PDR

December 1982
EGG-WRR-6157

NRC Research and/or Technical Assistance Rept

MONTHLY REPORT REPRESENTING THE RESEARCH PORTION OF THE WATER REACTOR RESEARCH DEPARTMENT AND THE THERMAL FUELS BEHAVIOR PROGRAM

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Idaho National Engineering Laboratory
Operated by the U.S. Department of Energy

This is an informal report intended for use as a preliminary or working document

Prepared for the
U.S. NUCLEAR REGULATORY COMMISSION
Under DOE Contract No. DE-AC07-76ID01570

EG&G Idaho

189 LISTING BY PROGRAM

ACRONYMS

A/E	Architect Engineer
ACRS	Advisory Committee on Reactor Safety (NRC)
AECL	Atomic Energy of Canada Limited
AMB	Applied Mechanics Branch (EG&G Idaho)
ANL	Argonne National Laboratory
ANS	American Nuclear Society
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ATWS	Anticipated Transient Without Scram
B&W	Babcock and Wilcox
BD/ECC	Blowdown/Emergency Core Coolant (GE-EPRI-NRC)
BWR	Boiling Water Reactor
CAD	Computer Aided Design
CAM	Constant Air Monitor
CC	Component Checkout
CCB	Change Control Board
CCFL	Counter Current Flow Limited
CCTF	Cylindrical Core Test Facility (Japan)
CDC	Control Data Corporation
CDUM	Code Description and User's Manual
CE	Combustion Engineering
CFA	Central Facilities Area (INEL)
CHF	Critical Heat Flux
CLLMS	Conductivity Liquid Level Measurement System
CM	Corrective Maintenance
CPM	Critical Path Method
CSNI	Committee on Safety for Nuclear Installation
DAE	Division of Accident Evaluation (NRC-RES)
DAPS	Data Acquisition and Processing System
DARS	Data Acquisition and Reduction System
DAS	Data Acquisition System
DDAPS	Digital Data Acquisition and Processing System
DE	Division of Engineering (NRC-NRR)
DER	Data Evaluation Report
DFO	Division of Facility Operations (NRC-RES)
DHSWM	Division of Health, Siting and Waste Management (NRC-RES)
DL	Division of Licensing (NRC-NRR)
DOE	Department of Energy
DP	Differential Pressure
DRA	Division of Risk Analysis (NRC-RES)
DRD	Design Requirements Document
DSI	Division of Systems Integration (NRC-NRR)
DST	Division of Safety Technology (NRC-NRR)

EI	Energy Incorporated
EICS	Electrical Instrumentation and Control System
EDF	Engineering Design File
EDR	Experimental Data Report
EM	Energy Measurements
ENICO	Exxon Nuclear Idaho Company, Incorporated
EOS	Experimental Operating Specifications
EP&A	Experimental Planning and Analysis Branch (EG&G Idaho)
EPRI	Electric Power Research Institute
EQDB	Equipment Qualification Data Base
FCF	Facility Change Form
FDG	Fluid Distribution Grid
FIST	Full Integral Simulation Test (GE-EPRI-NRC)
FMEA	Failure Mode Effects Analysis
FRG	Federal Republic of Germany
FSAR	Final Safety Analysis Report
GE	General Electric
GPP	General Plant Project
GRS	Gesellschaft fur Reaktorsicherheit (Germany)
HDR	Heiss Dampf Reaktor (Germany)
HLS	Hot Leg Spool Piece
HPIS	High Pressure Injection System
HSST	Heavy Section Steel Technology
I&C	Instrumentation and Controls
ID	Idaho Operations Office (DOE)
IEEE	Institute of Electrical and Electronics Engineers, Incorporated
IFA	Instrumented Fuel Assemblies
IGSCC	Intergranular Stress Corrosion Cracking
ILSG	Intact Loop Steam Generator
INEL	Idaho National Engineering Laboratory
IOER	Integrated Operational Experience Reporting System
IPT	In-Pile Tube
IREP	Interim Reliability Evaluation Program
ISDMS	Idaho National Engineering Laboratory Scientific Data Management System
ISI	In-Service Inspection
ISP	International Standard Problem
IST	In-Service Testing
JAERI	Japan Atomic Energy Research Institute
KfK	Kernforschungszentrum Karlsruhe (Germany)
LANL	Los Alamos National Laboratory
LER	Licensee Event Report
LLD	Liquid Level Detection
LLL	Lawrence Livermore Laboratory

LOC	Loss-of-Coolant
LOCA	Loss-of-Coolant Accident
LOE	Level of Effort
LOFT	Loss-of-Fluid Test (INEL)
LPIS	Low Pressure Injection System
LVDT	Linear Variable Differential Transformer
LWR	Light Water Reactor
ME&DS	Measurements Engineering and Data Systems
MFD	Master Facility Drawing
MIT	Massachusetts Institute of Technology
M-K	Morrison-Knudsen
MSE	Mesurements System Engineering
MSLB	Main Steam Line Break
NESC	National Energy Software Center (ANL)
NPRDS	Nuclear Plant Reliability Data System
NPSH	Net Positive Suction Head
NRC	Nuclear Regulatory Commission
NRL	Naval Research Laboratory
NRR	Office of Nuclear Reactor Regulation, NRC
NSRDC	Naval Ship Research and Development Center
NSMD	Nuclear Safety Methods Division (EG&G Idaho)
MSSS	Nuclear Steam Supply System
NTAPD	NRC Technical Assistance Program Division (EG&G Idaho)
NTOL	Near-Term Operating License
OECD	Organization for Economic Cooperative Development
OLLD	Optical Liquid Level Detector
OPTRAN	Operational Transient
OR	Operating Reactor
ORNL	Oak Ridge National Laboratory
P&IA	Plant and Instrument Air
P&ID	Process and Instrument Diagram
PAS	Personal Air Sampling
PBF	Power Burst Facility (INEL)
PCM	Power Cooling Mismatch
PCMI	Pellet Cladding Mechanical Interaction
PCP	Primary Coolant Pump
PCS	Primary Cooling System
PIE	Postirradiation Examination
PKL	Primary Coolant Loop (Germany)
PL	Power Loss
PM	Preventive Maintenance
PMG	Program Management Group
PMIS	Performance Management Information System
PNL	Pacific Northwest Laboratory (Batelle)
PORV	Power Operated Relief Valve
PPS	Plant Protection System
PRAC	Power Reactors Advisory Committee (EG&G Idaho)
PWR	Pressurized Water Reactor

QA	Quality Assurance
QDR	Quality Discrepancy Report
QLR	Quick Look Report
QPP	Quality Program Plan
RCCS	Reactor and Canal Cleanup System
RCG	Radioactivity Concentration Guide
RDD	Research Description Document
RES	Office of Nuclear Regulatory Research, NRC
RFKM	Release Fraction "K" Model
RFP	Request for Proposal
RFQ	Request for Quotes
RIA	Reactivity Initiated Accident
RIL	Research Information Letter
ROSA	Rig of Safety Assessment (Japan)
RPG	Radiation Protection Guide
RSB	Reactor Systems Branch (NRC-NRR)
SAI	Scientific Applications Incorporated
SASA	Severe Accident Sequence Analysis
SB	Small Break
SC	System Components
SCDAP	Severe Core Damage Analysis Package
SCR	Silicon Control Rectifier
SCTF	Slab Core Test Facility (Japan)
SDD	System Design Description
SEP	Systematic Evaluation Program (NRC)
SER	Safety Evaluation Report
SHB	Single Heated Bundle (GE-EPRI-NRC)
SO	Systems Operations
SOW	Statement of Work
SPERT	Special Power Excursion Reactor Test
SQRT	Seismic Qualification Review Team (NRC-NRR/EG&G Idaho)
SRP	Standard Review Plan (NRC)
SRV	Safety Relief Valve
SSE	Safe Shutdown Earthquake
SSRT	Senior Seismic Research Team
SSTF	Steam Sector Test Facility (GE-EPRI-NRC)
STP	Standard Temperature and Pressure
SWR	Site Work Release
TAN	Test Area North (INEL)
T/C	Thermocouple
TDP	Technical Development Program
TER	Technical Evaluation Report
TFBP	Thermal Fuels Behavior Program
TFCF	Transient Flow Calibration Facility (INEL)
THEF	Thermal Hydraulic Experiment Facility (INEL)
THTF	Thermal Hydraulic Test Facility (INEL)
TLTA	Two Loop Test Apparatus (GE-EPRI-NRC)
TMI	Three Mile Island
TRR	Test Results Report
TVA	Tennessee Valley Authority

UCSP	Upper Core Support Plate
UIC	Unique Identification Code
USSP	United States Standard Problem
UPTF	Upper Plenum Test Facility (Germany)
WBS	Work Breakdown Structure
WRRD	Water Reactor Research Department (EG&G Idaho)
WRRTF	Water Reactor Research Test Facilities (INEL)
WRVLIS	Westinghouse Reactor Vessel Level Indicating System

MONTHLY REPORT FOR

DECMEBER 1982

J. A. Dearien, Manager

B. E. Williams
Plans and Budget Branch

MONTHLY REPORT FOR

DECEMBER 1982

WATER REACTOR RESEARCH TEST FACILITIES DIVISION

Gary W. Johnsen for

P. North, Manager

John P. Crouch

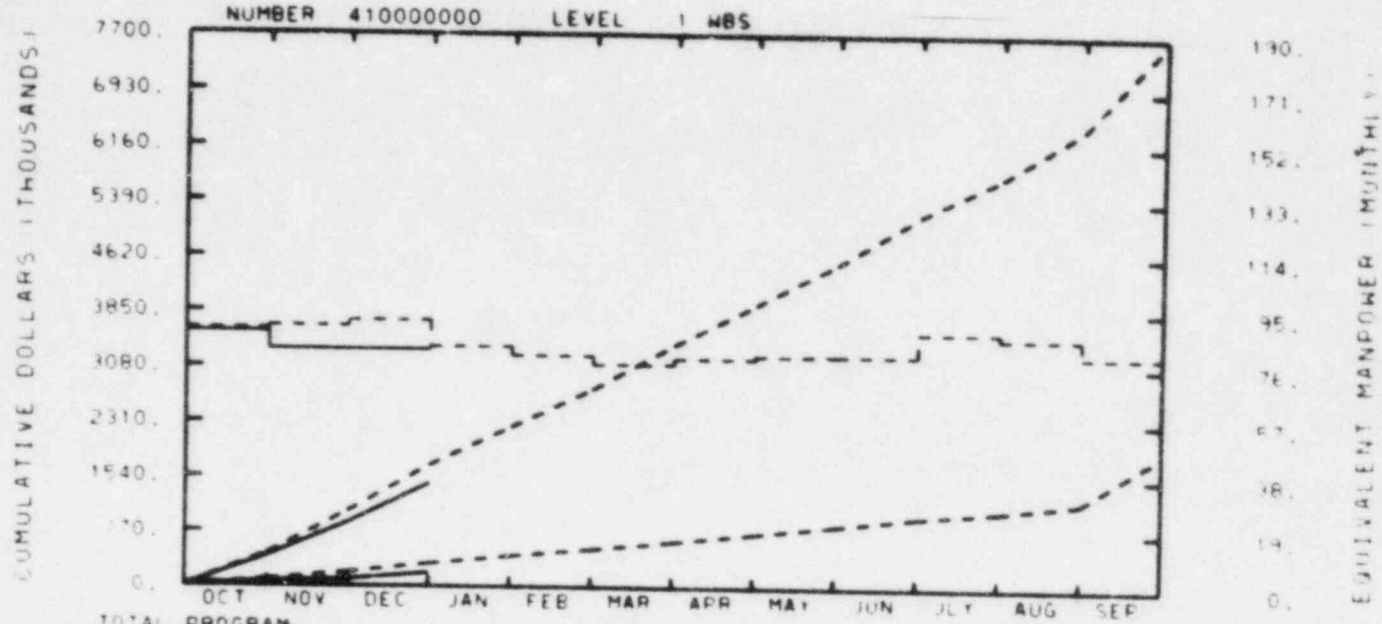
J. P. Crouch
Plans and Budget Representative

RESPONSIBLE
MANAGER
NORTH

EG&G IDAHO INC.

SEMISCALE PROGRAM

NUMBER 410000000 LEVEL 1 WBS



TOTAL PROGRAM

BUDGET	461	1053	1707	2246	2776	3395	3954	4524	5200	5734	6417	7651
ACTUAL	422	895	1453									

MATERIAL

BUDGET	87	194	323	434	533	643	756	874	996	1087	1207	1898
ACTUAL	64	97	192									

MANPOWER

BUDGET	89	90	92	93	92	77	79	80	80	88	86	80
ACTUAL	88	82	82									

189 NO. A6038

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 171.7	$ 468.1
MATERIALS, SERVICES AND OTHER COSTS	54.0	92.5
ADP SUPPORT	30.7	72.4
SUBCONTRACTS	3.8	6.9
TRAVEL	0.4	4.3
INDIRECT LABOR COSTS	234.4	638.1
GENERAL AND ADMINISTRATIVE	63.0	170.9
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 558.0	$ 1,453.2

A6038

YTD VARIANCE: 254 (15%)

The year-to-date underrun is due to a slip in the testing schedule and an effort to control spending in the face of funding reductions.

