

INTERIM REPORT

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

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

INTERIM REPORT

NRC Research and Technical  
Assistance Report

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POOR QUALITY PAGES

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P.O. BOX 1625, IDAHO FALLS, IDAHO 83415

March 14, 1980

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

TRANSMITTAL OF WRRD MONTHLY REPORT - Ybr-45-80

Dear Mr. Tiller:

Transmitted herewith are 4 copies of the WRRD Monthly Report for February 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, 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. Fabric, 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.

WRRD MONTHLY REPORT FOR  
FEBRUARY 1980

MARCH 1980



**EG&G** Idaho, Inc.



IDAHO NATIONAL ENGINEERING LABORATORY

**DEPARTMENT OF ENERGY**

IDAHO OPERATIONS OFFICE UNDER CONTRACT DE-AC07-76IDO1570

NRC Research and Technical  
Assistance Report

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WRRD MONTHLY REPORT FOR

FEBRUARY 1980

*R. E. Bostwick*

W. E. Bostwick, Officer  
Planning and Budgets Branch

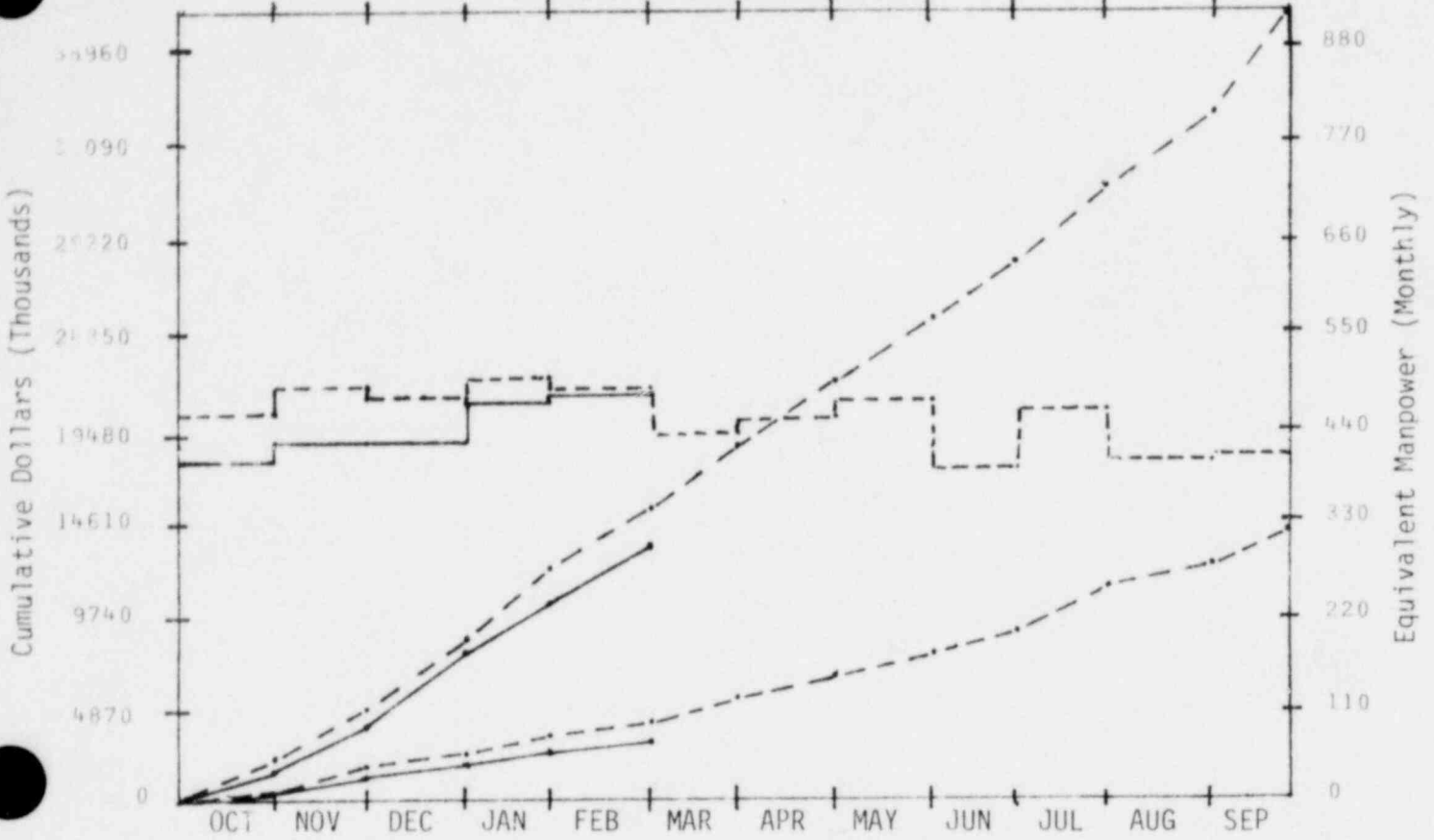
*L. J. Ybarrondo*

L. J. Ybarrondo, Director

Responsible Manager  
L. J. Ybarrondo

EG&G Idaho, Inc.

WATER REACTOR RESEARCH DIRECTORATE



TOTAL PROGRAM

BUDGET	2587	5260	8709	11728	14679	18080	21136	24574	28099	31227	34561	38931
ACTUAL	2169	4363	7503	10063	12996							

BUDGET

MATERIAL

BUDGET	645	1441	2522	3428	4393	5364	6440	7864	9198	10554	11701	14213
ACTUAL	438	1063	2012	2723	3599							

ACTUAL

MANPOWER

BUDGET	458	691	972	1296	1886	2541	3211	4010	4907	5833	6710	7613
ACTUAL	415	631	931	1263	1773							

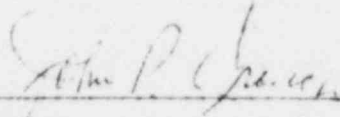
YTD VARIANCE: 1683 (11%)

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  
FEBRUARY 1980  
SEMISCALE PROGRAM



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J. P. Crouch  
Plans & Budgets Representative



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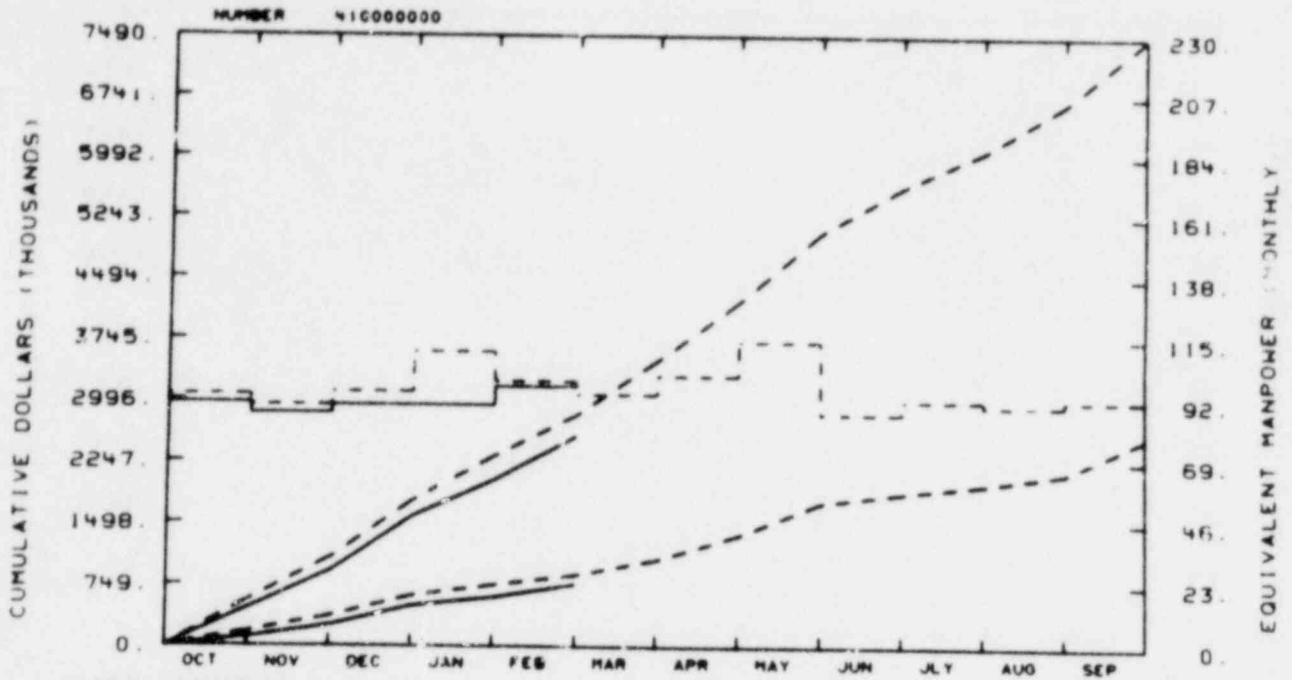
L. P. Leach, Manager



SEMISCALE  
COST SUMMARY & COMMENTS

RESPONSIBLE  
MANAGER  
D. J. OLSON

EG&G IDAHO INC.  
SEMISCALE PROGRAM



TOTAL PROGRAM												
BUDGET	554	1060	1755	2308	2810	3482	4200	5055	5825	6070	6665	7485
ACTUAL	454	898	1563	2014	2601							

MATERIAL												
BUDGET	175	358	603	737	862	1049	1348	1736	1865	1969	2107	2541
ACTUAL	103	245	482	591	799							

MANPOWER												
BUDGET	94	90	95	110	99	94	101	114	87	92	90	92
ACTUAL	91	87	90	90	97							

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

YTD VARIANCE: 208 (7%)

The labor portion (145 K) of the variance is attributable to a slowdown in the Mod-5 design effort pending completion of alternate proposals and a continued staffing problem directly affecting the amount of effort year-to-date on Series 7 topicals and Special Studies. The material portion (63 K) is due to a lag in costing of outstanding commitments.

SEMISCALE  
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

SMALL BREAK TEST SB-4 THROUGH SB-2A  
(4 TESTS)<sup>1</sup>

SMALL BREAK PUMP OPERATION TESTS,  
(7 TESTS)<sup>1</sup>

MOD-2A CONVERSION  
NEW CORE, INSUL.,  
I.L. S.G.,  
I.L. PUMP

CLOSED LOOP SECONDARY DESIGN

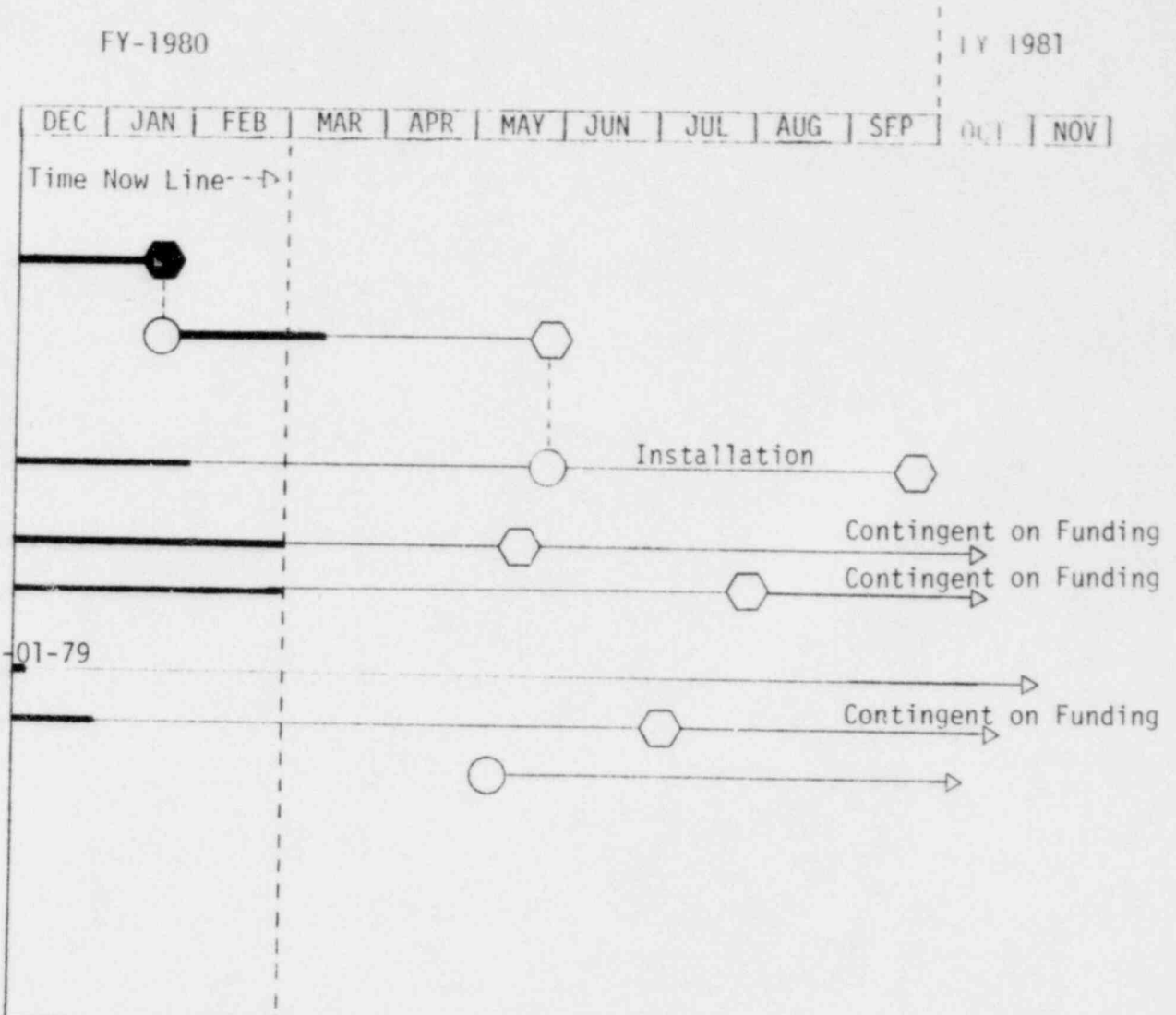
CLOSED LOOP CONTROL SYSTEM DESIGN

MOD-5 CONVERSION DESIGN\*

SYSTEM MODS

STEAM GENERATOR

PIT MODS



-7-

NOTES: <sup>1</sup> Test schedule indicated reflects a change in pre Mod-2A baseline test schedule per CCB No. SS-80-09.

\* As a result of the February Management meeting, design work on hold pending decision on design alternatives.

SEMISCALE  
TECHNICAL REVIEW & SUMMARY

Program Manager's  
Summary and Highlights

A revised group of tests, six tests to evaluate pump operation, and a scoping test to evaluate station blackout, will be performed prior to the Mod-2A conversion of the Semiscale test system. Significant efforts were expended on providing detailed planning for the Mod-2A conversion and work started on planning tests to be performed after the conversion. Work was started on evaluating the technical requirements for a BWR test apparatus.

The fifth in the series of small break experiments being performed by the Semiscale Program was conducted successfully on February 21, 1980. Test S-SB-P1 simulated an 11-cm break in the cold leg piping of a pressurized water reactor (PWR).

L. P. Leach was appointed as Semiscale Program Manager, and the LOFT Technical Support Branch was combined with the Semiscale operation. Reporting of LOFT Test Support Facility activities will be initiated next month.

1. 189a A6038 - Semiscale Program
2. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
	Perform Small Break Test S-SB-P1	02-08-80	02-21-80
	Perform Small Break Test S0-P2	02-15-80	Rescheduled
	Perform Small Break Test S0-P3	02-22-88	Rescheduled

3. Summary of Work Performed in January 1980

- a. 411AW00 Air-Water Loop

411AW1100 The Air-Water Loop has been disassembled in preparation for extensive system modifications for an improved system configuration and for performance testing of the new Semiscale intact loop pump.

- b. 411CL00 Closed Loop Secondary System

411CL1200 A preliminary design review of the closed loop secondary system was held on February 29, 1980.

- c. 411DA00 Measurements Engineering

- (1) 411DA1100 The Hewlett-Packard Distributed System Model 1000 computer has been shipped. The H-P field engineer conducted a preinstallation review of our preparation on February 13, 1980. Our installation plans were very favorably received. The disc controller in DDAPS System 1 failed during an attempt to perform Test S-SB-P1 on February 15, 1980, resulting in data not being collected on drive 2. This problem was believed to be a result of a high temperature in the control room, but no discrete failure was found in subsequent maintenance checks and tests, and several attempts to make it fail again resulted in no failure. We are continuing investigation into this problem and will be running some elevated temperature tests to attempt to duplicate the failure under controlled conditions.

A hardware failure occurred in the digital multiplexer for DDAPS System 2, while performing Test S-SB-P1A on February 8, 1980, resulting in a complete loss of data on two of the density measurements for this test. This problem has been repaired. Continued failures of this type have been occurring and point up the urgency of expediting our planned data system replacement procurement.

- (2) 411DA2100 The long term data system plan was presented to Semiscale management personnel and plans were made for subsequent presentation to EG&G Idaho Information Sciences and DOE-ID personnel to facilitate rapid processing and approval of the FY-1980 procurement.

Work was initiated on upgrading the Air-Water Loop for use in the intact loop pump tests. A schedule was prepared and integrated into the Mod-2A schedule. Special purpose Air-Water Loop drawings were started, existing equipment inventoried, and sizing calculations started for the loop heat exchanger, common piping, and new separation tank. The existing steady-state system software for the Air-Water Loop was reviewed and modification areas defined. Negotiations for Information Sciences Directorate support to make these modifications were conducted and initial work started. Negotiations for support to provide the valve control software were also conducted and initial work started.

- (3) 411DA2200 New software application program efforts included two main tasks. First was the upgrade of MODEB for data acquisition at high data rates. This mode permits very short times between instrument channel (50 kHz sample rates) measurements so as to avoid problems of combining, e.g., density and turbine data (to calculate mass flow) at two significantly different times. Time lags become substantial at low sample rates (e.g., 0.8 kHz) needed on some long term tests. The second upgrade was concerned with simplification of time axis data on plots. Time axis scales are now automatically chosen for the proper range, e.g., seconds, minutes, hours, etc.
- (4) 411DA3200 Sapphire windows for the optical fiber turbine pickup probe were received. Tubing to house these was prepared and tubing and windows were sent to Aurele Gatti, Inc., Trenton, New Jersey to have the windows brazed into the tubes.



Circuit development was continued for the densitometer single-channel analyzer. A few-channel-analyzer design, which should permit some scattering and background correction while facilitating high throughput rates and providing signals for baseline restoration in the 460 amplifier, was chosen for prototype development.

d. 411LE00 Semiscale Operations

- (1) 411LE1100 Test S-SB-P1 was satisfactorily performed on February 21, 1980. Work activities included a variety of system modifications, maintenance, repair, and performance and operation checks in preparation for this test and other testing configurations.

The pressure suppression tank was opened for cleaning on February 4, 1980, and a thermocouple measurement was installed. The top of the suppression tank was replaced the following day. Flanges were machined and a 3/4-in. Valtek valve, to be used in place of the rupture disc assembly for Test S-SB-P1, were installed in the system. A calibration of the suppression header and tank was performed to evaluate that system for retrieval and measurement of system fluid ejected during the blowdown transient of the proposed Test S-SB-P1. Another calibration was performed on the suppression header and tank on February 6, 1980. The valve used to initiate blowdown was electrically wired and the suppression system header was modified by connecting three tubing runs at a blank flange on the header. These tubing runs were installed to allow steam flow from the header through the small break condensing system to the catch tank for accumulated liquid mass measurement.

New stainless steel tubing, with a wall thickness of 0.035-in., was installed as the bypass line between the downcomer upper plenum and the vessel upper head on February 8, 1980. This modification was made to allow the use of a low energy type density measurement in the bypass line. The broken loop pump (number 1) was checked for rotation after installation and the primary loop system was filled, vented, pressure checked, and prepared for an SO checkout test of the new blowdown condensate retrieval system on February 11, 1980.

A leak check was performed on the broken loop steam generator on February 22, 1980, which indicated a primary to secondary leak. The lower head of the broken loop steam generator was pulled to observe the tube sheet; no leakage through the tube sheet welds were observed. The leakage was due to an internal leak in one of the tubes and work is currently in progress to plug the leaking tube and open up a previously unused tube to function as a replacement.

The new seal leakage make-up system is being installed, and work is continuing on the connection to the test system and operational setup. The transformer rectifier was installed for the new intact loop pump (part of Mod-2A).

The experiment data report (EDR) for Tests S-SB-4 and S-SB-4A is complete and in production and is scheduled for publication on April 6, 1980. All phases of EDR preparation for Tests S-SB-2 and S-SB-2A are on schedule with 95% of the plots having been received and reviewed. The text preparation and figures will be ready early in March 1980. The EDR for standard problem Test S-07-10 is on schedule. The uncertainty plots are 85% complete and report data plots have been reviewed and those requiring correction are being reprocessed. The text preparation will be completed early in March 1980.

- (2) 411LE1200 Small break Test S-SB-P1 was successfully performed on February 21, 1980. A preliminary evaluation of the data from the test indicated that the test objectives were met. A combined quick look report presenting the results of the analysis for Tests S-SB-P1, S-SB-P2, and S-SB-P7 will be written and transmitted two weeks after completion of Test S-SB-P7.

A draft copy of the test plan for the intact loop pump characterization tests has been distributed for internal Semiscale review. After the review comments are returned the document will be finalized and submitted for printing.

Final comments were incorporated into the scaling report. The final interim document will be distributed and the interim version will be submitted to technical editing.

- (3) 411LE1400 Test DA21 was performed on February 12, 1980. This was an S0 test to verify instrumentation setup for the pumps on/pumps off small break tests.

An improved heater rod moisture seal was tested and found to withstand 3200 vdc with only 15 A leakage current.

Vessel honeycomb interior temperature measurements will be installed during fabrication after coordination with the Semiscale Design Branch and Pyromet (vendor) personnel.

The five year period for retention of tapes in storage has expired on approximately eight previous Semiscale tests. These tapes were returned to us and are being processed and plotted. The plots will then be turned over to Test Engineering to verify data. Any data it is desired to keep is then reprocessed onto tapes in the current format and returned to storage. To date we have completed test S012 reprocessing and are working on Tests S013, S014, and S015.

- (4) 411LE1500 A meeting was held with Electrofusion to discuss conceptual design of beryllium washers. As a result of this meeting, Electrofusion will furnish a proposal next month.

A final design review on the broken loop steam generator fillers was conducted on February 7, 1980. Work on fabrication and testing of broken loop filler prototype was continued.

Design of turbo probe and lower head thermocouple installations is in work. This is planned as part of Mod-2A, provided there is minimal cost and schedule impact.

e. 411M200 Mod-2A Conversion

411M25100 Work was continued on the redesign of pump suction piping and pump support to accommodate instrumentation requirements.

Detailed drawing work for the Type II intact loop steam generator installation, P&ID, and broken loop steam generator modifications to accommodate instrumentation was continued.

The system design description draft of pump control was completed. The new intact loop pump was shipped February 29, 1980.

f. 411M300 Mod-3 Upgrade

411M31200 Pyromet was visited by two Semiscale engineers on February 25, 1980, to discuss feasibility of adding thermocouples to the insulator panels. The thermocouple addition is feasible and Pyromet will supply a proposal in March 1980. Pyromet is presently two weeks behind schedule for the estimated May 15, 1980, delivery date, but they are confident they can make up this time.

g. 411M500 Mod-5 Conversion

411M500 Preliminary scaling for the Mod-5 system was done in preparation for the Babcock & Wilcox (B&W) representatives visit on February 6, 1980. Discussions included quotation information on design and fabrication of the steam generators; the quotation has now been obtained. Discussions also included recommendations on what type of Mod-5 test information would be of value to them.

A task force was formed to prepare a proposal on the advisability of constructing a BWR Semiscale in lieu of the current Mod-5 B&W configuration. Questions addressed by this group include data needs for BWR safety evaluation, configurational options to address these needs, and probable system cost.

h. 411PC1300 Quality Assurance

Quality surveillance inspection at the Semiscale facility during February 1980 shows that 91% of the parameters inspected are in conformance with the stated requirements. This is an improvement over the 72% figure for January.

Final inspection and acceptance of the scaled intact loop pump was completed at Votaw Precision.

As-built inspection of P&ID drawings is about 85% complete, and the related quality discrepancy reports are in the process of being dispositioned. The balance of P&ID as-building will be deferred until Mod-2A shutdown.

i. 411SB00 Small Break Test Series

- (1) 411SBX1100 A letter EOS for small break Tests S-SB-P1 and S-SB-P2 was prepared and transmitted to DOE-ID on February 13, 1980 (GWJ-9-80). These tests are designed to investigate the effects of pumps operation on the thermal-hydraulic response of the Semiscale system during a small break cold leg break loss-of-coolant experiment.
- (2) 411SBX300 Problems with completing the RELAP5 steady-state calculation for Test S-SB-2 were traced to errors in the updates to the code. With these corrected, work on the steady-state calculation has progressed smoothly and is nearing completion. When completed, the conditions at the end of this calculation will be used as the initial conditions for a transient calculation.

A RELAP4/MOD7 calculation for Test S-SB-2 was completed to 658 s after rupture. The model for this calculation did not include piping heat losses to the atmosphere. The model did use the standard bubble rise model in the core with a constant bubble velocity of 7.5 ft/s to determine its effect on calculated core mixture level oscillations and the Henry-Fauske/HEM critical flow model was applied at accumulator junctions to try and limit the calculated accumulator injection rate to values near the test measured rates. Preliminary analysis indicates no core mixture level oscillations have been calculated. The accumulators have not yet come on and the calculation is being continued.

A RELAP4/MOD7 input deck with the break in the hot leg was assembled and initialized in preparation for the analysis of the small break experiments to be conducted in this configuration.

j. 411TS00 Small Break Licensing Evaluation

411TSX500 A draft letter containing data plots required for standard problem analysis was written. Several RELAP4 calculations were conducted and analyzed to help establish the influence of the

broken loop steam generator secondary conditions (open versus closed during the transient). The code results indicate a significant influence on system response due to the steam generator secondary response.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
	Perform Small Break Test S-SB-P2	03-20-80	_____
	Perform Small Break Test S-SB-P7	03-27-80	_____
	Delivery of new intact loop pump	03-10-80	_____

5. Summary of Work to be Performed in March 1980

a. General

Major planning efforts will continue on the Mod-2A conversion and subsequent test schedule with a CCB to be submitted to DOE-ID on March 17, 1980. The FY-1981 189a's will be prepared. Resolution on which Mod-5 conversion alternative to pursue will be sought. Work will be started on revising the Semiscale Management Plan to include LTSF, and program updates will be started, targeted for draft completion by April 15, 1980. The short term small break testing schedule will continue.

b. 411CL00 Closed Loop Secondary

411CL1200 Detailed design and drawings for hot well and piping for the closed loop secondary system will be continued.

c. 411LE00 Semiscale Operations

(1) 411LE1100 System preparations in support of Tests S-SB-P2 and S-SB-P7 will be completed. Required system modifications for hot leg break type tests to be conducted in April 1980 will be performed.

The experiment data report for Test S-07-10 (standard problem test) will be submitted to the WRRD Documentation Office. The experiment data report draft preparation for Tests S-SB-2, S-SB-2A, and S-SB-P1 will continue.

- (2) 411LE1200 Test S-SB-P2 will be performed on March 6, 1980. A preliminary analysis of the results from Tests S-SB-P1 (performed February 21, 1980) and S-SB-P2 will be completed and a quick look report for the combined test results will be prepared.

SO test requirements for Mod-2A will be completed and an estimated time schedule for completion of the tests established.

The quick look report for small break Test S-SB-2A will be completed and transmitted to DOE-ID.

A design requirements document for the Mod-2A system will be prepared. This document will define the minimum hardware and instrumentation requirements documents will provide basic information to be used by the Design and Fabrication Branch in the preparation of the Semiscale Mod-2A System Design Description.

- (3) 411LE1400 Work will be completed on defining Mod-2A instrumentation and testing requirements and coordination of the associated work will be continued.

The new Hewlett-Packard computer system will be installed and acceptance tested.

Work on improving data corrections and in-house calibration procedures will be continued.

d. 411M500 Mod-5 Conversion

411M51100 Analysis will be concluded examining the merits of a small scale boiling water reactor facility; the result will be transmitted to NRC and DOE-ID. In addition, a recommendation will be made to NRC regarding the three options possible for a Babcock & Wilcox 2 x 4 system.

e. 411PC21300 Quality Assurance

Final inspection and acceptance of the intact loop steam generator and two-pipe downcomer will be performed.

f. 411SB00 Small Break Test Series

- (1) 411SBX300 Posttest analysis of small break experiments will continue and calculations made to try and improve the calculational capability of the small break model of the Mod-3 system.

Analysis of calculated core mixture level oscillations will continue.

Analysis will continue on the effects of using a critical flow model to limit accumulator injection in RELAP4 calculations will continue.

Work will continue on the RELAP5 calculations for Test S-SB-2 with heat losses modeled.

- (2) 411SB1500 Pretest calculations for small break Tests S-SB-P3 and S-SB-P4 will be completed and a pretest prediction report written. These tests are to be communicative hot leg breaks with the pumps off (Test S-SB-P3) and pumps on (Test S-SB-P4).

g. 53CBE0155 Test Engineering LOFT Test Support Branch

- (1) 53CBE0155 Processing and preliminary analysis for Wyle data will be continued. EDRs for Tests IA201, IA202, IIIA101, IIIA102, IIIA201, IIIA202, IIA101, IIA102, IIA201 and IIA202 will be completed and transmitted.

- (2) 53CBE0162 S/O testing of the Two-Phase Loop will be completed.

- (3) 53CBE01XX (XX to be specified as tasks begin.) A test plan for ECC Rake Performance Testing in the Two-Phase Loop will be completed.



A test plan for production drag disc turbine transducer (DTT) rake testing in the Two-Phase Loop will be completed.

h. 53CDA01 Data Acquisition System -- LOFT Test Support Facility

53CDA0132 Three software changes have been requested of the Mini Computer Systems Branch to be completed by April 1, 1980: a) Real time data display -- A new program to display real time mass flow and other measurements during data acquisition periods; b) Software changes to connect Modem from LTSF to 4052 Tektronics terminal located in the TSA building; and c) Mass Flow Plots -- A new program to generate a plot record from a data set input to allow mass flow to be plotted on the Tektronics 4014 terminal.

i. 53CP01 Operations -- LOFT Test Support Facility

(1) 53CP0162 A Two-Phase Flow Loop operating manual will be completed.

(2) 53CP0172 Component fabrication for the L3-5 spool piece calibration will be completed.

(3) 53CP0168 Fabrication and procurement for the Blowdown Loop catch tank will be completed.

j. Foreign Funded Tasks

(1) 5FNC50100 Data from Wyle Tests IA101, IA102 and IA103 will be transmitted to Rensselaer Polytechnic Institute (RPI) for use in development of mass flow measurements using an MDTT rake.

(2) 5FNC30100 Data from Wyle IIIA and IIA series tests will be transmitted to RPI for use in orifice critical flow model assessment.

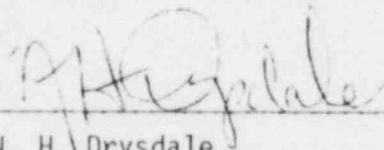
(3) 5F7C40100 Data from Wyle IIIA series tests will be transmitted to Dr. S. Banerjee for use in ECC rake model assessment.

6. Problems and Potential Problems

- (1) Lack of analysis personnel hinders timely completion of analysis activities.
- (2) Resolution of the Mod-5 conversion option is necessary to initiate work at the planned level.

TFBP

WRRD MONTHLY REPORT FOR  
FEBRUARY 1980  
THERMAL FUELS BEHAVIOR PROGRAM



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N. H. Drysdale  
Plans & Budget Representative



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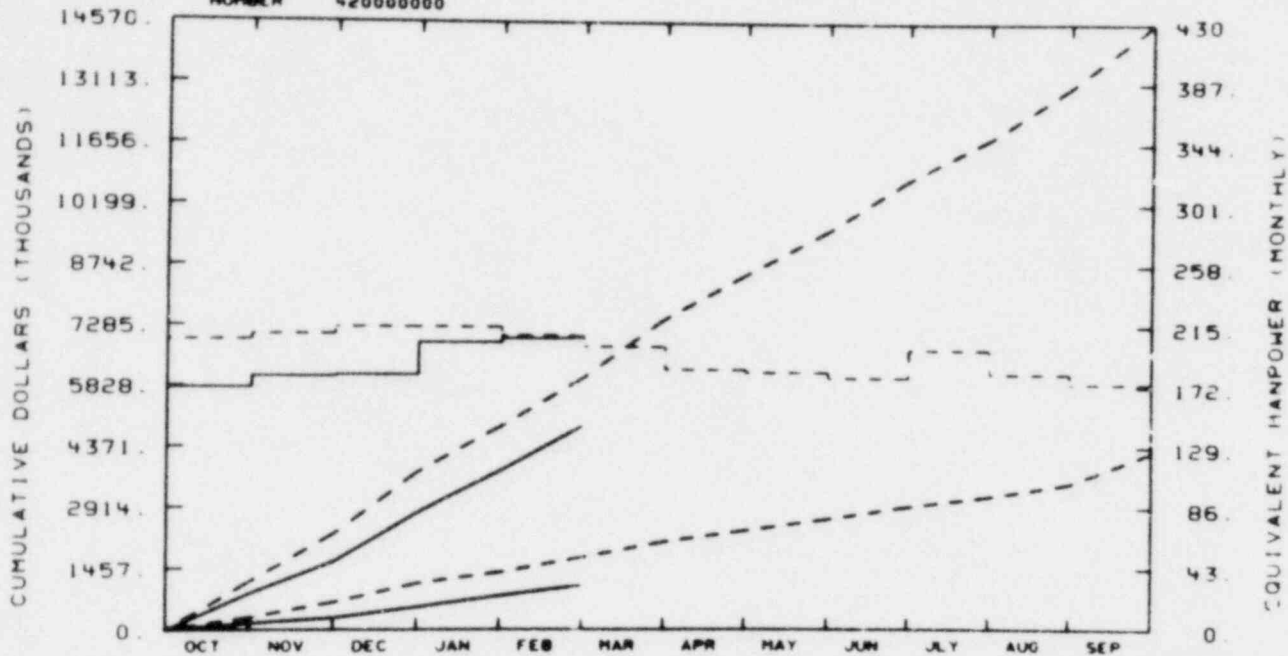
H. J. Zeile, Manager

THERMAL FUELS BEHAVIOR PROGRAM  
COST SUMMARY & COMMENTS

RESPONSIBLE  
MANAGER  
HJ ZEILE

EG&G IDAHO INC.  
THERMAL FUELS BEHAVIOR PROGRAM

NUMBER 42000000



TOTAL PROGRAM

BUDGET	1145	2278	3757	4854	6027	7459	8519	9574	10806	11801	13057	14562
ACTUAL	857	1615	2779	3787	4870							

MATERIAL

BUDGET	292	652	1093	1356	1716	2085	2356	2631	2931	3177	3467	4249
ACTUAL	156	279	535	796	1052							

MANPOWER

BUDGET	205	209	214	214	208	200	184	182	178	198	181	174
ACTUAL	171	179	180	203	206							

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

YTD VARIANCE: 1157 (19%)

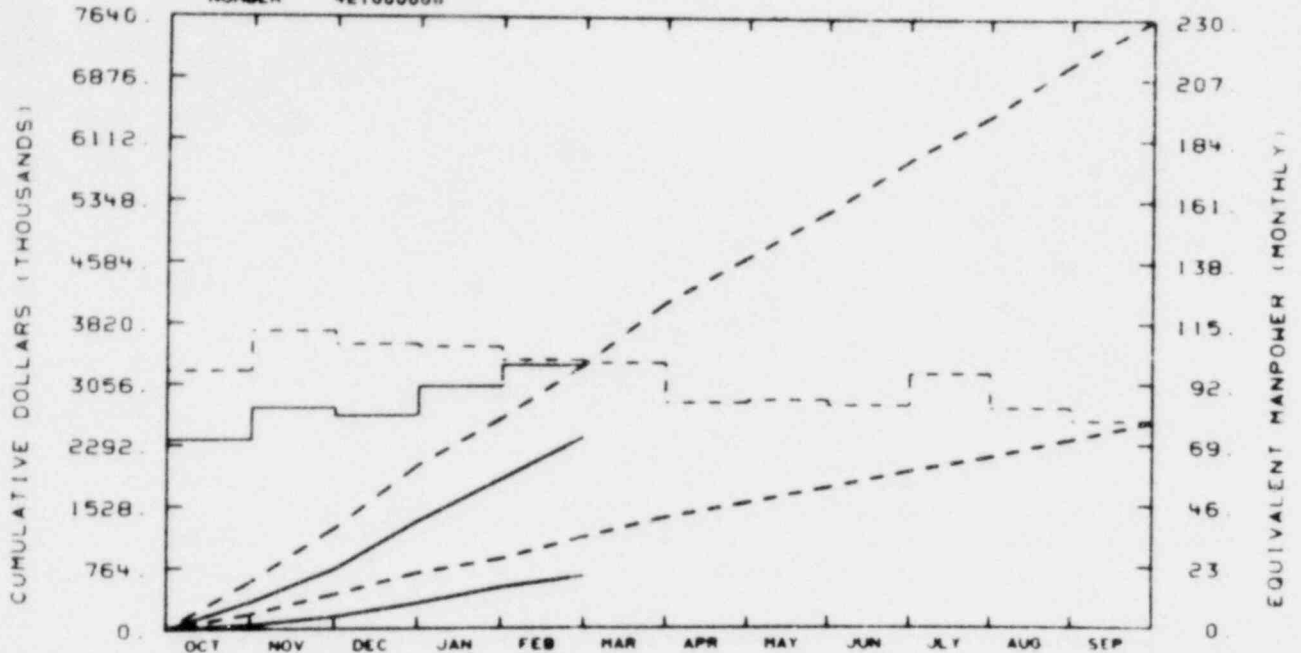
Individual cost graphs will give individual explanations.

