1100 Tests S-SB-P2 and S-SB-P7 were satisfactorily performed on March 6 and March 18 1980, respectively. Test S-SB-P1, performed on February 21, 1980, was considered unsuccessful because the density measurement data could not be satisfactorily corrected. Two other performances of the basic Test S-SB-P1 were conducted during March 1980. These tests were identified as Test S-SB-P1B, conducted on March 13, 1980, and Test S-SB-P1C, conducted on March 25, 1980. The system was prepared for Test S-SB-P2 on March 5, 1980 with the test being performed on March 6, 1980. Instrumentation "O" rings were replaced as required and the nit area was cleaned.

Disassembly of the broken loop for reconfiguration into the hot leg break configuration was begun on March 28, 1980.

Galley drafts for the experiment data report (EDR) for Tests S-SB-4 and S-SB-4A were reviewed; publication date or this EDR is April 7, 1980. The EDR drafts for Tests S-07-10, S-SB-2, and S-SB-2A are in the final stages of preparation and review before submittal to the Documentation Office. Both of these EDR drafts will be submitted to the Documentation Office early in April 1980.

Corrected data tapes for Tests S-SB-P2 were transmitted to Analysis personnel and Data Processing on March 10, 1980. Corrections for the other tests performed during March 1980 were delayed due to the short duration between tests for this period. Data corrections for Tests S-SB-P7, S-SB-P1C, and S-SB-P1B will be completed early in April 1980.

(2) 41iLE1200 The Mod-2A system measurements requirements document was completed and distributed. The requirements were discussed on several occasions with Measurement Engineering personnel.

A minimum measurements requirement document was completed. This document, a followup to the measurement requirements document, defines the minimum requirements that will allow meaningful data to be obtained from experiments planned in the future. Scheduling and cost concerns dictate that many of the requirements will be deferred.

A preliminary operating specification for a special reflood test to be conducted in the Mod-2A system was assembled. The purpose of the experiment is to gather "clean-core" quench (Leidenfrost) temperature data that can be compared to "dirty-core" quench data to help ascertain the influence of crud deposition.

The analysis of the LOFT Test Support Facility (LTSF) critical flow data is nearly complete. A plot of mass fluid versus enthalpy was generated for the 0.110 in. diameter orifice. Comparison of the data to the Henry-Fauske model reveals that for universal quality less than -0.08, a multiplier of 1.1 is needed to bring the model into agreement with the data. For qualities between -0.08 and 0.0, the required multipliers range from 1.1 to 1.4. Use of these multipliers on the 0.028 in. orifice data has produced less satisfactory results.

Calculations using the INVERT code were made to investigate steam generator tube thermocouple accuracy required to produce acceptable heat flux calculation accuracy. Two degree Kelvin changes in either the metal temperature or primary fluid temperature produce 6 to 7% uncertainty in the calculated heat flux. The results were found to be fairly insensitive to small changes in the primary side heat transfer coefficient.

A draft of the Semiscale contribution to the WRR quarterly progress report was prepared and submitted to the WRRD Documentation Office. The draft presented preliminary results from Semiscale Test S-SB-2A, which was run to assess the desirability of offsetting system heat losses by augmenting core power. The results of the test indicate that while this method does influence core thermal-hydraulics, overall system behavior is not substantially affected.

An evaluation of the preliminary results from these Tests S-SB-P1, S-SB-P2, and S-SB-P7 was initiated and major phenomena occurring in each test have been identified. The quick look report presenting the combined results of the three tests will be completed and transmitted to DOE-ID on April 11, 1980.

In order to maintain costs and schedules, a review of current instrumentation requirements for the new Type II intact loop steam generator with the objective of reducing the number of measurements originally requested. This review has been completed and a letter to the Semiscale instrumentation group has been drafted defining the revised measurement needs of the Analysis Branch.

The quick look report for small break Test S-SB-2A was completed and transmitted to DOE-ID on March 4, 1980.

Three abstracts for the winter annual ASME meeting were submitted and accepted.

(4) 411LE1400 The new Hewlett-Packard System 1000 computer was installed and the hardware checked out by a Hewlett-Packard engineer on March 24, 1980. Work is in progress on software and development and checkout. Checkout of the Hewlett-Packard MX-E computer for the Air-Water Loop data acquisition system is continuing.

Work was begun on a plan to document and upgrade data system configuration information and to better control configuration and measurement quality. The plan is scheduled for implementation in conjunction with the start of Mod-2A.

Work was also begun on an in-place calibration of the high pressure injection system flow via pump rpm and temporarily installed reference instrumentation.

Procedures for evaulating transducer performance are being reviewed and in the past month a new standard problem sheet format was adopted. A road map approach is being developed to aid users of the experimental data to obtain specific calibration and "correction" information values.

(5) 411LE1500 A considerable effort was expended on an engineering estimate for a boiling water reactor (BWR) test facility at Semiscale. Three configurations (power levels and attendant complexity) were considered.

A major effort in Semiscale drafting was expended towards completing assembly and detail drawings of both steam generators incorporating new fillers, new instrument ports, and the instrumentation drawings.

The prototype filler for the broken loop steam generator was successfully cycled and tested in the ARA autoclave.

A new concept for the beryllium washer design was completed in order to prevent further failures in the brazed joint. The new design will omit any brazing and will rely on wide face, flexitallic gaskets for sealing directly on the beryllium. The beryllium insert will still be held captive in a monel or stainless shell in order to have the mechanical strength necessary to mount Dewar support brackets and withstand extraneous mechanical loading of the piping system.

The vessel mounted water cooled pressure probe drawing was changed to reflect fitup to new core insulators. A new end piece will be made and screwed onto existing probes to effect the modification.

The four prototype castings of the drag transducer bodies were received from Dolphin Incorporated, Phoenix, Arizona, and are in the shop at Central Facility for machining and hydro testing.

The scanning densitometer bids were received and are being evaluated. This device should greatly enhance capabilities of the Air-Water Loop.

e. 411M200 Mod-2A Conversion

411M25100 Drawings have been completed and are in drafting. The existing work package for Mod-2A has been expanded to incorporate all of the work this summer into one document. Consequently, extensive amplification of the old package was needed. Every identifiable task has been costed and described in the latest revision.

Because of this condensation, remaining funds in several supportive work packages will be transferred to this account and the old number closed to further charges. Several iterations of the schedule have been made to refine it into a binding and workable agreement.

Ongoing efforts under this account were: Pump suction piping and pump mounting drawings; operating manual for the intact loop pump; defining and strengthening agreements and writing a test procedure for the intact loop pump.

It is being proposed, and the work package so issued, to do two-phase testing (characterization testing) at the LOFT Test Support Facility. This maneuver will save considerable effort in trying to get into an outside lab and perform all of the tests needed. Cost-wise, it looks like the equivalent to the original estimate of two years ago.

Received all the impellers this month. Requested a drawing or printout of the coordinates for the same from Electra-Cal Machining Corporation, Alhambra, California.

f. 411M300 Mod-3 Upgrade

411M31200 Work progressed to add the thermocouples (TC's) to the core insulator panels. EG&G agreed to furnish the TC's and these were made up under the direction of Semiscale instrumentation. They will be delivered to Pyromet Industries, San Carlos, California, i[illegible]ly April 1980.

g. 411M500 Mod-5 Conversion

(1) 411M51100 The Semiscale BWR facility proposal was completed and transmitted to DOE and NRC.

h. 411PC1300 Quality Assurance

A major effort by Quality this month was reviewing and rewriting the Quality Program Plan (QPP) to meld or merge Semiscale and LTSF. The draft has been submitted for review. A similar project was undertaken to write a procedure for use of the site work release (SWR) and its proper application.

Several items of sensitive hardware were expedited to support installation of the hot leg small break.

i. 411SB00 Small Break Test Series

(1) 411SB1500 Pretest calculations for Tests S-SB-P3 and S-SB-P4 were completed out to 4.22 MPa (approximately 700 s after rupture). So far no core uncovery has been calculated. These calculations will be run out to 1.38 MPa to be consistent with the revised test plan. Work was begun on the pretest prediction report.

(2) 411SBX100 A letter EOS for small break Test S-SB-P7 was prepared and transmitted to DOE-ID on March 13, 1980. This test is designed to investigate the effect of a delayed pump trip (pump trip at 475 psia) on overall Semiscale system behavior, and to determine the capability of RELAP4 to predict this behavior.

(3) 411SBX300 Based on comparisons with experimental data, several changes were made to the small break model of the Mod-3 system. These included: (1) addition of a volume to represent the bypass line from the inlet annulus to the upper head, (2) use of a single junction to represent the guide tube slots, and (3) correction of an error in the broken loop steam generator secondary volume and flow area. Posttest calculations will be made with this model to determine the effects of these model changes and whether any further improvements can be made to the model.

A study was completed in which use of the standard bubble rise model in the core volume was investigated as a means of eliminating the mixture level oscillations calculated in the pretest calculation for Test S-SB-2, and a critical flow model was applied at the accumulator junctions in an attempt to limit injunction rates. Results of this study indicate that using the critical flow model to limit accumulation injection rates was not successful, but that use of the standard bubble rise model may be useful in eliminating the calculated mixture level oscillations. A letter documenting the results of this study was written and submitted for review.

Work continued on a RELAP5 calculation for Test S-SB-2. A steady-state calculation was completed, but a transient calculation was delayed to allow (1) addition of a modified accumulator model to the code and (2) a nodalization study to reduce the model run time. With the new accumulator model included, a transient calculation has been completed to 500 s. The results are being analyzed.

Analysis of the results from Test S-SB-P2 and the pretest calculation was begun.

f. 411SS00 Special Studies

(1) 411SS1200 The Karlsruhe report was reviewed and returned to the author for revision. A new turbine meter model for annular flow was developed. The model includes the effect of liquid drag on the torque balance. Initial calculations with the model are somewhat encouraging.

(2) 411SS1M00 A letter containing reactivity functions for the power controller point kinetics model was written and sent to J. R. Venhuizen. The letter provides a set of tables for use in PWR simulations, a set of tables for use in LOFT simulations, and necessary discussion of input parameters.

(3) 411S1Z00 The Semiscale Mod-3 scaling criteria report was transmitted.

g. 411T100 Test Series 11

(1) 411TIX100 Efforts continued on a part time basis to assess the data needed in the loss-of-feedwater transient area. The EOS appendix for these experiments was started.

h. 411T700 Test Series 7

(1) 411T7X500 A detailed outline including conclusions for the thermal-hydraulics topical was completed and reviewed.

i. 411TS00 Licensing Support

(1) 411TSX500 A comparison was made between Test S-07-10B data and code calculations. The comparison was documented via letter. The quick look report was started.

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual Date
	Perform Small Break Test S-SB-?3	04-22-80	
	Publish experiment data report for Small Break Tests S-SB-4 and S-SB-4A	04-07-80	04-07-80

5. Summary of Work to be Performed in April 1980

a. 411CL00 Closed Loop Secondary

411CL1200 Preparation of detailed drawings of the installation and components for the closed loop secondary will proceed. A checkout of the existing Mod-3 control system will be attempted to try and debug the valves and components before a decision is made to make them a part of the closed loop.

b. 411DA00 Measurement Engineering

(1) 411DA2100 The Air-Water Loop control room will be received and installation in the high bay will be started. Other preparations for upgrading the loop will be continued.

(2) 411DA2200 Work will begin to adapt existing software for use on the new system.

(3) 411DA2300 Checkout testing of the hydrostatic bearing turbine and of the optical pickup system will begin.

(4) 411DA3200 Sub 2 multiplexer work will continue, as will that on the prototype design and bread boarding of the FCA.

c. 411LE00 Semiscale Operations

(1) 411LE1100 System preparation in support of the broken loop hot leg small break tests will be completed (Tests S-SB-P3, S-SB-P4, and S-SB-P6). Engineering support for these tests will also be performed.

Experiment data report drafts will be submitted to the Documentation Office for Test S-07-10 and Tests S-SB-2 and S-SB-2A. Draft experiment data report preparation will begin for previously performed broken loop cold leg small break tests (Tests S-SB-P2, S-SB-P1C, and S-SB-P7).

Modifications to the Air-Water Loop will also be continued.

(2) 411LE1200 Results of the steam generator thermocouple accuracy requirement will be documented.

The LTSF small-break orifice calibration test analysis document will be completed.

The combined quick look report for small break Tests S-SB-P1, S-SB-P2, and S-SB-P7 will be completed and transmitted to DOE-ID.

Semiscale small hot leg break Tests S-SB-P3, S-SB-P4, and S-SB-P6 will be run and analysis of preliminary results from these tests will be initiated.

Manuscripts for three ASME papers will be completed and transmitted to session chairman.

(3) 411LE1400 The first draft of the plan for establishing data system configuration control and documentation will be completed and published for review and comment.

Acceptance testing of the new Hewlett-Packard system will be completed.

Review of data system modification suggestions will be completed and the necessary 1830 and specifications prepared for processing.

Data processing for Tests S-SB-P7, S-SB-P2, S-SB-P1C, and S-SB-P1B will be completed.

d. 411M500 Mod-5 Conversion

411M51200 With specific direction of NRC, the detailed requirements for a semi-independent system can be laid out. It is projected that a good solid design group will be organized and the requirements document fairly well developed.

e. 411PC1300 Quality

411PC1300 Quality will continue in-plant surveillance as directed. The new Quality Program Plan (QPP) of WRRTF will be completed as will the proposed SWR directions and the inspection plans for the core insulators.

Design will be helped in reviewing code requirements on spool pieces in an effort to adapt less stringent requirements than the existing Section III of the ASME code.

f. 411SB00 Small Break

411SBX200 A new package will be issued for accruing costs against the hot leg break. A new design concept of the beryllium instrument washer will be acquired in time for testing after April 22, 1980. Hardware modifications and installation will be completed by April 15, 1980.

g. 411T100 External Heaters

411T1X200 The scope for this job changed significantly with the decision to purchase dedicated power supplies. A draft specification for the supplies has been written and reviewed by Semiscale personnel. The final specification will be sent out for bid the first week of April and the contract let by the end of April. Most material has been ordered and sketches have been started. These will be given to drafting in April to make formal drawings.

The power supply contract will be awarded. Installation site work releases will be written and design of new power supply control panels will be initiated.

6. PROBLEMS AND POTENTIAL PROBLEMS

a. A number of control system problems have contributed to difficulties in successful test completion. A control engineer will be retained to evaluate and correct the existing problems and address steam generator level control with the fillers installed.

b. A number of material deliveries are critical to scheduled conpletion of the Mod-2A conversion. These deliveries will be carefully watched and expedited where necessary.

c. The post-Mod-2A test program must be finalized in order to set a baseline budget for FY-1981 by August 1980.

1. 189a A6043 - LOFT Test Support Facility

2. Scheduled Milestones for March 1980

None

3. Summary of Work Performed in March 1980

a. 53CBE01 Test Engineering

(1) 53CBE01DS Processing efforts in support of data integrity review, analysis, and experiment data report (EDR) preparation for Wyle Transient Test Program data was continued.

(2) 53CBE01GN Work package cost estimates for FY-1980 and FY-1981 test programs were continued. Detailed schedules of FY-1980 test programs were developed. Requirements for production MDTT Rake, Transit Time Flowmeter, and LOFT Secondary System Relief Valve Testing were developed and conceptual test plans completed. Cost estimate and conceptual test plan for PBF Check Valve and Flow Shroud Leakage Test were completed. Requirements were obtained for a feasibility study for using nuclear reactor primary coolant system pump current/void fraction relationship for providing pump trip signal in the event of a small break LOCA. This feasibility study will also address testing of a full scale B&W pump in an existig Bingham-Willamette test loop to obtain data related to the above question and subsequent degradation tests to develop the two-phase loop pump characteristic curve.

(3) 53CBE0151 The work package for the Nine-Rod Test has been completed. The test vessel and the external thermocouples for the REBEKA rods are being fabricated. The FEBA rods have arrived at the Idaho National Engineering Laboratory.

(4) 53CBE0155 Data integrity review for Wyle Transient Test Program mass flow data was completed. Two EDR's were published. Analysis of data continued.

(5) 53CBE0162 Data was acquired and reviewed from single-phase SO testing in the Two-Phase Loop. A letter report documenting preliminary results was prepared.

(6) 53CEE0163 The test plan for the DTT testing in the Two-Phase Loop has been completed.

(7) 53CEE0172 The work package for the instrumentation calibration for L3-5/6 has been completed. The catch tank has been installed. The spool piece for L3-5/6 is being fabricated.

(8) 53CEE0173 The proposal for the Nelson-Chen Post-CHF Test has been approved by the management and sent for Change Control Board approval.

(9) 53CEE0174 The work package for the instrumentation calibration for L3-4 has been completed. The Experimental Operating Specification (EOS) preliminary draft is 50% complete. The preliminary drawings for L3-4 DTT spool piece and the schematic diagram for the test have been completed.

b. 53CDA01 Data Acquisition

(1) 53CDA01GN The preparation of a DOEM-1830 implementation plan for automatic control and graphics display system for the two-phase flow loop was completed. Further information is being sought concerning in-house software requirements for getting the graphics display on line. The procurement package has been shelved until this information is obtained. Drawings of the blowdown facility microprocessor control system were completed.

(2) 53CDA0151 A heater tape relay box was fabricated, installed, and checked out in preparation for the Nine-Rod Bundle Test.

(3) 53CDA0162 The data acquisition system was set up and operated in support of Two-Phase Flow Loop SO testing. Two temperature transmitters were installed on the main coolant

pump to monitor bearing temperature. Several days of effort were expended in replacing failed Viatran pressure transducers and modifying their hookup in an effort to obtain liquid level measurements in the steam tanks, moisture separator, and steam separator.

(4) 53CDA0174 Review of instrumentation calibration for L3-4 test requirements was completed and data and control system setup commenced.

c. 53COP01 Operations

(1) 53COP01GN Final design of a relief valve test stand was completed. The relief valve stand is to be added to the loop to test LOFT secondary side relief valves.

(2) 53COP0151 Two blowdown tests were conducted in preparation of the Nine-Rod Quench Tests. Test heater rods were installed in the single-pin vessels in order to check out the heater rod control system. Hardware from the BF-PTR-2 test was removed from the loop in preparation for the quench test.

(3) 53COP0162 The first draft of the Two-Phase Flow Loop Operating Manual has been completed and reviewed. System operation testing of the loop has been partially completed. To date, a maximum steam flow rate of 29 kg/s and a maximum water flow rate of 275 kg/s have been achieved at a test section pressure of 2 MPa. Several steam leaks and problems with the main coolant pump thrust bearing had to be reworked at the cost of six working days. Additional pipe supports were added to the loop piping when initial operation indicated potential vibration problems.

(4) 53COP0174 A preliminary design of test hardware for the L3-4 spool piece calibration was completed. The fabrication and procurement for the blowdown loop catch tank have been completed.

c. Foreign Funded Activities

(1) 5FNC50101 EDR's from Wyle Transient Tests IA101, IA102, IA103, IIIA101, IIIA102, IIIA201, and IIIA202 were forwarded to RPI for use in evaluating DTT model and orifice flow models in transient two-phase regimes. Data from IA1 and IIIA1 series tests were forwarded to RPI in support of the above mentioned tasks.

(2) 5F7C40100 Transmitted EDR from Wyle Transient Tests IIIA101, IIIA102, IIIA201, and IIIA202 to Dr. S. Bannerjee for use in evaluating performance of LOFT ECC rake in transient two-phase flow.

(3) 5F7C50101 The data report from steam probe scoping tasks was reviewed and plans made for a review meeting to discuss results and future activity.

4. Scheduled Milestones for April 1980

None

5. Summary of Work to be Performed in April 1980

a. 53CBE01 Test Engineering

(1) 53CBE01DS Processing will continue in support of EDR preparation and liquid level data analysis.

(2) 53CBE01GN Work package cost estimates and detailed schedules for FY-1980 test programs will be completed. Work on conceptual test plans, work package cost estimates, and schedules for planned FY-1981 test programs will continue.

Testing of production MDTT rake in single-phase will be done, and work on the data report will begin. Testing of LOFT secondary system relief valves and associated data reports will be completed. Test planning and design for PBF check valve and flow shroud leakage tests will begin pending approval from PBF. Scope of work, schedule, and support activities for feasibility study of pump current/void fraction relationship and testing will be defined and work initiated.

(3) 53CBE0151 Complete the installation of test section for Heater Rod Quench Test.

(4) 53CBE0155 EDR's for remaining Wyle transient tests will be completed and transmitted for review and approval. Analysis of liquid level data from the transient tests will continue.

(5) 53CBE0162 System operation testing of the two-phase loop will continue and data from two-phase operation will be analyzed as availabe.

(6) 53CEE0172 Fabrication for the L3-5/6 spool piece will be completed.

(7) 53CEE0174 Drawings for fabrication and assembly, design review, and test plan for instrumentation calibration for L3-4 will be completed. Obtain the bids for fabricating the spool piece from the outside contractors and initiate the fabrication.

b. 53CDA01 Data Acquisition

(1) 53CDA0162 SO testing on Two-Phase Loop will be completed.

(2) 53CDA0163 Performance test of LOFT DTT will be completed.

(3) 53CDA0174 Design of L3-4 spool piece calibration test will be completed.

c. 53COP01 Operations

(1) 53COP01GN Installation of relief valve test stand will be completed. Testing of LOFT secondary side relief valves will be completed.

(2) 53COP0151 Fabrication and installation of Nine-Rod Quench Test will be completed.

(3) 53COP0174 Fabrication and installation of L3-4 hardware will be completed. Installation of catch tank will be completed.

d. Foreign Funded Activities

(1) 5FNC50101 EDR's and data from Wyle transient tests will be forwarded to RPI as completed. Data will be used for MDTT and orifice model assessment in transient two-phase flow.

(2) 5F7C40100 Data from IIIA series Wyle transient tests will be forwarded to S. Bannerjee for his use in assessing LOFT ECC rake performance in transient two-phase flow.

(3) 5F7C50101 A review meeting will be held to discuss results of steam probe scoping tasks and future plans.

6. Problems and Potential Problems

Lack of analysis personnel hinders timely completion of reports.

WRRD MONTHLY REPORT FOR

MARCH 1980

THERMAL FUELS BEHAVIOR PROGRAM

N. H. Drysdale
Plans & Budgets Representative

H. J. Zeffle, Manager

THERMAL FUELS BEHAVIOR PROGRAM

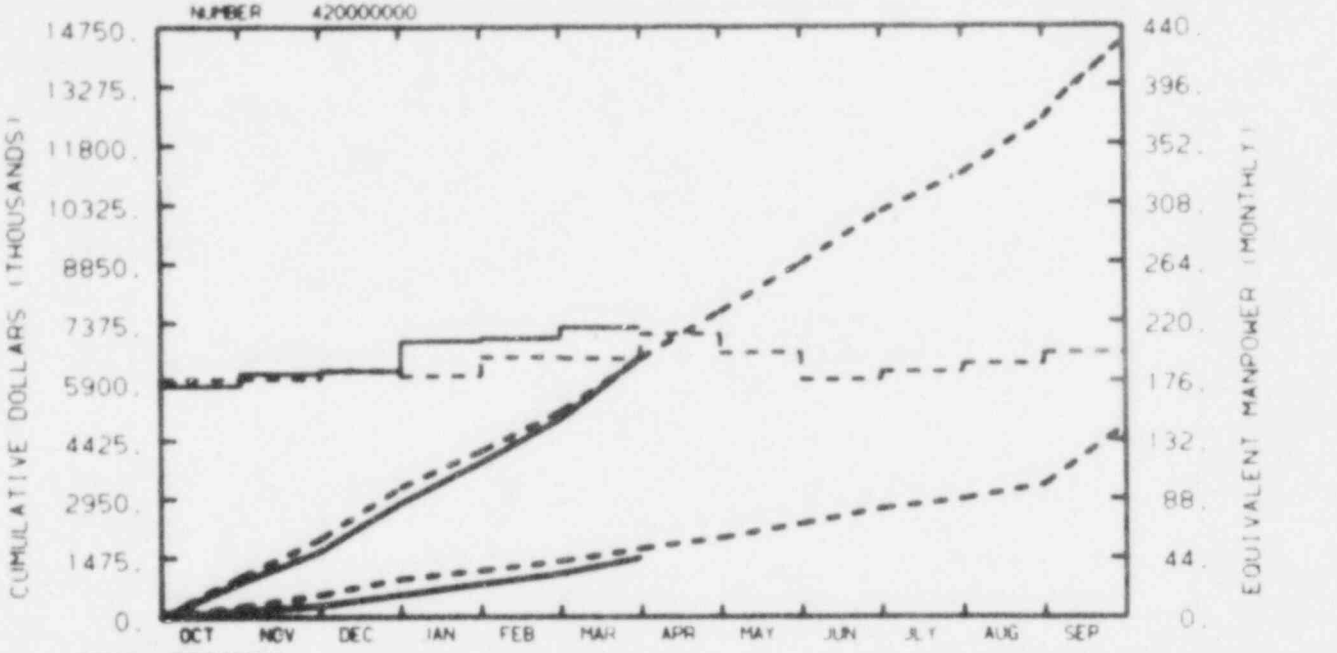
COST SUMMARY & COMMENTS

RESPONSIBLE MANAGER
HJ ZEILE

EG&G IDAHO INC.

THERMAL FUELS BEHAVIOR PROGRAM

NUMBER 420000000



TOTAL PROGRAM

BUDGET	994	1956	3226	4144	5134	6470	7636	8825	10128	11075	12428	14489
ACTUAL	869	1642	2831	3855	4948	6511						

MATERIAL

BUDGET	252	554	930	1142	1373	1691	1959	2311	2691	2938	3308	4783
ACTUAL	158	284	543	808	1064	1464						

MANPOWER

BUDGET	178	178	184	180	194	193	211	197	177	183	189	197
ACTUAL	173	182	184	206	208	216						

BUDGET - - - - -

ACTUAL ———

YTD VARIANCE: <41> (1%)

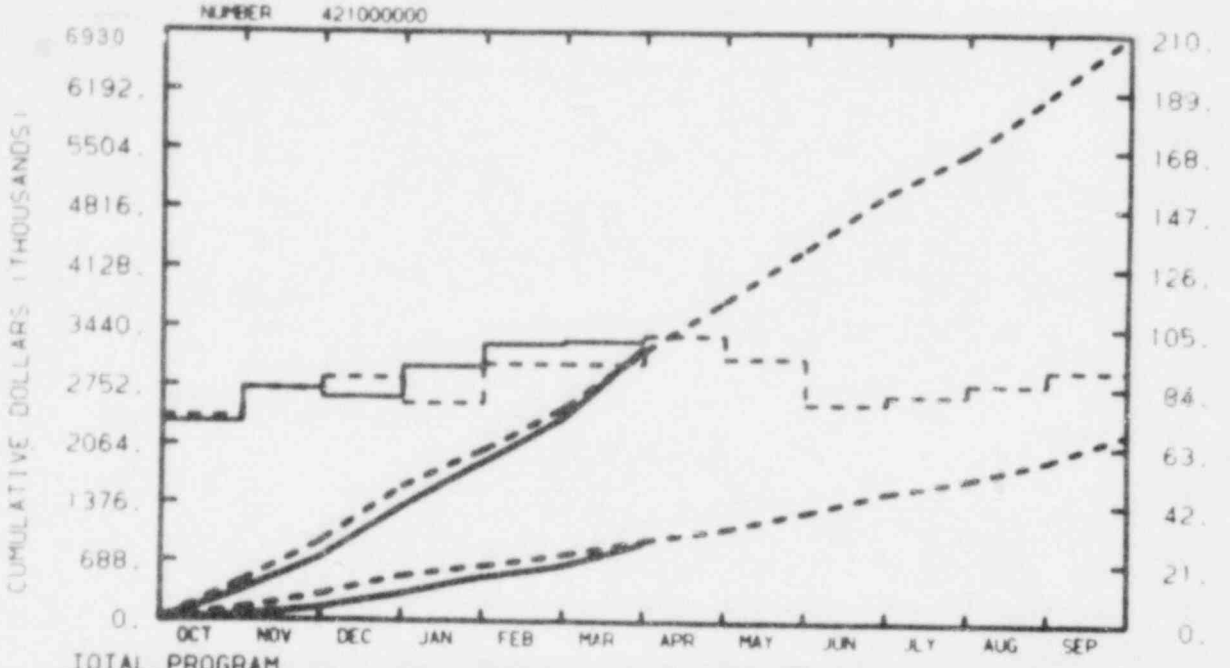
Individual cost graphs will give individual explanations.

Explanations for major 189a's will be made if the variance exceeds $25 K. Minor 189a graphs will explain variance of over $10 K.

RESPONSIBLE
MANAGER
PE MACDONALD

EG&G IDAHO INC.

TFBP EXPERIMENT DESIGN & ANAL



TOTAL PROGRAM

BUDGET	441	926	1572	2004	2505	3165	3746	4354	5003	5477	6159	6930
ACTUAL	335	737	1335	1860	2388	3214						

MATERIAL

BUDGET	130	304	520	640	774	945	1084	1286	1518	1675	1906	2232
ACTUAL	49	151	315	509	645	915						

MANPOWER

BUDGET	73	83	87	78	92	92	102	94	78	81	85	90
ACTUAL	71	83	80	91	99	100						

BUDGET - - - - -

ACTUAL ———

A6041

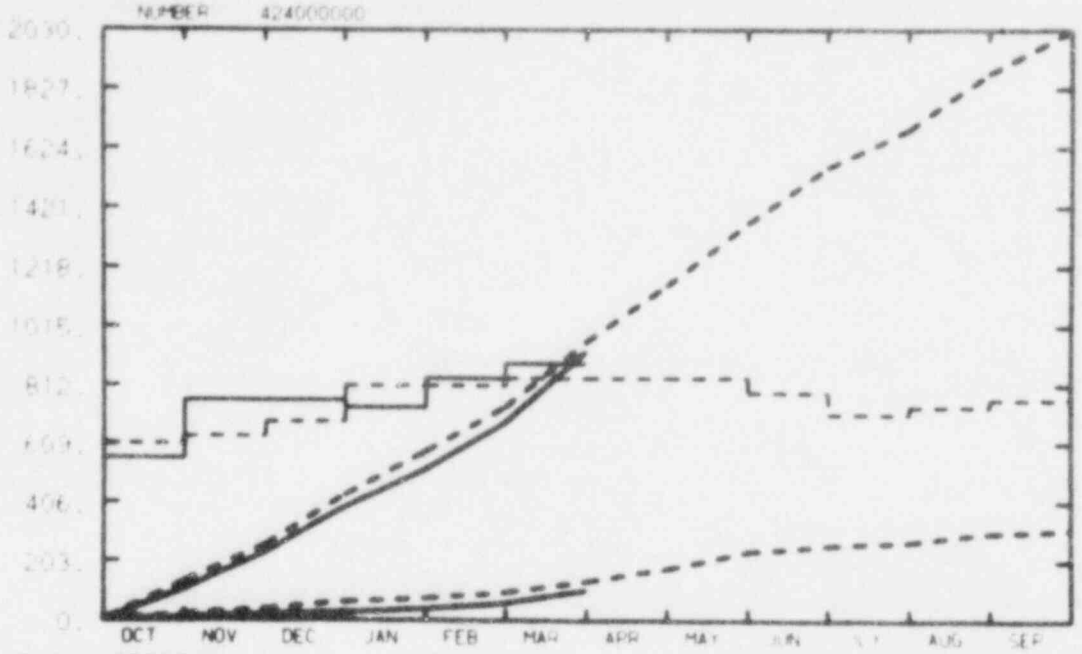
YTD VARIANCE: <49> (2%)

Analysis of the budget indicates that the 2% overrun is primarily caused by early spending in the LOC-3 PIE fuel rod balloon replication task. This left inadequate funds for metallography and then the LOC-3 PIE account is presently overspent. Funds in future PIE work are being reviewed to cover this overrun.

EG&G IDAHO INC.

RBF ENGINEERING

NUMBER 424000000



TOTAL PROGRAM

BUDGET	133	260	432	581	738	964	1157	1366	1557	1638	1880	2024
ACTUAL	107	234	390	520	683	932						

MATERIAL

BUDGET	20	40	64	76	97	135	178	236	267	271	402	432
ACTUAL	9	21	27	40	60	104						

MANPOWER

BUDGET	24	24	27	32	34	33	33	33	31	28	24	6
ACTUAL	26	30	30	29	33	45						

BUDGET

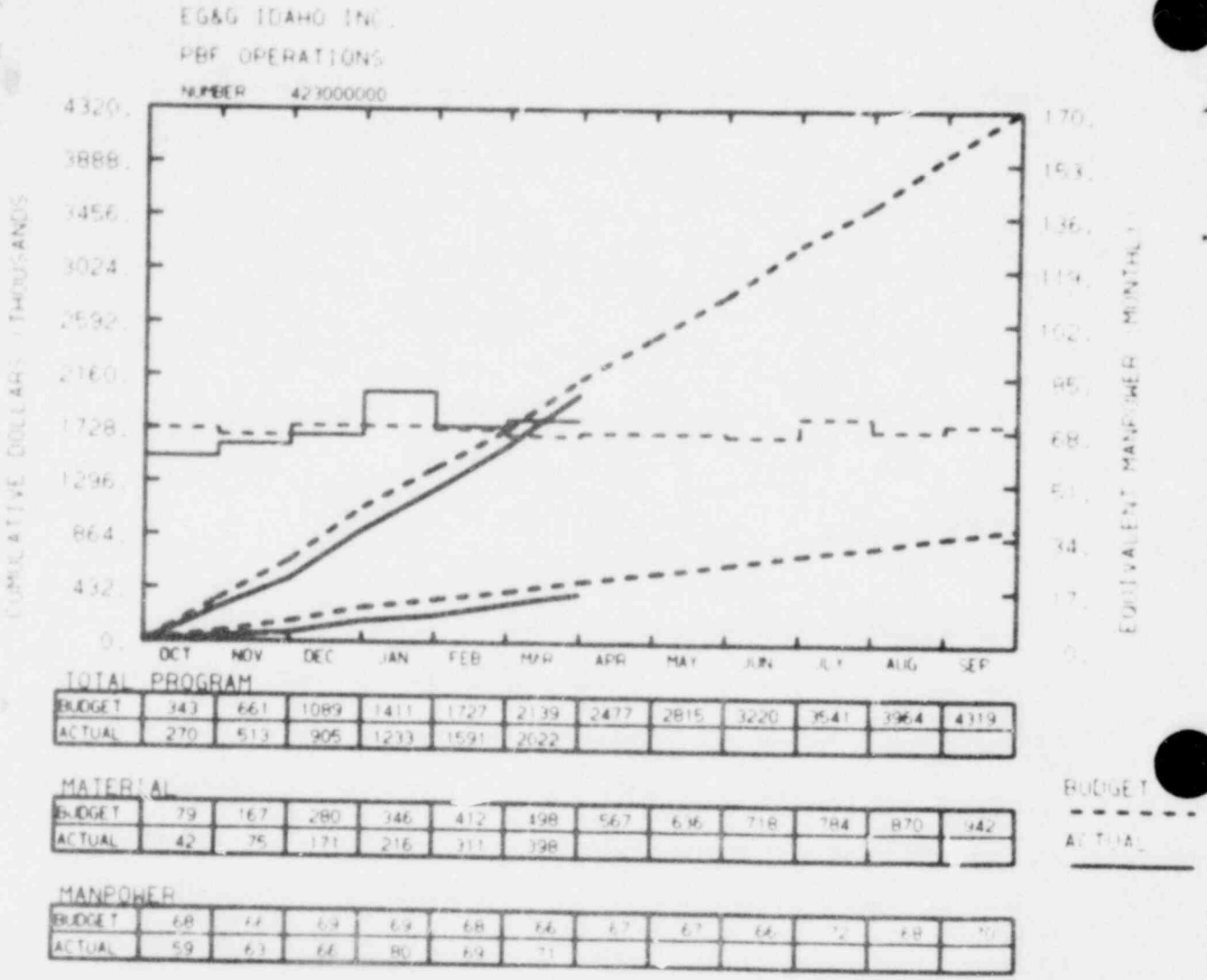
ACTUAL

A6044

YTD VARIANCE: 32 (3%)

The Drawing Revision and the Cognizant Engineering accounts are running slightly under the budget forecasts because of the recent high activity required to support the loop acid cleaning/inspection project. In addition, material charges for the loop pump bypass have not yet been incurred (as budgeted) although initiation of procurement activities have started. Work window activities following completion of Test RIA 1-4 are expected to level the overall 189a over the next several months.

RESPONSIBLE
MANAGER
C O DOUCETTE



TOTAL PROGRAM

BUDGET	343	661	1089	1411	1727	2139	2477	2815	3220	3541	3964	4319
ACTUAL	270	513	905	1233	1591	2022						

MATERIAL

BUDGET	79	167	280	346	412	498	567	636	718	784	870	942
ACTUAL	42	75	171	216	311	398						

MANPOWER

BUDGET	68	66	64	64	68	66	67	67	66	72	68	70
ACTUAL	59	63	66	80	69	71						

A6057

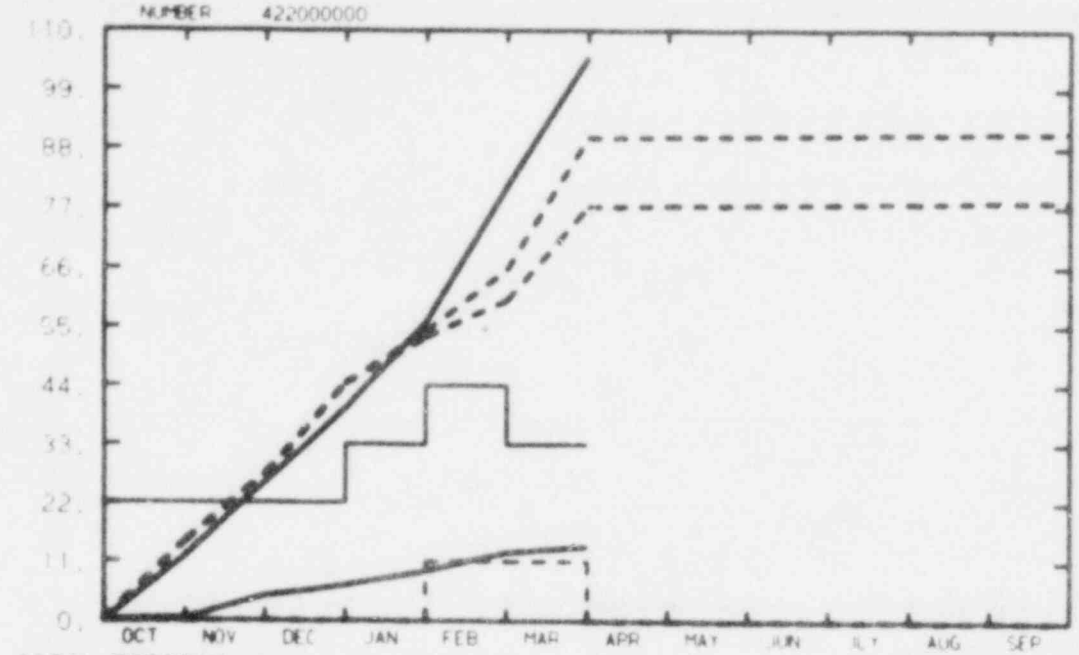
YTD VARIANCE: 117 (5%)

The underrun of 117 K is an increase from the 92 K underrun reported last month. The outstanding material requisitions have increased to approximately 54 K. Staffing of hardware/software engineering personnel has maintained an approximate 33 K underrun. This staffing will be increased to perform the desired scope by the end of the fiscal year. Decreased staffing in the instrument technician area accounts for an approximate 30 K underrun. Full staffing in this area is expected in early May. Use of over time to maintain schedules until new personnel can be trained will utilize the underrun in this area.

EG&G IDAHO INC.

PBF MODIFICATIONS

NUMBER 422000000



CUMULATIVE DOLLARS (THOUSANDS)

EQUIVALENT MANPOWER MONTHLY

BUDGET

ACTUAL

TOTAL PROGRAM

BUDGET	15	27	44	54	66	92	90	90	90	91	91	91
ACTUAL	12	26	40	56	81	105						

MATERIAL

BUDGET	15	27	44	51	60	77	77	77	78	78	78	78
ACTUAL	0	5	7	9	13	4						

MANPOWER

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

A6095

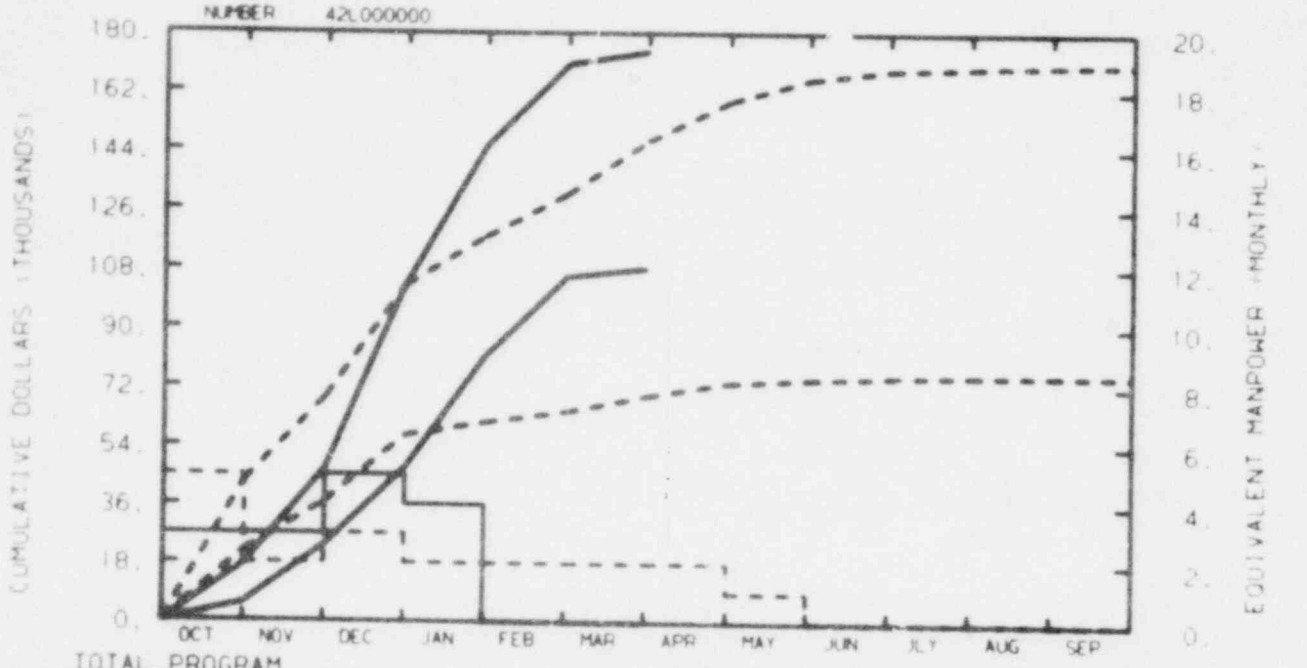
YTD VARIANCE: <15> (17%)

The actuals reflect the recent Engineering and Quality efforts to investigate and evaluate the IPT nozzle weld-crack problem. An interim CCB (80-21) has been prepared for the present vendor repair and for the near-term engineering efforts. This action increases the account total to $168 K. Future changes will be processed when the IPT completion schedule is determined. All work packages in this 189a, other than the IPT, have been completed.

RESPONSIBLE
MANAGER
R W GARNER

EG&G IDAHO INC.

PBF/LOFT LRT PROGRAM



TOTAL PROGRAM

BUDGET	43	69	103	118	131	147	159	166	169	170	170	171
ACTUAL	17	47	103	146	170	174						

MATERIAL

BUDGET	22	37	57	61	64	69	73	74	75	75	76	76
ACTUAL	5	23	47	81	106	128						

MANPOWER

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

BUDGET

ACTUAL

A6111

YTD VARIANCE: <27> (18%)

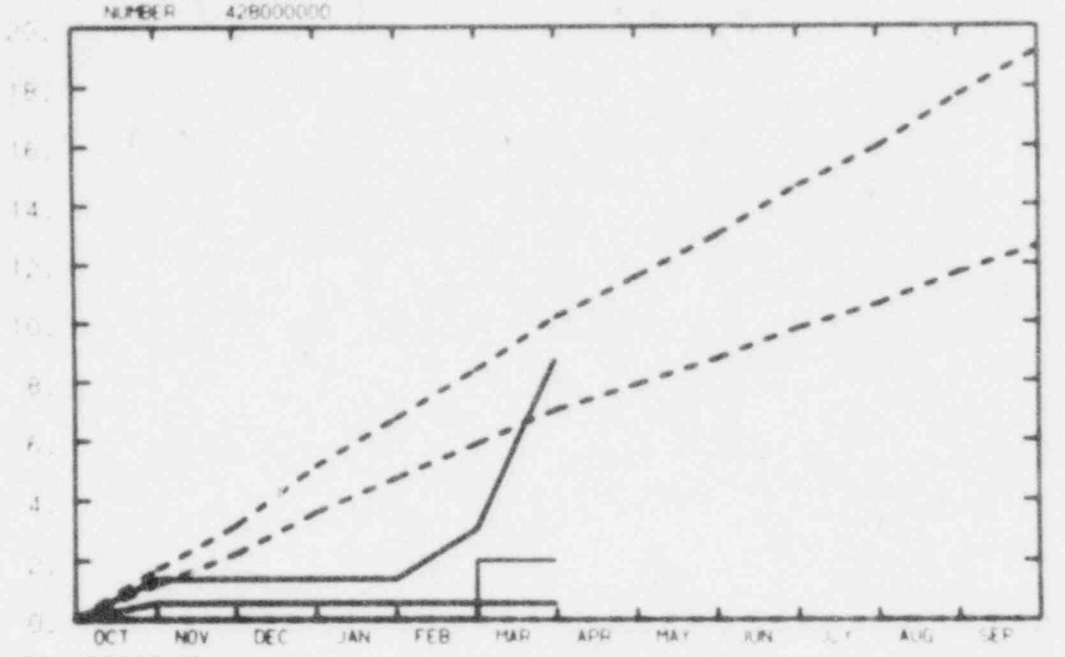
Analysis of the variance indicates that the overrun is caused by the TRR being ahead of schedule. Although it appears that the total budget has been expended, apparent overruns in the PIE will be refunded and should cover the remaining TRR publication costs.