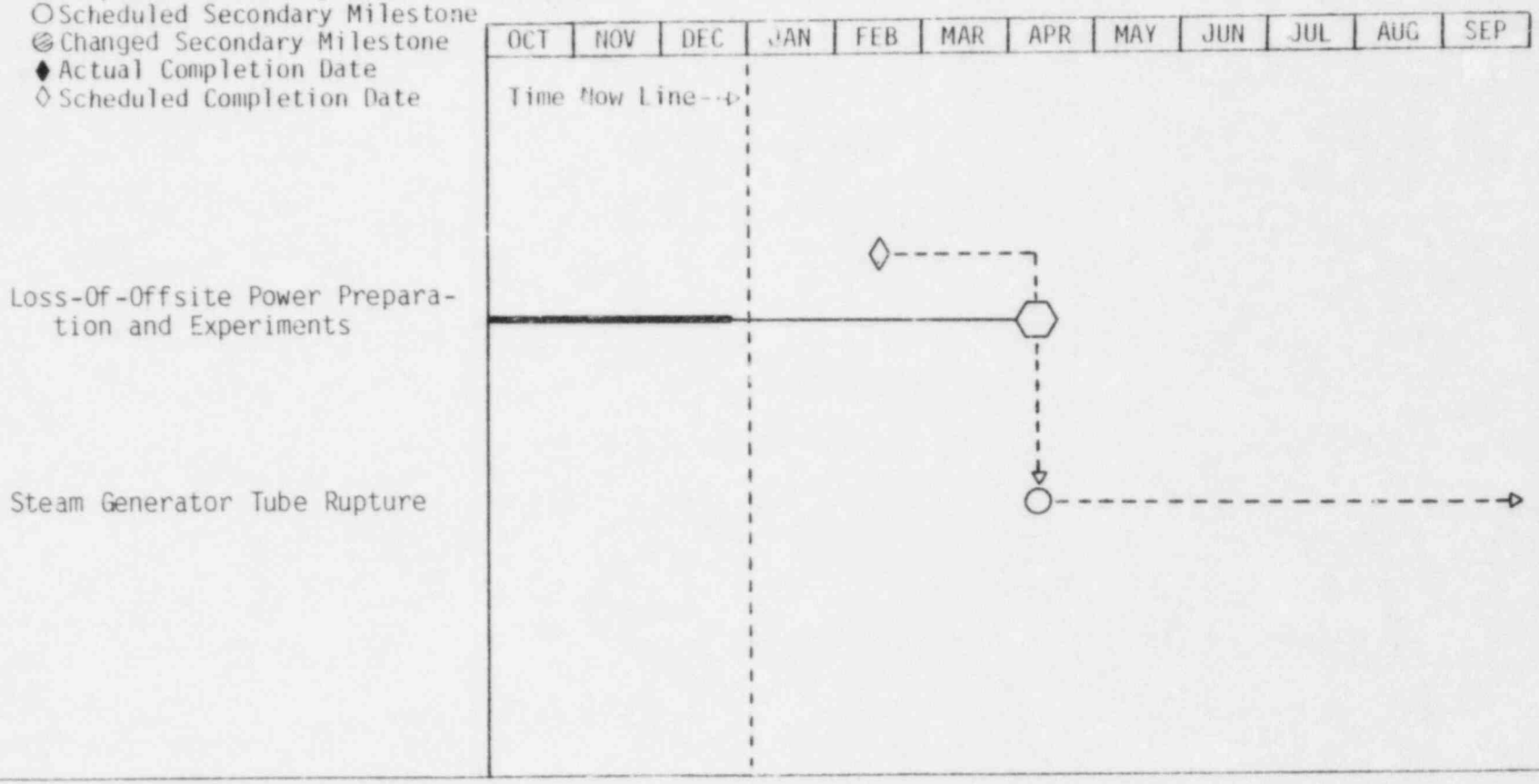
It is planned to recover the schedule slip prior to year-end. A reduction in funding of $950K has been directed and a rebaselining effort is in progress.

LEGEND

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

WATER REACTOR RESEARCH TEST FACILITIES DIVISION December 1982

Semiscale Program (A6038)



NOTES:

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

Semiscale Loss-of-Offsite Power Test S-PL-2 was successfully conducted on December 16, approximately one month behind schedule. Excessive system leakage caused several delays in the conduct of this test. Based on a review of the remaining S-PL Series Tests with NRC and DOE, plans were altered for Tests S-PL-3, 5, 6, and 7 to obtain more feed and bleed recovery data. Based on approval of the proposed reductions in program scope and funding by NRC, a rebaselining effort has begun which will pare $950K out of the Semiscale budget.

189 A6038 - Water Reactor Research Test Facilities Division

EG&G Idaho Technical Monitor: P. North
DOE-ID Technical Monitor: W. R. Young
NRC Technical Monitor: R. R. Landry

The purpose of the 189 is to acquire and interpret thermal hydraulic experimental data to assist in the resolution of light water reactor safety issues.

1. Scheduled Milestones for December 1982

Description	Proposed Date	Actual Date
S-PL-3	12-08-82	See Note 1

Note 1: This test was postponed due to delays in Test S-PL-2. This test is scheduled to be run 01-04-83.

TRR-IB	12-17-82	02-10-83

2. Summary of Work Performed in December 1982

A. 41C000000 - Intermediate Break Test Series Carryover

1. 41C119310 - IB Series Posttest Analysis

Analysis was performed to support resolution of division level comments, and incorporated resolution of those comments into the S-IB Series Topical Report. Submitted the report for supervisory review prior to submittal to technical editing.

B. 412100000 - Special Projects

1. 412111200 - Semiscale Configuration Reporting System

Incorporated comments from external (non-EG&G) users of Semiscale data and configuration information into a draft proposal for development of a configuration documentation and reporting system. Reviewed the draft proposal at the division level and initiated resolution of review comments.

2. 412123100 - Special Projects--Engineering

A revision of Drawing 417260 on the pump seal cavity cooling installation was issued. An site work release (SWR) package was prepared and issued to perform the installation. Preparation of the components checkout (CC) test procedure was started. Floats and scales were ordered to revise the rotameter range on water supplies for the high speed pump.

Drawing 417279 was released for the steam generator lower flange backup seal design and an SWR package was prepared and issued to fabricate the seal hardware.

Drawing 417280 was released for the vessel lower head backup seal (seal weld design). Additionally, Drawing 417281 for the clamping tool designed for use during installation of the backup seal ring was released. High strength bolting was procured and installed on this Grayloc connection.

A preliminary layout drawing was completed on the modification of broken loop steam generator work platform to provide additional platform space. The drawing has been reviewed by Semiscale Maintenance, Construction, and Safety and is considered acceptable. The drawing will be finalized and released during the next report period.

Drawing 417282 and an SWR package was released to fabricate the vessel bottom head support fixture which can be used for support during clamp adjustment or replacement. Fabrication of the fixture is 75% complete.

Drawings for the external heater overtemperature protection system are 60% complete and the SWR package is in final review. A final design review will be conducted in January.

An SWR was issued to fabricate another high speed pump support clamp. This will speed up pump replacement.

3. 412148100 - Semiscale Measurements Improvement

Bench testing of a low energy densitometer system directed at improving these measurements started on December 13. Accuracy vs variations in source collimators are under investigation. Counting problems occurring in the multi-channel analyzing test equipment have caused a slight delay in further testing until the first week in January.

Phase 1 (review of measurements) of the work package was completed. Semiscale data handling procedures at the test facility and in town were reviewed and documented along with recommendations for improvements. A preliminary study of bench tests with the low-energy densitometers has been started to gather information on the performance of the electronics and effects due to the use of multiple sources.

2. Summary of Work Performed in December 1982 (continued)

C. 414110000 - Level of Effort

1. 414119100 - EP&A Supervisor, Training, Report Preparation

Prepared work package status summary information for November status review. Provided section level review for the following reports: PL-1 Quick Look Report (QLR), PL-3 Experiment Operating Specification (EOS), PL-2 Pretest Prediction (PTP), Steam Generator EOS, and the Semiscale Configuration Documentation and Reporting System Proposal. Prepared presentations and participated in program review meetings with DOE and NRC counterparts. Initiated preparation of presentations to be made at a Semiscale Review Group Meeting in late January.

Reviewed the Westinghouse MB-2 steam generator test program proposal. The purpose of the proposed program is to develop a data base of tests which characterize steam generator thermal hydraulic responses to selected accident conditions in the primary and secondary systems. Review comments were documented in a letter to the Reactor Simulations and Analysis Branch.

2. 414119300 - Small Break Loss of Coolant Accident (SBLOCA) Research Information Letter (RIL)

The outline for the SBLOCA RIL was reviewed and approved. A literature review of Semiscale documentation was conducted. Approximately half of the writing is estimated to have been completed in December.

3. 414123100 - Engineering Level of Effort

The initial draft was completed on revision of ES-70052, intact loop pump assembly and disassembly procedure.

A Drawing 417741 and SWR was released for a tool to ease O-ring installation over the shaft spline during pump assembly. Drafting was started on a simplified tool for seating the upper bearing in the high speed pump assembly.

Garlock Precision Seal was contacted for product information on their teflon-impregnated material for pump shaft seals.

4. 414148100 - Measurement Engineering - Level of Effort

Pressure and differential pressure data corrections were completed for tests S-PL-1, S-PL-2A, and S-PL-2B.

Flowmetering design for the steam generator tube rupture test series was analyzed. Sizing of the Venturi flowmeters was completed and purchase requisitions prepared.

The data system catastrophic failure evaluation has been completed.

A rough draft of the Semiscale Uncertainty Report: Temperature NUREG/CR-2459 EGG-2142, Volume 2, has been written.

The installation and checkout of the HP-2100 computer system at TAN-641 (THEF) has been completed. The system is again capable of processing old data on request. It will be mid-FY-84 before such processing can be done on the new system.

Equipment for the new HP-1000 data system (System 2) has been slower than anticipated in arriving. The Preston analog to digital converter is now scheduled to arrive December 29. The time-of-day clock will not be shipped until January 15, 1983. System readiness is still scheduled to coincide with the start of the steam generator test series.

The ranging and calibration of drag transducers for S-PL-4 has been completed except for the break screen. It is anticipated that the Steam-Air-Water loop will be available to calibrate this device prior to S-PL-4.

D. 415100000 - Feedline/Steamline Break Analysis

1. 415119100 - Pre-Feedline/Steamline Break Analysis

Research to clarify and develop issues to be addressed in a test series to be conducted in FY-84 was delayed into January.

E. 416100000 - Loss-of-Offsite Power Test Series

1. 416119910 - S-PL Test Support, Section B

Performed analysis and prepared a draft of the QLR for PL-1 and submitted for section level review. Provided test support for PL-2A and PL-2B. Performed analysis and initiated preparation of the QLR for PL-2. Transmitted the EOS Appendix for PL-3 and provided test support for HPI pump characterization and mass flow rate measurement check out. Conducted a review meeting for PL-3 for Operations, Test

Engineering, Measurements, and DAS personnel. Completed and delivered draft EOS Appendices for PL-4 and PL-5 for section level review. Redefined the scenario for PL-5 at NRC's request and initiated EOS Appendix modification preparation. Provided revised PL-5 scenario and initial conditions for PTP preparation. Continued analysis and support for preparation of the EOS Appendix for PL-7, and provided interface support for modification of the core power computer control system for PL-7. Summarized and documented methods of system operation which would minimize the influence of system leakage on results for future PL experiments. Initiated planning efforts for an systems operation (SO) test to replace PL-6 for checkout of the core power computer control system for PL-7 at NRC's request.

2. 416119930 - S-PL Test Support

Completed RELAP5 pretest analysis for Test S-PL-2. A letter/report documenting the results was transmitted December 8, 1982.

Completed S-PL-3 pretest prediction analysis and draft report. The report is currently being reviewed by management.

3. 416123700 - Loss-of-Offsite Power--Hardware Mods

An engineering review was completed on additional ΔP data for the pump turbine meter. The data were found sufficiently consistent with that from previous R' testing to consider results from the initial evaluation valid as reported.

The decision on whether or not to modify the pressurizer spray system will be based on additional characterization testing. The test will attempt to identify the effect of various spray rates and modes of operation on the pressurizer pressure. A draft of the pressurizer spray line system characterization test plan was prepared.

A smaller orifice was installed in the pressurizer relief line to obtain relief flow desired for PL test conditions.

The pressurizer drawings were revised to incorporate recent modifications to eliminate leakage at heater penetrations in the lower head.

Prepared draft of SO test procedure SO-2B-22 for the rupture disc pressurization system.

Documentation of the changes in the electrical control circuitry on the intact loop pump inverter was completed.

Electrical engineering support was provided for the installation of external heaters on the pump suction break assembly.

Control room chassis drawings were revised to incorporate as-built conditions. The as-built drawing effort (approximately 40 drawings) is 95% complete.