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

EC&G IDAHO INC.  
TFBP EXPERIMENT DESIGN & ANAL

NUMBER 421000000



TOTAL PROGRAM

BUDGET	587	1247	2030	2621	3291	4076	4640	5212	5866	6413	7075	7633
ACTUAL	335	737	1335	1860	2388							

MATERIAL

BUDGET	182	426	687	865	1133	1377	1564	1756	1963	2139	2357	2574
ACTUAL	49	151	315	509	645							

MANPOWER

BUDGET	97	112	107	106	101	100	85	86	84	96	83	78
ACTUAL	71	83	80	91	99							

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

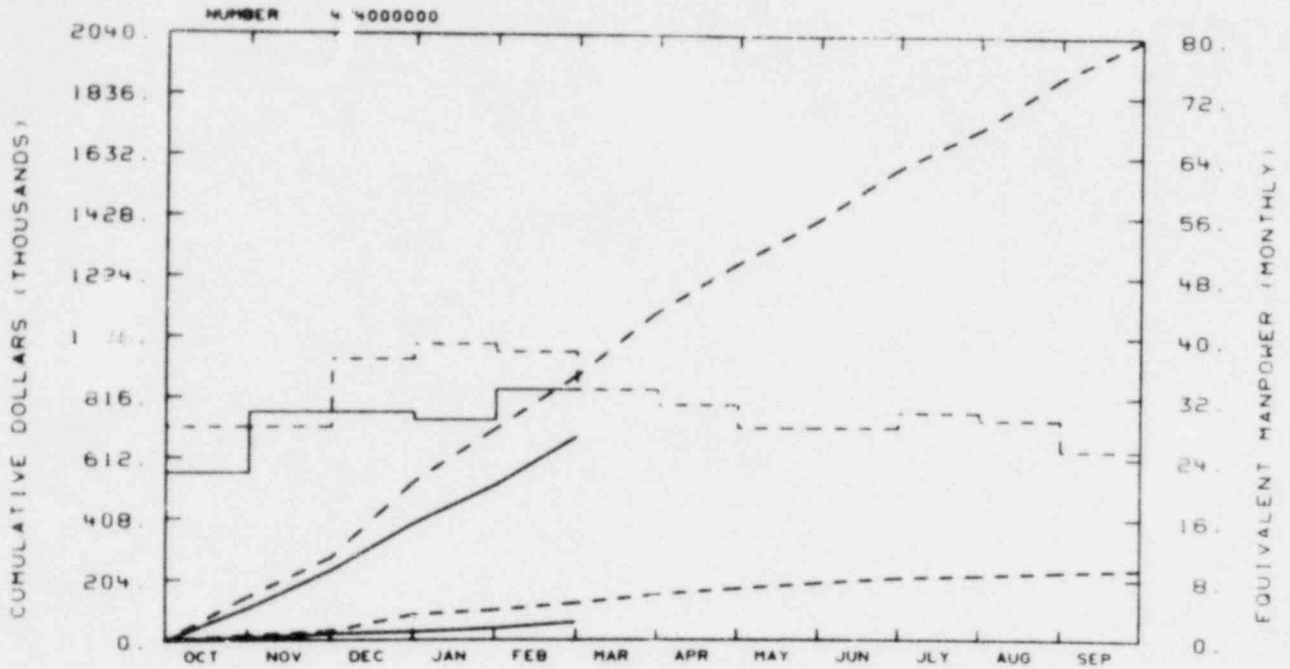
A6041

YTD VARIANCE: 923 (28%)

Analysis of the variance indicates that the 28% underrun is caused by (1) man leveling--use of slack time in test train design fabrication and assembly which will not impact the testing schedule, (2) delay in the postirradiation examination and test results reporting for the LOC-3 and LOC-5 tests, and (3) the fact that this baseline does not reflect the current test schedule. We are evaluating those tasks which start later than originally scheduled with the intention of returning funds to Management Reserve where appropriate and implementing a new baseline consistent with the current test schedule.

RESPONSIBLE  
MANAGER  
JP KESTER

EG&G IDAHO INC.  
PBF ENGINEERING



TOTAL PROGRAM

BUDGET	148	277	531	710	889	1105	1269	1418	1595	1727	1903	2032
ACTUAL	107	234	390	520	683							

MATERIAL

BUDGET	16	30	85	101	124	153	173	191	208	217	229	239
ACTUAL	9	21	27	40	60							

MANPOWER

BUDGET	29	28	37	39	38	33	31	28	28	30	29	25
ACTUAL	22	30	30	29	33							

A6044

YTD VARIANCE: 206 (23%)

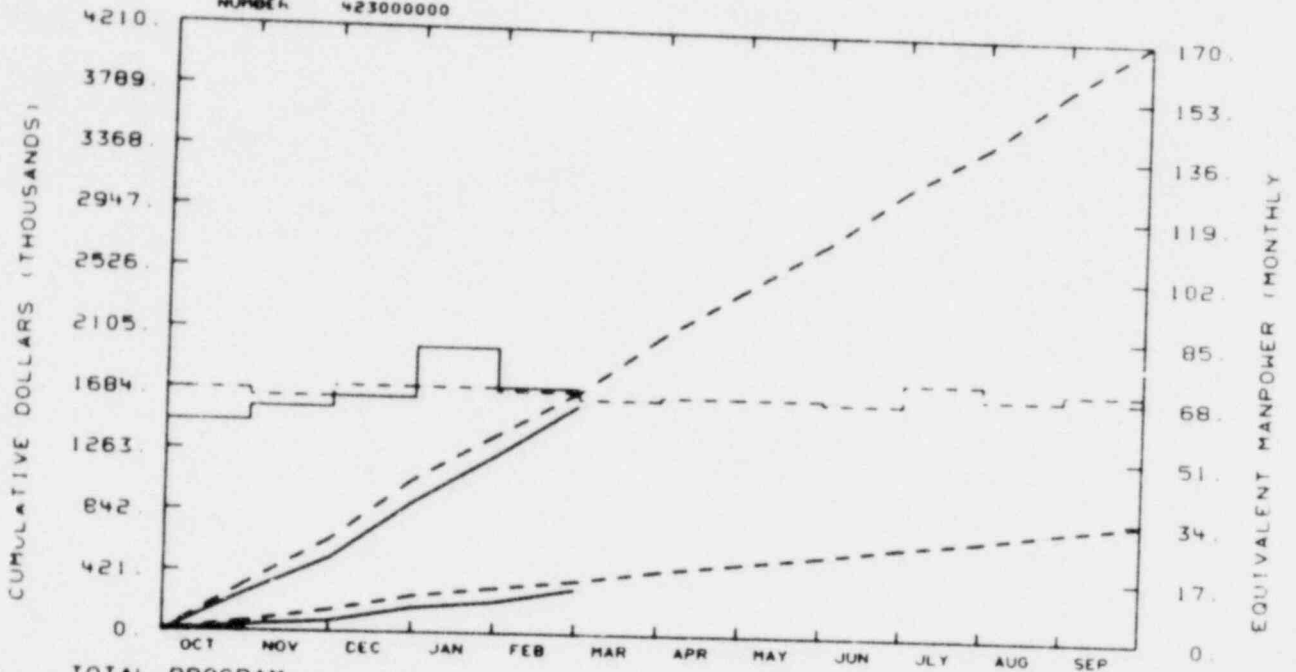
Since the beginning of the fiscal year, the variance percentages have increased and then turned around in the last two months. Analysis shows that the variance to date is a result of three major factors; (1) shortage of support personnel outside of TFBP, (2) funds budgeted for materials earlier than required for costing purposes, and (3) rescheduling by CCB's which are not included in the budget curves. Examples of the latter are the Secondary Criticality task where significant engineering work has been performed in lieu of originally scheduled craft work at this time, earlier performance of the chamber calibration test which deferred budgeted activity for the Core Surveillance Standard Practice, and scheduled later performance of the PPS Upgrade for the OPTRAN series to be consistent with the TFBP baseline schedule. The activities are to be reassessed for optional methods of applying the required engineering (subcontract labor and company priorities).



RESPONSIBLE  
MANAGER  
CO DOUCETTE

EO&G IDAHO INC  
PBF OPERATIONS

NUMBER 42300000



TOTAL PROGRAM												
BUDGET	334	644	1062	1376	1683	2084	2413	2742	3137	3450	3861	4206
ACTUAL	270	513	905	1233	1591							

MATERIAL												
BUDGET	70	150	253	311	368	443	503	563	635	692	767	830
ACTUAL	42	75	171	216	311							

MANPOWER												
BUDGET	68	66	59	69	68	66	67	67	66	72	68	70
ACTUAL	59	63	66	80	69							

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

A6057

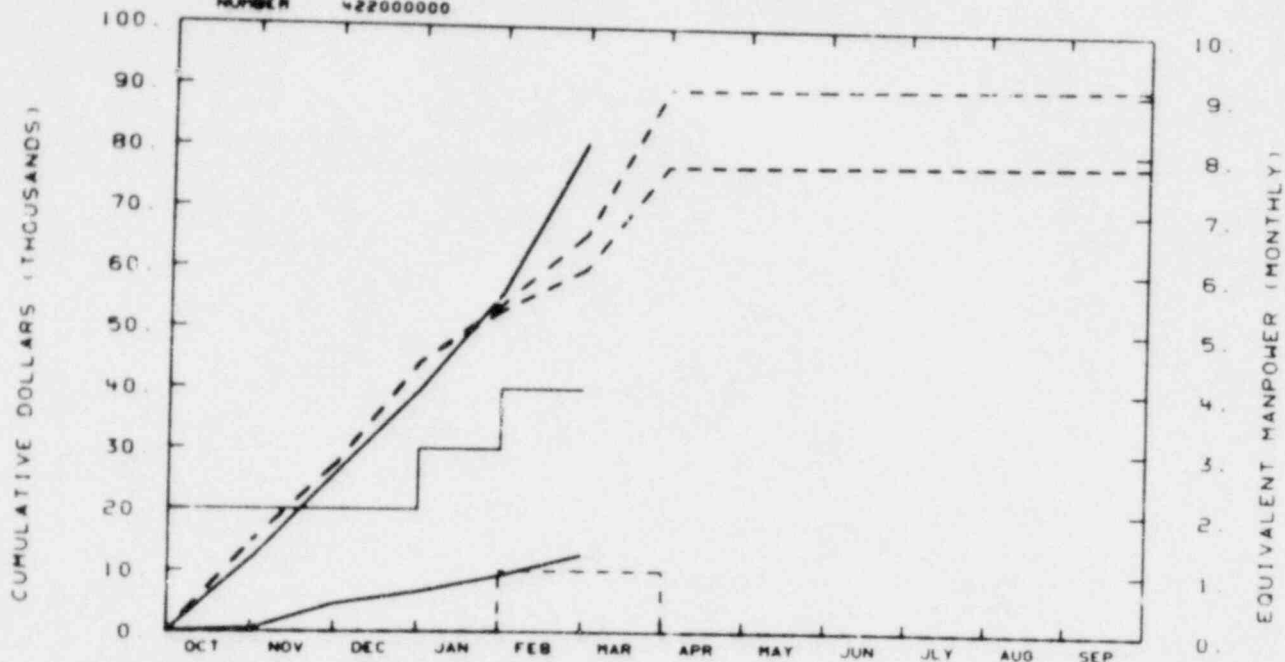
YTD VARIANCE: 92 (5%)

The underrun of 92 K (5%) is a reduction from the 143 K underrun reported last month. The underrun consists of approximately 39 K in outstanding material requisitions (reduced from approximately 84 K). Increased staffing of hardware/software engineering personnel has reduced the underrun in that area to approximately 30 K. Decreased staffing in the instrument technician area has resulted in an underrun of approximately 23 K. Increased use of overtime to maintain schedules until staffing levels can be restored will utilize this portion of the underrun. It is expected that at the end of the fiscal year costs will be in line with budgets.

RESPONSIBLE  
MANAGER  
JP KESTER

EG&G IDAHO INC.  
PBF MODIFICATIONS

NUMBER 422000000



TOTAL PROGRAM

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

MATERIAL

BUDGET	15	27	44	53	60	77	77	77	78	78	78	78
ACTUAL	0	5	7	9	13							

MANPOWER

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

BUDGET

ACTUAL

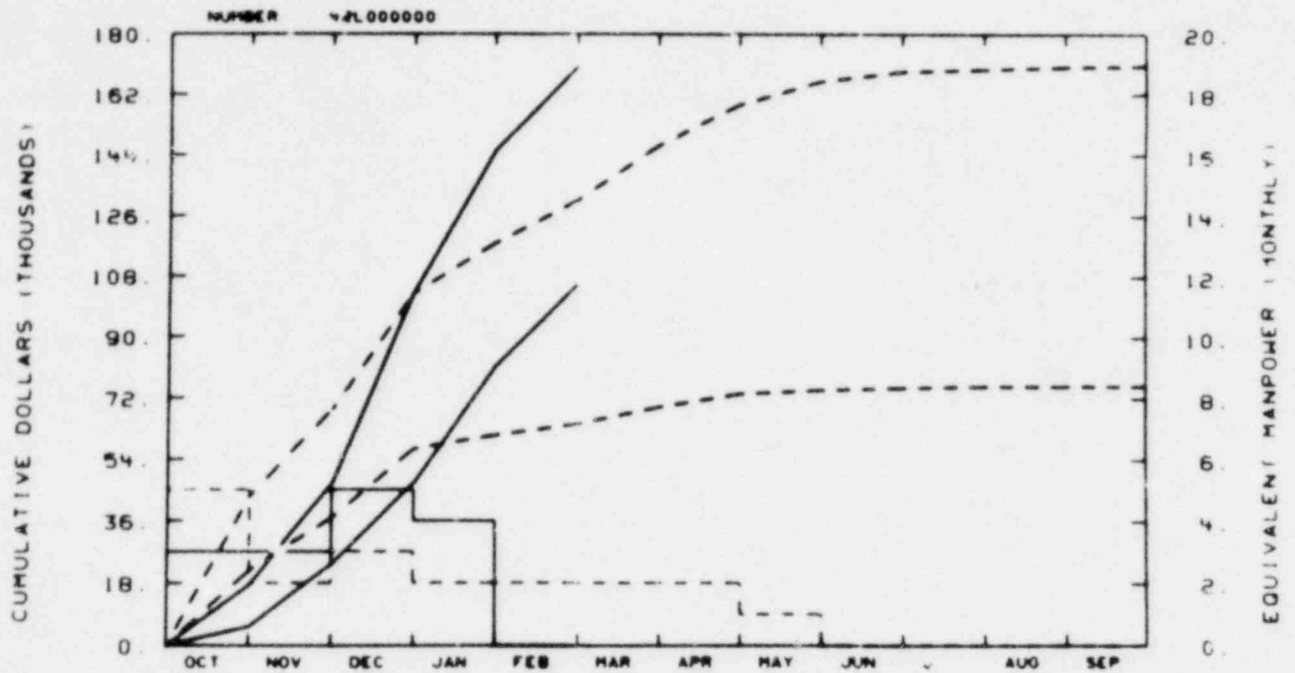
A6095

YTD VARIANCE: <15> (23%)

This work package is from a FY-1979 carryover to complete the replacement In-pile Tube (IPT). Subcontract costs have not changed for several months while engineering investigations on the defective nozzle welds were conducted and while negotiations between DOE-ID, EG&G, and the vendor took place to determine the mode of repair. These activities were completed in February and repair at General Atomic will start in March. The final completion costs will not be available until an assessment is made of the best plan for completion. In the interim period, additional engineering efforts conducted to date, the expected increase in future engineering surveillance, and the repair subcontract costs are being included in this work package by a CCB action proposal.

RESPONSIBLE  
MANAGER  
R. M. GARNER

EG&G IDAHO INC.  
PBF/LOFT LRT PROGRAM



TOTAL PROGRAM												
BUDGET	43	89	103	118	131	147	159	166	169	170	170	171
ACTUAL	17	47	103	148	170							

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

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

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

A6111

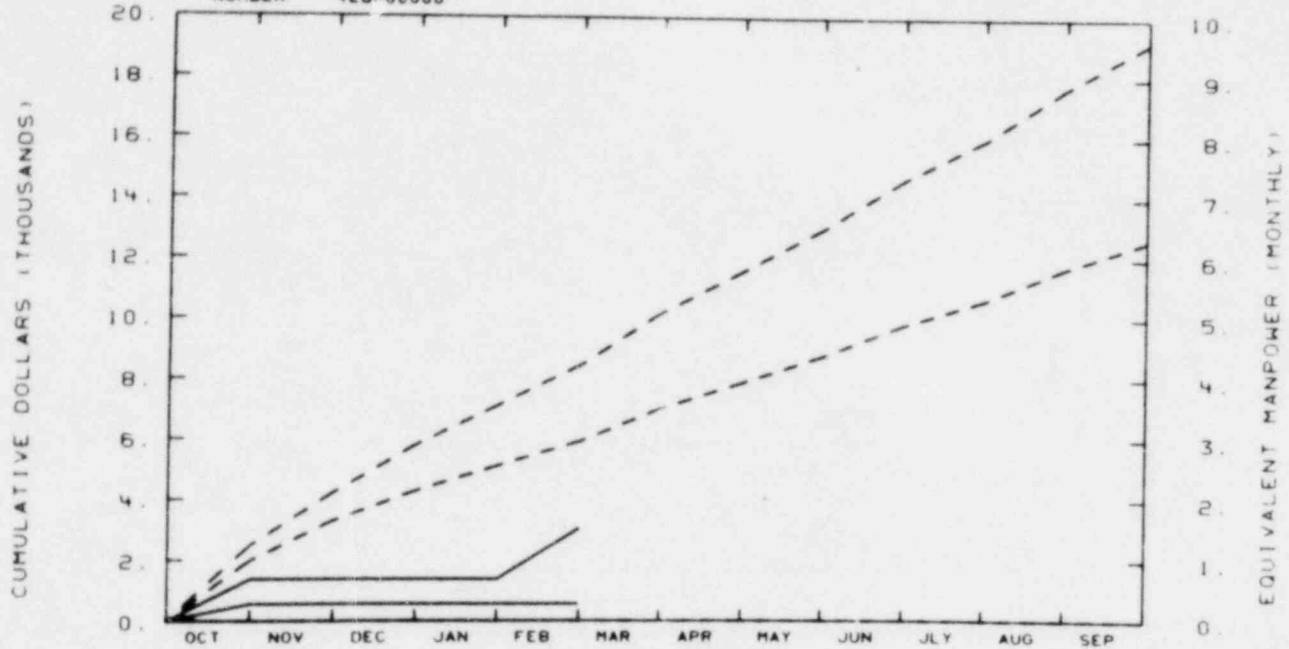
YTD VARIANCE: <39> (30%)

Analysis of the variance indicates that the 30% overrun is caused by the TRR being ahead of schedule due to the early completion of both the FRAP posttest analysis and the first draft of the TRR. 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.

RESPONSIBLE  
MANAGER  
PE MACDONALD

EG&G IDAHO INC.  
PBF COOPERATIVE RESEARCH-AUSTRIA

NUMBER 428700000



TOTAL PROGRAM

BUDGET	3	4	6	7	8	10	12	13	15	16	18	19
ACTUAL	1	1	1	1	3							

MATERIAL

BUDGET	2	3	4	5	6	7	8	9	10	11	12	13
ACTUAL	1	1	1	1	1							

MANPOWER

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

BUDGET

ACTUAL

A6274

YTD VARIANCE: 5 (63%)

The manpower support is less than a man-month and, therefore, is shown on the plot as zero.

THERMAL FUELS BEHAVIOR PROGRAM  
CURRENT WORKING SCHEDULE

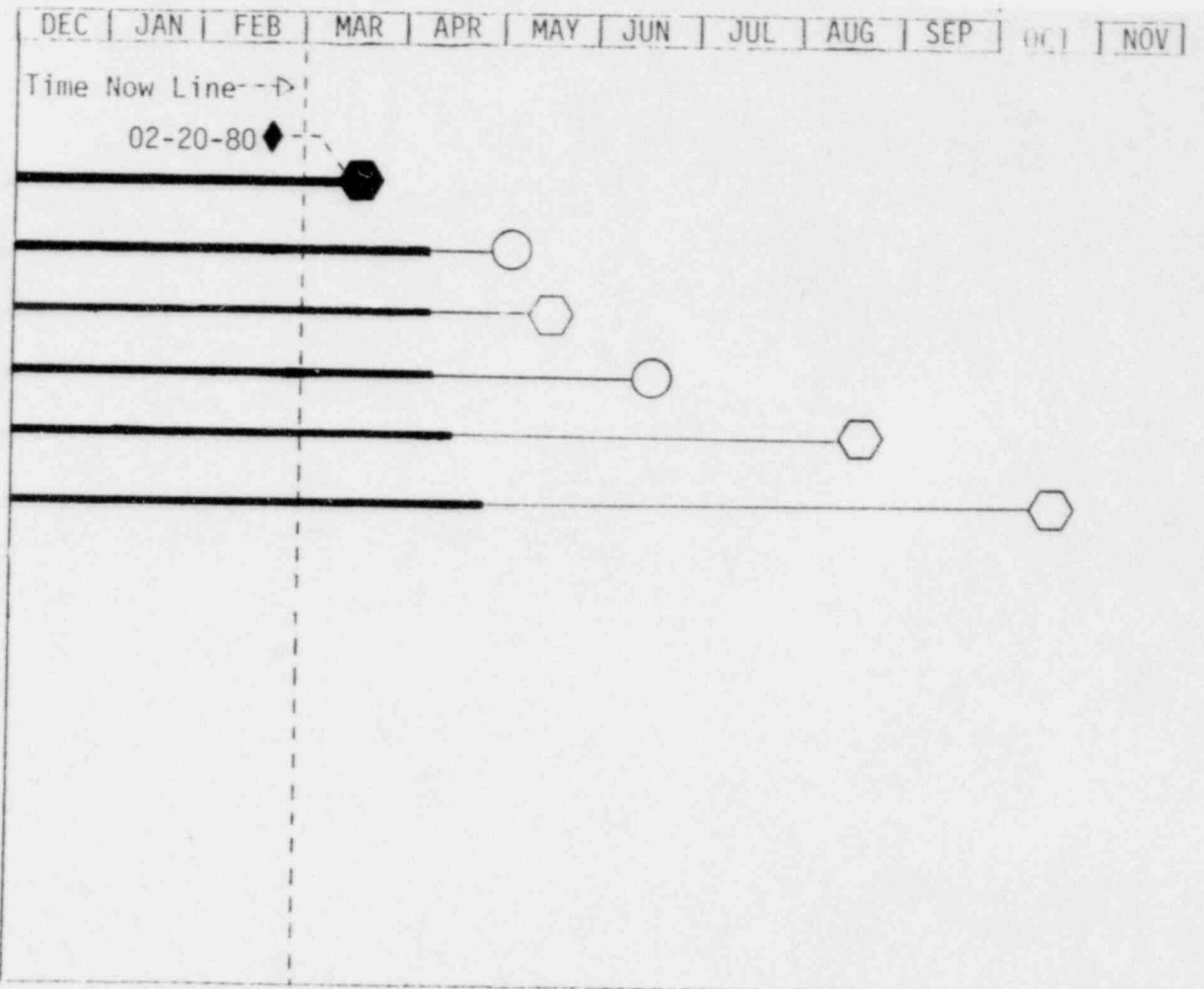
LEGEND

- Completed Major Milestone
- Scheduled Major Milestone
- ◐ Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- ◐ Slipped Secondary Milestone
- ◆ Actual Completion Date
- ◇ Scheduled Completion Date

FY-1980

FY-1981

PR-1  
 CHAMBER CALIBRATION  
 RIA 1-4  
 LOOP CLEAN-UP  
 PCM-7  
 TC-2



-32-

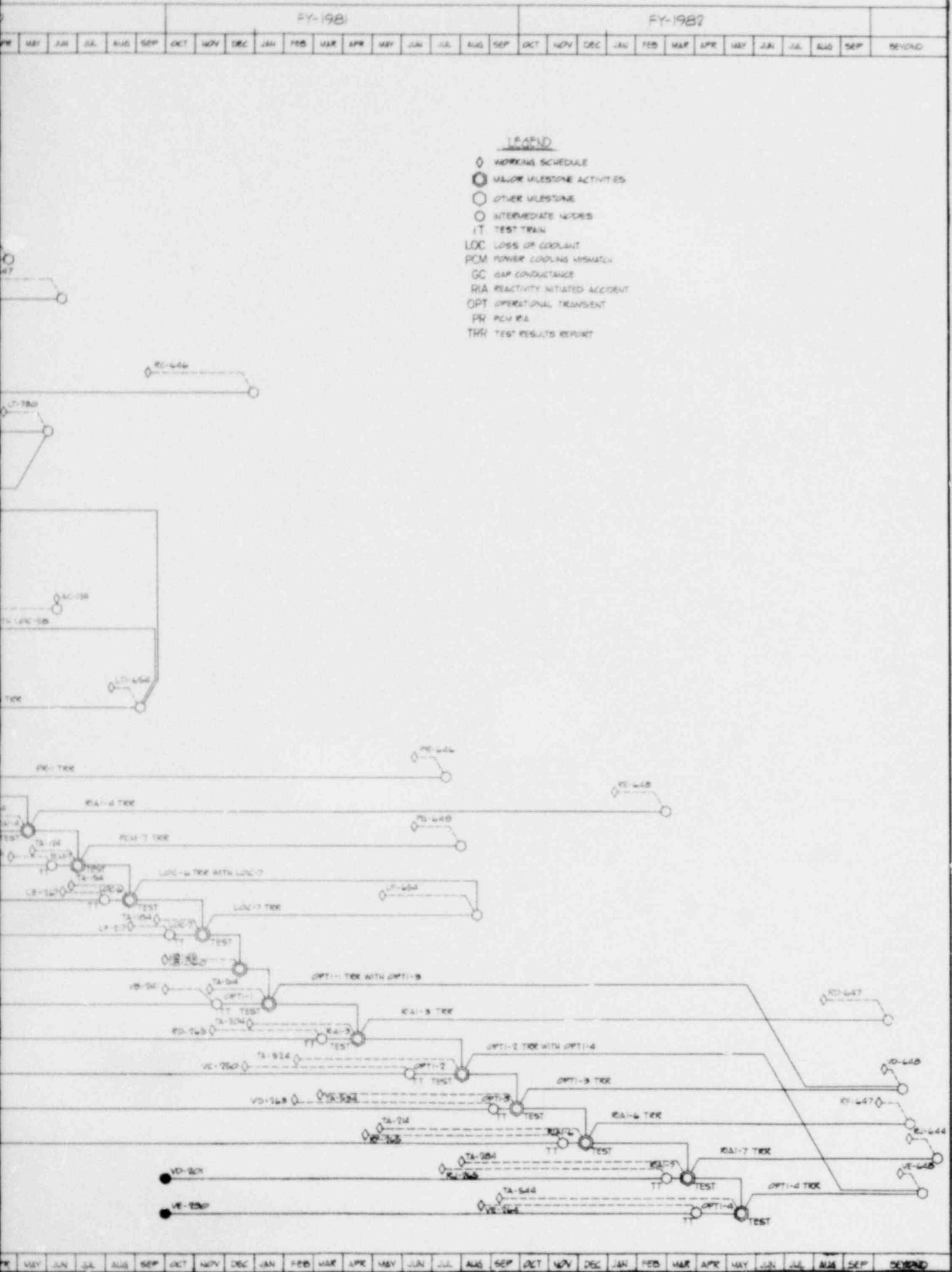
NOTES: TC-2 and Loop Clean-up added for new baseline.

THERMAL FUELS BEHAVIOR PROGRAM  
TEST SUMMARY SCHEDULE





# TFDP MANAGEMENT SUMMARY SCHEDULE



THERMAL FUELS BEHAVIOR PROGRAM  
TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

The combination power-cooling-mismatch/reactivity-initiated accident Test PR-1 which began on February 5, 1980, was completed on February 22, 1980, and the test analysis has been initiated.

1. 189a A6041 - TFBP Experiment Design and Analysis
2. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
#4	PR-1 Test Train	02-05-80T	01-21-79C

3. Summary of Work Performed in February 1980

- a. PCM Test Series

Test PR-1 was conducted and efforts on the Quick Look Report (QLR), including data reduction and qualification, were initiated. Efforts continued on the Test PCM-5 Fuel Rod Materials Behavior Report. Work on a test results report, which includes results from PCM Tests 8-1RF, 8-1RS, and CHF Scoping, was initiated. Sections of the PCM-5 Fuel Rod Materials Behavior Report have been revised. The report has undergone peer review. The assembly of the PCM-7 test train continued. Plots were provided as requested for PCM-2, PCM-4, and PCM Topical. Microfiche plots were generated for the 8-RS test. Completed pretest and QLR preparation, including submission of data reduction requests, started QLR processing on first burst data received, and began conversion of phase-angle analysis programs to the CDC 176 for Test PR-1.

- b. OPTRAN Test Series

The revised OPTRAN 1-2 Experiment Specification Document (ESD) was issued. Efforts continued on the OPTRAN 1-1 Experiment Operating Specifications (EOS), the OPTRAN 1-1, 1-3 Experiment Predictions (EP), and the OPTRAN 1-2 EP. The design of the OPTRAN 1-1 and 1-3 test assemblies continued. The design of the OPT 1-1, OPT 1-3 (Battelle) test trains continued.

- c. LOCA Test Series

The TC-1 Test Results Report was prepared for management review. The EOS for the TC-2 Tests was finalized for review. Work began on the LOC-3 Fuel Behavior Report. Postirradiation examination (PIE) continued on the LOC-5 rods. The assembly of the LOC-6 test train continued. Completed slides for NRC presentation for the TC tests and prepared hard copy and microfiche plots of test data and RELAP predictions as requested. Provided plotting and processing for LOC tests, and began production of LOC-3 data appendix.

d. RIA Test Series

The RIA 1-4 EP report was issued. Preparation of the Fuel Behavior Reports for Tests RIA 1-1 and RIA 1-2 continued. Processing of the RIA-ST Fuel Behavior Report by the Documentation Office is underway. Assisted in the conduct of Test PR-1 and in preparation of the power burst portion of the QLR. The thermal-hydraulics analysis for Test RIA 1-3 was completed. Preparations for Test RIA 1-4 were continued. Reactor physics analysis of the Capsule Driver Core (CDC) reactor for determining peak fuel enthalpy values for CDC power burst tests was initiated. Component fabrication for Test RIA 1-3 and the assembly of the RIA 1-4 test train continued; design of the RIA 1-7 test assembly by Battelle continued. Completed ST and RIA 1-1 Test Results Report data and FRAP-T plots. Provided response-curve and other plots for RIA 1-4 EP report.

e. LLR Test Series

PIE of the LLR fuel rods was completed. Work began on the LLR PIE report.

f. IE Topical Report

The report on fission gas behavior was published.

g. RIA Topical Report

Management review of the draft report continued.

h. PCM Topical Report

Analysis of departure from nucleate boiling, quench, and rewet data from PCM tests continued.

i. Halden Program

Two papers for the American Nuclear Society LWR Safety Topical Meeting were prepared, covering fission gas release and the effects of Xe/He fill gas and fill gas pressure on fuel temperature. A draft of the IFA-429 Update Report was completed.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
#4, Line 2	PR-1 Test	03-20-80T	02-22-80C
#3, Line 3	PR-1 Test QLR	03-31-80T	
#2, Line 6	RIA-ST TRR	03-19-80E	
#1, Line 2	Small Break LOCA ERD	03-15-80T	
#2, Line 3	IFA-429 Update Report (EGG-TFBP)	03-31-80T	

5. Summary of Work to be Performed in Marcha. PCM Test Series

The QLR for Test PR-1 will be issued. Data reduction and qualification for the PR-1 Test Results Report (TRR) will be initiated. An outline for the PCM 8-1RF, 8-1RS, and CHF Scoping Tests Report will be prepared and draft report preparation initiated. The assembly of the PCM-7 test train will be completed. PCM-5 Fuel Rod Materials Behavior Report will undergo technical editing.

b. OPTRAN Test Series

The OPTRAN 1-1 reactor physics analysis will be completed and the OPTRAN 1-2 reactor physics analysis will continue. The OPTRAN 1-1, 1-3 EP report will reach its final stages of completion and the writing of the OPTRAN 1-1 EOS will continue. The design of the OPTRAN 1-1 and 1-3 test assemblies will continue.

c. LOCA Test Series

The TC-1 TRR Management Review will be completed. A LOC-3 evaluation will be prepared for the Knoxville ANS meeting. Preparation of the LOC-3 and LOC-5 Fuel Behavior Report continues. LOC-3 metallography will be completed and LOC-5 metallography will begin. Experiment predictions for LOC-6 will be initiated. Fabrication of the Test LOC-7 machined parts and instruments, and assembly of the LOC-6 test train will continue.

d. RIA Test Series

Complete preparation of power burst portion for Test PR-1 QLR. Continue preparations for Test RIA 1-4. Assist in conduct of PBF core power calibration test. Work on the RIA 1-2 Fuel Behavior Report will continue, a draft of the RIA 1-1 Fuel Behavior Report will be completed. Reactor physics analysis of the CDC reactor will continue. Component parts fabrication for the RIA 1-3 test train and assembly will continue. The RIA 1-4 test train will be completed.

e. LLR Test Series

A draft of the LLR PIE report will be completed.

f. RIA Topical Report

The report has been submitted to the Documentation Office for review and has now been given to the Information Division for technical editing.

g. PCM Topical Report

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

i. Halden Program

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

6. Problems and Potential Problems

Delay in starting CDC thermal-hydraulic analysis due to unavailability of qualified analyst may impact reactor physics analysis schedule.

1. 189a A6044 - PBF Design Engineering

2. Scheduled Milestones for February 1980

None.

3. Summary of Work Performed in February 1980

a. Red Mike Evacuation System Expansion

Expansion of the red mike evacuation and communication system into the new shift supervisor's office was operationally checked. This part of the modification is complete. SPERT IV Red Mike expansion will start next month.

b. LOCA Utilities Rubber Hose Replacement

New distribution manifolds are complete and ready for installation. All hoses and most of the couplings have been received.

c. Drain Collection Trough

Fabrication of the new drain collection trough is awaiting receipt of materials. The Facility Change Form (FCF) was submitted for approvals and the Site Work Release (SWR) for fabrication was issued.

d. Burst Logic Modifications

A final review of the proposed changes was held on February 14th. Oak Ridge National Laboratory (ORNL) returned preliminary positive comments. A final design package will be transmitted to ORNL for final comments. Materials are on hand.

e. Resin Cleanup and Acid Cleaning

Detailed Operating Procedure (DOP) 3.1.23 (Resin Cleanout) has been issued for approval. Material compatibility review continued. The DOP for resin handling at Test Area North (TAN) Hot Cell is in the approval cycle. A Change Control Board notice was revised and reissued. The DOP for acid cleaning was issued for review.

f. Reactor Building Remote Plant Alarm Indication

The SWR was issued, and the FCF was approved.



g. In-pile Tube (IPT) Head Shim

Successfully prototyped a method of adding a circular ring shim to reduce the annulus between the head of the IPT. Backup rings of Ethylene Polypropylene were ordered to replace the presently used "N300" temporary material.

h. Utility Cooling Water System

The Engineering Design File (EDF) for this modification is in typing.

i. Fission Product Detection System (FPDS) Flowmeter Modification

The drag-disk flowmeters are scheduled for shipment next month.

j. Sulfur Dioxide (SO<sub>2</sub>) System Modification

A design review was held for relocation of SO<sub>2</sub> bottles. The bottles will be moved to Building 621. Final design and material orders were started.

4. Scheduled Milestones for March 1980

None.

5. Summary of Work to be Performed in March 1980

a. Core Inlet Bellows Rupture Detection Probe

The probe will be installed, during the next plant availability period, for operational evaluation.

b. Red Mike Evacuation System Expansion

The SPERT IV Red Mike expansion installation will be completed in March.

c. Burst Logic Modification

Required documentation will be revised. Installation is scheduled to start in late March and completed in April.

d. LOCA Utilities Rubber Hose Replacement

All remaining hardware is expected to be delivered. Installation will be scheduled for the next available window.

e. FPDS Flowmeter Modification

Installation is scheduled for late March.

f. Reactor Building Remote Plant Alarm Indication

Parts delivery and installation are expected in March.

g. Resin Cleanout and Acid Cleaning

DOP 3.1.23 will be issued. The TAN Hot Cell procedure and acid cleaning procedure will be issued. All materials and equipment, including special tools for TAN will be available. Materials compatibility review will be completed and an EDF issued. Material for acid cleaning will be ordered. Resin cleanout will be started.

h. Drain Collection Trough

The new drain collection trough will be fabricated and made ready for installation.

i. Utility Cooling Water System

The completed Engineering Design File will be released.

j. SO<sub>2</sub> System Modification

Design will be completed, materials will be ordered, and SWR's will be prepared for fabrication and installation.

6. Problems and Potential Problems

None.

1. 189a A6095 - Major Modifications
2. Scheduled Milestones for February 1980

None.

3. Summary of Work Performed in February 1980

- a. In-pile Tube Spare

Alternative solutions to the contractual problems presently being encountered have been developed, and the course of action will be determined following negotiations with the vendor.

4. Scheduled Milestones for March 1980

None.

5. Summary of Work to be Performed in March 1980

- a. In-pile Tube Spare

Agreement should be reached on the plan and schedule for completing the spare IPT manufacture.

6. Problems and Potential Problems

None.

1. 189a A6057 - PBF Operations
2. Scheduled Milestones for February 1980

None.

3. Summary of Work Performed in February 1980

- a. PBF Operations

The work performed during this reporting period was primarily associated with plant preparations and the conduct of Test PR-1.

Installation of the PR-1 test train into the in-pile tube (IPT), final hydrostatic leak testing, plant and equipment startup for nuclear operations, and performance of Test PR-1 were completed. Following plant and equipment shutdown, the PR-1 test train was removed from the IPT. Plant preparations for removal of the resin from the primary loop ion exchange columns were initiated.

The Instrument and Data Section of PBF Operations completed the data acquisition and reduction system (DARS) and plant instrumentation checkout for Test PR-1. Following completion of Test PR-1, the posttest calibrations and data reduction for the Quick Look Report were completed. Reconfiguration for the upcoming Test RE-1 (Chamber Calibration) was initiated.

- b. PBF Operations Support

Preventive maintenance (PM) and in-service inspection examinations for March were planned, scheduled, and are 80% complete. Corrective maintenance for this reporting period includes the planning and scheduling of various plant deficiency corrections and numerous plant and building cleanup and improvement tasks. In addition, PBF maintenance engineering supported the planning and development of procedures and support work for the loop resin changeout and acid cleaning work.

Test PR-1 was completed and the data qualification effort is continuing. Following completion of the Test PR-1 quick look data reduction, corrections for Tests LOC-5A, LOC-5B, and LOC-5C are scheduled to be processed. The last four chapters of the draft test independent uncertainty analysis are in typing and peer review. As part of the continuing uncertainty analysis effort, a calculator program has been developed based on the PBF/DARS test independent uncertainty analysis, which will estimate each measurement channel uncertainty prior to a test. This program is being adapted to the DARS. The PBF Monitor and Timer Specification bids were received and are in process of evaluation. Requirements documents have been completed

for the PBF Computer Assisted Diagnostics (CAD) and the PBF Operator Training Simulator; both are based on obtaining the monitor and timing system.

The Experiment Operating Procedure (EOP-056) for the performance of Test PR-1 was issued and work commenced on the Test RE-1 EOP-058. Chapter 24, PBF LOCA Blowdown System, of the Plant Operating Manual (POM) was issued and various document revision requests (DRRs) were processed to support plant operation.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Test</u>	<u>Scheduled Date</u>	<u>Date Completed</u>
TA-614	PR-1	03-20-80	02-22-80

5. Summary of Work to be Performed in March 1980

a. Perform Test RE-1.

6. Problems and Potential Problems

None.

1. 189a A6274 - PBF Cooperative Research - Austria

2. Scheduled Milestones for February 1980

None.

3. Summary of Work Performed in February 1980

The three procedures for acceptance tests, calibration, and qualification tests for the Internal LVDT were reviewed. The review comments are being incorporated.

4. Scheduled Milestones for March 1980

None.

5. Summary of Work to be Performed in March 1980

The Internal LVDT acceptance test, calibration, and qualification test procedures will be out for approval signatures. When the acceptance test procedure is approved, the tests will begin.

6. Problems and Potential Problems

None.

1. 189a A6275 - Electrical Heater Rod Evaluation Studies

2. Scheduled Milestones for February 1980

None.