RE [redacted]LE
MA
PE MACDONALD

EG&G IDAHO INC.

PBF COOPERATIVE RESEARCH AUSTRIA

NUMBER 428000000



TOTAL PROGRAM

BUDGET	2	3	5	7	8	10	12	13	15	16	18	19
ACTUAL	1	1	1	1	1	3						

MATERIAL

BUDGET	1	2	4	5	6	7	8	9	10	11	12	13
ACTUAL	1	1	1	1	1							

MANPOWER

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

A6274

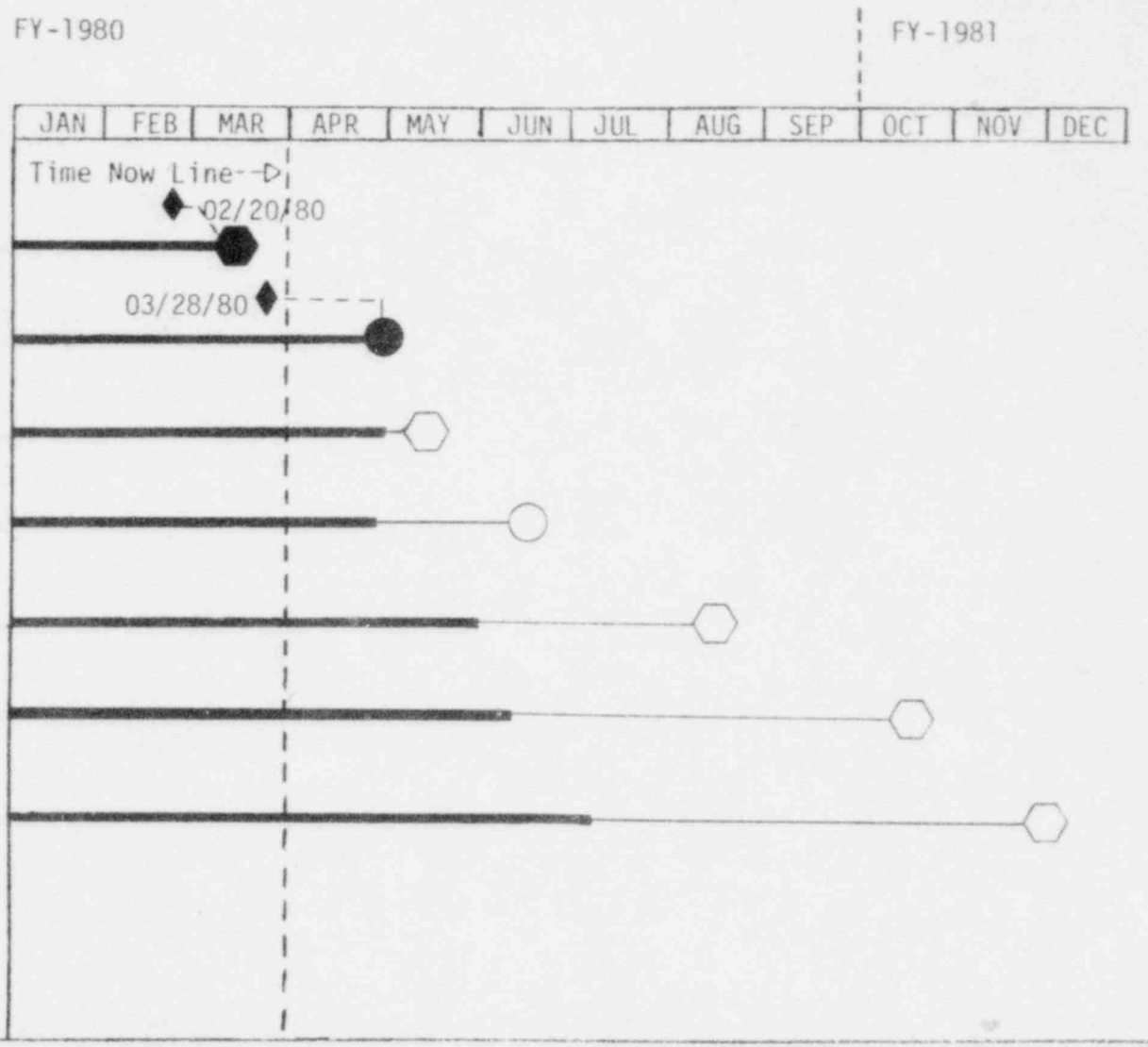
YTD VARIANCE: 1 (10%)

THERMAL FUELS BEHAVIOR PROGRAM

CURRENT WORKING SCHEDULE

LEGEND

- ● Completed Major Milestone
- ○ Scheduled Major Milestone
- ⊘ Slipped Major Milestone
- ● Completed Secondary Milestone
- ○ Scheduled Secondary Milestone
- ⊘ Slipped Secondary Milestone
- ♦ Actual Completion Date
- ◊ Scheduled Completion Date



NOTES: CCB, changing Loop Clean-up to Loop Inspection, is being processed.

THERMAL FUELS BEHAVIOR PROGRAM

CAPITAL EQUIPMENT

EG&G IDAHO, INC.

CAPITAL EQUIPMENT PRIORITY LIST

CARRYOVER

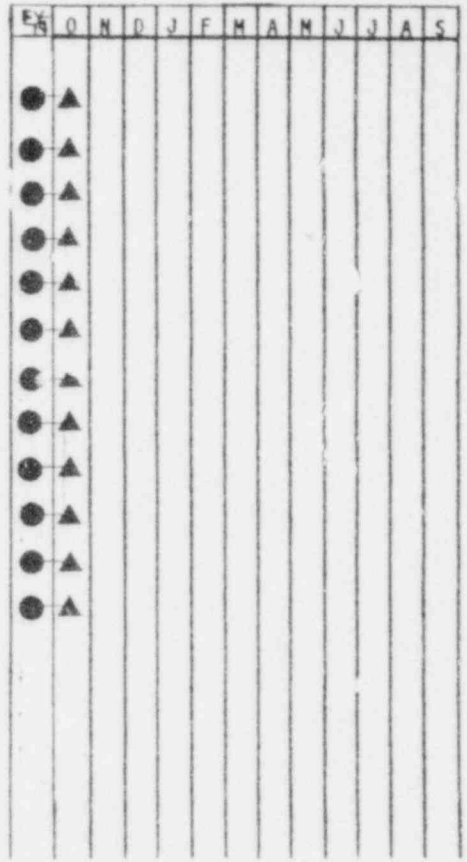
Program THERMAL FUELS BEHAVIOR PROGRAM

189 Number A6041 (A6087)

Manager H. J. Zeile

Item Authorized o
Money Committed Δ
Equipment Received, Account Closed ■

EA No.	Item Description	Authorized Amount	March YTD Costs & Commit.	Project to Date	<Over>/Under Balance
98649	Fission Gass Collection System	10,000	4,570	7,777	2,223
98705	Diam Guage System	20,000	275	14,440	5,560
98738	Modify Laser System	6,000	56	11,114	<5,114>
98778	Test Train Hydro Fixture	30,000	31,106	37,842	<7,842>
98872	MTR Canal Test Train Equipment	30,000	17,432	28,593	1,407
98873	MTR Canal Misc. Tool Fixture	12,000	2,863	13,161	<1,161>
98874	Instrument Test Equipment	20,000	7,629	24,108	<4,108>
98887	▲Tektronix 40 14 Upgrade	4,200	---	---	4,200
98908	▲Cyber Upgrade	69,300	64,832	64,832	4,468
98919	TRA Fuel Scanner	145,000	64,537	97,754	47,246
98943	Remote Manipulation	58,000	41,828	41,850	16,150
98968	Remote SEM w/x-ray	105,000	56,671	56,671	48,329



EG&G IDAHO, INC.

CAPITAL EQUIPMENT PRIORITY LIST

CARRYOVER

Program THERMAL FUELS BEHAVIOR PROGRAM

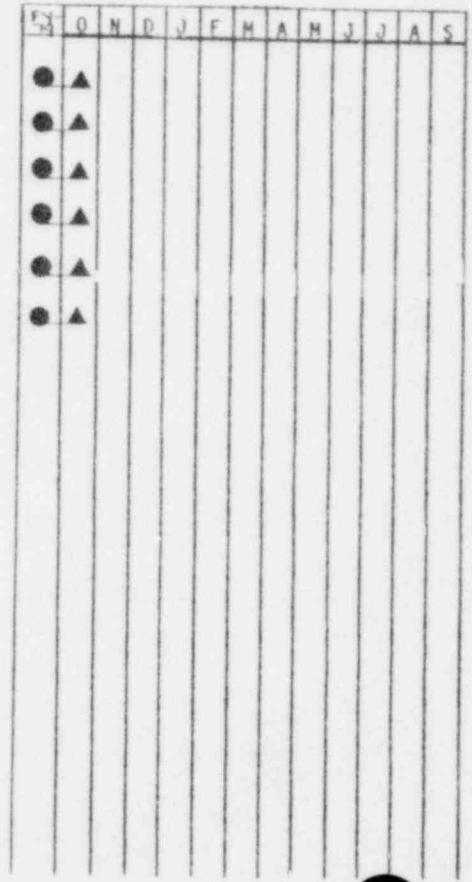
189 Number A6041 (A6087)

Manager H. J. Zeile

Item Authorized o
Money Committed Δ
Equipment Received, Account Closed ■

EA No.	Item Description	Authorized Amount	March YTD Costs & Commit.	Project to Date	<Over>/Under Balance
99108	▲ Tektronix 4027	10,500	---	---	10,500
99109	▲ Color Hard Copy	10,500	---	---	10,500
99110	▲ Tektronix 4025 w/graphics	6,300	5,084	5,084	1,216
99111	▲ Tektronix 4025 w/o graphics	4,200	---	---	4,200
	Closed EA's	299,320	8,193	276,851	22,469
	Miscellaneous from prior years	2,932	---	---	2,932
	▲ ADPE Items	843,252	305,076	680,077	163,175

Carryover Budget	468,251
YTD Costs & Commit.	<305,076>
Balance	163,175



EG&G IDAHO, INC.

CAPITAL EQUIPMENT PRIORITY LIST

CARRYOVER

Program THERMAL FUELS BEHAVIOR PROGRAM

189 Number A0044 (A6091)

Manager H. J. Zeile

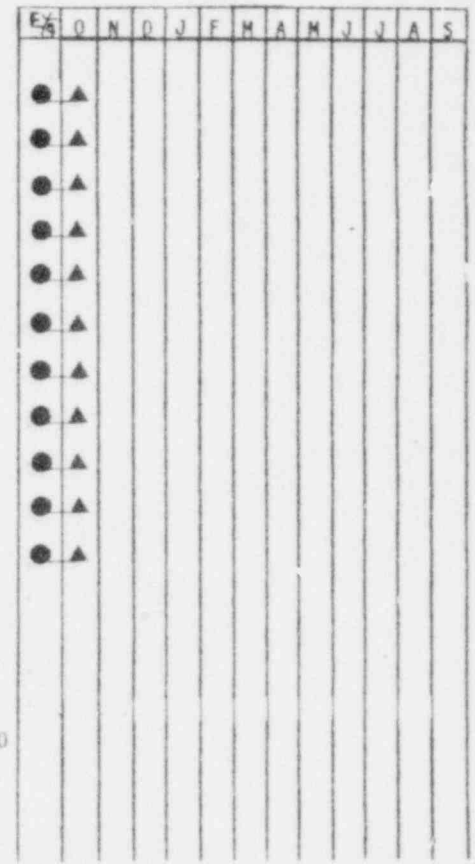
Item Authorized o
Money Committed Δ
Equipment Received, Account Closed ■

EA No.	Item Description	Authorized Amount	March YTD Costs & Commit.	Project to Date	<Over>/Under Balance
98777	Test Train Handling Fixture	36,500	73,953	94,983	<58,483>*
98889	DARS Data Processing Software	30,000	15,221	17,581	12,419
98891 ▲	Terminal Upgrade	11,000	---	---	11,000
98896	DARS System Input/Interfaces	50,000	11,733	32,592	17,408
98901	DARS Memory Expansion	25,000	949	20,665	4,335
98909 ▲	Cyber Upgrade	10,000	9,630	9,630	370
98915	DARS Test Maint and Comb Equipment	42,000	6,906	23,788	18,212
98967	Versatec Plotter System	30,000	---	---	30,000
99046	PBF Monitor and Timer System	132,000	---	---	132,000
	Closed EA's	385,500	16,744	362,913	22,587
	Misc. from Prior Years	9,022	---	---	9,022
		761,022	135,136	562,152	198,870

Carryover Budget	334,006
YTD Costs & Commit.	<135,136>
Balance	198,870

▲ ADPE Item

* 47,948 of this balance being transferred to FY-80 9E4991500



EG&G IDAHO, INC.

CAPITAL EQUIPMENT PRIORITY LIST

CARRYOVER

Program THERMAL FUELS BEHAVIOR PROGRAM

189 Number A6046 (A6093)

Manager H. J. Zeile

Item Authorized o
Money Committed Δ
Equipment Received, Account Closed ■

EA No.	Item Description	Authorized Amount	March YTD Costs & Commit.	Project to Date	<Over>/Under Balance
98346	Laser System	37,500	455	35,220	2,280
	Closed EA's & Misc. Prior Years	20,000	8,888	18,186	1,814
		57,500	9,343	53,406	4,094

Carryover Budget	13,437
YTD Costs & Commit.	<9,343>
Balance	4,094

CAPITAL EQUIPMENT PRIORITY LIST

FY-1980

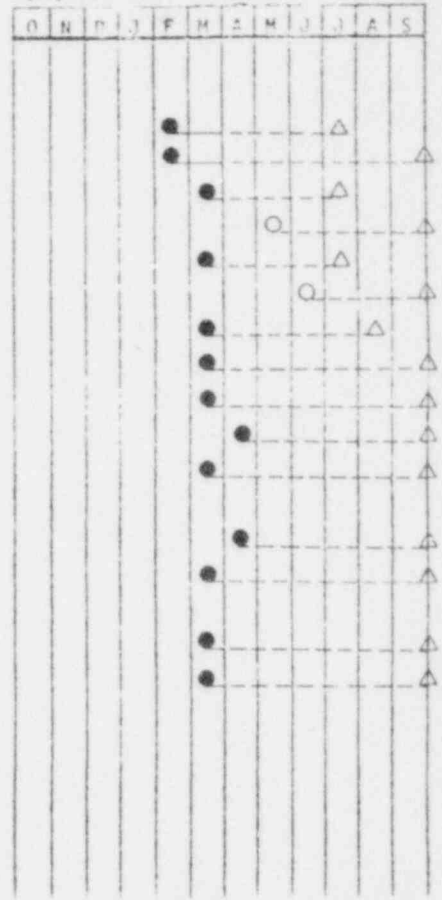
Program TFBP Combined List

189 Number A6087(A6041)-A6091(A6044)

Manager H. J. Zeile

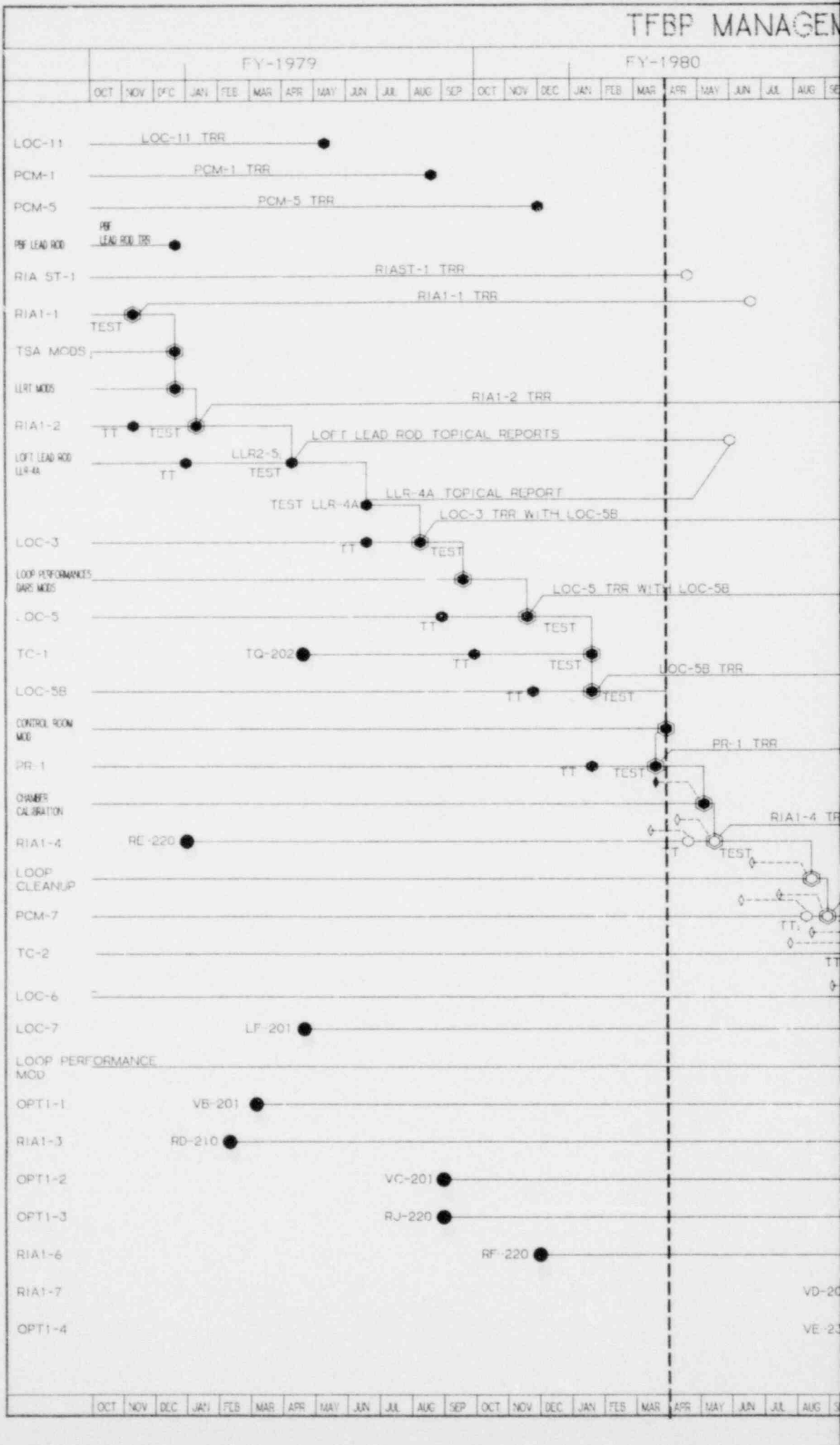
Item Authorized o
Money Committed Δ
Equipment Received, Account Closed ■

Priority Number	EA No.	Item Description	Authorized Amount	March YTD Costs & Commitments	<Over>/Under Balance
1		PBF P&M System Replacement Phase II	305,000	---	305,000
2	99150	MTR Canal Air Clean System	45,000	---	45,000
3.	99140	PBF Exp. Output and Data Syst Inter.	40,000	8,148	31,852
4	99178	0.028-inch TC Production Equipment	5,000	---	5,000
5		Data System Module Check-out and Maintenance	60,000	---	60,000
6	99179	MTR Canal Misc. Tools	15,000	---	15,000
7		Signal Preconditioning Equipment	25,000	---	25,000
8	99180	Replace Laser Welder	86,000	---	86,000
9	99186	PBF Data Syst Test and Maint Equipment	30,000	---	30,000
10	99181	Upgrade Gas Collection System	22,500	---	22,500
11	99190	Process Instruments and Equipment	35,000	---	35,000
12	99182	Fuel Rod Length Meas Device	5,000	---	5,000
13		Flow Rate Integrator	5,000	---	5,000
14	99191	Chamber Electronics	13,000	---	13,000
15	99183	Leak Detection and Support Fixturing	10,000	---	10,000
16		FPDS Upgrade	60,000	---	60,000
17	99184	Upgrade Photographic Capability	5,000	---	5,000
18	99185	Questar Telescope	7,500	---	7,500
19		Liquid Nitrogen Generator	15,000	---	15,000
20		Data Conditioning Equipment	11,000	---	11,000
		FY-80 Budget A6087 232,000			
		A6091 568,000			
		800,000	800,000	8,148	791,852
		YTD Costs & Commit. <8,148>			
		Balance 791,852			

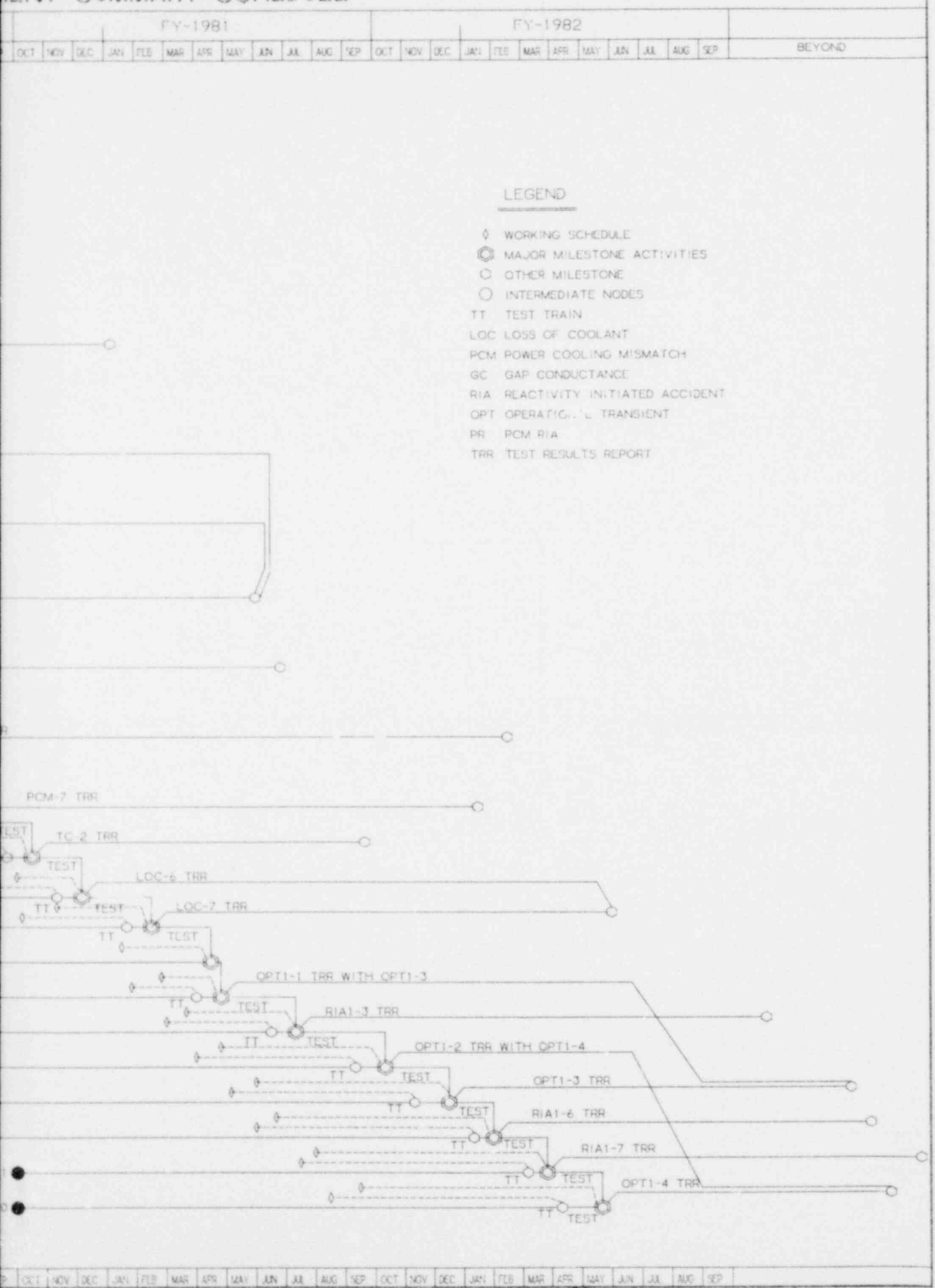


THERMAL FUELS BEHAVIOR PROGRAM

TEST SUMMARY SCHEDULE


TFBP MANAGEM
FY-1979
FY-1980
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SE
LOC-11
LOC-11 TRR
PCM-1
PCM-1 TRR
PCM-5
PCM-5 TRR
PBF LEAD ROD
PBF LEAD ROD TRR
RIA ST-1
RIAST-1 TRR
RIA1-1
RIA1-1 TRR
TEST
TSA MODS
LLRT MODS
RIA1-2
RIA1-2 TRR
TT
TEST
LOFT LEAD ROD TOPICAL REPORTS
LOFT LEAD ROD LLR-4A
LLR2-5
TT
TEST
TEST LLR-4A
LLR-4A TOPICAL REPORT
LOC-3 TRR WITH LOC-5B
LOC-3
TT
TEST
LOOP PERFORMANCE DARS MODS
LOC-5 TRR WITH LOC-5B
LOC-5
TT
TEST
TC-1
TQ-202
TT
TEST
LOC-5B
LOC-5B TRR
TT
TEST
CONTROL ROOM MOD
PR-1 TRR
PR-1
TT
TEST
CHAMBER CALIBRATION
RIA1-4 TR
RIA1-4
RE-220
T
TEST
LOOP CLEANUP
PCM-7
TC-2
TT
LOC-6
LOC-7
LF-201
LOOP PERFORMANCE MOD
OPT1-1
VB-201
RIA1-3
RD-210
OPT1-2
VC-201
OPT1-3
RJ-220
RIA1-6
RF-220
RIA1-7
VD-20
OPT1-4
VE-2
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG S

MENT SUMMARY SCHEDULE



THERMAL FUELS BEHAVIOR PROGRAM
TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

The PBF Chamber Calibration Test was conducted during the reporting period to determine the calibration and the range of linearity of the core power chambers. The chamber calibration involves the determination of chamber constants by performing a thermal balance power measurement. Chamber linearity determination involves comparison between chamber currents at the time of peak power for a series of power bursts.

The objectives of the test were to (a) perform a thermal balance power measurement and determine core power chamber constants; (b) determine the ion currents at which chambers PPS #1 and PPS #2 became nonlinear, estimate the range of linearity of chambers PPS #3, PPS #4, TR-1, and TR-2, and check the linearity of chambers EV-1 and EV-2 up to 70 GW; (c) measure the pressure pulse generated by gamma and neutron heating of the coolant in the high flux region of the in-pile tube (IPT) during a power burst, and measure the flow perturbation in a flow shroud as a result of the pressure pulse; (d) estimate the heating of the coolant inside a flow shroud during the power bursts; and (3) measure the heating of coolant inside a flow shroud in the IPT during steady power operation. The test data are being analyzed.

Following removal of the Chamber Calibration Test hardware, assembly and installation of the RIA 1-4 test train in the PBF in-pile tube was completed, and other preparations finalized in anticipation of starting the test on April 7. The burst logic modifications required for Test RIA 1-4 were completed.

The acid cleaning effort for the loop and related equipment has been discontinued in favor of a visual inspection combined with manual cleaning where required. Installation of remote indication of plant alarms in the new shift supervisor's office was completed. Completion of this last task fulfills a DOE commitment for this trimester.

The fast scan data tape for the IFA-511-II low temperature test series (at Halden, Norway) has been successfully processed, and analysis of the temperature data has begun. The components for the electric power control system for the programmed power portion of the IFA-511-III tests have been obtained and satisfactorily tested on the hybrid computer at the INEL.

1. 189a A6041 - TFBP Experiment Design and Analysis

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date
#4, Line 2	PR-1 Test	03-20-80T	02-22-80C
#3, Line 3	PR-1 Test QLR	03-31-80T	03-24-80C
#2, Line 6	RIA-ST TRR	04-21-80-1	
#1, Line 2	Small Break LOCA ERD	03-15-80T	03-17-80C
#2, Line 3	IFA-429 Update Report (EGG-TFBP)	03-31-80T	03-28-80C

3. Summary of Work Performed in March 1980

a. PCM Test Series

The Quick Look Report (QLR) for Test PR-1 was issued, data reduction and qualification for the PR-1 test results report was initiated, as was the postirradiation examination (PIE). An outline for the PCM 8-1RF, 8-1RS, and CHF Scoping Tests Report was prepared and draft report preparation initiated. The assembly of the PCM-7 test train continued. Technical review of the PCM-5 Fuel Rod Material Behavior Report by the Documentation Office was completed.

b. OPTRAN Test Series

The OPTRAN 1-1 reactor physics analysis was completed and a letter report describing the results of the analysis was issued. Efforts continued on the OPTRAN 1-1, 1-3 Experiment Predictions Document and the OPTRAN 1-1 Experiment Operating Specifications. Efforts on the OPTRAN 1-3 reactor physics analysis were initiated. The design of OPTRAN 1-1 continued and that of Test OPTRAN 1-2 was initiated. A design review of OPTRAN 1-3 was completed.

c. LOCA Test Series

An evaluation of Test LOC-3 was prepared for the Knoxville ANS meeting; the PIE of the rods was completed. Preparation of the Tests LOC-3 and LOC-5 Fuel Behavior Report continued, as well as postirradiation examination. Experiment predictions for Test LOC-6 were initiated and the assembly of the test train continued.

d. RIA Test Series

A draft of the main text of the Test RIA 1-1 Fuel Behavior Report was completed, and preparation of the Test RIA 1-2 Fuel Behavior Report continued. Reactor physics analysis of the Capsule Driver Core reactor continued. The RIA 1-4 test assembly was completed, the component fabrication for Test RIA 1-3 continued, and the design of Test RIA 1-6 was initiated.

e. LLR Test Series

Plots for the LLR test analysis effort were completed, and efforts continued on LLR Fuel Behavior Report.

f. RIA-ST Topical Report

The report was submitted to the Information Division for technical editing and production. A second report, analyzing the steam explosion which occurred during RIA-ST-4 has also been submitted to the Information Division.

g. PCM Topical Report

Analysis of the departure from nucleate boiling, quench, and rewet data from the PCM tests continued. Local qualities were calculated to develop critical heat flux correlations for the PBF data.

h. Halden Program

The IFA-429 Experiment Update Report was issued. Two presentations for the ANS LWR Safety Topical Meeting were prepared, one on fission gas release from UO_2 and the other on the effects of Xe and fill gas pressure on fuel temperature.

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual Date
#3, Line 1	RIA Molten Fuel Freezing (Formal)	04-15-80T	
#5, Line 1	RIA 1-4 Test Train	04-10-80T	03-15-80C
#2, Line 6	RIA-ST Test Results Report	04-21-80T	

5. Summary of Work to be Performed in April 1980

a. PCM Test Series

Data qualification for Test PR-1 will continue, posttest examination and data analysis will be initiated and the PIE will be completed. Draft preparation of the PCM single-rod test results report (8-1RS, 8-1RF and CHF Scoping Tests) will continue. Pretest preparation for Test PCM-7 will be initiated, and the test train assembly will be completed. The PCM-5 Fuel Rod Material Behavior Report will be submitted to the Information Division for technical editing and production.

b. OPTRAN Test Series

A revision to the OPTRAN 1-2 Experiment Specifications Document will be issued. Efforts will continue on the OPTRAN 1-1 Experiment Operating Specifications (EOS); OPTRAN 1-1, 1-3 Experiment Predictions Document (EPD); OPTRAN 1-2 EPD; and OPTRAN 1-2 and 1-3 reactor physics analyses. The design of the OPTRAN 1-1 and 1-2 test assemblies will continue and the design of OPTRAN 1-3 will be released.

c. LOCA Test Series

Preparation of the Tests LOC-3 and LOC-5 Fuel Behavior Reports continues. Experiment Predictions for Test LOC-6 will continue, as will assembly of the LOC-6 test train and fabrication of the Test LOC-7 machined parts and instruments. The Test LOC-5 PIE will be completed.

d. RIA Test Series

The RIA-ST Fuel Behavior Report will be issued. Preparation of the RIA 1-1 and RIA 1-2 Fuel Behavior reports will continue, and the RIA 1-6 Experiment Specification Document will be completed and issued. Test RIA 1-4 will be completed and the QLR issued. Component parts fabrication for Test RIA 1-3 and the design of the RIA 1-6 test train and assembly will continue. Review of the Test RIA 1-1 Fuel Behavior Report will be completed.

e. LLR Test Series

The LLR Fuel Behavior Report draft will be completed.

f. RIA-ST Topical Report

The report will be issued as a formal report to meet the buff book node on schedule. The report analyzing the steam explosion in RIA-ST-4 will also be issued.

g. PCM Topical Report

Efforts will continue on preparation of the report.

h. Halden Program

Analysis of Fission Gas Release Test #1 data will continue, along with analysis of Xe/He pressure effects data. Four IFA-429 fuel rods will be shipped to Harwel for PIE. Presentations on fission gas release and on the effects of Xe concentration in the fill gas and fill gas pressure will be presented at the ANS LWR Safety Meeting in Knoxville, Tennessee.

6. Problems and Potential Problems

None.

1. 189a A6044 - PBF Design Engineering

2. Scheduled Milestones for March 1980

   None.

3. Summary of Work Performed in March 1980

   a. Red Mike Evacuation System Expansion

      SPERT I / Red Mike expansion was installed and operationally checked. This part of the modification is complete.

   b. LOCA Utilities Rubber Hose Replacement

      Remaining couplings were shipped from Union City, Pennsylvania, on March 24, 1980.

   c. Drain Collection Trough

      Fabrication of the new drain collection trough was started. The Facility Change Form was approved.

   d. Burst Logic Modifications

      Oak Ridge National Laboratory (ORNL) reviewed the final design and will transmit written comments. Installation was started, and the System Operation (SO) test specification was written.

   e. Resin Cleanout

      Detailed Operating Procedure (DOP) 3.1.23 (Resin Cleanout) has been approved and issued. The TAN Hot Cell procedure was in approval cycle but has been delayed due to the need at PBF to utilize the cleanup resin for Test RIA 1-4, thereby increasing the U^{235} content and radiation levels of the resin. This procedure will have to be re-written. A review of the impact of this increase is being performed. Comments on the packaging method have been resolved and concurred with by Safety Division. However, Waste Management Operations (WMO) requested some further recommendations which are being considered.

      The acid cleaning effort has been discontinued in favor of an inspection program. Change in approach is due to a lower risk with respect to plant damage and increased support of inspection by EG&G Idaho Safety and Department of Energy (DOE) personnel. The inspection program has been outlined, some equipment ordered, and DOPs are being prepared.

f. Reactor Building Remote Plant Alarm Indication

Installation and checkout were completed. This job is complete.

g. Control Room Emergency Fluorescent Lighting

The design to install emergency fluorescent lighting in the control room was initiated. The Facility Change Form (FCF) was prepared.

h. In-pile Tube (IPT) Head Shim

Vendor-recommended backup rings of Ethylene Polypropylene were received to replace the presently used "N300" material. An additional study is being made to determine if the small "plug" welds for use in attaching a ring shim will cause microcracking in the hardened Inconel 718 head material. These shims would minimize O-ring extension during blowdown transients.

i. Utility Cooling Water System

The Engineering Design File (EDF) for the design analysis phase of this task was completed.

j. Fission Product Detection System (FPDS) Flowmeter Modification

The drag disk flowmeters received in March were not acceptable due to incorrect material and end fittings supplied by the vendor. Negotiations are underway to obtain the correct parts, and a vendor corrective action study is underway.

k. Sulfur Dioxide (SO_2) System Modification

Design was completed, all materials were ordered, and the Site Work Release (SWR) was prepared.

l. Hour Meter for Secondary Coolant Pump

The design to add a running-time hour meter to the secondary coolant pump control switchgear was completed.

m. Inspection of Loop and Hot Waste Components

For the inspection program, PBF will open and inspect the loop acoustic filters, pressurizer, strainer, IPT, and knockout drum (KOD) as well as the Hot Waste (HW) 1000-gallon tank and 10,000-gallon tank. Samples will be taken from the tanks and analyzed. If the fuel is found, the tanks will be cleaned. Any debris found in the other components will be cleaned out and analyzed. Inspection will be performed by camera and video tape. Cleaning will be accomplished with a wet/dry vacuum cleaner. Both camera and vacuum cleaner were ordered. DOPs for entry, inspection, cleaning, and closing up components and tanks were started.

n. Specification for Loop Heaters

Preparation of a specification for procurement of additional loop heaters was completed.

o. Plant and Instrument Air Compressor Replacement

Design was started for a new plant and instrument air compressor.

4. Scheduled Milestones for April 1980

None.

5. Summary of Work to be Performed in April 1980

a. Core Inlet Bellows Rupture Detection Probe

The probe will be installed, during t' next plant availability period, for operational evaluation.

b. Red Mike Evacuation System Expansion

The SPERT II Red Mike expansion installation will be completed in April.

c. Burst Logic Modification

Installation and SO testing will be completed. Changes for remaining documentation will be prepared.

d. LOCA Utilitie. Rubber Hose Replacement

Installation is scheduled after Test RIA 1-4.

e. Control Room Emergency Fluorescent Lighting

Parts will be ordered and the SWR will be issued. Installation will start, pending materials availability. Changes will be prepared for remaining documentation.

f. Reactor Level Instrumentation Modification

The design for modification to ensure control and indication of reactor vessel water level during power outages will be started.

g. Loop Performance Voltage Regulator Unit

An investigation will be completed (assuming plant availability) to determine feasibility, cost, and schedule to obtain a volts/Hertz voltage regulator for the motor-generator set to permit operation of the loop pump down to 15 Hz.

h. FPDS Flowmeter Modification

Installation will be rescheduled pending delivery of acceptable parts, or replacment of flowmeters.

i. Resin Cleanout

Start of resin removal is scheduled for April 28, 1980. Approval for use of the loop strainer and resin cask transport plan is expected. Approval for resin packaging method will be obtained, as well as approval of the TAN Hot Cell work package. Additional equipment required by TAN to support increased U^{235} content and increased radiation levels in resin will be designed and fabricated.

j. Drain Collection Trough

The new drain collection trough will be fabricated in April.

k. SO_2 System Modification

Installation is scheduled to begin in May.

l. Inspection of Loop and Hot Waste Components

Upon receipt of the TV camera, inspectors will be familiarized with the equipment. Material will be received and equipment fabricated to support component and tank inspection and cleaning. Inspection and cleaning will be started.

m. Hour Meter for Secondary Coolant Pump

Installation will be completed in April.

n. Warm Waste Discharge Valve Administrative Control Modification

Design and installation will be completed in April to add an administratively controlled keyswitch for the warm waste discharge bypass valve.

6. Problems and Potential Problems

If there are additional scope increases in the cleanup and inspection project, rescheduling may be required.

1. 189a A6057 - PBF Operations

2. Scheduled Milestones for March 1980

Node	Description	Scheduled Date	Date Completed
TA-614	PR-1 Test	03-20-80	02-22-80

3. Summary of Work Performed in March 1980

a. PBF Operations

The work performed during this reporting period was primarily associated with plant preparations and conduct of the Chamber Calibration Test (RE-1).

Installation of the RE-1 test train and final hydrostatic leak testing, plant and equipment startup for nuclear operations, and performance of Test RE-1 were completed. Following plant and equipment shutdown, the RE-1 test train was removed from the in-pile tube (IPT). Assembly and installation of the RIA 1-4 test train into the IPT were completed.

b. PBF Operations Support

Preventive maintenance (PM) and in-service examinations for March were completed and the April PM inspections are 80% complete. Corrective maintenance for this reporting period includes the completion of various plant deficiency corrections and building cleanup and improvement tasks. In addition, PBF Maintenance Engineering supported the planning and development of procedures for the loop resin changeout and fuel inspection work.

The Test RIA 1-4 data acquisition specification log sheets and the data acquisition and reduction system (DARS) directory have been completed. Following Test RIA 1-4, the DARS will be available for data reduction and applying qualification corrections. The LOC-5A, LOC-5B, and LOC-5C Test Series data corrections are locked in the DARS disk memory and will be ready for processing as soon as the schedule permits. The data reduction for Tests PR-1, RE-1, and RIA 1-4 are scheduled to be processed following performance of Test RIA 1-4. The test independent uncertainty analysis is in the process of final technical review and editing for the new formal report double-column format. The PBF Monitor and Timer Specification was cancelled due to bids exceeding available funds.

The Experiment Operating Procedure (EOP-058) for the performance of Test RE-1 was issued and a draft of EOP-059 for Test RIA 1-4 was completed. Chapter 30, PBF Data Systems, of the Plant Operating Manual (POM) was issued and various document revision requests (DRRs) were processed to support plant operation.

4. Scheduled Milestones for April 1980

Node	Description	Scheduled Date	Date Completed
ND-770	Control Room Mod.	04-01-80	01-08-80C

5. Summary of Work to be Performed in April 1980

Perform Test RIA 1-4.

6. Problems and Potential Problems

None.

1. 189a A6095 - Major Modifications

2. Scheduled Milestones for March 1980

   None.

3. Summary of Work Performed in March 1980

   The in-pile tube (IPT) has been transported to a new vendor to perform the nozzle weld repairs. The second nozzle has been removed and welder qualification is in progress. Completion of the repair is scheduled for the end of June 1980. EG&G Idaho is considering alternatives for completion of the IPT.

4. Scheduled Milestones for April 1980

   None.

5. Summary of Work to be Performed in April 1980

   a. In-pile Tube Spare

      Welder qualification and machining of weld preparations should be completed.

6. Problems and Potential Problems

   None.

1. 189a A6274 - PBF Cooperative Research - Austria

2. Scheduled Milestones for March 1980

None.

3. Summary of Work Performed in March 1980

The internal LVDT acceptance test procedures were not completed and approved by the end of March, but approval is expected the first week of April.

An evaluation was completed comparing the new NATEL signal conditioners with the old SRC units presently used for LVDT signal conditioning at PBF. Both an internal and external type LVDT were used in the comparison. The new units can be used as direct replacements of the SRC units.

A work release was issued to the Instrument Systems Application group for reviewing the HEDL centerline thermocouple temperature gradient test report. The purpose of the review is to make recommendations or comments for changing the present acceptance tests and calibration procedures for the PBF fuel centerline thermocouples.

4. Scheduled Milestones for April 1980

None.

5. Summary of Work to be Performed in April 1980

Acceptance tests of the PBF internal LVDT will commence.

The review of the HEDL report on PBF centerline thermocouples will be completed and a letter of comments and recommendations will be issued.

6. Problems and Potential Problems

None.

1. 189a A6275 - Electrical Heater Rod Evaluation Studies

2. Scheduled Milestones for March 1980

None.

3. Summary of Work Performed in March 1980

a. Electrical Heater Rod Performance Review

Detailed calculations were identified to evaluate current heat transfer models which need to be upgraded to predict both nuclear and electric heater rod responses--particularly during fast cooling transients similar to the rod quenches observed in the LOFT L2-2 and L2-3 experiments.

b. IFA-511 Nuclear and Electrical Heater Rod Experiments

The fast scan data tape for the IFA-511-II low temperature test series has been successfully processed, and analysis of the temperature data has begun. Initial preparation of input for the TRAC computer code model of IFA-511-II was completed and debugging of the input started. Familiarization with the RELAP5 code and input preparation for this code has begun.

The components for the electric power control system for the programmed power portion of the IFA-511-III tests have been obtained and satisfactorily tested on the hybrid computer at the INEL.

c. COSIMA Testing

Comparison of RELAP4 calculations for COSIMA tests with the actual COSIMA and LOFT test results began.

d. Swiss Reflood Tests

Swiss heater rods were requested and initial plans are being made for Blowdown Facility tests to compare the Swiss rods with Semiscale rods. The NEPTUN rods will be sent by June; however, the Blowdown Facility tests may not be run until fall because of high priority tests being scheduled.

Liaison was made concerning the NEPTUN program document and proposed NEPTUN tests. The Swiss have received the program document and are writing their response, which will be received during April.

4. Scheduled Milestones for April 1980

None.

5. Summary of Work to be Performed in April 1980

a. Electrical Heater Rod Performance Review

Initial code (RELAP/MOD6) calculations will be made with upgraded heat transfer models to assess baseline nuclear rod response during rod quench.