Engineering support was provided to resolve a major leak problem caused by the failure of dynamic shaft seals in the intact loop pump during the initial attempt to conduct S-PL-2 on December 8, 1982. The failure was determined to be the result of excessive seal running friction, accompanied by limited (insufficient) break-in time. The pump shaft bearing and seals were replaced. The replacement seals were modified to reduce friction by removing the garter springs and secondary seal lips. After rework, the pump was re-installed and test S-PL-2 successfully conducted.

4. 416136500 - Mechanical Instrumentation for Power Loss Test Series

Work consisted of providing support for PL series tests (Tests S-PL-2A, S-PL-2B, and pretest for S-PL-3). The drag device transducers have been bench calibrated for Test S-PL-4, but have not been installed in the test loop.

5. 416136600 - Test Engineering for Power Loss Test Series

A letter report of the results of the Primary Volume Remnant System SC Test was issued December 7, 1982.

Qualified long and short term data tapes of Test S-PL-1 and Test S-PL-2 were sent to Data Processing in TSB on December 6, 1982 and December 22, 1982, respectively. Pretest and posttest activities were completed to support Test S-PL-2. Work continued on preparation of the EDR to report Tests S-PL-1, 2, and 3.

A test plan for Test S-PL-3 is complete and pretest activities are being provided to meet the January 4, 1982 test date. Test SC-2B-24 (Safety Injection Pumps) was run December 28-29, 1982 to provide necessary pump curves to support the safety injection requirements for Test S-PL-3.

2.E Summary of Work Performed in December 1982 (continued)

Coordination efforts continued on the instrumentation for Test S-PL-4.

6. 416136700 - Operation Support for Power Loss Test Series

In preparation for PL-2A (run December 8, 1982) the pressurizer PORV condensing system tank was moved closer to the PORV to provide a better measurement. The results on PL-2A were not accepted due primarily to excessive system leaks. The intact loop pump was removed, repaired, and reinstalled; the broken loop pump was replaced with the spare pump; and the broken loop pump seal heat exchanger was replaced. On December 15, 1982, a loop turbine calibration test was performed for Measurement Engineering. Test S-PL-2B was successfully performed on December 16, 1982.

In preparation for Test S-PL-3, the intact loop and broken loop steam generator feedwater and steam line orifice spools have been sent to ARA-3 for calibration, to be returned December 29, 1982. New bolts have been installed in the core vessel lower head clamp. The HPIS system has been replumbed for PL-3 and Test SC-2B-24 (safety injection pumps) was run to provide pump curves for PL-3 (and future tests) injection.

7. 416148600 - Loss of Power Test Series Data Acquisition

Test S-PL-1A, the baseline test for Loss of Offsite Power with normal recovery was attempted on November 23, 1982. This test was later declared invalid due to excessive leak rate in the vessel lower head. A repeat (S-PL-1B) was conducted on November 30, 1982 and was considered successful. Corrected data tapes for 305 channels, along with plots from each tape, for time bases -100 to 4900 seconds and -100 to 700 seconds were delivered to test engineering on December 6, 1982.

Test S-PL-2A, a station blackout test with auxiliary feedwater failure and no recovery planned, was attempted on December 8, 1982. This test was later declared invalid due to excessive leak rates. A repeat (S-PL-2B) was conducted on December 16, 1982 and was considered successful. Corrected data tapes for 308 channels, along with plots from each tape, for time bases -100 to 11,100 seconds and -100 to 700 seconds were delivered to test engineering on December 22, 1982.

2. Summary of Work Performed in December 1982 (continued)

F. 417119100 - Steam Generator Series Pretest Analysis

1. 417119100 - Steam Generator Series Pretest Analysis, Section A

A proposed test matrix has been completed for the SG series that incorporates 10 experiments. A presentation was made to NRC describing the planned experiments with emphasis on the recovery procedures which have been selected. A decision has been made to drop the multiple generator breaks experiment as it received a low priority rating via the informal comments received to date on the conceptual test matrix. The experiment has tentatively been replaced with a second MSLB experiment with different recovery procedures than the one currently in the matrix. A first draft of the main body EOS for the SG series was written and has received section level review. Comments are being incorporated.

2. 417119103 - Steam Generator TR Series Pretest Analysis, ECS

RELAP5 pretest scoping analyses for the S-SG test series to investigate the influence of elevation and the number of tubes ruptured on transient signature were continued. A RELAP5 calculation for a 10 tube rupture at the top of the broken loop (BL) steam generator tube sheet (outlet side) was run out to 500 s. A similar calculation for a 5 tube rupture is in progress. These calculations are 90% complete. These results along with other scoping calculations will be used in preparation of the EOS for the test series.

3. 417123100 - Tube Rupture Hardware Mods

Design requirements have been refined on the maximum break size. The maximum break has been reduced from 50 tubes down to 10 The three break sizes to be used as a basis for design are 1, 5 and 10 tubes.

Design of the tube rupture break assembly was further refined and drafting effort was initiated on the test installation drawing. Long lead hardware was ordered for the break assembly, and testing was completed on available on-Site valves to assure suitability for use in the break assembly. An SWR was issued to fabricate the densitometer bracket. A preliminary design review package was prepared for distribution to support a design review meeting scheduled for January 7, 1982. COST EFFECTIVENESS ITEM: use of existing valves and tubing (instead of pipe) has resulted in an estimated cost savings of $15K.

2.F Summary of Work Performed in December 1982 (continued)

The pressurizer PORV and auxiliary feedwate design requirements will also be addressed in this meeting, as well as conceptual design of the SG pressure relief and steam line break systems. Design concept letters have been issued for the auxiliary feedwater and pressurizer PORV systems. Long lead material for the auxiliary feed water system was ordered.

G. 419519601 - EP&A Posttest Analysis (UT)

1. 419519602 - UT Series TRR

A first draft of the UT series topical has been written and submitted for typing. Figures are in preparation for the preliminary author review.

2. 419519604 - Test S-SR-2 RELAP5 Analysis

RELAP5/MOD1 analysis of Test S-SR-2 (Feed and Bleed) continued. Input to the calculation was modified to give better agreement with test boundary conditions than in earlier calculations. Completed calculations are currently being analyzed and compared with data to assess the validity of the calculation and to identify possible code deficiencies.

H. 9D0800000 - Semiscale Equipment

1. 9D0820600 - Intact Loop Pump

Engineering review was continued on vendor data submittals from Associated Machine for the spare high speed intact loop pump.

The Welco motor stator was shipped to Associated Machine for use in completing final assembly of the spare intact loop pump. Receipt of the stator by Associated was verified per telecon. The existing supply of assembly tools was inventoried. Fabrication of spare tools and replacements was initiated.

A trip was made to Associated Machine by H. Crapo on December 9, 1982 to review status of work in progress and plan for the necessary EG&G engineering assistance during final assembly.

3. Scheduled Milestones for January 1983

Description	Proposed Date
Run Test S-PL-3	01-04-83
Run Test S-PL-5	01-14-83
Run Test S-PL-4	01-26-83

4. Summary of Work to be Performed in January 1983

A. 41C100000 - Intermediate Break Test Series

1. 41C119300 - IB Series Posttest Analysis

The TRR will be submitted to Technical Editing for final processing. Estimated transmittal date is February 10, 1983.

B. 412100000 - Special Projects

1. 412111200 - Semiscale Configuration Reporting System

The proposal for development and implementation of a configuration documentation and reporting system will be transmitted to DOE for review. Implementation will be initiated following approval of the proposed system by DOE and EG&G management.

2. 412123300 - Special Projects--Engineering

Provide engineering support during installation of the pump seal cavity cooling system to Drawing 417260.

Issue the pump seal cavity cooling system components check (CC) test procedure. Provide engineering support during fabrication of the steam generator backup seal to Drawing 417279.

Complete drafting and release drawing for the broken loop steam generator enlarged work platform.

Prepare and issue SWR package to fabricate a backup seal (weld) ring to Drawing 417280. Additionally, prepare and issue SWR to modify a Grayloc clamp to requirements of Drawing 417281 for use as a clamping tool to install backup seal ring.

Complete fabrication of the vessel bottom head support fixture.

4.B Summary of Work to be Performed in January 1983 (continued)

Issue engineering design file (EDF) to document the entire redesign effort on the vessel lower Grayloc connection.

Conduct the final design review and issue SWR package and drawings for installation of the external heater overtemperature protection system.

3. 412148100 - Semiscale Measurements Improvement

Continue support of low energy densitometer bench testing.

Data gathering from the low-energy densitometer bench tests will continue along with data reduction and analysis.

C. 414110000 - Level of Effort

1. 414119100 - EP&A Supervision, Training, Report Preparation

Preparation of work package status information for December status review will be completed. Preparation of modified work packages required as a result of finding reductions and reduced work scope will be initiated. Preparation of presentations for and participation in a Semiscale Review Group Meeting will be conducted. Section level review will be provided for the following reports: PL-1, 2, and 3 QLR's; PL-4, 5, and 7 EOS Appendices; PL-4 and 5 PTP's; and comparison of S-SR-2 data and RELAP5 calculation results. FY-84 planning will be initiated. A draft paper for presentation at a future ISP meeting on LDA performance in Semiscale will be prepared.

2. 414119300 - SBLOCA RIL

Writing will be completed on the first draft of the RIL. Section level view of the RIL is expected to be completed.

3. 414123100 - Engineering Level of Effort

Complete typing of draft revision (Revision C) for ES-70052, intact loop pump assembly and disassembly procedure.

Provide engineering coverage during final assembly of spare high speed intact loop pump at Associated Machine, San Carlos, CA.

Complete preparation and release of drawing for simplified upper bearing installation tool (high speed pump assembly). Issue SWR to build the tool.

Obtain additional information on Garlock teflon impregnated shaft seals for high speed pumps to determine if this type seal might provide better service life.

4.C Summary of Work to be Performed in January 1983 (continued)

4. 414148100 - Measurement Engineering

Continue support of data system set up and operating during Power Loss test series.

Continue installation of HP-1000 System 2 as equipment arrives.

Continue transducer calibration and data corrections in support of Power Loss test series.

Procure new low range mass flowmeter (which uses Coriolis-type acceleration that angularly deflects a U-tube an amount proportional to mass flow rate) for evaluation.

D. 415100000 - Feedline/Steamline Break Analysis

1. 415119100 - Pre-Feedline/Steamline Break Analysis

Pre series research analysis intended to develop and clarify issues to be addressed in the FY-84 test series will be initiated.

E. 416119900 - S-PL EP&A Test Support

1. 416119910 - S-PL Test Support, Section B

EOS Appendices for PL-3 and 5 will be transmitted. QLR's for PL-1 and 2 will be transmitted. Test support for PL-3, 5, and possibly 4 will be provided. Analysis and preparation of QLR's for PL-3, 5, and possibly 4 will be initiated, and the QLR for PL-3 will be transmitted provided a successful test is performed on January 4, 1983. A draft of the EOS Appendix for PL-7 will be submitted for section review, and the requirements for the SO Test to be conducted prior to PL-7 will be transmitted for procedure preparation. Final scenario definition and initial conditions for PL-4 and PL-7 will be provided for PTP preparation. Core power computer control techniques & assessment for PL-7 will be performed using data from PL-3 and/or PL-5.

2. 416119930 - S-PL Test Support, ECS

Prestest Prediction analyses for Tests S-PL-4 and 5 will be completed and documented.

3. 416123700 - Loss-of-Offsite Power--Hardware Mods

Continue operations and engineering review of various MFD and other drawings for as-building. Changes to be incorporated as appropriate.

4.E Summary of Work to be Performed in January 1983 (continued)

Issue the SC test procedure and complete the characterization testing of pressurizer spray system to identify the effects of various spray rates and modes of operation on the pressurizer pressure. Determine whether or not modifications to the spray system are required.

Finalize and issue SO test procedure SO-2B-22 on the rupture disc pressurization system.

Provide electrical engineering support for installation of external heaters on the pump suction break assembly. Document the as-built condition and update the drawing when the SWR package is closed out.

Complete as-building drawing effort for the interconnect, panel and control room chassis, and issue revised MFD list.

Since The Upper Head Vent System Test was cancelled, an SWR change will be issued to cancel the planned hardware modifications.

4. 416136500 - Mechanical Instrumentation for PL

Work will consist of providing instrumentation support for Tests S-PL-3, S-PL-5, and S-PL-4 (including installation of drag device transducers).

5. 416136600 - Test Engineering for PL

The results of Test SC-2B-24 (Safety Injection Pumps) will be used to produce a family of pump curves for the HPIS and LPIS pumps. This will be part of the preparation for Test S-PL-3.

Pretest and posttest activities for Test S-PL-3 will be provided. Qualified data tapes of Test S-PL-3 are targeted to be sent to Data Processing (TSB) on January 11, 1983 (assuming an accepted S-PL-3 is run January 4, 1983). This data will then be included with the results of Tests S-PL-1 and S-PL-2 in the preparation of the EDR to report Tests S-PL-1, 2, and 3.

Upon receipt of the EOS Appendixes for Test S-PL-5 and 4, Test Plans will be completed and provided to Operations. Pretest and posttest activities will be performed for these tests.

6. 416136700 - Operation Support Power Loss

Work will consist of continued operational support of the PL-Test Series and preparation as needed for the up-coming SG-Tube Rupture Series.