3. Summary of Work Performed in February 1980

a. Electric-Nuclear Rod Comparison

The high pressure quench tests in the blowdown facility are being analyzed and compared to LOFT data.

b. IFA-511 Nuclear and Electrical Heater Rod Experiments

The fast scan data tape and computer plots from the first series of IFA-511-II tests arrived. The fast scan tapes were processed, and major discrepancies between the data from the computer plots and the data tapes were noticed (for example, 36 thermocouples recorded on the computer plots, but only 10 on the tapes). A copy of the tape printout was sent to Halden, and the apparent difficulty is that the procedure for reading the 511-I fast scan tape was used for the 511-II tape, although the number of data channels was greater by about a factor of two. A listing of the information on the 511-II tape and instructions for processing the tape are being prepared at Halden.

Modeling of the 511-II system for the TRAC code continued. A question has been raised by NRC regarding the use of the TRAC code for IFA-511 analysis, and other codes (RELAP 4, RELAP 5) are being considered.

c. COSIMA Testing

Following the test of the SIM heater rod with LOFT type thermocouples in December, the same rod, after having the thermocouples removed, underwent a series of three identical tests. The results of the latter three tests were puzzling. The readings of the optical pyrometers for the rod without thermocouples was about 100 K below the corresponding readings for the rod with thermocouples, although the test conditions were supposed to be otherwise identical. The staff at KfK is attempting to determine the reason for the discrepancy. The RELAP calculation for the LOFT L2-3 experiment based on the valve program from KfK has been submitted to the computer but results have not yet been received.

d. Swiss Reflood Tests

L. Wheat visited EIR during February and indicated a major slip in the Swiss schedule; primarily because of complications in fabricating the heater rods. No official communication has been received on the proposed LOFT support tests or when the Swiss heater rods could be delivered to EG&G for testing.

Cost and schedules for fabricating LOFT type (Inconel sheath) thermocouples has been requested.

4. Scheduled Milestones for March 1980

None.

5. Summary of Work to be Performed in March 1980

a. Electrical Heater Rod Performance Review

Comparison of REBEKA and FLECHT data will continue. Specifically, comparison of cladding temperatures and quench times between the rods will be made to determine if differences in rod designs influence the cladding response.

The response of Semiscale heater rods will be compared to LOFT nuclear rod response during L2-2 and L2-3.

b. IFA-511 Nuclear and Electrical Heater Rod Experiments

A decision on the code to be used for IFA-511 analysis should be made. The difficulty with the data from the IFA-511-II fast scan should be cleared up. Input preparation for computer analysis of the 511-II initial test series will be well underway.

c. COSIMA Testing

The results of the RELAP calculation for the LOFT L2-3 experiment will be analyzed and sent to KfK. A preliminary report is expected to be received from KfK covering the first experiments with and without LOFT TC's on the SIM heater.

d. Swiss Reflood Tests

Swiss heater rods will be requested and plans made for blowdown facility tests to compare the Swiss rods with Semiscale rods.

Liaison will be made concerning the NEPTUN program document and proposed NEPTUN tests.



6. Problems and Potential Problems

b. IFA-511 Nuclear and Electrical Heater Rod Experiments

There has been difficulty with manpower allocation for the computer analysis on the IFA-511 experiment. The delay in getting useable data from the fast scan data tape has helped to keep the manpower problem from being critical.

THERMAL FUELS BEHAVIOR PROGRAM  
CHANGE CONTROL BOARD ACTIONS

CHANGE CONTROL BOARD STATUS

<u>COST ACCOUNT</u>	<u>CCB #</u>	<u>DESCRIPTION</u>	<u>STATUS</u>	<u>DATE</u>
4242B62	80-17	Loop Cleanup	Pending	02-28-80
4242B14	80-18	Loop Pump Bypass	Pending	02-28-80
4233D00	80-20	PBF Facility Improvements	Pending	02-28-80

CHANGE CONTROL BOARD ACTIONS

(Dollars in Thousands)

<u>JCB NUMBER</u>	<u>DESCRIPTION</u>	<u>FY-80</u>	<u>FY-81</u>	<u>FY-1982/Beyond</u>	<u>TOTAL APPROVED ACTION</u>
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	POC-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	<77.5>			

< > Allocation from Reserve

FY-1980 BUDGET STATUS REPORT

(Dollars in Thousands)

<u>189a NUMBER</u>	<u>NEW 189a TOTAL</u>
A6041	7,701
A6044	2,032
A6057	4,206
A6095	91
A6274	19
A6281	29
TOTAL	<u>14,078</u>
Management Reserve	374
Discretionary Reserve	<u>37</u>

3-D PROGRAM

WRRD MONTHLY REPORT FOR  
FEBRUARY 1980  
3D PROGRAM

*Roberta A. DaBell*

---

R. A. DaBell  
Plans & Budgets Representative

*RE Rice / Blw*

---

R. E. Rice, Acting Manager  
Engineering Support Projects

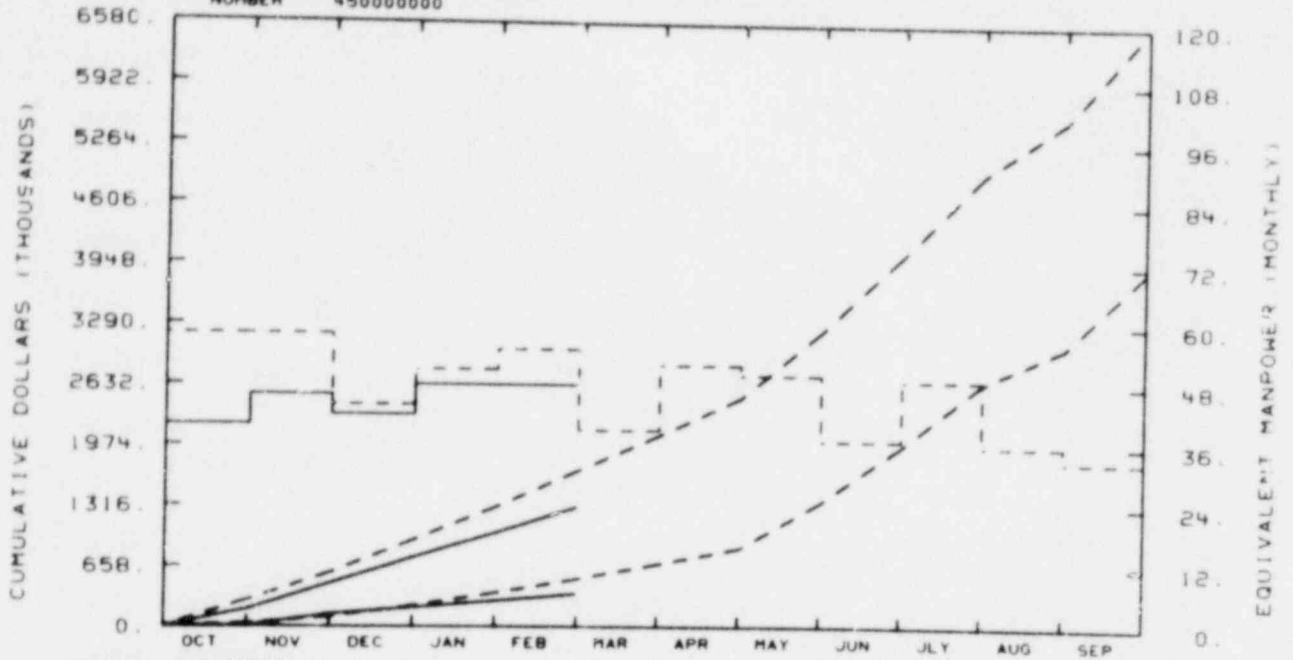
3-D  
COST SUMMARY & COMMENTS



RESPONSIBLE  
MANAGER  
R E RICE

EG&G IDAHO INC.  
3-D PROGRAM

NUMBER 45000000



TOTAL PROGRAM

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

MATERIAL

BUDGET	31	103	225	364	517	681	853	1359	1972	2666	3054	3903
ACTUAL	9	134	206	278	358							

MANPOWER

BUDGET	08	58	44	51	55	39	52	50	37	49	36	33
ACTUAL	40	46	42	48	48							

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

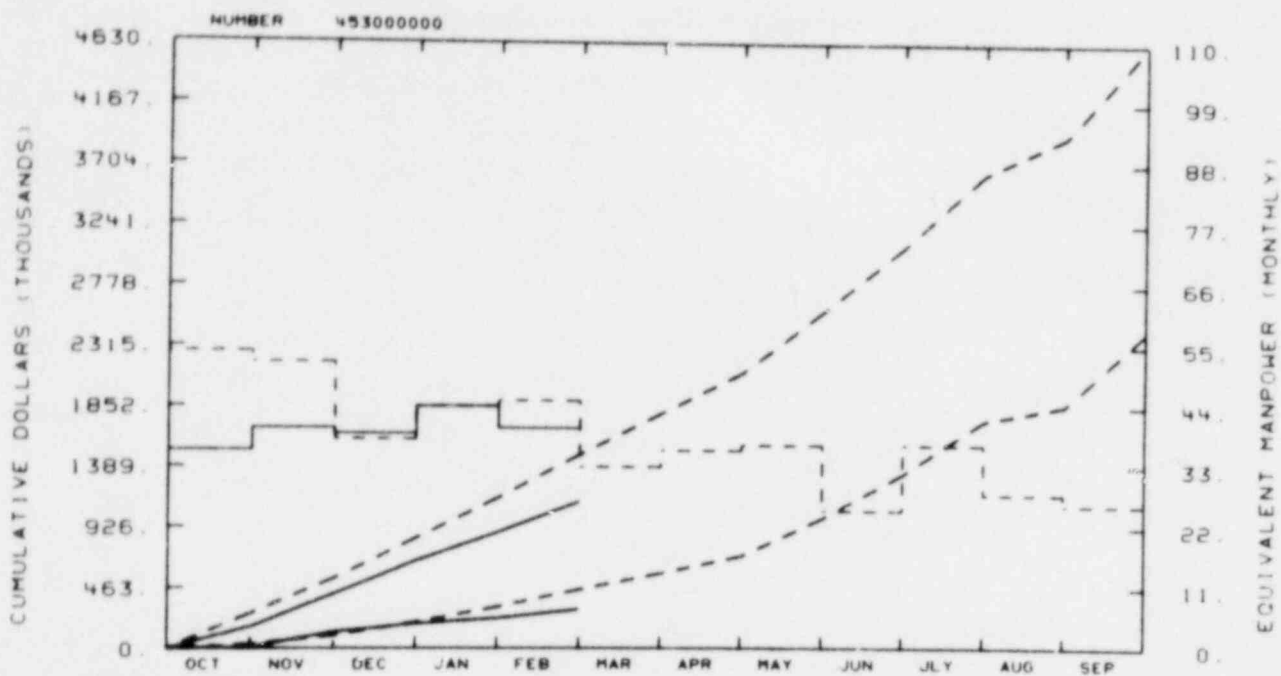
YTD VARIANCE: 302 (18%)

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	184	415	665	883	1211							

MATERIAL

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

MANPOWER

BUDGET	54	52	38	44	45	33	36	37	25	37	28	26
ACTUAL	36	40	39	44	40							

BUDGET ---  
ACTUAL - - -

A6100

YTD VARIANCE: 270 (18%)

The SCTF instrumentation projects are 230 K underrun due to a revision in schedule requested by JAERI, and a lack of available manpower at EG&G.

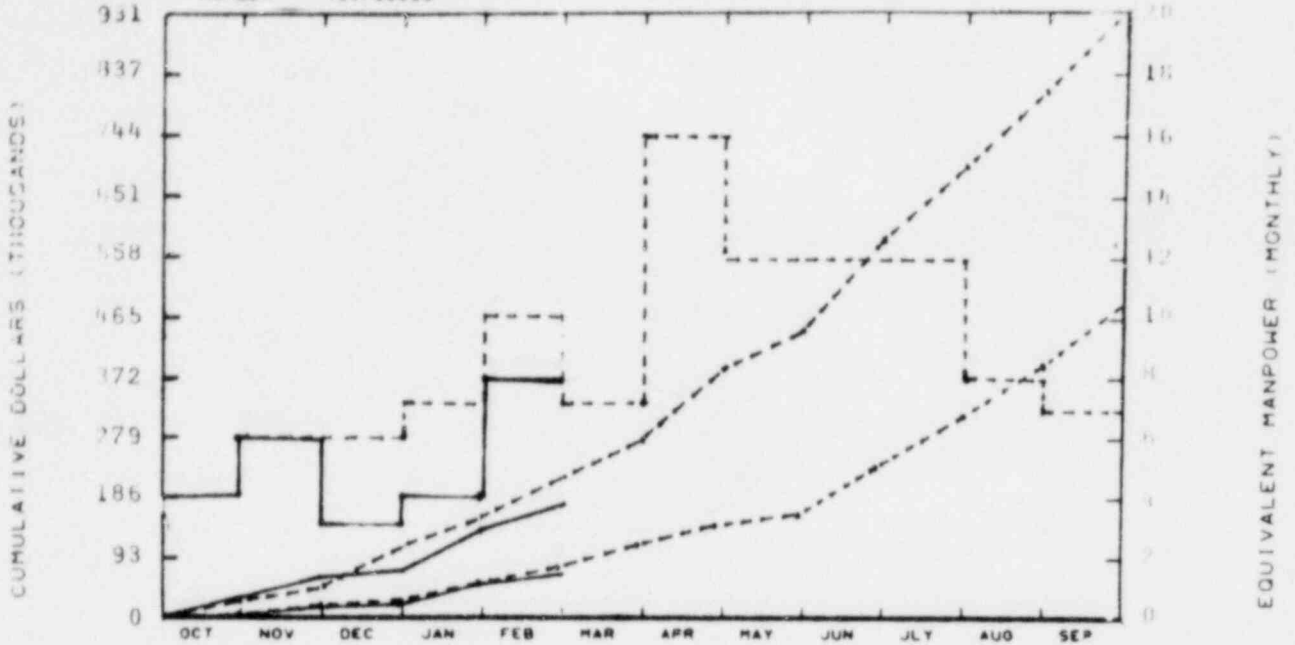
The UPTF instrumentation projects are 130 K underrun, and the PKL instrumentation projects are 36 K underrun which is also due in part to the shortage of manpower on this project. UPTF and PKL have also revised delivery dates for these projects to be approximately six months later than originally planned.

The CCTF Core I instruments are approximately 125 K overrun due to problems encountered at installation, additional support required in Japan. The rebaselining effort is ongoing and is still planned to be completed by the end of April 1980. One additional project engineer has come on board, and two more are expected in the next four months.

RESPONSIBLE  
MANAGER  
R E RICE

EG&G IDAHO INC.  
FLUID DISTRIBUTION GRIDS - A6282

NUMBER 451F00000



TOTAL PROGRAM

BUDGET	0	47	100	149	209	278	379	441	578	698	810	931
ACTUAL	20	51	82	131	187							

MATERIAL

BUDGET	0	7	26	49	71	109	150	165	236	317	389	471
ACTUAL	2	9	20	40	63							

MANPOWER

BUDGET	4	6	6	7	10	7	16	12	12	12	8	7
ACTUAL	4	6	3	4	8							

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

A6282

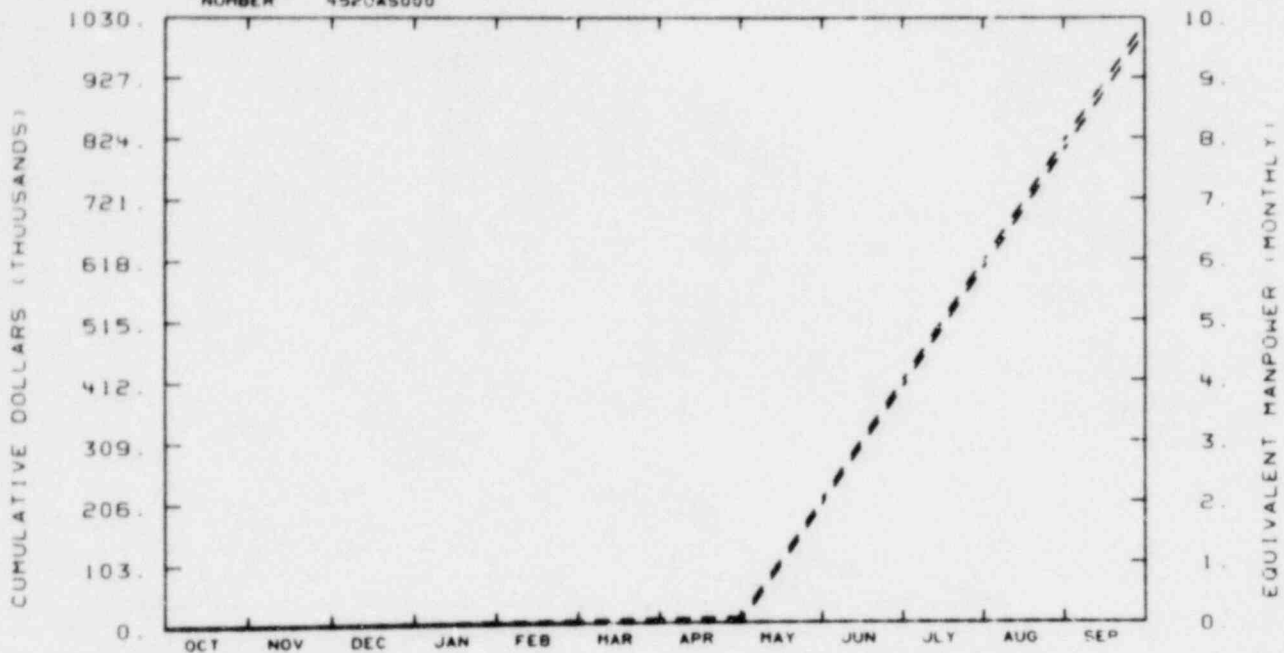
YTD VARIANCE: 28 (13%)

The schedule for the CCTF II and UPTF fluid distribution grids has been revised. Efforts on these projects will not begin until late FY-1980. A rebaselining is in progress which is planned to be completed by the end of April 1980.

RESPONSIBLE  
MANAGER  
R E RICE

EG&G IDAHO INC.  
UPTF DATA SYSTEM

NUMBER 4520A5000



TOTAL PROGRAM

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

MANPOWER

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

BUDGET

ACTUAL

A6289

YTD VARIANCE: 5 (1%)

3-D  
CURRENT WORKING SCHEDULE

LEGEND

3D EXPERIMENT PROJECT

February 1980

- Completed Major Milestone
- Scheduled Major Milestone
- ◐ Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- ◐ Slipped Secondary Milestone
- ◆ Actual Completion Date
- ◇ Scheduled Completion Date

FY-1980

FY-1981

CCTF

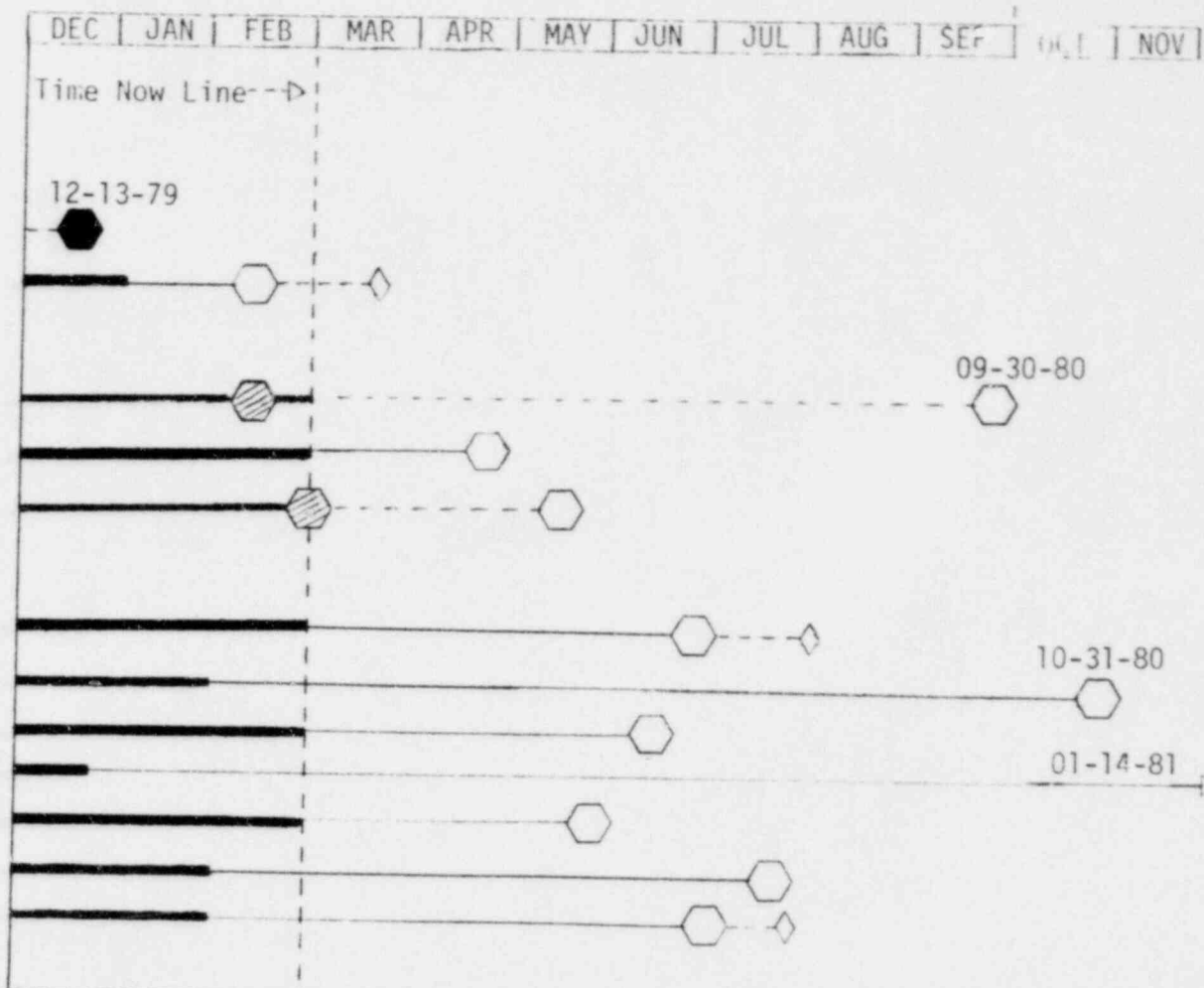
- CLLMS (15)
- SPOOL PIECES (8)

PKL

- CLLMS (5)
- RERANGE SPOOL PIECES (2)
- TURBINE METER (4)

SCTF

- DRAG TRANSDUCERS (4)
- GAMMA DENSITOMETERS (10)
- CLLMS (4)
- HOT LEG SPOOL PIECE (1)
- COLD LEG & VENT LINE SP (2)
- TURBINE METERS (16)
- FLUID DISTRIBUTION GRID (2)



NOTES: PKL delivery schedules have been modified to comply with significant schedule changes by KWU.

3-D

TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S  
SUMMARY AND HIGHLIGHTS

Project personnel are in Tokai, Japan, participating in the 2D/3D International Meeting. Principal topics are the finalization of the JAERI CCTF II design and a discussion of the SCTF II preliminary design.

Most CCTF instruments continue to work properly and operational support is being phased out. The CLLMS data system interface problem has been identified with the Qantex tape recorder and a replacement unit is being ordered.

Design and fabrication of SCTF instruments is continuing. Delivery schedule for some instruments will require revision; the densitometer due to design problems and the turbine meters due to delays in procurement.



1. A6100 - 3-D Technical Support and Instrumentation
2. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
N/A	JAERI CCTF Spool Piece - Technical Manual	2-8-80T	NCR No. 3DP-2-80 - 3-19-80E
N/A	JAERI SCTF Hot Leg Spool Piece - Preliminary Design Review	2-14-80T	NCR No. 3DP-6-80 4-16-80E

3. Summary of Work Performed in February 1980

- a. JAERI CCTF Instruments

1. Spool Pieces - Work has continued on the Operation and Maintenance Manual.
2. CLLMS - The final conclusions and report of the findings of the upper plenum component and assembly investigation has been deferred to March 12, 1980 due to high-priority SCTF commitments. The liquid level impedance plots of JAERI Exp. No. 12 were expanded for a more detailed description of fluid behavior in the time segments from 50 sec to 250 sec, 120 to 125 sec and 220 to 225 sec. Work was initiated to process the CLLD analog tapes of JAERI Exp. Nos. 10, 11 and 13.
3. Drag Disks - None
4. CLLMS/DAS - The first draft of the Technical Manual was completed and is in the review process. A system engineering task force was set-up to investigate current software and hardware problems and to provide recommendations for resolving the problems. A cartridge tape with simulated CLLD data and dump list were produced and sent to JAERI on their request.

b. FRG PKL Instruments

1. Spool Pieces - Calibration and acceptance testing of the reranged spools was successfully completed at Flow Technology.
2. CLLMS - The resolution of the action items as a result of the digital interface system final design review, held January 30, 1980, and the consolidation of the final design package for KWU are in progress. The digital system is completely integrated and all system components are operating.
3. Turbine Meters - Schedule has been revised to reflect KWU requested ship date. Fabrication is continuing on a low priority basis.

c. JAERI SCTF Instruments

1. CLLMS - The In-Common Switching Electronics Design Review was rescheduled to March 7, 1980, due to Japanese visits. All hardware required for installation of the LLDs to In-Common Circuitry was in Purchasing for placement. The Installation Drawing was completed but not yet approved. Installation procedures were summarized and discussed with the Japanese.
2. Fluid Grid - Drawings were released and fabrication was underway.
3. Densitometers - Drawings for the densitometer were put into check. The drawing check is 90% complete and ready for backcheck. Selection was made between two suppliers bidding on the contract to supply beryllium sleeves. Analysis of the sleeve was completed except for the report.
4. Hot Leg Spool Piece - A rough draft of test matrix has been prepared and inputs made to MPR with recommended changes to the Functional Specification. Layout of the test simulator and the spool pieces has been completed. A second generation layout of the spool piece with all the instrument penetrations has been completed.
5. Turbine Meters - Proposals from suppliers have been evaluated. Measurements Incorporated (MI) has been recommended for award of contract to perform the final design, testing and fabrication of the turbine systems.
6. Cold Leg & Vent Line Spool Piece - The majority of the hardware has been fabricated. There are a few electrical items that have not been received. The calibration of the flowmeters was completed at Flow Technology, Inc. in Phoenix, Arizona. The assembly of some components prior to acceptance test has started.

7. Drag Disks - Drawings were sent out for bid for fabrication of the downcomer drag transducer nozzle and flange. Fabrication of the nose piece and drag disk on transducer is continuing. A redesign of the test spool for downcomer transducers is in progress. The hardware for the transducers has been ordered.

d. UPTF Instruments

1. Drag Disks - No activity.
2. Gamma Densitometers - Continued work on conceptual design
3. Turbine Meters - No activity.
4. ORNL Turbine Meters - Work has been initiated to award a subcontract for fabrication of the turbine systems.

e. UPTF Data System - No activity.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
N/A	FRG PKL CLLMS - PKG and Ship UP CLLDs and electronics	3-14-80T	NCR written to make node a nonscheduled milestone.
N/A	FRG PKL CLLMS - Technical Manual	3-14-80T	NCR written to make node a nonscheduled milestone.
N/A	JAERI CCTF Spool Pieces - Technical Manual	3-19-80E	NCR 3DP-2-80
N/A	FRG PKL Turbine Meters - Procure Production Units and Ship	3-21-80T	NCR written to make node a nonscheduled milestone.

5. Summary of Work to be Performed in March 1980

a. JAERI CCTF Instruments

1. Spool Pieces - The Operation and Maintenance Manual will be completed and issued to distribution.

2. CLLMS - The upper plenum component and assembly investigation will be completed. Processing of the JAERI CLLD analog tapes will be continued.
  3. Drag Disks - None.
  4. CLLMS/DAS - Work on the Technical Manual will be continued. The System Engineering Task Force will continue investigating the digital system.
- b. FRG PKL Instruments
1. Spool Pieces - The testing summary document will be completed. The equipment will be packaged for shipment to PKL and held at SRO awaiting installation support at PKL. Installation date is to be determined at the JAERI 2D/3D Meeting in Japan.
  2. CLLMS - The action items from the digital interface system final design review will be resolved and the final design package sent to KWU. The system software will be completed and debugged.
  3. Turbine Meters - Procurement of turbine systems will continue on a low priority basis with effort shifted to SCTF and ORNL turbines.
- c. JAERI SCTF Instruments
1. CLLMS - Installation procedures should be completed and sent to JAERI. Design Review of the In-Common Switching Electronics was completed and fabrication continued.
  2. Fluid Grid - Assembly of FD Grid should be underway.
  3. Densitometers - Award contract for the beryllium sleeves and for procurement of the gamma source. Release drawings and issue purchase requisition for fabrication or parts.
  4. Hot Leg Spool Piece - Detailed drawings of the test simulator will be prepared and cost estimated. The layout of the instrument penetrations for the spool piece will be finalized and the preliminary nozzle stress analysis started. The test matrix and rough draft of the test plan will be completed.
  5. Turbine Meters - Subcontractor will initiate final design and testing.

6. Cold Leg & Vent Line Spool Piece - All of the components should have been received. Assembly of the spool pieces and acceptance testing should be completed.
  7. Drag Disks - The quotes for fabrication of the downcomer drag transducer nozzle and flanges should be received and the contract awarded to a vendor. Fabrication of the nose piece and drag disk on transducers should be completed. The redesign of test spool should be completed. Fabrication of the test spool should be started.
  - d. UPTF Instruments - Work on conceptual design and work package continuing for gamma densitometers. Subcontract for fabrication of the two turbine systems for ORNL turbine meters will be awarded.
  - e. UPTF Data System - No work planned.
6. Problems and Potential Problems

JAERI SCTF CLLMS - Delays in response from JAERI on installation have delayed completion of installation procedures.

JAERI SCTF Fluid Grid - Delays in resolution of interface comments may have effected hardware delivery schedule due to late release of drawings. Rejection of many Gulton Pins has led to the use of LOFT-type pins which require some internal modification for 3D use.

JAERI SCTF Turbine Meters - Delay in awarding the subcontract will result in a schedule slip of four to six weeks.

UPTF Data System - Tasks cannot start until Specification is received from FRG

CD8AP

WRRD MONTHLY REPORT FOR  
FEBRUARY 1980  
CODE DEVELOPMENT & ANALYSIS PROGRAM

*S. F. Tuck*

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S. F. Tuck  
Plans & Budget Representative

*Paul North*

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P. North, Manager

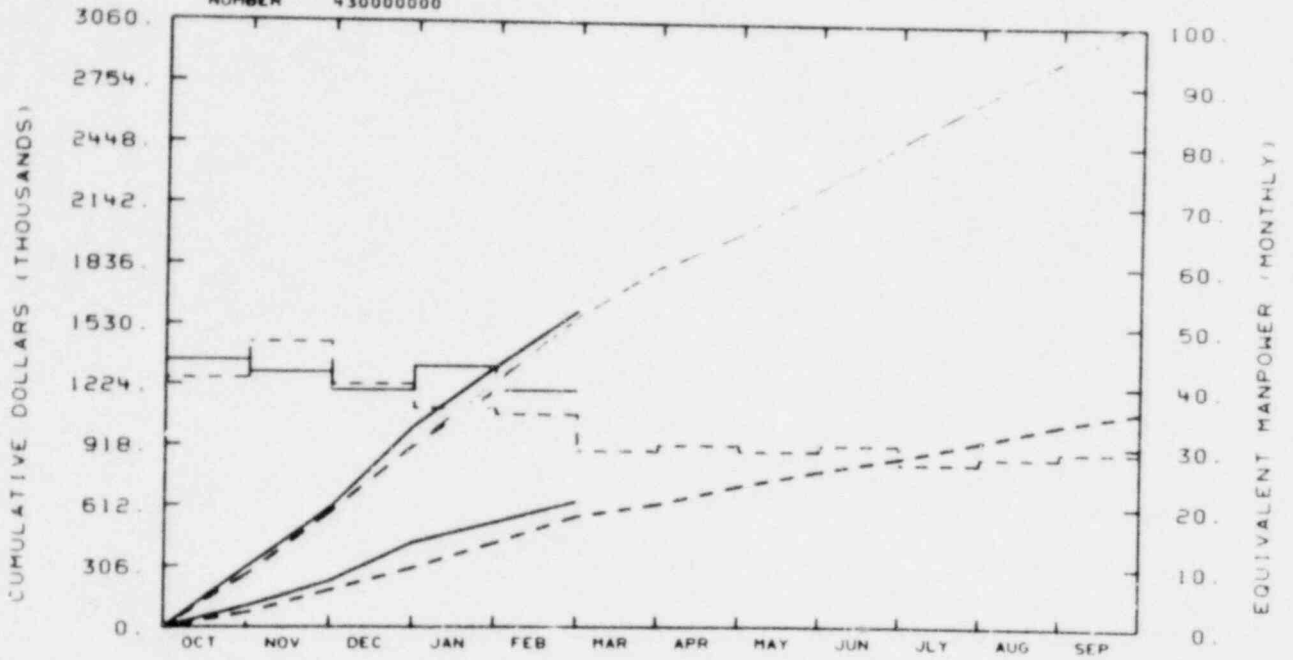
CODE DEVELOPMENT & ANALYSIS PROGRAM  
COST SUMMARY & COMMENTS



RESPONSIBLE  
MANAGER  
P. NORTH

EG&G IDAHO INC.  
CODE DEVELOPMENT & ANALYSIS PROG

NUMBER 430000000



TOTAL PROGRAM

BUDGET	264	576	911	1301	1549	1830	2069	227	2484	2664	2877	3074
ACTUAL	302	599	1009	1315	1598							

MATERIAL

BUDGET	72	183	295	420	556	618	712	797	855	940	1030	1098
ACTUAL	105	230	422	525	631							

MANPOWER

BUDGET	41	47	40	36	35	29	30	29	30	27	28	29
ACTUAL	44	42	39	43	39							

BUDGET  
ACTUAL

YTD VARIANCE: 1

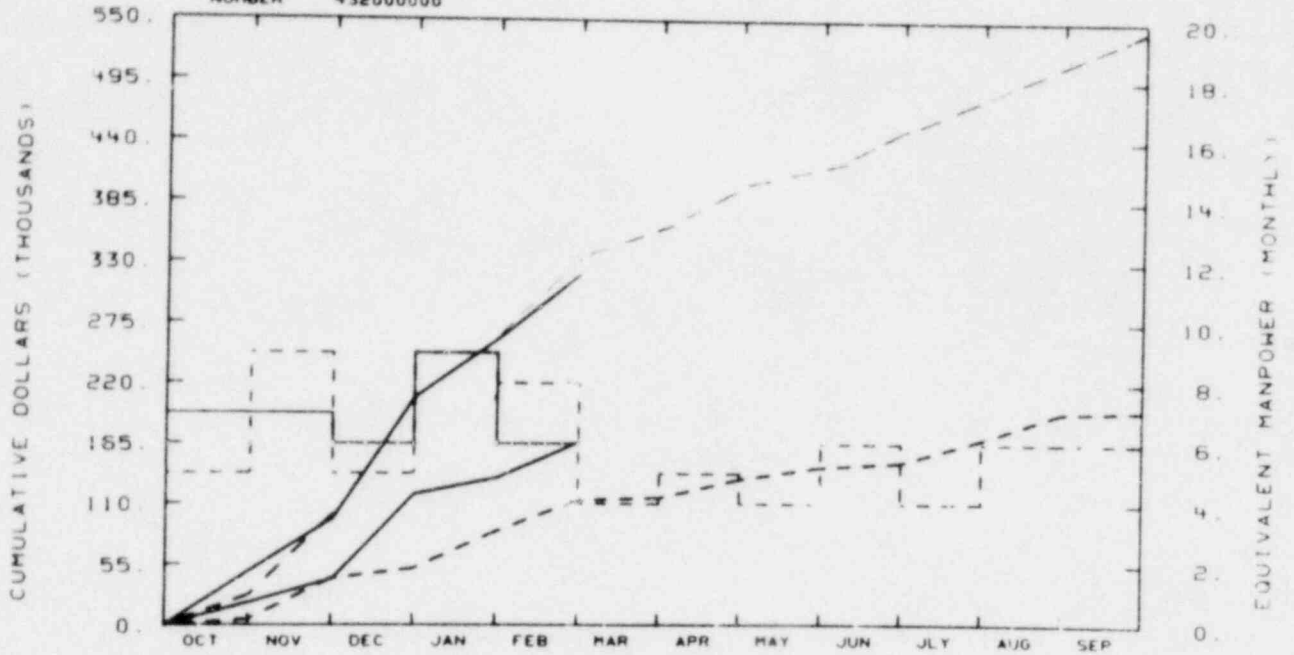
Individual cost graphs will give individual explanations.