Initial scoping calculations will be made to compare LOFT and Semiscale rod thermal response just prior to rod quench for L2-2, L2-3, and Blowdown Facility quench tests.

b. IFA-511 Nuclear and Electrical Heater Rod Experiments

TRAC calculations should be possible on a routine basis, and the first RELAP5 calculation should be completed. It is planned to compare results of calculations using TRAC and RELAP5 for an IFA-511-II test in terms of accuracy and cost.

c. COSIMA Testing

The results of the RELAP4 calculations for the LOFT L2-3 experiment will be analyzed and sent to KfK. A preliminary report covering the first experiments with and without LOFT thermocouples on the SIM heater rod is expected to be received from KfK.

d. Swiss Reflood Tests

LOFT-type cladding thermocouples will be requested and fabrication will be initiated.

LOFT-NEPTUN Program liaison will continue.

6. Problems and Potential Problems

None.

THERMAL FUELS BEHAVIOR PROGRAM
CHANGE CONTROL BOARD ACTIONS

CHANGE CONTROL BOARD ACTIONS

(Dollars in Thousands)

CCB NUMBER	DESCRIPTION	FY-80	FY-81	FY-1982/Beyond	TOTAL APPROVED ACTION
80-01	FY-1980 Baseline	234			234
80-03	PR-1 Test Train	6			6
80-02	RELAP5/MOD1 Development Plan	90			40
80-05	PCM-7 Test Train	6			6
80-06	LOC-5B Test Train Failure Investigation	9			9
80-08	RIA 1-4 EPR	9			9
80-09	Discretionary Reserve	37			37
80-10	Transport Cask Support	14			14
80-11	Uncertainty Analysis	11			11
80-12	RIA Energy Measurement	10	<11>		1
80-14	LOC5A, B and C	<4>	5		1
80-15	Small Break LOCA Test Program	77			77
80-18	Loop Pump Bypass		61		61
80-20	PBF Facility Improvements	112			112
80-38	Baseline 80-02 Rev. 1	<740>			<740>

< > return to Management Reserve

CHANGE CONTROL BOARD STATUS

COST ACCOUNT	CCB #	DESCRIPTION	STATUS	DATE
4242B62	80-17	Loop Clean up	Dissapproved	03/31/80
4242B14	80-18	Loop Pump Bypass	Approved	03/31/80
4233D00	80-20	PBF Facility Improvements	Approved	03/31/80
4212C52	80-29	MTR Upgrade	Pending	03/31/80
4221C11	80-21	In Pile Tube	Pending	03/31/80
42XXXXX	80-22	Baseline 80-02	Dissapproved	03/31/80
4212G11	80-25	Data Qualification	Pending	03/31/80
4233D00	80-26	PBF Diesel Overhaul	Pending	03/31/80
4219C11	80-27	OPT 1-2 ESD	Pending	03/31/80
421CA00	80-28	Feasibility Study	Pending	03/31/80
4244300	80-30	Fault TREE Analysis	Pending	03/31/80
4219B20	80-31	OPT 1-1 T. T. Revision	Pending	03/31/80
421AB46	80-32	PR-1 Data Qualification	Pending	03/31/80
42XXXXX	80-38	Baseline #80-2 Revision #1	Approved	03/31/80

FY-1980 BUDGET STATUS REPORT

(Dollars in Thousands)

189a NUMBER	NEW 189a TOTAL
A6041	6,930
A6044	2,026
A6057	4,319
A6095	91
A6274	19
A6281	29
TOTAL	13,414
Management Reserve	1,002
Discretionary Reserve	74

WRRD MONTHLY REPORT FOR

MARCH 1980

3D PROGRAM

R. A. DaBell
Plans & Budgets Representative

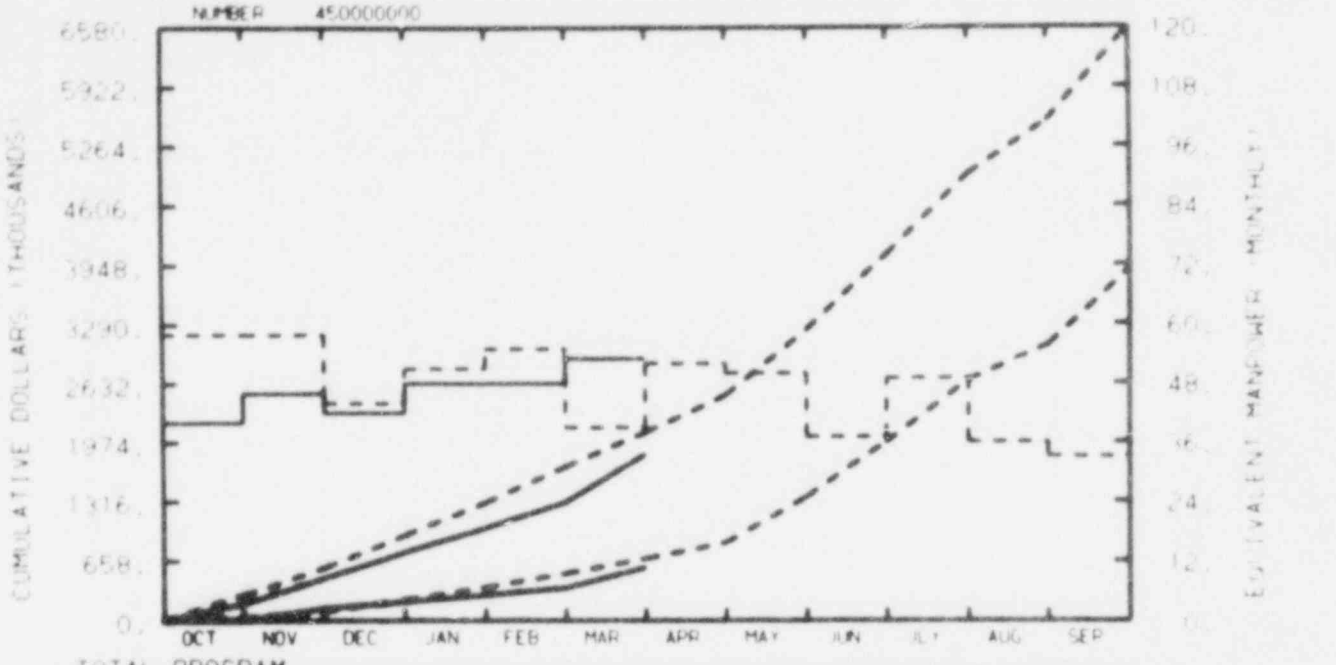
R. E. Rice, Acting Manager
Engineering Support Projects

3-D

COST SUMMARY & COMMENTS

EG&G IDAHO INC.

3-D PROGRAM



TOTAL PROGRAM

BUDGET	284	579	937	1299	1694	2083	2495	3229	4061	4950	5545	6579
ACTUAL	185	467	749	1016	1392	1927						

MATERIAL

BUDGET	31	103	225	364	517	681	853	1359	1972	2668	3054	3903
ACTUAL	9	134	206	278	358	583						

MANPOWER

BUDGET	58	58	44	51	55	39	52	50	47	49	36	33
ACTUAL	40	46	42	48	48	53						

BUDGET - - - - -

ACTUAL ———

YTD VARIANCE: 156 (7%)

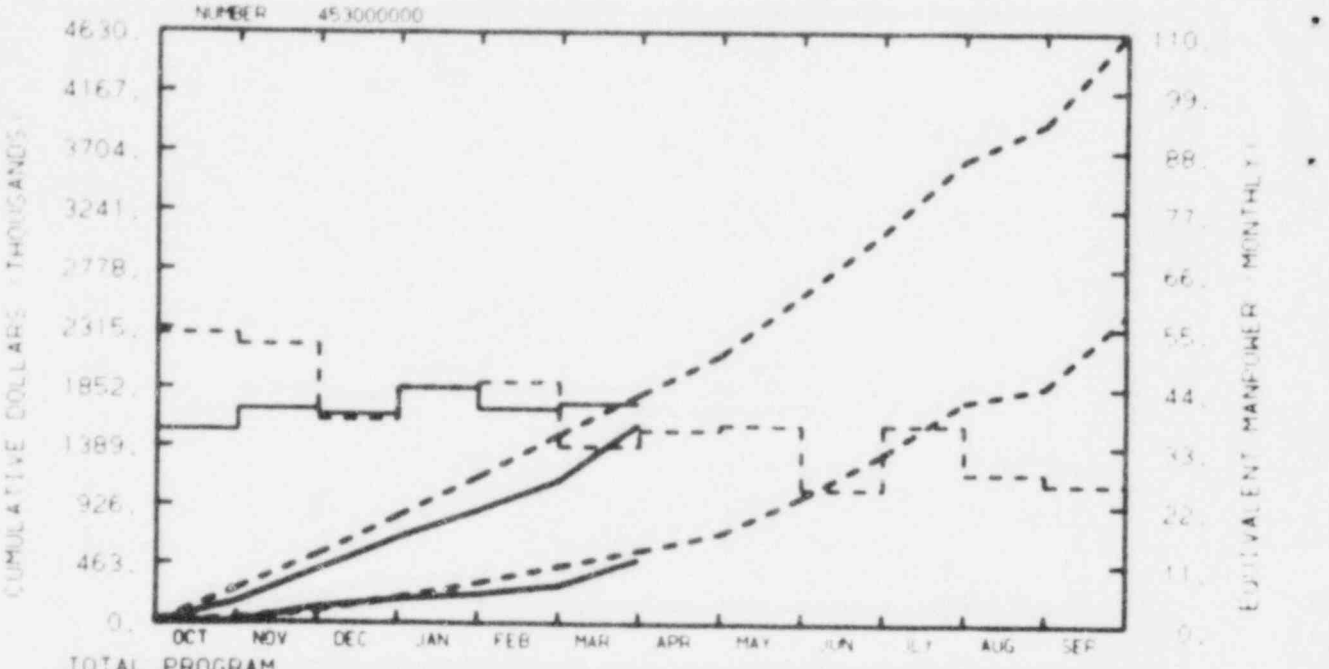
Individual cost graphs will give individual explanations.

Explanations for major 189a's will be made if the variance exceeds $25 K. Minor 189a graphs will explain variance of over $10 K.

RESPONSIBLE
MANAGER
R E RICE

EG&G IDAHO INC.

3-D EXPERIMENT PROJECT - A6100



TOTAL PROGRAM

BUDGET	266	532	837	1147	1481	1799	2108	2579	3071	3638	3917	4627
ACTUAL	164	415	655	883	1211	1654						

MATERIAL

BUDGET	31	96	199	314	445	571	703	993	1333	1745	1860	2426
ACTUAL	7	125	186	228	295	502						

MANPOWER

BUDGET	54	52	38	44	45	43	36	37	45	47	28	26
ACTUAL	36	40	39	44	40	41						

A6100

YTD VARIANCE: 145 (8%)

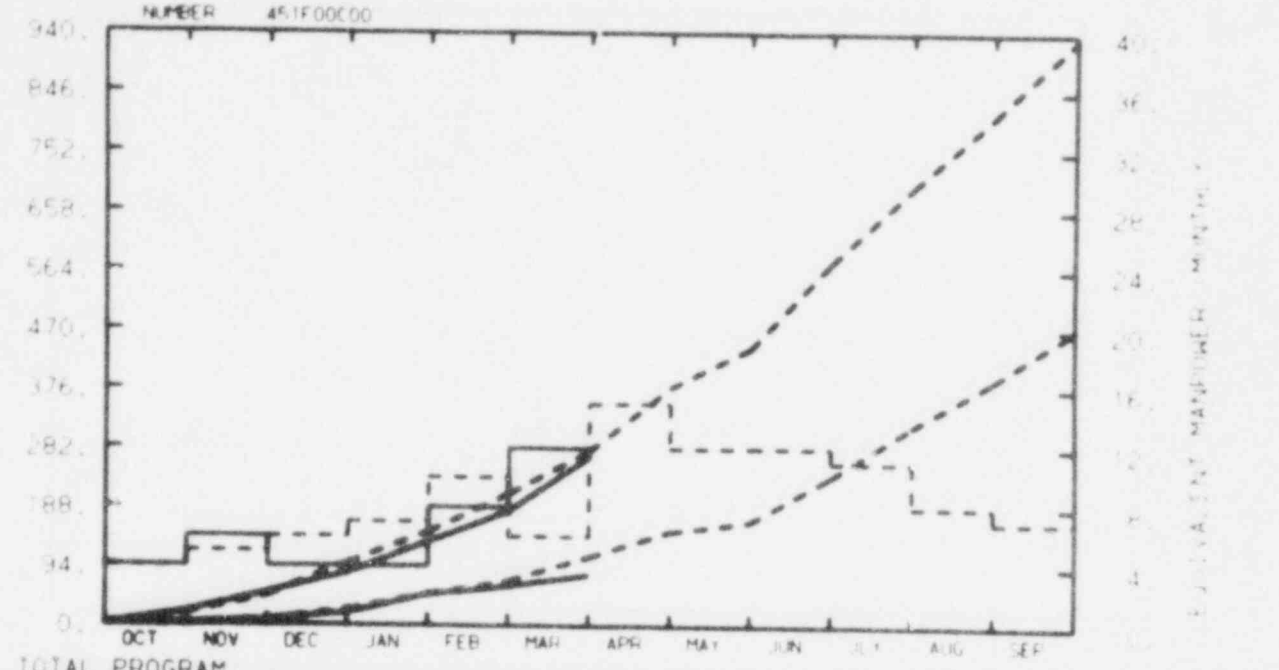
The reason for the underrun is due primarily to extended start dates for both UPTF and CCTF.

The UPTF instrumentation projects are 125 K underrun, and the CCTF II instrumentation project is 20 K underrun. UPTF and CCTF have revised delivery dates which are approximately six months later than originally planned.

The rebaselining effort is ongoing and is planned to be completed by the end of May.

EG&G IDAHO INC.

FLUID DISTRIBUTION GRIDS - A6282



TOTAL PROGRAM

BUDGET	18	47	99	149	208	277	379	440	577	697	809	931
ACTUAL	20	52	83	133	181	268						

MATERIAL

BUDGET	0	7	25	49	71	109	150	165	237	317	390	472
ACTUAL	2	9	19	49	62	81						

MANPOWER

BUDGET	4	5	6	7	10	6	15	12	12	11	8	7
ACTUAL	4	6	4	4	8	12						

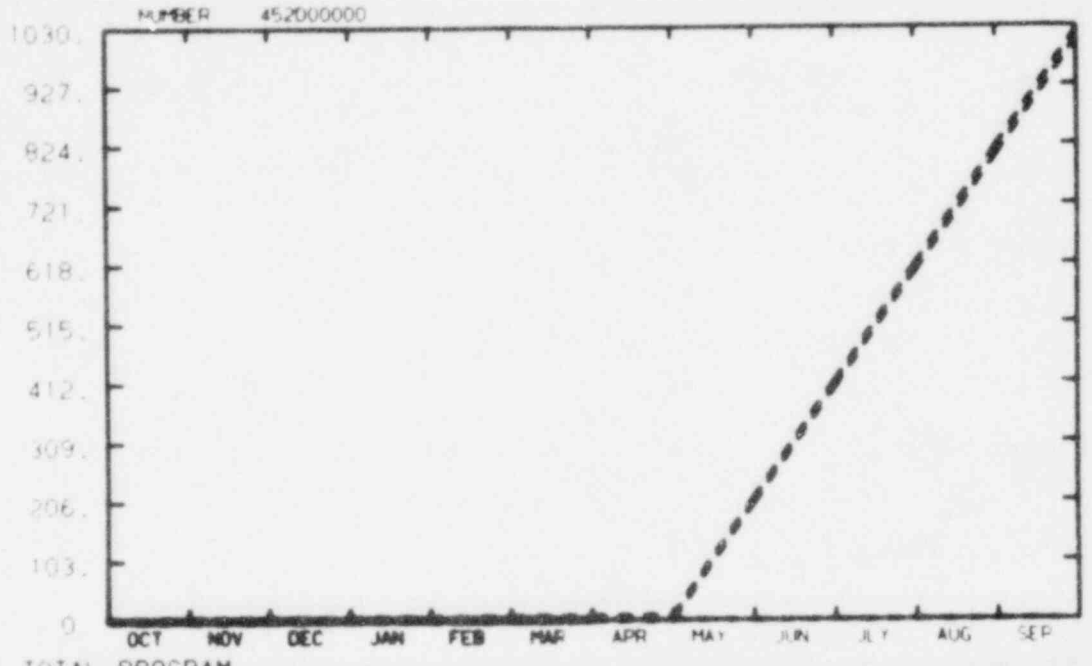
A6282

YTD VARIANCE: 9 (3%)

RESPONSIBLE
MANAGER
R E RICE

EG&G IDAHO INC.

UPTF DATA SYSTEM - A6289



(CUMULATIVE DOLLARS - THOUSANDS)

EQUIVALENT MANPOWER MONTHS

TOTAL PROGRAM

BUDGET	0	0	0	3	5	6	8	210	413	615	819	1022
ACTUAL	0	0	0	0	0	0						

MATERIAL

BUDGET	0	0	0	1	1	1	1	201	402	603	804	1005
ACTUAL	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						

BUDGET - - -

ACTUAL ———

A6289

YTD VARIANCE: 6 (1%)

3-D

CURRENT WORKING SCHEDULE

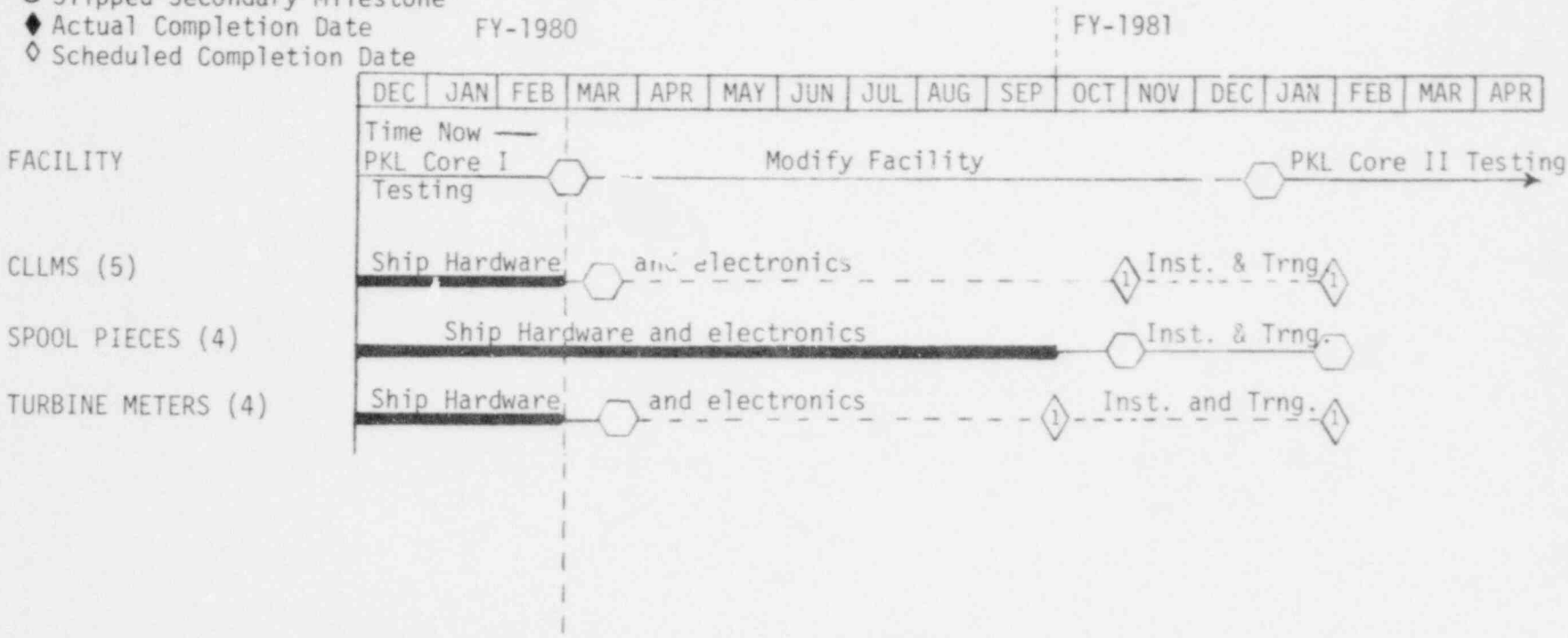
LEGEND

- ● Completed Major Milestone
- ⬡ Scheduled Major Milestone
- ⬡ Slipped Major Milestone
- ● Completed Secondary Milestone
- ○ Scheduled Secondary Milestone
- ⊘ Slipped Secondary Milestone
- ♦ Actual Completion Date
- ◊ Scheduled Completion Date

2D/3D EXPERIMENT PROGRAM

PKL PROJECTS

March 1980



NOTES: Allow one month from shipment dates shown for delivery to meet PKL requested schedule.

1 These milestones are to be unscheduled because PKL requirements are uncertain.

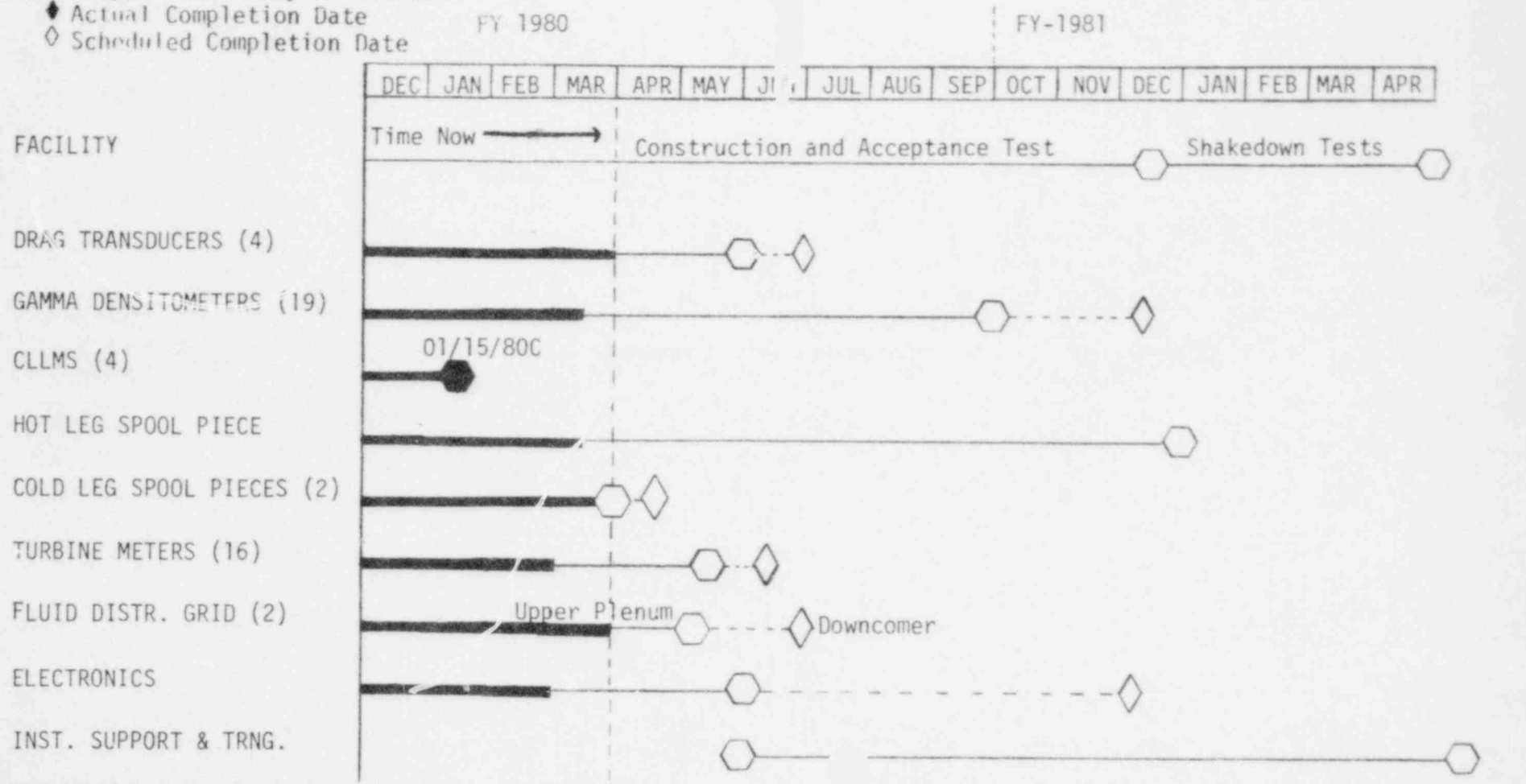
LEGEND

- Completed Major Milestone
- Scheduled Major Milestone
- Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- Slipped Secondary Milestone
- Actual Completion Date
- Scheduled Completion Date

2D/3D EXPERIMENT PROGRAM

SCTF PROJECTS

March 1980



NOTES: Allow one month from shipment dates shown for delivery to meet JAERI requested schedule.

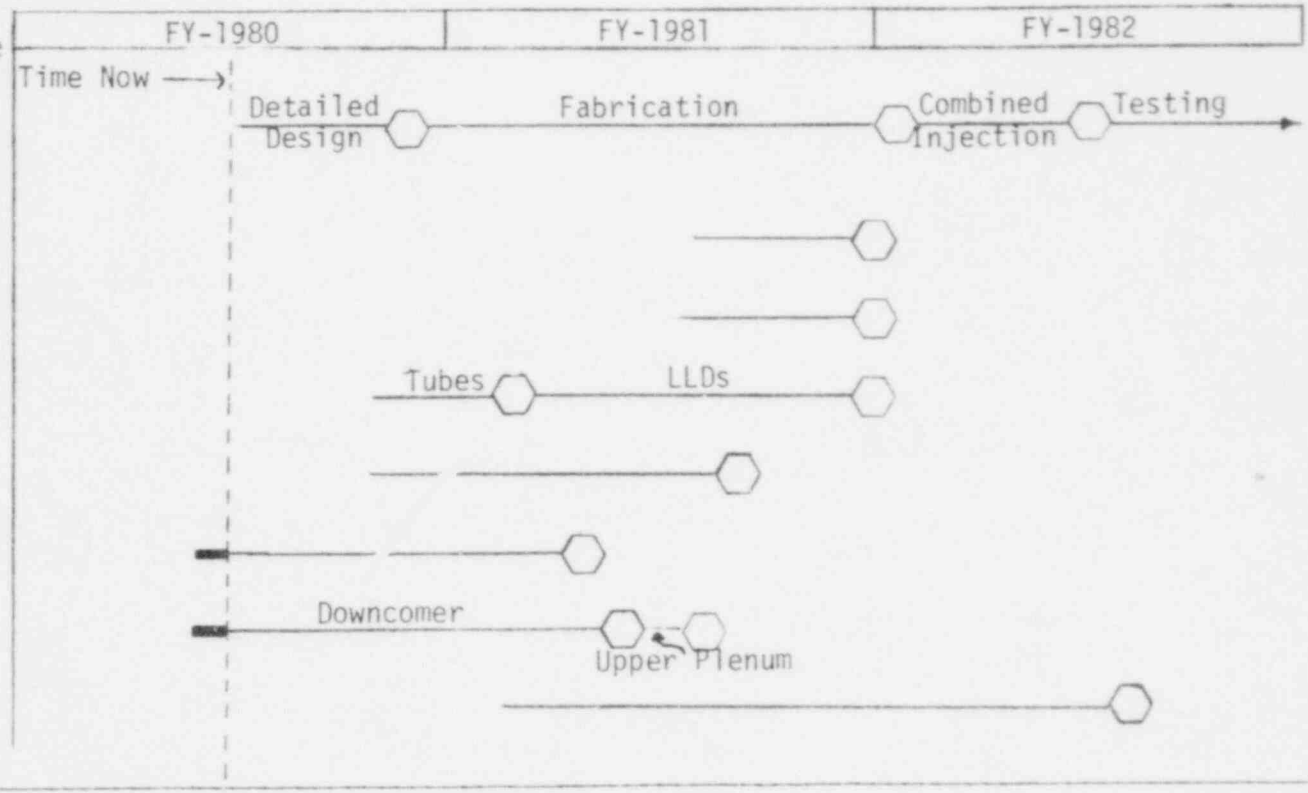
LEGEND

- Completed Major Milestone
- Scheduled Major Milestone
- Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- Slipped Secondary Milestone
- Actual Completion Date
- Scheduled Completion Date

2D/3D EXPERIMENT PROGRAM

CCTF-II PROJECTS

March 1980



NOTES: Allow one month from shipment dates shown for delivery to meet JAERI requested schedule.

Preliminary schedule - to be reviewed with JAERI in May 1980

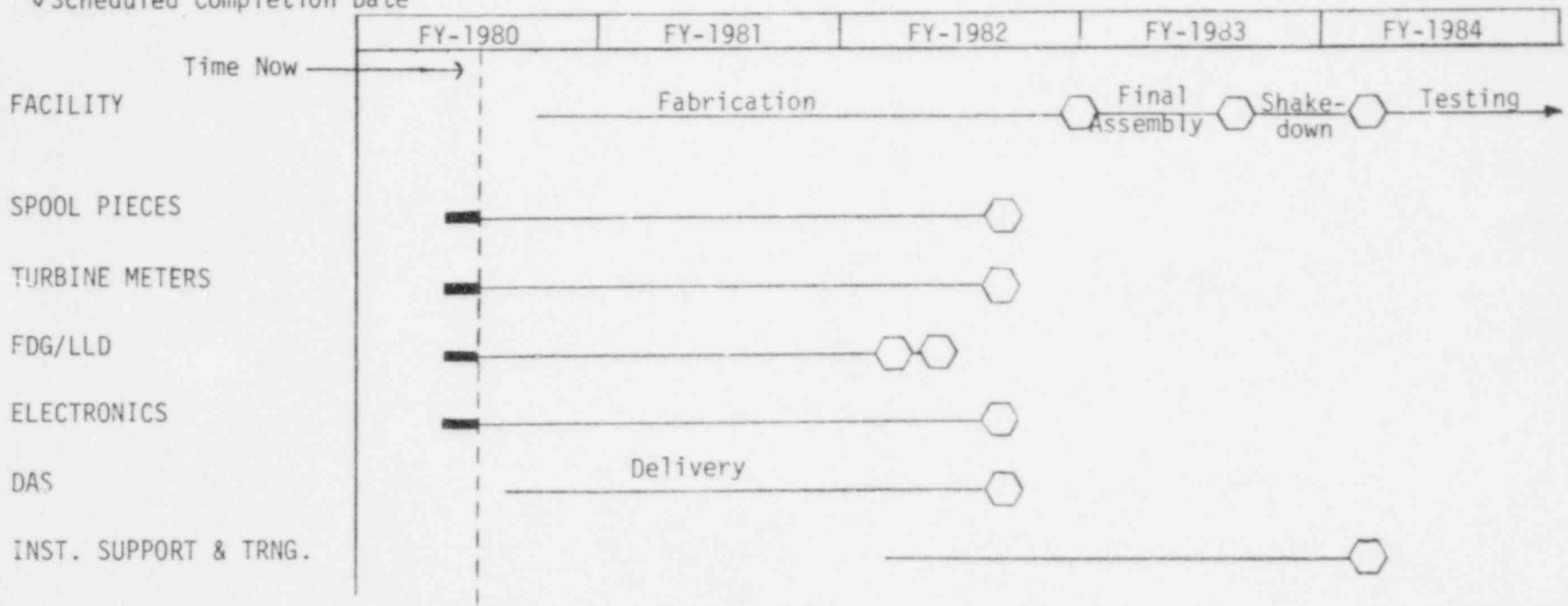
LEGEND

- ● Completed Major Milestone
- ○ Scheduled Major Milestone
- ⊘ Slipped Major Milestone
- ● Completed Secondary Milestone
- ○ Scheduled Secondary Milestone
- ⊘ Slipped Secondary Milestone
- ♦ Actual Completion Date
- ◊ Scheduled Completion Date

2D/3D EXPERIMENT PROGRAM

UPTF PROJECTS

March 1980



NOTES: Allow one month from shipment dates shown for delivery to meet UPTF requested schedule.

3-D

TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

The CCTF Spool Piece Technical Operations and Maintenance Manual was completed and distributed.

The testing summary document for the PKL spool pieces was completed. All reranged test equipment is ready for shipment to PKL.

The JAERI SCTF turbine meter package has been reviewed and approved by DOE with the subcontract being awarded to Measurements, Inc., on March 31. Fabrication and assembly of the SCTF cold leg and vent line spool pieces have been completed and acceptance testing near completion.

1. A6100 - 3D Technical Support and Instrumentation

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date
N/A	FRG PKL CLLMS - Package & ship upper plenum CLLDs and electronics	Unsched. Milestone	NCR 3DP-7-80
N/A	FRG PKL CLLMS - Technical Manual	Unsched. Milestone	NCR 3DP-7-80
N/A	JAERI CCTF Spool Pieces - Technical Manual	3-19-80E	3-21-80C NCR 3DP-2-80
N/A	FRG PKL Turbine Meters - Procure Production Units and ship	Unsched. Milestone	NCR 3DP-8-80
Page 1-93	SCTF Turbine Meters - Final Design Review	3-21-80T	NCR Pending

3. Summary of Work Performed in March 1980

a. JAERI CCTF Instruments

1. Spool Pieces - The Technical Operations and Maintenance Manual was completed and distributed.

2. CLLMS/DAS - Work on Technical Manual was continued. Test support was given to JAERI in Tokai, Japan, by EG&G technical personnel.

b. FRG PKL Instruments

1. Spool Pieces - The testing summary document was completed. All reranged test equipment is ready for shipment to PKL. It will be held at San Ramon awaiting installation support at PKL scheduled for December 1980.

2. CLLMS - Functional testing of the digital interface system was continued. During these tests, it was determined that the present system requires design modifications to make it fully operational. These design modifications and design verification testing are presently in progress.

3. Turbine Meters - Fabrication of the turbine meters is continuing.

c. JAERI SCTF Instruments

1. CLLMS - The In-Common Switching Electronics Final Design Review was held March 7, 1980. All in-common switching hardware was on schedule for delivery. Fabrication of in-common circuitry commenced. Liquid level detector (LLD) installation procedures were detailed and sent to JAERI for comment.

2. Fluid Grid - Assembly of FD grid commenced. All installation hardware was on order. A functional specification for software/ movie making was drafted. Installation drawings were released.

3. Densitometers - Densitometer and source assembly drawing package has been reviewed by Design Engineering to reduce fabrication costs. Incorporation of the recommended changes is in the progress. Beryllium sleeve detectors is ready to place. Only one bid was received for the sources. Differences between this bid and the requirements have been resolved and the subcontract is ready to be awarded. Most of the signal conditioning electronics has been procured and fabricated and is being assembled into racks.

4. Hot Leg Spool Piece - A ROM cost estimate has been received on the test simulator. Design and drafting of the simulator details is in progress and the stress analysis has been completed. The layout of the instrument penetration for the spool piece has been completed and a thermal and stress analysis has been started. Review packages for the preliminary design review have been sent out. Revisions to the functional specification based on the inputs provided by EG&G have been received from MPR Associates. A conceptual design review (informal) was held on March 13, 1980.

5. Turbine Meters - Package for procurement of the turbine meters was sent to DOE on March 7 for review and approval. DOE approved the package on March 31 and the subcontract was awarded to MI on March 31.

6. Cold Leg & Vent Line Spool Piece - The fabrication of the hardware has been completed. Assembly of the two spool pieces have been completed. The electronics were received and assembled into a system. The spool pieces are in the process of calibration in the densitometer system and acceptance testing of the complete assembly.

7. Drag Disks - An order was placed with a vendor for the fabrication of the downcomer drag transducer nozzle and flanges. They will be completed by April 15, 1980. A new design of the test spool was completed and drawing is available for fabrication. Material for test spool piece was ordered. Work is progressing on the fabrication of the nose piece and drag disk.

d. UPTF Instruments

1. Drag Disks - No Activity

2. Gamma Densitometers - Initial conceptual design sketch completed.

3. Turbine Meters - No Activity.

4. ORNL Turbine Meters - Procurement package has been sent to the prospective supplier, Measurements, Inc., for bid.

5. Spool Pieces - No Activity.

e. UPTF Data System - No Activity

f. CCTF Core II Projects - Planning for these projects has been initiated. Project engineers have been assigned and progress has been made toward developing conceptual designs. Schedules have been obtained from JAERI and are being used to allocate resources. Preparation is under way for attendance of an instrument interface meeting to be held in Tokai in mid-May.

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual Date
Page 1-93	SCTF Cold Leg & Vent Line Spool Pieces - Ship hardware	4-01-80T	
Page 1-93	SCTF Gamma Densitometer - Final Design Review	4-04-80E	6-04-80 3DP-3-80
Page 1-93	SCTF Hot Leg Spool Piece - Prel. Design Review	4-16-80E	3DP-6-80

5. Summary of Work to be Performed in April 1980

a. JAERI CCTF Instruments

1. Spool Pieces - Project complete.

2. CLLMS/DAS - Work on the Technical Manual will be continued.

b. FRG PKL Instruments

1. Spool Pieces - The testing summary document will be distributed. All work will be terminated on this project until shipment of equipment and installation support is needed next fiscal year.

2. CLLMS - The design modifications and design verification testing will be completed and the final review of the modified design will be held.

3. Turbine Meters - Procurement will continue on a low priority basis with effort shifted to SCTF and ORNL turbines.

c. JAERI SCTF Instruments

1. CLLMS - LLD installation at JAERI is tentatively scheduled for April 16, 1980. LLD installation drawings and procedures will be finalized and released. Assembly of in-common switching electronics will be underway. Technical manual revisions to CCTF-I CLLMS documentation will be drafted. Installation procedures will be drafted.

2. Fluid Grid - Assembly and test of FD grid should be completed. Software functional data specifications and design approach will be finalized.

3. Densitometers - The detector and source assembly drawing package will be completed and released, and fabrication costs requested from prospective vendors. The preamp electronics will be designed.

4. Hot Leg Spool Piece - A preliminary design review is scheduled. Enough of the thermal and stress analysis will be completed to finalize the instrument penetrations and start detail drawings. The beryllium windows will be placed on order. The drawings of the test simulator will be released.

5. Turbine Meters - Final design and prototype testing of the turbine meters will be initiated.

6. Cold Leg & Vent Line Spool Piece - The calibration of the densitometers and acceptance testing will be completed The April 1, 1980, shipment date has been delayed at the request of JAERI. The spool pieces will be packaged and shipped by April 15.

7. Drag Disks - The fabrication of the downcomer drag transducer nozzle and flanges will be completed by April 15. A new design of the test spool was completed and drawing is available for fabrication. Material for test spool piece was ordered. Work is progressing on the fabrication of the nose piece and drag disk.

d. UPTF Instruments - No activity.

1. Drag Disks - No activity

2. Densitometers - A low-key effort will be initiated to improve the initial conceptual design. This effort will be completed in May 1980.

3. Turbine Meters - No Activity

4. ORNL Turbine Meters - Proposal is due from the vendor, Measurements, Inc., on April 7.

5. Spool Pieces - No activity

e. UPTF Data System - We expect to receive a copy of the system specification (in German) and initiate translation.

f. CCTF Core II Projects - The planning effort on CCTF-II instruments will continue with focus on scheduling and costing the projects and preparing for the interface meeting in May.

6. Problems and Potential Problems - None

WRRD MONTHLY REPORT FOR

MARCH 1980

CODE DEVELOPMENT & ANALYSIS PROGRAM

S. F. Tuck
Plans & Budgets Representative

P. North, Manager

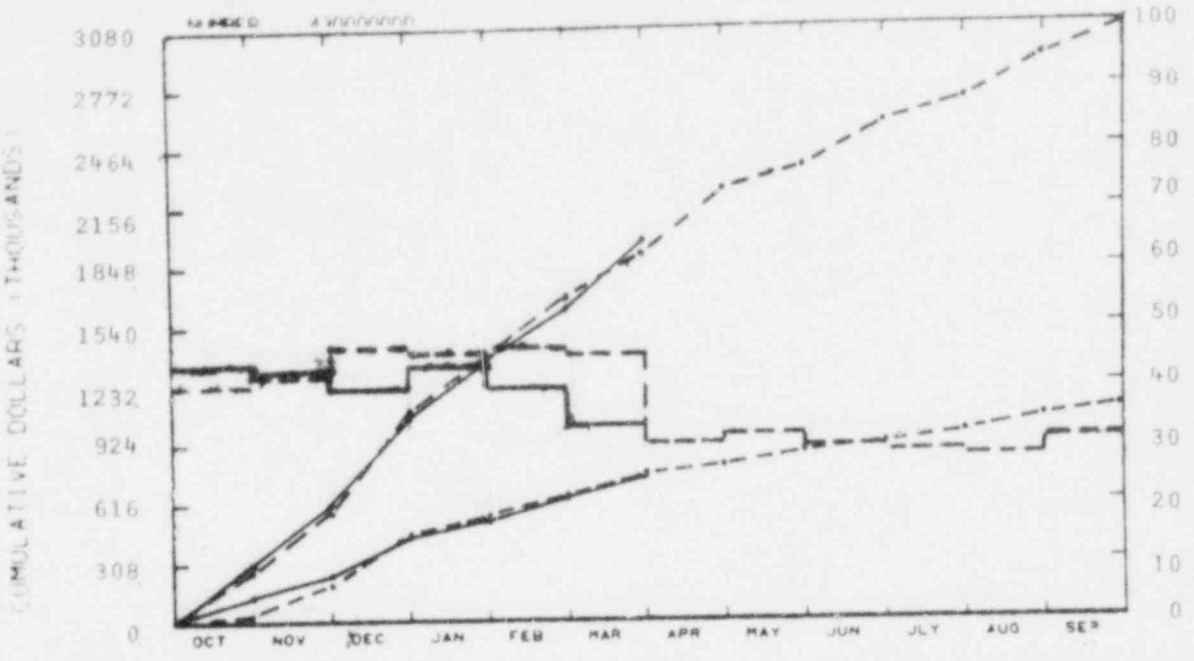
CODE DEVELOPMENT & ANALYSIS PROGRAM

COST SUMMARY & COMMENTS

MANAGER
P NORTH

EG&G IDAHO INC.

CODE DEVELOPMENT & ANALYSIS PROG



TOTAL PROGRAM

BUDGET	268	568	1032	1359	1639	1870	2117	2331	2538	2708	2896	3074
ACTUAL	302	599	1009	1315	1597	1960						

MATERIAL

BUDGET	82	199	425	530	637	701	775	840	899	947	996	1030
ACTUAL	105	230	422	525	631	691						

MANPOWER

BUDGET	40	47	48	45	46	45	37	310	294	28	27	30
ACTUAL	44	42	39	41	39	32						

BUDGET

ACTUAL

YTD VARIANCE: <90> (5%)

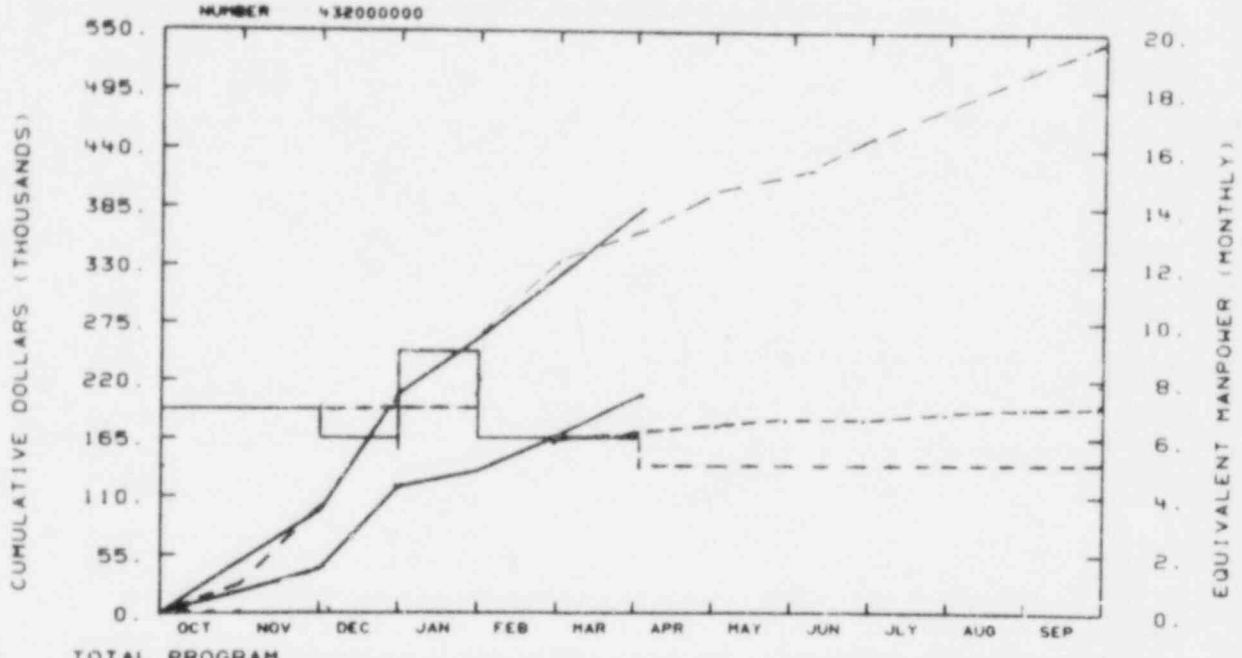
Variances explained in detail for each 189.