4. Summary of Work to be Performed in January 1983 (continued)

F. 417119100 - SG Series Pretest Analysis

1. 417119100 - SG Series Pretest Analysis, Section A

A letter will be prepared providing summaries of the procedures and objectives for each of the experiments in the SG series proposed test matrix. The letter will be transmitted to the NRC and thereon for external review. The EOS will be submitted for branch review.

2. 417119103 - SG Series Pretest Analysis, ECS Support

RELAP5 scoping analyses for the S-SG Test Series will be continued. Studies to investigate the influence of inlet versus outlet rupture locations at the top of the SG tube sheet and the number of tube ruptures on transient response will be completed.

3. 417123100 - Tube Rupture--Hardware Mods

Conduct preliminary design review of tube rupture break assembly on January 7, 1982. The pressurizer PORV and auxiliary feedwater systems will also be covered in this meeting, as well as conceptual design of SG pressure relief and steam line break systems.

Begin final design of the break assembly and continue drafting effort on detail component drawings. Start final design of the auxiliary feedwater system required to support tube rupture testing. Begin preliminary/final design of SG pressure relief and steam line break systems.

Order all remaining long lead hardware required for the tube rupture system modifications.

Prepare package for final design review on break assembly and auxiliary feed system, and preliminary/final review on SG pressure relief and steam line break systems. Calibration and CC test requirements for instrumentation for the break assembly will be addressed in the final design review.

G. 419519600 - Posttest Analysis

1. 419519601 - S-NC RELAP5 Posttest Analysis Report

RELAP5/MOD1.5 analysis of the S-NC Test Series will be resumed. Scoping calculations to assess code performance for two-phase and reflux natural circulation modes will be completed.

4.G Summary of Work to be Performed in January 1983 (continued)

2. 419519602 - UT Series Topical

The UT series topical will be submitted for branch review this coming month. A package of figures will be assembled to accompany the final document.

3. 419519604 - Test S-SR-2 RELAP5 Analysis

The RELAP5/MOD1 analysis of Test S-SR-2 (Feed and Bleed) task will be completed. Analysis and assessment of current calculations will be completed, documented, and submitted for management review.

H. 9D0800000 - Semiscale Equipment

1. 9D0820600 - Intact Loop Pump

Continue engineering review of vendor data submittal from Associated Machine on the spare high speed intact loop pump.

Ship the pump assembly stand to Associated Machine. Complete fabrication of spare and replacement tools. Hand carry specialized tools to Associated Machine and provide engineering support during pump assembly at the vendor's facility.

5. Problems and Potential Problems

No funding will be allocated for technical editing and word processing support in publishing the uncertainty documents scheduled to be written during FY-83. We are presently planning to utilize secretarial support to get a first-cut typed version. Final publication of these documents will necessarily be delayed until FY-84.

A6043 - LOFT Test Support Facility

EG&G Idaho Technical Monitor: P. North
DOE-ID Technical Monitor: W. R. Young
NRC Technical Monitor: R. R. Landry

The purpose of this 189 is to make available a separate effects test facility for the purpose of running future experiments to acquire fundamental data relating to two-phase flow and heat transfer.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

A. 481100000 - FY-82 Carryover

1. 481100310 - Two-Phase Test Reports

No work was performed on the 2D/3D instrumentation EDR, or the Two Phase Loop Characterization report.

2. 48199AA00 - Nine-Rod Bundle Quench Report

No work was performed on the analysis report. The report was submitted for final review in October, and will be submitted to technical editing following branch review of resolution of comments.

3. 48199AP00 - L5-1 Drag Disk Rake EDR

The report was submitted for initial review in October. No work was performed in November.

B. 487248100 - THEF Operations

Work continued on maintaining the Blowdown Facility and Two-Phase Loop in a ready stand-by condition.

C. 5J1223100 - Post Critical Heat Flux (CHF) Analysis and Report

A technical paper to be presented at a future ASME meeting was transmitted in early December. Preparation of the data report was initiated.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

A. 48110000 - FY-82 Carryover

1. 481100310 - Two-Phase Test Reports

The Two-Phase Flow Loop Characterization report will be transmitted. Completion of the 2D/3D instrumentation EDR will be postponed into February, 1983.

2. 48199AA00 - Nine-Rod Bundle Quench Report

The analysis report will be submitted to technical editing for final preparation. Transmittal will be postponed into February, 1983. Slides for an ANS presentation will be completed, and the presentation will be made at the Santa Barbara meeting.

4. 48199AP00 - L5-1 Drag Disk Rake EDR

Final preparation of the EDR will be performed and review initiated. Transmittal will be rescheduled for February 1983.

B. 487248100 THEF Operations

Work will continue to maintain the Blowdown Facility and Two-Phase Loop in a ready stand-by condition.

C. 5J1233100 - Post CHF Analysis and Report

Preparation of the data report will continue with draft completion scheduled for March. A post mortem on the upper and lower hot patch brazes will be performed. Preparation of ASME presentation slides will be initiated.

5. Problems and Potential Problems

None.

WATER REACTOR RESEARCH TEST FACILITIES DIVISION

CAPITAL EQUIPMENT

WATER REACTOR RESEARCH TEST FACILITIES DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6059)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete
Pre FY-1983														
1/79	Low Energy Densitometer Support Electronics	9D1990230	01/79	07/79	103,884	103,884	-	0	103,884	0	103,884	0	C	103,884
7/79	ADPE Procurement	9D1989830	03/79	04/79	25,417	25,417	-	0	25,417	0	25,417	0	C	25,417
2/80	DDAPS Support and Replacement Equipment	9D1991520	-	03/80	95,800	95,800	03/80	0	95,800	0	95,800	0	C	95,800
3/80	Multibeam Gamma Densitometers and Detector Assemblies	9D1992210	-	04/80	117,912	117,912	05/80	0	117,912	0	117,912	0	C	117,912
4/80	ADPE Procurement	9D1991680	-	03/80	25,802	25,802	06/80	0	25,802	0	25,802	0	C	25,802
5/80	Control System Support Equipment	9D1992260	-	04/80	18,734	18,734	06/80	0	18,734	0	18,734	0	C	18,734
7/80	Air-Water Loop Upgrade Equipment	9D1991650	-	03/80	81,867	81,867	04/80	0	81,867	0	81,867	0	C	81,867
9/80	Densitometer Detectors	9D1993160	08/80	08/80	67,436	67,436	03/81	0	67,436	0	67,436	0	C	67,436

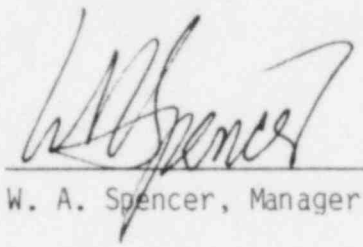
(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate at Complete
Pre FY-1983														
11/80	High Resolution Graphics (ADPE)	9D1993180	08/80	08/80	14,792	14,792	-	0	14,792	0	14,792	0	C	14,792
1/81	Common Support Equipment	9D0810100	01/81	01/81	35,324	35,324	-	0	41,583	0	41,583	<6,259>	C	41,583
2/81	Spare Intact Loop Components	9D0810200	01/81	01/81	28,103	28,103	-	0	28,103	0	28,103	0	C	28,103
3/81	Optical Probes for Steam Generator	9D0810300	01/81	01/81	13,136	13,136	-	0	13,136	0	13,136	0	C	13,136
4/81	Mod-2A Test Loop Components	9D0810400	01/81	01/81	319,047	319,047	A/ 04/81	0	319,604	0	319,604	< 557>	C	319,604
5/81	Steam-Air-Water (SAW) Loop Upgrade Components	9D0810500	01/81	01/81	230,000	230,000	A/ 04/81	0	234,839	0	234,839	<4,839>	0	234,839
6/81	DDAPS Upgrade and Replacement	9D0810600	01/81	01/81	36,841	36,841	-	0	36,841	0	36,841	0	C	36,841
7/81	DAS Upgrade and Replacement	9D0810700	01/81	01/81	27,129	27,129	-	0	27,129	0	27,129	0	0	27,129
1/82	Pump Inlet Spool Pieces	9D0820100	12/81	01/82	57,000	57,000	-	0	59,109	0	59,109	<2,109>	C	59,109
2/82	Pressurizer	9D0820200	12/81	01/82	137,000	137,000	-	322	144,968	1,566	146,856	<9,856>	0	146,856
3/82	DDAPS	9D0820300	02/82	02/82	199,000	199,000	-	17,025	84,484	98,015	199,524	< 524>	0	199,524

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate at Complete
Pre FY-1983														
4/82	Data Acquisition System	9D0820400	03/82	-	217,000	217,000	-	22,178	59,014	116,270	197,462	19,538	C	197,462
5/82	Word Processor	9D0820500	02/82	02/82	6,000	6,000	-	0	0	5,618	5,618	382	0	5,618
6/82	Intact Loop Pump Components	9D0820600	02/82	02/82	149,974	149,974	-	139,795	0	10,863	150,658	< 684>	0	150,658
7/82	Common Support Equipment	9D0820700	05/82	-	50,000	50,000	-	0	0	31,124	31,124	18,876	C	31,124
8/82	Unassigned EA's	9D0820800	-	-	5,000	-	-	0	0	0	0	5,000	C	5,000
	Subtotal				2,062,198	2,057,198		179,320	1,600,454	263,456	2,043,230	18,968		
	Pre FY-1983 Costs				-1,600,454	0		0	-1,600,454	0	-1,600,454	0		
	NET: Pre FY-1983				461,744	2,057,198		179,320	0	263,456	442,776	18,968		

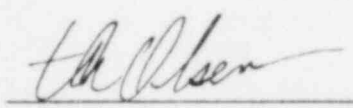
MONTHLY REPORT FOR

DECEMBER 1982

THERMAL FUELS BEHAVIOR PROGRAM



W. A. Spencer, Manager



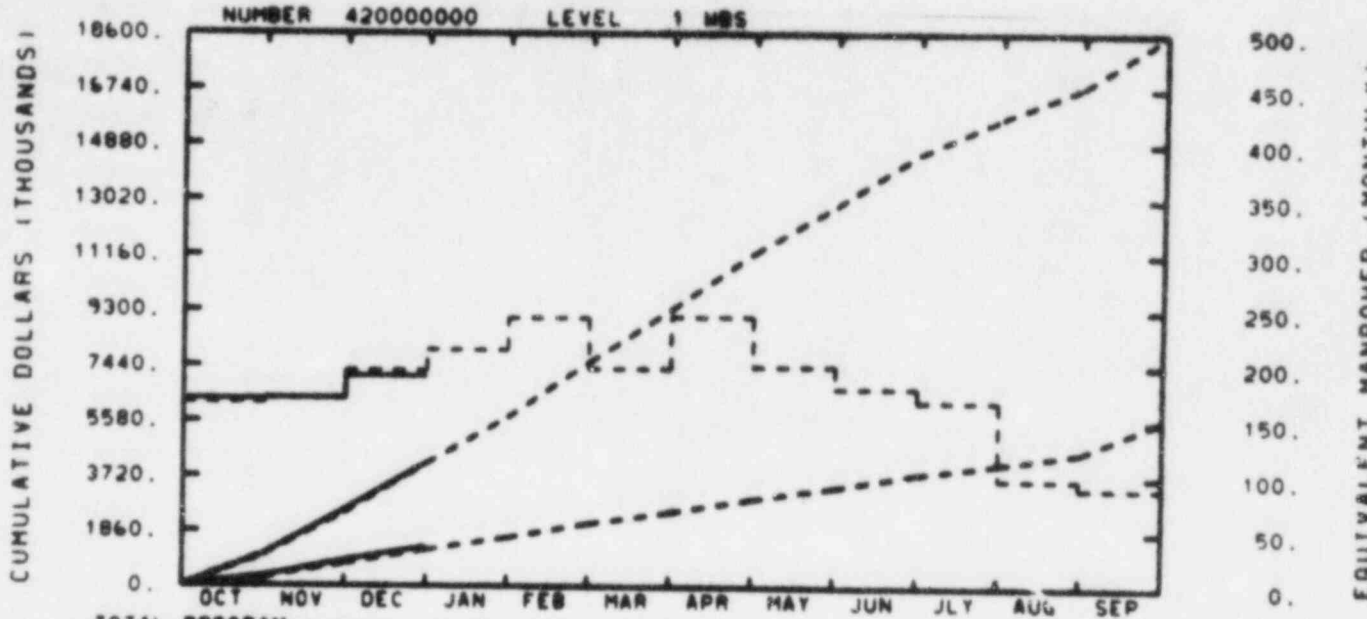
T. A. Olsen
Plans and Budget Representative

RESPONSIBLE MANAGER
W A SPENCER

EG&G IDAHO INC.