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  
P. NORTH

EG&G IDAHO INC.  
CONTAINMENT ANALYSIS DEVELOPMENT

NUMBER 432000000



TOTAL PROGRAM

BUDGET	27	99	207	280	304	351	400	425	450	480	510	542
ACTUAL	49	86	207	260	318							

MATERIAL

BUDGET	5	42	51	85	113	115	132	143	148	169	194	196
ACTUAL	20	41	119	134	166							

MANPOWER

BUDGET	5	9	5	9	8	4	5	4	6	4	6	6
ACTUAL	7	7	6	9	6							

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

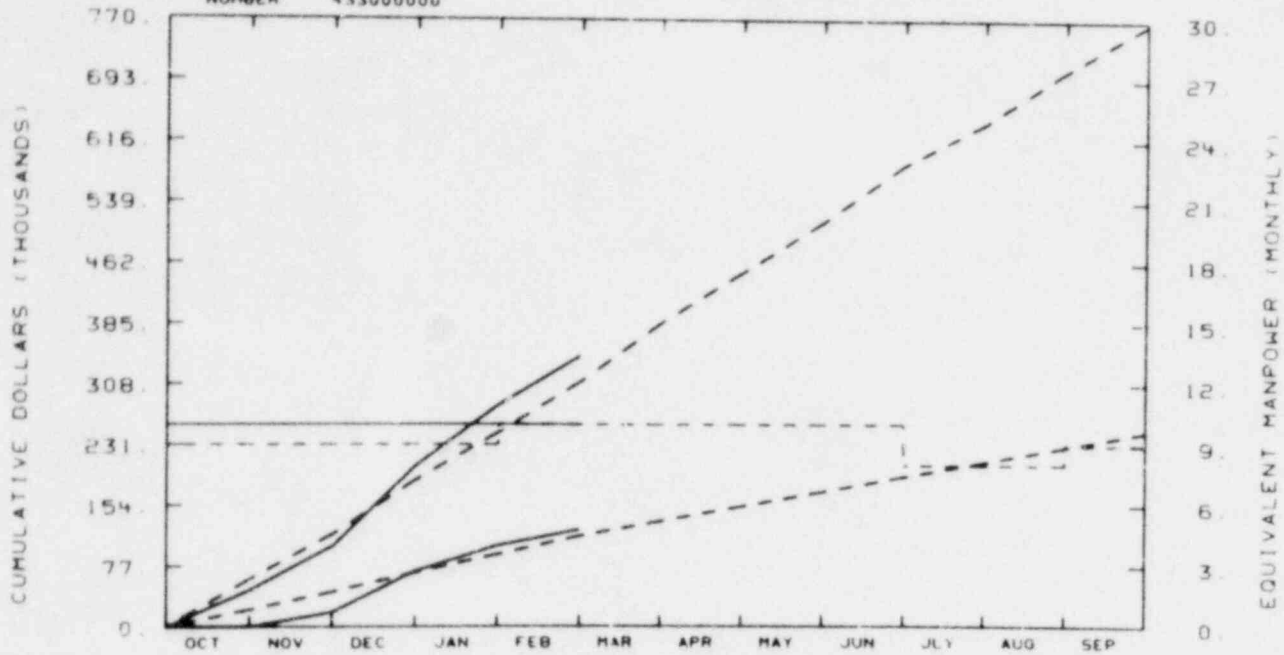
A6042

YTD VARIANCE: <9> (3%)

RESPONSIBLE  
MANAGER  
P. NORTH

EG&G IDAHO INC.  
FUEL BEHAVIOR MODEL DEVELOPMENT

NUMBER 433000000



TOTAL PROGRAM

BUDGET	60	117	187	246	311	385	450	511	587	640	706	766
ACTUAL	46	102	205	282	344							

MATERIAL

BUDGET	22	44	68	91	115	133	152	171	191	209	228	248
ACTUAL	0	18	70	103	123							

MANPOWER

BUDGET	9	9	9	9	10	10	10	10	10	8	8	9
ACTUAL	10	10	10	10	10							

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

A6050

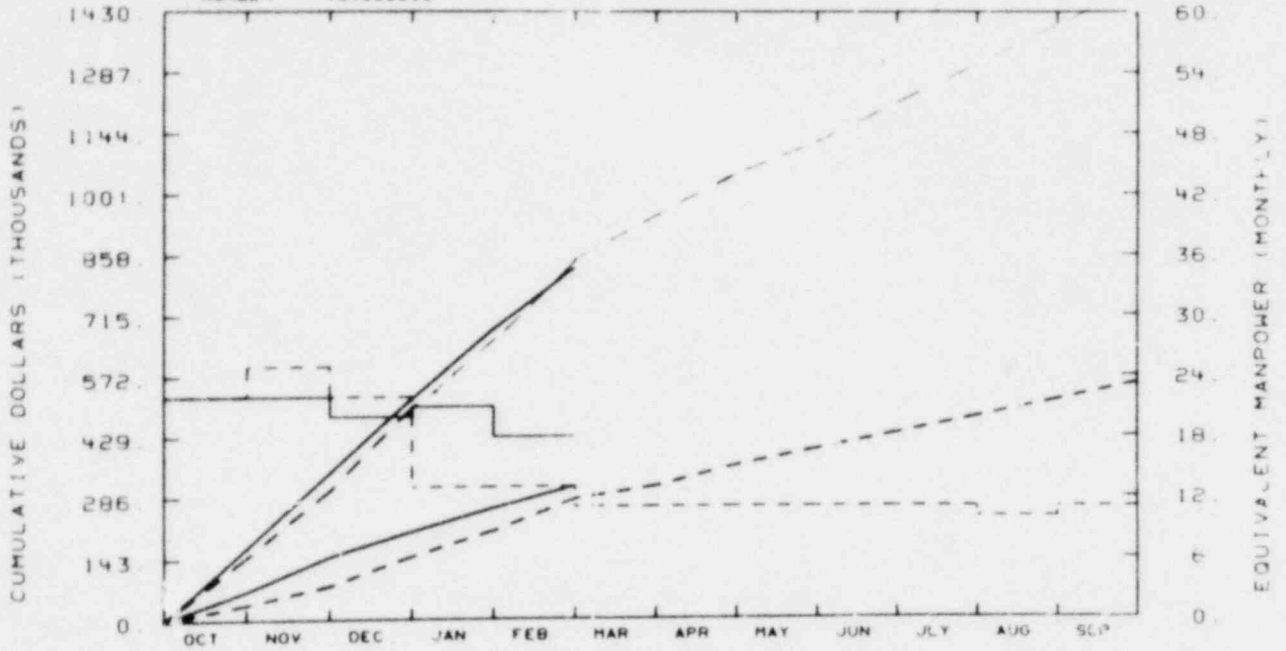
YTD VARIANCE: <33> (11%)

The original budget represented an approximate straight line estimate. The development work has now been fully planned and plans for the rest of FY-1980 recognize the current status.

RESPONSIBLE  
MANAGER  
P NORTH

EG&G IDAHO INC.  
LOSS OF COOLANT ACCIDENT ANALY

NUMBER 434000000



TOTAL PROGRAM

BUDGET	147	302	499	675	832	914	1011	1103	1190	1267	1357	1439
ACTUAL	168	344	520	684	827							

MATERIAL

BUDGET	36	79	146	206	280	310	359	398	436	474	514	554
ACTUAL	67	147	205	259	311							

MANPOWER

BUDGET	22	25	22	13	13	11	11	11	11	11	10	11
ACTUAL	22	22	20	21	18							

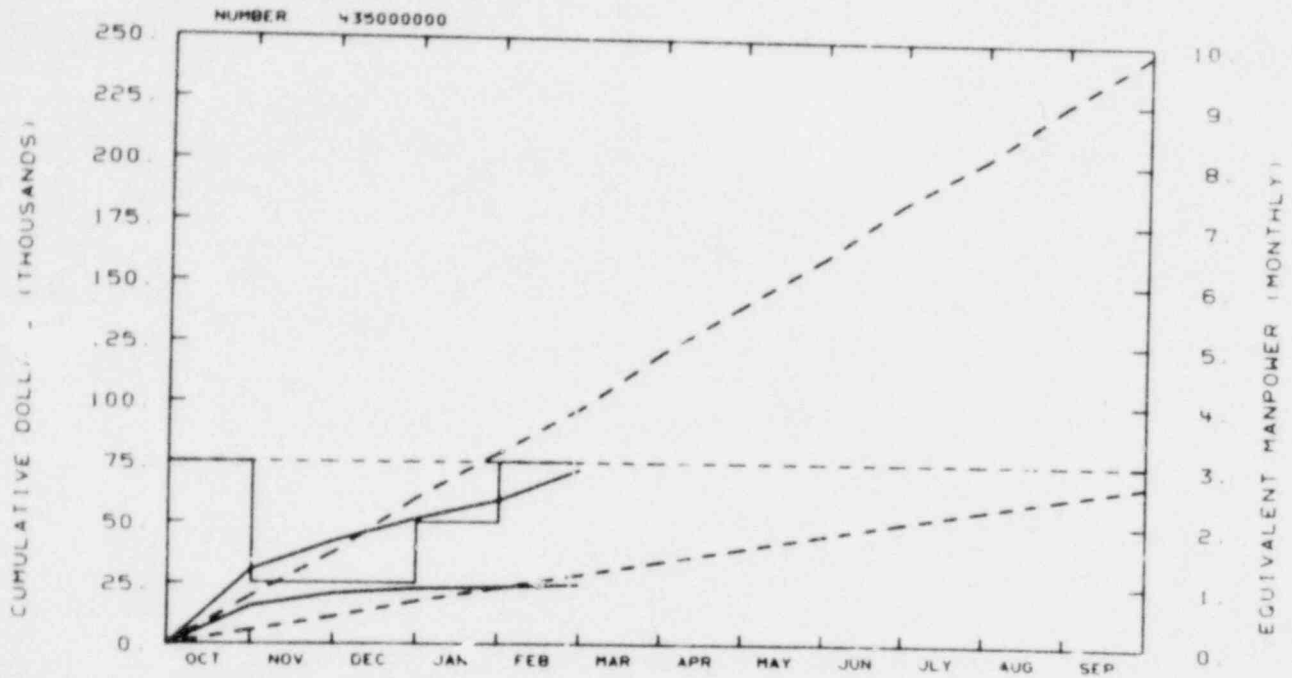
BUDGET  
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ACTUAL  
\_\_\_\_\_

A6052

YTD VARIANCE: 5 (1%)

RESPONSIBLE  
MANAGER  
P. NORTH

EG&G IDAHO INC.  
CORRELATION VERIFICATION



TOTAL PROGRAM

BUDGET	20	37	60	79	98	121	141	161	184	202	226	246
ACTUAL	30	42	51	59	72							

MATERIAL

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

MANPOWER

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

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

A6278

YTD VARIANCE: 26 (27%)

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

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

PWR ANALYSES

LOFT L2-5

ZION EM

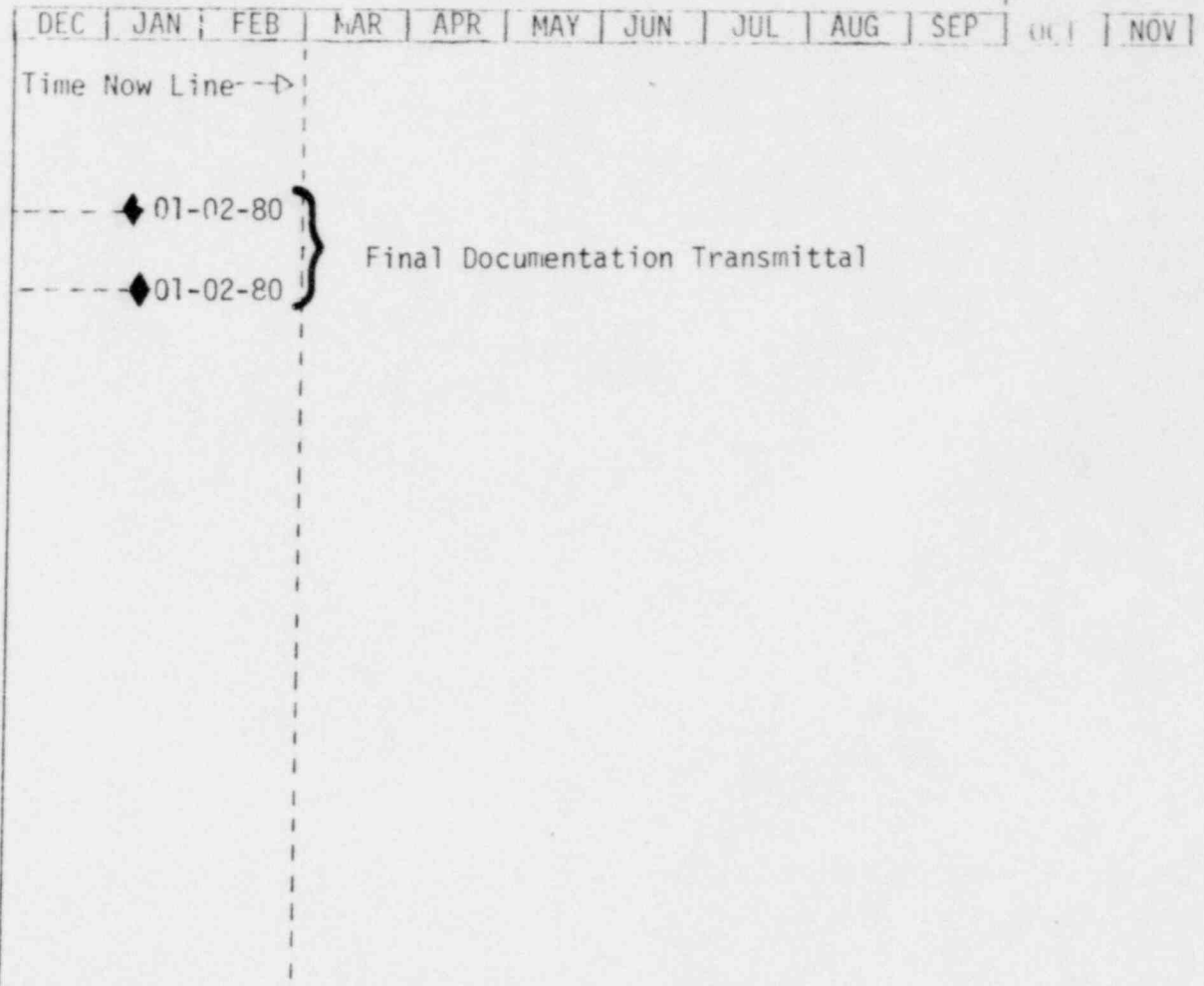
CODE DEVELOPMENT AND ANALYSIS PROGRAM

February 1980

WRAP CODE DEVELOPMENT

FY-1980

FY-1981



-78-

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

BEACON/MOD3

CODE DEBUG AND CHECKOUT

TREE USERS MANUAL

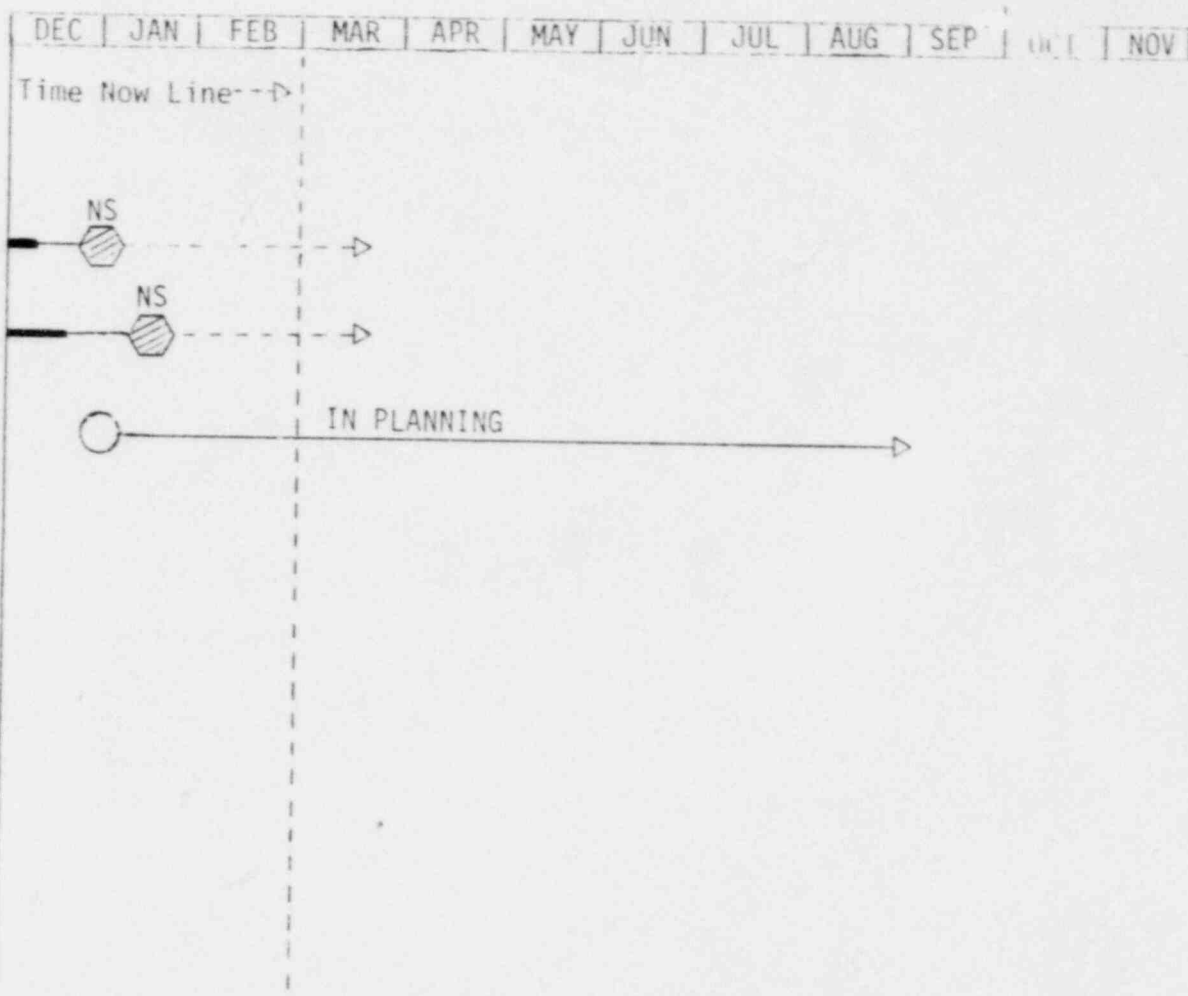
BEACON EXTENDED DEVELOPMENTAL CHECKOUT

CODE DEVELOPMENT AND ANALYSIS PROGRAM  
BEACON CODE DEVELOPMENT

February 1980

FY-1980

FY-1981



NOTES:



LEGEND

HEAT TRANSFER

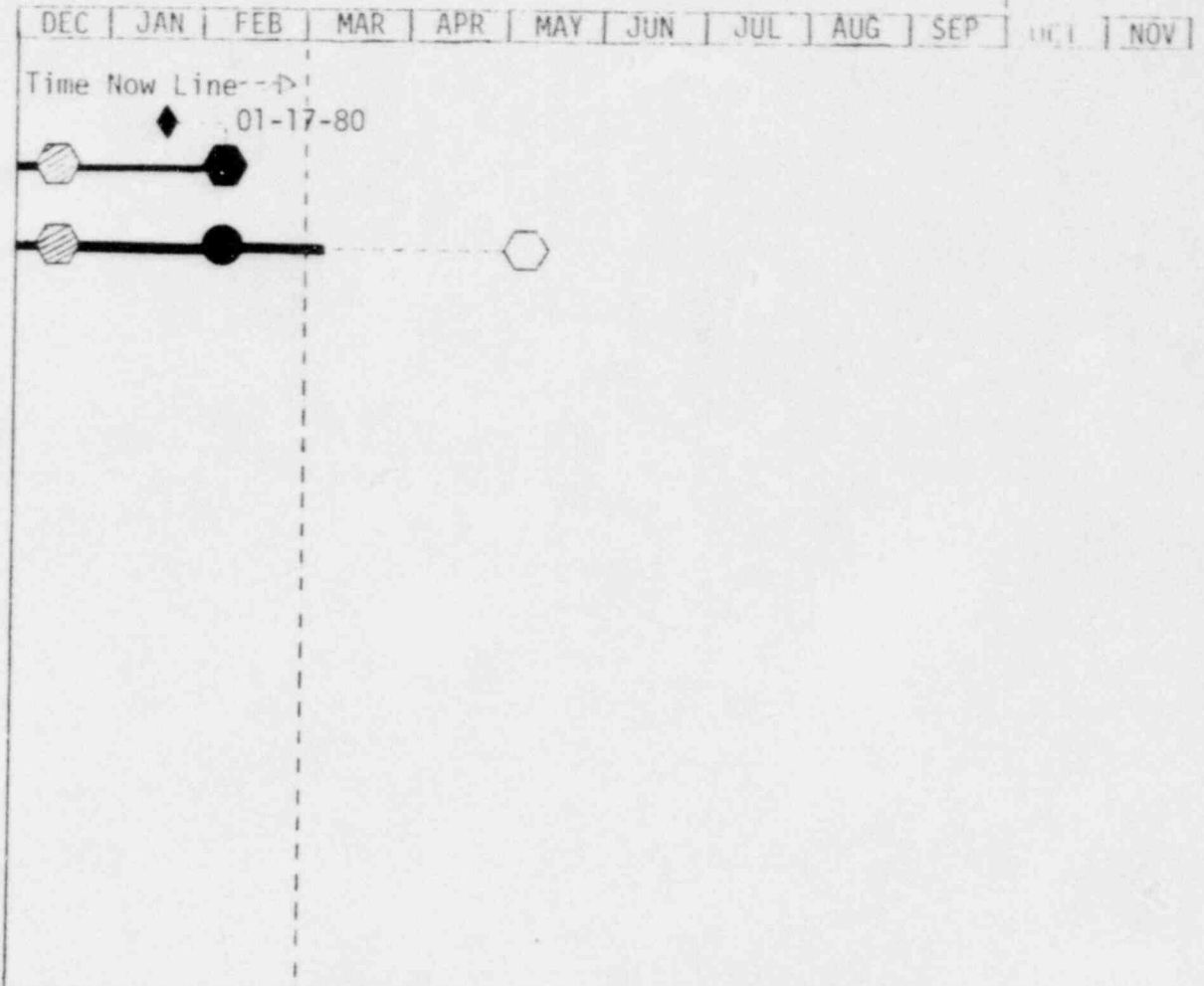
- Completed Major Milestone
- Scheduled Major Milestone
- ⊗ Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- ⊗ Slipped Secondary Milestone
- ◆ Actual Completion Date
- ◇ Scheduled Completion Date

FY-1980

FY 1981

3-D FLOW BLOCKAGE STUDIES

RNB THERMAL RESISTANCE CRITERIA



-80-

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

LEGEND

CODE DEVELOPMENT AND ANALYSIS PROGRAM  
MATPRO DEVELOPMENT

February 1980

- Completed Major Milestone
- Scheduled Major Milestone
- ⊗ Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- ⊗ Slipped Secondary Milestone
- ◆ Actual Completion Date
- ◇ Scheduled Completion Date

FY-1980

FY 1981

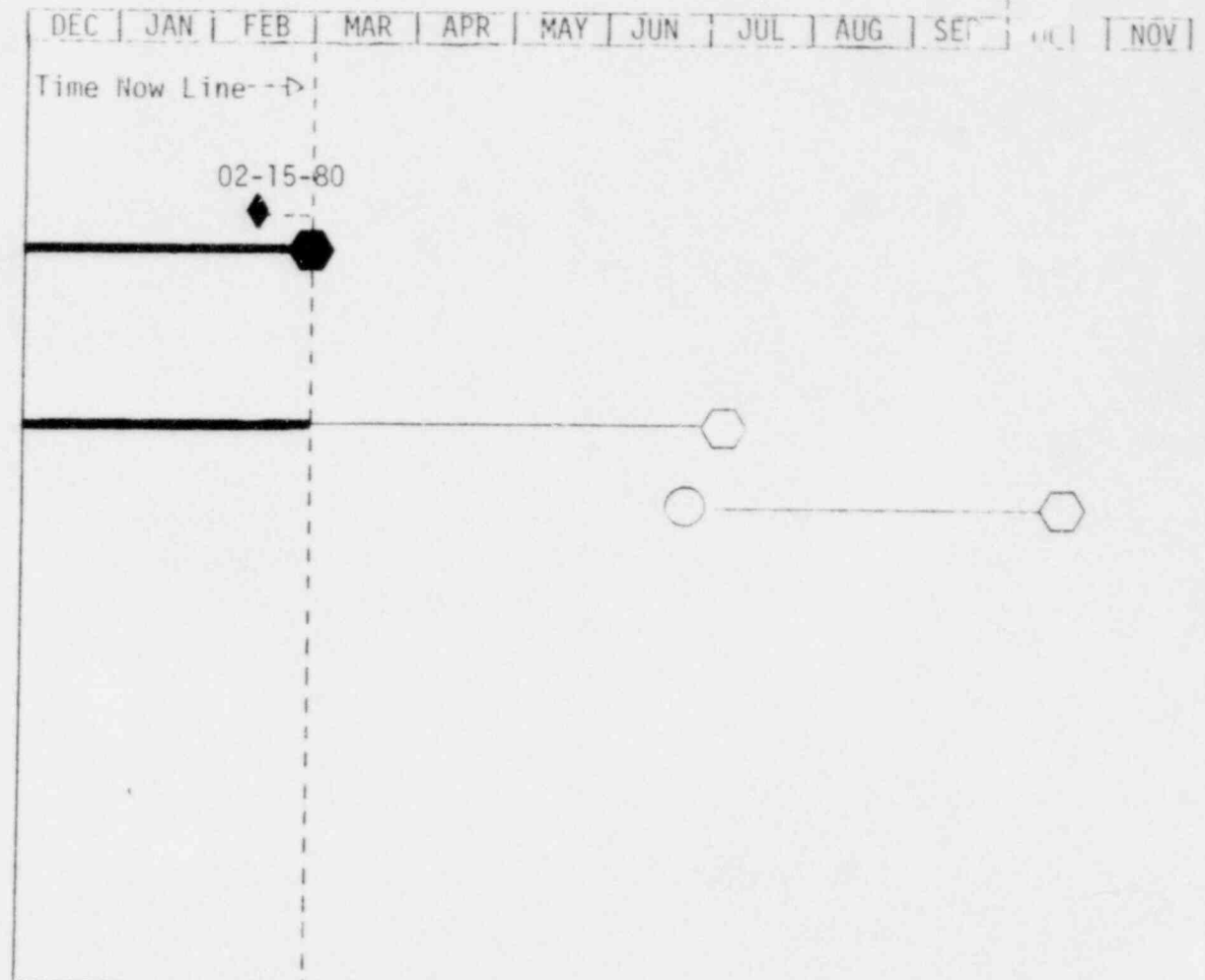
MATPRO-11, Revision 1

TREE PRODUCTION

MATPRO-11, Revision 2

MAINTENANCE

DRAFT DOCUMENTATION



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

LEGEND

RELAP4/MOD7 INTEGRAL CODE DEVELOPMENT AND CHECKOUT

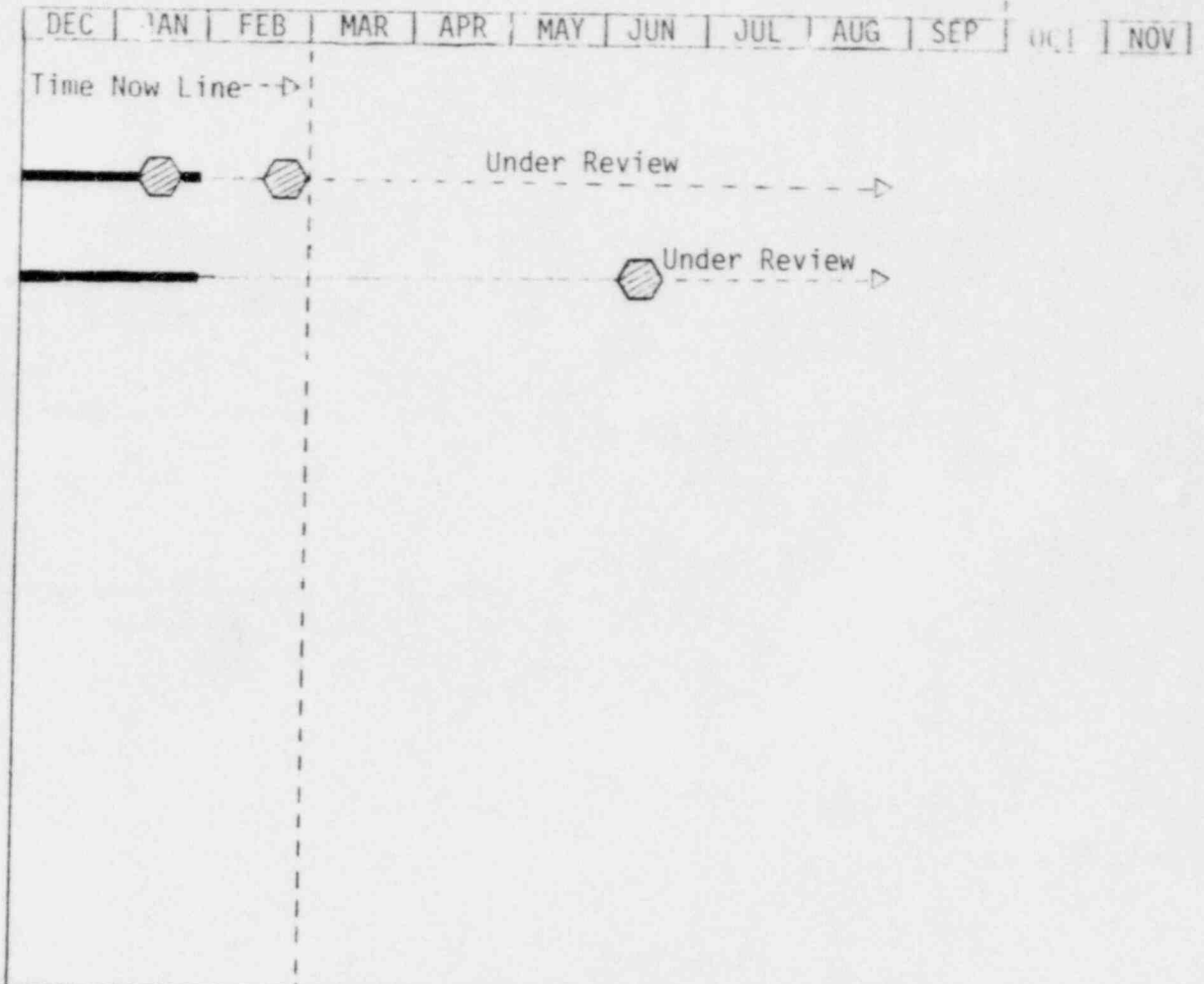
- Completed Major Milestone
- Scheduled Major Milestone
- ⊗ Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- ⊗ Slipped Secondary Milestone
- ◆ Actual Completion Date
- ◇ Scheduled Completion Date

FY-1980

FY 1981

DEVELOPMENTAL ASSESSMENT RUNS AND  
RELEASE TO NESC

EGG DOCUMENTATION



NOTES:

CODE DEVELOPMENT & ANALYSIS PROGRAM  
TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

The RELAP4/MOD7 checkout is behind schedule due to program errors. Nevertheless, all the checkout calculations are expected to be finished in the next month.

TRAC-BD1 model development is underway. The BEACON CASP2 calculation was completed.

The RNB study is currently ahead of schedule.

The FRAP-T6/TRAC link was completed and transmitted to the Los Alamos Scientific Laboratory.

1. 189a A6052 - Loss of Coolant Accident Analysis
2. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
L7, N2 Page 3-19	RELAP4/MOD7 Developmental Checkout	2-15-80E	
L1, N6 Page 3-18	MOD7 External Release	2-26-80E	
L2, N3 Page 3-19	BDO Assembly	2-20-80T	1-07-80C

3. Summary of Work Performed in February 1980

#### RELAP4/MOD7

The RELAP4/MOD7 developmental checkout calculations were continued. Some major and several minor program errors were discovered. The errors were corrected, however, the check calculations were delayed and some portions of the calculations had to be repeated. Nevertheless, the Semiscale and LOFT calculations are expected to be finished early in March and the Zion demonstration calculation is now in the refill portion of the transient.

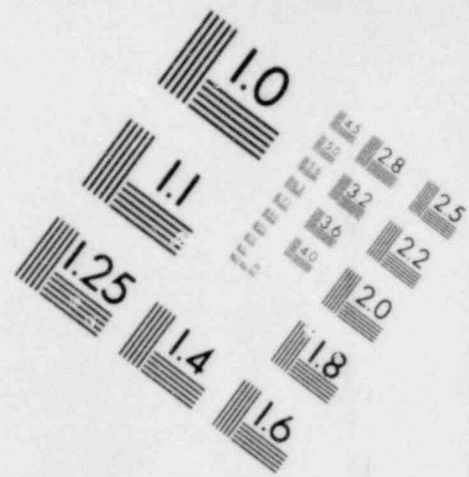
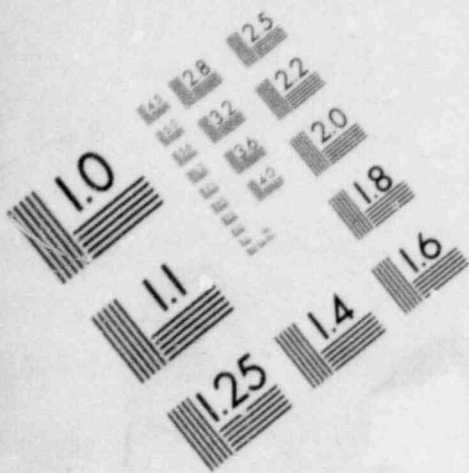
#### TRAC-BWR

##### a. TRAC-BD0

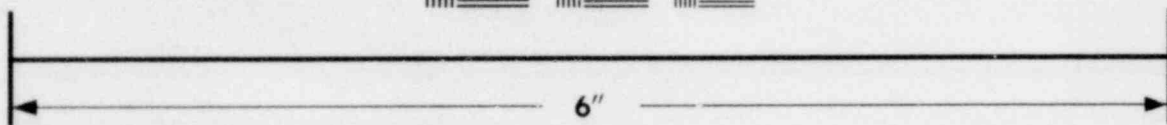
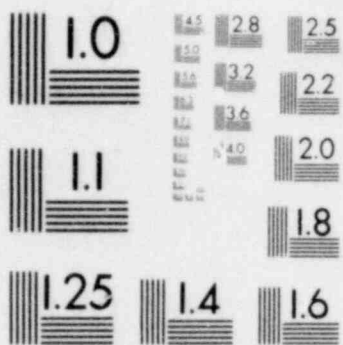
Presentations on TRAC-BD0 were made at the TRAC Workshop held at LASL on February 8, 1980. The TRAC-BD0 program is complete.

##### b. TRAC-BD1

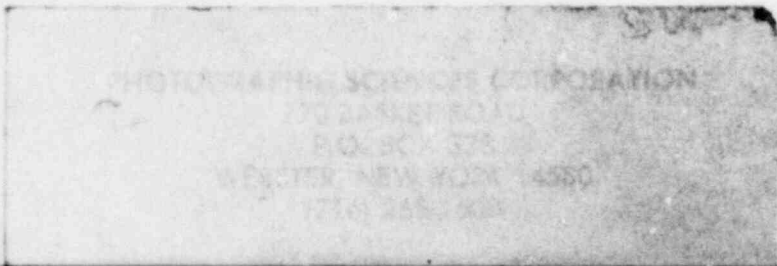
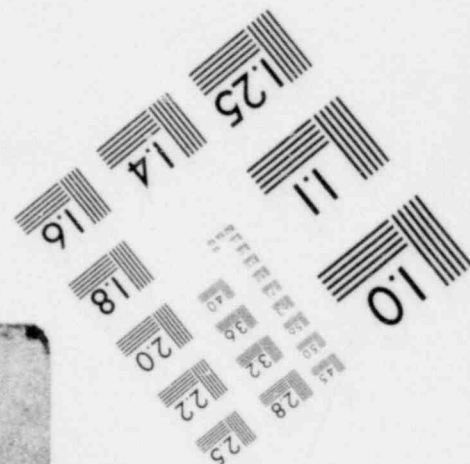
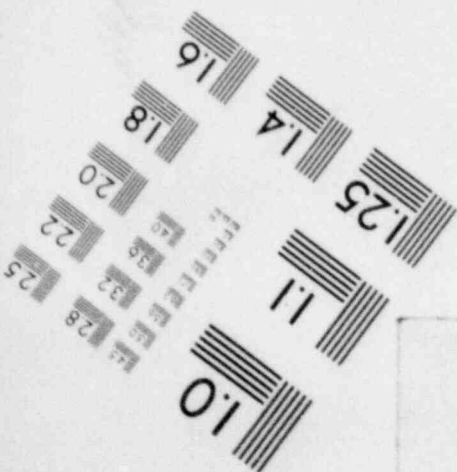
The TRAC-BD1 effort is progressing satisfactorily. Implementation of a TRAC quality control procedure is underway. The various TRAC-BD0 models are being documented, verified and inserted into the official version of TRAC-BD1 in conformance with the new quality procedure. Work continued on jet pump modeling and on implementing the new ANS decay heat standard. Work began on a non-equilibrium critical flow model and on a BWR initialization algorithm.



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



**MICROCOPY RESOLUTION TEST CHART**



4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
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

5. Summary of Work to be Performed in March 1980

RELAP4/MOD7

The RELAP4/MOD7 checkout calculations will be completed.

TRAC-BD1

Creation of the official version of TRAC-BD1 will continue. Work will continue on various models: BWR initial riation, jet pumps, non-equilibrium critical flow. Work will begin on the analysis of the BWR/6 test case (DBA) with the unofficial version of TRAC-BD1.

6. Problems and Potential Problems

None



1. 189a A6042 - Containment Analysis Development

2. Scheduled Milestones for February 1980

No scheduled milestones for February.

3. Summary of Work Performed in February 1980

The root of the BEACON instability problem appears to be determined and fixed. The CASP2 final run and the D-3 and C-9 first runs were made. All of the runs which were set up have been submitted. A five second run of the Drexel problem shows some flow oscillations, the cause of which are being investigated.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
L4, N2 Page 3-7	Provide On-Site Test Support of Marviken IV Test	3-1-80	2-18-80C

5. Summary of Work to be Performed in March 1980

After more running experience with the modified code, the transmittal schedule of MOD3 will be established. Running of the adjustment problems will be completed and running of the active assessment problems will continue.

6. Problems and Potential Problems

None

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

2. Scheduled Milestones for February 1980

No scheduled milestones for February.

3. Summary of Work Performed in February 1980

The Return to Nucleate Boiling Study was restarted and is currently running about one week ahead of schedule. A base calculation has been completed with rewet and the parametric calculations have been started.

4. Scheduled Milestones for March 1980

No scheduled milestones for March.

5. Summary of Work to be Performed in March 1980

The parametric calculations will be completed and analysis of the results will be initiated.

6. Problems and Potential Problems

None

1. 189a A6050 - Fuel Behavior Model Development
2. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
New	Prepare FRAP-T for TRAC Link	2-1-80	2-7-80C TMH-4-80
37542 Page 2-13	MATPRO-11, Revision 1 TREE	2-29-80	2-15-80C PN-15-80

3. Summary of Work Performed in February 1980

- a. MATPRO-11, Revision 1 TREE

Revision 1 of the MATPRO-11 package was published in TREE-1280, Revision 1.

- b. MATPRO Maintenance

The fuel  $C_p$  model in MATPRO was updated to include fuel enthalpy and a draft revision of the appendix describing fuel  $C_D$  was prepared which includes a description of the fuel enthalpy model. Work continued on extending the cladding failure stress model to include effects of iodine.

- c. FRAP-T6/TRAC Link

Programming of FRAP-T6 for the link with TRAC was completed and the code and documentation were transmitted to LASL.

- d. FRAPCON-1

FRAPCON-1-EM was released and accepted by independent assessment.

- e. FRAPCON-2

The effort to include FAST/GRASS subcode in FRAPCON-2 was begun by successfully executing the ANL version of FAST/GRASS as an independent code on the INEL computer.

The FRAPCON-2 programming effort continued. The coupled densification and effective conductivity models were completed. A list of proposed cases for the PNL developmental assessment of FRAPCON-2 was transmitted to and reviewed with PNL.

4. Scheduled Milestones for March 1980

No scheduled milestones for March.

5. Summary of Work to be Performed in March 1980

a. MATPRO-11 Maintenance

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

b. FRAPCON-2

Work will continue on incorporating FAST/GRASS into FRAPCON-2. Programming of new models for FRAPCON-2 will be completed and developmental assessment will begin. Dynamic dimensioning of the FRACAS-2 subcode will be in process.

c. FRAP-T6

Programming will continue with inclusion of circumferentially varying surface heat transfer coefficients.

d. FRIDA

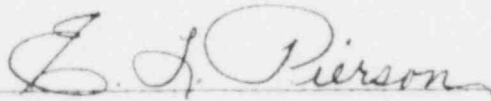
Documentation of the FRIDA subcode will be completed.