RESPONSIBLE
MANAGER
P NORTH

EG&G IDAHO INC.

CONTAINMENT ANALYSIS DEVELOPMENT

NUMBER 432000000



TOTAL PROGRAM

BUDGET	51	99	207	280	309	351	400	425	450	480	510	542
ACTUAL	49	96	207	260	318	387						

MATERIAL

BUDGET	5	42	51	85	113	115	132	143	148	189	194	196
ACTUAL	20	41	119	134	166	201						

MANPOWER

BUDGET	7	7	7	7	8	6	5	5	5	5	5	5
ACTUAL	7	7	8	9	8	6						

BUDGET

ACTUAL

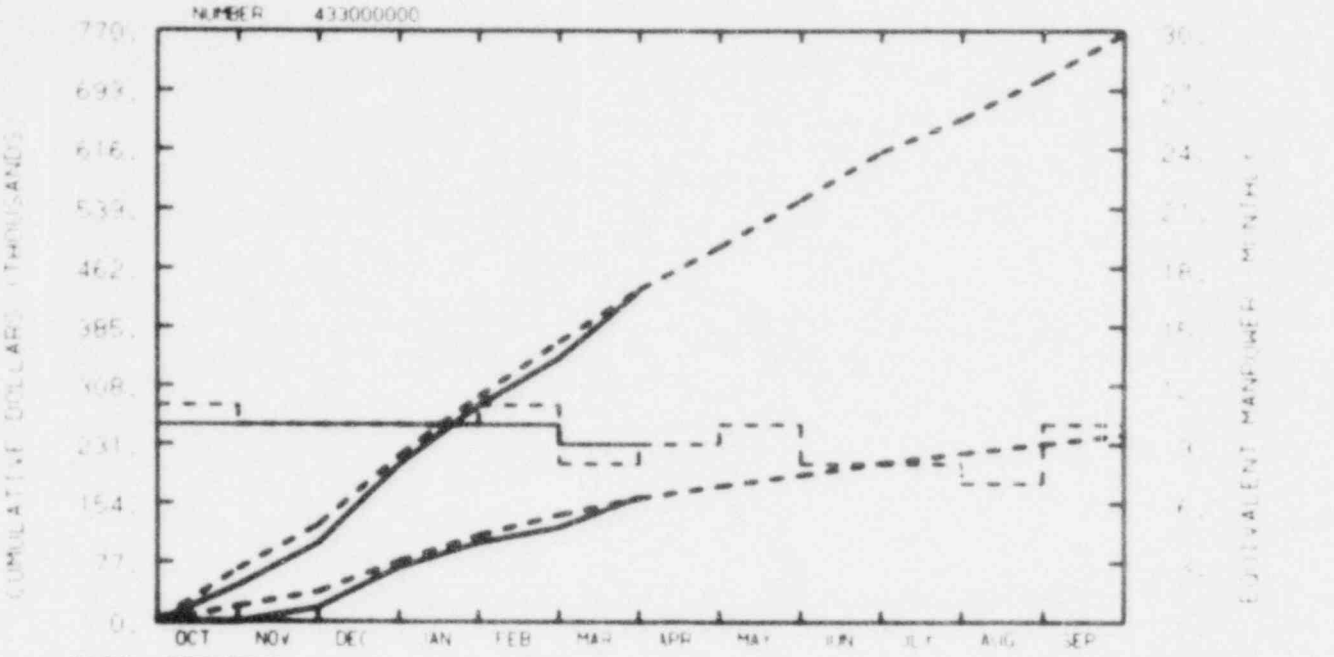
A6042

YTD VARIANCE: <36> (10%)

The extensive code running associated with checkout problem resolution has increased costs. Manpower reductions will be made during the second half of FY-1980 and only low priority computing will be employed.

EG&G IDAHO INC.

FUEL BEHAVIOR MODEL DEVELOPMENT



TOTAL PROGRAM

BUDGET	68	126	216	294	366	434	490	550	612	656	709	766
ACTUAL	46	102	205	282	344	432						

MATERIAL

BUDGET	20	39	78	112	139	161	177	191	206	219	231	244
ACTUAL	0	18	70	103	123	62						

MANPOWER

BUDGET	11	10	10	10	11	8	9	10	8	8	7	10
ACTUAL	10	10	10	10	10	9						

BUDGET

ACTUAL

A6050

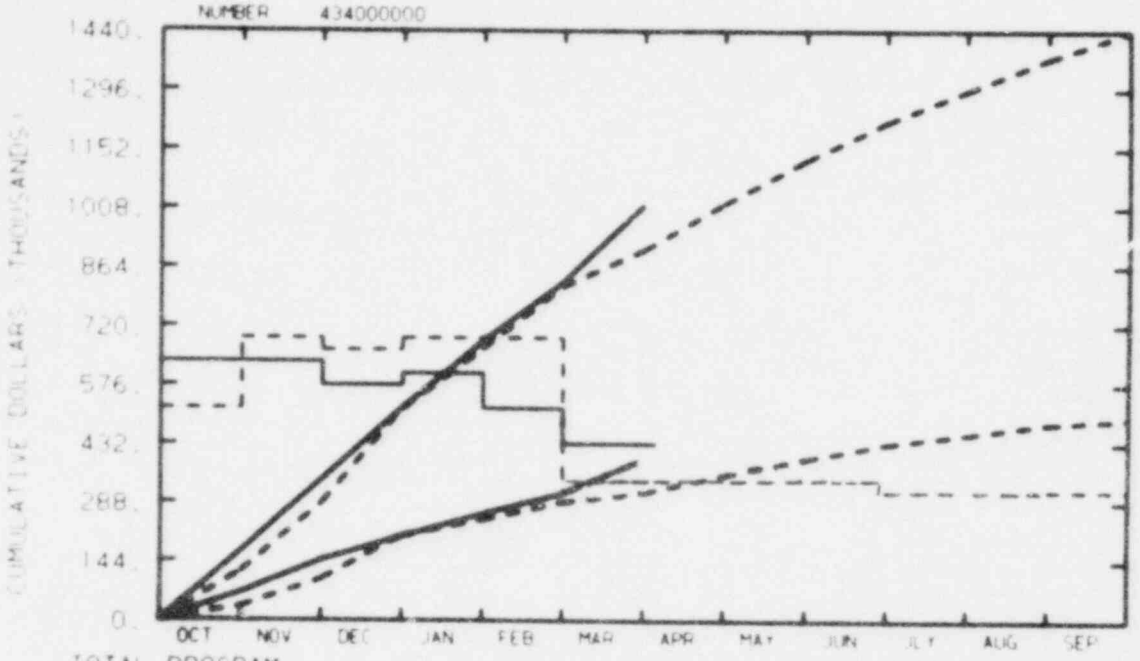
YTD VARIANCE: 2

RESPONSIBLE
MANAGER
F. NORTH

EG&G IDAHO INC.

LOSS OF COOLANT ACCIDENT ANALY

NUMBER 434000000



TOTAL PROGRAM

BUDGET	119	286	518	665	817	935	1019	1125	1219	1295	1373	1439
ACTUAL	168	344	520	684	827	1016						

MATERIAL

BUDGET	33	100	206	245	288	312	354	395	431	455	481	494
ACTUAL	67	147	205	259	311	194						

MANPOWER

BUDGET	18	24	23	24	24	12	12	12	12	11	11	11
ACTUAL	22	22	20	21	18	15						

BUDGET

ACTUAL

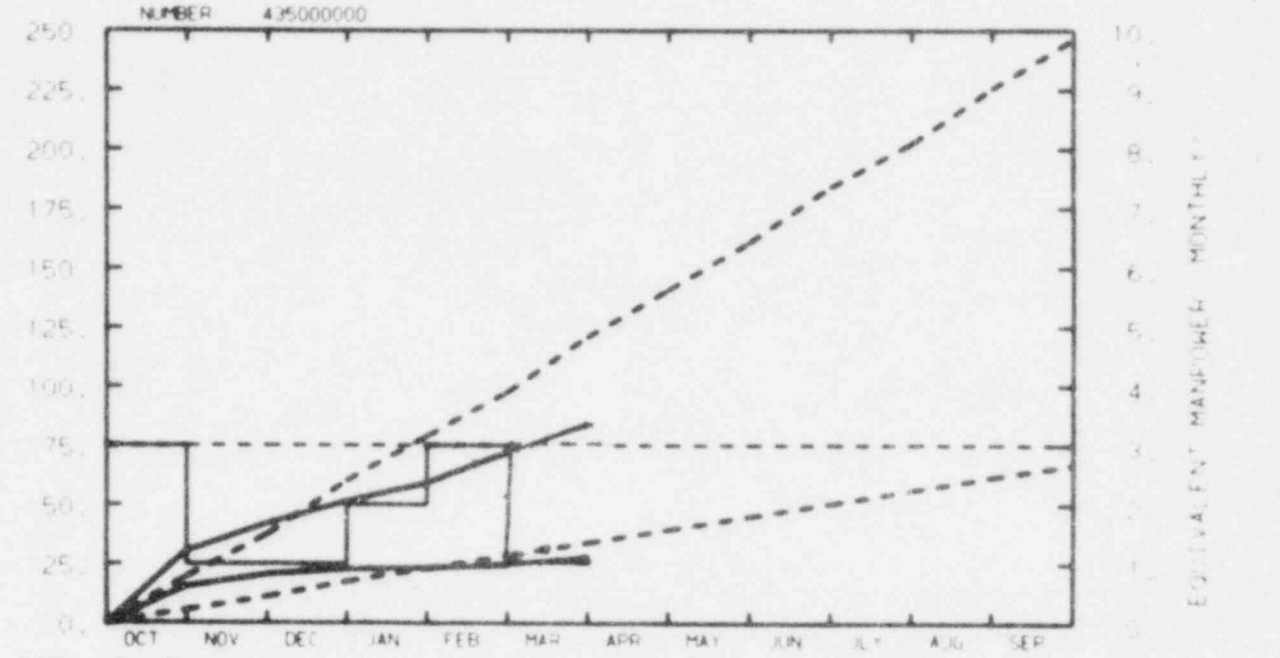
A6052

YTD VARIANCE: <111> (12%)

$94K of the $111K overrun is due to extension of the RELAP4/MOD7 checkout. The checkout is now complete. The $300K supplemental funding agreed with NRC and DOE-ID for A6052 will cover the overrun. If the supplemental funds are not made available by June 1, 1980, adjustments will be made in the TRAC scheduling to provide a cost recovery.

EG&G IDAHO INC.

CORRELATION VERIFICATION



TOTAL PROGRAM

BUDGET	20	37	60	79	98	121	141	161	184	204	226	246
ACTUAL	30	42	51	59	72	81						

MATERIAL

BUDGET	6	11	17	23	28	34	39	45	50	56	61	67
ACTUAL	15	21	23	23	24	26						

MANPOWER

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

BUDGET

ACTUAL

A6273

YTD VARIANCE: 40 (33%)

Only NRC assistance tasks are currently being worked under this 189a. The present budget for these tasks is 123K. If these tasks alone are accomplished during this fiscal year, the resulting costs would be about 120K below budget. NRC is aware of this and funding adjustments are in process.

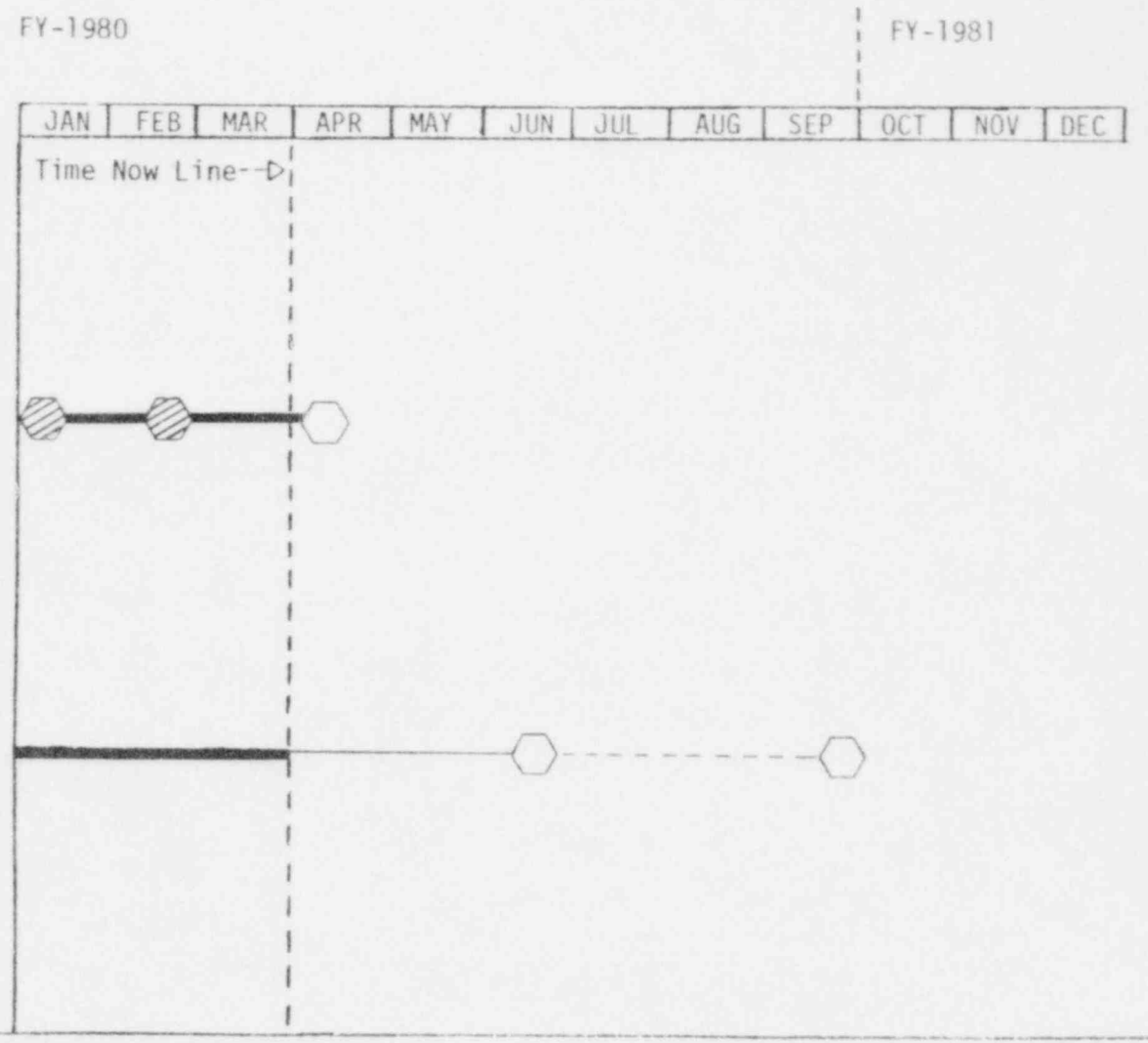
CODE DEVELOPMENT & ANALYSIS PROGRAM

CURRENT WORKING SCHEDULE

LEGEND

- Completed Major Milestone
- Scheduled Major Milestone
- Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- Slipped Secondary Milestone
- Actual Completion Date
- Scheduled Completion Date

RELAP4/MOD7 INTEGRAL CODE DEVELOPMENT AND CHECKOUT



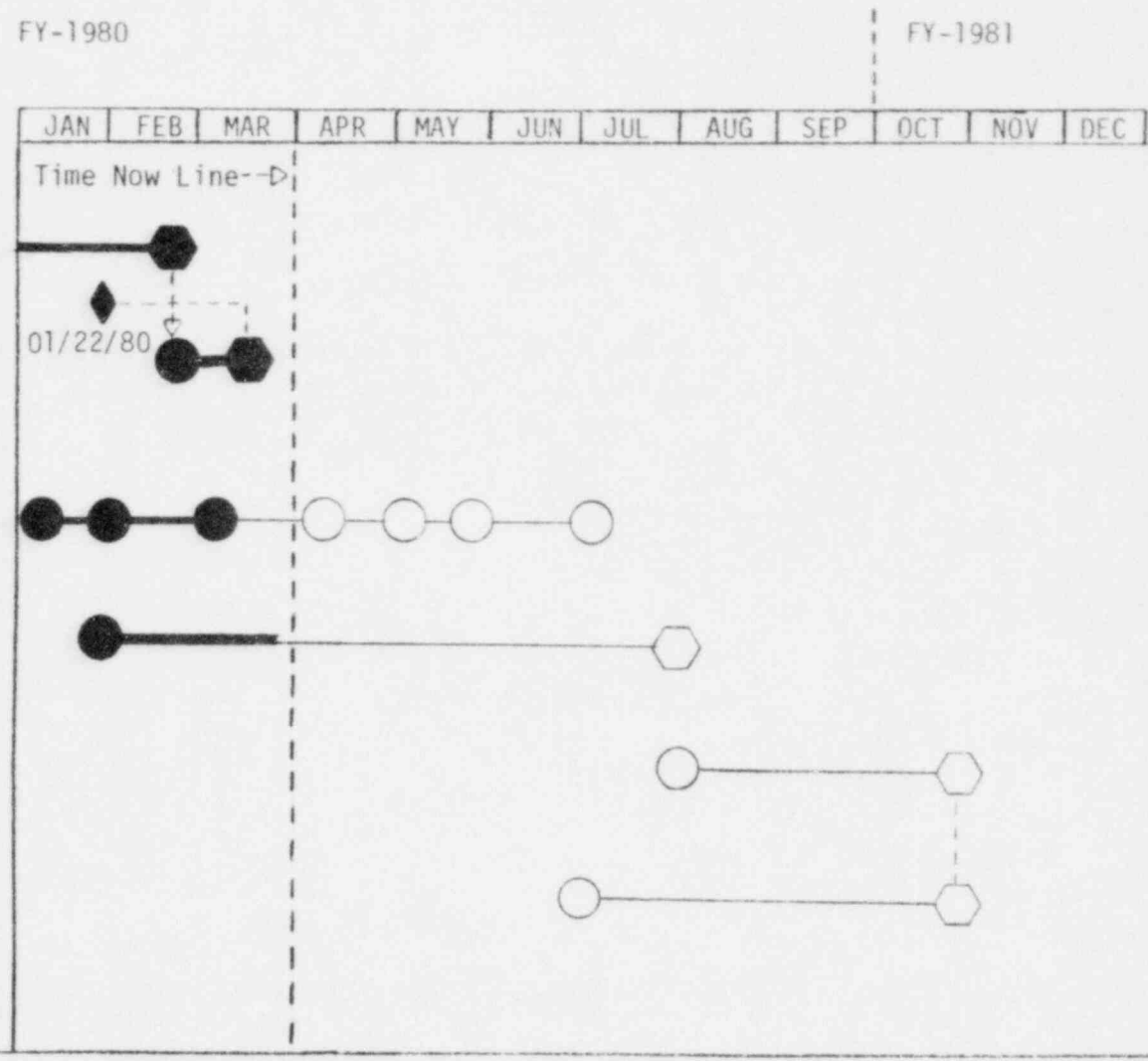
NOTES:

LEGEND

- ● Completed Major Milestone
- ○ Scheduled Major Milestone
- ⊘ Slipped Major Milestone
- ● Completed Secondary Milestone
- ○ Scheduled Secondary Milestone
- ⊘ Slipped Secondary Milestone
- ♦ Actual Completion Date
- ◊ Scheduled Completion Date

CODE DEVELOPMENT AND ANALYSIS PROGRAM March 1980

TRAC-BDO DEVELOPMENT

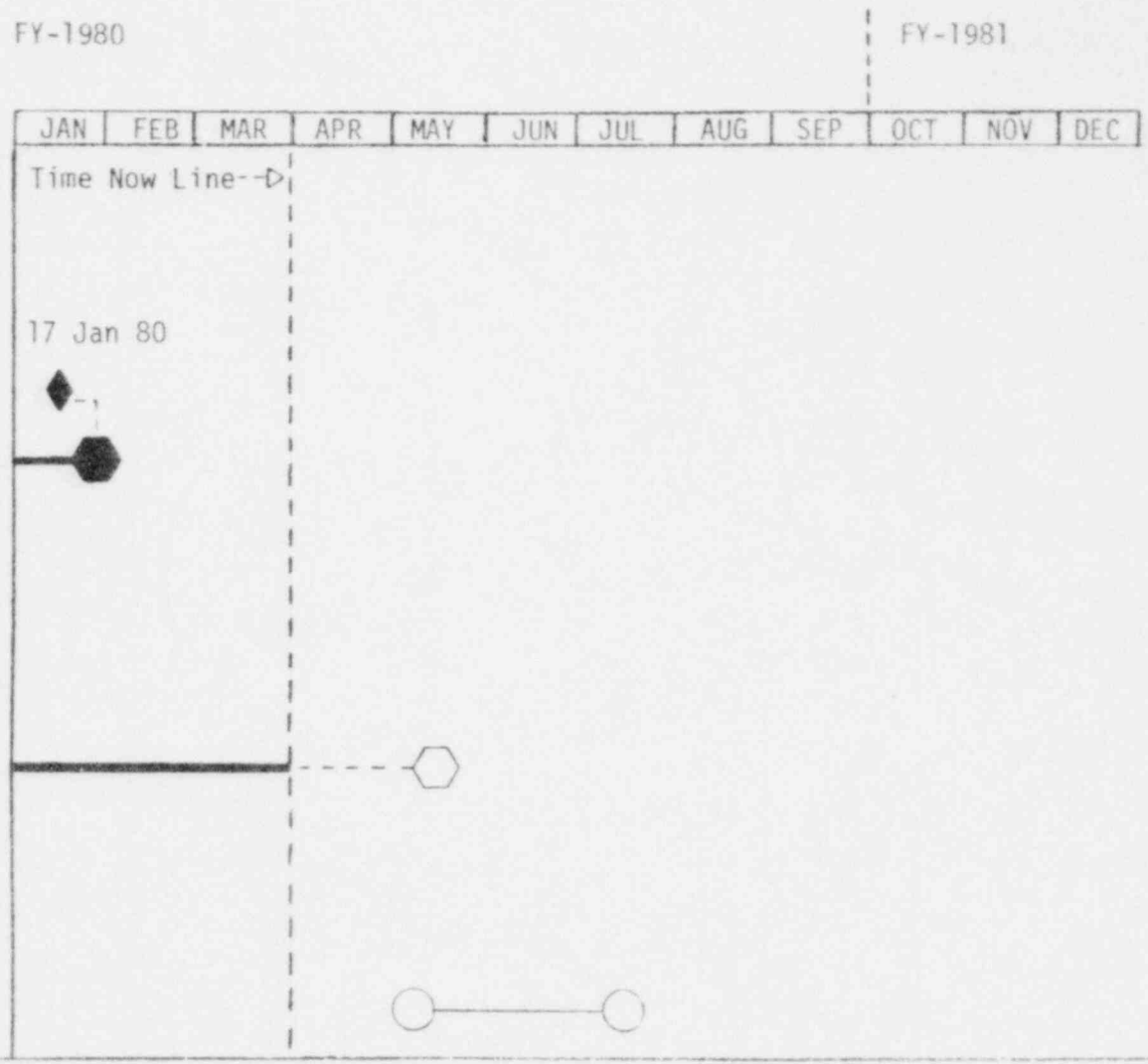


NOTES:

HEAT TRANSFER

LEGEND

- Completed Major Milestone
- Scheduled Major Milestone
- Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- Slipped Secondary Milestone
- Actual Completion Date
- Scheduled Completion Date



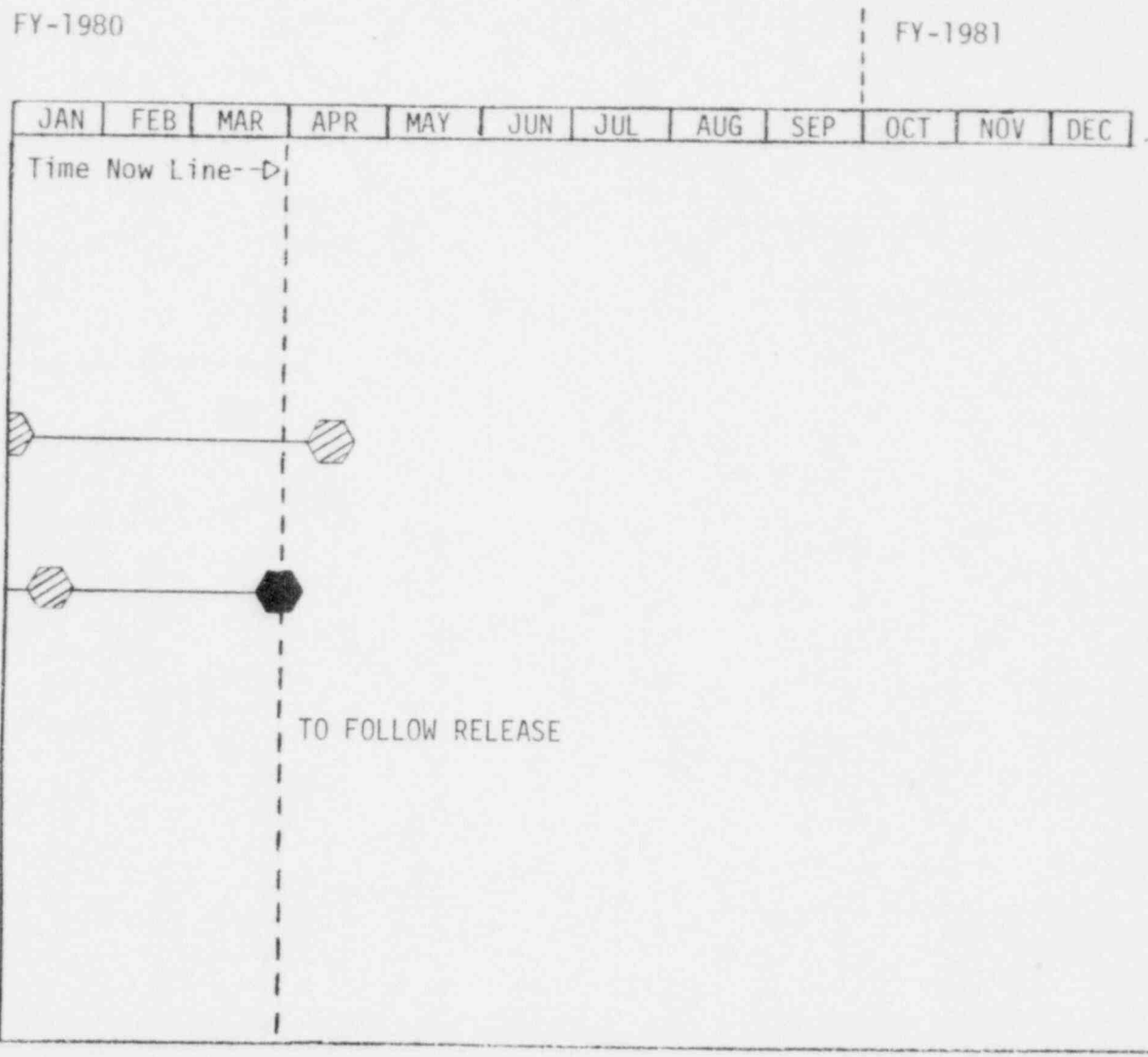
NOTES: All other tasks on this 189a suspended pending NRC redirection.

CODE DEVELOPMENT AND ANALYSIS PROGRAM March 1980

BEACON CODE DEVELOPMENT

LEGEND

- Completed Major Milestone
- Scheduled Major Milestone
- Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- Slipped Secondary Milestone
- Actual Completion Date
- Scheduled Completion Date



NOTES:

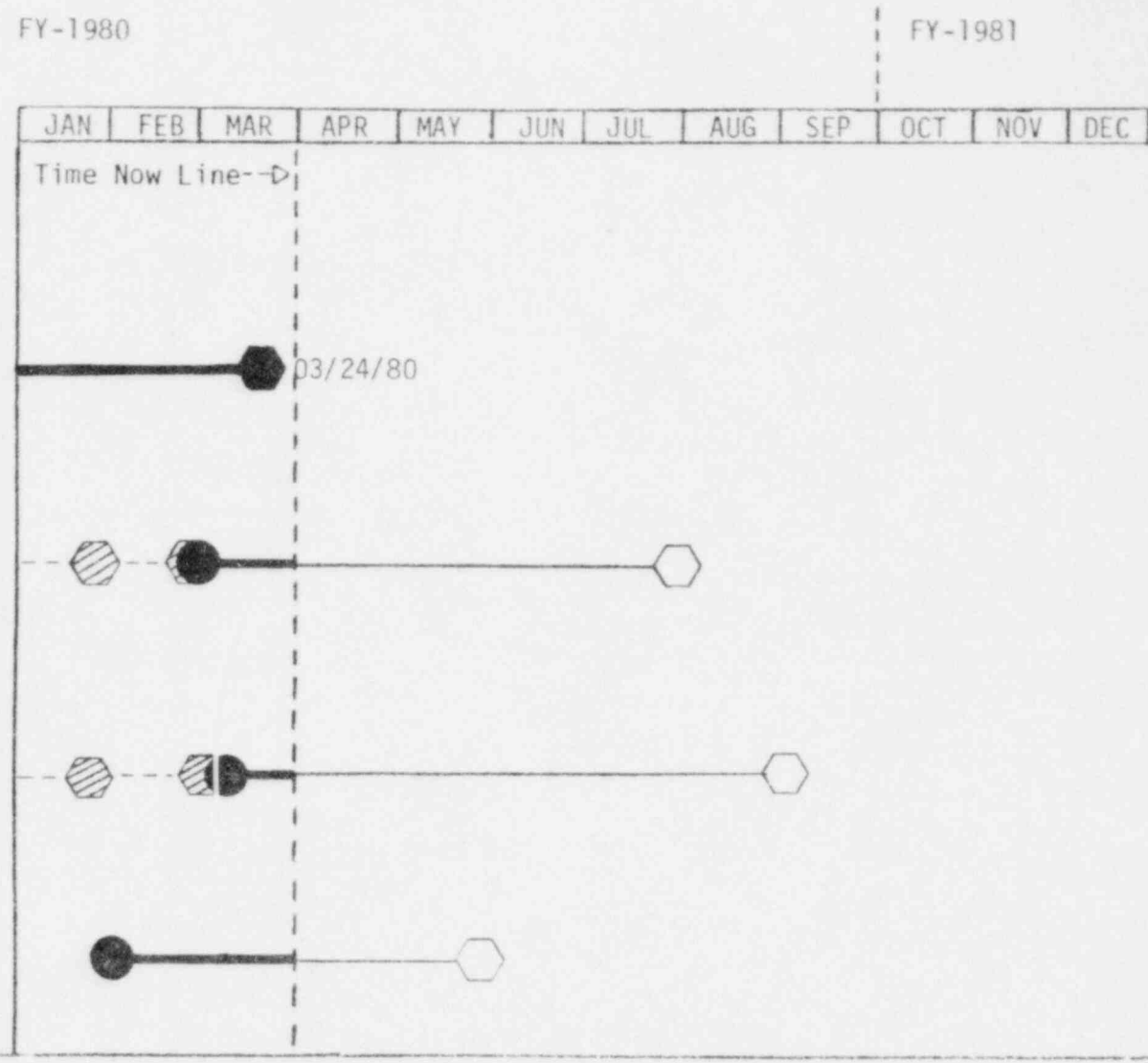
CODE DEVELOPMENT AND ANALYSIS PROGRAM

FRAPCON DEVELOPMENT

March 1980

LEGEND

- ● Completed Major Milestone
- ○ Scheduled Major Milestone
- ⊘ Slipped Major Milestone
- ● Completed Secondary Milestone
- ○ Scheduled Secondary Milestone
- ⊘ Slipped Secondary Milestone
- ♦ Actual Completion Date
- ◊ Scheduled Completion Date



NOTES: The start dates for the FRAPCON-2 Developmental Assessment and Documentation have been rescheduled.

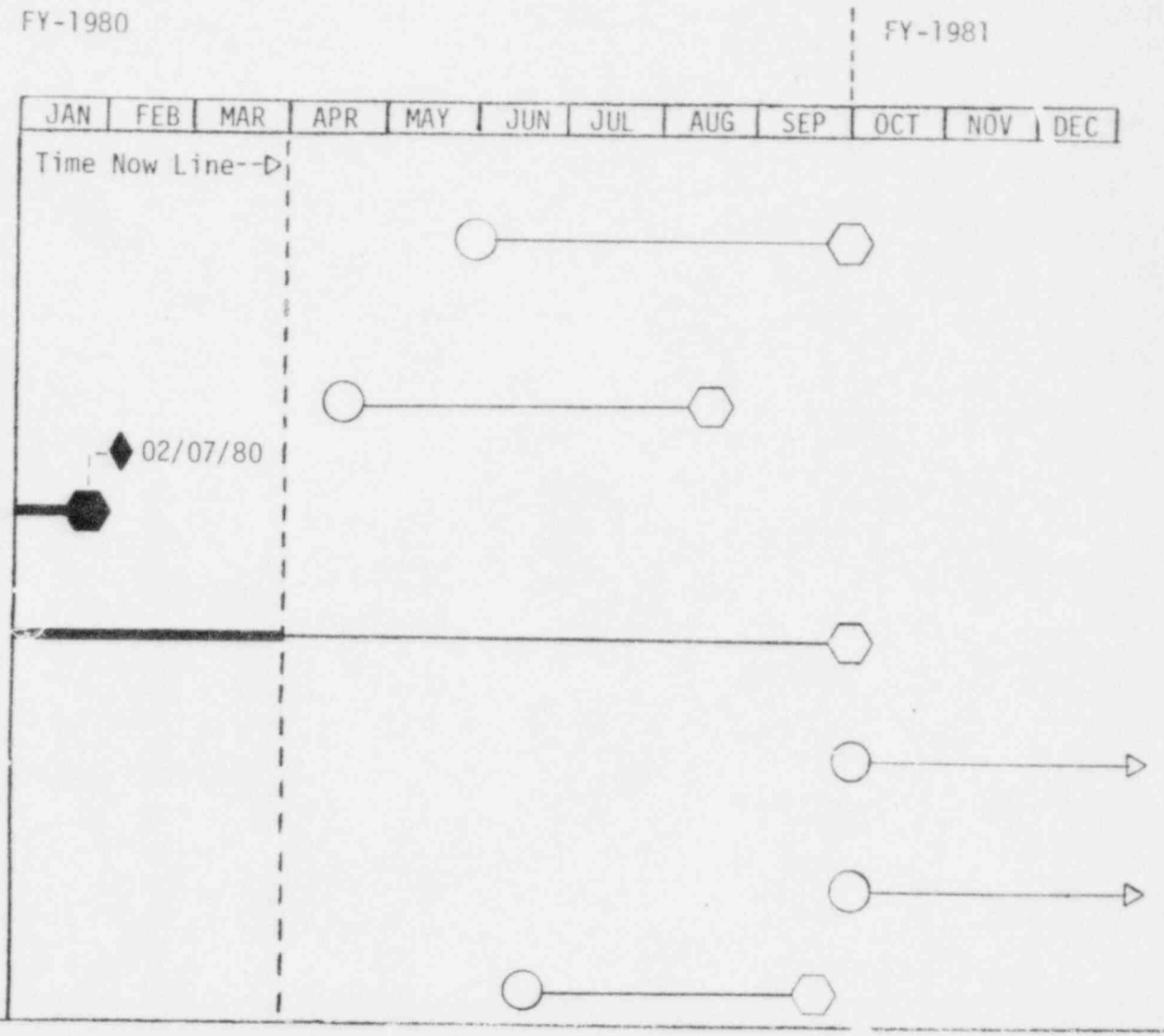
LEGEND

- Completed Major Milestone
- Scheduled Major Milestone
- Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- Slipped Secondary Milestone
- Actual Completion Date
- Scheduled Completion Date

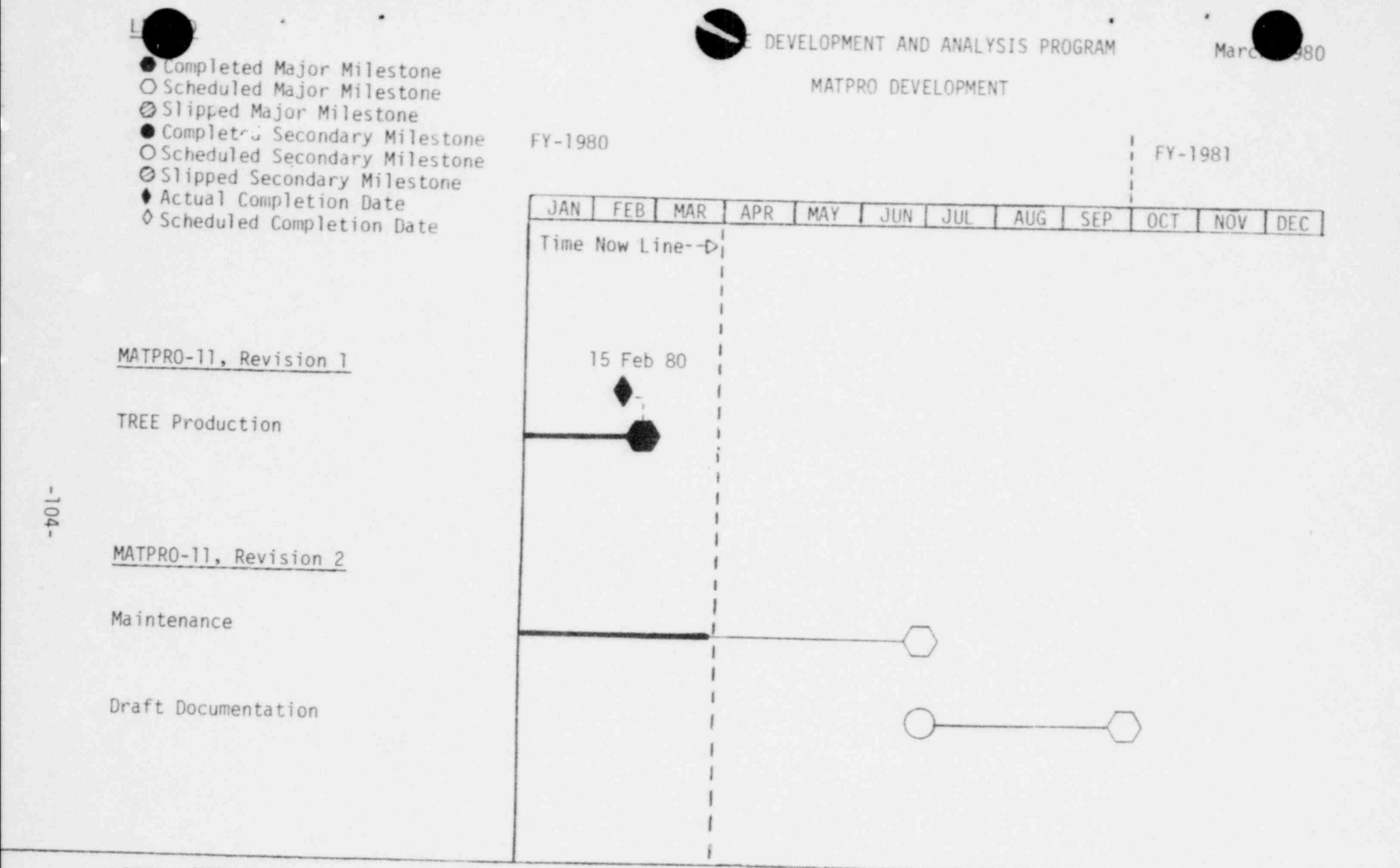
CODE DEVELOPMENT AND ANALYSIS PROGRAM

March 1980

FRAP-T DEVELOPMENT



NOTES:



NOTES: MATPRO-11 represents the last version in the development of the MATPRO subcode. Revisions will be supplied to reflect maintenance.

CODE DEVELOPMENT & ANALYSIS PROGRAM
CAPITAL EQUIPMENT

EG&G IDAHO, INC.

CAPITAL EQUIPMENT PRIORITY LIST

CARRYOVER

Program CODE DEVELOPMENT

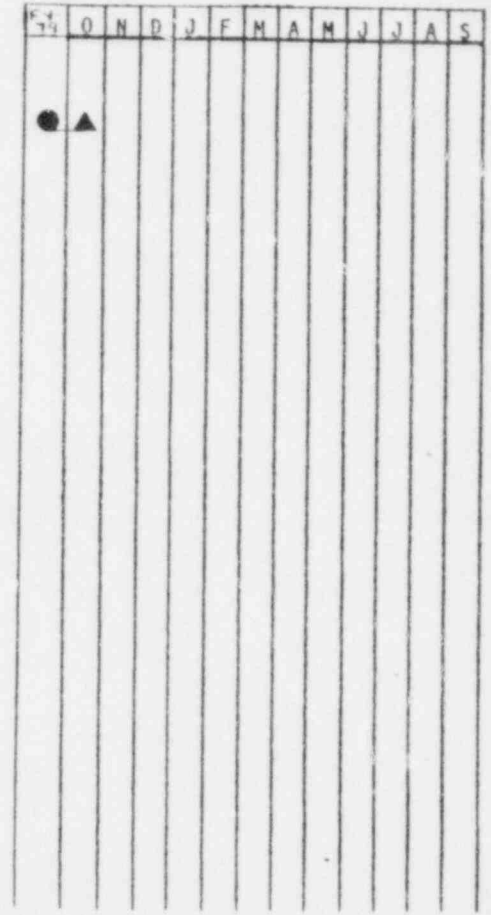
189 Number A6052 (A6109)

Manager P. North

EA No.	Item Description	Authorized Amount	March YTD Costs & Commit.	Project to Date	<Over>/Under Balance
99024	Tape Drive and Controller	10,000	---	---	10,000
	Closed EA's	2,863	---	4,958	<2,095>
	Uncommitted	10,000	---	---	10,000
		22,863	-0-	4,958	17,905

Carryover Budget	17,905
YTD Costs & Commit.	-0-
Balance	17,905

Item Authorized o
Money Committed Δ
Equipment Received, Account Closed ■



CODE DEVELOPMENT & ANALYSIS PROGRAM

TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

The RELAP4/MOD7 checkout was completed and preprations are being made for code release.

The FRAPCON-2 programming was completed as scheduled and developmental assessment was initiated.

A revised cladding creep-down model was completed for MATPRO maintenance.

1. 189a A6052 - Loss-of-Coolant Accident Analysis

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date
L7, N2 Page 3-19	RELAP4/MOD7 Developmental Checkout	2-15-80E	3-31-80C PN-32-80
L1, N6 Page 3-18	MOD7 External Release	2-26-80E	4-7-80 PN-32-80
L1, N2 Page 3-19	Develop TRAC-BD0	3-10-80T	1-22-80C
L2, N4 Page 3-19	Demonstration and Configuration Control	3-10-80T	1-22-80C

3. Summary of Work Performed in March 1980

RELAP4/MOD7

The RELAP4/MOD7 developmental checkout task was completed. Calculations performed were vertical slip comparisons, a Semiscale blowdown test (S-02-9), an integral Semiscale test from blowdown through reflood (S-06-3), an integral LOFT test from blowdown through reflood (L2-3) and an integral calculation of the Zion reactor.

TRAC-BD1

The TRAC-BD1 effort is progressing satisfactorily. Draft design performance reports on the equilibrium critical flow model and the CHAN component were prepared in conformance with the new TRAC quality procedure. Design reports on a generalized heat slab model, a downcomer-level trip model, a decay heat model, and the documentation computer program were also prepared. Assessment of TRAC-BD1 was continued with the preparation of decks to analyze a PWR FLECHT test, a BWR/6 DBA, and a Gota (Swedish BWR fuel) test.

Work continued on jet pump modeling and on a BWR initialization algorithm. Assistance was given to PBF in using the CHAN component (TRAC-BD0) to perform a feasibility study for the Severe Core Damage Test Program.

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual Date
L1, N6 Page 3-18	MOD7 External Release	4-7-80E	

5. Summary of Work to be Performed in April 1980

RELAP4/MOD7

RELAP4/MOD7 will be released to the National Energy Software Center. Formal documentation of RELAP4/MOD7 will continue.

TRAC-BD1

The documentation program will be completed, and official versions 1, 2, and 3 of TRAC-BD1 will be created in conformance with the new TRAC quality procedure. Work will continue on TRAC-BD1 assessment and the development of various models: jet pumps, BWR initialization, decay heat, generalized heat slab, non-equilibrium critical flow, and downcomer-level trip.

6. Problems and Potential Problems

RELAP4/MOD7

Because of the extended checkout the FY-1980 costs for RELAP4/MOD7 are expected to be about $535K rather than the $465K currently budgeted. If the $300K supplemental funding for A6052 is made available this cost overrun can be covered. If the supplemental funding is not made available adjustments will be made in the TRAC scheduling to provide a cost recovery.