THERMAL FUELS BEHAVIOR PROGRAM

NUMBER 420000000 LEVEL 1 WBS



TOTAL PROGRAM

BUDGET	1035	2495	4157	5720	7508	9356	11254	12836	14575	15766	16819	3590
ACTUAL	1080	2593	4179									

MATERIAL

BUDGET	289	756	1236	1651	2141	2536	2984	3387	3836	4169	4551	5669
ACTUAL	326	877	1344									

MANPOWER

BUDGET	167	171	196	215	244	198	245	200	180	168	98	40
ACTUAL	170	171	191									

BUDGET - - - - - -

ACTUAL ———

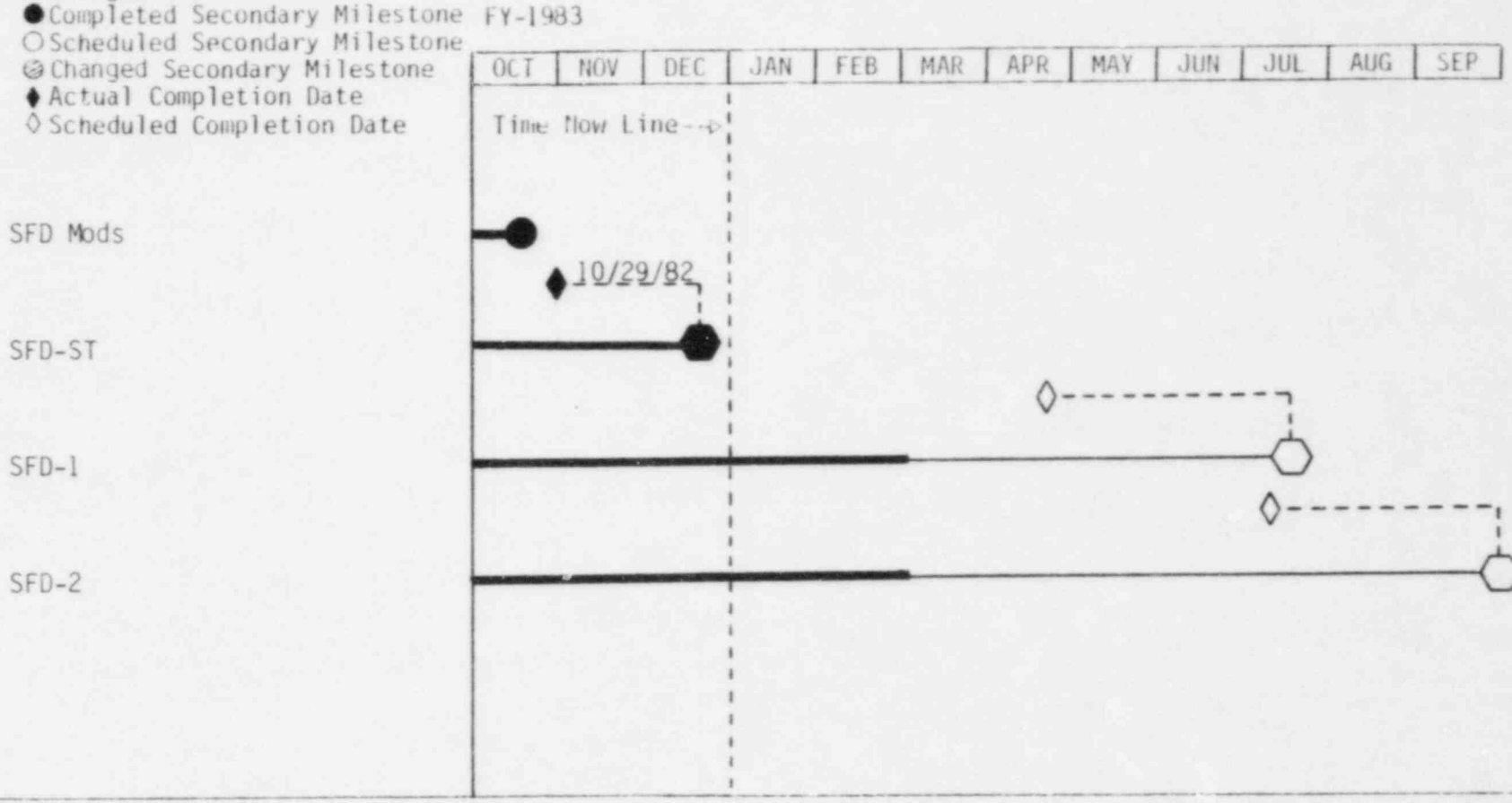
YTD VARIANCE: 22 (1%)

Individual cost graphs will give individual explanations.

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

LEGEND

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



NOTES: TFBP FY-1983 baseline has been approved and test dates established as follows:

Milestone	Working Date	Milestone Scheduled
SFD-1	04/15/83	07/15/83
SFD-2	06/30/83	09/30/83

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

The Severe Fuel Damage (SFD) Scoping Test Quick Look Report was issued as an EG&G Idaho formal report and distribution to SFD Program participants was made. The Scoping Test bundle has been gross gamma scanned in the Power Burst Facility canal and all gas and liquid sample bombs have been analyzed. Definition of sample contents and plateout material is underway.

The Experiment Prediction report for SFD Test 1-1 was issued and test train assembly is continuing. The test train is being retrofitted with a revised steam line heat exchanger and the check valve is being replaced. Fabrication of three of the four new sample bomb assemblies for the test has been completed. Software changes are being prepared to provide automatic data acquisition and collimator control by the Fission Product Detection System.

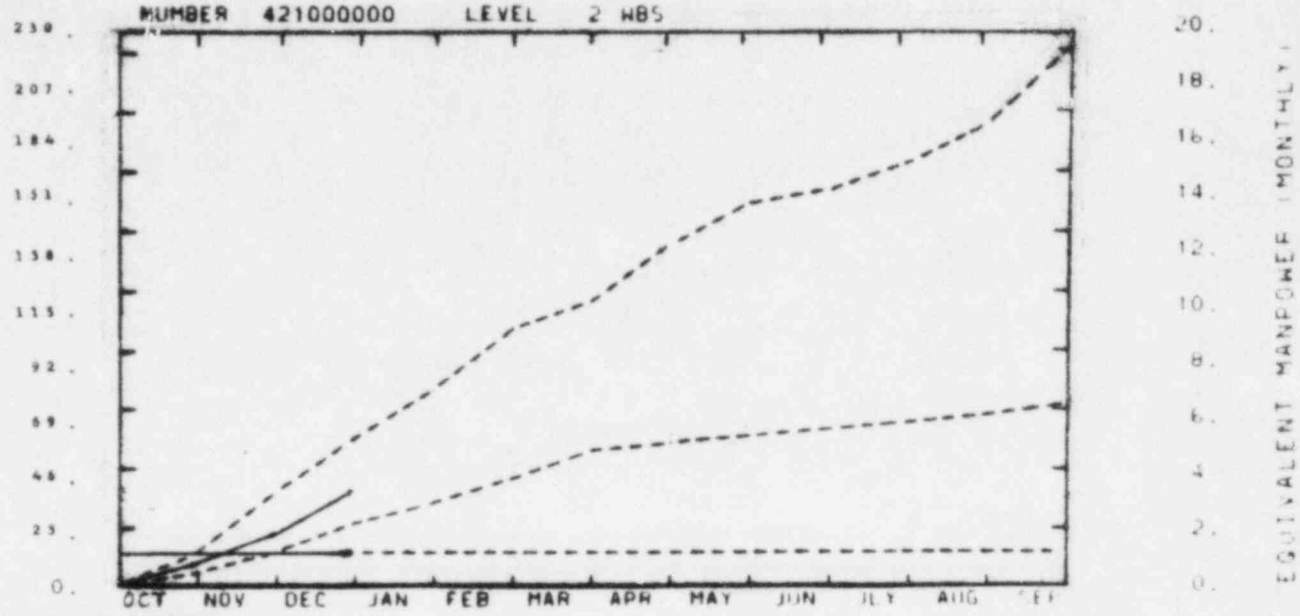
A design review was held on the reroute of the sample system steam line past a germanium detector. A problem caused by the steam line jacket wall thickness interfering with the gamma analysis will be corrected by installing a Kapton window in the jacket in front of the Ge detector.

RESPONSIBLE MANAGER
MACDONALD

EG&G IDAHO INC.

TFBF EXPER DESIGN & ANALYSIS

NUMBER 421000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	16	36	56	76	99	112	133	147	152	163	130	23
ACTUAL	13	21	36									

MATERIAL

BUDGET	7	19	24	32	42	51	57	59	61	63	66	71
ACTUAL	0	0	0									

MANPOWER

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

BUDGET - - - - -

ACTUAL _____

189 NO. A6041

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 4.4	$ 11.8
MATERIALS, SERVICES AND OTHER COSTS	1.0	1.0
ADP SUPPORT	1.0	2.4
SUBCONTRACTS	0.0	0.0
TRAVEL	0.3	0.3
INDIRECT LABOR COSTS	6.0	16.1
GENERAL AND ADMINISTRATIVE	1.7	4.3
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 14.4	$ 35.9

A6041

YTD VARIANCE: 20 (36%)

The $20K underrun is due mainly to redirection of program efforts. The OPTRAN 1-1 Post Irradiation Examination, which was originally scheduled to have started October 1, 1982, has been delayed.

A6041: Experiment Design and Analysis

EG&G Idaho Program/Technical Monitor: W. A. Spencer/P. E. MacDonald
DOE-ID Technical Monitor: N. Bonicelli
NRC Technical Monitor: M. Silberberg

The objective of this program is to complete the reporting of the original Thermal Fuels Behavior Program's 40-test program. This program is an integrated experimental and analytical program designed to provide information on the behavior of reactor fuels under normal, off-normal, and accident conditions. The remaining tasks include completing examinations of materials from the Operational Transient tests, and reporting of tests from the Reactivity Initiated, Loss-of-Coolant, and Operational Transient Test Series.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

a. Operational Transient (OPTRAN) Test Series

A report of Mr. Ploger's European trip was written. The visual examination, pulsed eddy current, and gamma scan data from the OPT 1-1 and 1-2 rods were reviewed and locations for fuel rod sectioning and further destructive examinations were determined.

b. Power-Cooling-Mismatch Test Series

No effort was expended on the Test PCM-7 Fuel Rod Materials Behavior Report.

c. Reactivity Initiated Accident Test Series

No effort was expended on the review of the Test RIA 1-4 Fuel Behavior Report.

d. Data Processing Management Methods

The Severe Fuel Damage Scoping Test quick look data were organized and stored, and high frequency pressure data were processed for analysis.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

a. Operational Transient (OPTRAN) Test Series

The OPT 1-1 and 1-2 rods will be sectioned and selected six-inch pieces of the rods will be clamshelled and examined.

b. Power-Cooling-Mismatch Test Series

The Test PCM-7 Fuel Rod Materials Behavior Report will be revised as time permits.

c. Reactivity Initiated Accident Test Series

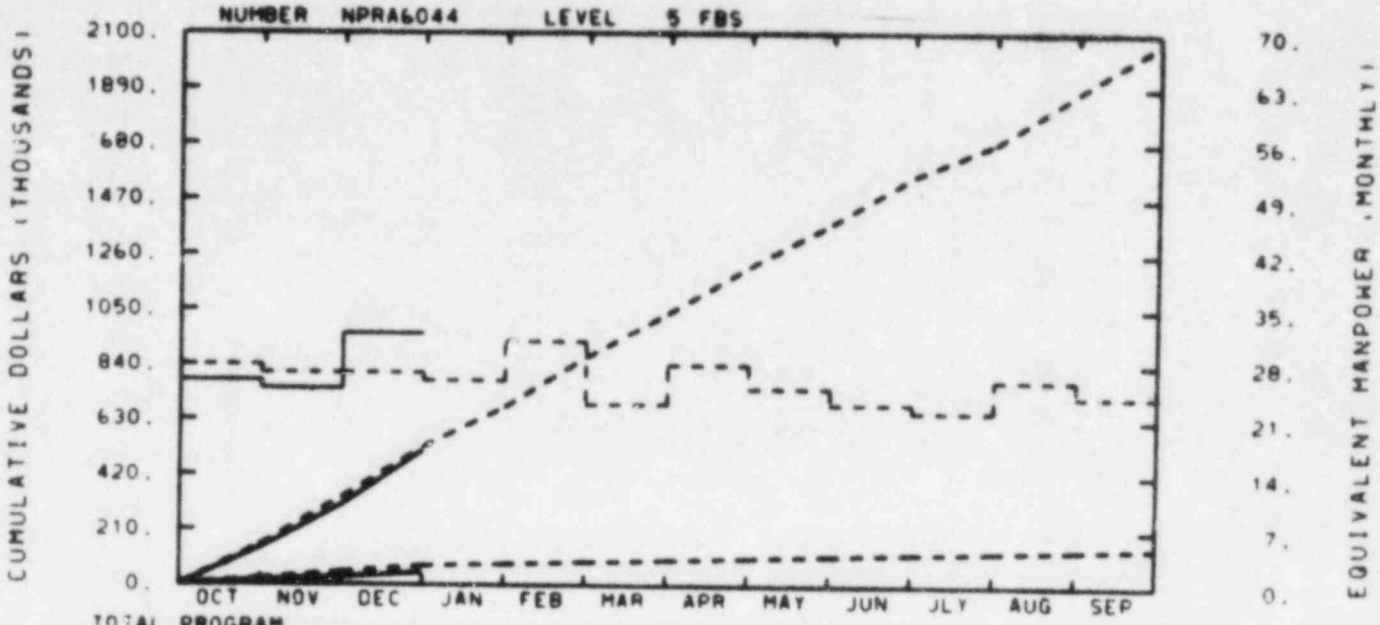
Review of the Test RIA 1-4 Fuel Behavior Report will occur as time permits.