6. Problems and Potential Problems

None

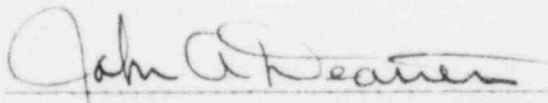
CA&AP

WRRD MONTHLY REPORT FOR  
FEBRUARY 1980  
CODE ASSESSMENT & APPLICATIONS PROGRAM



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E. L. Pierson  
Plans & Budget Representative



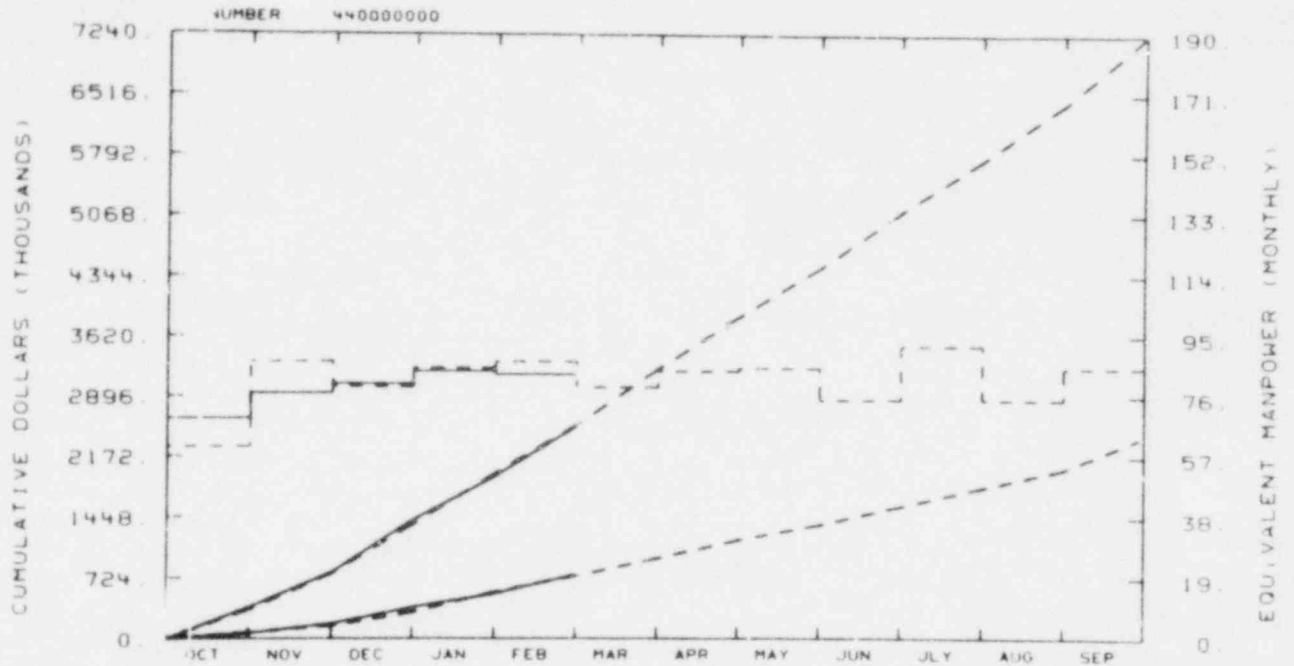
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J. A. Dearien, Manager

CODE ASSESSMENT & APPLICATIONS PROGRAM  
COST SUMMARY & COMMENTS

RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC.  
CODE ASSESSMENT & APPLICATIONS



TOTAL PROGRAM

BUDGET	340	767	1349	1968	2549	3230	3853	4443	5119	5742	6417	7231
ACTUAL	371	784	1403	1931	2534							

MATERIAL

BUDGET	75	145	306	551	742	951	1171	1351	1575	1802	2023	2422
ACTUAL	65	175	367	533	759							

MANPOWER

BUDGET	60	87	79	85	87	79	84	85	75	92	75	85
ACTUAL	69	77	80	84	83							

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

YTD VARIANCE: 15

Individual cost graphs will give individual explanations.

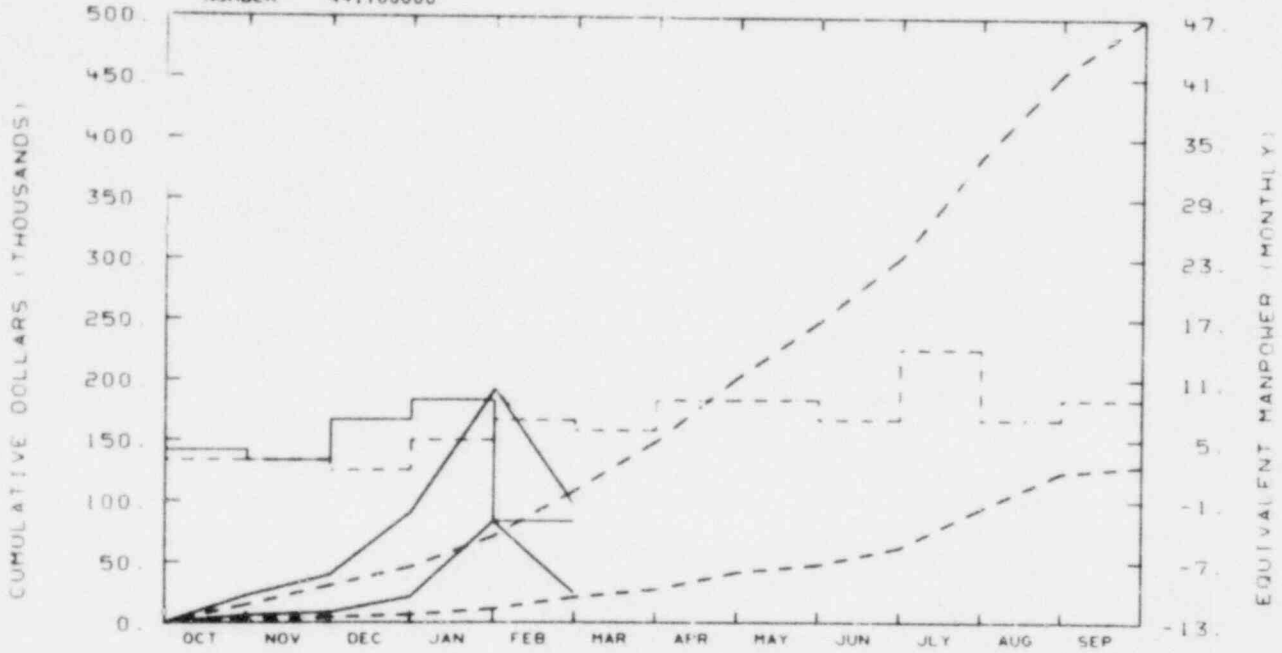
Explanations for major 189a's will be made if the variance exceeds \$25 K. Minor 189a graphs will explain variance of over \$10 K.



RESPONSIBLE  
MANAGER  
J 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	100							

MATERIAL

BUDGET	2	4	6	11	21	27	41	47	61	94	123	129
ACTUAL	6	8	21	83	25							

MANPOWER

BUDGET	3	3	2	5	7	6	9	9	7	14	7	9
ACTUAL	4	3	7	9	-3							

BUDGET

ACTUAL

A6039

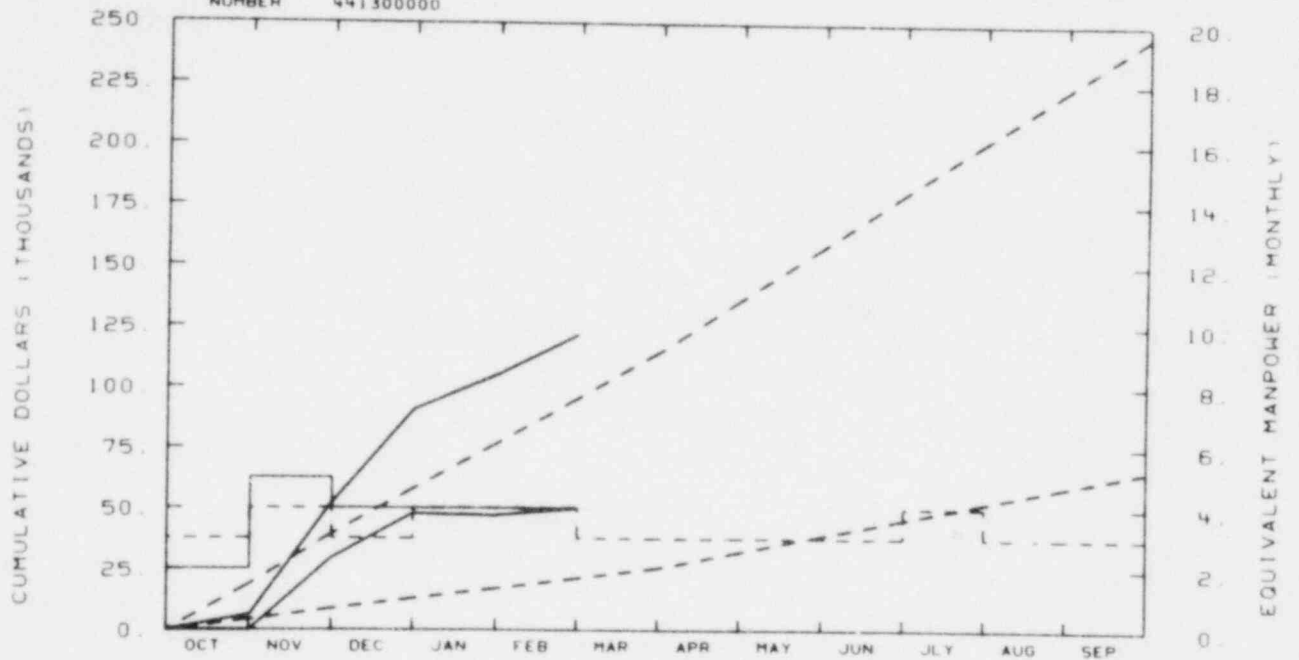
YTD VARIANCE: 8 (7%)

Costs for PWR/BWR were being accumulated in A6039 until a Fin number (A6048C) was assigned to PWR/BWR to incur costs. A cost transfer was implemented in February to correct this. Manpower, as well as costs, reflect this transfer.

RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC  
FUEL CODE ASSESSMENT

NUMBER 441300000



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

MATERIAL												
BUDGET	4	9	13	17	21	25	32	39	45	52	59	66
ACTUAL	0	29	48	47	50							

MANPOWER												
BUDGET	3	4	3	4	4	3	3	3	3	4	3	3
ACTUAL	2	5	4	4	4							

A6046

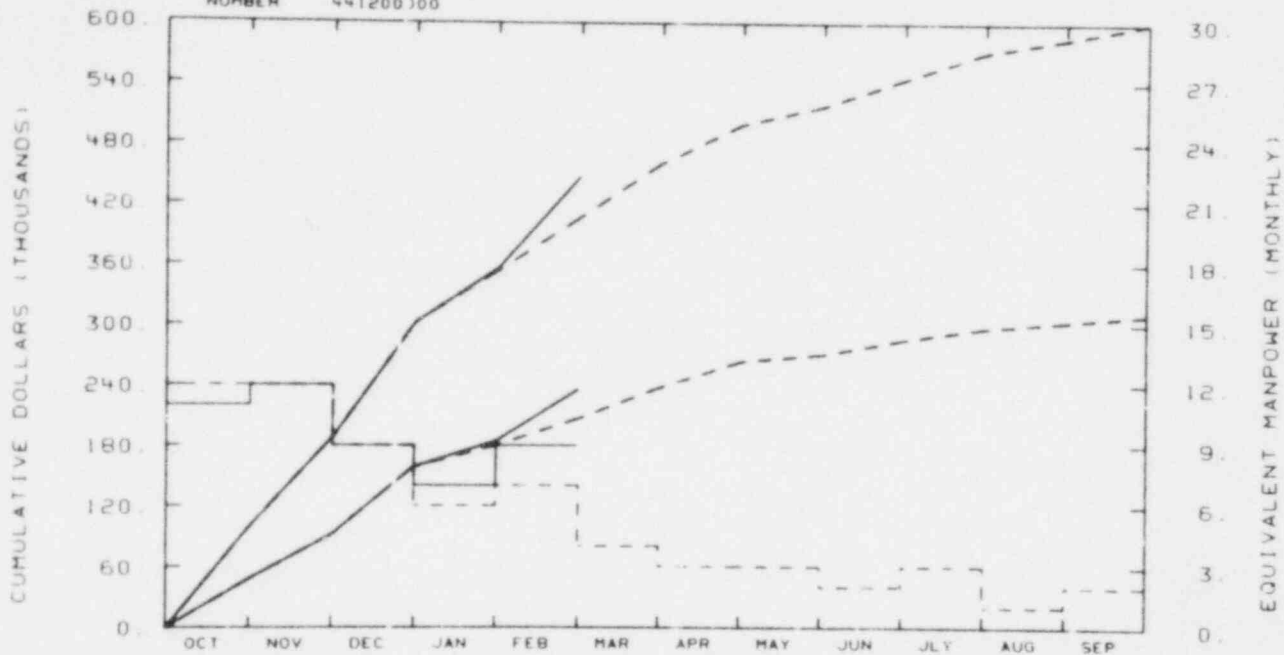
YTD VARIANCE: <27> (28%)

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.

RESPONSIBLE  
MANAGER  
J A DEARTEN

EG&G IDAHO INC.  
THERMAL HYDRAULIC CODE ASSESS

NUMBER 441200300



TOTAL PROGRAM

BUDGET	99	188	302	353	406	460	499	518	545	572	585	600
ACTUAL	99	188	302	355	448							

MATERIAL

BUDGET	48	91	153	180	207	238	263	270	285	296	303	310
ACTUAL	48	91	153	184	236							

MANPOWER

BUDGET	12	12	9	6	7	4	3	3	2	3	1	2
ACTUAL	11	12	9	7	9							

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

A6047

YTD VARIANCE: <42> (10%)

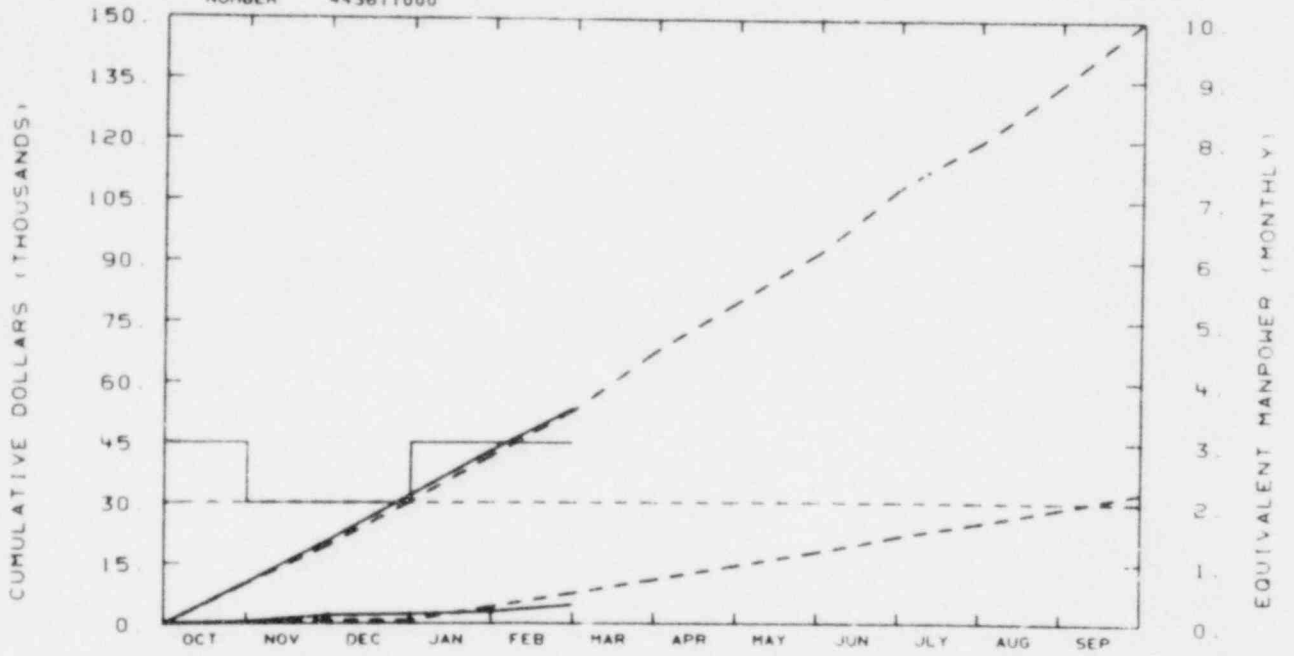
A change in scope and funding for this task has been received that will require rebudgeting. This change will occur for March. A 20 K overcharge for computer services is being pursued.

RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC.

STANDARD PROBLEM ANALY & HEAT TR

NUMBER 443611000



TOTAL PROGRAM

BUDGET	10	19	30	42	53	68	80	92	108	120	134	150
ACTUAL	0	21	32	43	54							

MATERIAL

BUDGET	0	1	1	4	7	11	14	18	22	25	29	33
ACTUAL	0	2	2	3	5							

MANPOWER

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

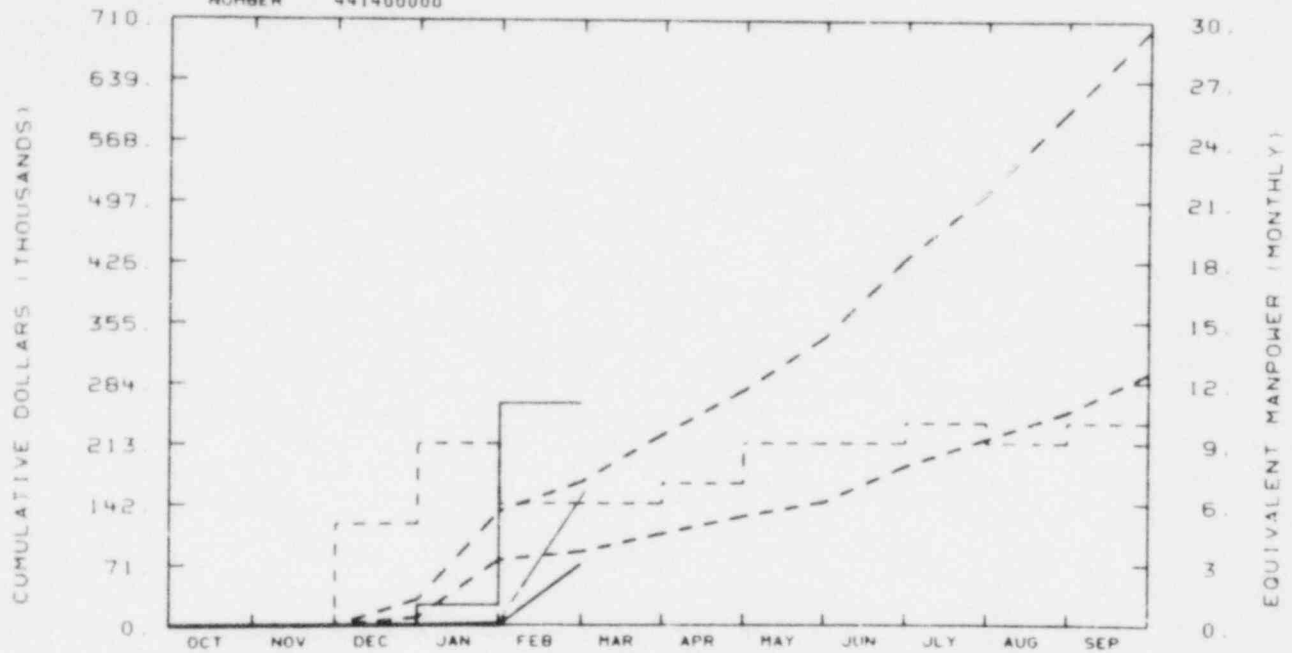
A6048B

YTD VARIANCE: <1> (2%)

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	165							

MATERIAL

BUDGET	0	0	9	76	86	107	127	144	186	218	249	295
ACTUAL	0	0	0	0	71							

MANPOWER

BUDGET	0	0	5	9	6	6	7	9	9	10	9	10
ACTUAL	0	0	0	1	11							

BUDGET

ACTUAL

A6048C

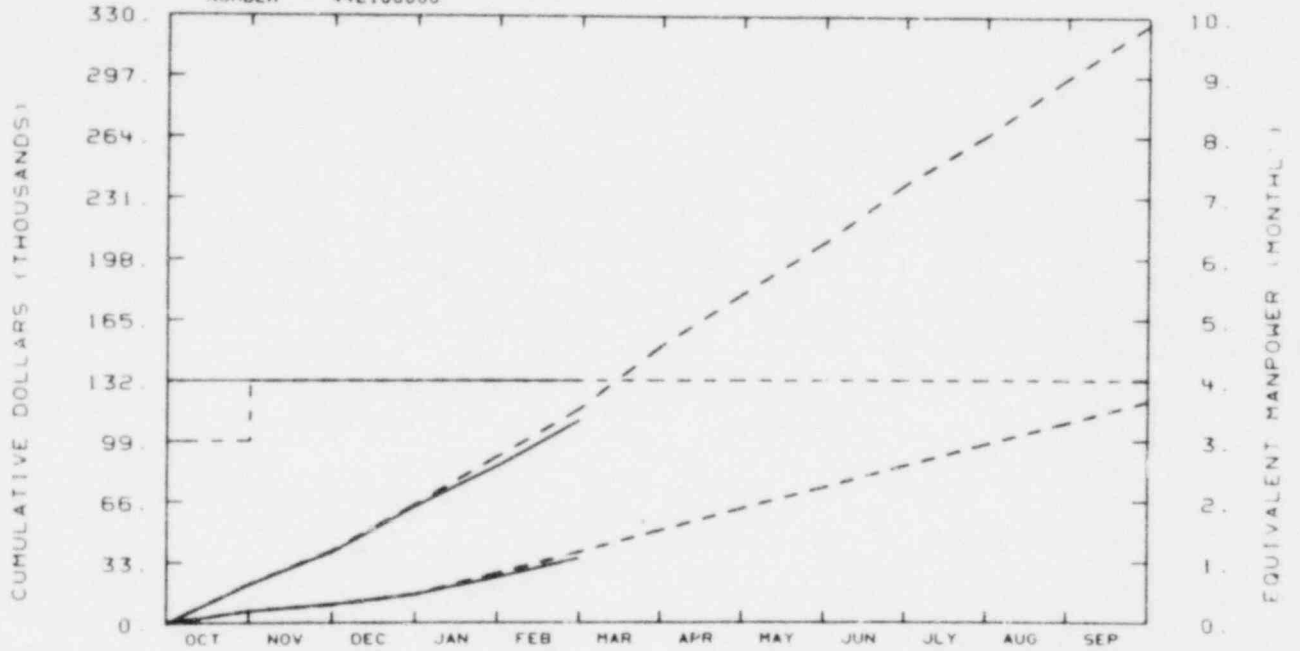
YTD VARIANCE: 2 (1%)

Costs for PWR/BWR were being accumulated in A6039 (Tech Surveillance) until a Fin number (A6048C) was assigned to PWR/BWR to incur costs. A cost transfer was implemented in February to correct this. Manpower, as well as costs, reflect this transfer.

RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC.  
NRC/RSR DATA BANK & HEAT TRANS

NUMBER 442100000



TOTAL PROGRAM		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		21	39	64	90	116	151	179	207	239	265	297	326
ACTUAL		21	38	63	85	110							

MATERIAL		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		6	10	15	27	38	50	62	74	85	97	109	121
ACTUAL		6	10	15	25	35							

MANPOWER		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		1	4	4	4	4	4	4	4	4	4	4	4
ACTUAL		4	4	4	4	4							

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

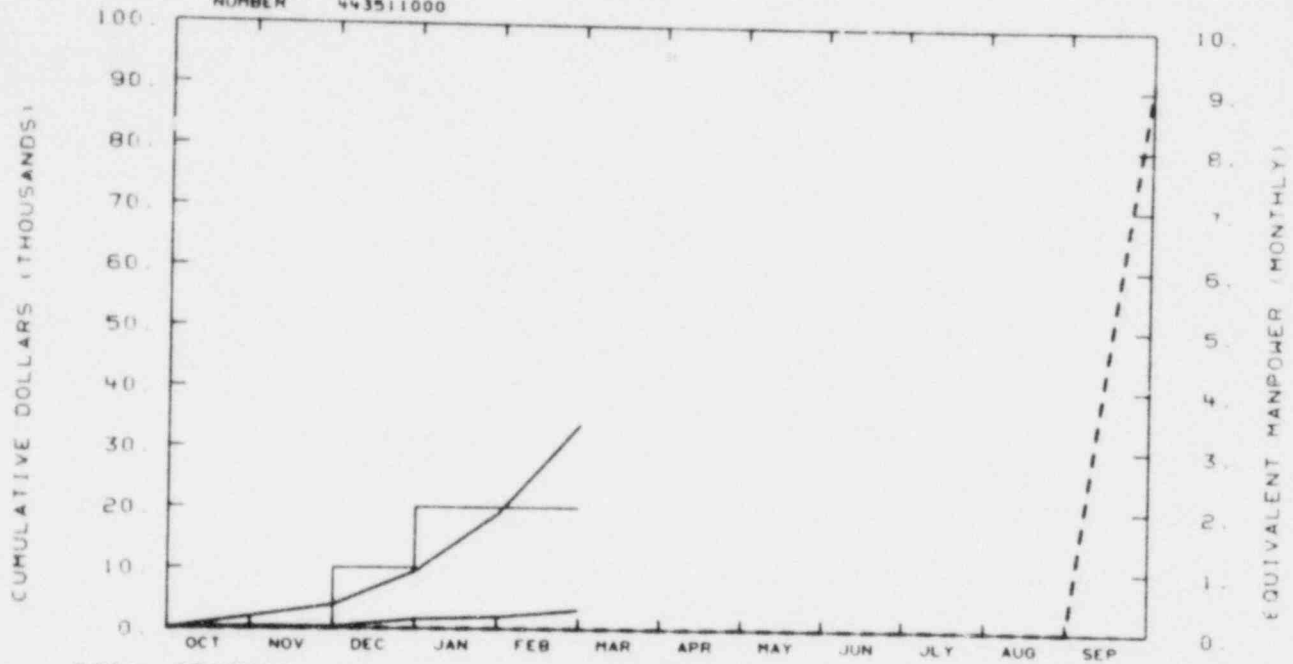
A6102

YTD VARIANCE: 6 (5%)

RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC.  
PREP OF DOCUMENT FOR TAP-A1

NUMBER 443511000



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91
ACTUAL	2	4	9	19	34										

MATERIAL

BUDGET	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91
ACTUAL	0	0	2	2	3										

MANPOWER

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

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

A6279

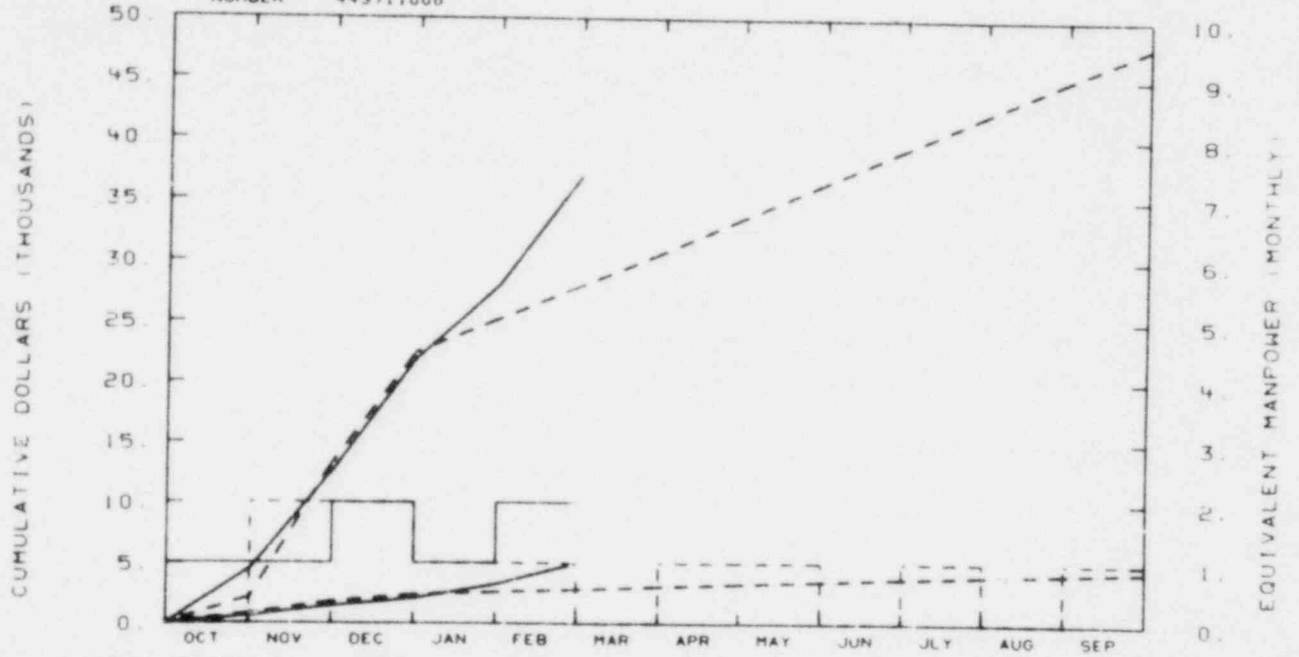
YTD VARIANCE: <34>

Work on A6251 (Water Hammer Review and Evaluation) is being charged against this task until funding for A6251 is authorized. Funding has been authorized for A6251. Approximately 20 K will be credited to this account and charged against A6251. The bulk of the remaining charges against A6279 (approximately 14 K) are for travel and labor associated with this travel.

RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC  
HDR COMP RESPONSE ANALYSIS

NUMBER 443711000



TOTAL PROGRAM

BUDGET	2	13	22	25	28	31	34	36	39	42	45	48
ACTUAL	4	13	22	28	37							

MATERIAL

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

MANPOWER

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

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

A6285

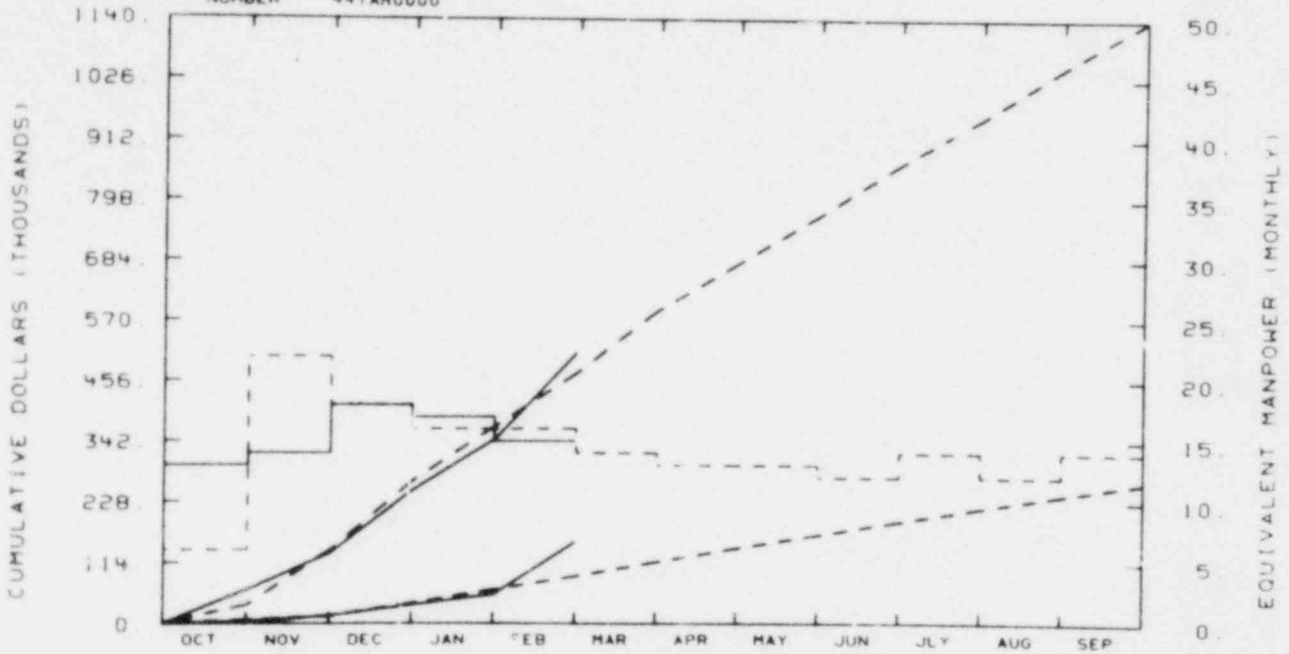
YTD VARIANCE: <9> (32%)



RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC  
NRR/PAS TECH SUPPORT

NUMBER 44TAR0000



TOTAL PROGRAM

BUDGET	35	137	266	369	470	589	679	770	867	954	1051	1139
ACTUAL	63	131	249	345	500							

MATERIAL

BUDGET	6	14	31	63	88	114	141	166	191	216	241	264
ACTUAL	5	15	34	54	152							

MANPOWER

BUDGET	6	22	13	16	16	14	13	13	12	14	12	14
ACTUAL	13	14	19	17	15							

BUDGET  
ACTUAL

YTD VARIANCE: <40> ( 9%)

- A6276 <7> ( 3%)
- A6283 6 (13%)
- A6294 0
- A6290 12 (29%)
- A6291 16 (50%)
- A6293 <2> (13%)
- A6296 <39> (58%)

Fin numbers A6294 and A6296, both of which are largely subcontracted outside the Company, are costed in the above graph over the entire fiscal year. In reality, both projects are scheduled for April 30, 1980 completion. The February variance, therefore, has no significance. Next months graph will be corrected to account for this.

CODE ASSESSMENT & APPLICATIONS 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

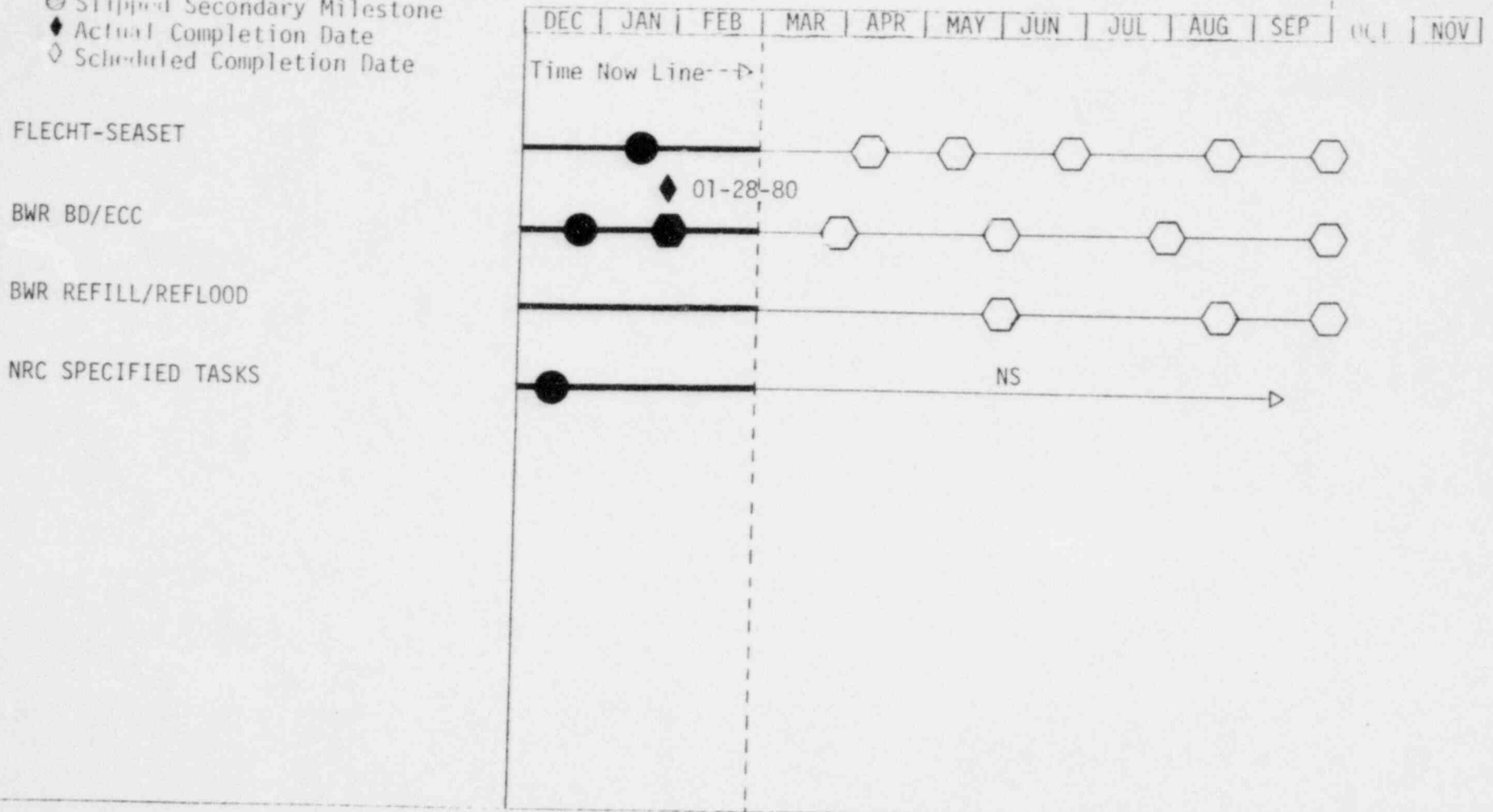
CODE ASSESSMENT AND APPLICATIONS PROGRAM

February 1980

INEL TECHNICAL SUPPORT TO NRC FOR  
INDUSTRY COOPERATIVE PROGRAMS (A6039)

FY-1980

FY 1981



NOTES:

LEGEND

CODE ASSESSMENT AND APPLICATIONS PROGRAM

February 1980

FUEL CODE ASSESSMENT (A6046)

- Completed Major Milestone
- Scheduled Major Milestone
- ⊘ Slipped Major Milestone
- Completed Secondary Milestone
- Scheduled Secondary Milestone
- ⊘ Slipped Secondary Milestone
- ◆ Actual Completion Date
- ◇ Scheduled Completion Date