TRAC-BD1

Technical problems have surfaced in linking the jet pump and critical flow models and also in the use of TF1D source terms at abrupt area changes. There is no impact to schedule at this point. Manpower will be diverted from long lead development items for future versions if it appears that a schedule impact is likely. Work on the checkout of TRAC-BD1 during the last two months of FY-80 is dependent on obtaining the $300K supplemental funding for A6052.

1. 189a A6278 - Heat Transfer Correlation Development and Assessment

2. Scheduled Milestones for March 1980

   No scheduled milestones for March.

3. Summary of Work Performed in March 1980

   The work in March centered on the study of return to nucleate boiling. The TRAC calculations to investigate the sensitivity of rewetting behavior to such factors as fuel-to-cladding gap heat transfer coeffient were completed. The analysis of the results is proceeding satisfactorily and it is anticipated that this study can be completed as scheduled.

4. Scheduled Milestones for April 1980

   No scheduled milestones for April.

5. Summary of Work to be Performed in April 1980

   The report for the RNB study will be essentially completed.

6. Problems and Potential Problems

   Proposals have been made to NRC for follow-on studies in accordance with NRC requests. Direction on the selection of alternatives is needed by the end of the RNB study to secure available manpower.

1. 189a A6042 - Containment Analysis Development

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date
L4, N2 Page 3-7	Provide On-Site Test Support of Marviken IV Test	3-1-80	2-18-80C
New	German Standard Problem (CASP1)		3-3-80C

3. Summary of Work Performed in March 1980

BEACON CASP2 results were submitted on March 3, 1980. Problems were discovered in the code with symmetry and conservation of energy. Both problems were tracked down and fixed. Oscillatory problems were encountered with the film model and proposed fixes are being tested. The Drexel problem was run and the results indicate that the code will not run with low values of interphase drag. Lower limits are being set. BEACON/MOD3 manuals have been printed and are ready for transmittal.

4. Scheduled Milestones for April 1980

No scheduled milestones for April.

5. Summary of Work to be Performed in April 1980

Provided that the tests indicate that the oscillation problems have been resolved, then the Battelle-Frankfurt D3 and C9 problems will be completed and BEACON/MOD3 will be released. The code adjustment report will be written and released. Presentation for mid-year review will be prepared and presented.

6. Problems and Potential Problems

The extensive code running associated with checkout problem resolution has increased costs. Manpower reductions will be made during the second half of FY-80 and low priority computing will be employed.

1. 189a A6050 - Fuel Behavior Model Development

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date
36107 Page 2-11	Complete FRAPCON-2 Programming	3-24-80T	3-24-80C PN-34-80

3. Summary of Work Performed in March 1980

   a. MATPRO-11 Maintenance

      Work continued on extending the cladding failure stress model to include effects of iodine. A revised cladding creep-down model was completed.

   b. FRAPCON-2

      Programming of new models for FRAPCON-2 was completed and code developmental assessment was initiated. Dynamic dimensioning of the FRACAS-II subcode was begun. Development of a new fuel relocation model for FRACAS-II was completed and incorporated in FRAPCON-2. The FAST/GRASS subcode was dynamically dimensioned and checkout is in process.

   c. FRAP-T6

      Incorporation of the circumferentially varying heat transfer coefficient capability and the PNL gap conductance model in FRAP-T6 was begun. Dynamic dimensioning of the two-dimensional heat conduction model was in process and progressing satisfactorily.

4. Scheduled Milestones for April 1980

   No scheduled milestones for April.

5. Summary of Work to be Performed in April 1980

   a. MATPRO-11 Maintenance

      It is anticipated that maintenance activities will be halted during April so that the cladding ballooning model development can be completed and incorporated in FRAP-T6.

5. Summary of Work to be Performed in April 1980 (Continued)

b. FRAPCON-2

Work will continue on dynamically dimensioning the FRACAS-II subcode. Work will begin on incorporation of the dynamically dimensioned FAST/GRASS subcode in FRAPCON-2. Developmental assessment of FRAPCON-2 will be performed in cooperation with the PNL. Model documentation will begin.

c. FRAP-T6

Programming of FRAP-T6 will continue. The PNL gap conductance and circumferentially varying heat transfer coefficient models will be incoroproated in FRAP-T6. Linking with the BALOON-2 model will begin. The simplified input and input screening for FRAP-T6 will be completed.

6. Problems and Potential Problems

None.

WRRD MONTHLY REPORT FOR

MARCH 1980

CODE ASSESSMENT & APPLICATIONS PROGRAM

E. L. Pierson
Plans & Budgets Representative

J. A. Dearien, Manager

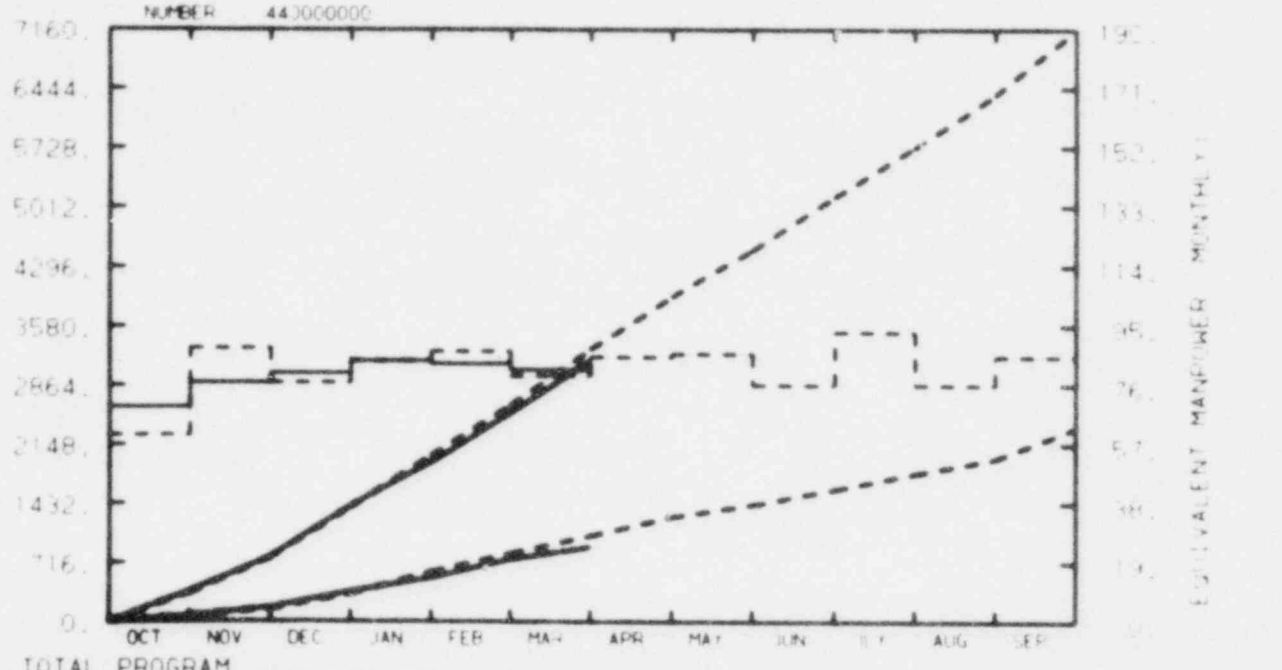
CODE ASSESSMENT & APPLICATIONS PROGRAM

COST SUMMARY & COMMENTS

RESPONSIBLE
ANAGER
A DEARIEN

EG&G IDAHO INC.

CODE ASSESSMENT & APPLICATIONS



TOTAL PROGRAM

BUDGET	342	773	1378	2014	2622	3239	3934	4493	5131	5726	6365	7153
ACTUAL	371	784	1403	1931	2534	3170						

MATERIAL

BUDGET	75	145	334	605	825	1039	1266	1411	1597	1791	1971	2148
ACTUAL	65	175	367	533	759	905						

MANPOWER

BUDGET	60	88	77	84	87	79	85	86	76	93	76	85
ACTUAL	63	77	80	84	93	81						

BUDGET

ACTUAL

YTD VARIANCE: 129 (4%)

Individual cost graphs will give individual explanations.

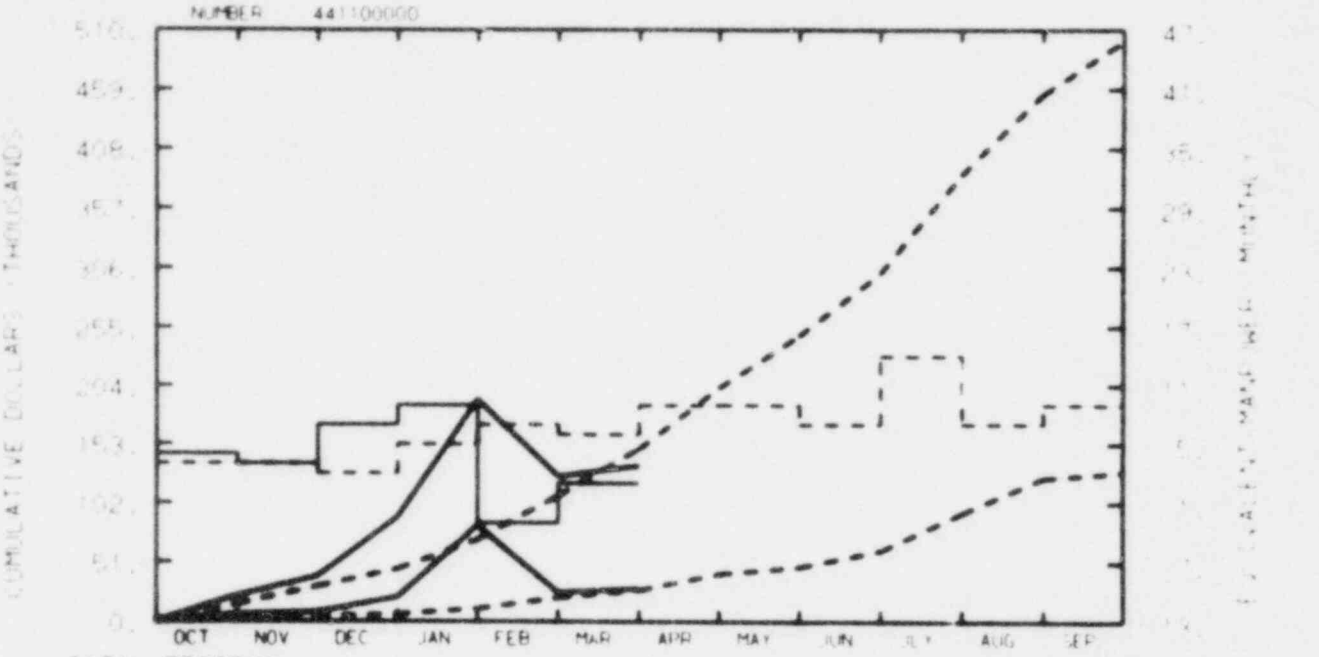
Explanations for major 189a's will be made if the variance exceeds $25 K. Minor 189a graphs will explain variance of over $10 K.

RESPONSIBLE MANAGER
A DEARIEN

EG&G IDAHO, INC.

TECH SUR FOR NRC/INDUST COOP PRO

NUMBER 441100000



TOTAL PROGRAM

BUDGET	15	30	45	71	108	149	202	248	301	386	455	500
ACTUAL	22	39	90	192	125	34						

MATERIAL

BUDGET	2	4	6	11	21	27	41	47	61	74	125	129
ACTUAL	6	8	21	83	25	29						

MANPOWER

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

BUDGET

ACTUAL

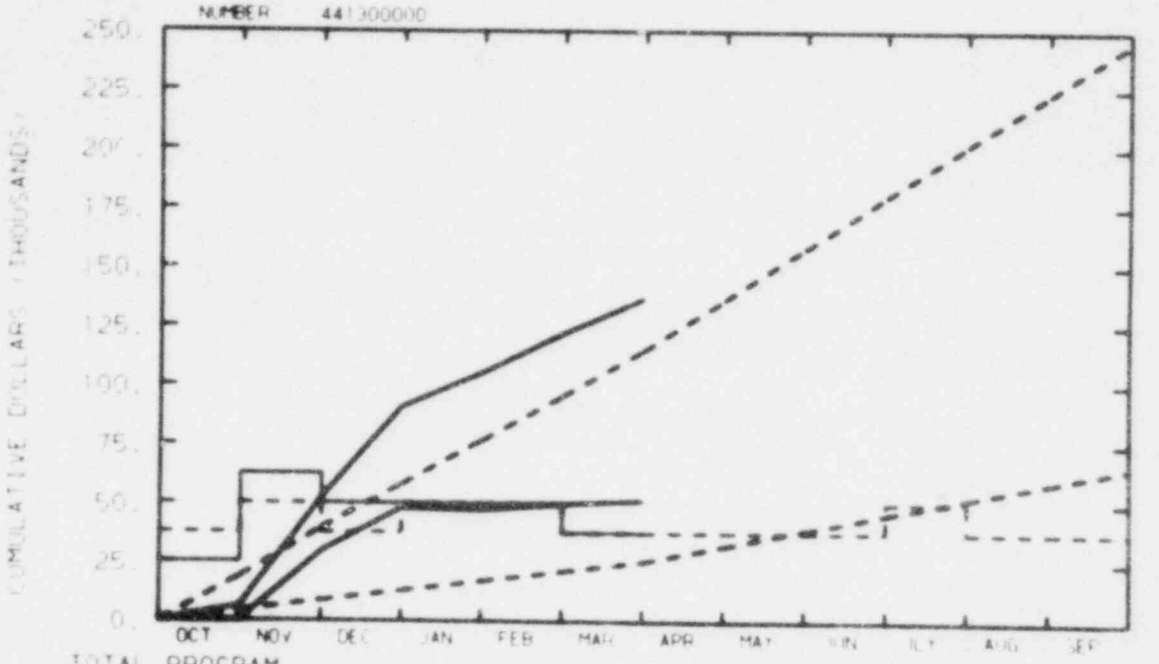
A6039

YTD VARIANCE: 15 (10%)

RESPONSIBLE MANAGER
J. A. DEARIEN

EG&G IDAHO, INC.

FUEL CODE ASSESSMENT



TOTAL PROGRAM

BUDGET	19	39	58	77	95	115	136	158	180	202	223	245
ACTUAL	6	52	91	105	122	137						

MATERIAL

BUDGET	4	9	13	17	21	25	32	39	45	52	59	65
ACTUAL	0	29	48	47	50	51						

MANPOWER

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

BUDGET

ACTUAL

A6046

YTD VARIANCE: <22> (19%)

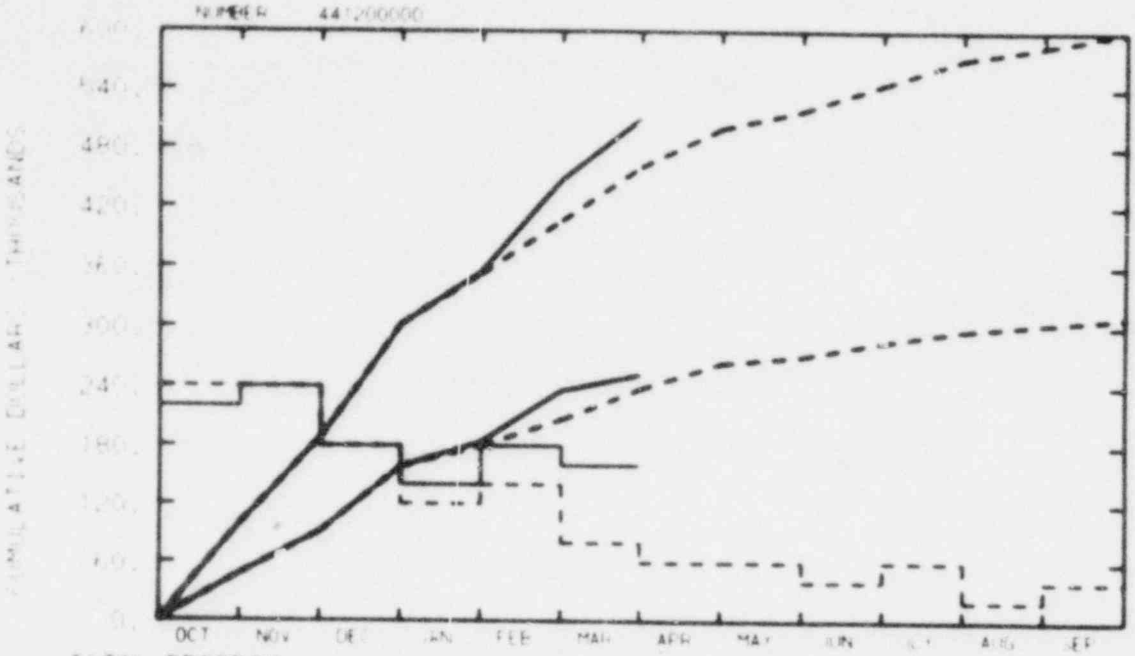
Excessively high computer charges during the first quarter of FY-1980 resulted in a budget overrun. The scope of future work has been adjusted so that actual and projected costs will agree by the fourth quarter of FY-1980.

HI [illegible] TRCE
MANAGER
A DEARIEN

EG&G IDAHO INC.

THERMAL HYDRAULIC CODE ASSESS

NUMBER 44200000



TOTAL PROGRAM

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET	99	188	302	353	406	460	499	518	545	572	586	600
ACTUAL	99	188	302	355	448	510						

MATERIAL

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET	48	91	159	180	207	238	263	270	285	[illegible]	[illegible]	[illegible]
ACTUAL	48	91	159	184	236	252						

MANPOWER

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET	12	12	9	6	[illegible]	4	3	[illegible]	[illegible]	[illegible]		
ACTUAL	11	[illegible]	4	[illegible]	[illegible]	8						

BUDGET - - - - -
ACTUAL ———

A6047

YTD VARIANCE: <50> (11%)

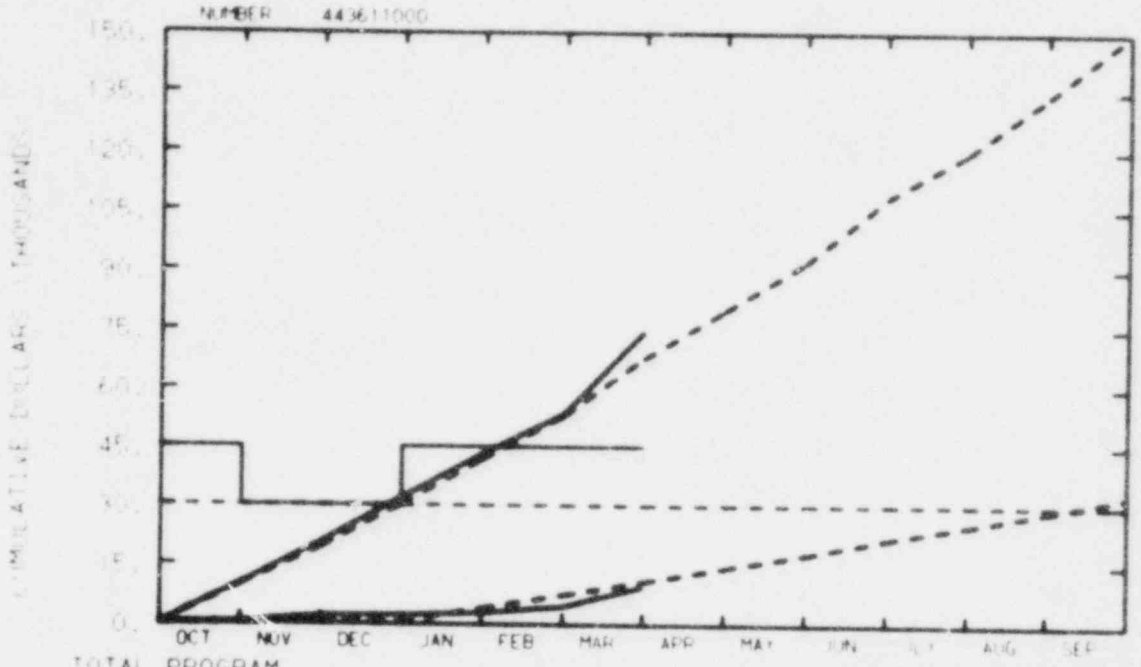
A change in the funding in this activity is not reflected in the March budget. This change will be included in the April budget.

RESPONSIBLE
MANAGER
ALDERMAN

EG&G IDAHO INC.

STANDARD PROBLEM ANALYSIS & HEAT TR

NUMBER 443611000



TOTAL PROGRAM

BUDGET	10	19	30	42	53	68	80	92	108	120	134	150
ACTUAL	10	21	32	43	54	74						

MATERIAL

BUDGET	0	1	1	4	7	11	14	18	22	24	24	24
ACTUAL	0	2	2	3	5	11						

MANPOWER

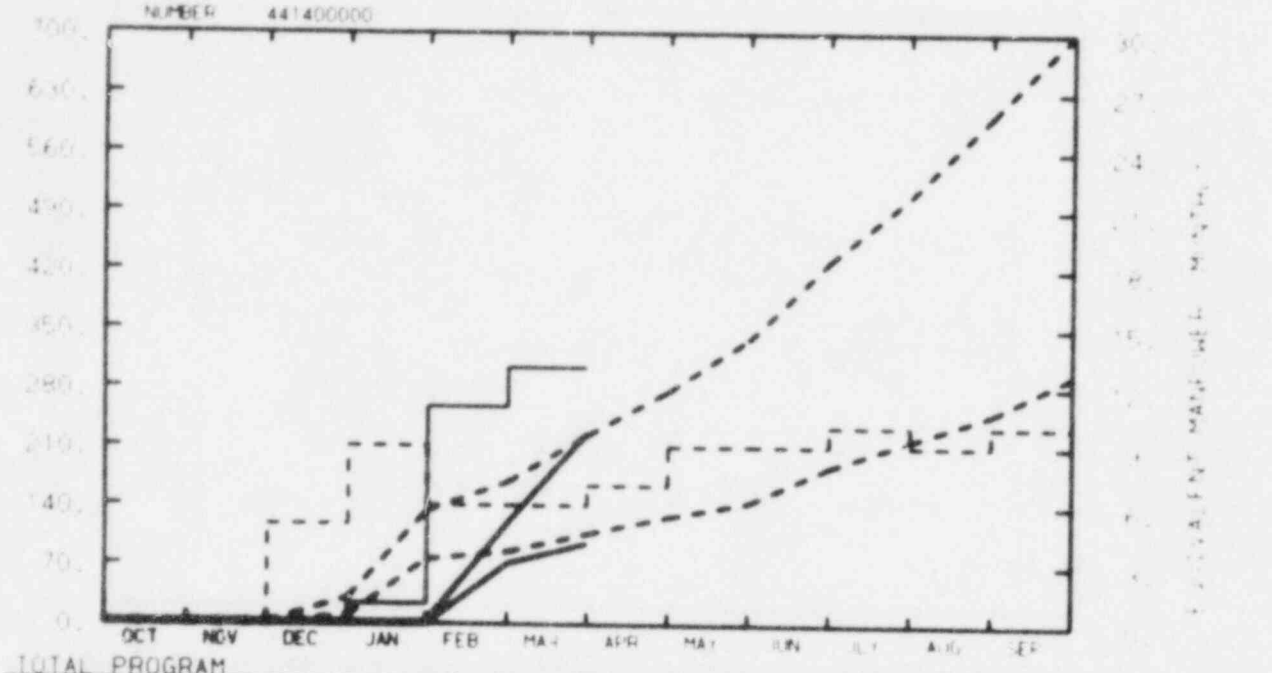
BUDGET	2	2	2	2	2	2	2	2	2	2	2	2
ACTUAL	1	2	2	3	3	4						

A6048B

YTD VARIANCE: <6> (9%)

RESPONSIBLE MANAGER
J. A. DEARIEN

EG&G IDAHO, INC.
BWR/PWR TASK FORCE
NUMBER 441400000



TOTAL PROGRAM

BUDGET	0	0	30	133	167	223	276	337	430	508	604	700
ACTUAL	0	0	0	2	119	226						

MATERIAL

BUDGET	0	0	9	76	86	107	127	144	186	218	249	298
ACTUAL	0	0	0	0	71	96						

MANPOWER

BUDGET	0	0	5	4	6	6	7	9	9	8	9	10
ACTUAL	0	0	0	1	11	14						

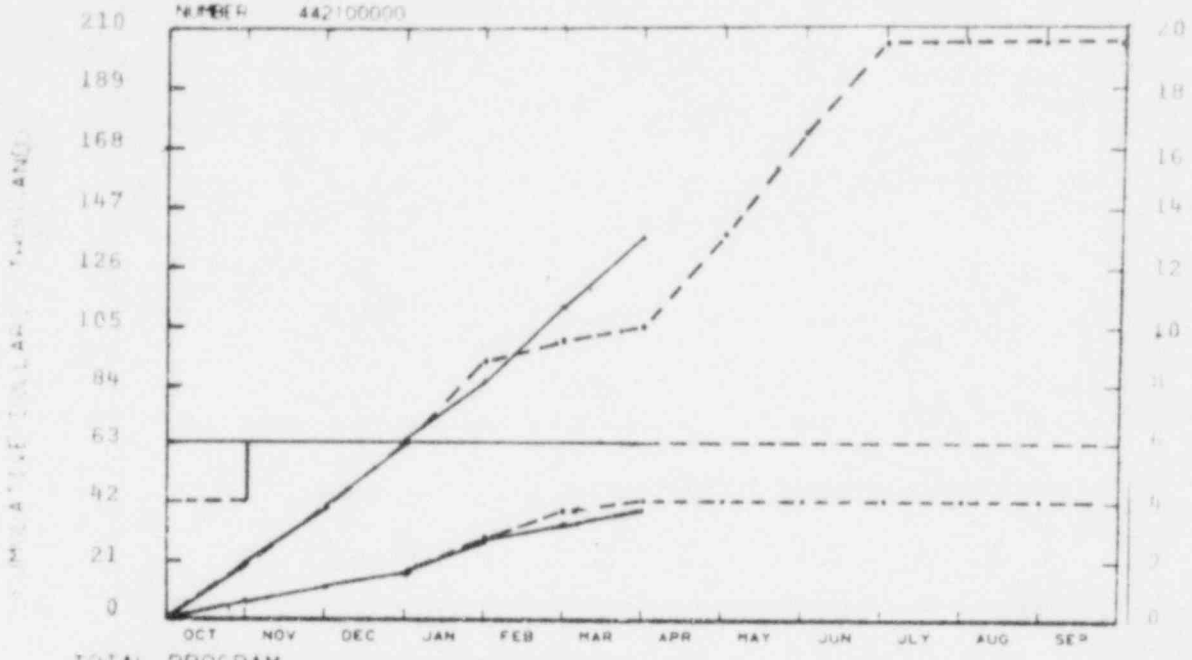
A6048C

YTD VARIANCE: <3> (2%)

RESPONSIBLE
MANAGER
& DEPARTMENT

EG&G IDAHO INC.

NRC/RSR DATA BANK & HEAT TRANS



TOTAL PROGRAM

BUDGET	21	39	64	90	100	105	138	171	205	205	205	205
ACTUAL	21	38	63	85	110	135						

MATERIAL

BUDGET	6	10	15	27	38	42	42	42	42	42	42	42
ACTUAL	6	10	15	25	35	40						

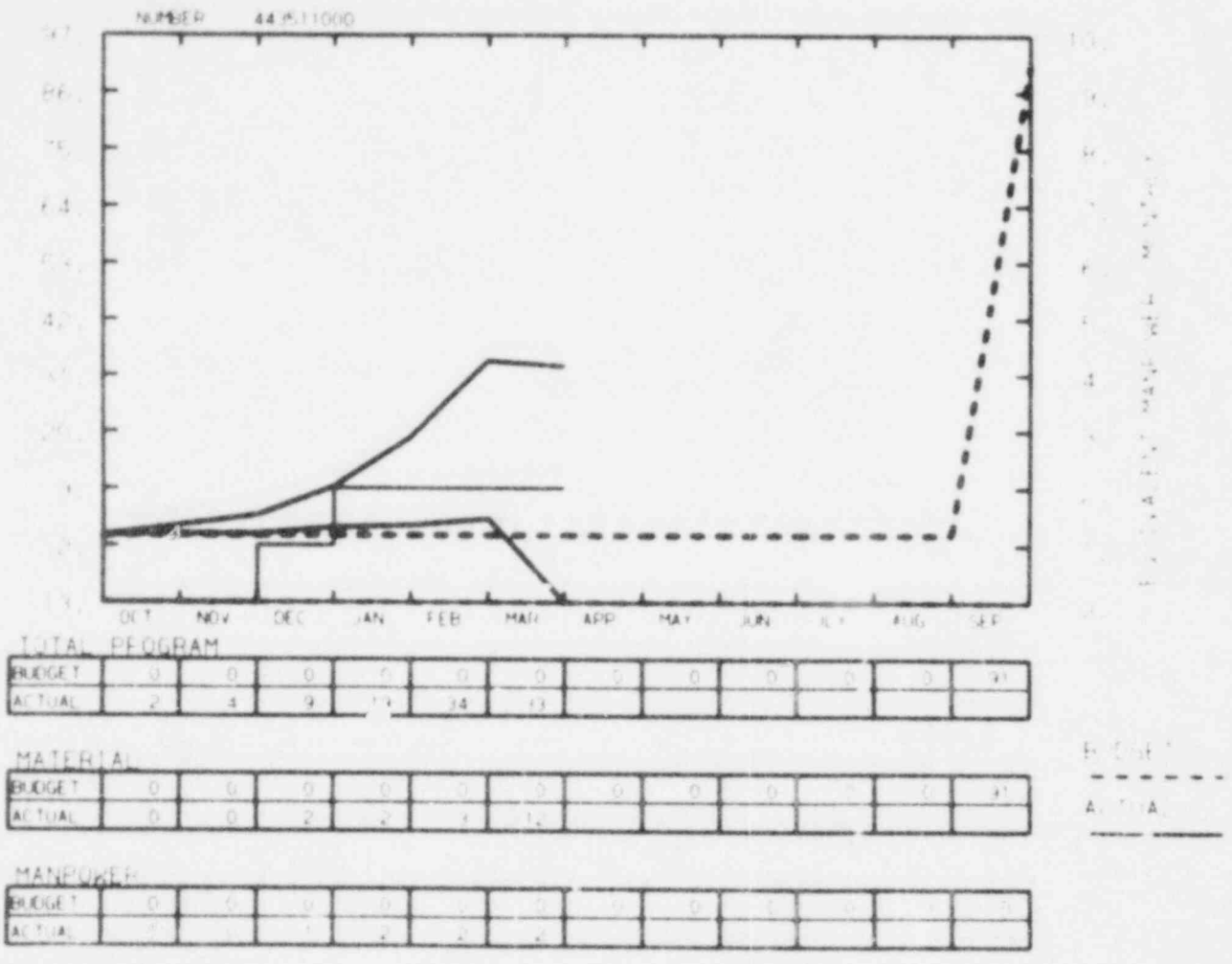
MANPOWER

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

A6102

YTD VARIANCE: <30> (29%)

Additional funding is expected. When this is received, it will offset the current overrun.



A6279

YTD VARIANCE: <33>

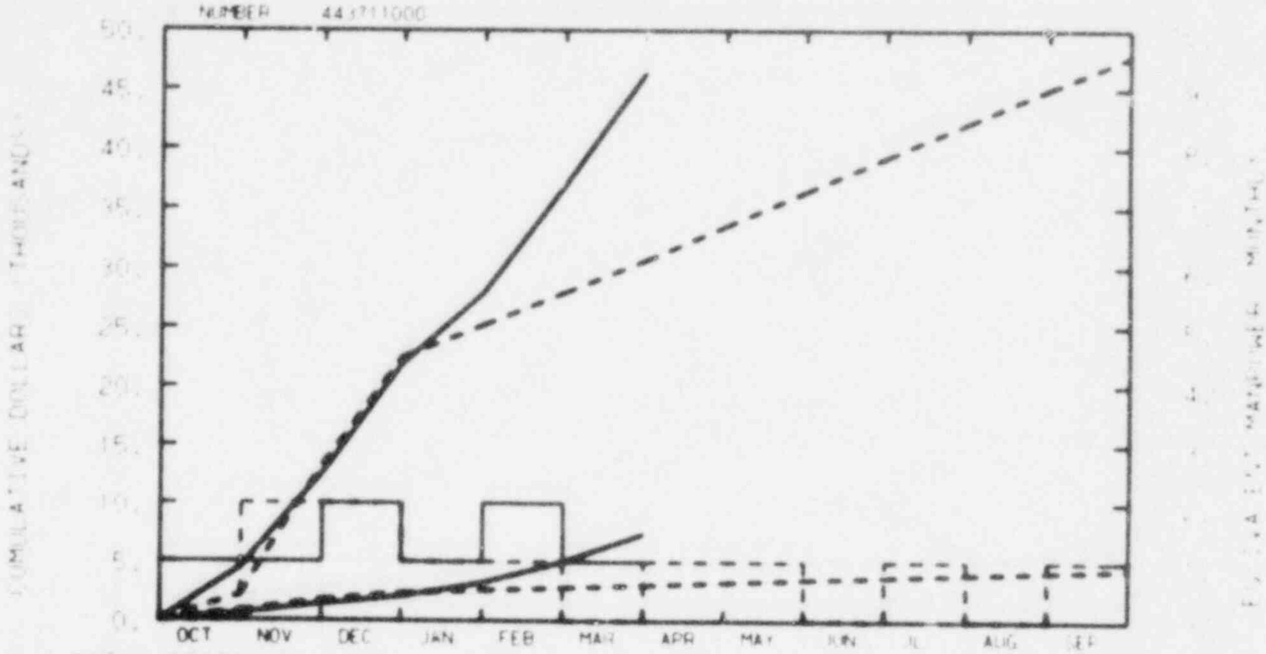
Work on A6251 (Water Hammer Review & Evaluation) was being charged against this task until funding for A6251 was authorized. Approximately 20 K was credited in March to this account and charged against A6251. Another 19 K is being transferred to A6304 (Resident Engineer in Germany) for travel and labor expenses incurred while waiting for funding. The remaining 14 K is for travel and labor associated with this travel.

RESPONSIBLE MANAGER
A. DEARIEN

EG&G IDAHO INC.

HDR COMP RESPONSE ANALYSIS

NUMBER 443711000



TOTAL PROGRAM

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET	2	13	22	25	28	31	34	36	39	42	45	48
ACTUAL	4	13	22	28	37	46						

MATERIAL

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET	1	2	2	3	3	3	3	3	4	4	4	4
ACTUAL	1	1	2	3	5	7						

MANPOWER

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET	0	2	2	[illegible]	1	0	1	[illegible]	0	[illegible]		[illegible]
ACTUAL	1	1	2	1	2	1						

BUDGET - - - -

ACTUAL ——

A6285

YTD VARIANCE: <15> (48%)

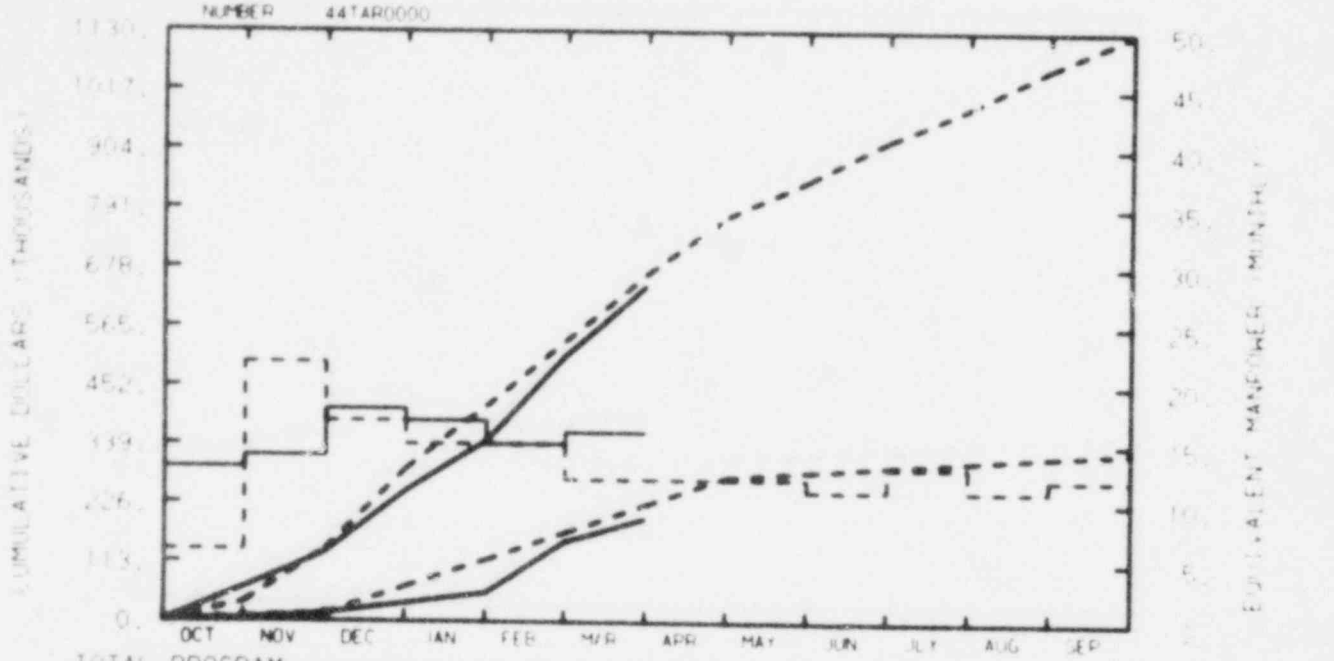
This task has been essentially completed ahead of schedule. The draft report is 90% completed and will be finished in April.

RESPONSIBLE MANAGER
J A DEARIEN

EG&G IDAHO INC.

NRR/PAS TECHNICAL SUPPORT

NUMBER 44TAR0000



TOTAL PROGRAM

BUDGET	35	137	291	413	537	665	776	844	921	985	1060	1127
ACTUAL	63	131	249	345	510	644						

MATERIAL

BUDGET	6	14	65	117	170	224	277	287	297	407	317	426
ACTUAL	5	15	18	54	152	193						

MANPOWER

BUDGET	6	22	17	15	15	12	12	12	11	13	11	12
ACTUAL	13	14	18	17	15	14						

BUDGET

ACTUAL

YTD VARIANCE: 21 (3%)

A6276	<4>	(2%)
A6283	<1>	(2%)
A6290	<30>	(46%)
A6291	7	(14%)
A6293	0	
A6296	16	(14%)
A6294	35	(29%)

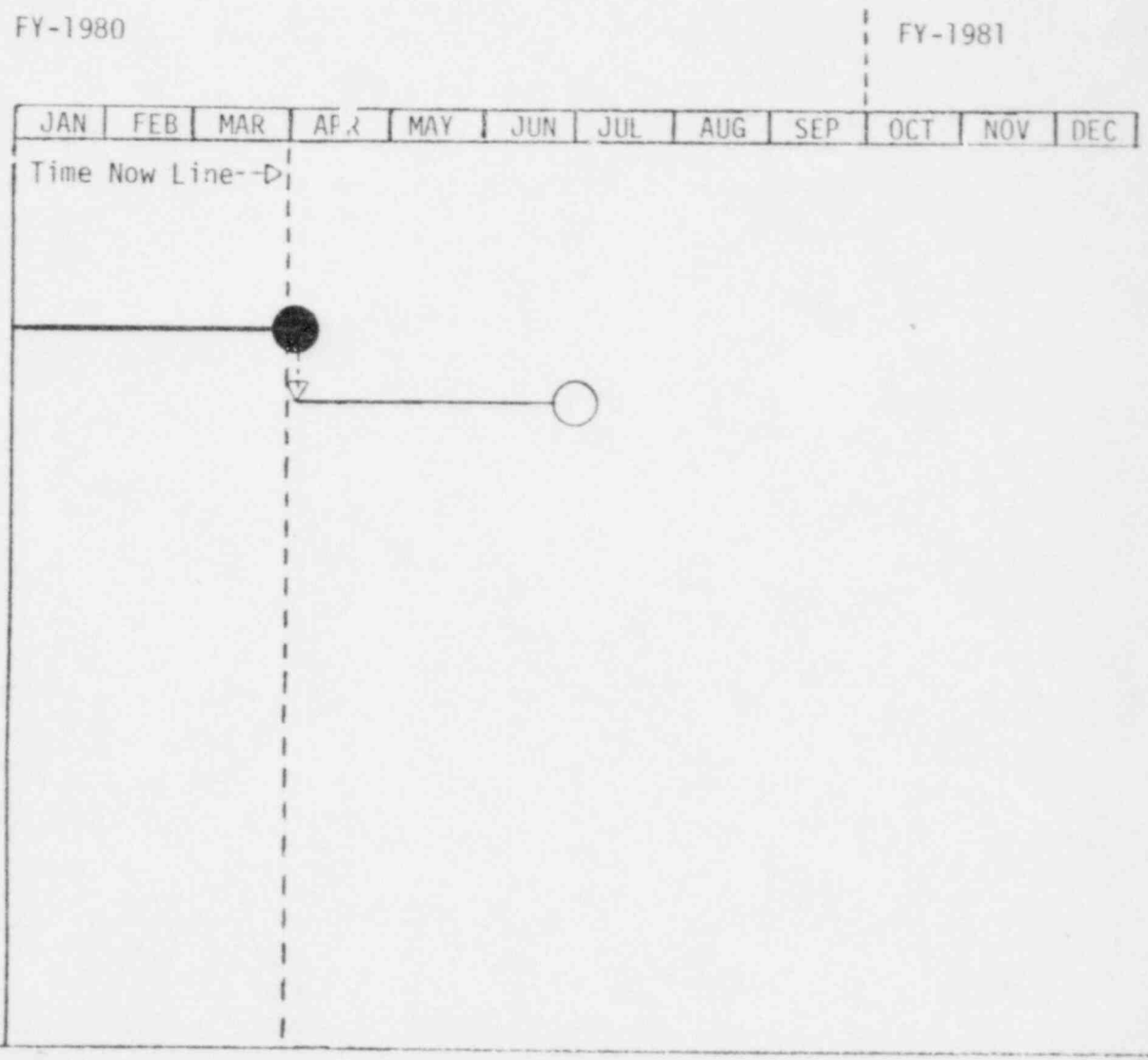
CODE ASSESSMENT & APPLICATIONS PROGRAM

CURRENT WORKING SCHEDULE

HDR Mechanical Compone[illegible] Response Analysis (A6306 [A6285])

LEGEND

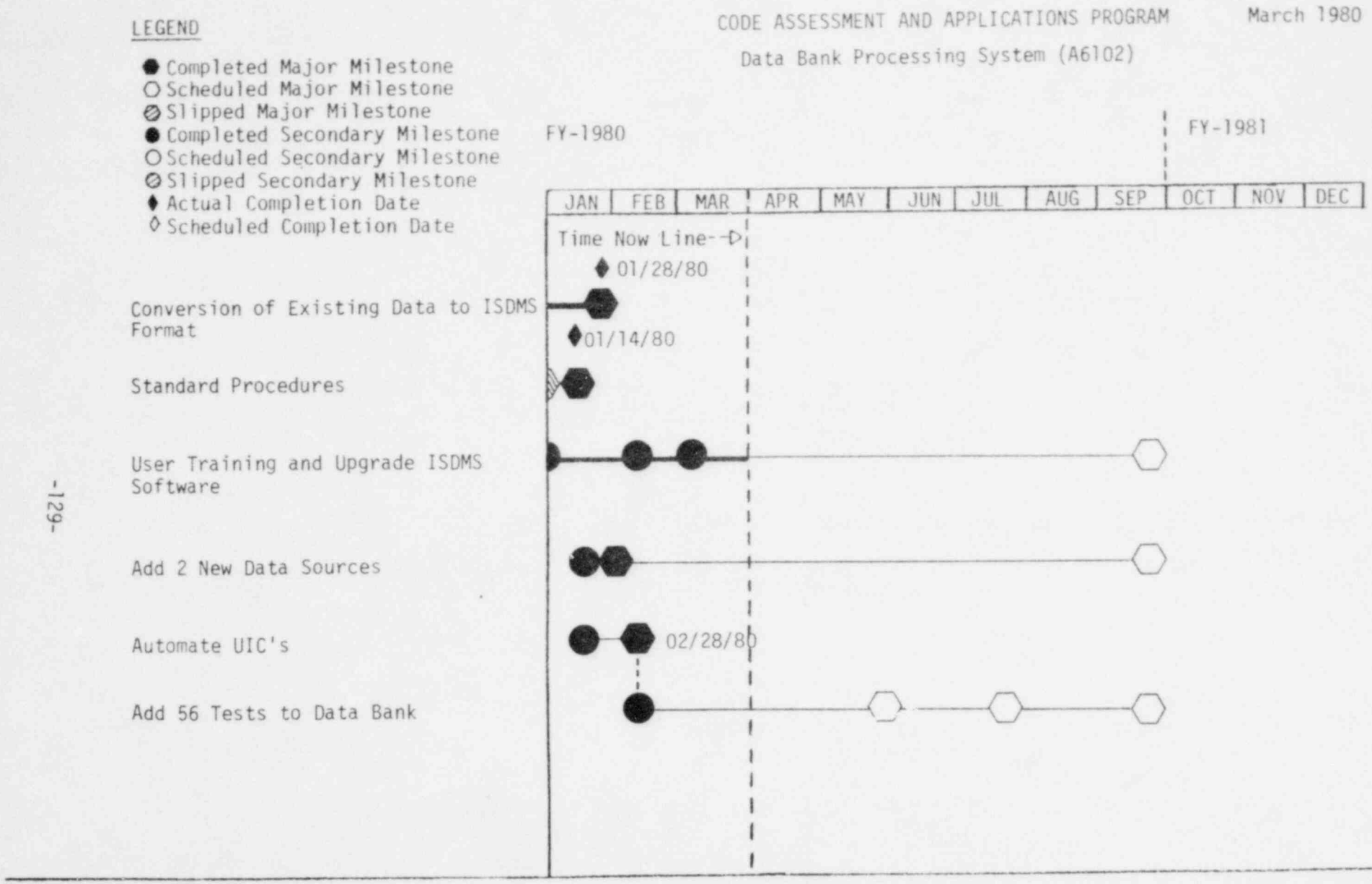
- Completed Major Milestone
- Scheduled Major Milestone
- Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- Slipped Secondary Milestone
- Actual Completion Date
- Scheduled Completion Date