5. Problems and Potential Problems

None.

RESPONSIBLE MANAGER
KESTER

EG&G IDAHO INC.
PBF ENGINEERING
NUMBER NPRA6044 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	152	335	527	681	869	1038	1217	1379	1558	1682	1876	2064
ACTUAL	139	306	513									

MATERIAL

BUDGET	23	50	74	81	90	98	107	114	123	129	139	148
ACTUAL	17	29	47									

MANPOWER

BUDGET	28	27	27	26	31	23	28	25	23	22	26	24
ACTUAL	26	25	32									

189 NO. A6044

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 71.0	$ 174.5
MATERIALS, SERVICES AND OTHER COSTS	13.8	41.7
ADP SUPPORT	3.5	3.7
SUBCONTRACTS	0.1	0.1
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	95.1	234.3
GENERAL AND ADMINISTRATIVE	24.3	59.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 207.8	$ 513.5

A6044

YTD VARIANCE: 14 (3%)

A6044: PBF Engineering

EG&G Idaho Technical Monitor: W. A. Spencer/J. P. Kester
DOE-ID Technical Monitor: J. R. Sanders
NRC Technical Monitor: H. H. Scott

The objective of this program is to provide engineering support to safely maintain the Power Burst Facility (PBF). Included in this activity are safety analyses and the design and installation of modifications required to ensure safe conduct of the coordinated test program assigned to the PBF, currently the Severe Fuel Damage Test Series.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

a. PBF Spare Loop Pump Repair

The liners were installed on both the rotor and the stator. Visual and dye penetrant inspection have been successfully completed on both components and the rotor liner has passed a helium leak check. Helium leak testing of the stator is in progress.

b. Contamination Control Equipment for Test Train Transfer

The contamination control sleeve and its associated tools were used while transferring the Severe Fuel Damage (SFD) Scoping Test test train from the in-pile tube to the canal and also during the test train gamma scanning operation. It appears that the sleeve was beneficial in reducing contamination spread; minor improvements will be made to increase its effectiveness.

c. Contamination Control System for the PBF Canal

The ventilation system modifications were completed, except for the installation of a vacuum breaker valve which has not yet been delivered. An interim configuration using a throttling valve has been installed. Fabrication of the canal tent support structure was completed and installation over the canal was started. The new canal hoist was assembled and installed.

d. SFD 1-1 Sample Bomb Replacement

Fabrication of the new sample bombs for Test SFD 1-1 continued, with three of the four assemblies being completed. The remaining assembly will be completed in January.

2. Summary of Work Performed in December 1982 (continued)

e. Experiment Cooling Low Flow Indication Improvement

An improved experiment cooling low flow indicator was installed for test SFD 1-1.

f. SFD 1-1 Facility Modifications

Final design reviews were conducted for the bundle low flow injection system and for the flow control improvement to the experiment cooling system. Work packages covering the installation were released.

Preliminary design reviews were held for the sample system steam line rerouting in Cubicle 13 and for the sample system dilution injection system.

A final design review was held on a modification to provide a signal of the experiment fuel bundle pressure to the PBF data system.

g. Technical Specifications

Most effort on the Technical Specifications was deferred due to unavailability of personnel.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

a. PBF Spare Loop Pump Repair

Helium leak testing of the stator liner will be completed and the new electrical terminal assemblies installed. The rotor is scheduled to be balanced and bearing repairs should be completed.

b. Contamination Control System for PBF Canal

Installation of the contamination control tent will be completed.

c. SFD 1-1 Sample Bomb Replacement

The new sample bombs will be installed in Cubicle 13 and connections completed to the extent permitted by piping changes associated with other SFD 1-1 modifications.

d. Loop Cleanup and Decontamination System (LCDS) Overpressure Protection

Installation of a modification to provide overpressure protection for the LCDS will start. The installation will provide automatic protection through a check valve and relief valve instead of requiring administrative controls to maintain specific valve lineups.

4. Summary of Work to be Performed in January 1983 (continued)

e. Liquid Nitrogen System Extension to the Reactor Building

The modification to provide a liquid nitrogen supply to the reactor building first basement will be reinitiated. Completion of this task was deferred prior to SFD-ST.

f. SFD 1-1 Facility Modifications

Bundle Low Flow Injection System - Installation of mechanical components is scheduled for completion and the electrical installation is scheduled to begin. The latter has been rescheduled to accommodate recent scope changes.

Experiment Cooling System Low Flow Control Improvements - The new throttle valve and operating hardware will be installed.

Sample System Steam Line Reroute in Cubicle 13 - A final design review will be held on the sample system line rerouting in Cubicle 13.

Sample System Dilution Injection System - A final design review will be held on the new injection system. This system will dilute the experiment effluence to prevent saturation of the Fission Product Detection System.

g. Technical Specifications

The revisions resulting from the annual review will be transmitted to DOE-ID for approval. The revisions needed prior to Test SFD 1-1 will be prepared for EG&G Idaho internal review.

5. Problems and Potential Problems

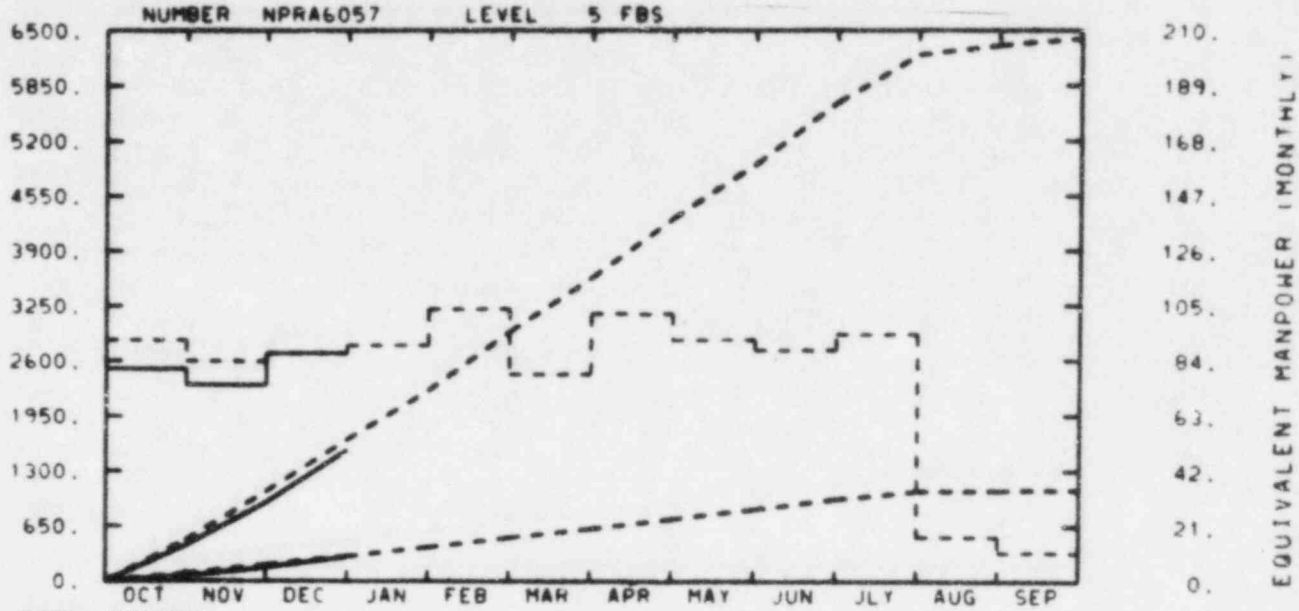
None.

RESPONSIBLE
AGER
DOUCETTE

EG&G IDAHO INC.

PBF OPERATIONS

NUMBER NPRA6057 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	487	1059	1675	2252	2945	3583	4282	4926	5656	6212	6325	6407
ACTUAL	422	928	1551									

MATERIAL

BUDGET	90	194	298	402	518	621	737	851	968	1061	1072	1079
ACTUAL	63	163	288									

MANPOWER

BUDGET	92	84	87	90	104	79	102	92	88	94	17	11
ACTUAL	81	75	87									

BUDGET

ACTUAL

189 NO. A6057

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 184.0	$ 466.5
MATERIALS, SERVICES AND OTHER COSTS	99.7	252.6
ADP SUPPORT	0.1	0.2
SUBCONTRACTS	19.1	24.1
TRAVEL	0.0	0.3
INDIRECT LABOR COSTS	252.4	640.5
GENERAL AND ADMINISTRATIVE	67.6	166.7
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 622.9	$ 1,550.9

A6057

YTD VARIANCE: 124 (7%)

The $124K underrun is due primarily to $86K outstanding commitments not yet costed. The remaining net underrun is due primarily to a $107K overrun in Corrective Maintenance and a $123K underrun in Facility Operations. The Corrective Maintenance work was performed early to make crafts available for the SFD Mods. The underrun in Facility Operations is due to understaffing, one Operator was added on January 3, 1983, and one employee requisition is still outstanding.

A6057: PBF Operations

EG&G Idaho Program/Technical Monitor: W. A. Spencer/C. O. Doucette
DOE-ID Technical Monitor: L. E. Montoya
NRC Technical Monitor: H. H. Scott

The objective of this program is to operate the Power Burst Facility (PBF) reactor to perform the Thermal Fuels Behavior Program (TFBP) Severe Fuel Damage (SFD) test series for the Nuclear Regulatory Commission (NRC). The data produced during the performance of the SFD tests are qualified and provided to personnel conducting the TFBP SFD (A6305) and the In-Pile Fission Product Behavior (A6321) studies for their analysis work.

1. Scheduled Milestones for December 1982

Node	Description	Due Date	Actual Date
N/A	Severe Fuel Damage Scoping Test (SFD-ST)	12-23-82	10-29-82C

2. Summary of Work Performed in December 1982

a. PBF Plant Operations

The work performed during this reporting period was primarily directed toward performance of the Severe Fuel Damage Test 1-1 (SFD 1-1) plant modifications.

The two remaining sample casks were shipped to the Hot Cells for analysis and gamma scan. Removal of the SFD-ST test train from the in-pile tube and gamma scan of the test train in the PBF canal were completed. Selected portions of the experiment cooling line were removed and shipped to the Hot Cells for gamma scanning.

The Instrument and Data Section completed the installation and checkout of the new Closed Circuit Television System. Installation of the new Reactor Building Radiation Activity Monitor System is continuing.

b. PBF Operations Support

Preventive Maintenance (PM) examinations for September and October are complete, November examinations are 98% complete, and the December examinations are 95% complete.

Corrective Maintenance efforts include continuing the installation of the new gasket-type silver zeolite housing, correction of plant deficiencies, and support work for plant cleanup and shielding.

2. Summary of Work Performed in December 1982 (Continued)

b. Data qualification is continuing for the Operational Transient (OPT) Tests 1-1 and 1-2. SFD test priority items are also being processed. Efforts are continuing on converting calculator programs to the Data Qualification System (DQS).

An initial, typed draft of the SFD 1-1 Experiment Operating Procedure (EOP) was completed.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

a. Plant modifications for the upcoming Test SFD 1-1 will continue.

b. All PM examinations for 1982 and January 1983 will be completed.

c. Installation of the gasket-type silver zeolite housing will be completed.

d. Data qualification of Tests OPT 1-1 and 1-2 will continue.

e. Efforts to convert calculator programs to the DQS will continue.

f. Incorporation of review comments in the SFD 1-1 EOP will proceed.

g. Incorporation of SFD 1-1 modification-related changes into the Plant Operating Manual will be initiated.