FY-1980

FY 1981

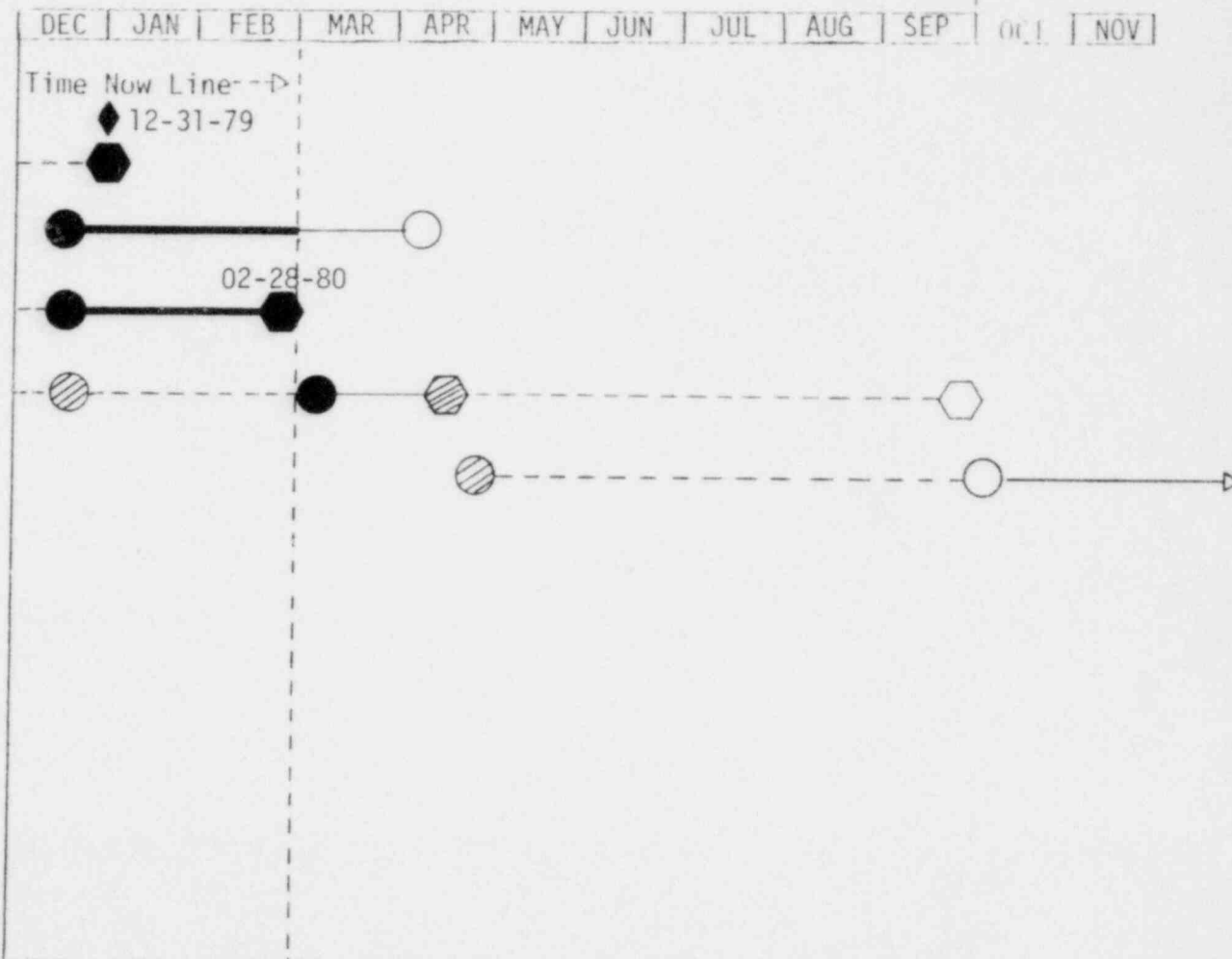
FRAP-T5 ASSESSMENT

FRAP-T5 ASSESSMENT ADDENDUM

FUEL BEHAVIOR DATA BANK

FRAPCON-2 ASSESSMENT

FRAP-T6 ASSESSMENT

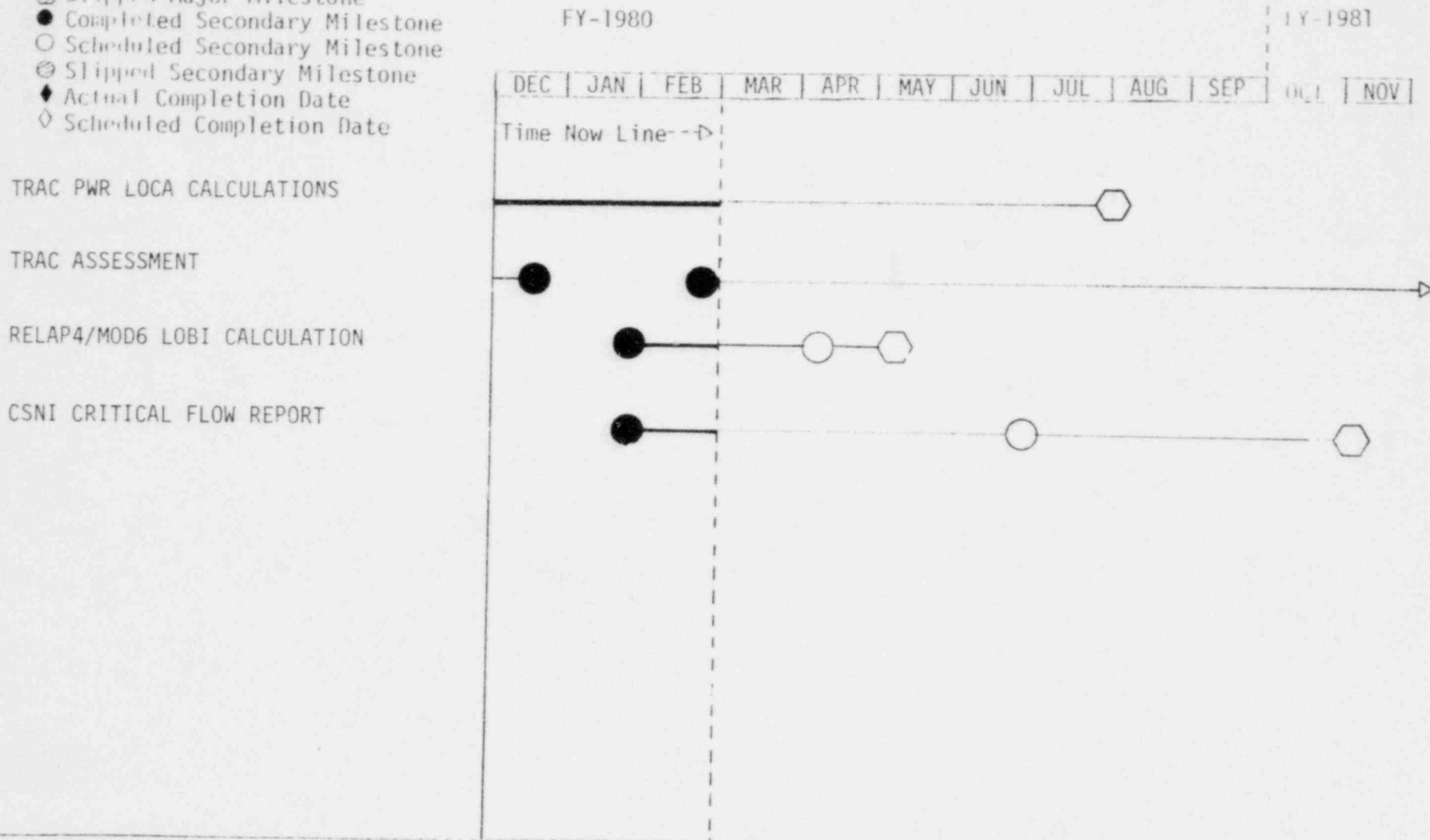


-105-

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



-106-

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

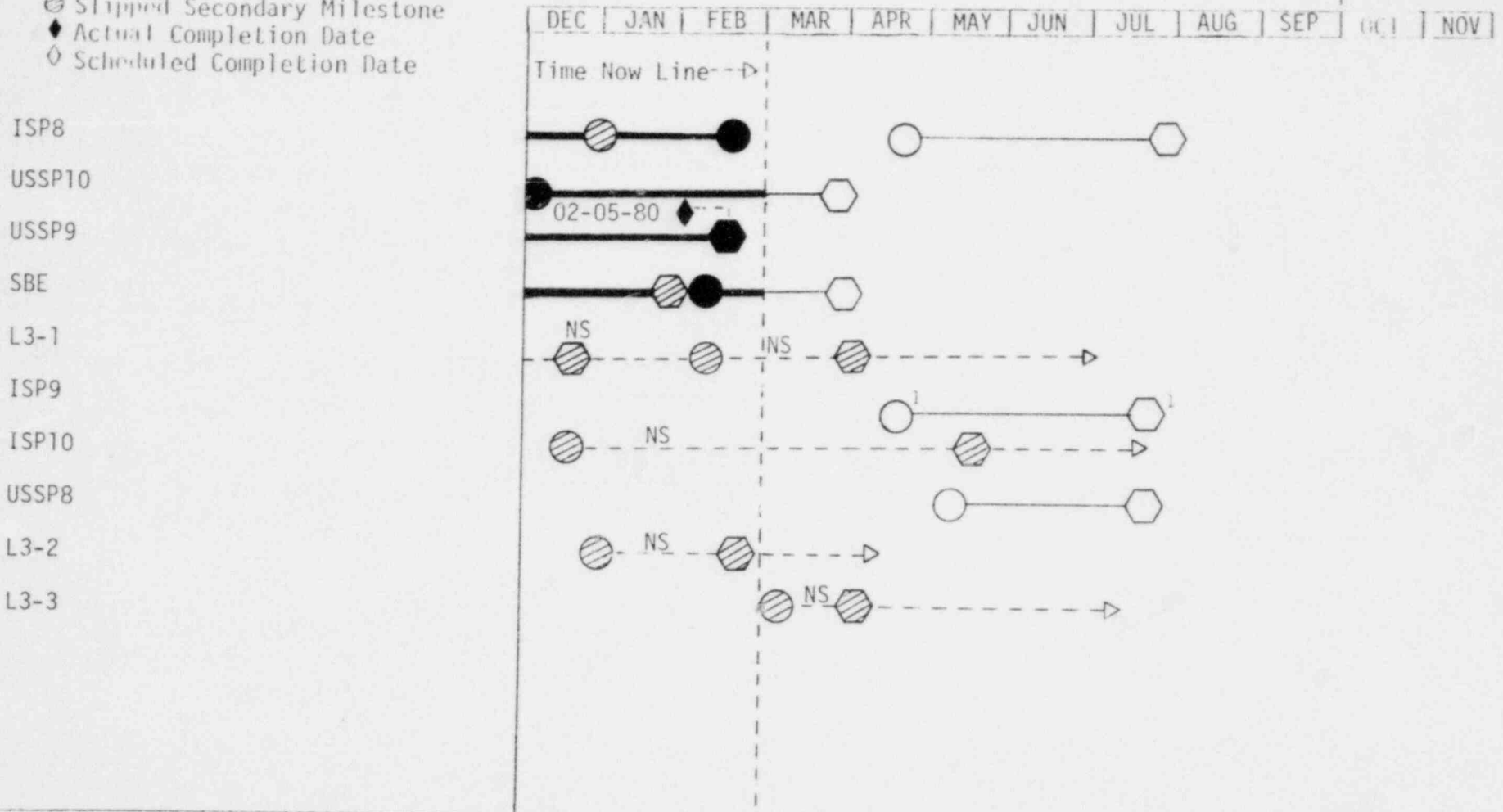
CODE ASSESSMENT AND APPLICATIONS PROGRAM

February 1980

STANDARD PROBLEM (A6048B)

FY-1980

FY-1981



NOTES: <sup>1</sup> Schedule depends upon when participant calculations are received from NRC.

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  
BWR/PWR TASK FORCE (A6048C)

February 1980

FY-1980

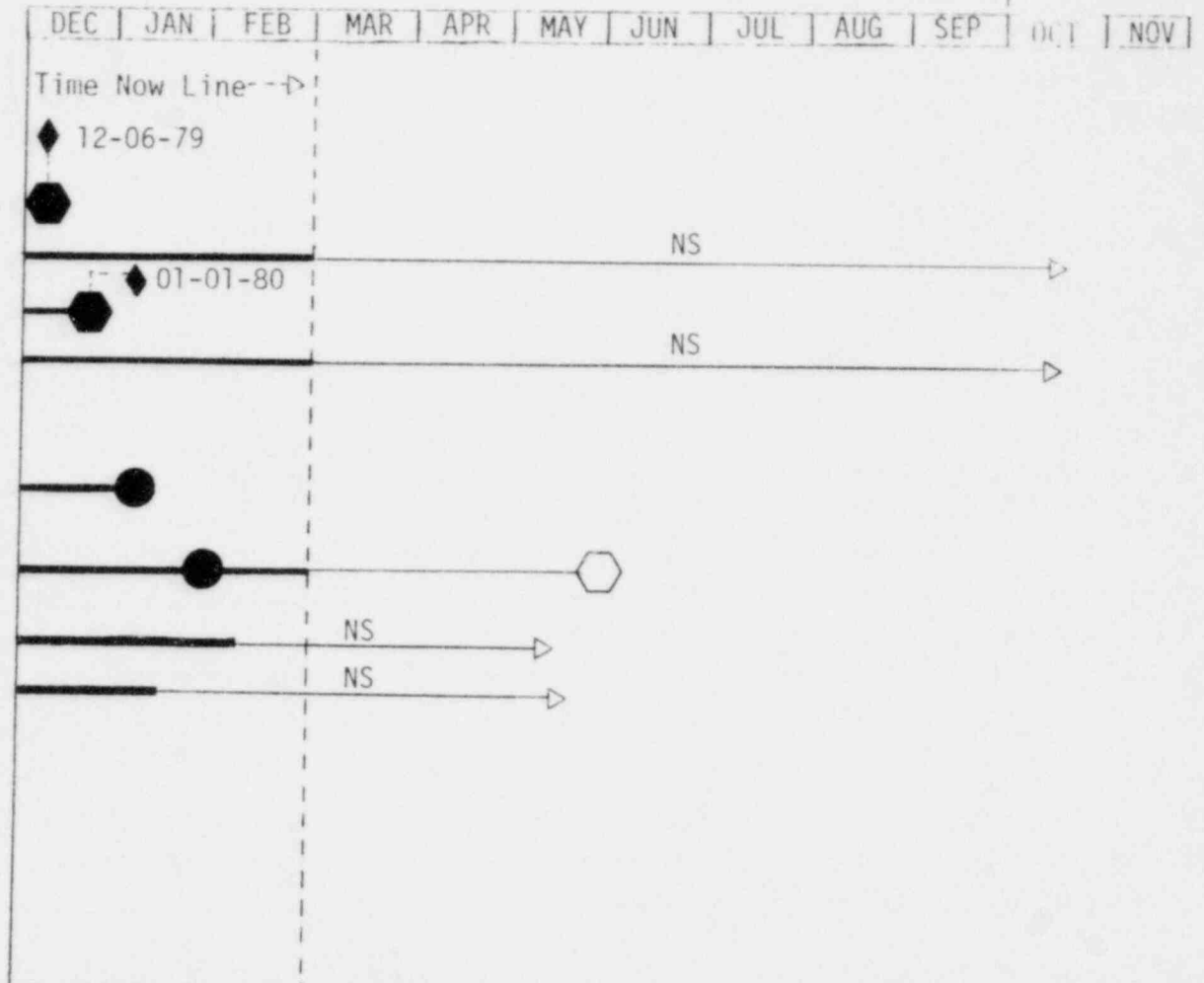
FY-1981

BWR

- DEFINITION OF TASK FORCE OBJECTIVES
- STAFFING OF TASK FORCE
- TASK FORCE WORK SCOPE DEFINITION
- WORK ACTIVITY

PWR

- DEFINITION OF TASK FORCE WORK SCOPE
- ANALYSIS AND DOCUMENTATION OF STATION BLACKOUT SCENARIO
- SCENARIO DEVELOPMENT
- STAFFING OF TASK FORCE



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  
DATA BANK PROCESSING SYSTEM (A6102)

February 1980

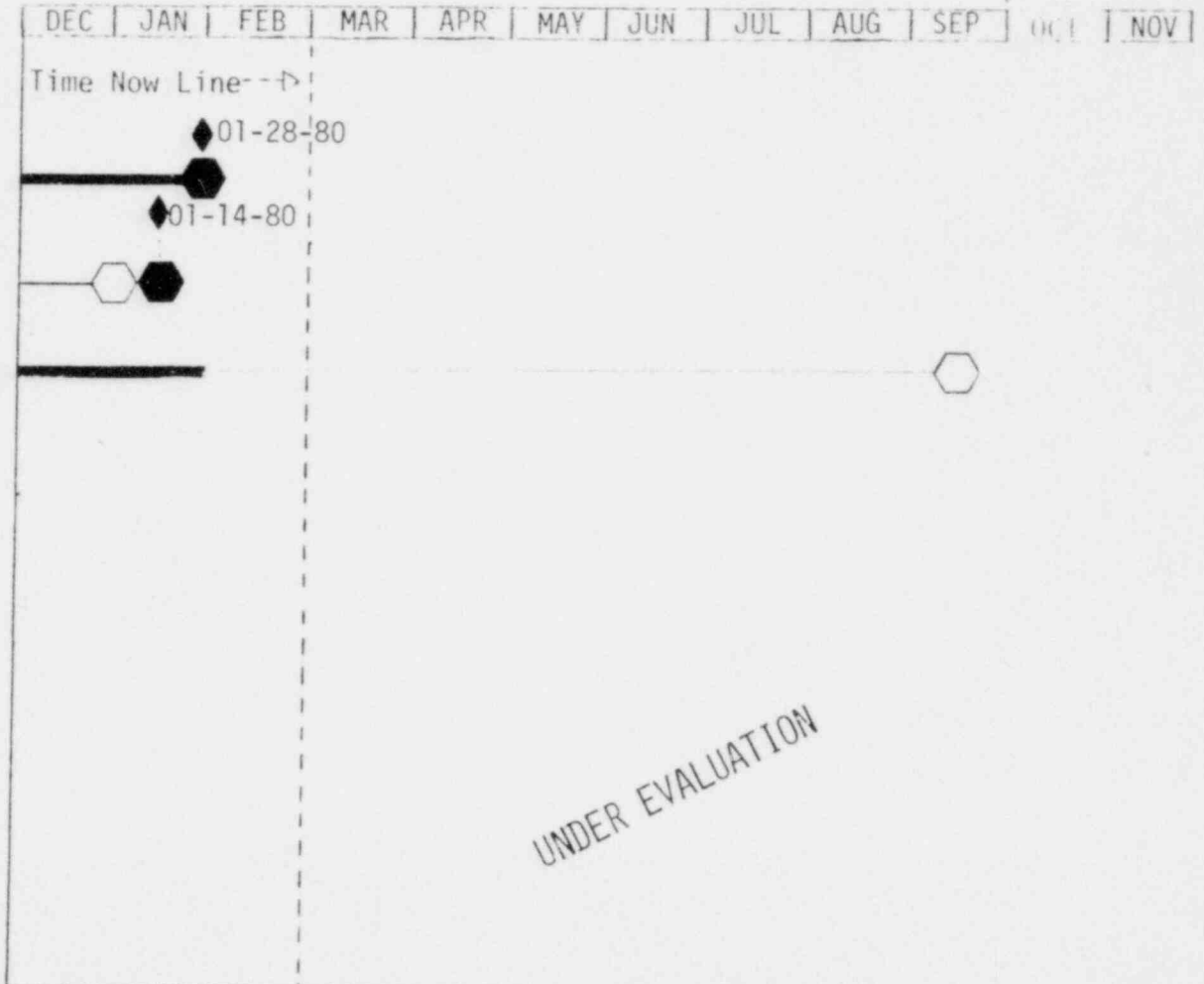
FY-1980

FY-1981

CONVERSION OF EXISTING DATA TO ISDMS  
FORMAT

STANDARD PROCEDURES

USER TRAINING AND UPGRADE ISDMS  
SOFTWARE



UNDER EVALUATION

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

FY-1980

FY 1981

PERFORM ANALYSIS

ISSUE REPORT

DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Time Now Line-->

NS



NS



NOTES:

CODE ASSESSMENT & APPLICATIONS PROGRAM  
TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S  
SUMMARY AND HIGHLIGHTS

The 189a's for A6048C and D have been combined into A6048C. Preparation of the joint 189a is in progress. The 189a for A6039 has been submitted for program review. Final preparation of 189a A6102 is awaiting funding level definition from the NRC.

The fuel behavior data bank report was completed and issued.

A posttest calculation for ISP8 was completed and issued.

The slow turnaround time being encountered on the INEL Computer may impact continued A6047 calculations.

The report "Data Summaries of Licensee Event Reports of Diesel Generators at US Commercial Nuclear Power Plants for January 1, 1976 to December 31, 1978" was issued (A6276).

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

2. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
None scheduled.			

3. Summary of Work Performed in February 1980

Continued the following efforts:

TLTA Small Break Test No. 2 test prediction.

FLECHT-SEASET Boil Off Test data comparison.

BWR-Refill/Reflood Single Heated Bundle test prediction.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
None scheduled.			

5. Summary of Work to be Performed in March 1980

Continue items under 3 above.

Issue report on FLECHT-SEASET scaling studies for small break testing (Not a scheduled milestone).

6. Problems and Potential Problems

None

1. Task A6046 - Fuel Behavior Analysis Assessment2. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
	Issue Data Bank Report	2-28-80	2-28-80C

3. Summary of Work Performed in February 1980

The fuel behavior data bank report was completed and issued on schedule. Final documentation of the FRAP-T5 power oscillation analysis and the revised FRAP-T5 user recommendations is underway. A literature search to enlarge the steady state data base for the FRAPCON-1 assessment effort was initiated.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual</u>
None scheduled.			

5. Summary of Work to be Performed in March 1980

The FRAP-T5 power oscillation analysis and the revised FRAP-T5 user recommendations will be documented and issued.

The FRAPCON-2 data base literature search will continue.

6. Problems and Potential Problems

None

1. A6047 - LOCA Analysis Assessment and Applications2. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
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None scheduled.

3. Summary of Work Performed in February 1980

TRAC calculations for a 200% cold leg break; 200% hot leg break, and 200% cold leg break with steam generator tube ruptures in a PWR were continued.

The RELAP4/MOD6 model for a pretest prediction of LOBI was developed.

Calculations on the TRAC PWR model to investigate nodding sensitivity and the effect of lower plenum heated surface area were performed.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
-------------	--------------------	-----------------	--------------------

None scheduled.

5. Summary of Work to be Performed in March 1980

TRAC calculations for a 200% cold leg break, 200% hot leg break, and a 200% cold leg break with steam generator tube ruptures in a PWR will be completed.

RELAP4/MOD6 pretest calculation for LOBI will be completed.

6. Problems and Potential Problems

The slow turnaround time from the INEL computer may impact all computer calculations.

1. I-689 Task A6048B - Standard Problem Analysis & Heat Transfer Assistance2. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
	USSP9 Pretest Calc & Rpt	2-15-80	2-5-80C
	ISP8 Posttest Calc	2-15-80	2-28-80C

3. Summary of Work Performed in February 1980

A posttest calculation for ISP8 was completed.  
Continued writing on the SBE comparison report.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
	USSP10 Prel Conversion	3-31-80	
	USSP11 Prel Comp Report	3-31-80	N/S NCR Written
	L3-3	3-31-80	N/S NCR Written

5. Summary of Work to be Performed in March 1980

USSP10 preliminary comparison report will be completed.  
ISP10 calculations will be initiated.

6. Problems and Potential Problems

None

1. Task A6048C - PWR/BWR Task Forces
2. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
None scheduled.			

3. Summary of Work Performed in February 1980

Selected Browns Ferry Unit 1 as the focal plant for procedures and investigations. Initiated contacts to obtain detailed information for constructing computer deck input.

Continued to restructure the BWR/MARK6 RELAP4/MOD6 input deck being used for operation transients.

Presented results of analysis at the bimonthly management meeting.

A grouping of US PWRs was completed and target plants selected. Zion I was selected as the focal plant for PWRs.

A report on the loss of off site power in the Westinghouse Zion I PWR was about 25% completed.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
None scheduled.			

5. Summary of Work to be Performed in March 1980

The report on the loss of off site power in the Westinghouse Zion I PWR will be about 50% completed.

Additional information for computer code input for BWRs will be obtained.

6. Problems and Potential Problems

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



1. A6102 - Data Bank Processing System
2. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
	Automate UIC	2-29-80T	2-24-80C

3. Summary of Work Performed in February 1980

The problem of automating Data Bank UICs has been resolved. The Data Bank will still assign test file name (reflecting test facility, test name and measurement parameters) which is the first eight characters of the UIC, but the test facility channel identifier will be incorporated as the last part of the UIC. This will result in a more meaningful UIC for the Data Bank user. Individual test facilities will be encouraged to supply standardized channel identifiers. If no channel identifiers are provided, the Data Bank will assign them.

A REFORM program for addition of FLECHT-SEASET data to the Data Bank was developed.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
	None scheduled.		

5. Summary of Work to be Performed in March 1980

It is expected that FLECHT tapes (cosine and skewed data) will be analyzed and any required reformatting programs will be completed. A minimum of five FLECHT tests are expected to be added to the Data Bank.

Plans for a Data Bank INFO file are being formulated. This computer file, accessed by the terminal user, will contain Data Bank test descriptions and the types of data available. This will provide the user with current Data Bank test information.

6. Problems and Potential Problems

The FY 1980 funding is yet to be resolved.

1. Task A6279 - Preparation of Documents for TAP A-12. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
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None scheduled.

3. Summary of Work Performed in February 1980

A meeting in Bethesda with the NRC Water Hammer Task Force was attended by EG&G Idaho personnel. Work to be funded under A6251 is being charged to this FIN. Reimbursement will be made in April.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
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None scheduled.

5. Summary of Work to be Performed in March 1980

No activity planned; a trip may be made to Bethesda to discuss the scenarios developed within the scope of A6251.

6. Problems and Potential Problems

None

1. Task A6285 - HDR Mechanical Component Response Analysis Testing2. Scheduled Milestones for February 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
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None scheduled.

3. Summary of Work Performed in February 1980

Input accelerations were received from ANCO and are being incorporated into EG&G Idaho's ANSYS finite element model. Check runs have been made using a small number of time steps.

4. Scheduled Milestones for March 1980

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
-------------	--------------------	-----------------	--------------------

None scheduled.

5. Summary of Work to be Performed in March 1980

The acceleration data provided by ANCO will be incorporated into the ADINA finite element model. Both ADINA and ANSYS will be used to analyze the HDR piping. Response spectra for instrumented points on the recirculation piping will be generated and transmitted to ANCO as soon as possible.

6. Problems and Potential Problems

None

## I-661 PROBABILISTIC ANALYSIS STAFF

## TASK

A6276 LER Failure Rate Analysis  
 A6283 Common Cause Statistical Monitoring  
 A6290 NPRDS Data Analysis  
 A6291 LER Flagging Analysis  
 A6292 Common Cause Data Analysis  
 A6293 Flood Occurrence Rate Analysis  
 A6294 Plant Status Monitoring  
 A6296 Integrated Reliability Evaluation Program

2. Scheduled Milestones for February 1980

<u>A Nos.</u>	<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
A6276	K3	CRDM Final Report	2-1-80	2-4-80C
A6283	None scheduled.			
A6290	None scheduled.			
A6291	None scheduled.			
A6293	None scheduled.			
A6294	S2	Issue SAI Status Report	1-15-80	1-31-80C
A6296	None scheduled.			

3. Summary of Work Performed in February 1980

A6276 - The final data summary report for diesel generators was completed and issued (Report EGG-EA-5092 transmitted by letter JAD-52-80).

Work continued on the draft of the Penetrations report.

A6283 - Continued software development, searching LER data bank for suitable cases for common cause analysis. Consulted at INEL with Dr. Donald Gaver. Preparation of final report on theoretical derivation continued.

A6290 - Work continued on the following items: Preparation of progress report, statistical analyses of NPRDS valve and valve operator failure data and plotting failure data with respect to age of plants.

A6291 - Completed special sorting package requested by NRC/PAS.

A6293 - Continued supporting analyses as requested by NRC/PAS. Evaluated the method of computing a suitable prior distribution.

A6294 - Presentations were given to NRC and EG&G groups concerning three accident sequences for which instrumentation has been defined. Another presentation was given to the Halden Reactor group on February 13 describing methods used to define instrumentation. Continued to define instrumentation for more accident sequences.

A6296 - Draft reports were prepared and transmitted to the Crystal River Study group which describe the analyses performed on the systems for which EG&G and Energy, Inc. are responsible.

#### 4. Scheduled Milestones for March 1980

<u>A Nos.</u>	<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
A6276	K5	Valves Final Rpt	3-17-80	
	K6	Diesels Final Rpt	4-1-80	2-27-80C
A6283	K13	Theoretical Derivation Final Rpt	3-17-80T	
A6290	None scheduled.			
A6291	None scheduled.			
A6293	None scheduled.			
A6294	S3	SAI Final Report	3-31-80	
A6296	None scheduled.			

#### 5. Summary of Work to be Performed in March 1980

A6276 - Work will continue on the valves final report. The submission date will slip to May 15, 1980 because of the larger than expected number of LERs for this component and the extensive revisions made to the draft report.

Work will continue on the penetrations draft report which is due April 1, 1980.

A6283 - The final report on Theoretical Derivation will be completed and issued to NRC.

A6290 - Continue the classical analysis of valve and valve operator data. Issue an internal process report. Install a computer code for empirical Bayesian analysis of the NPRDS data coincidental with the visit of EG&G consultant, Dr. Ken Shultis.

A6291 - Continue watching for situations to flag as we put together the component reports. Several plants with large failure rates for diesel engines have been pinpointed for deeper investigations.

A6293 - Continue to respond to requests for analyses from NRC/PAS.

A6294 - A report which defines the instrumentation needed to follow the course of six accidents and the methodology used to define that instrumentation will be prepared and issued to EG&G and the NRC for their comments .

A6296 - Our participation in the Crystal River Study in March is expected to be minimal. We will participate only if asked by the study group leader.

6. Problems and Potential Problems

A6276 - It has become apparent that the final valve report of A6276 cannot be completed by the scheduled due date. The number of LER valve reports is much larger than expected. Also, considerable revision of the draft report was created by the review process. Writing is expected to be completed by March 21. An additional 4 to 6 weeks is needed for technical editing. The report will be issued by May 15, 1980.

WRRD MONTHLY REPORT FOR

FEBRUARY 1980

CODE DEVELOPMENT & ANALYSIS PROGRAM

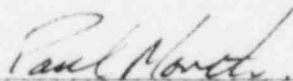
CODE ASSESSMENT & APPLICATIONS PROGRAM

(NRR)



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E. L. Pierson  
Plans & Budget Representative



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P. North, Manager  
Code Development & Analysis Program



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





CODE DEVELOPMENT & ANALYSIS PROGRAM

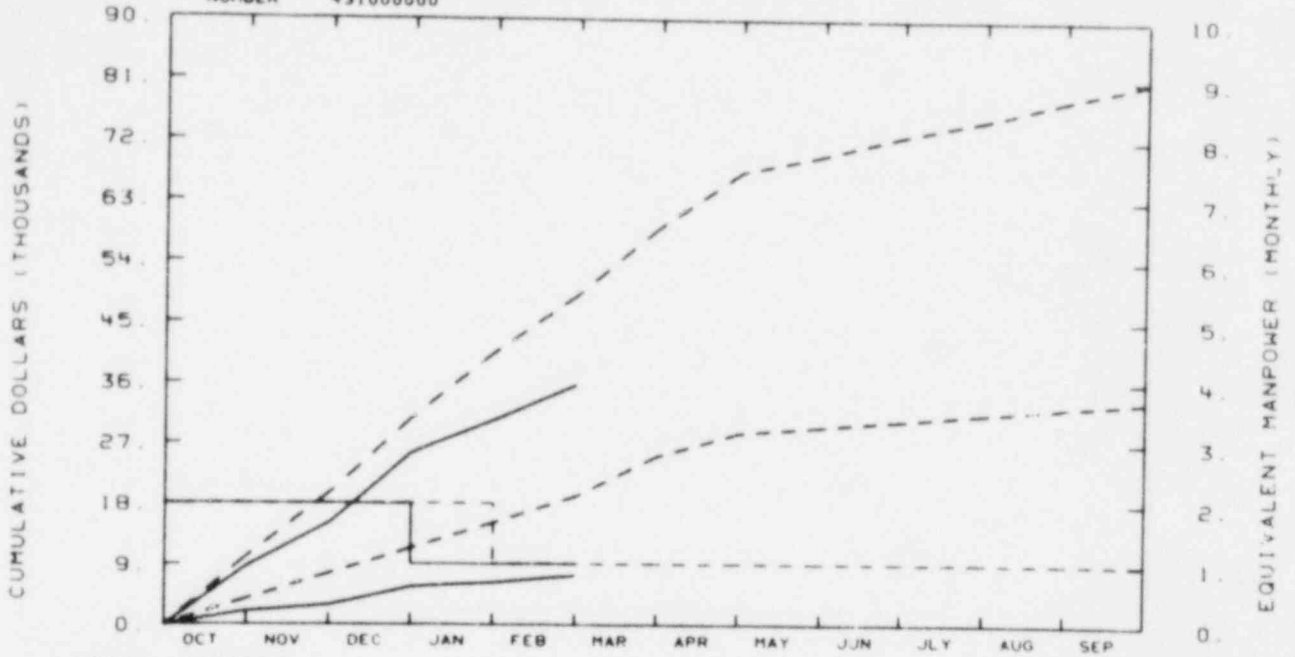
NRR

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							

MATERIAL

BUDGET	4	8	11	15	19	25	28	29	30	31	32	33
ACTUAL	2	3	6	6	7							

MANPOWER

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

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

A6009

YTD VARIANCE: 13 (27%)

The problem identification section of the CONTEMPT4 checkout is proceeding ahead of schedule and under budget. A meeting will be scheduled with NRR to review results, and establish follow-on work.

CODE DEVELOPMENT & ANALYSIS PROGRAM

NRR

TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S  
SUMMARY AND HIGHLIGHTS

The problem identification section of the CONTEMPT4 checkout is about three weeks ahead of schedule.

A meeting will be scheduled with NRC to review the results and establish follow-on work.

1. 189a A6009 - Containment Analysis

2. Scheduled Milestones for February 1980

No scheduled milestones for February.

3. Summary of Work Performed in February 1980

Work on the pressure suppression model checkout was performed and is nearing completion. Checkout also continued on the users code control features and error diagnostics. Documentation of the checkout is nearing completion.

4. Scheduled Milestones for March 1980

No scheduled milestones for March.

5. Summary of Work to be Performed in March 1980

Checkout of the CONTEMPT4 will be completed and documented. A meeting will be scheduled with the NRC to determine the future course of action.

6. Problems and Potential Problems

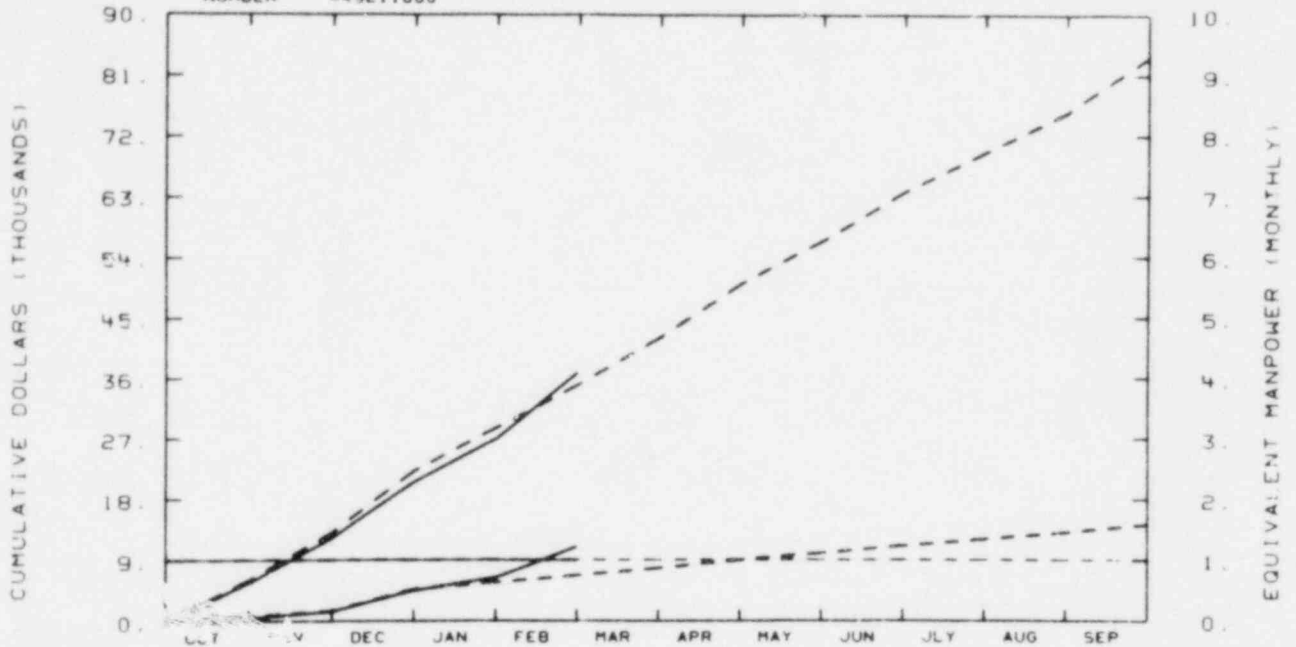
None

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		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
BUDGET		6	13	22	29	35	42	50	56	64	70	75	84
ACTUAL		6	12	21	27	37							

MATERIAL		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
BUDGET		1	1	5	6	7	8	9	10	11	12	13	14
ACTUAL		0	1	4	6	11							

MANPOWER		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
BUDGET		1	1	1	1	1	1	1	1	1	1	1	1
ACTUAL		1	1	1	1	1							

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

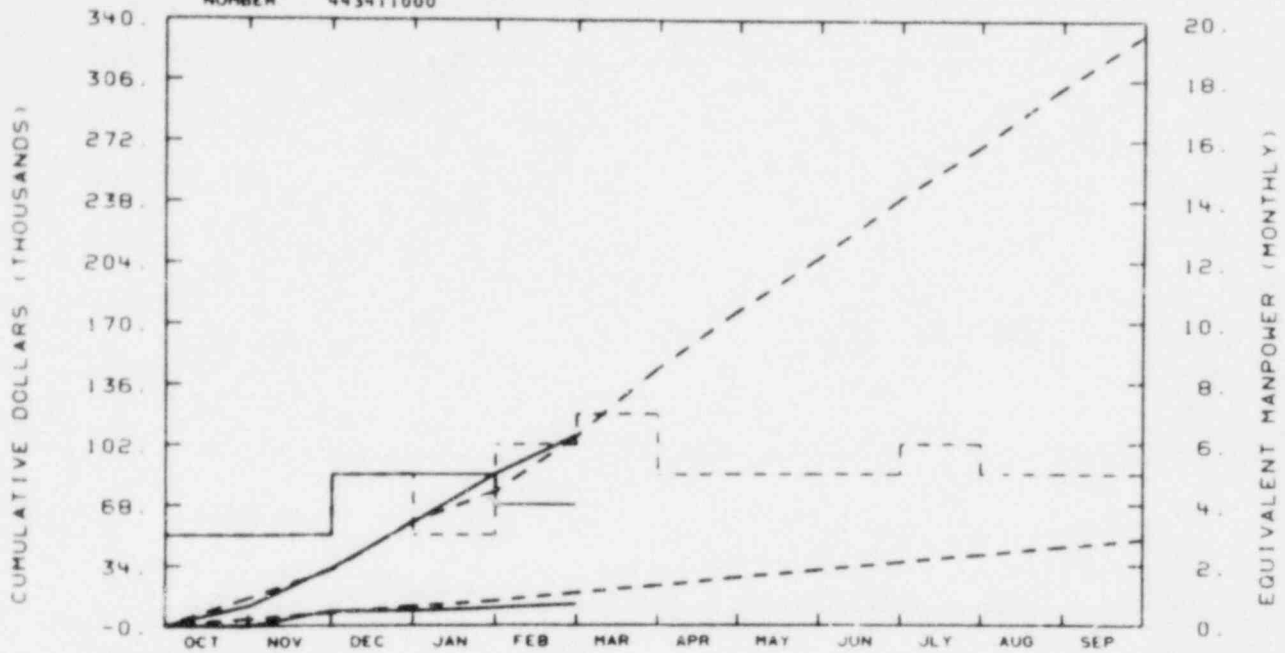
A6152

YTD VARIANCE: <2> (6%)