NOTES:

CODE ASSESSMENT AND APPLICATIONS PROGRAM March 1980

Data Bank Processing System (A6102)



NOTES:

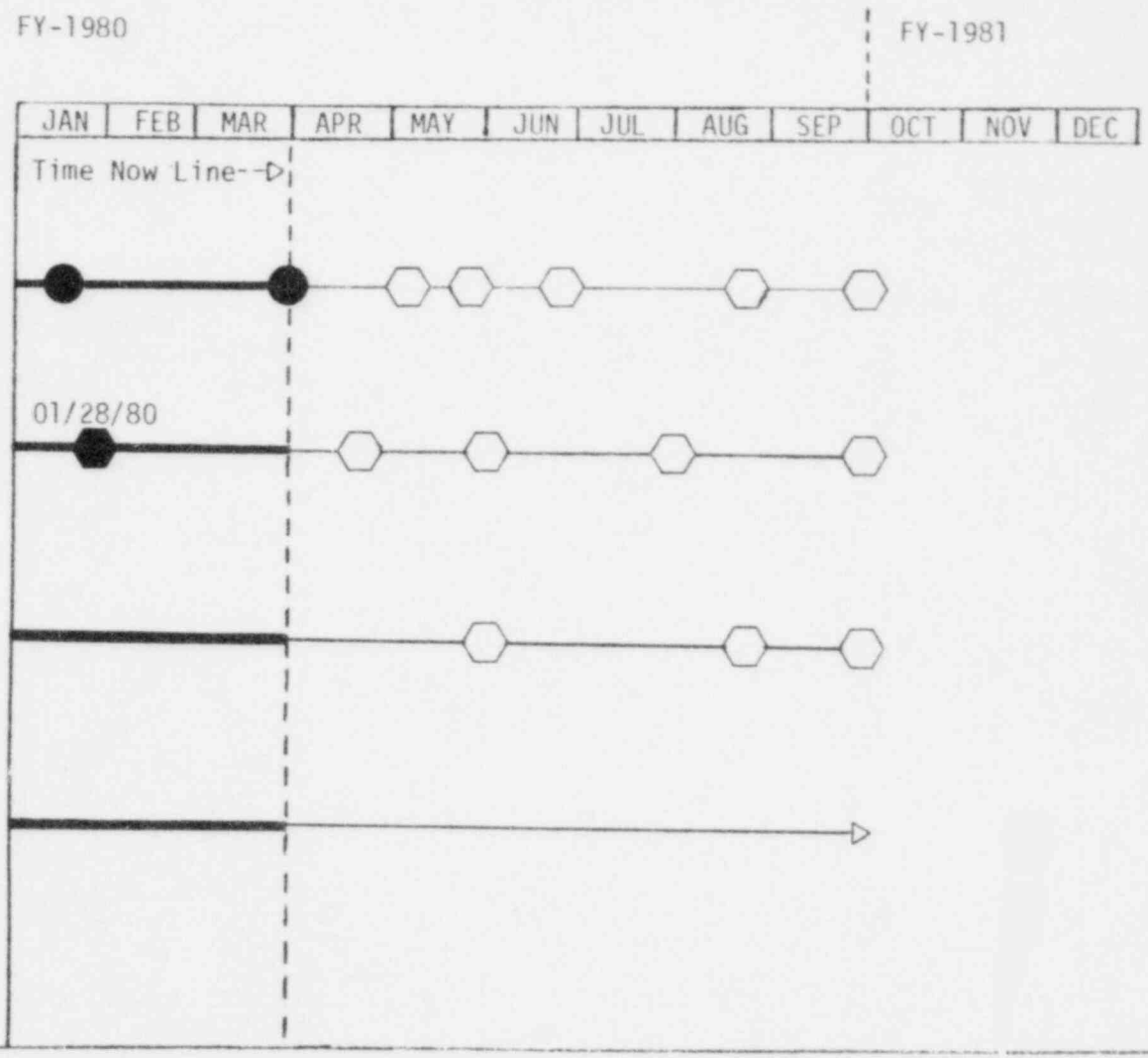
LEGEND

- Completed Major Milestone
- Scheduled Major Milestone
- Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- Slipped Secondary Milestone
- Actual Completion Date
- Scheduled Completion Date

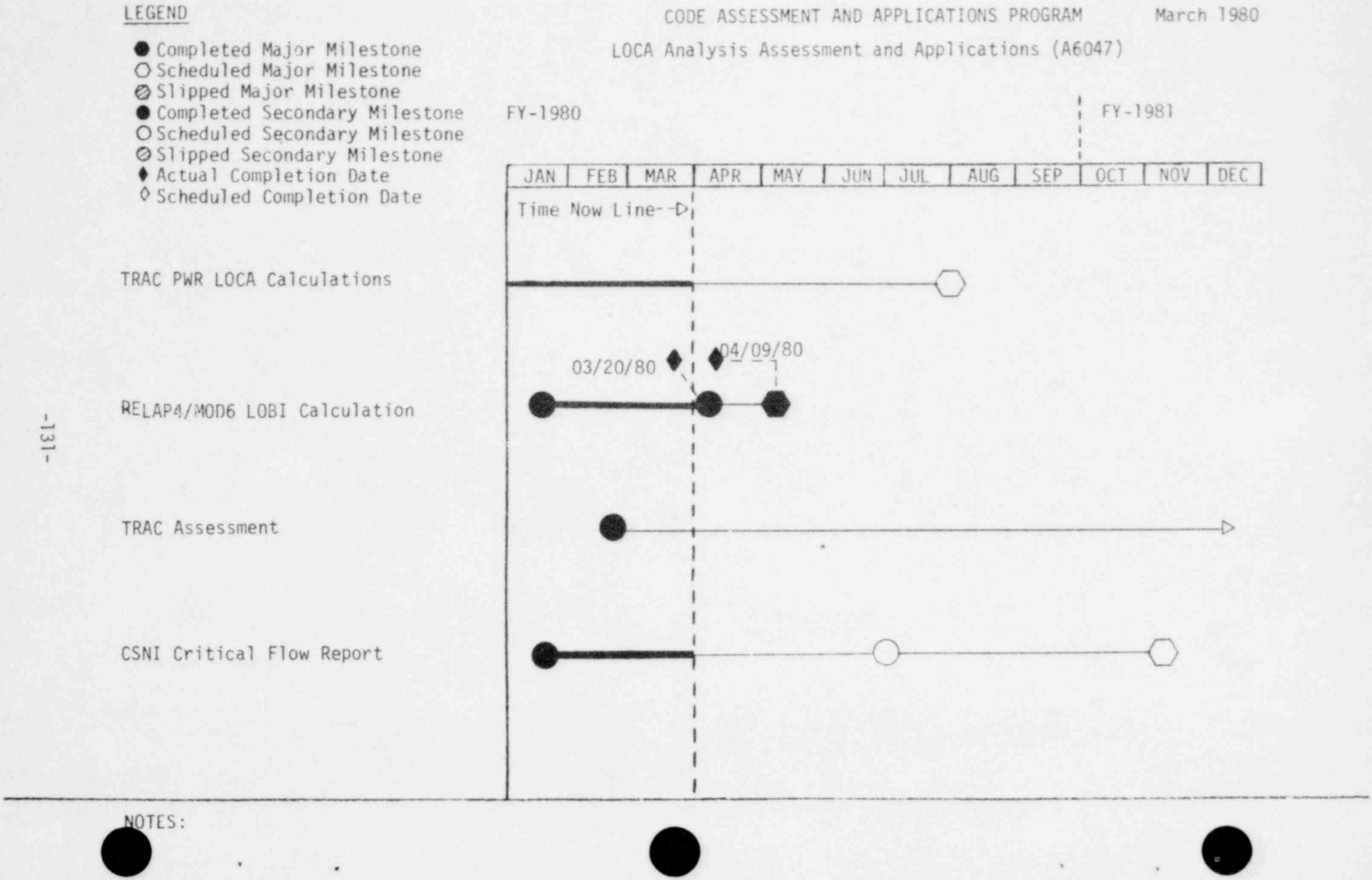
CODE ASSESSMENT AND APPLICATIONS PROGRAM

March 1980

INEL Technical Support to NRC for Industry Cooperative Programs (A6039)



NOTES:


LEGEND
Completed Major Milestone
Scheduled Major Milestone
Slipped Major Milestone
Completed Secondary Milestone
Scheduled Secondary Milestone
Slipped Secondary Milestone
Actual Completion Date
Scheduled Completion Date
CODE ASSESSMENT AND APPLICATIONS PROGRAM
March 1980
LOCA Analysis Assessment and Applications (A6047)
FY-1980
FY-1981
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Time Now Line
TRAC PWR LOCA Calculations
03/20/80
04/09/80
RELAP4/MOD6 LOBI Calculation
TRAC Assessment
CSNI Critical Flow Report
NOTES:

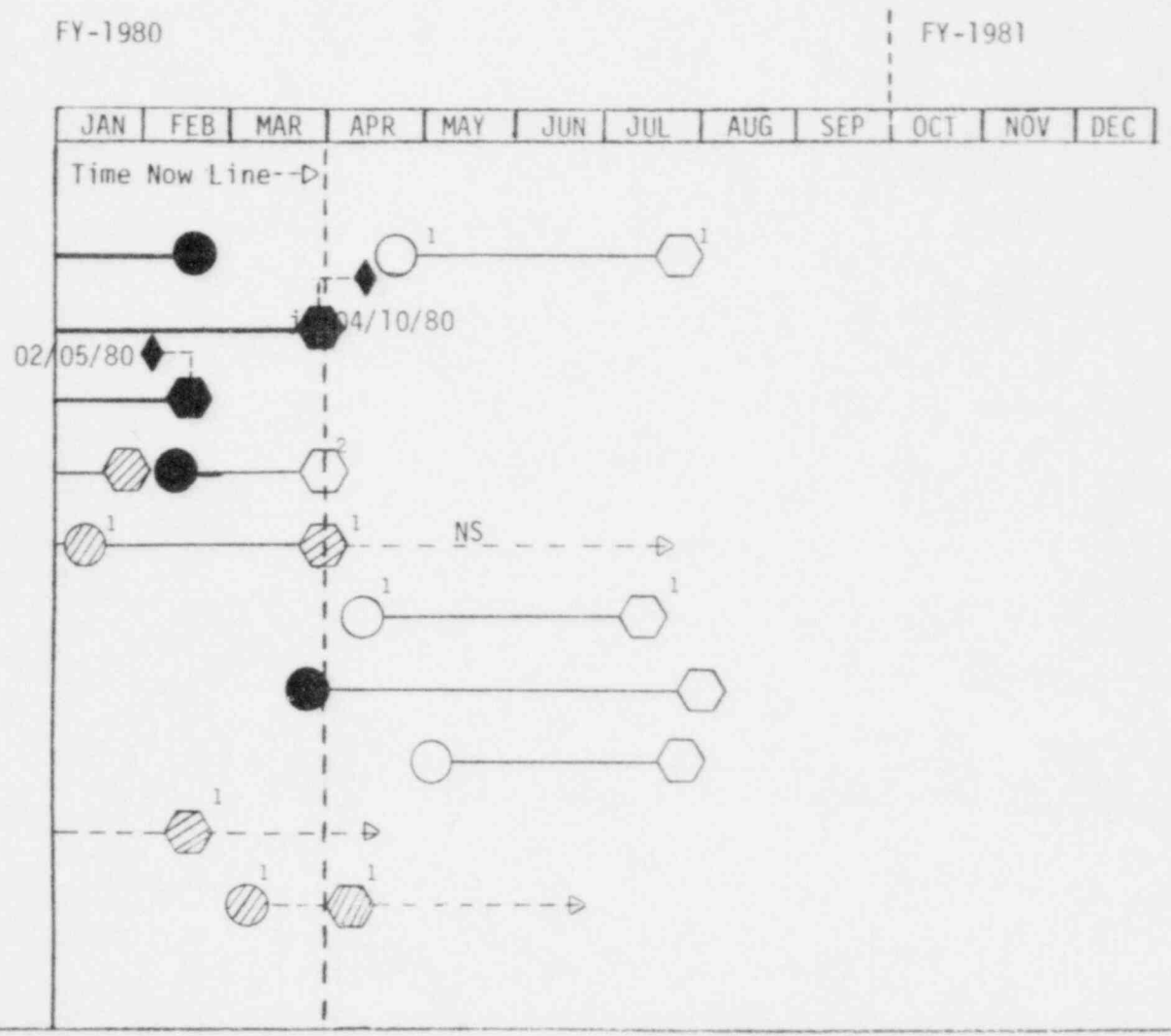
CODE ASSESSMENT AND APPLICATIONS PROGRAM

March 1980

Standard Problem (A6048B)

LEGEND

- Completed Major Milestone
- Scheduled Major Milestone
- Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- Slipped Secondary Milestone
- Actual Completion Date
- Scheduled Completion Date

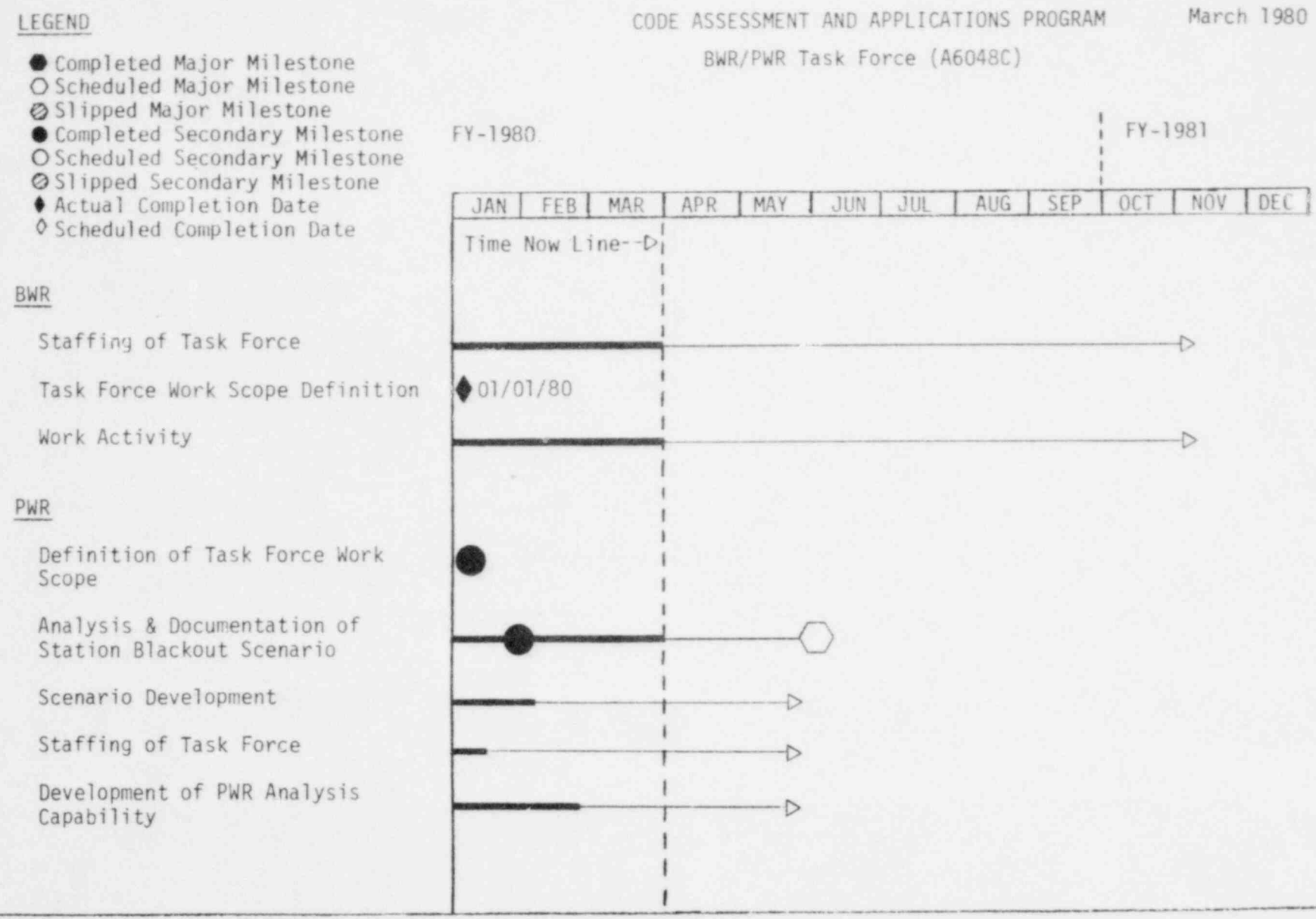


NOTES:

1. Schedule depends upon when participant calculations are received from NRC.
2. This task was stopped pending NRC decision to either rerun Test S-07-10B or rerun the calculations.

CODE ASSESSMENT AND APPLICATIONS PROGRAM March 1980

BWR/PWR Task Force (A6048C)



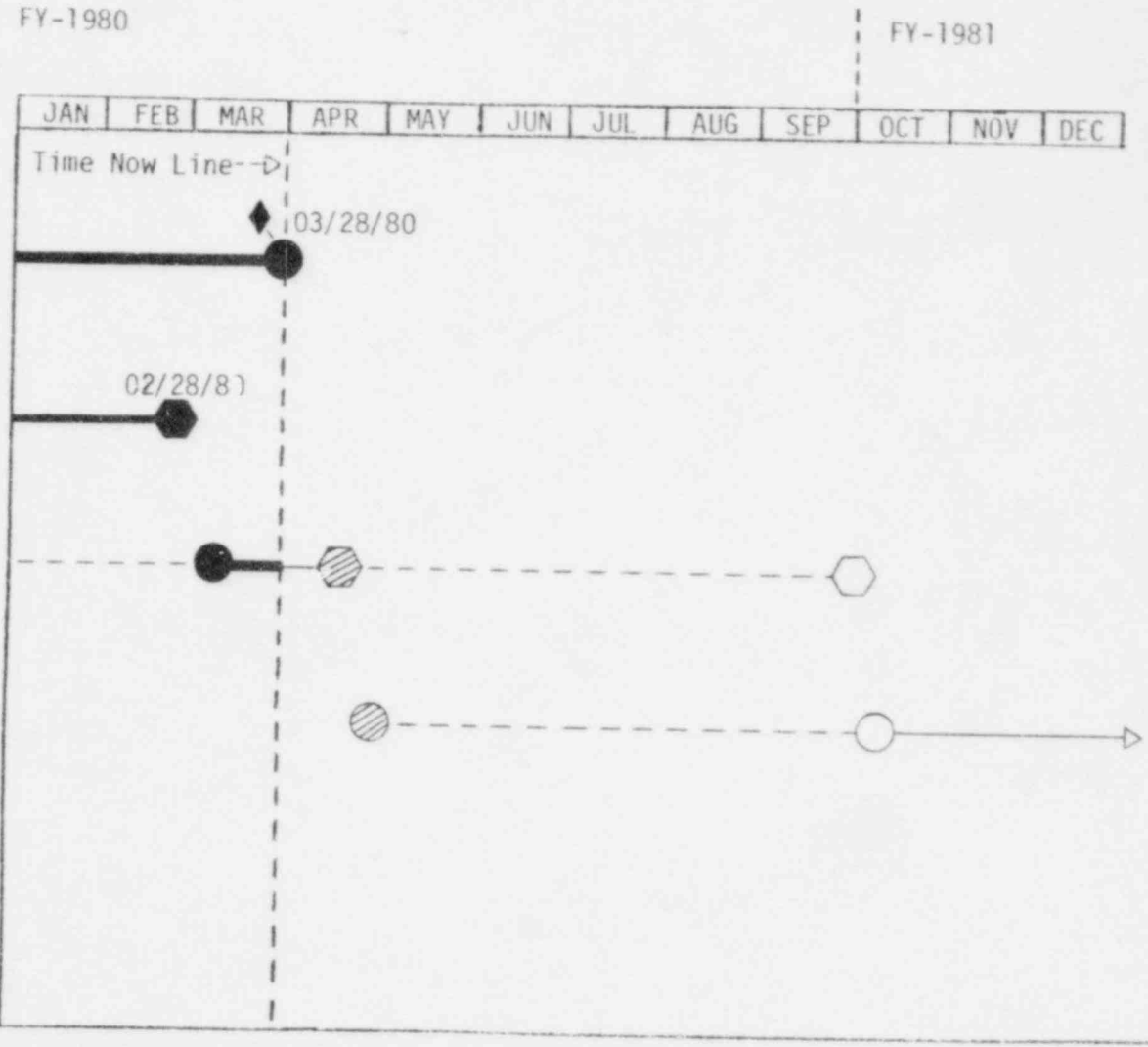
NOTES:

CODE ASSESSMENT AND APPLICATIONS PROGRAM March 1980

Fuel Code Assessment (A6046)

LEGEND

- ● Completed Major Milestone
- ○ Scheduled Major Milestone
- ⊘ Slipped Major Milestone
- ● Completed Secondary Milestone
- ○ Scheduled Secondary Milestone
- ⊘ Slipped Secondary Milestone
- ♦ Actual Completion Date
- ◊ Scheduled Completion Date



NOTES:

CODE ASSESSMENT & APPLICATIONS PROGRAM

CAPITAL EQUIPMENT

EG&G IDAHO, INC.

CAPITAL EQUIPMENT PRIORITY LIST

CARRYOVER

Program CODE ASSESSMENT

189 Number A6102 (A6117)

Manager J. A. Dearien

EA No.	Item Description	Authorized Amount	March YTD Costs & Commit.	Project to Date	<Over>/Under Balance
98924	Tektronix Graphic Tablet	8,468	5,606	5,606	2,862
	Closed EA's and Misc. Prior Years	13,532	---	13,256	276
		22,000	5,606	18,862	3,138

Carryover Budget	8,744
YTD Costs & Commit.	<5,606>
	3,138

Item Authorized o
Money Committed Δ
Equipment Received, Account Closed ■

CAPITAL EQUIPMENT PRIORITY LIST

FY-1980

Program CODE ASSESSMENT IN9 Number A6116 Manager J. A. Dearien

Item Authorized o
Money Committed a
Equipment Received, Account Closed ■

Priority Number	EA No.	Item Description	Authorized Amount	March YTD Costs & Commitments	<Over>/Under Balance
1	99174	ADPE	15,000		15,000

CAPITAL EQUIPMENT PRIORITY LIST

FY-1980

Program CODE ASSESSMENT .69 Number A6112 Manager J. A. Dearien

Item Authorized o
Money Committed Δ
Equipment Received, Account Closed ■

Priority Number	SA No.	Item Description	Authorized Amount	March YTD Costs & Commitments	<Over>/Under Balance
1	99175	ADPE	20,000	---	20,000

O N D J F M A M J J A S

CODE ASSESSMENT & APPLICATIONS PROGRAM

TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S SUMMARY AND HIGHLIGHTS

A "Blind" test prediction for the first experiment (A1-04c) in the LOBI facility was completed.

The addendum to the FRAP-T5 assessment document was completed and issued.

Data from six tests in the FLECHT series of tests was added to the Data Bank.

Report EGG-EA-5112 entitled "Estimators for the Binomial Failure Rate Common Cause Model" was issued to NRC (A6283).

A report describing the FLECHT-SEASET scaling studies for small break testing was issued.

1. A6039 - INEL Technical Support to NRC for Industry Cooperative Programs

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date

None scheduled.

3. Summary of Work Performed in March 1980

Continued the following tasks:

(a) Preparation for TLTA Small Break Test No. 2. The actual test boundary conditions were received on March 21, 1980.

(b) FLECHT-SEASET Boil-Off Test data comparison.

(c) Preparation for BWR-Refill/Reflood Single Heated Bundle test prediction.

(d) A report describing the FLECHT-SEASET scaling studies for small break testing was issued (Not a scheduled milestone).

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual Date

None scheduled.

5. Summary of Work to be Performed in April 1980

Continue the TLTA Small Break test prediction. A letter report documenting the results, will be issued by April 21, 1980.

Continue the FLECHT-SEASET Boil-Off data comparison and BWR/R/R Single Heated Bundle test prediction.

6. Problems and Potential Problems

None

1. Task A6046 - Fuel Behavior Analysis Assessment

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date
	FRAP-T5 Issue Addendum	3-31-80	3-27-80C

3. Summary of Work Performed in March 1980

The addendum to the FRAP-T5 assessment document was completed and issued. The addendum included a revised user recommendations section and the results of a study on FRAP-T5 behavior during sinusoidal power operation.

A literature search and the creation of new FRAPCON-2 input decks are underway. Thus far, about 60 new input decks have been created to represent the IFA-430, IFA-505, IFA-507, IFA-513, PBF PCM-1 and PCM-3 tests. The decks for IFA-429, IFA-431, HBRobinson, and Saxton were updated to represent recently published data.

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual

None scheduled.

5. Summary of Work to be Performed in April 1980

The FRAPCON-2 literature search and new deck creation tasks will be completed.

Preparation for the commercial rod studies and uncertainty studies will commence.

6. Problems and Potential Problems

None

1. A6047 - LOCA Analysis Assessment and Applications

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date
None scheduled.			

3. Summary of Work Performed in March 1980

The "blind" calculation of LOBI Test A1-04c was completed.

The vessel component for the PWR LOCA calculations was renodalized with more cells and the calculations continued.

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual Date
	Complete RELAP4/MOD6 Calculation of LOBI Test A1-04c	4-1-80	3-20-80C
	Complete S-04-6 PAR	4-30-80	

5. Summary of Work to be Performed in April 1980

A report on the TRAC P1A calculations for Semiscale Test S-04-6 will be issued.

A report on the blind calculation of LOBI Test A1-04c will be issued.

An IBM tape of the LOBI calculated results will be prepared.

6. Problems and Potential Problems

The availability of adequate computer time for the TRAC PWR calculation will be a potential problem if the CDC Minneapolis computer is not available.

1. I-689 Task A6048B - Standard Problem Analysis & Heat Transfer Assistance

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date
	USSP10 Prel Comp Rpt	3-31-80T	

3. Summary of Work Performed in March 1980

The preliminary comparison report for USSP10 was nearly completed.

The RELAP4 calculation of ISP10 was initiated.

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual Date

None scheduled.

5. Summary of Work to be Performed in April 1980

The preliminary comparison report for USSP10 will be issued early in the month.

The RELAP4 calculation for ISP10 will continue.

6. Problems and Potential Problems

None

1. Task A6048C - PWR/BWR Task Forces

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date

None scheduled.

3. Summary of Work Performed in March 1980

A report on the loss of off-site power in the Westinghouse Zion I PWR was about 70% completed.

Participated in writing the proposal for a Boiling Water Reactor Semiscale.

Initiated BWR training by touring the WPPSS Babcock and Wilcox plant simulator and a boiling water reactor at Richland, Washington.

A draft of the 189a (A6048C) for the PWR and BWR Task Forces was completed.

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual Date

None scheduled.

5. Summary of Work to be Performed in April 1980

A draft of the report on the loss of off site power in the Westinghouse Zion I PWR will be completed.

6. Problems and Potential Problems

Obtaining proprietary information and drawings from TVA and GE which are required to construct computer code input for Browns Ferry I is a potential problem.

1. A6102 - Data Bank Processing System

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date

None scheduled.

3. Summary of Work Performed in March 1980

Six tests were added to the Data Bank: 2 FLECHT-SEASET (35557 and 31504), 3 FLECHT-SKEWED (11003, 13404, and 13609) and 1 FLECHT-COSINE (02414). A REFORM program for Marviken data was completed and is being tested. The procedure for adding LOFT data to the Data Bank is being updated.

A Data Bank "flyer" describing basic INTERCOM commands for the off site user has been completed. A "flyer" describing the SEARCH processor in ISDMS is being formulated.

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual Date

None scheduled.

5. Summary of Work to be Performed in April 1980

The addition of FLECHT data into the Data Bank will continue.

The establishment of two new data sources will be initiated. The "flyer" describing the SEARCH processor will be completed.

The overall scope of the Data Bank tasks will be redefined.

6. Problems and Potential Problems

None

1. Task A6279 - Preparation of Documents for TAP A-1

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date

None scheduled.

3. Summary of Work Performed in March 1980

Activity on updating the Water Hammer Summary Report was resumed and will be continued in April.

A draft copy of the BNL report on steam generator water hammer was requested from the NRC to insure the accuracy of the summary provided for inclusion in the "Summary Report".

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual Date

None scheduled.

5. Summary of Work to be Performed in April 1980

Work on the "Summary Report" on water hammer will continue. Release to the NRC by the end of May is the current goal.

6. Problems and Potential Problems

None

1. Task A6285 - HDR Mechanical Component Response Analysis Testing

2. Scheduled Milestones for March 1980

Node	Description	Due Date	Actual Date
None scheduled.			

3. Summary of Work Performed in March 1980

The analysis phase of the original task was completed and the results transmitted to Germany, ANCO engineers, and the NRC.

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual Date
Z-9	Perform Analysis (No report)	4-1-80	3-27-80C JAD-77-80

5. Summary of Work to be Performed in April 1980

Preparation of an informal report documenting the analysis effort will be initiated.

6. Problems and Potential Problems

None

I-661 PROBABILISTIC ANALYSIS STAFF

TASK

A6276	LER Failure Rate Analysis
A6283	Common Cause Data Analysis
A6290	NPRDS Data Analysis
A6291	LER Flagging Analysis
A6293	Flood Occurrence Rate Analysis
A6294	Plant Status Monitoring
A6296	Integrated Reliability Evaluation Program

2. Scheduled Milestones for March 1980

A Nos.	Node	Description	Due Date	Actual Date
A6276	K5	Valves Final Rpt	3-17-80T 5-15-80E JAD-60-80	
A6283	K13	Theoretical Derivation Final Rpt	3-17-80T	3-14-80C JAD-72-80
A6290	None scheduled.			
A6291	None scheduled.			
A6293	None scheduled.			
A6294	S3	Issue Final Report	3-31-80	4-1-80C JAD-81-80
A6296	None scheduled.			

3. Summary of Work Performed in March 1980

A6276 - Finished writing final valve report and submitted to Technical Editing.

Completed preparation of draft containment penetrations report.

Began organizing material for the instrumentation and controls report.

A6283 - Continued applying Marshall-Olkin model to the analysis of Common Cause Failure data.

A report "Estimators for the Binomial Failure Rate Common Cause Model", EGG-EA-5112 was issued.

A6290 - Continued work aimed at extracting and sorting NPRDS failure data in contingency tables that will permit computerized analysis. Exercised a Bayesian analysis code, obtained from Kansas State University, on va ve failure data. Issued a progress report to NRC.

A6291 - Flagging analysis efforts were directed toward valve failure information.

A6293 - A progress report was written and transmitted to NRC.

A6294 - A draft report was prepared by SAI which summarizes the methodology used to determine accident-following instrumentation needs. The report also includes applicaton of the methodology to several WASH-1400 sequences.

A6296 - Neither EG&G nor its contractor, Energy Incorporated, performed any work relative to the IREP program during March.

4. Scheduled Milestones for April 1980

A Nos.	Node	Description	Due Date	Actual Date
A6276	K6	Diesel Final Rpt	4-1-80T	2-27-80C JAD-27-80
	K4	Penetrations Draft	4-1-80	4-1-80C JAD-82-80
A6283	None scheduled.			
A6290	K19	Computer Technique & Options Draft Rpt	4-1-80T	3-25-80C JAD-76-80
A6291	K27	Valve Data Draft	4-1-80T 6-1-80E JAD-60-80	
A6293	K35	Ltr Progress Rpt	4-1-80T	3-13-80C JAD-67-80

A6294 None scheduled.
A6296 None scheduled.

5. Summary of Work to be Performed in April 1980

A6276 - Monitoring Technical Editing progress on final valve report.

Continue organizing for sorting and summarizing instrumentation and controls failure data.

A6283 - Continue analysis of pump data.

A6290 - Continue efforts to extract and sort data into contingency tables.

Begin computerized statistical analysis of contingency table data.

A6291 - Continue flagging efforts on valve and pump failure information.

A6293 - Continue analysis efforts as directed by NRC/PAS.

A6294 - SAI will commence reviewing the principal contributors to important accident scenarios identified in WASH-1400 to determine how equipment outages are monitored in nuclear plants and how those outages can be more readily identified to operators.

A6296 - EG&G and its contractor, EI, are expected to be asked to provide review comments of the Crystal River Study report before its issuance in late April.

6. Problems and Potential Problems

None

WRRD MONTHLY REPORT FOR

MARCH 1980

CODE DEVELOPMENT & ANALYSIS PROGRAM

CODE ASSESSMENT & APPLICATIONS PROGRAM

(NRR)

E. L. Pierson
Plans & Budgets Representative

P. North, Manager
Code Development & Analysis Program

J. A. Dearien, Manager
Code Assessment & Applications Program

CODE DEVELOPMENT & ANALYSIS PROGRAM

NRR

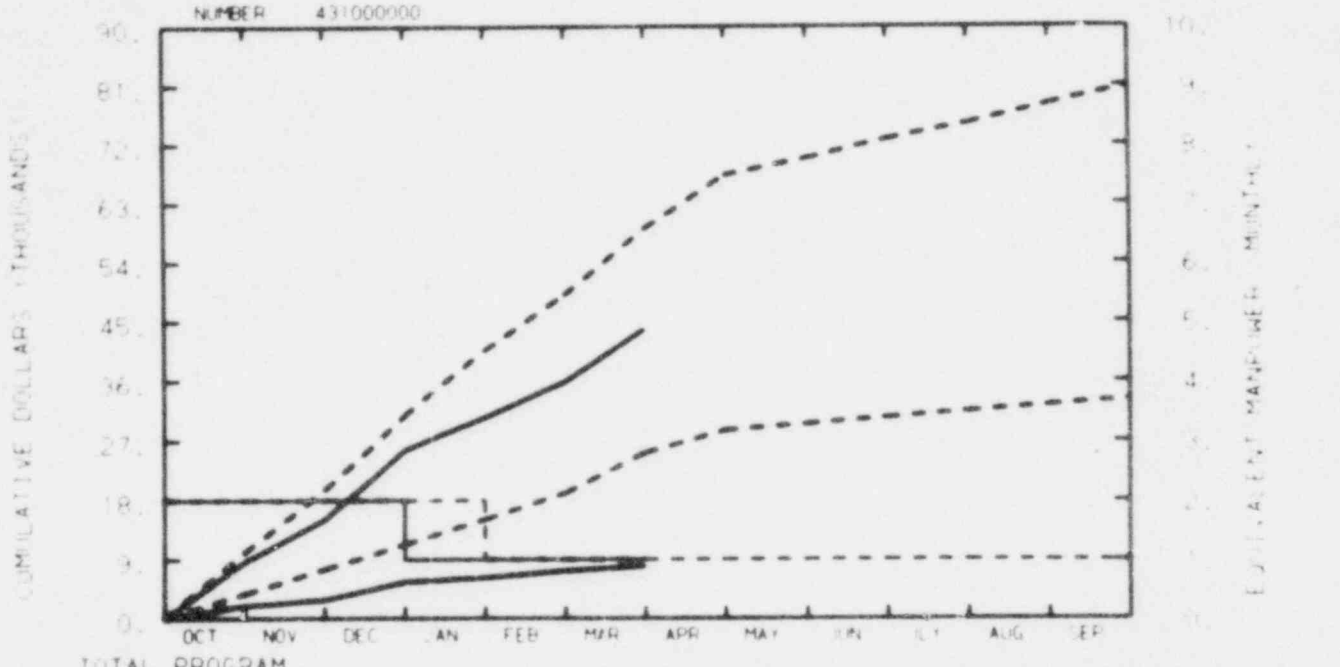
COST SUMMARY & COMMENTS

RESPONSIBLE
MANAGER
P. NORTH

EG&G IDAHO INC.

CONTAINMENT ANALYSIS

NUMBER 431000000



TOTAL PROGRAM

BUDGET	10	20	31	41	49	59	67	70	73	75	78	81
ACTUAL	9	15	26	30	36	44						

MATERIAL

BUDGET	4	8	11	15	19	25	28	29	40	41	52	53
ACTUAL	2	3	6	6	7	8						

MANPOWER

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

A6009

YTD VARIANCE: 15 (25%)

The problem identification section of the CONTEMPT4 checkout was completed ahead of schedule and below cost. An early start is being made on the problem resolution section. A meeting will be held with NRC in April to identify the remaining FY-1980 work scope.

CODE DEVELOPMENT & ANALYSIS PROGRAM

NRR

TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

The problem identification section of the CONTEMPT4 checkout was completed about three weeks ahead of schedule and below cost.

The cost underrun is allowing a start to be made on the problem resolution portion of the checkout. A meeting with NRC is being arranged for late April to review the results and to establish follow-on work.

1. 189a A6009 - Containment Analysis

2. Scheduled Milestones for March 1980

   No scheduled milestones for March.

3. Summary of Work Performed in March 1980

   The CONTEMPT4 model checkout report was completed and released on March 27, 1980. Work was begun on finding the sources of problems encountered in the checkout and fixing them.

4. Scheduled Milestones for April 1980

Node	Description	Due Date	Actual Date
L1, N2 Pert Chart	CONTEMPT Checkout	4-15-80E	3-27-80C PN-30-80

5. Summary of Work to be Performed in April 1980

   A meeting will be held with the NRC to decide the disposition of the problems found in CONTEMPT4. Meanwhile, work will continue on fixing these problems.

6. Problems and Potential Problems

   None.

CODE ASSESSMENT & APPLICATIONS PROGRAM

NRR

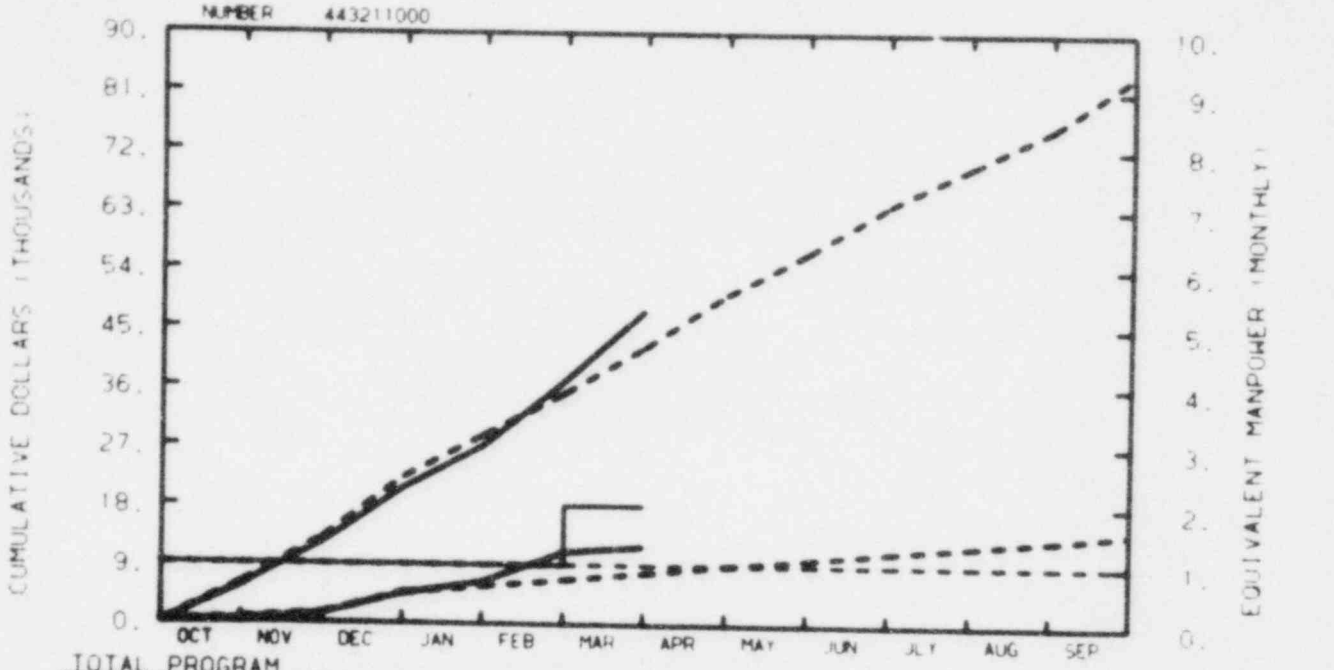
COST SUMMARY & COMMENTS

RESPONSIBLE
MANAGER
J A DEARIEN

EG&G IDAHO INC.

PWR/BWR PRIM SYS RESP ANAL-LOCA

NUMBER 443211000



TOTAL PROGRAM

BUDGET	6	13	22	29	35	42	50	56	64	70	75	84
ACTUAL	6	12	21	27	37	48						

MATERIAL

BUDGET	1	1	5	6	7	8	9	10	11	12	13	14
ACTUAL	0	1	4	6	11	12						

MANPOWER

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

BUDGET - - - - -

ACTUAL ———

A6152

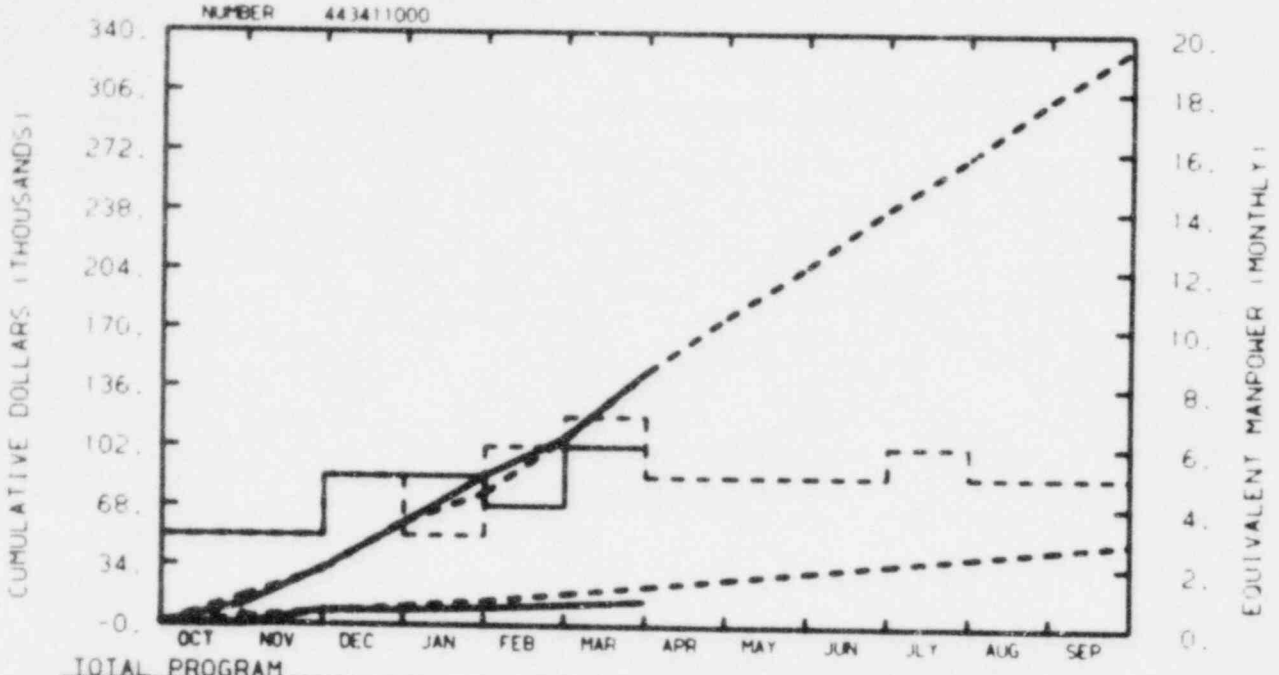
YTD VARIANCE: <6> (14%)

RESPONSIBLE
MANAGER
J A DEARIEN

EG&G IDAHO INC.