5. Problems and Potential Problems

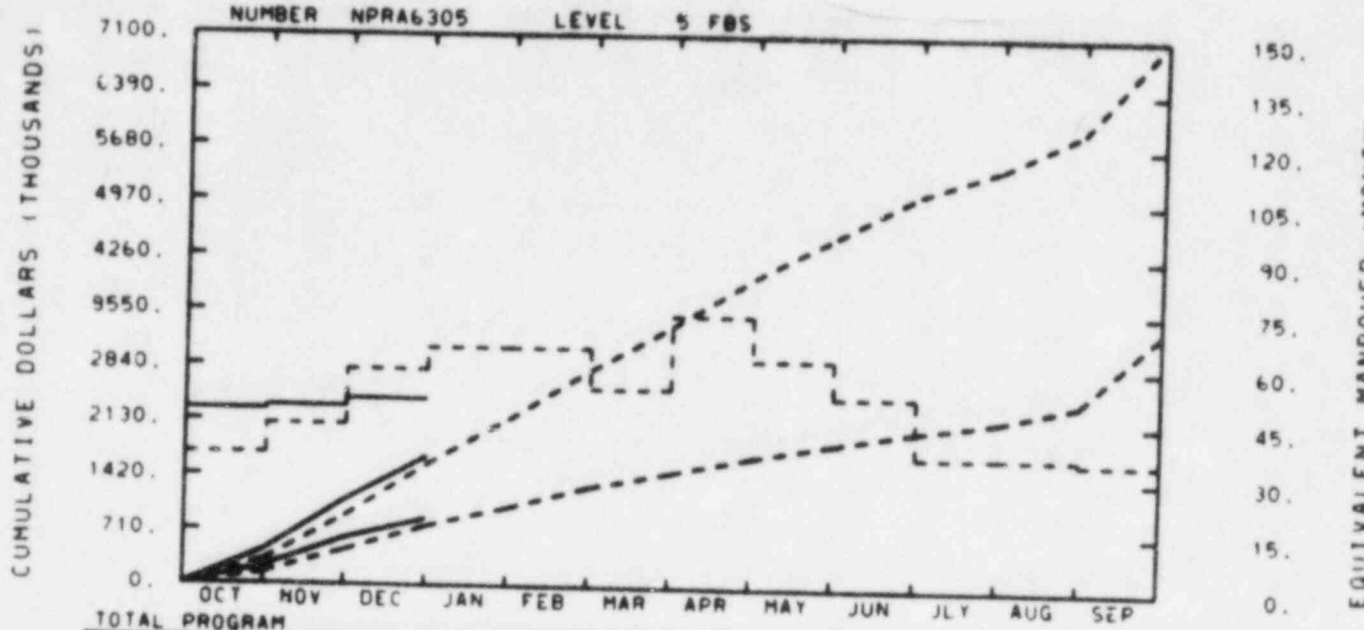
None.

SPONSIBLE
AGER
E MACDONALD

EG&G IDAHO INC.

SEVERE FUEL DAMAGE

NUMBER NPRA6305 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	319	896	1566	2157	2799	3369	4002	4535	5080	5414	5903	7096
ACTUAL	446	1103	1672									

MATERIAL

BUDGET	148	452	768	1016	1294	1489	1693	1867	2036	2174	2407	3148
ACTUAL	232	607	870									

MANPOWER

BUDGET	36	44	59	65	65	54	74	62	52	36	36	35
ACTUAL	48	49	51									

BUDGET

ACTUAL

189 NO. A6305

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 113.8	$ 298.3
MATERIALS, SERVICES AND OTHER COSTS	118.1	493.8
ADP SUPPORT	29.8	66.6
SUBCONTRACTS	100.6	266.1
TRAVEL	1.1-	2.9
INDIRECT LABOR COSTS	154.4	405.4
GENERAL AND ADMINISTRATIVE	53.2	138.8
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 568.8	$ 1,671.9

A6305

YTD VARIANCE: <106> (7%)

The overrun is due in large part to accruals in the Foreign Fuel Procurement, Fission Chamber Analysis, and SFD-2 Test Train procurement accounts, which are ahead of scheduled budget.

A6305: TFBP Severe Fuel Damage

EG&G Idaho Program/Technical Monitor: W. A. Spencer/P. E. MacDonald
DOE-ID Technical Monitor: N. Bonicelli
NRC Technical Monitor: M. Silberberg

The objective of this program is to provide the Nuclear Regulatory Commission (NRC) staff with a technical basis for evaluating the consequences of severe core damage accidents. This program will provide integral test data to be used in establishing fission product source terms, developing realistic probabilistic risk assessments, and evaluating engineered safety features.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

a. Severe Fuel Damage (SFD) Test 1-1 Experiment Prediction Analysis

The Experiment Prediction report was revised, comments incorporated, and issued.

b. Severe Fuel Damage (SFD) Test 1-2 Experiment Prediction Analysis

The steam cooler analysis was completed and efforts were begun on the reflood analysis.

c. Severe Fuel Damage (SFD) Scoping Test Quick Look Report

The Quick Look Report for the Scoping Test was issued.

d. Severe Fuel Damage Test 1 (SFD 1-1) Experiment Operating Specification (EOS)

Review of the SFD 1-1 EOS continued.

e. Postirradiation Examination (PIE) and Hot Cell Support

The SFD-ST bundle was gross gamma scanned in the PBF canal. Installation of the PIE equipment in the hot cell began.

f. Severe Fuel Damage Analysis

Consulting contracts for TRAP-MELT analyses and review of the SFD Program were completed.

2. Summary of Work Performed in December 1982 (Continued)

g. Instrument Development and Fission Chamber

The 100-Hz test data were not sent to the University of Washington because the lower frequency data are still being processed. By waiting, less 100-Hz data will need to be processed because necessary time intervals will be more precisely determined.

h. Test Train Assembly Facility (TTAF)

The SFD 1-1 test train is being retrofitted with a revised steam line heat exchanger and the check valve is being replaced. The SFD 1-2 test train continues to be assembled.

The preliminary design of the SFD 1-3/1-4 test train and the conceptual design of the Series II test train continued.

i. Series II Program Development

Meetings between program and engineering personnel to formalize the functional requirements for the Series II test train were completed. Results of the meetings were summarized in an internal control document (EDF-PBF-1706) which lists three objectives and all of the associated requirements (necessary and optional) of the test train to meet those objectives. Conceptual design was initiated and cost and schedule commitments are being prepared.

A contract with Battelle Northwest Laboratories (BNWL) to develop high temperature, oxidation resistant thermocouples for Series II was completed and work begun.

The first prototype of the video probe pinhole tip design was successfully tested in a furnace. Results of design and testing and plans for future development were presented at a management meeting on December 20.

Efforts continued at Los Alamos National Laboratory to develop a high temperature testing plan for the thoria brick product. Room temperature thermal shock and high temperature deformation under static loads representative of those expected in the Series II test train will be measured.

j. Safety Analysis - Severe Fuel Damage Test 1-1

Radiological dose calculations were performed and reviewed. Analysis was begun to verify experiment shroud integrity for higher than anticipated shroud conductivity values that were observed in the first test.

2. Summary of Work Performed in December 1982 (Continued)

k. Severe Fuel Damage Test 1-1 Experiment Safety Analysis (ESA)

Review comments are being incorporated into the ESA. Further processing of the ESA will resume when the results of Item j above are completed.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

a. Severe Fuel Damage (SFD) 1-2 Experiment Prediction Report

The reflood analysis will be completed and a draft report issued.

b. Severe Fuel Damage (SFD) 1-2 Experiment Operating Specification

The SFD 1-2 EOS will be reviewed and comments incorporated.

c. Severe Fuel Damage (SFD) 1-3 and 1-4 Experiment Specification Document

A revised draft of the SFD 1-3/1-4 ESD will be completed.

d. Postirradiation Examination (PIE) and Hot Cell Support

Installation of the hot cell equipment for receiving the SFD-ST bundle, drying it, and preparing it for shipment to Argonne National Laboratory-West for neutron radiography will be complete. The final procedures for these tasks will be approved.

e. Instrument Development and Fission Chamber

The 100-Hz fission chamber data will be sent to the University of Washington upon their request.

f. Test Train Assembly Facility (TTAF)

The SFD 1-1 test train will be completed and ready for final leak testing prior to delivery to the PBF. Assembly of the SFD 1-2 test train will continue and the preliminary design of the SFD 1-3/1-4 upper structure modifications will be completed. The conceptual design of the Series II test trains will continue.

4. Summary of Work to be Performed in January 1983 (Continued)

g. Series II Program Development

Conceptual design of the Series II test train will continue. Requirements for the upper plenum will be generated. Costs and schedules for the complete design effort will be completed.

BNWL will build and test first prototypes of protected thermocouple designs.

A revised draft ESD will be prepared, reflecting current consensus of Series II objectives.

h. Safety Analysis - Severe Fuel Damage Test 1-1

The target date for EG&G Idaho approval of the ESA and transmittal to DOE-ID is January 28, 1983.

5. Problems and Potential Problems

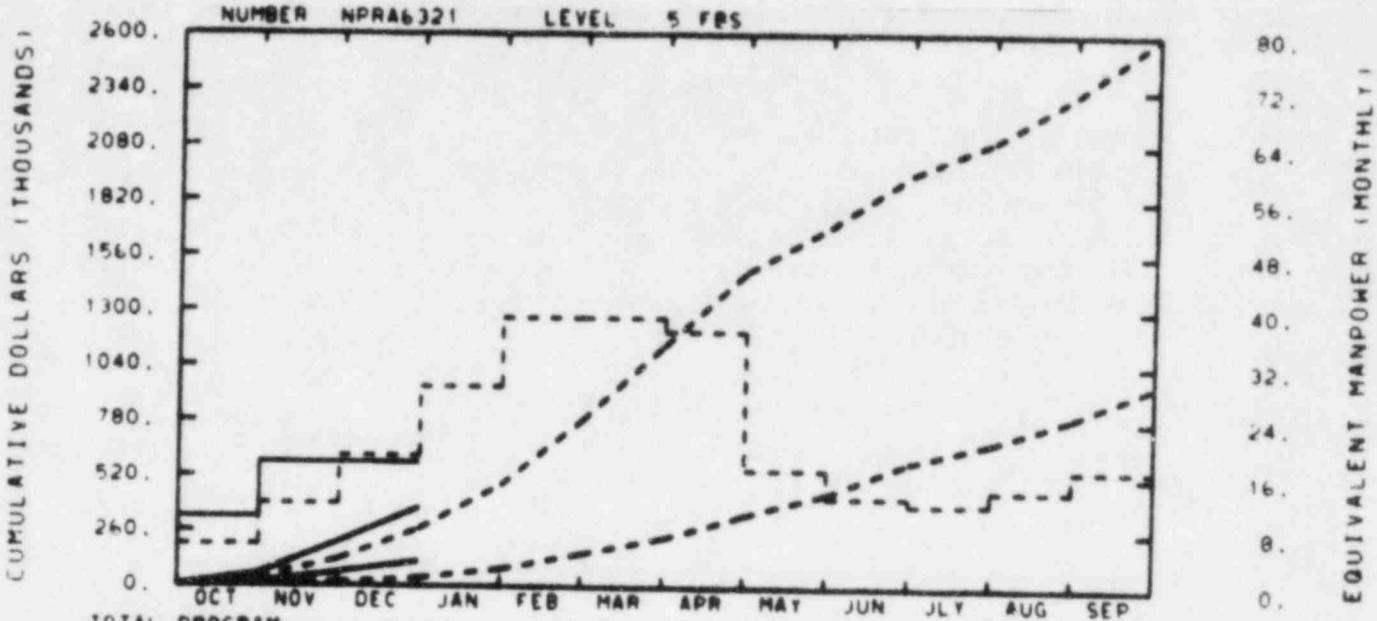
None.

RESPONSIBLE MANAGER
E MACDONALD

EG&G IDAHO INC.

IN-PILE FISSION PRODUCT STUDIES

NUMBER NPRA6321 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	37	126	272	480	784	1139	1486	1697	1947	2100	2320	2593
ACTUAL	55	209	373									

MATERIAL

BUDGET	5	18	40	84	156	232	341	441	589	680	801	955
ACTUAL	13	65	118									

MANPOWER

BUDGET	6	12	19	29	39	39	37	17	13	12	14	17
ACTUAL	10	18	18									

BUDGET ------

ACTUAL ——————

189 NO. A6321

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 41.2	$ 95.1
MATERIALS, SERVICES AND OTHER COSTS	46.3	101.0
ADP SUPPORT	1.8	2.9
SUBCONTRACTS	0.0	0.0
TRAVEL	0.1-	2.6
INDIRECT LABOR COSTS	55.4	128.0
GENERAL AND ADMINISTRATIVE	19.4	43.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 164.0	$ 372.8

A6321

YTD VARIANCE: <101> (37%)

After adjusting the budget figures for $525K, which did not pass into the CAPS system from PMS-IV, the year-to-date overrun is actually $53K. The $53K overrun is due to the Hot Cell effort for the Fission Product Detection System scope associated with the Severe Fuel Damage Scoping Test occurring earlier than budgeted and also due to procurement of test train hardware for SFD-3 being costed sooner than anticipated. Budget and actual expenditures should realign in coming months.

A6321: In-Pile Fission Product Behavior Studies

EG&G Idaho Program/Technical Monitor: W. A. Spencer/P. E. MacDonald
DOE-ID Technical Monitor: N. Bonicelli
NRC Technical Monitor: M. Silberberg

The objective of this program is to investigate fission product release and transport during in-pile severe fuel damage tests. The results being sought include isotopic release fractions, release fraction histories, and release rate constants to aid assessment of source term models.

Measurements are made using on-line gamma spectrometers, radiation monitors, and effluent grab samples. Posttest analysis is conducted on samples from the fuel, test train, effluent sample line, and effluent collection tank. This program is coordinated with and directly dependent on the PBF SFD test program (A6305).

1. Scheduled Milestones for December 1982

Node	Description	Due Date	Actual Date
N/A	Release Fraction K Model Letter Report	12-31-82	12-20-82C

2. Summary of Work Performed in December 1982

a. Fission Product Detection System (FPDS) Upgrade Completion

The PDP-11/34 at the Radiological & Environmental Sciences Lab could not be easily used in the FPDS because it is an older model and is not compatible with existing software. Efforts are continuing on trying to obtain a PDP-11/34 for use in the FPDS in time for Severe Fuel Damage (SFD) Test 1-2.