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							

MATERIAL

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

MANPOWER

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

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

A6156

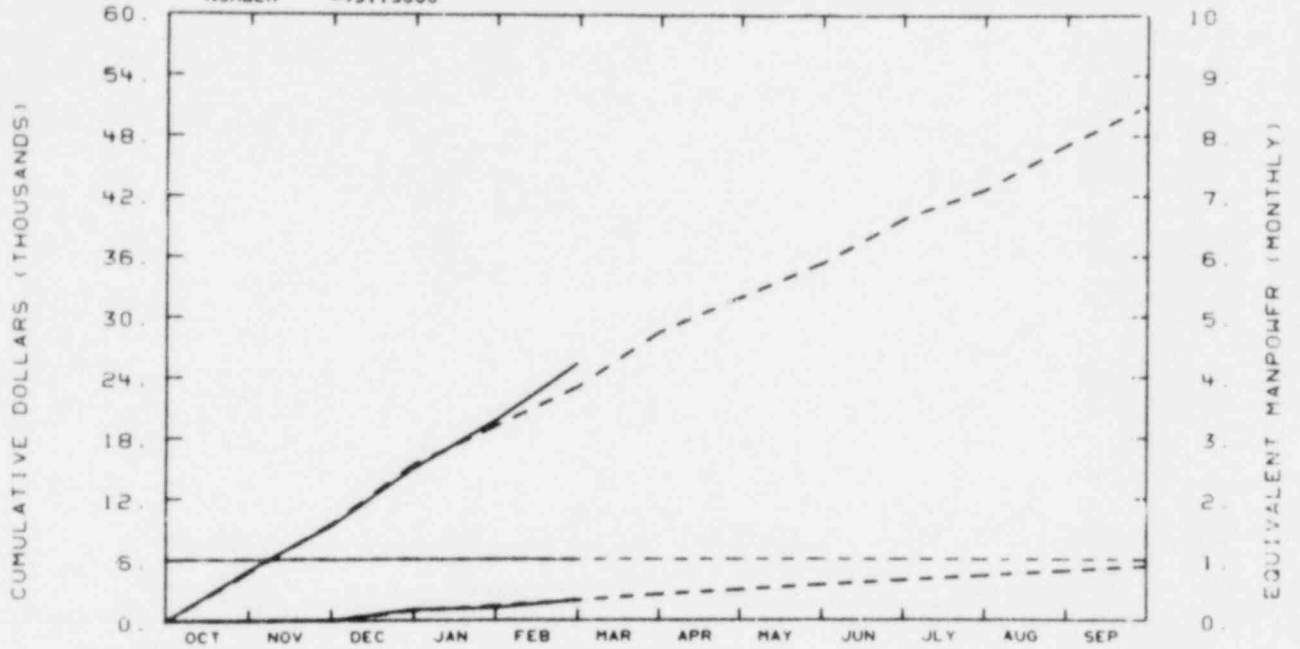
YTD VARIANCE: <1>



RESPONSIBLE  
MANAGER  
J 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							

MATERIAL

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

MANPOWER

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

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

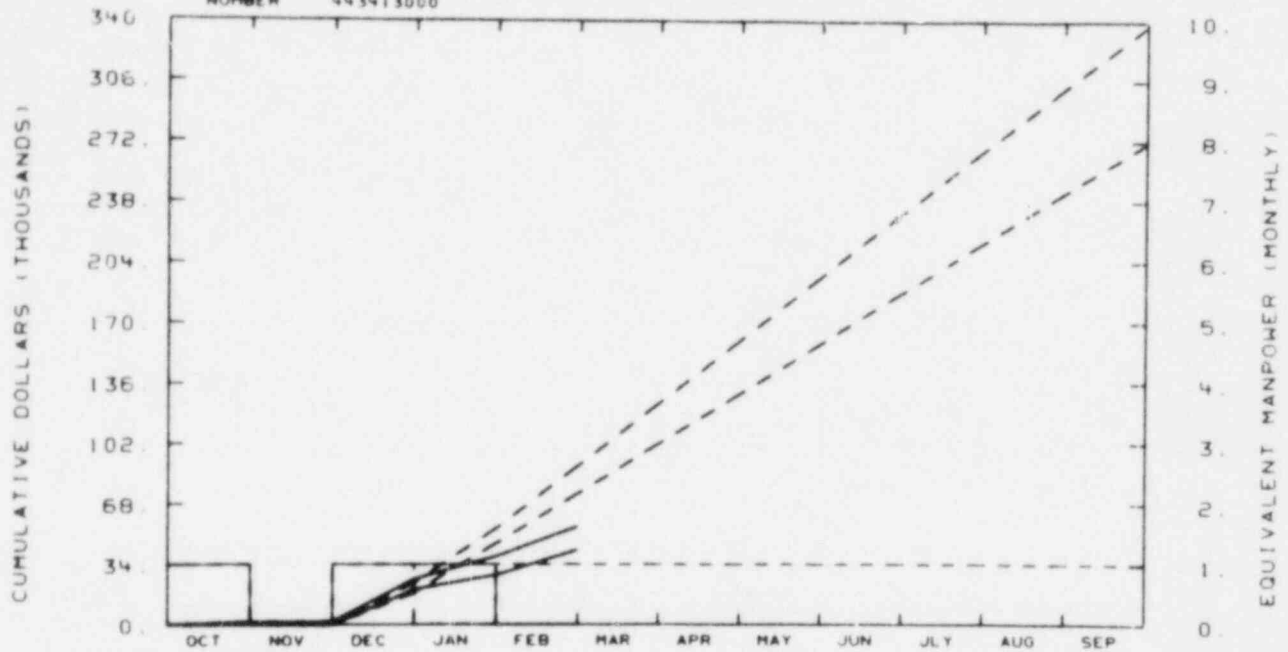
A6157

YTD VARIANCE: <2> (9%)

RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC.  
ONCALL ASST AT OPERATING LWRS

NUMBER 443413000



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

MATERIAL												
BUDGET	0	0	19	46	74	102	130	158	187	215	243	271
ACTUAL	0	0	20	28	42							

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

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

A6159

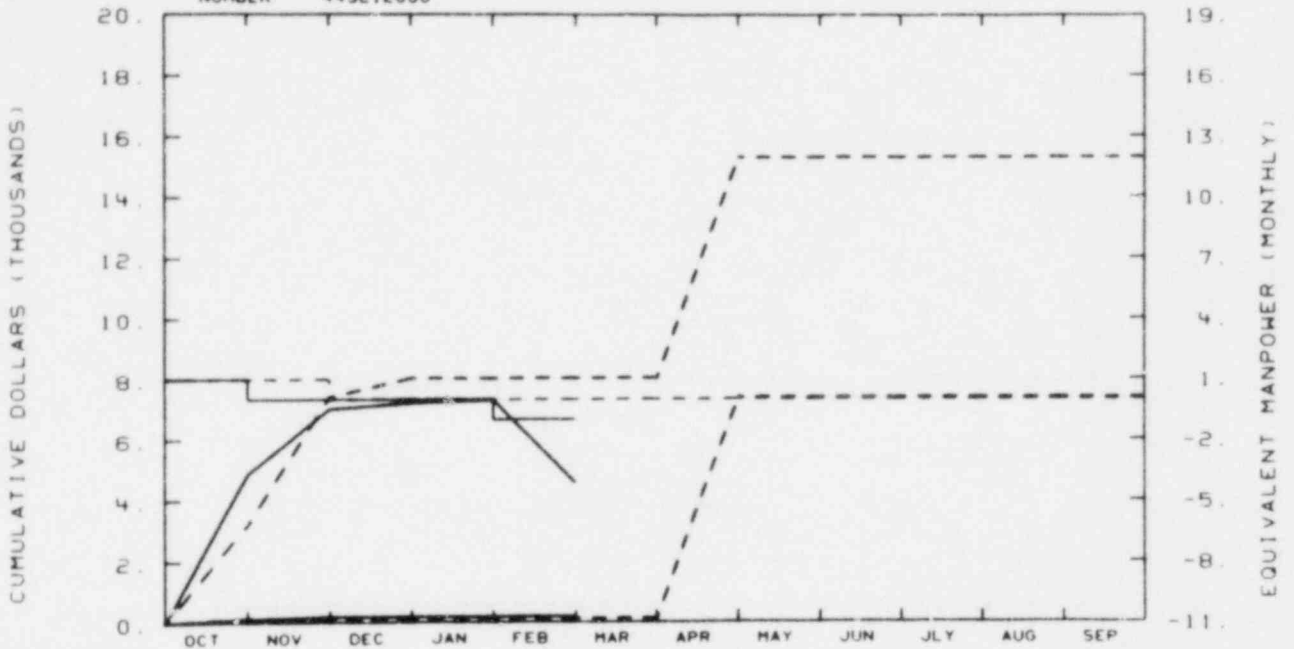
YTD VARIANCE: 35 (39%)

Total January costs are not reflected on this graph as complete billings from Exxon and EG&G-SBO for January were not available at fiscal month end.

RESPONSIBLE  
MANAGER  
J A DEARICH

EG&G IDAHO INC.  
FRACTURE TOUGHNESS CRITERIA

NUMBER 443212000



TOTAL PROGRAM

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

MATERIAL

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

MANPOWER

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

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

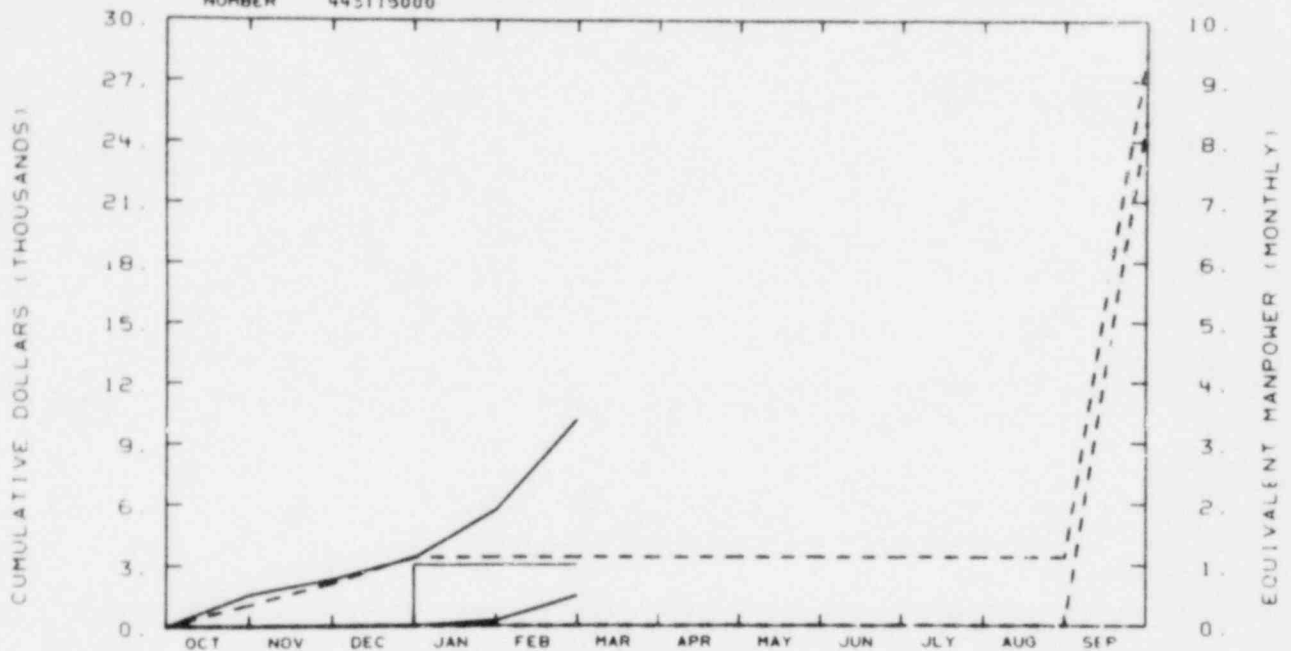
A6166

YTD VARIANCE: 3 (38%)

RESPONSIBLE  
MANAGER  
J A DEARIEN

EG&G IDAHO INC.  
FUEL PERFORMANCE CODE APPLICA

NUMBER 445115000



TOTAL PROGRAM

BUDGET	1	2	3	3	3	3	3	3	3	3	3	26
ACTUAL	2	2	3	6	10							

MATERIAL

BUDGET	0	0	0	0	0	0	0	0	0	0	0	25
ACTUAL	0	0	0	0	1							

MANPOWER

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

BUDGET

ACTUAL

A6167

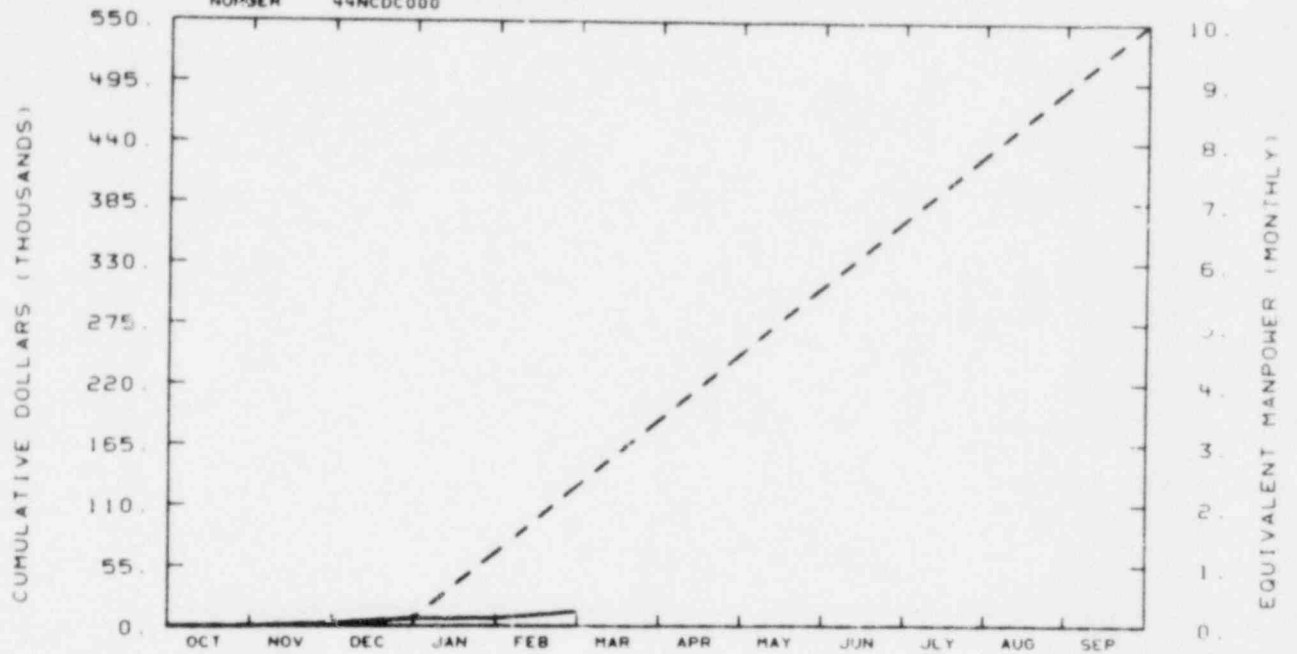
YTD VARIANCE: <10> (233%)

Work has resumed on the checkout and documentation of FRAPCON-1/EM.  
The cost graph will be revised next month to reflect this.

RESPONSIBLE  
MANAGER  
J GUTTMAN INRC.

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							

MATERIAL

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

MANPOWER

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

BUDGET

ACTUAL

A6209

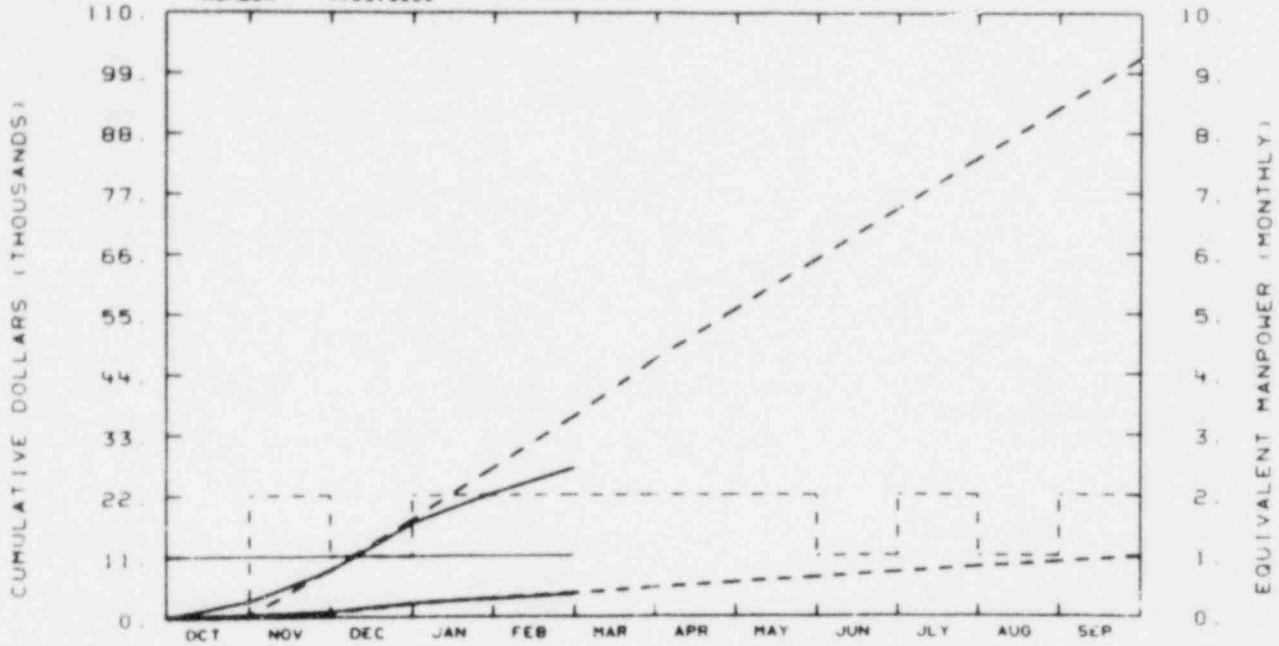
YTD VARIANCE: 114 (90%)

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 INSI CON

NUMBER 443313000



TOTAL PROGRAM

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

MATERIAL

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

MANPOWER

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

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

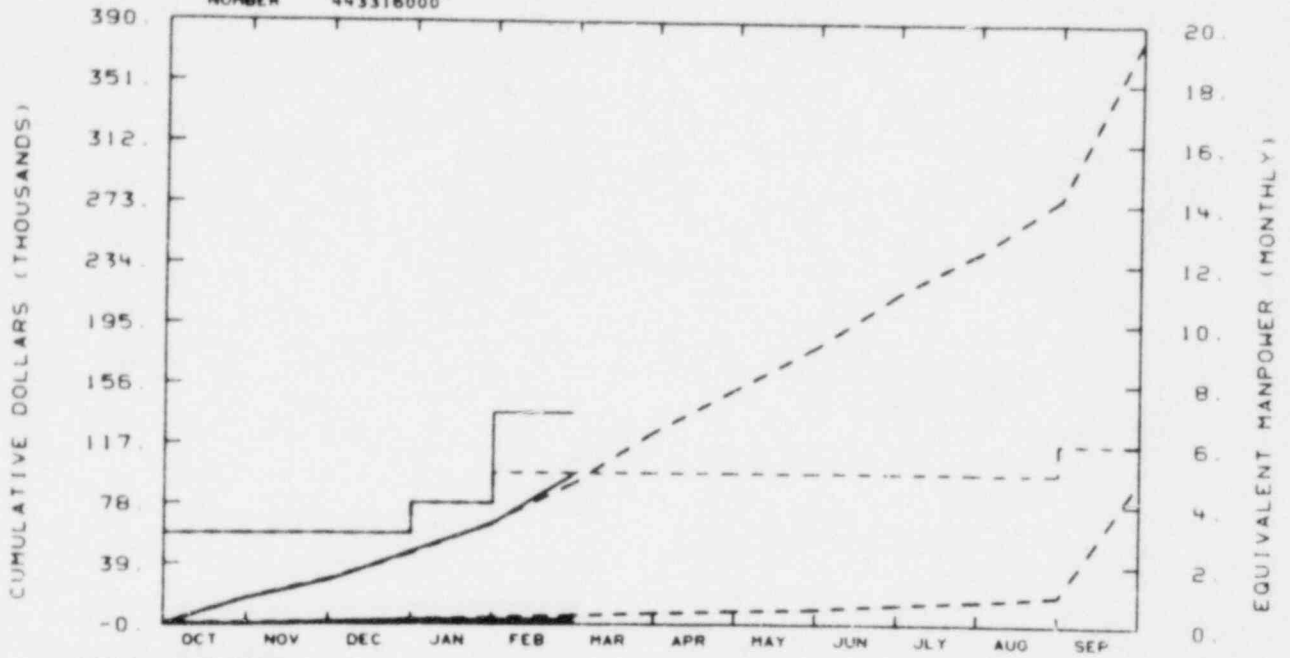
A6250

YTD VARIANCE: 9 (25%)

RESPONSIBLE  
MANAGER  
J A DEARIEN

EG&G IDAHO INC.  
EICS SUPPORT

NUMBER 443316000



TOTAL PROGRAM

BUDGET	17	29	45	65	91	124	152	190	215	241	276	380
ACTUAL	16	28	46	65	97							

MATERIAL

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

MANPOWER

BUDGET	3	3	3	4	5	5	5	5	5	5	5	6
ACTUAL	3	1	3	4	7							

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

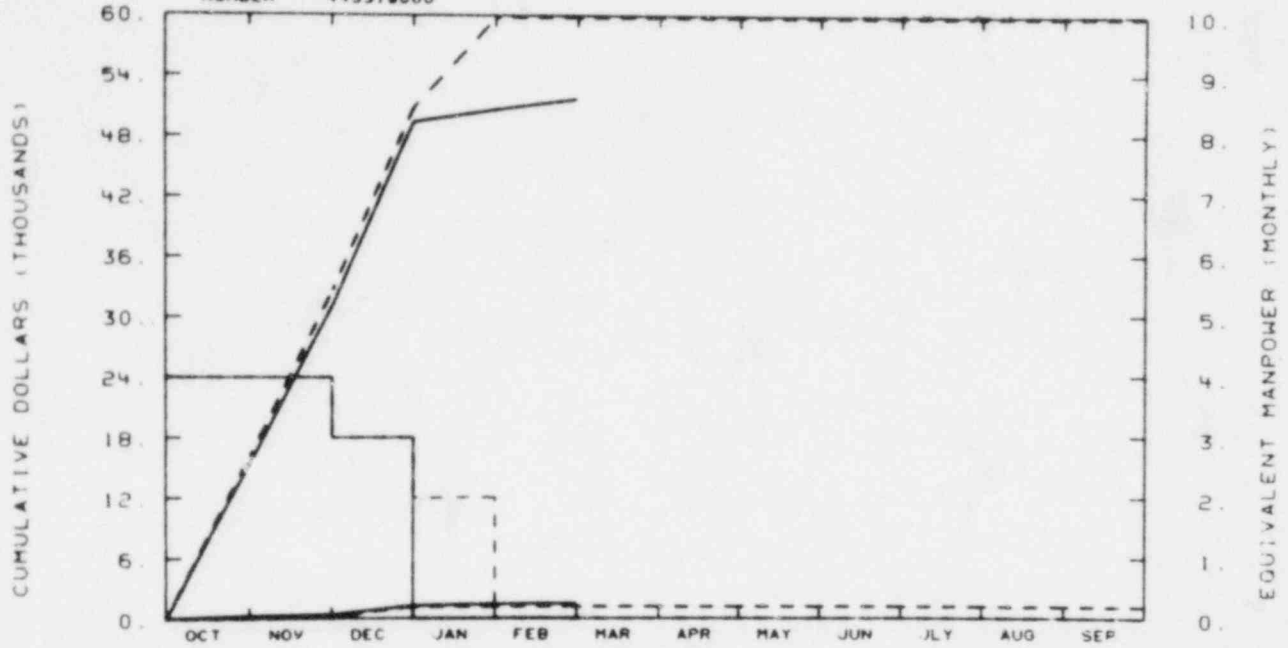
A6256

YTD VARIANCE: <6> (7%)

RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC.  
STEAM GENERATOR WATER

NUMBER 443319000



TOTAL PROGRAM

BUDGET	18	33	51	60	60	60	60	60	60	60	60	60
ACTUAL	15	31	49	51	52							

MATERIAL

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

MANPOWER

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

BUDGET

ACTUAL

A6257

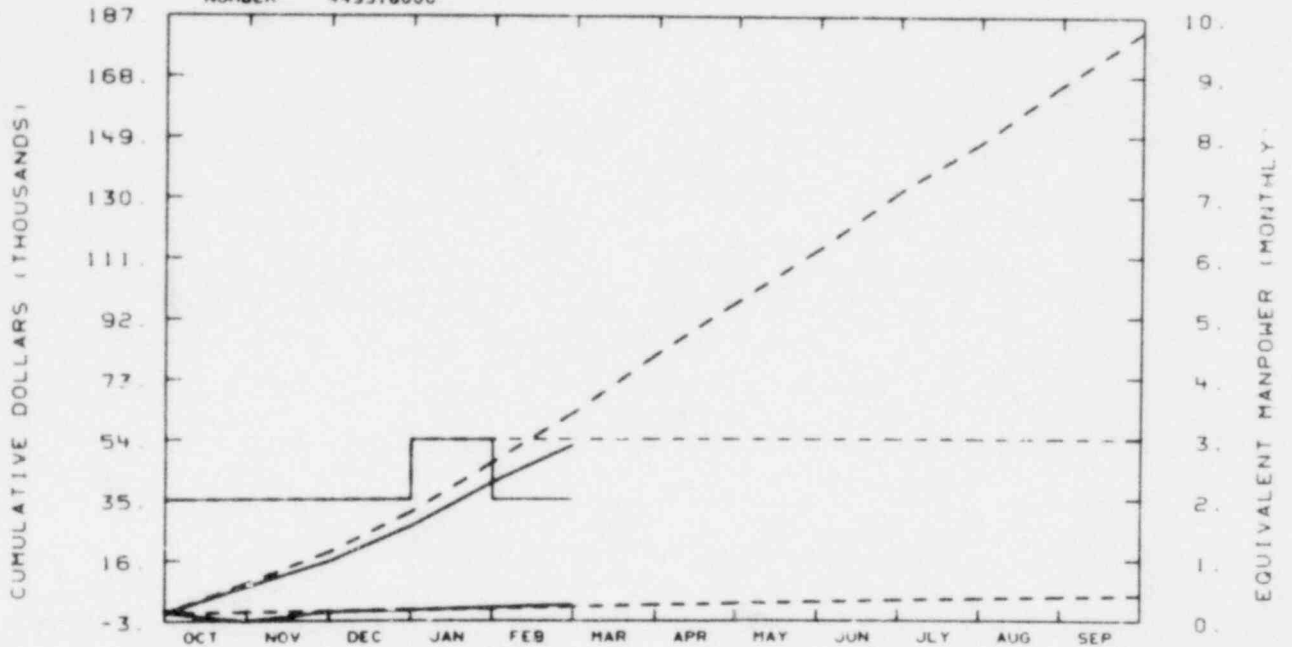
YTD VARIANCE: 8 (13%)



RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC.  
SYSTEMS ENGR SUPPORT

NUMBER 443310000



TOTAL PROGRAM

BUDGET	9	19	31	47	63	81	97	114	132	147	166	183
ACTUAL	8	16	27	41	52							

MATERIAL

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

MANPOWER

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

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

A6258

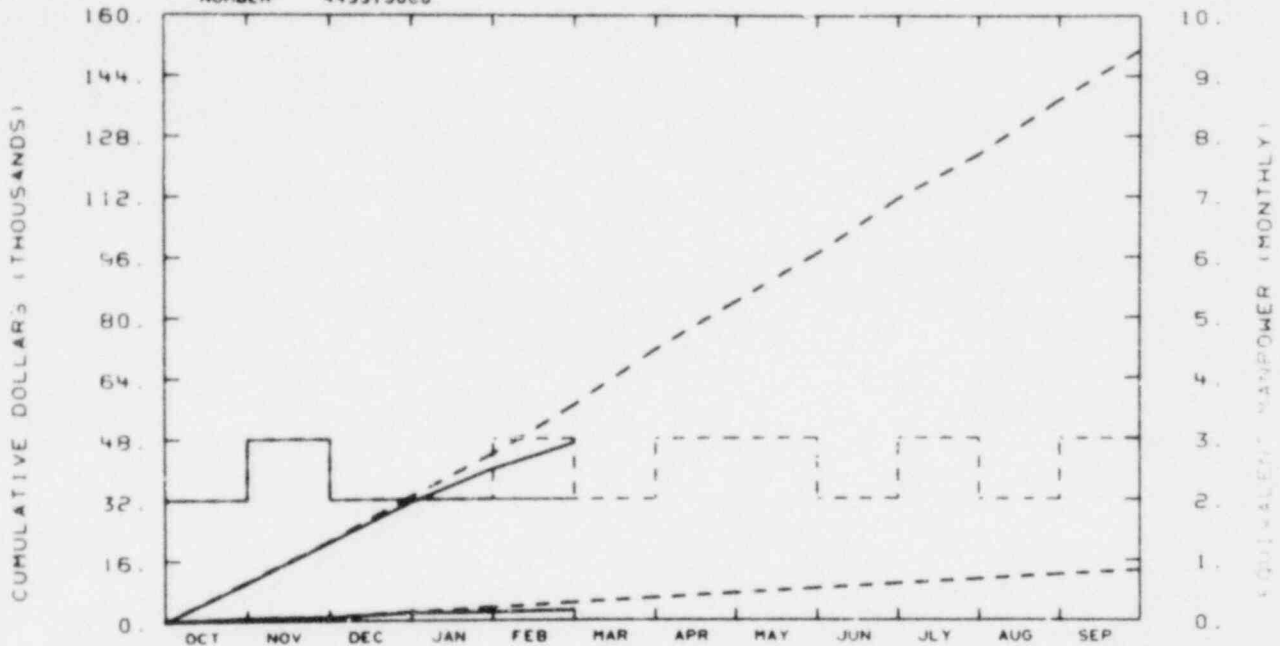
YTD VARIANCE: 11 (17%)

Projected spending in FY-1980 is 143 K rather than the 183 K shown, so this under expenditure is partially imaginary. Also, travel has been under expended thus far, but will catch up the latter part of FY-1980.

RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC.  
EICS SUPPORT FOR SEP

NUMBER 443315000



TOTAL PROGRAM

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

MATERIAL

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

MANPOWER

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

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

A6260

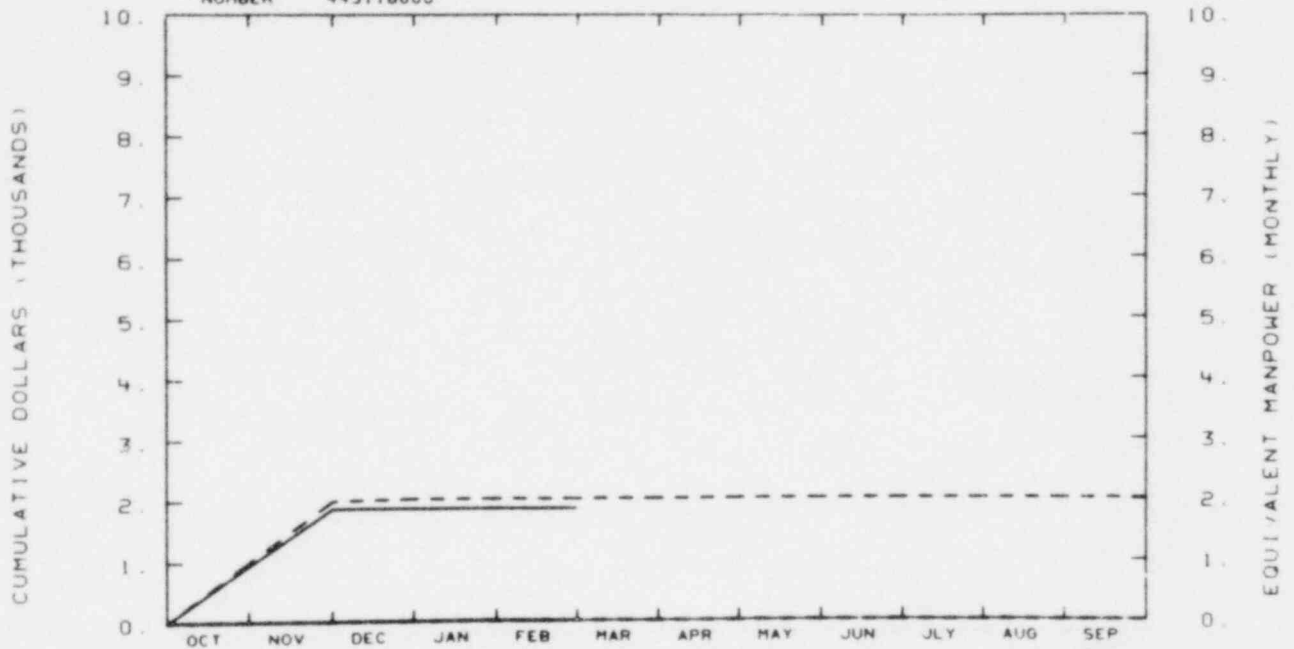
YTD VARIANCE: 10 (18%)

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							

MATERIAL												
BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	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							

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

A6263

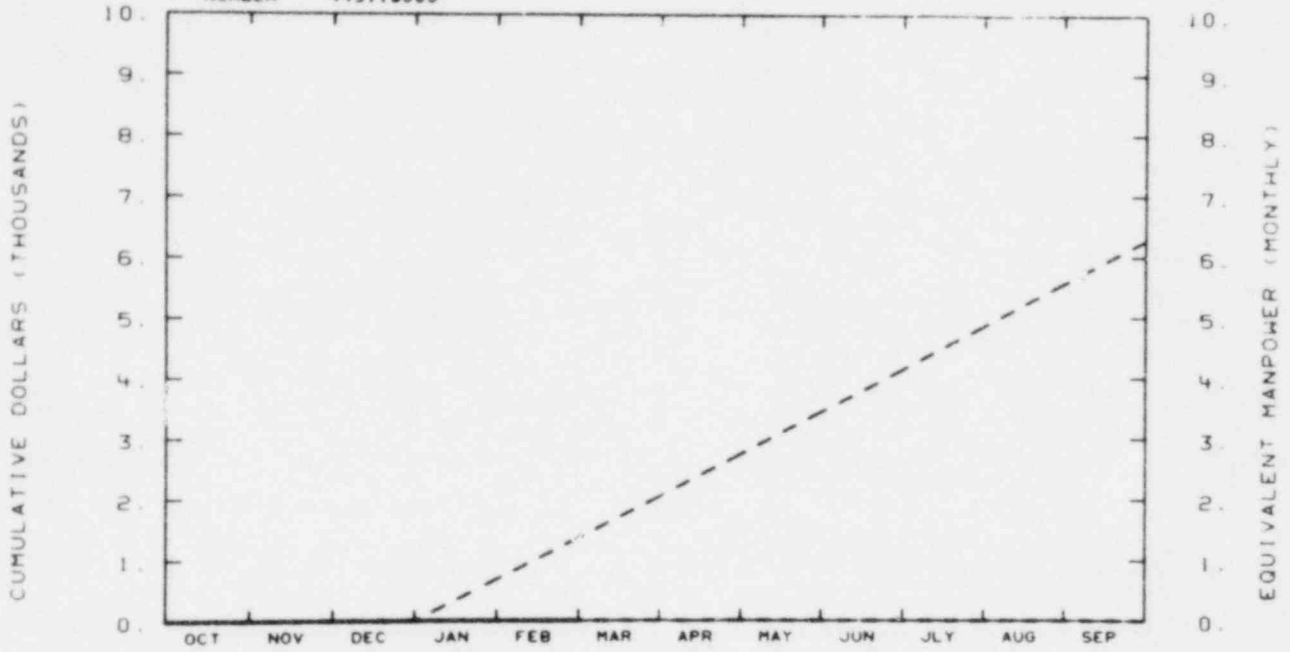
YTD VARIANCE: 0

RESPONSIBLE  
MANAGER  
J. A. DEARIEN

J&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							

MATERIAL												
BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	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							

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

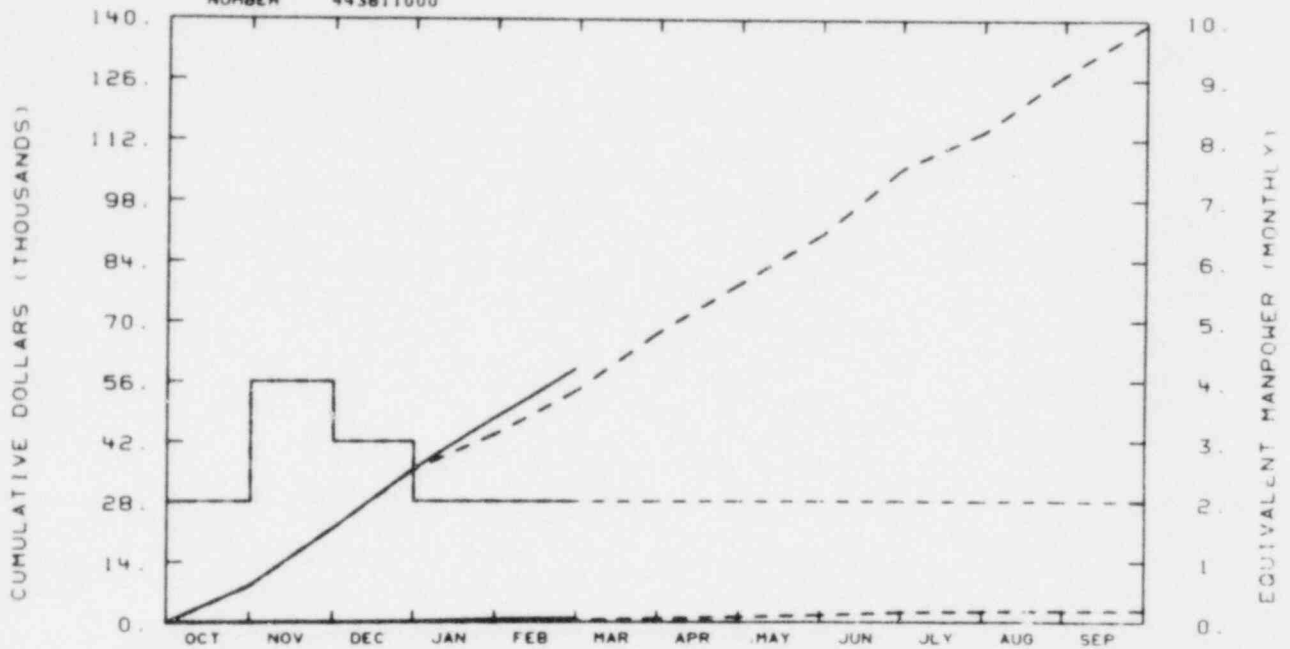
A6264

YTD VARIANCE: 1 (1%)

RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC.  
IN-SERVICE TESTING

NUMBER 443811000



TOTAL PROGRAM

BUDGET	0	22	35	44	54	67	79	90	105	114	127	139
ACTUAL	0	22	36	48	59							

MATERIAL

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

MANPOWER

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

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

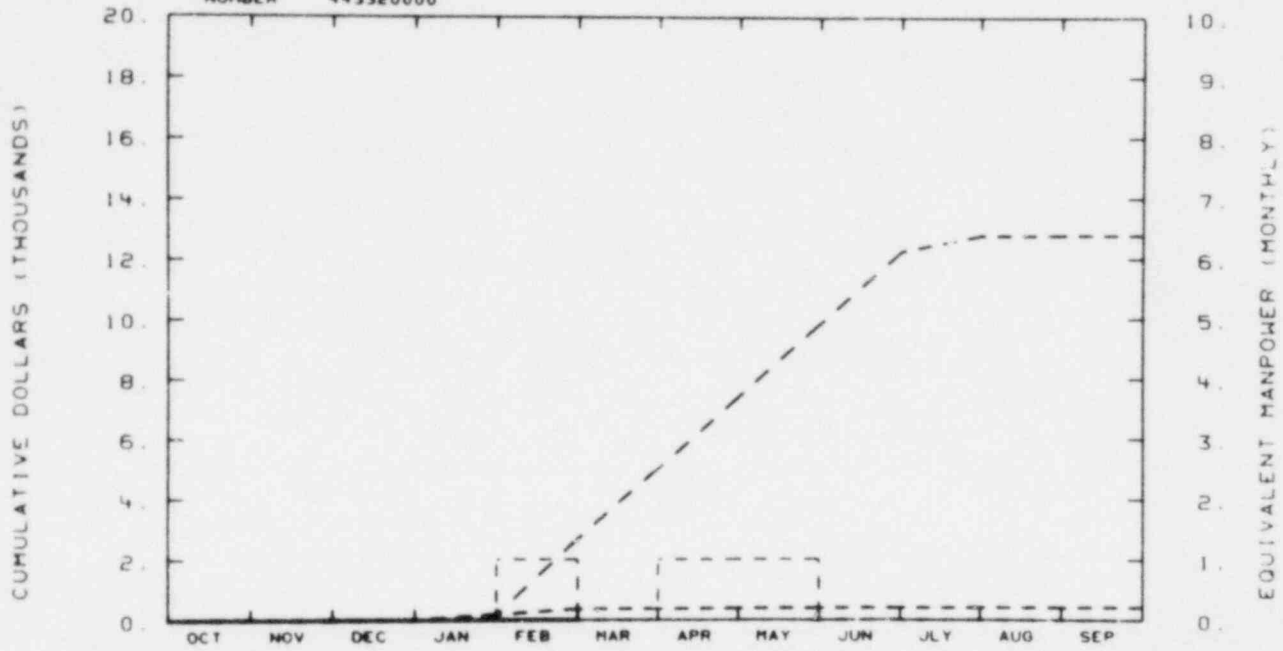
A6265

YTD VARIANCE: <5> (9%)

RESPONSIBLE  
MANAGER  
J. A. DEARTEN

EG&G IDAHO INC.  
(N-1) LOOP OPERA OF BEAV & ZION

NUMBER 443320000



TOTAL PROGRAM												
BUDGET	0	0	0	0	3	5	7	10	12	13	13	13
ACTUAL	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							

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

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

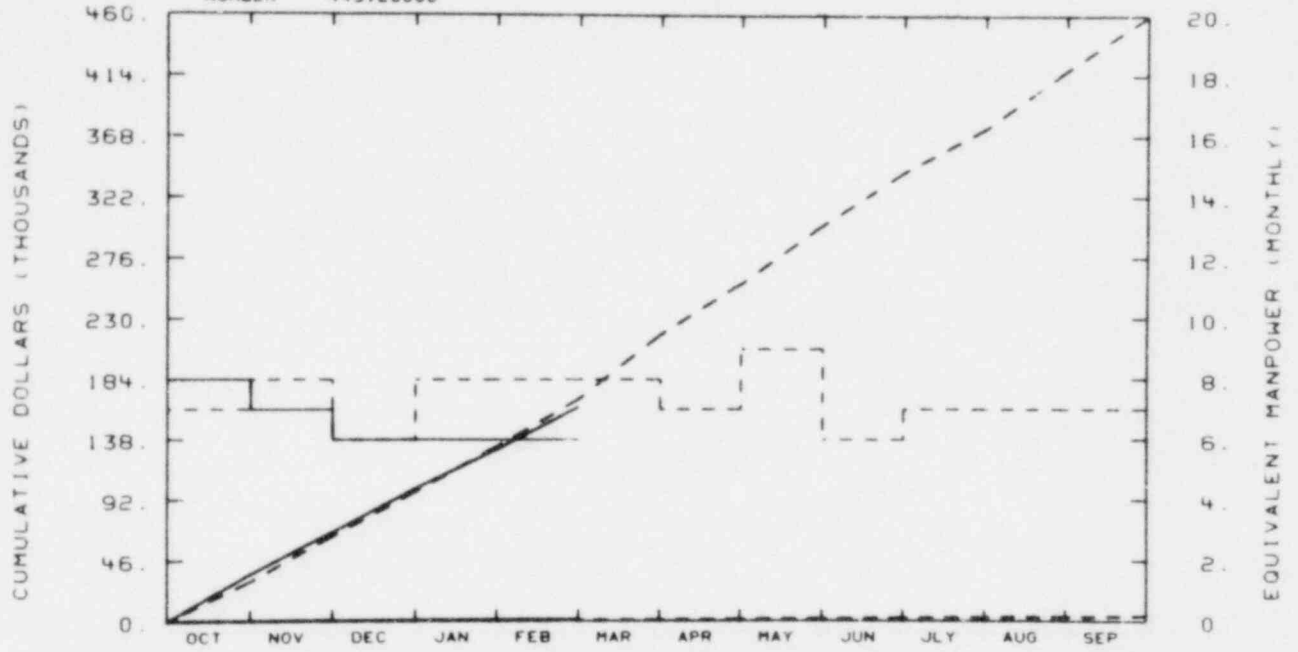
A6267

YTD VARIANCE: 3

RESPONSIBLE  
MANAGER  
J. 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							

MATERIAL

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

MANPOWER

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

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

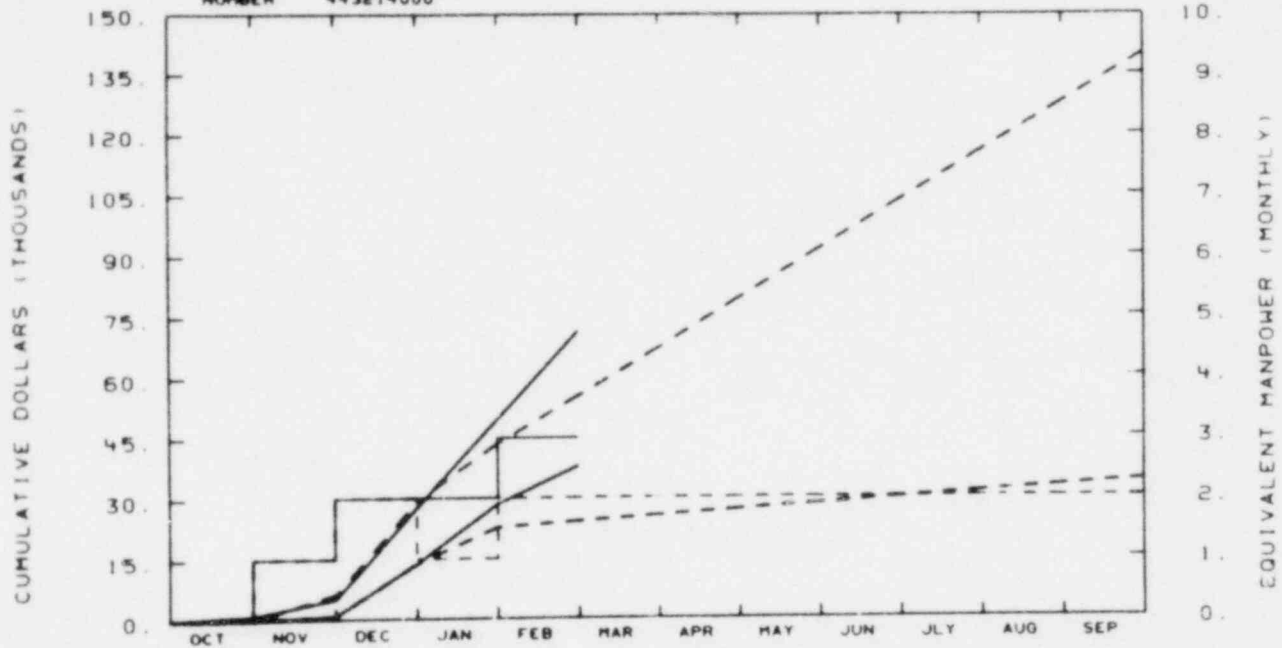
A6270

YTD VARIANCE: 6 (3%)

RESPONSIBLE  
MANAGER  
J. A. DEARIEN

EG&G IDAHO INC.  
MATRL ENGRG CASE REVIEW (1)

NUMBER 443214000



TOTAL PROGRAM		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		0	6	29	44	55	67	79	91	104	116	128	140
ACTUAL		1	5	28	50	72							

MATERIAL		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		0	1	14	23	24	26	27	28	30	31	33	34
ACTUAL		0	1	14	28	38							

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

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

A6401

YTD VARIANCE: <17> (31%)

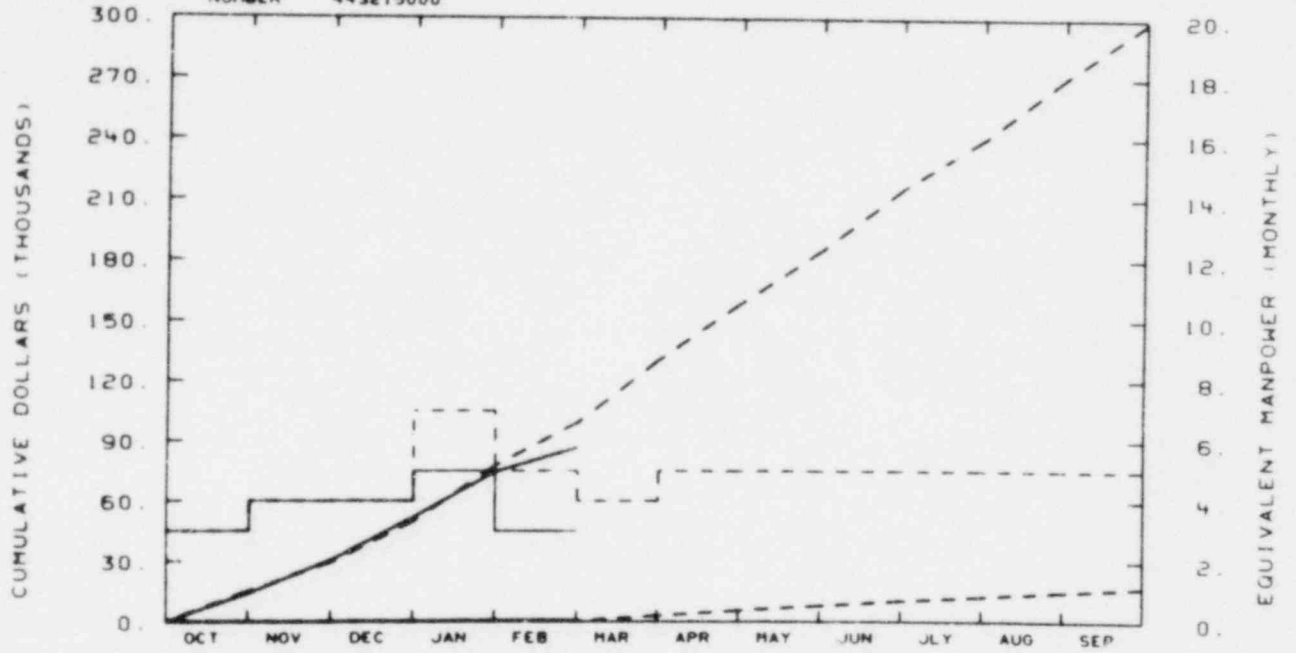
Effort on A6404 (Fracture Toughness of Reactor Coolant Pressure Boundary Materials) was initiated with DOE-ID and NRC-DSS agreement prior to funds being authorized for this effort. Charges incurred for work performed (approximately 8 K) on A6404 will be credited to this account and charged against A6404 during March. The remaining over expenditure is due to the more intense ISI effort on McGuire, Shoreham, and Watts Bar during the first part of FY-1980. This will be countered with an expected reduced effort during the latter part of FY-1980.



RESPONSIBLE  
MANAGER  
J. A. DEARIEH

EG&G IDAHO INC.  
STRUCTRL ENGRG CASE REVIEW (1)

NUMBER 443215000



TOTAL PROGRAM

BUDGET	15	22	50	78	99	131	159	185	216	240	271	298
ACTUAL	14	31	52	75	87							

MATERIAL

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

MANPOWER

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

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

A6402

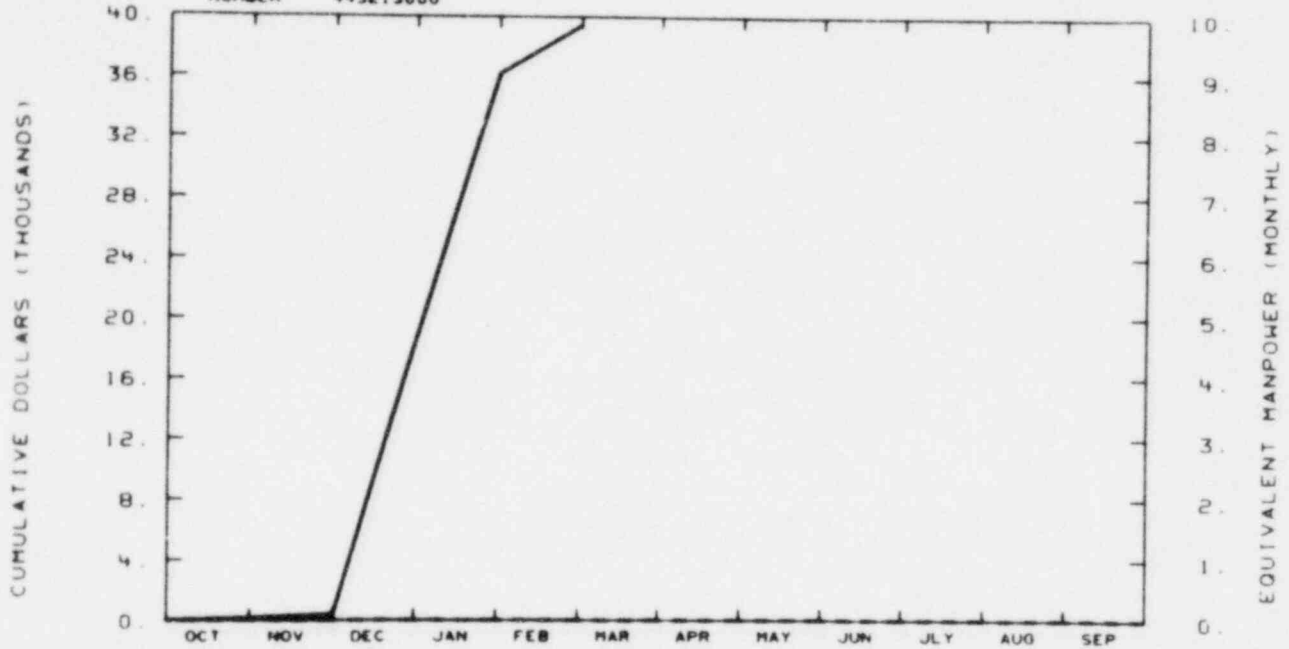
YTD VARIANCE: 12 (12%)

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 proceeding at its expected level of effort.

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							

MATERIAL

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

MANPOWER

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

BUDGET

ACTUAL

A6405

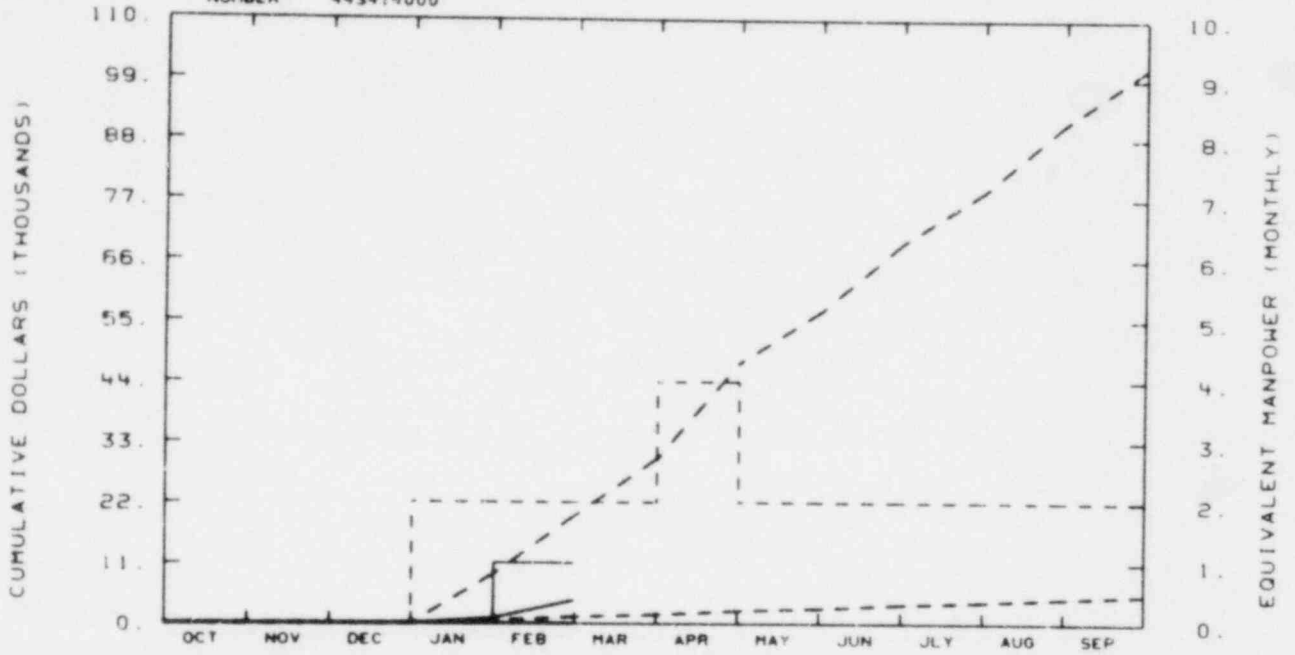
YTD VARIANCE: N/A

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  
J. A. DEARIEN

EG&G IDAHO INC.  
SAFETY REL PUMP/VALVE REL OPER

NUMBER 443414000



TOTAL PROGRAM

BUDGET	0	0	0	9	20	30	47	57	69	79	91	101
ACTUAL	0	0	0	1	4							

MATERIAL

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

MANPOWER

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

BUDGET

ACTUAL

A6407

YTD VARIANCE: 16 (80%)

This task is understaffed at this time. An employment offer has been made to a second full-time person for this task.

CODE ASSESSMENT & APPLICATIONS PROGRAM  
NRR  
TECHNICAL REVIEW & SUMMARY

PROGRAM MANAGER'S  
SUMMARY AND HIGHLIGHTS

1. Problem areas:

(a) FIN A6256: March schedular commitments for Containment Purge and Degraded Grid (Part A) will not be met, since questions and problems on scheduled plants have not been resolved by NRC.

(b) FIN A6250: The Oyster Creek analysis has been delayed due to lack of previously requested information and later arrival of "current criteria" response spectra. The schedule for the Palisades piping analysis will be delayed until necessary information is received from the utility via NRC.

(c) FIN A6401: The lack of work in this task is a problem. If this problem is not resolved at the scheduled March 10 and 11 meeting with NRC, personnel will have to be reassigned to other tasks.

(d) FIN A6405: Lack of authorization to spend on this task is causing schedule delays.

2. Four technical evaluation reports were issued on Containment Purge and one on Degraded Grid, Part A (A6256).
3. The containment purge evaluation for Yankee Rowe (SEP) was completed and issued to NRC (A6260).
4. Final SERs on the Vermont Yankee and Big Rock Point IST programs were issued (A6258).
5. The final report on the St. Lucie check valve testing was issued (A6258).
6. Second round questions on Comanche Peak were transmitted to NRC (A6270).
7. Postulated water hammer scenarios for BWR and PWR safety and safety-related systems were documented and transmitted to NRC (A6251).
8. The final SER for steam generator water hammer for the Palisades plant was transmitted to NRC (letter JAD-47-80).

## 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 February 1980

<u>A Nos.</u>	<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
A6157	None	scheduled.		
A6167	None	scheduled.		
A6251	Y2	Issue Letter Report	2-29-80	2-29-80 (Partial Comp)
	Y8	Issue Letter Report	2-29-80	2-29-80C
A6268	None	scheduled.		
A6269	None	scheduled.		
A6270	None	scheduled.		

3. Summary of Work Performed in February 1980

A6157 - Audit of the methods documented in Exxon report XN-76-47(P) was continued. Question Set 2 was completed and will be transmitted formally to the NRC in early March.

A6167 - Code Development has completed the coding and checkout of the EM version of FRAPCON-1. Transmittal of the code to CAAP is expected during the first week of March 1980.

Preliminary work has begun on the FRAPCON-1/EM checkout and documentation task. A design matrix for the sensitivity study has been formulated and a base case FRAPCON-1 input deck is being set up, based on a Zion hot channel rod.

A6251 - Postulation of water hammer scenarios for BWR and PWR safety and safety-related systems was completed. Different initiating mechanisms were considered in this effort and the systems were assumed to be functioning at normal or emergency operating conditions. A letter report was prepared and issued documenting this effort.

The additional analysis (completed last month) of the piping system used to evaluate the hydraulic transient caused by sudden check valve closure was documented in a letter report.

Problems were encountered when attempting to use SOLA-PL00P to analyze a piping system for a transient (slug flow) caused by a slow opening (5 sec) valve. RELAP5 has been successfully used and computer runs have been made to determine if any differences in calculated results are due to the change in computer codes. This will be accomplished by running the previously documented 0.030 second opening on RELAP5 and comparing these results with those obtained using SOLA-PL00P.

The additional effort required on the check valve and slug flow cases will cause the actual cost to slightly exceed the original estimated cost for Tasks C and D which was 20K.

A6268 - No reply was received from the NRC concerning the recently transmitted 189a.

A6269 - A preliminary report on this task was completed. Following consultation with Argonne National Laboratory personnel, a draft of the final report for this task was completed and will be transmitted formally to the NRC in March.

A6270 - Second round questions on Comanche Peak were transmitted to NRC. First round questions on Bellefonte and Byron/Braidwood are in final typing. First round review of Catawba continued. Preparation of SER's on Comanche Peak and Byron/Braidwood was started.

#### 4. Scheduled Milestones for March 1980

<u>A Nos.</u>	<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
A6157	G2	Issue Letter Report Documenting Question Set #2	3-15-80	
A6167	None	scheduled.		
A6251	None	scheduled.		
A6268	None	scheduled.		
A6269	None	scheduled.		
A6270	None	scheduled.		

5. Summary of Work to be Performed in March 1980

A6157 - The methods audit will be completed and a preliminary report formulated pending receipt of the answers to Question Set 2. Question Set 2 will be transmitted formally to the NRC early this month.

Further work concerned with the ACRS question with regard to GE fuel liftoff will be performed under technical assistance associated with this task. A trip to the GE facility in San Jose, California is planned for the end of March.

A6167 - Upon receiving the EM version of FRAPCON-1 from Code Development, the code will receive final approval by CAAP, thus completing the next milestone of A6167.

The checkout (sensitivity study) and documentation task will be pursued full-time.

A6251 - A meeting will be held in Bethesda to discuss the results of the scenario effort. Also, documentation will be prepared and issued on the slug flow cases analyzed using RELAP5.

A6268 - Upon receiving comments from the NRC, this task will be initiated.

A6269 - The final report on this task will be transmitted to the NRC.

A6270 - First round review of Catawba will be completed. First round questions on South Texas, Byron/Braidwood and Bellefonte will be transmitted to NRC. SER preparation on Comanche Peak and Byron/Braidwood will continue.

6. Problems and Potential Problems

No funding has been received yet on FIN A6269.



## 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  
 A6404 Fracture Toughness of Reactor Coolant Pressure Boundary  
 Materials  
 A6405 Inservice Inspection (Formerly under A6162)

2. Scheduled Milestones for February 1980

<u>A Nos.</u>	<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
A6152	None scheduled.			
A6166	None scheduled.			
A6265	None scheduled.			
A6401	D22	Byron/Braidwood Draft SER Supplement	2-29-80E	See Item 3
A6402	None scheduled.			
A6405	None scheduled.			

3. Summary of Work Performed in February 1980

A6152 - Report on the LOCA structural analysis of the Erie plant was completed and will be issued in early March. Work was continued on the formulation of the Comanche Peak finite element model.

A6166 - No activity on task this month.

A6265 - A meeting was held at Salem on January 30-31, 1980 to discuss questions on their IST program. Review of the D. C. Cook 1&2 program was completed. Questions are in final typing. Preparation of a draft SER for Salem 2 was started.

A6401 - The fracture mechanics of the Byron/Braidwood plant was completed and a draft SER prepared. No review of the preservice inspection program for the Byron/Braidwood plant was possible since it was not provided in the FSAR. There was essentially no work performed in the inspection area of this task as no work was provided.

A6402 - Most of the drawings of Grand Gulf structures were received from Bechtel. Those remaining are being compiled and will be provided by Bechtel. The audit forms were revised to include more detail and informally provided NRC. This revision was per a request by NRC. Also, the flow chart developed to clarify use of independent analysis results as an audit tool was revised and informally provided NRC. Detailed analysis scopes for each Grand Gulf structure (containment and auxiliary building) were provided NRC.

Byron/Braidwood work continued with the formulation of a "stick" finite element model of the Byron/Braidwood containment for use in both the SAP-IV and ADINA computer codes. A shell model of this same structure is partially complete. Review of Commonwealth Edison response to NRC questions 130.06 and 130.09 is in progress.

A6404 - Data gathering is almost complete for bolting materials. Data presentation methods have been discussed and will be implemented.

A6405 - Performed additional analysis of specimen A5/A6 loaned by EPRI for evaluation of IGSCC inspection procedure using manual and automatic ultrasonic testing results. Specimen was sent on to Southwest Research Institute for further testing. A meeting was held in Salt Lake City with NRC staff to discuss NRC's needs for a document giving requirements for UT examination for IGSCC. Work continued to define what should be in this document.

#### 4. Scheduled Milestones for March 1980

<u>A Nos.</u>	<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
A6152	M2	Comp Ana & Iss Rpt	3-14-80E JAD-22-80	
A6166	None scheduled.			
A6265	None scheduled.			
A6401	None scheduled.			
A6402	C-5	Grand Gulf Design & Construction Audit	3-14-80E	
	C-17	Byron/Braidwood Design & Construction Audit	3-14-80E	
A6404	None scheduled.			
A6405	None scheduled.			

5. Summary of Work to be Performed in March 1980

A6152 - Formulation of the Comanche Peak finite element model will continue. The Erie report will be issued.

A6166 - No activity on this task is planned for March.

A6265 - Questions on the D. C. Cook 1&2 IST programs will be transmitted to NRC. A meeting will be held at ANO-2 on March 11 and 12, 1980 to discuss comments on their IST program. Preparation of the draft SER on Salem- will continue.

A6401 - A meeting at INEL on March 10 and 11, 1980 with NRC personnel will hopefully establish work for the two individuals assigned to this review team. There is now currently no work for March assigned to this task.

A640 - A meeting concerning the audit of the Grand Gulf plant will be conducted at Bechtel in Gaithersburg, Maryland during March. Node C5 will be accomplished later than currently planned. The Byron/Braidwood audit, Node C17 has not been scheduled, even though it was originally planned for March. Question Set #2 on Grand Gulf which was prepared by EG&G Idaho, will be discussed with the NRC technical monitor. A draft of the SER may be initiated and finite element modeling will begin.

The Bryon/Braidwood shell model will be completed, as will the review of the responses to NRC Questions 130.06 and 130.09.

A6404 - Work will continue on data gathering and report preparation for the bolting material task. Progress on this effort will be discussed at a meeting with NRC personnel.

A6405 - NRC's new program requirements should be defined for this task. A revised RFP with new scope of work on IGSCC is expected from NRC. Then, a new proposal including a new cost estimate will be prepared.

6. Problems and Potential Problems

A6401 - The lack of work for the fracture mechanics and ISI review team is a problem. There now exists funding but no work for these individuals. If agreement is not reached at a meeting on March 10 and 11 with NRC personnel, these individuals will be reassigned to other work.

A6405 - Since funds for the work already performed on Task 1 of A6405 have not been authorized, issuance of a new RFP will further delay progress on this task, as a new 189 will have to be prepared.

## 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 February 1980

<u>A Nos.</u>	<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
A6250	B16	Oyster Creek Perform Ana and Issue Prel Rpt	2-29-80E	See Item 3
A6256	None	None scheduled.		
A6257	None	None scheduled.		
A6258	None	None scheduled.		
A6260	None	None scheduled.		

3. Summary of Work Performed in February 1980

A6250 - The final support information for Oyster Creek's isolation condenser system was received. Preliminary seismic input spectra was provided for use in the Oyster Creek analysis. All the information required to complete this analysis (Node B16) still has not been received, as revisions to the preliminary seismic spectra are expected.

No additional information was received on Palisades.

Data for the Millstone feedwater piping inside containment was received.

Performing engineer attended a meeting in Bethesda on February 21, 1980 of NRC's Senior Seismic Review Team (SSRT).

A6256 - Four Technical Evaluation Reports (TERs) were issued on Containment Purge (Node P2).

One TER was issued on Degraded Grid Part A (Node P9).

Questions were sent to the NRC on five licensed plant Degraded Grid "B" submittals.

A TER for "Robinson SI Block" was completed and sent to the NRC.

A6257 - The steam generator water hammer final SER for the Palisades plant was completed and issued to NRC (Dearien letter JAD-47-80 dated February 27, 1980).

A6258 - Final SER's on the Vermont Yankee and Big Rock IST programs were issued (JAD-33-80, dated February 12, 1980 and JAD-43-80, dated February 20, 1980). The final report on the St. Lucie check valve testing ws issued (JAD-31-80, dated February 11, 1980). A meeting was held at Salem on January 30 and 31, 1980 to discuss questions on their IST program.

Review of the Indian Point 3 IST program was completed and questions transmitted to NRC. Review of the Quad Cities IST program was started.

A6260 - The Yankee Rowe "Containment Purge" evaluation was completed and sent to the NRC.

Subtask 15, Node I73 was completed.

A6267 - No effort was expended on this task.

#### 4. Scheduled Milestones for March 1980

<u>A Nos.</u>	<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
A6250	B17	Oyster Creek NRC Review Report	3-31-80E	
	B28	Palisades Prel Rpt	3-31-80E	
A6256	P2	Issue 9 TERs	3-31-80	
	P9	Issue 8 TERs	3-31-80	
	P17	Issue 1 TER	3-31-80	
A6257	None scheduled.			
A6258	None scheduled.			
A6260	J9	Subtask 2 Comp 10 Assess	3-31-80T	
	J15 & J16	Subtask 4 Comp 5 Assess	3-31-80T	1-30-80
	J22	Subtask 6 Comp 2 Assess	3-31-80T	
	J34	Subtask 8 Comp 2 Assess	3-31-80T	1-30-80
	J41	Subtask 9 Comp 2 Assess	3-31-80T	1-30-80
	J73	Subtask 15 Comp 10 Ass	3-31-80T	2-20-80
A6267	None scheduled.			

5. Summary of Work to be Performed in March 1980

A6250 - Preliminary analysis of the Oyster Creek piping using the provided input spectra will be performed. Work on Palisades and Millstone will continue if information is received. Nodes B17 and B28 will not be met as most of the information required to analyze Palisades and Millstone has not been received.

A6256 - Work will continue on the Containment Purge and Degraded Grid tasks. Neither Node P2 nor P9 will be completed, however, because information required from NRC has not been received.

A6257 - The final SER for the San Onofre plant will be issued. This will complete all scheduled work on FIN A6257.

A6258 - Review of the Quad Cities and La Crosse IST programs will be completed and questions transmitted to NRC. A meeting will be held at Indian Point 3 to discuss our comments on their IST program. The final SER on the Zion IST program will be issued.

A6260 - Work will continue on subtasks 2 and 6.

A6267 - A draft report on the Beaver Valley N-1 loop analysis will be completed.

6. Problems and Potential Problems

A6250 - The Oyster Creek analysis has been delayed due to lack of previously requested information and the later arrival of the "current criteria" response spectra. Final computer runs cannot be made until the final spectra is received.

The schedule for the Palisades piping analysis will be delayed until necessary information is received. This information has been requested of the utility by the NRC. Further progress on the Palisades piping will depend on the timely receipt of the needed information.

A6256 - Milestones P2 and P9 will not be completed since questions and problems on scheduled plants, sent to the NRC in FY 1979 and first quarter FY 1980, have not been resolved.

## 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 February 1980

<u>A Nos.</u>	<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
A6156	None scheduled.			
A6159	L20	Issue Report on Containment Purge	2-21-80T	2-21-80C JAD-41-80
	L26	Draft Summary Report	2-1-80T	1-31-80C JAD-23-80

A6407 None scheduled.

3. Summary of Work Performed in February 1980

A6156 - The technical report on the cavity pressurization analysis of a B&W designed plant steam generator compartment assuming a postulated break at the steam generator cold leg was completed and issued.

The additional break area-time work was completed and a letter report is being drafted.

The inelastic load combination technical report was issued.

A draft of a safety evaluation report on the Indian Point 3 plant was prepared by EG&G Idaho personnel. Work continued on the review of vendor topical reports related to TAP A-2.

Thermal and stress runs were completed for the analysis of the D. C. Cook feedwater pipe elbow.

A Westinghouse report on pipe cracking was reviewed and meetings attended with NRC and Westinghouse personnel to discuss the results of these reviews.

A6159 - A meeting was held on February 15 to discuss the draft report on phases 2 and 3 of the Radiological Consequences of Containment Purge task with W. F. Pasedag of the NRC. After reviewing the report, the NRC decided to change some of the bases and assumptions they originally directed us to use for calculating thyroid doses following a DBA LOCA while purging containment. The NRC also requested combining all three phases of the task into the final report; a draft of this report will be sent to the NRC for review by March 28. The final report, to be issued as an internal ENICO report, is scheduled for completion by April 25, 1980.

The Direct Radiation task was worked at a low level during February. Most of the activity consisted of document review. A detail work statement for this effort was also prepared for discussion with NRC personnel in March.

Activity on the Deminimus Radioactivity task, which was initiated in February, consisted of literature review and the acquiring of additional personnel.

A6407 - The NRC technical monitor was provided informally a list of the PWR and BWR safety and safety related systems which should be addressed by this effort. A list of all plants categorized by NSSS supplier was also provided. Pump and valve data for the Trojan plant was extracted from the FSAR. This data is currently being tabulated for formal transmittal to NRC. Finally, a table was prepared identifying all the data, including possible sources, required to complete Task A of A6407. It indicates that the utility, manufacturer, and A-E are going to have to supply the bulk of the required information. EPRI was contacted and agreed that the above would be the best sources of this type of information on pump and valve operability. EPRI does have in place a pump test program.

#### 4. Scheduled Milestones for March 1980

<u>A Nos.</u>	<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
A6156	V26	Iss Informal Tech Rpt	3-1-80	
	V32	Issue Informal Tech Rpt	3-1-80	
A6159	None scheduled.			
A6407	None scheduled.			



5. Summary of Work to be Performed in March 1980

A6156 - Work will continue on refining the Indian Point Unit 3 SER. Other submittals are expected to be provided for review. This phase is expected to pick up significantly in the next month.

The ASME Section III analysis of the D. C. Cook feedwater pipe elbow will be completed and work on both the thermal and stress analysis reports on these efforts will be initiated.

A6159 - The revised final report on the Radiological Consequences of Containment Purge task will be transmitted to the NRC for review.

A detailed plan for the Evaluation of Temporary/Mobile Radwaste System task, being done for the NRC, will be issued. Preparation of this plan has been delayed by the additional work requested on the Radiological Consequences of Containment Purge task.

A meeting will be held with the NRC to discuss both the Direct Radiation and Deminimus Radioactivity Level tasks. It is anticipated that several reactor sites will be selected for direct radiation study. Environmental monitoring records and other appropriate documents will be obtained from NRC files or other public records. These steps will provide our first input to the dosimetry quality and background quantification. Further information will be obtained on INEL data from  $^{16}\text{N}$  decay gammas. Other published documents will also be used for assistance in evaluation of prediction techniques for radwaste sources.

Activity on the Deminimus Radioactivity task will consist of:

- a. Bringing the subcontractor personnel on board and briefing them on all activities to date;
- b. Continue acquiring pertinent documentation;
- c. Continue the review of this literature with particular attention to collating pertinent data in an organized retrievable manner.
- d. Travel to NRC, Bethesda, to discuss the program direction.

A6407 - The Dresden 2 BWR plant FSAR will be reviewed. Information accumulated to date, will be formally transmitted to NRC. A meeting with the NRC technical contact will be arranged this month.

6. Problems and Potential Problems

None

CONST/GPP & L. I.

WRRD MONTHLY REPORT FOR

FEBRUARY 1980

GPP AND LINE ITEMS

*M L Rucker*

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

*R H Beers*

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R. H. Beers, Manager  
Project Management Division

SEMISCALE

EG&G IDAHO, INC.

GPP/LINE ITEM

PROGRAM SEMISCALE

FY-1980

MANAGER L. P. Leach

189a No. A6038

Task Initiated o  
Task Completed Δ

EA No. Item Description

Original  
PA  
Amount

(\$000)  
Current  
Est. Cost

Project  
To Date  
Costs

Month

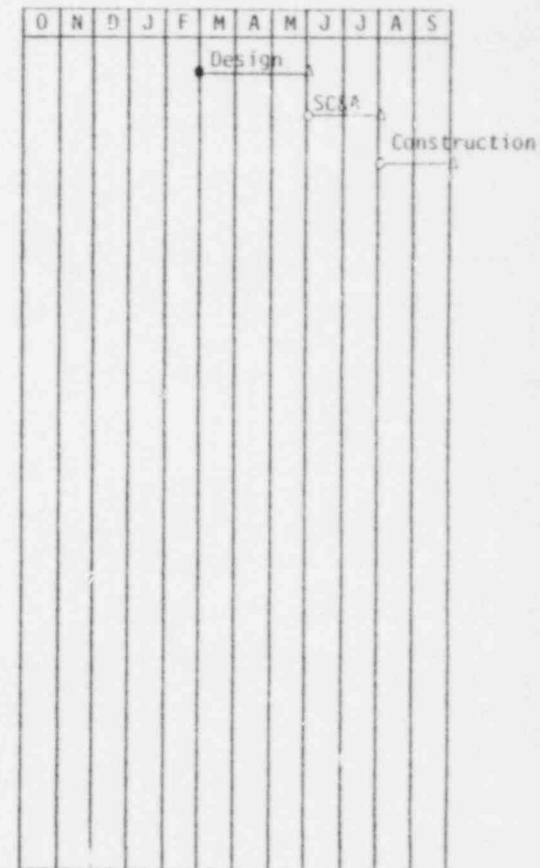
934000000

WRRTF Sanitary Sewer Upgrade

100

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THERMAL FUELS BEHAVIOR PROGRAM

EG&G IDAHO, INC.

GPP ITEMS

MANAGER J. P. Kester

PROGRAM THERMAL FUELS BEHAVIOR PROGRAM

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	\$ 29,214 **
931900000	PBF Support Building*	509	570	\$ 63,239

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

\* Schedules are for planning only and subject to change.

\*\* Includes M-K subcontract costs.