TECH ASST ON ASYMMETRIC LOCA LOA

NUMBER 443411000



TOTAL PROGRAM

BUDGET	15	31	59	75	106	145	177	206	240	269	302	332
ACTUAL	11	32	58	85	107	145						

MATERIAL

BUDGET	4	7	11	14	18	22	27	31	35	39	44	48
ACTUAL	0	8	8	10	12	14						

MANPOWER

BUDGET	3	3	5	3	6	7	5	5	5	6	5	5
ACTUAL	3	3	5	5	4	6						

BUDGET

ACTUAL

A6156

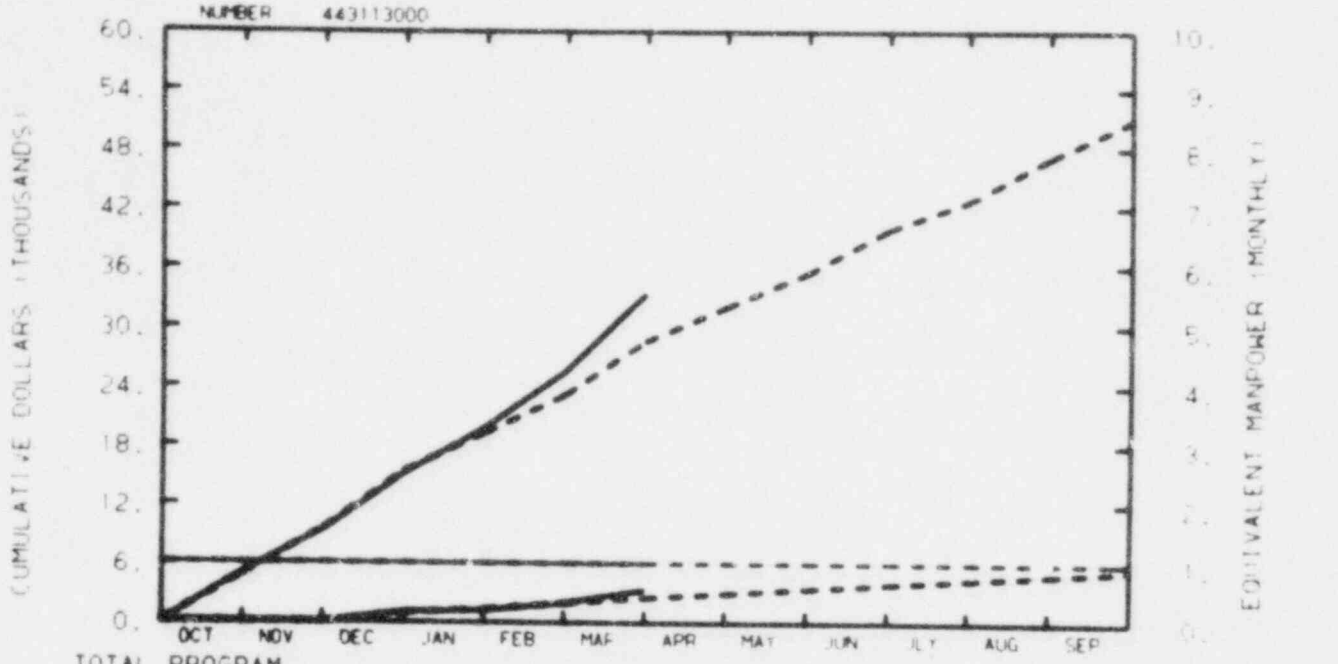
YTD VARIANCE: 0

ESPONSIBLE
ANAGER
A DEARIEN

EG&G IDAHO INC.

FUEL ASSEM SEISMIC & LOCA RESPON

NUMBER 443113000



TOTAL PROGRAM

BUDGET	5	9	15	19	23	29	32	35	40	43	47	51
ACTUAL	5	9	15	20	25	33						

MATERIAL

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

BUDGET - - - - -

ACTUAL ———

MANPOWER

BUDGET	1	1	1	1	1	1		1	1	1	1	1
ACTUAL	1	1	1	1	1	1						

A6157

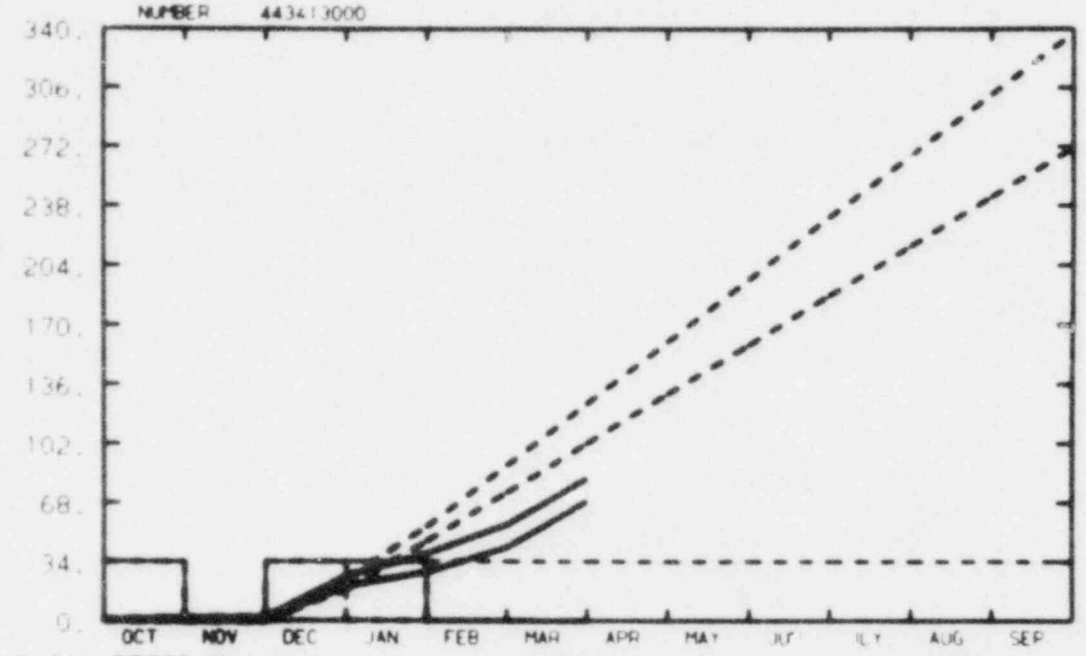
YTD VARIANCE: <4> (14%)

RESPONSIBLE MANAGER
J A DEARIEN

EG&G IDAHO INC.

ONCALL ASST AT OPERATING LWRS

NUMBER 4434130000



TOTAL PROGRAM

BUDGET	1	2	24	54	90	125	160	196	231	267	302	338
ACTUAL	1	2	26	39	55	82						

MATERIAL

BUDGET	0	0	18	46	74	102	130	158	187	215	243	271
ACTUAL	0	0	20	28	42	69						

MANPOWER

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

BUDGET - - - - -

ACTUAL ———

A6159

YTD VARIANCE: 43 (34%)

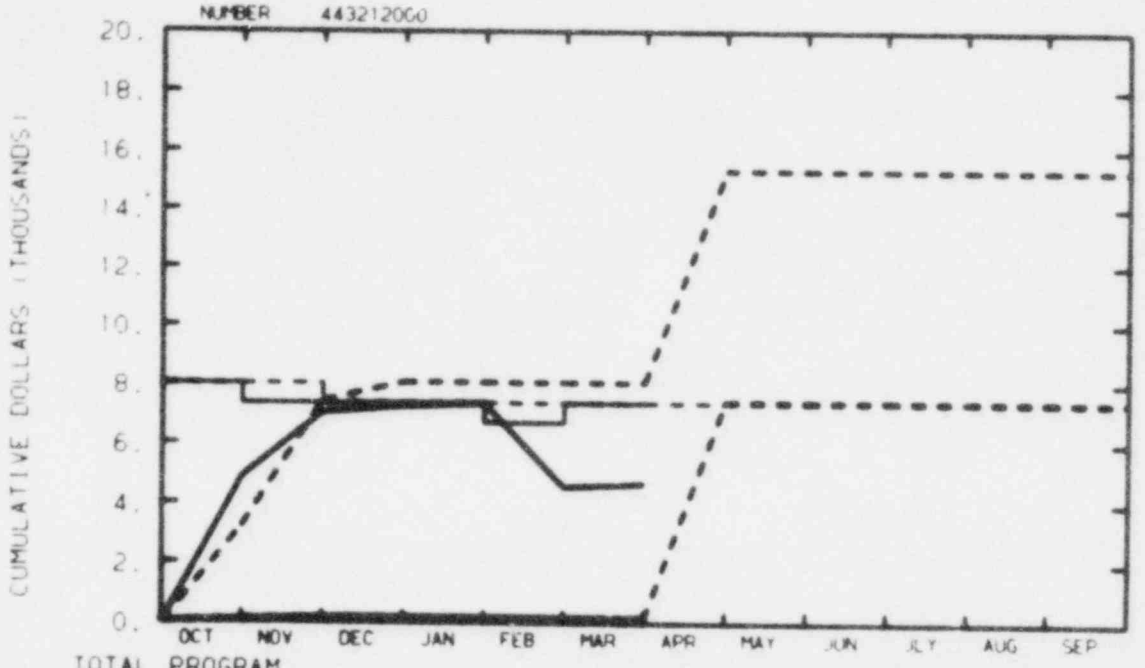
No work has been done in the on-call technical assistance area for this FIN number which has created an underrun. The subcontracts from EG&G-SBO and Exxon are slightly behind billing schedule causing the additional lapse. Readjustment in budget to take this delayed billing into account will bring budget and actuals more in line. Technical Assistance will be as needed.

RESPONSIBLE MANAGER
J A DEARIEN

EG&G IDAHO INC.

FRACTURE TOUGHNESS CRITERIA

NUMBER 443212060



TOTAL PROGRAM

BUDGET	3	7	8	8	8	8	15	15	15	15	15	15
ACTUAL	5	7	7	7	5	5						

MATERIAL

BUDGET	0	0	0	0	0	0	7	7	7	7	7	7
ACTUAL	0	0	0	0	0	0						

BUDGET - - - -

ACTUAL ———

MANPOWER

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

A6166

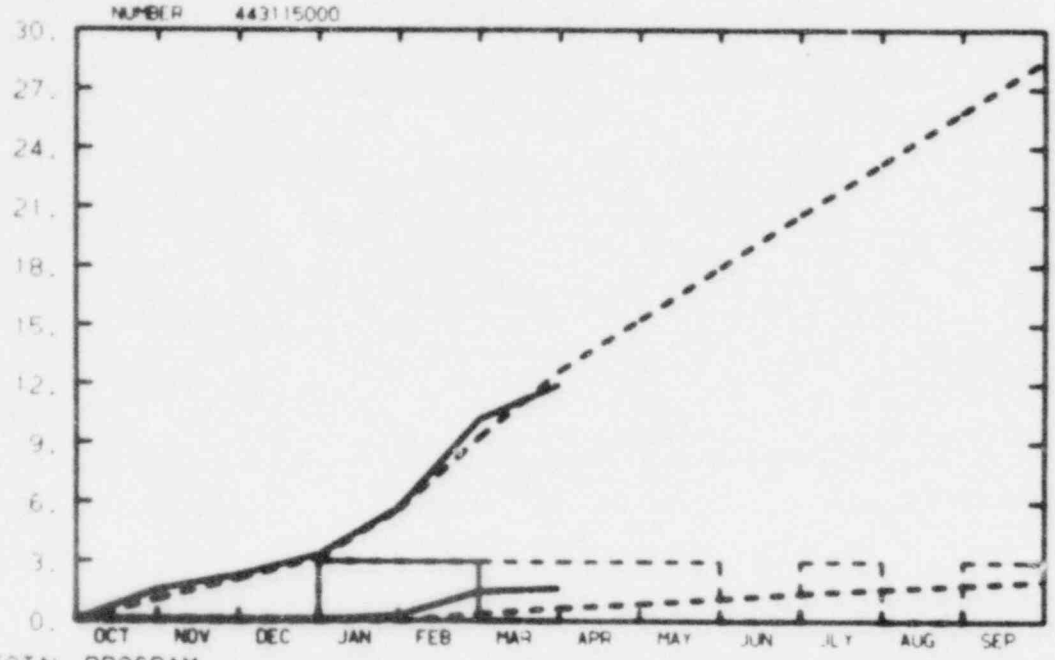
YTD VARIANCE: 3 (38%)

RESPONSIBLE MANAGER
A DEARIEN

EG&G IDAHO INC.

FUEL PERFORMANCE CODE APPLICA

NUMBER 443115000



TOTAL PROGRAM

BUDGET	1	2	3	6	9	13	15	18	21	23	26	28
ACTUAL	2	2	3	6	10	12						

MATERIAL

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

MANPOWER

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

BUDGET

ACTUAL

A6167

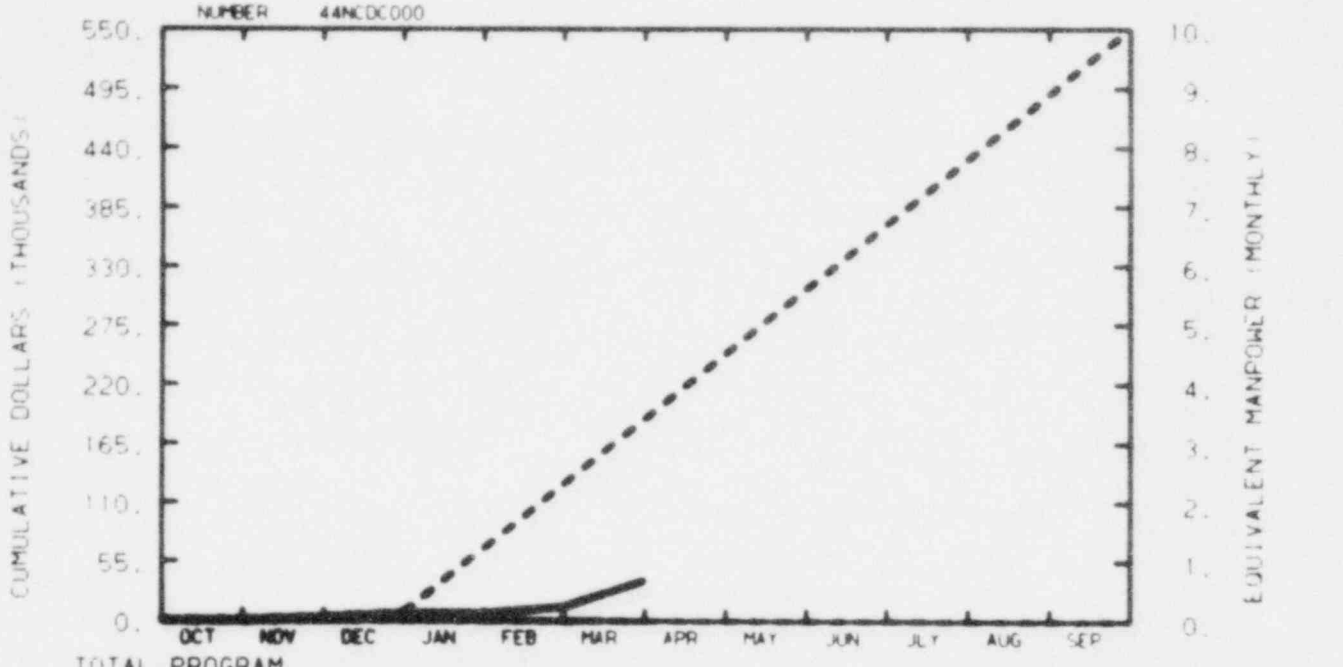
YTD VARIANCE: 1 (8%)

RESPONSIBLE MANAGER
J GUTTMAN (NRC)

EG&G IDAHO INC.

NRC USE OF INEL CDC

NUMBER 44NCDC000



TOTAL PROGRAM

BUDGET	1	2	7	67	127	188	248	308	369	429	490	550
ACTUAL	0	3	7	7	13	38						

MATERIAL

BUDGET	1	2	7	67	127	188	248	308	369	429	490	550
ACTUAL	0	3	7	7	13	38						

BUDGET

ACTUAL

MANPOWER

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

A6209

YTD VARIANCE: 150 (80%)

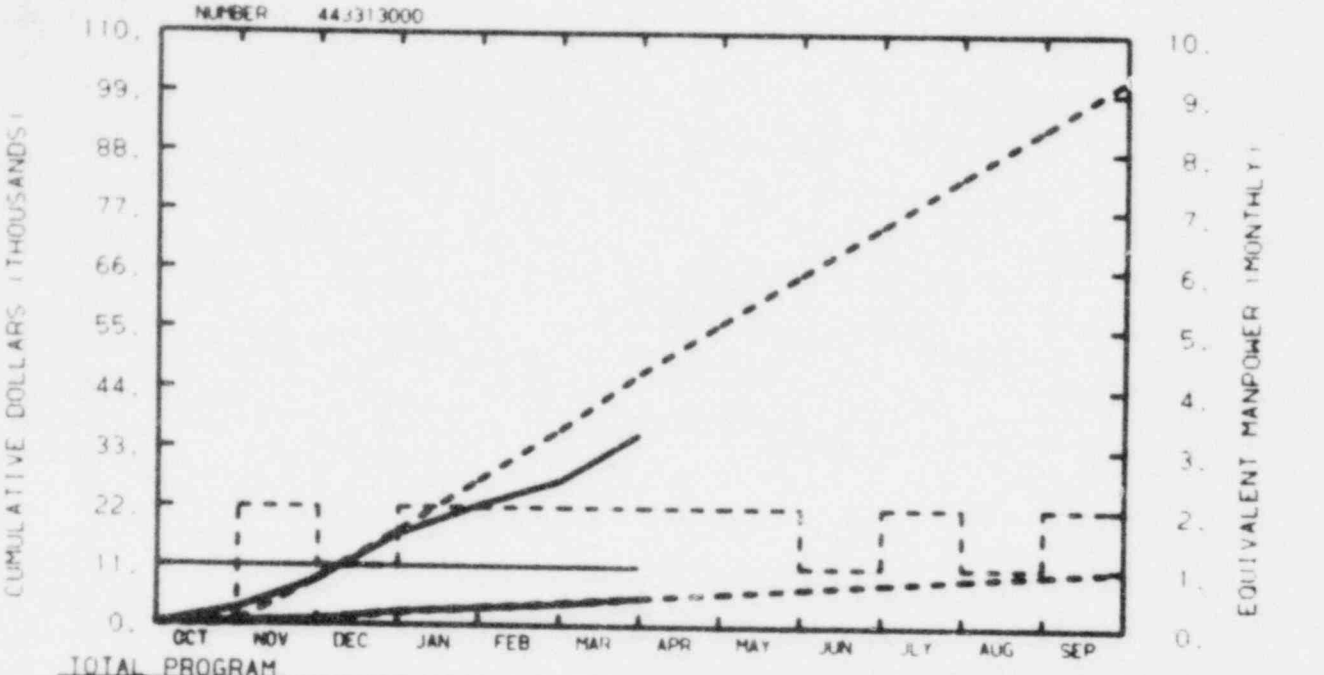
This is a computer fund available on an as-required and justified, but unscheduled basis. Since this funding is not allocated to specifically defined tasks, its expenditure rate cannot be accurately forecast and the present under expenditure therefore has no significance.

RESPONSIBLE MANAGER
J A DEARIEN

EG&G IDAHO INC.

ENG SUPPORT FOR PIPE BK INST CON

NUMBER 44331 3000



TOTAL PROGRAM

BUDGET	0	9	18	27	36	47	56	65	74	83	93	102
ACTUAL	3	8	17	22	27	36						

MATERIAL

BUDGET	0	1	2	3	4	5	6	7	8	9	10	11
ACTUAL	0	1	2	3	4	5						

MANPOWER

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

BUDGET

ACTUAL

A6250

YTD VARIANCE: 11 (23%)

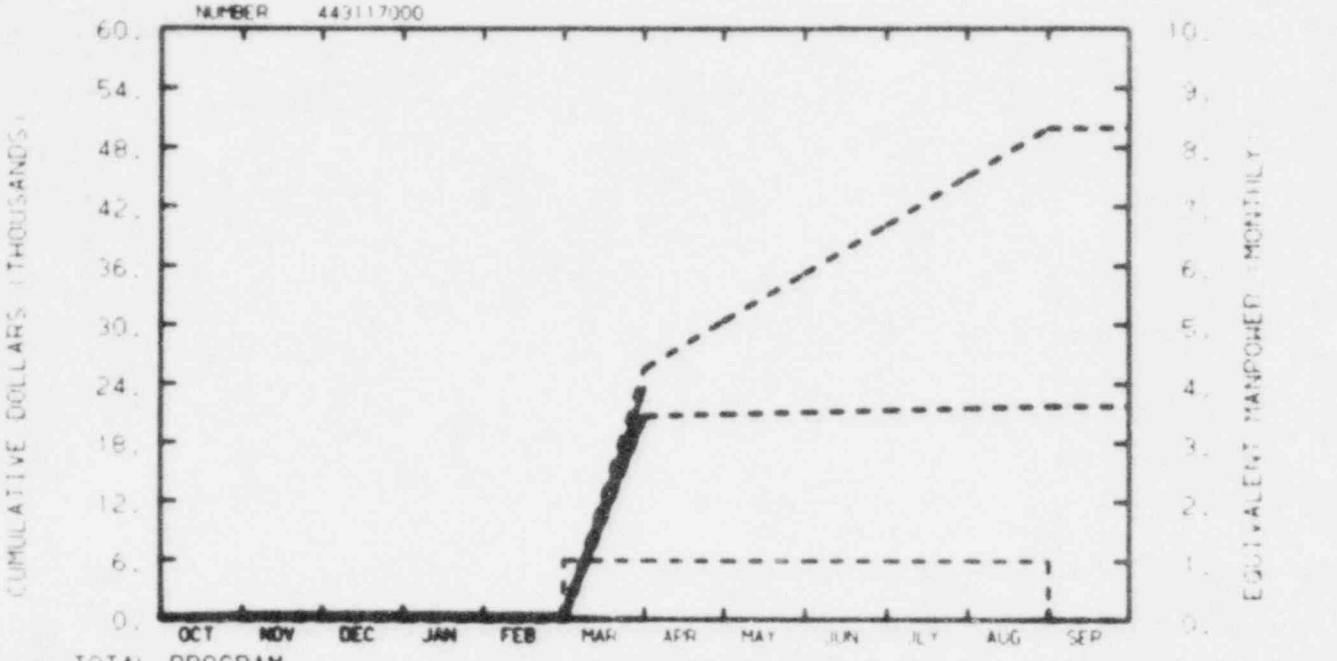
Information being received at slower than expected pace and second engineer has not been applied to this task. The work scope will be completed within the allotted funds but underspending will continue until sufficient work to warrant assignment of a second individual to this task is accumulated.

SPONSIBLE
NAGER
B SAFFELL

EG&G IDAHO INC.

WATER HAMMER REVIEW & EVALUATION

NUMBER 443117000



TOTAL PROGRAM

BUDGET	0	0	0	0	0	26	30	35	40	45	50	50
ACTUAL	0	0	0	0	0	24						

MATERIAL

BUDGET	0	0	0	0	0	21	21	21	21	22	22	22
ACTUAL	0	0	0	0	0	21						

MANPOWER

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

BUDGET

ACTUAL

A6251

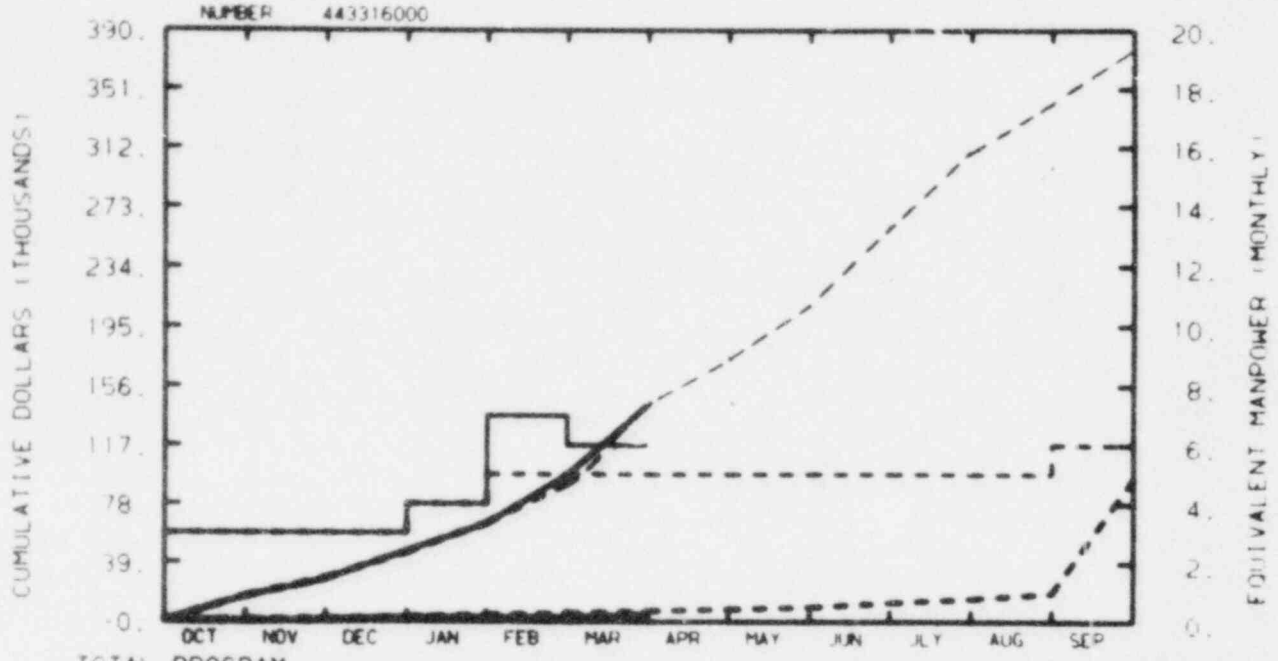
YTD VARIANCE: 2 (8%)

RESPONSIBLE
MANAGER
J A DEARIEN

EG&G IDAHO INC.

EICS SUPPORT

NUMBER 443316000



TOTAL PROGRAM

BUDGET	17	29	45	65	91	136	176	216	256	296	336	380
ACTUAL	16	28	46	65	97	143						

MATERIAL

BUDGET	0	1	2	4	5	7	8	10	13	15	19	95
ACTUAL	0	1	2	2	3	5						

MANPOWER

BUDGET	3	3	3	4	5	5	5	5	5	5	5	6
ACTUAL	3	3	3	4	7	6						

BUDGET

ACTUAL

A6256

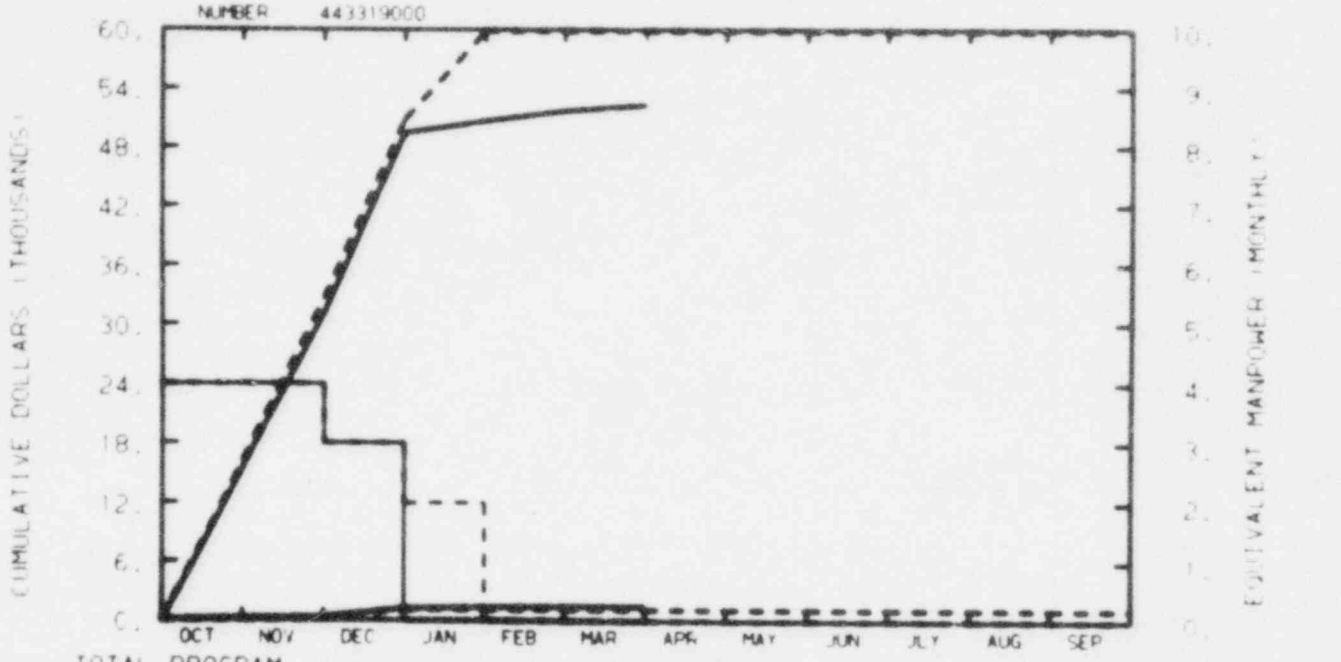
YTD VARIANCE: <7> (5%)

ESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC.

STEAM GENERATOR WATER

NUMBER 443319000



TOTAL PROGRAM

BUDGET	16	33	51	60	60	60	60	60	60	60	60	60
ACTUAL	15	31	49	51	52	52						

MATERIAL

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

MANPOWER

BUDGET	4	4	3	2	0	0	0	0	0	0	0	0
ACTUAL	4	4	3	0	0	0						

BUDGET

ACTUAL

A6257

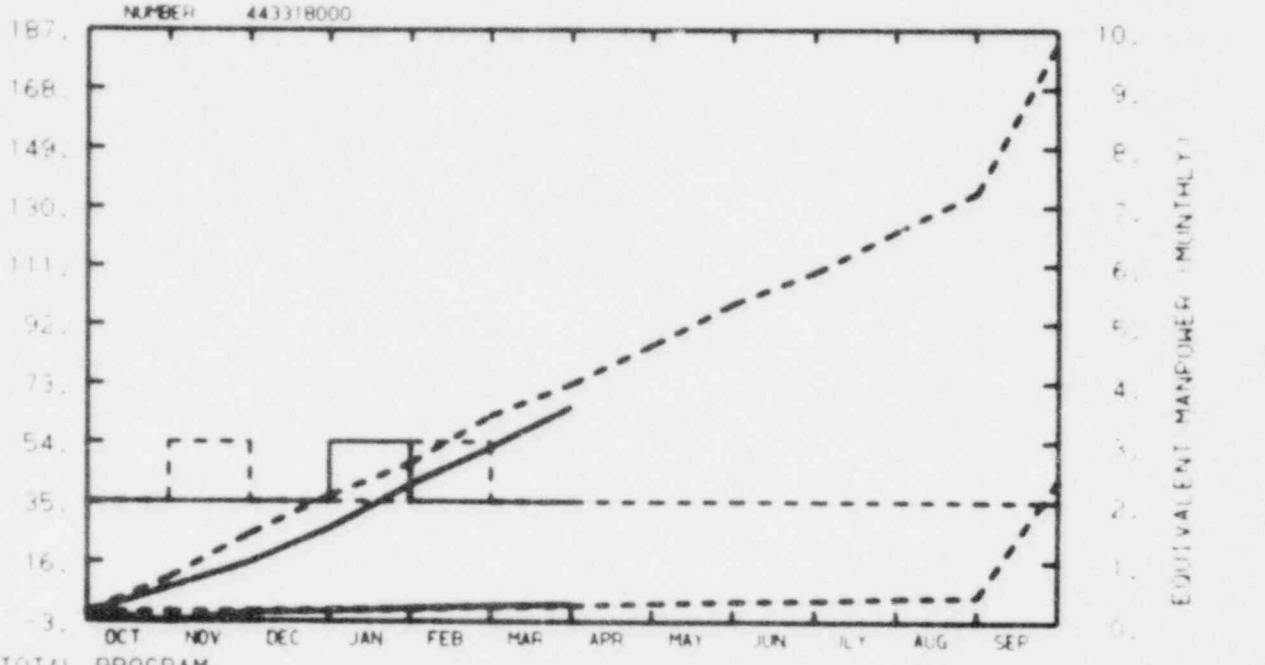
YTD VARIANCE: 8 (13%)

RESPONSIBLE
MANAGER
A DEARIEN

EG&G IDAHO INC.

SYSTEMS ENGR SUPPORT

NUMBER 443318000



TOTAL PROGRAM

BUDGET	11	25	37	47	63	73	85	99	109	122	135	183
ACTUAL	8	15	27	41	52	66						

MATERIAL

BUDGET	0	0	1	1	2	2	3	4	4	5	5	42
ACTUAL	-2	0	1	1	2	3						

MANPOWER

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

BUDGET

ACTUAL

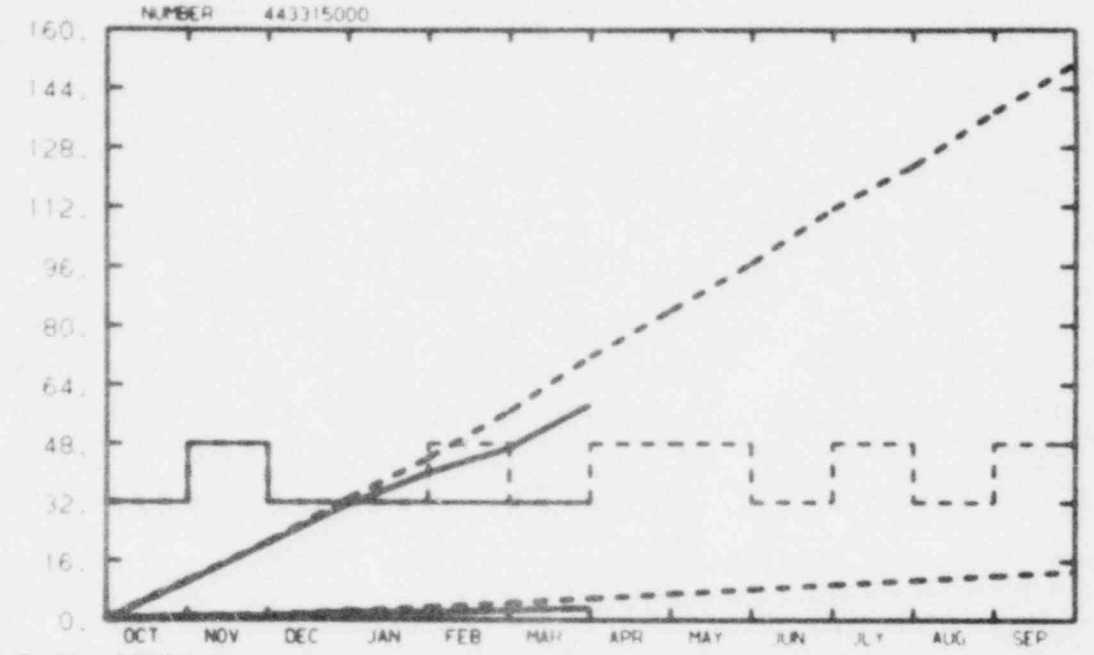
A6258

YTD VARIANCE: 7 (10%)

SPONSIBLE
ANAGER
A DEARIEN

EG&G IDAHO INC.

EICS SUPPORT FOR SEP



TOTAL PROGRAM

BUDGET	10	21	33	44	57	72	84	97	111	123	138	151
ACTUAL	10	21	31	40	47	59						

MATERIAL

BUDGET	1	1	2	3	5	6	7	8	10	11	12	13
ACTUAL	1	1	2	2	3	3						

BUDGET

ACTUAL

MANPOWER

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

A6260

YTD VARIANCE: 13 (18%)

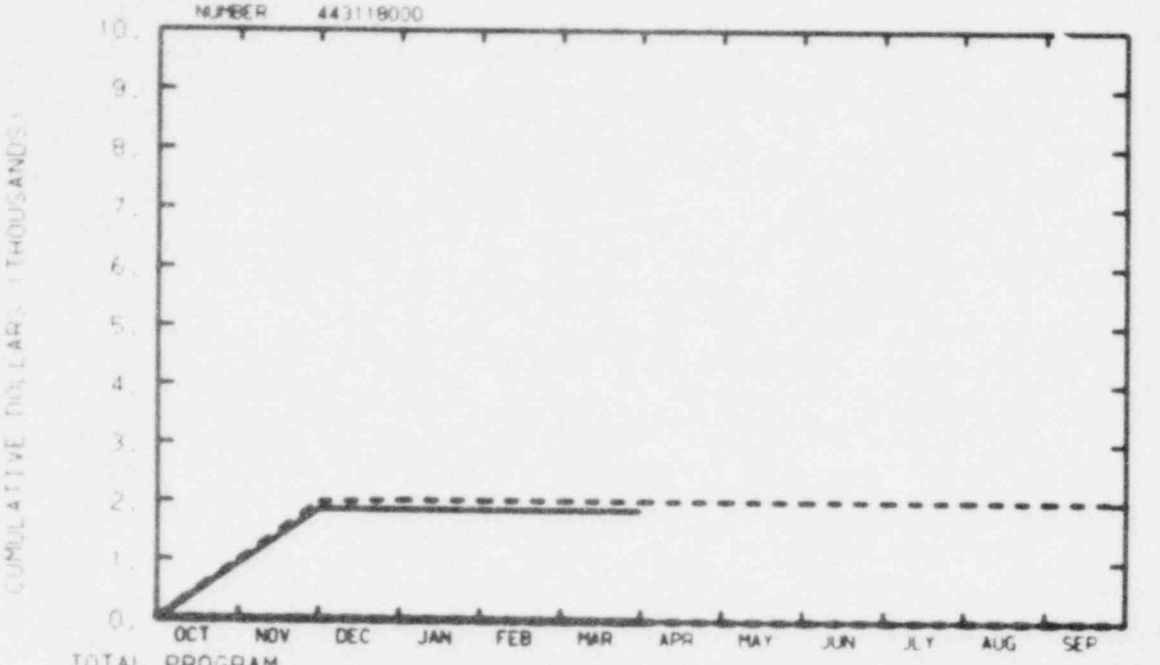
This task is somewhat under staffed. One additional person is being hired to assign to both A6260 and A6256 (EICS Support), as conditions require.

RESPONSIBLE MANAGER
J A DEARIEN

EG&G IDAHO INC.

REACTOR SYS CASE REVIEW (II)

NUMBER 443118000



TOTAL PROGRAM

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

MATERIAL

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

BUDGET - - - - -

ACTUAL ———

A6263

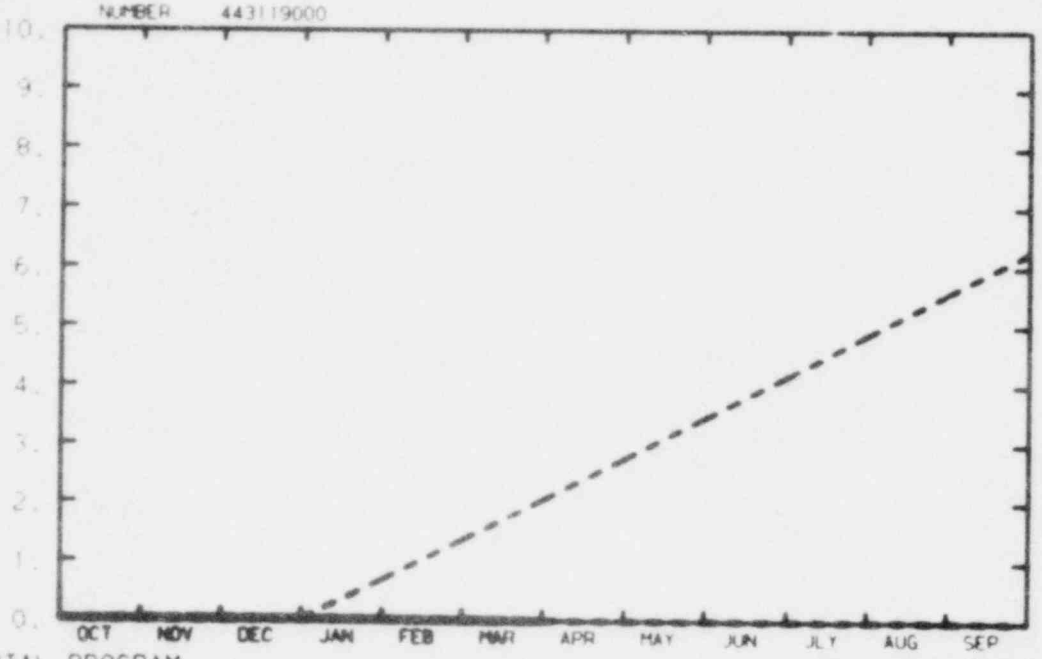
YTD VARIANCE: 0

RESPONSIBLE
MANAGER
A DEARIEN

EG&G IDAHO INC.

ECC UNAVAILABILITY STUDIES

NUMBER 443119000



TOTAL PROGRAM

BUDGET	0	0	0	1	1	2	3	3	4	5	6	6
ACTUAL	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						

MANPOWER

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

BUDGET

ACTUAL

A6264

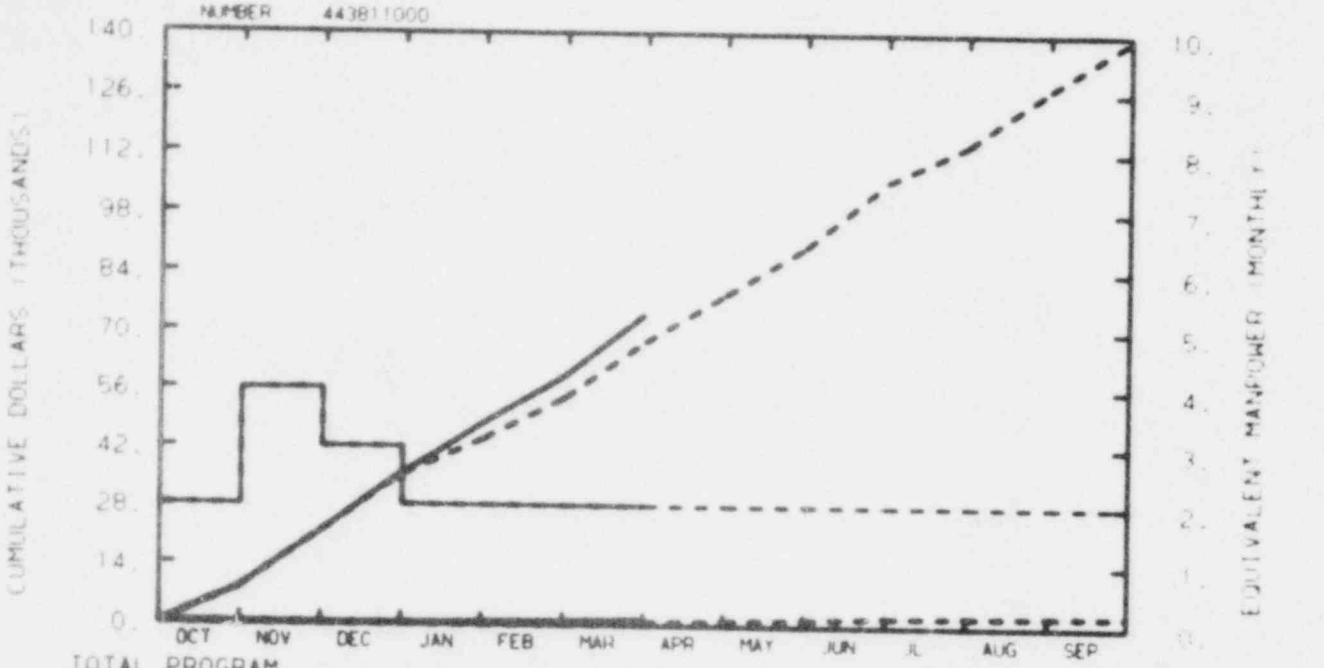
YTD VARIANCE: 2

RESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC.

IN-SERVICE TESTING

NUMBER 443811000



TOTAL PROGRAM

BUDGET	8	22	35	44	54	67	79	90	105	114	127	139
ACTUAL	8	22	36	48	59	74						

MATERIAL

BUDGET	0	0	0	0	0	1	1	2	2	2	3	3
ACTUAL	0	0	0	1	1	1						

MANPOWER

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

BUDGET - - - -

ACTUAL ———

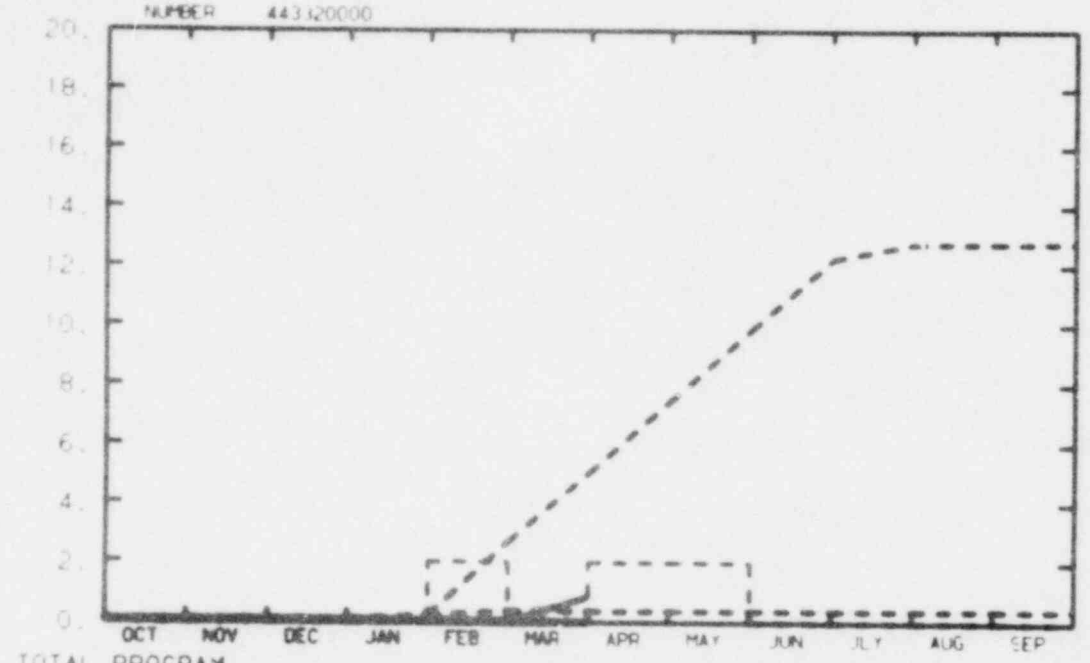
A6265

YTD VARIANCE: <7> (10%)

ESPONSIBLE
ANAGER
A DEARTEN

EG&G IDAHO, INC.

N-1 LOOP OPERA OF BEAV & ZION



TOTAL PROGRAM

BUDGET	0	0	0	0	3	5	7	10	12	13	13	13
ACTUAL	0	0	0	0	0	1						

MATERIAL

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

BUDGET

ACTUAL

MANPOWER

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

A6267

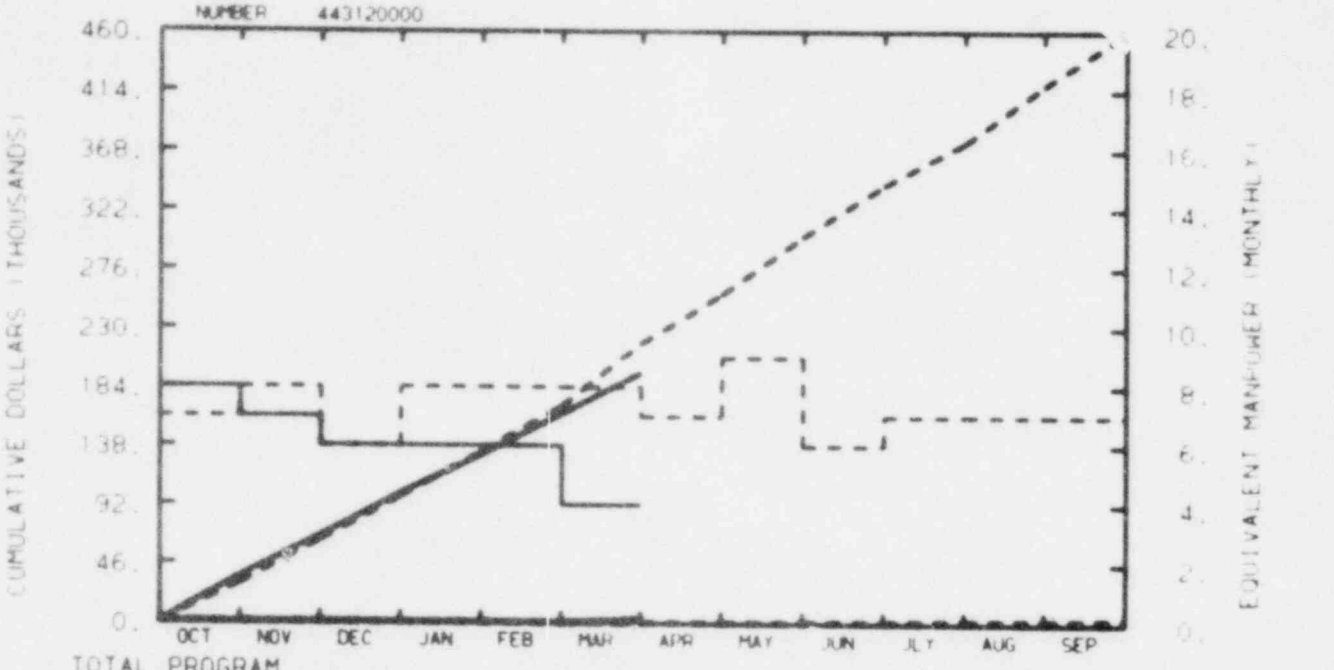
YTD VARIANCE: 4 (80%)

RESPONSIBLE MANAGER
L. A. DEARIEN

EG&G IDAHO INC.

REACTOR SYSTEMS CASE REVIEW III

NUMBER 443120000



TOTAL PROGRAM

BUDGET	30	64	98	133	169	218	257	301	341	374	419	460
ACTUAL	36	67	101	130	163	195						

MATERIAL

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

MANPOWER

BUDGET	7	8	6	8	8	8	7	9	6	7	7	7
ACTUAL	8	7	6	6	6	4						

A6270

YTD VARIANCE: 23 (11%)

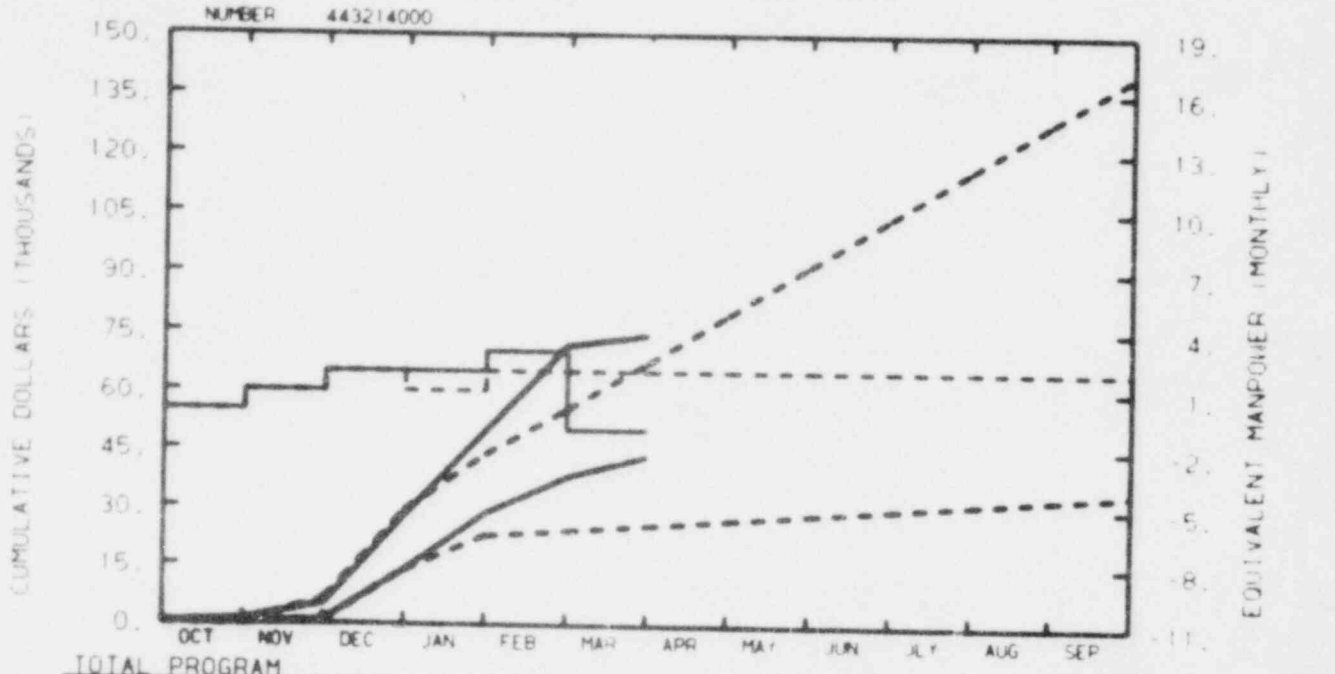
Complete work scope has not yet been defined. A fiscal year end carryover is anticipated but can more accurately be projected in June.

RESPONSIBLE MANAGER
J. A. DEARIEN

EG&G IDAHO INC.

MATRL ENGRG CASE REVIEW (1)

NUMBER 443214000



TOTAL PROGRAM

BUDGET	0	6	29	44	55	67	79	91	104	116	128	140
ACTUAL	1	5	28	50	72	74						

MATERIAL

BUDGET	0	1	14	23	24	26	27	28	30	31	33	34
ACTUAL	0	1	14	28	38	43						

MANPOWER

BUDGET	0	1	2	1	2	2	2	2	2	2	2	2
ACTUAL	0	1	2	2	3	1						

BUDGET

ACTUAL

A6401

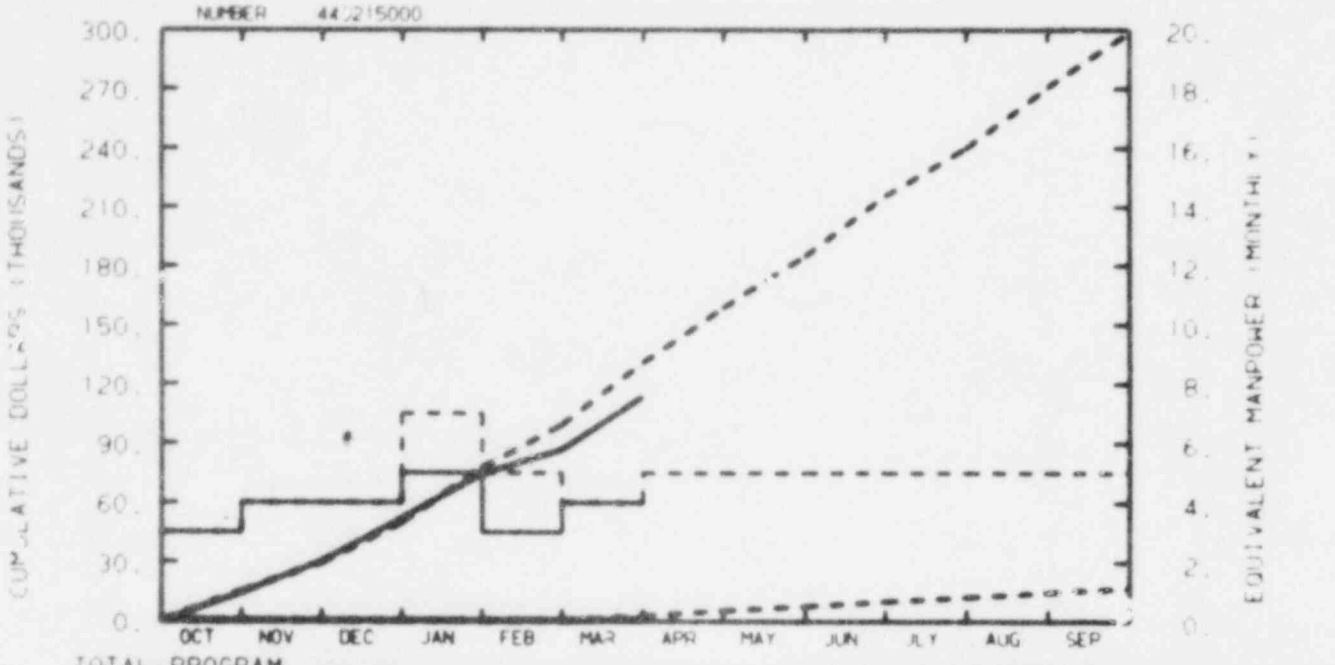
YTD VARIANCE: <7> (10%)

RESPONSIBLE MANAGER
J. A. DEARIEN

EG&G IDAHO INC.

STRUCTRL ENGRG CASE REVIEW (1)

NUMBER 44.215000



TOTAL PROGRAM

BUDGET	15	29	50	78	99	131	159	185	216	240	271	298
ACTUAL	14	31	52	75	87	114						

MATERIAL

BUDGET	0	0	0	0	0	3	5	8	10	12	15	17
ACTUAL	0	0	0	0	1	1						

MANPOWER

BUDGET	3	4	4	7	5	4	5	5	5	5	5	5
ACTUAL	3	4	4	5	3	4						

BUDGET

ACTUAL

A6402

YTD VARIANCE: 17 (13%)

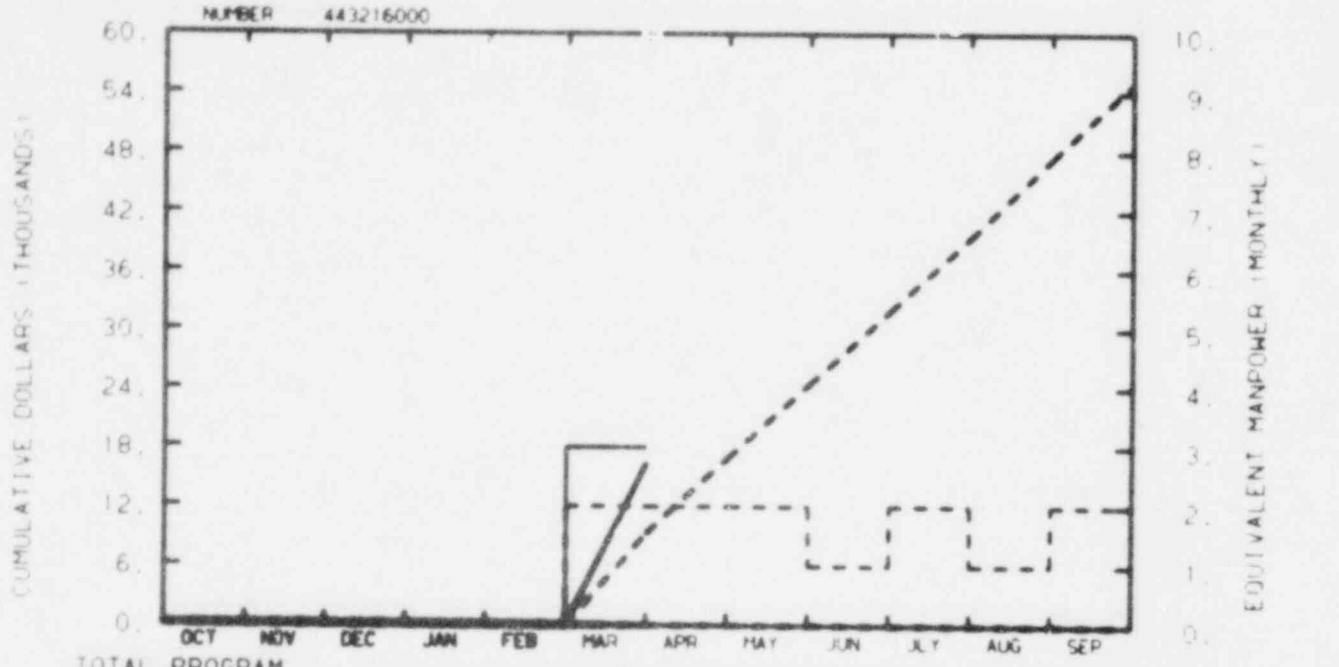
A reduced level of effort during the past month was experienced as information packages from AEs had not been received and the independent analysis effort was not proceding at its expected level of effort.

RESPONSIBLE MANAGER
A. DEARIEN

EG&G IDAHO INC.

FRACTURE TOUGHNESS RCB MATERIAL

NUMBER 443216000



TOTAL PROGRAM

BUDGET	0	0	0	0	0	9	17	24	32	40	47	55
ACTUAL	0	0	0	0	0	16						

MATERIAL

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

MANPOWER

BUDGET	0	0	0	0	0	2	2	2	1	2	1	2
ACTUAL	0	0	0	0	0	3						

BUDGET - - - - -

ACTUAL ———

A6404

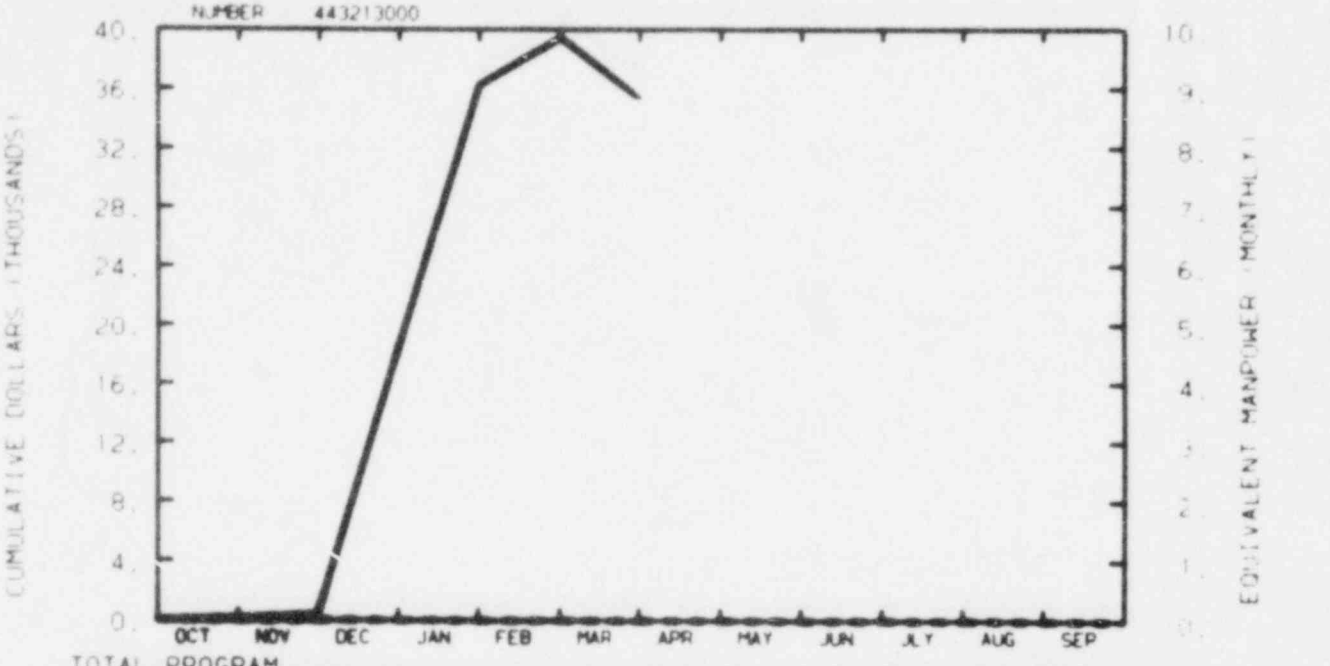
YTD VARIANCE: <7> (78%)

RESPONSIBLE
MANAGER
J A DEARIEN

EG&G IDAHO INC.

IN-SERVICE INSPECTION

NUMBER 443213000



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	19	36	39	35						

MATERIAL

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	19	36	39	35						

MANPOWER

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

A6405

YTD VARIANCE: N/A

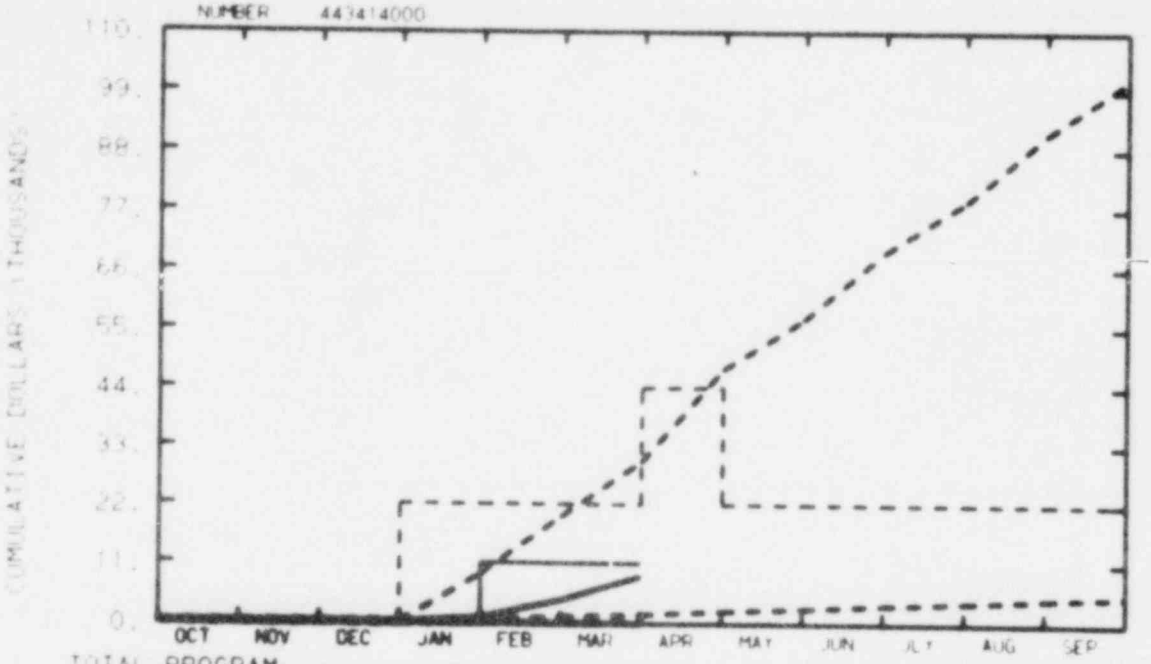
Work and expenditures are being pursued on the assumption that 95 K will be authorized for FY-1980. Based on this assumption and a linear spending rate, this task is on budget. A projected budget curve will be provided upon receipt of the funding authorization.

RESPONSIBLE
MANAGER
A. DEARIEN

EG&G IDAHO INC.

SAFETY REL PUMP/VALVE REL OPER

NUMBER 443414000



TOTAL PROGRAM

BUDGET	0	0	0	9	20	10	47	57	69	79	91	101
ACTUAL	0	0	0	1	4	9						

MATERIAL

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

MANPOWER

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

BUDGET

ACTUAL

A6407

YTD VARIANCE: 21 (70%)

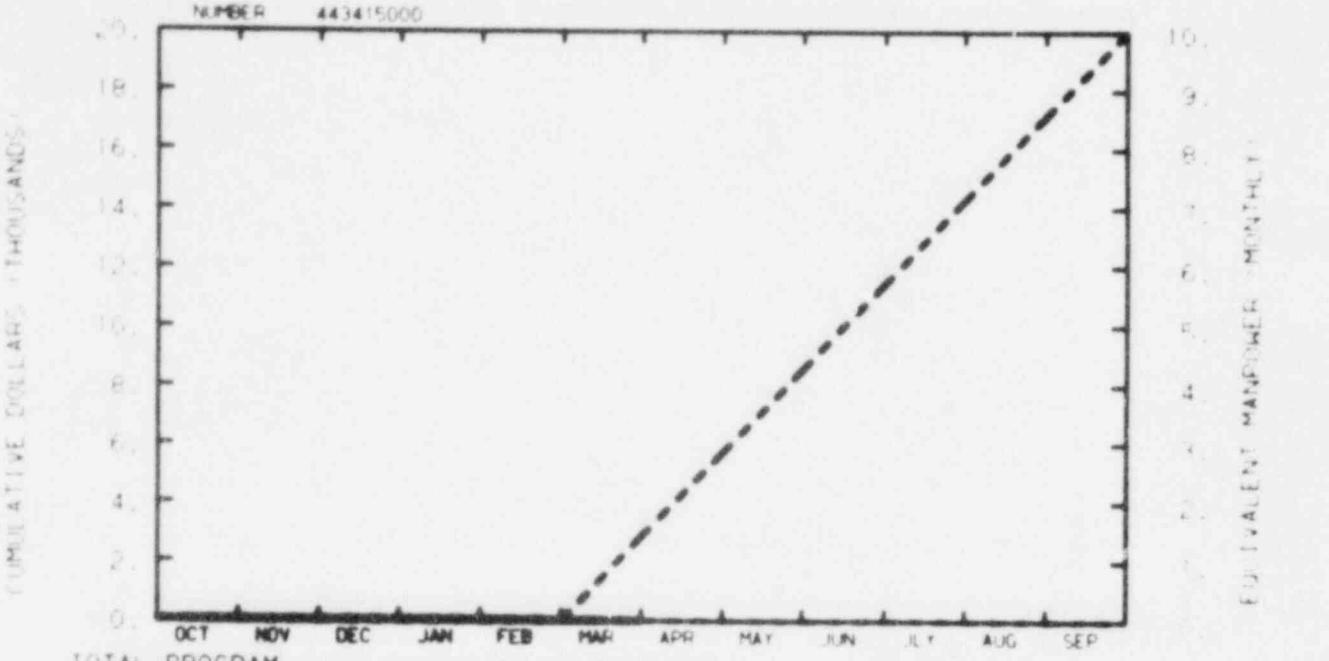
The task is under staffed at this time. A second full time person should begin work in mid-April. A carryover at fiscal year end may occur, however, a more accurate evaluation will be made in June.

RESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC.

ON-CALL TECH ASSIS FRAC MECHAN

NUMBER 443415000



TOTAL PROGRAM

BUDGET	0	0	0	0	0	3	6	9	11	14	17	20
ACTUAL	0	0	0	0	0	0						

MATERIAL

BUDGET	0	0	0	0	0	3	6	9	11	14	17	20
ACTUAL	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						

A6411

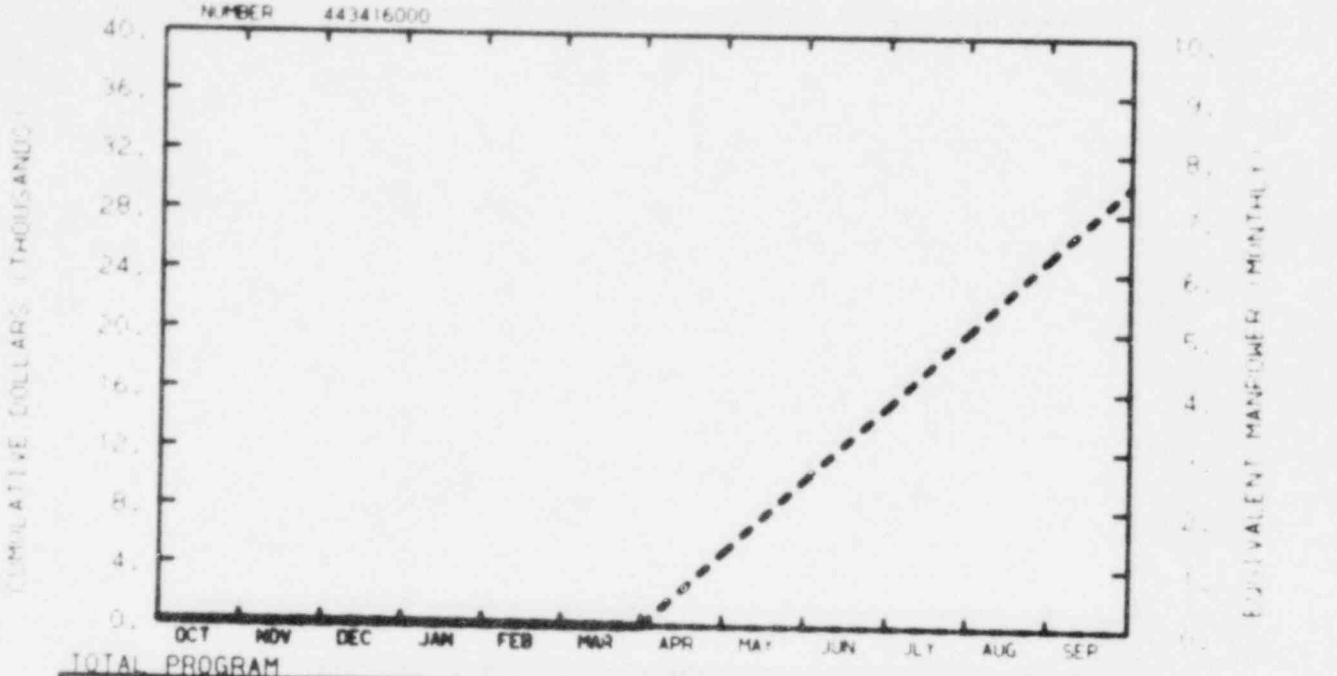
YTD VARIANCE: 3

RESPONSIBLE MANAGER
A. DEARIEN

EG&G IDAHO INC.

PIPE CRACK STUDY GROUP

NUMBER 443416000



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	5	10	15	20	25	30
ACTUAL	0	0	0	0	0	0						

MATERIAL

BUDGET	0	0	0	0	0	0	5	10	15	20	25	30
ACTUAL	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						

A6412

YTD VARIANCE: 0

CODE ASSESSMENT & APPLICATIONS PROGRAM

NRR

TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S
SUMMARY AND HIGHLIGHTS

Documentation of the LOCA Mechanical Response Analysis of the Erie plant was issued (A6152).

The Steam Generator Water Hammer evaluation SER for San Onofre was issued on March 31, 1980. This completes all scheduled work for FIN A6257.

The final SER on the Zion IST program was issued (A6258).

I-651 TECHNICAL ASSISTANCE TO REACTOR SAFETY - DSS

TASK

A6157	Fuel Assembly Seismic LOCA Response
A6167	Fuel Performance Code Applications
A6251	Modifications to Water Hammer Review and Evaluation
A6268	Fuel Performance Code Applications II
A6269	Fuel Assembly Response
A6270	Reactor Systems Case Reviews III

2. Scheduled Milestones for March 1980

A Nos.	Node	Description	Due Date	Actual Date
A6157	G2	Issue Letter Report	3-15-80	3-14-80C JAD-63-80

A6167	None scheduled.
A6251	None scheduled.
A6268	None scheduled.
A6269	None scheduled.
A6270	None scheduled.

3. Summary of Work Performed in March 1980

A6157 - Question Set 2 on Exxon report XN-76-47(P) was transmitted formally to the NRC. Preliminary audit calculations were completed on the Exxon fuel model. The FAMREC computer code was prepared for transmittal to the NRC. Technical assistance was provided to the NRC through attendance at a meeting regarding ACRS concern with General Electric fuel assembly liftoff.

A6167 - Checkout of the EM version of FRAPCON-1 was completed by Code Development, but the code has not officially been transmitted to CAAP. Work is rapidly progressing on the FRAPCON-EM sensitivity study and documentation tasks.

A6251 - A meeting was held with the water hammer task force to discuss the scenario effort recently completed by EG&G Idaho. The slug flow part of Task C has not yet been documented, as other cases (1 second and 2.5 second valve opening times) are being investigated. No additional analyses to be performed within the scope of the Task E have been identified.

A6268 - No work was performed on this task, since formal approval of the I89a was not received.

A6269 - The final report on this task was completed, printed, and was ready for issuance on March 24, 1980. This document will be distributed upon receipt of the funding authorization.

A6270 - First round questions on the Byron/Braidwood FSAR were transmitted to NRC. Except for final corrections, typing is complete on the Bellefonte FSAR. Review of the Catawba FSAR was completed and questions are ready for final typing and review. Preparation of introductory information for the Comanche Peak and Byron/Braidwood SERs continued. The temporary personnel working on Catawba, Waterford, and Comanche Peak have returned to their parent organizations. Further work in these plants will be completed by permanently assigned personnel.

4. Scheduled Milestones for April 1980

A Nos.	Node	Description	Due Date	Actual Date
A6157	None scheduled.			
A6167	None scheduled.			
A6251	Y14	Issue Ltr Report	4-20-80T	
A6268	None scheduled.			
A6269	X2	Perform Ana & Issue Report	4-4-80T	3-24-80C
A6270	None scheduled.			

5. Summary of Work to be Performed in April 1980

A6157 - Additional audits will be performed, pending receipt of the appropriate information from the NRC. The FAMREC computer code will be transmitted formally to the NRC.

A6167 - Upon officially receiving the EM version of FRAPCON-1 from Code Development, a letter will be sent to the customer to indicate code completion.

Work will continue on the sensitivity study and documentation task. Completion date will be 60 days after receiving FRAPCON-1 from Code Development.

A6251 - The slug flow letter will be transmitted to DOE-ID and the NRC.

A6268 - Upon receiving approval of the 189a, work on the first task will commence.

A6269 - No activity.

A6270 - First round questions on Bellefonte and Catawba will be transmitted to NRC. Preparation of introductory information for the Byron/Braidwood SER will continue and will start for the Waterford SER.

6. Problems and Potential Problems

None

I-652 TECHNICAL ASSISTANCE TO ENGINEERING - DSS

TASK

A6152	Primary System LOCA Response
A6166	Fracture Toughness Criteria
A6265	Inservice Testing - DSS
A6401	Materials Engineering Case Review I
A6402	Structural Engineering Case Review II
A5404	Fracture Toughness of Reactor Coolant Pressure Boundary Materials
A6405	Inservice Inspection (Formerly under A6162)

2. Scheduled Milestones for March 1980

A Nos.	Node	Description	Due Date	Actual Date
A6152	M2	Comp Ana & Iss Rpt	3-15-80T-1 JAD-22-80	3-14-80C JAD-63-80

A6166 None scheduled.
A6265 None scheduled.
A6401 None scheduled.
A6402 None scheduled.
A6405 None scheduled.

3. Summary of Work Performed in March 1980

A6152 - The Erie report was issued. Formulation of the Comanche Peak model was initiated. A request for additional information was informally provided the NRC technical monitor and Texas Utility Services Incorporated.

A6166 - No activity.

A6265 - Questions on the D. C. Cook 1 & 2 IST programs were transmitted to NRC. A meeting was held at ANO-2 on March 11 and 12 to discuss comments on their IST program. Preparation of a draft SER for ANO-2 was started. The Salem-2 SER was completed to the extent possible until the utility resubmittal is received.

A6401 - A meeting was held with M. Boyle, NRC-DSS on March 10, 1980 to discuss progress on A6401 and future work on this task.

A draft on the materials portion to the safety evaluation report for Byron/Braidwood was provided NRC. This document has been reviewed and comments provided by NRC. SER input on the preservice/inservice inspection plan sections of the FSAR is being prepared. No preservice inspection plan has been submitted for review. A request for additional information on Byron/Braidwood is also being prepared. The materials engineering and inspection portions of the SER will be submitted as one document. The NRC version of the Shoreham and Watts Bar SER amd requests for additional information were reviewed and comments resolved.

A6402 - The audit forms to be used in the audit of the Grand Gulf structures were revised and informally provided the technical monitor. Two three-person teams from EG&G Idaho conducted an audit of Grand Gulf at Bechtel-Gaithersburg, March 17-21, 1980. The analysis scopes for Grand Gulf are being revised as a result of the audit. Review of the applicants response to NRC staff questions 130.06 and 130.09 on Byron/Braidwood was completed.

A6404 - Data gathering on bolting materials continued. A meeting was held with the technical monitor on March 11, 1980 to define the type of data and format for its presentation.

A6405 - No work was performed on this task per NRC request, since no funds have yet been committed to this effort.

4. Scheduled Milestones for April 1980

A Nos.	Node	Description	Due Date	Actual Date
A6152	None scheduled.			
A6166	None scheduled.			
A6265	None scheduled.			
A6401	None scheduled.			
A6402	None scheduled.			
A6404	H2	Rev Lit & Issue Letter Report	4-30-80T	
A6405	None scheduled.			

5. Summary of Work to be Performed in April 1980

A6152 - Continue formulation of the Comanche Peak finite element model.

A6166 - No activity is planned.

A6265 - Contingent upon receipt of the utility resubmittal, the Salem 2 SER will be completed. Work will continue on the ANO-2 SER. Contingent upon receipt of the necessary drawings, review of the Diablo Canyon IST program will begin.

A6401 - The Byron/Braidwood SER and request for additional information will be submitted to the NRC. The additional work will be initiated if the scope of work is defined this month.

A6402 - Independent analysis of Grand Gulf and Byron/Braidwood structures will be initiated. The Byron/Braidwood audit will be scheduled and preparations initiated.

A6404 - A letter report documenting the data collected on Task 1 will be prepared and issued.

A6405 - No activity is planned.

6. Problems and Potential Problems

A6405 - Activity on A6405 has ceased and will not be resumed until funding has been authorized. A new Schedule 189a is to be requested but the new program brief has not yet been received.

I-653 TECHNICAL ASSISTANCE TO PROJECTS AND SYSTEMS - DOR

TASK

A6250 Engineering Support for Pipe Break Inside Containment
A6256 EICS Support
A6257 Steam Generator Water Hammer
A6258 System Engineering Support (IST)
A6260 EICS Support for SEP
A6267 (N-1) Loop Operation of Beaver Valley and Zion 1 and 2

2. Scheduled Milestones for March 1980

A Nos.	Node	Description	Due Date	Actual Date
A6250	None scheduled.			
A6256	P2	Issue 9 TERs Containment Purge	3-31-80	See Item 6 - Problems
	P9	Issue 8 TERs Degraded Grid Part A	3-31-80	See Item 6 - Problems
	P17	Issue 1 TER Degraded Grid Part B	3-31-80	See Item 6 - Problems
A6257	None scheduled.			
A6258	None scheduled.			
A6260	J9	Comp 10 Assessments	3-31-80T	See Item 6 - Problems
	J15	Comp 5 Assessments	3-31-80T	1-30-80C
	J16	Comp 6 Assessments	3-31-80T	1-30-80C
	J22	Comp 2 Assessments	3-31-80T	See Item 6 - Problems
	J34	Comp 2 Assessments	3-31-80T	1-30-80C
	J41	Comp 2 Assessments	3-31-80T	1-30-80C
	J73	Comp 2 Assessments	3-31-80T	2-20-80C

3. Summary of Work Performed in March 1980

A6250 - Piping seismic analysis of Oyster Creek systems were initiated using the preliminary response spectra curves provided EG&G Idaho by the NRC. The additional information received on Palisades was reviewed and preliminary computer runs were initiated on the two systems which have been modeled.

A6256 - Completed draft TERs for Arkansas 1 and 2 Containment Purge, Hatch 1 Degraded Grid Part A and Monticello Degraded Grid Part A. These were sent to the NRC for review.

Completed initial review and transmitted questions on Degraded Grid Part B submittals for Brunswick 1 and 2, Trojan, Dresden 1, 2 & 3, Quad Cities 1 & 2, D. C. Cook 1 & 2, Browns Ferry 1, 2, & 3, and North Anna 1 & 2.

A6257 - The SER for San Onofre was issued on March 31, 1980. This completes all scheduled work for A6257.

A6258 - The final SER on the Zion IST program was issued (JAD-71-80, dated March 19, 1980). Reviews of the La Crosse, Quad Cities and Surry IST programs were completed and questions transmitted to NRC. A meeting was held at La Crosse on March 25 and 26 to discuss questions resulting from the review of their IST program.

A6260 - Revised drafts for Dresden 2 safe shutdown and Yankee Rowe Accumulator Isolation Valves were completed.

A review of "Haddam Neck Containment Isolation Valves" was completed.

A6267 - Work on a draft report on the Beaver Valley N-1 loop analysis was started.

4. Scheduled Milestones for April 1980

A Nos.	Node	Description	Due Date	Actual Date
A6250	None scheduled.			
A6256	None scheduled.			
A6257	None scheduled.			
A6258	None scheduled.			
A6260	None scheduled.			
A6267	None scheduled.			

5. Summary of Work to be Performed in April 1980

A6250 - Preliminary analyses will continue and additional information will be reviewed upon receipt.

A6256 - Continue work on Degraded Grid Parts A & B, Containment Purge Valves and miscellaneous reviews.

A6257 - No activity planned. Task completed in March. The approximate cost of the San Onofre evaluation was $8300.

A6258 - Meetings will be held at Indian Point on April 1-2 and at Surry on April 15-16 to discuss questions resulting from our review of their IST programs. Preparation of SERs for the Millstone and Farley IST programs will continue. The FY-1980 cost of this review was $5300. Cost were also incurred in FY-1978 and FY-1979 on this plant.

A6260 - Work will continue on present scheduled SEP Topics.

A6267 - Preparation of a draft report on the Beaver Valley N-1 loop analysis will continue.

6. Problems and Potential Problems

A6256 & A6260 - Delays in receiving information from licensees continued. There has been a delay of over 9 months in receiving answers to our questions on 24 of the Degraded Grid Part A reviews.

Unavailability of answers to EG&G questions from licensees prevented the completion of PERT nodes P2, P9, P17, J9, and J22 nodes.

I-654 TECHNICAL ASSISTANCE TO PROJECTS AND ENGINEERING - DOR

TASK

A6156 Technical Assistance on Asymmetric LOCA Loads
A6159 Technical Assistance to Environmental Evaluation Branch
A6407 Safety Related Pump and Valve Reliability and Operability

2. Scheduled Milestones for March 1980

A Nos.	Node	Description	Due Date	Actual Date
A6156	V26	Iss Informal Tech Rpt	3-1-80	2-29-80C JAD-48-80
	V32	Issue Informal Tech Rpt	3-1-80	2-29-80C JAD-56-80

A6159 None scheduled.
A6407 None scheduled.

3. Summary of Work Performed in March 1980

A6156 - Review of all three owner's group submittals was initiated. Each will be reviewed as part of a package where unreviewed submittals are referenced in the primary or main submittal. The purpose of the initial review will be to ascertain if sufficient information exists to begin preparation of SERs. It is known at this time that the submittals do not include full analyses nor do they address the seismic plus location issue. Substantial dialogue on the Indian Point 3 SER took place during the month.

The PWR feedwater pipe stress calculation continued with completion of a draft report on the thermal analysis and of the fatigue analysis. The stress report is currently being prepared and both the thermal and stress reports should be issued by the end of the month.

A6159 - A work plan for the temporary/mobile radwaste management systems task was developed and transmitted to the NRC. The plan included a list of questions for the NRC to ask licensees to establish which reactors are using temporary/mobile systems. The three known vendors of temporary/mobile radwaste systems - Chemical Nuclear, Hittman Nuclear, and Delaware Custom Material have been contacted and visits with them to gather information have been arranged.

The offsite direct radiation task was brought up to its expected staffing level. A meeting was held with NRC personnel to refine the task description. Environmental statements and FSARs were obtained for the multiple BWR reactor sites. Several single site measurements and correlations were also obtained. These documents are presently being examined and evaluated.

The "deminimus radioactivity level" task is being performed at its expected staffing level. A meeting was held with NRC personnel to discuss this effort. In addition, operating reactor representatives were contacted and literature was collected and reviewed.

The revised draft of the final report on the radiological consequences of containment purging, incorporating NRC comments on the report of Phase 3 of this task, was transmitted to the NRC, EG&G, and DOE-ID for review. This report combines the results of Phases 1 and 2, previously transmitted by letter to the NRC, with the results of Phase 3.

NRC has reviewed the report on BWR System Experience. It is being returned to us for issuance as a NUREG/CR. NRC had only very minor comments.

A6407 - Information gathering was continued by addressing Dresden 2, a BWR. The submittal to NRC of the information obtained on Trojan was discussed with the NRC technical monitor. Further efforts were identified.

4. Scheduled Milestones for April 1980

A Nos.	Node	Description	Due Date	Actual Date
A6156	V8	Issue 15 SERs	4-1-80T	3-20-80C JAD-73-80
A6159	None scheduled.			
A6407	None scheduled.			

5. Summary of Work to be Performed in April 1980

A6156 - The feedwater pipe stress reports should be issued. Work will continue on review of the owner's group submittals.

A6159 - Vendors of mobile/temporary radwaste systems will be visited to get detailed information on their design and operation. Arrangements will be made for visits to operating reactors to see each type of system in operation.

Work will continue on the direct radiation and deminimus tasks with acquisition and evaluation of literature and data.

Effort aimed at providing NRC a camera ready copy of the BWR Off-Gas System report will commence assuming NRC comments are received.

Comments from the NRC, EG&G, and DOE-ID on the Radiological Consequences of Containment Purge report will be addressed. The final report will be issued as an ENICO internal report, with copies sent to the appropriate people.

A6407 - This effort will continue with organization of the Dresden data and collection of FSAR data for other Westinghouse plants. A second individual will be assigned to this effort the second half of this month.

6. Problems and Potential Problems

None

WRRD MONTHLY REPORT FOR

MARCH 1980

GPP AND LINE ITEMS

M. L. Rucker, Administrative Supervisor "C"
Plans & Budgets Division

R. H. Beers, Manager
Project Management Division

SEMISCALE

EG&G IDAHO, INC.

GPP/LIMS ITEM

PROGRAM SEMISCALE

FY-1980

MANAGER L. P. Leach

I89a No. A6038

EA No.	Item Description	Original PA Amount	($000) Current Est. Cost	Project To Date Costs
934000000	WRRTF Sanitary Sewer Upgrade	100	50	-0-*

Task Initiated o
Task Completed Δ

* Project on hold pending scope definition

THERMAL FUELS BEHAVIOR PROGRAM

EG&G IDAHO, INC.

GPP ITEMS

PROGRAM THERMAL FUELS BEHAVIOR PROGRAM

MANAGER J. P. Kester

189 No. A6044

EA No.	Item Description	Original PA Amount	($000) Current Est. Cost	Project To Date Costs
931600000	PBF Control Room Noise Abatement*	59	42	$ 29,532 **
931900000	PBF Support Building*	509	572	$ 65,967

* Schedules are for planning only and subject to change.

** Includes M-K subcontract costs. Work is complete, but costs are still being accumulated.