Shielding modification for calibration source installation was delayed due to cleanup of Cubicle 13. It was started on December 30, 1982, and should be completed by January 7, 1983.

Material has been ordered for the load cells to monitor the LN_2 levels in the detectors.

A design review was held on the rerouting of the steam line in Cubicle 13 past a Ge detector. The problem with the wall thickness of the steam line jacket interfering with the gamma analysis will be corrected by installing a Kapton window in the jacket in front of the Ge detector.

2. Summary of Work Performed in December 1982 (Continued)

b. Analysis Development

Efforts continue on the development of a GAUSS VIII/ORIGEN 2 analysis package. A work release was issued. Fractional release rates and release fraction histories will be the principal calculations performed by the new program. Output will be conditioned to produce plots and define uncertainties.

c. Severe Fuel Damage Scoping Test (SFD-ST)

All gas and liquid sample bombs from the Scoping Test have been analyzed. Some indications of failure to obtain representative samples have been noted, and investigations of the causes have begun. Gamma spectra have been collected on most samples; definition of sample contents and plate-out material is underway.

Efforts were initiated on sample line filter analysis, bundle power history definition, and gamma spectra processing.

d. Severe Fuel Damage Test 1-1 (SFD 1-1)

The modifications necessary for operation of the Sample System during Test SFD 1-1 have been initiated. Review of hardware designs have been conducted. Software changes are being prepared for automatic data acquisition and collimator control by the Fission Product Detection System. Temporary shielding and air purge of the detector enclosures will be provided for Test SFD 1-1; permanent shielding and other needed changes will be provided after the test.

e. SFD 1-1 Sample Line Heating

An intermediate design review was held to cover final line routing and preliminary shielding and electrical design information. Design efforts are continuing.

f. SFD 1-1 Shielding

Design was started on the shielding system in Cubicle 13 to reduce personnel exposure during posttest operations.

g. SFD 2-1 Facility Modifications Conceptual Design

Conceptual design has started on the various modifications currently identified for the SFD Series II tests.

2. Summary of Work Performed in December 1982 (Continued)

h. Series I Chemistry

Three short steam line sections were cut from the inlet lines of the gas sample bombs. Four small specimens were cut from the gas bomb steam lines and spectral gamma scanned. Steam lines from the reactor to Cubicle 13 have been sectioned and some have been sent to the hot cells for scanning.

i. Series II Measurement Development

Investigation of light scattering aerosol measurement systems continued. A system currently in use at INEL for measuring particle velocity appears to be adaptable for particle number measurements. A continuous sample system utilizing a metal tape as a collection surface is also being investigated. Sample probe sizes and nozzle design are being studied to determine the feasibility of this type of system.

j. Fission Product Signature Analysis

The RFKM (release fraction, K-model) report, presenting a computer model to calculate fission product release rate constants in the PBF tests, was issued to meet the milestone.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

a. Fission Product Detection System (FPDS) Upgrade Completion

Efforts to obtain a second PDP-11/34 for use during Test SFD 1-2 will continue. Installation of the shielding plugs for detector calibration will be completed. Calibration of the FPDS will start, and training of personnel to operate the FPDS will be held.

b. Analysis Development

Efforts will continue on the analysis package software. Test runs will be conducted with SFD-ST data.

4. Summary of Work to be Performed in January 1983 (Continued)

c. Severe Fuel Damage Scoping Test (SFD-ST)

Hot cell work on filter samples will be completed. Spectra processing will continue and sample data reduction will begin. Gamma scans of the steam line segments will be conducted.

d. Severe Fuel Damage Test 1-1 (SFD 1-1)

Sample system modifications and FPDS changes will continue in preparation for Test SFD 1-1.

e. SFD 1-1 Sample Line Heating

The final design review will be held covering the sample line rerouting and heat tracing.

f. SFD 1-1 Shielding

Design of the shielding in Cubicle 13 will be completed and design of the shielding over the reactor vessel will be started.

g. Series I Chemistry

Sections of the gas sample bomb inlet lines will be chemically characterized by leaching tests and by scanning electron microscopy and molecular optical laser examiner analysis. Sections of steam line from the reactor floor will be gross and spectral gamma scanned.

h. Series II Measurement Development

A meeting with Oak Ridge National Laboratory (ORNL), Battelle Columbus Laboratory (BCL), and the Nuclear Regulatory Commission (NRC), is scheduled for mid-January to review the measurement system proposals and establish design guidelines for the upper plenum region. Preliminary design requirements for the measurement systems and plenum region will be defined.

5. Problems and Potential Problems

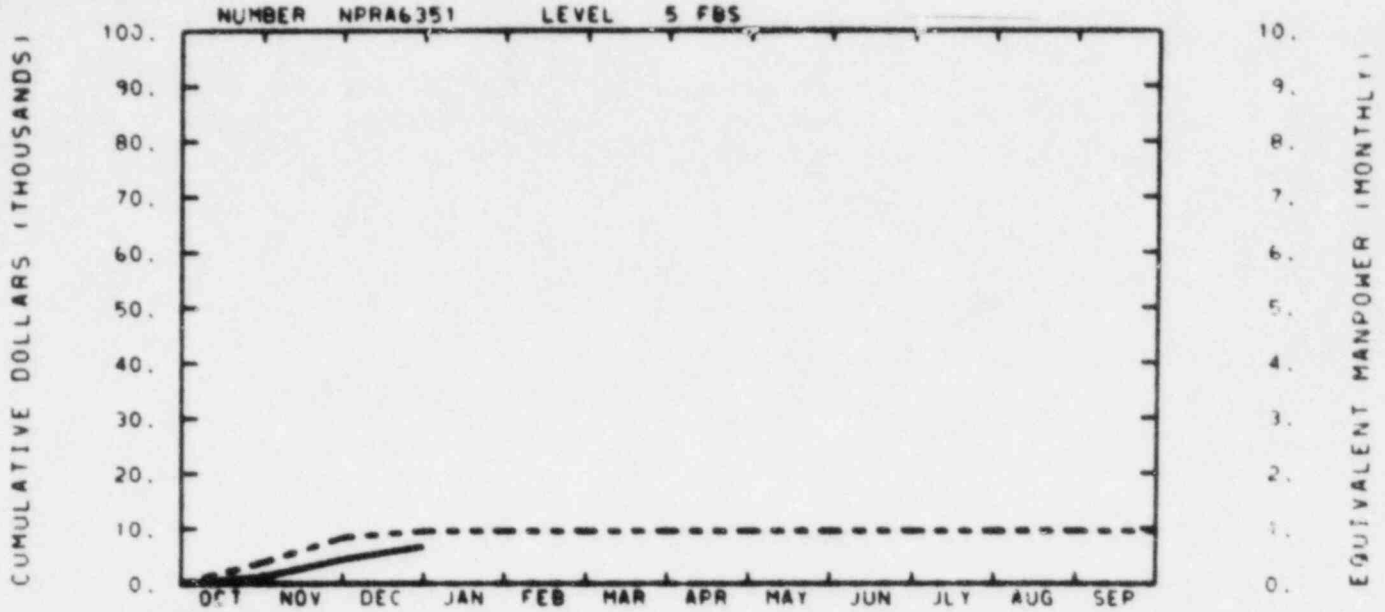
The scope of the Fission Product Detection System upgrade completion exceeds funding; management will review scope and budget to determine the best resolution of the problem.

RESPONSIBLE
NAGER
A SPENCER

EG&G IDAHO INC.

CORE MELT MITIGATION

NUMBER NPRA6351 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	4	8	10	10	10	10	10	10	10	10	10	10
ACTUAL	1	4	7									

MATERIAL

BUDGET	4	8	10	10	10	10	10	10	10	10	10	10
ACTUAL	1	4	7									

BUDGET

ACTUAL

MANPOWER

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

189 NO. A6351

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 0.0	$ 0.0
MATERIALS, SERVICES AND OTHER COSTS	2.1	2.5
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	3.8
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	0.0	0.1
GENERAL AND ADMINISTRATIVE	0.3	0.4
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 2.4	$ 6.8

A6351

YTD VARIANCE: 3 (30%)

The Sequoyah Report has been published and work on this task is complete. However, there may still be some publication costs to come in during January. This account will then be closed out.

A6351: Core Melt Mitigation

EG&G Idaho Program/Technical Monitor: W. A. Spencer/H. J. Reilly
DOE-ID Technical Monitor: J. R. Sanders
NRC Technical Monitor: R. T. Curtis

The objective of this study was to make an evaluation of systems proposed to mitigate the consequences of severe accidents with special attention to detailed engineering problems associated with backfitting the systems to the specific plants under analysis.

1. Scheduled Milestones for December 1982

   None.

2. Summary of Work Performed in December 1982

   EGG-PR-5633 was published as a NUREG report.

3. Scheduled Milestones for January 1983

   None.

4. Summary of Work to be Performed in January 1983

   This task is now complete and will no longer be reported.

5. Problems and Potential Problems

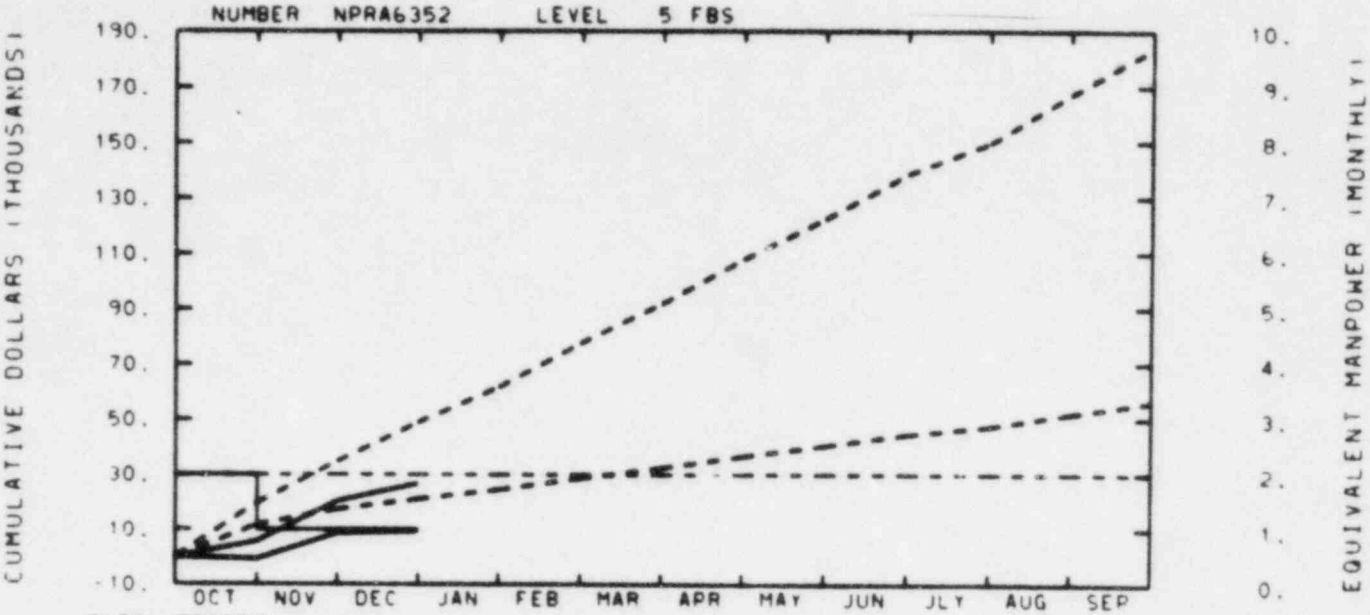
   None.

RESPONSIBLE
NAGER
E MACDONALD

EG&G IDAHO INC.

NRC REPRESENTATIVE TO KFK

NUMBER NPRA6352 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	20	35	49	62	78	92	108	123	139	150	167	184
ACTUAL	6	20	27									

MATERIAL

BUDGET	12	17	21	25	29	32	37	40	45	47	52	56
ACTUAL	0	9	9									

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6352

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 3.5	$ 10.8
MATERIALS, SERVICES AND OTHER COSTS	1.3	1.6
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.7-	7.8
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	1.4	4.3
GENERAL AND ADMINISTRATIVE	0.9	2.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 6.4	$ 26.7

A6352

YTD VARIANCE: <22> (45%)

The year-to-date underrun is due primarily to the fact that budgets are spread evenly throughout the year but moving expenses will not come in until the end of the fiscal year and they represent a significant portion of anticipated costs.

A6352: NRC Representative to KfK

EG&G Idaho Program/Technical Monitor: W. A. Spencer/P. E. MacDonald
DOE-ID Technical Monitor: N. Bonicelli
NRC Technical Monitor: M. Silberberg

The objective of this program is to provide information on severe fuel damage, fission product behavior, and core melt research in Germany to the NRC. The information will be used to complement the NRC's Severe Fuel Damage Research Program.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

This task is reported separately in bimonthly reports prepared by the NRC representative to KfK and transmitted under separate cover.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

Information on severe fuel damage, fission product behavior, and core melt research in Germany will continue to be provided to the NRC in separate bimonthly reports (see Item 2 above).

5. Problems and Potential Problems

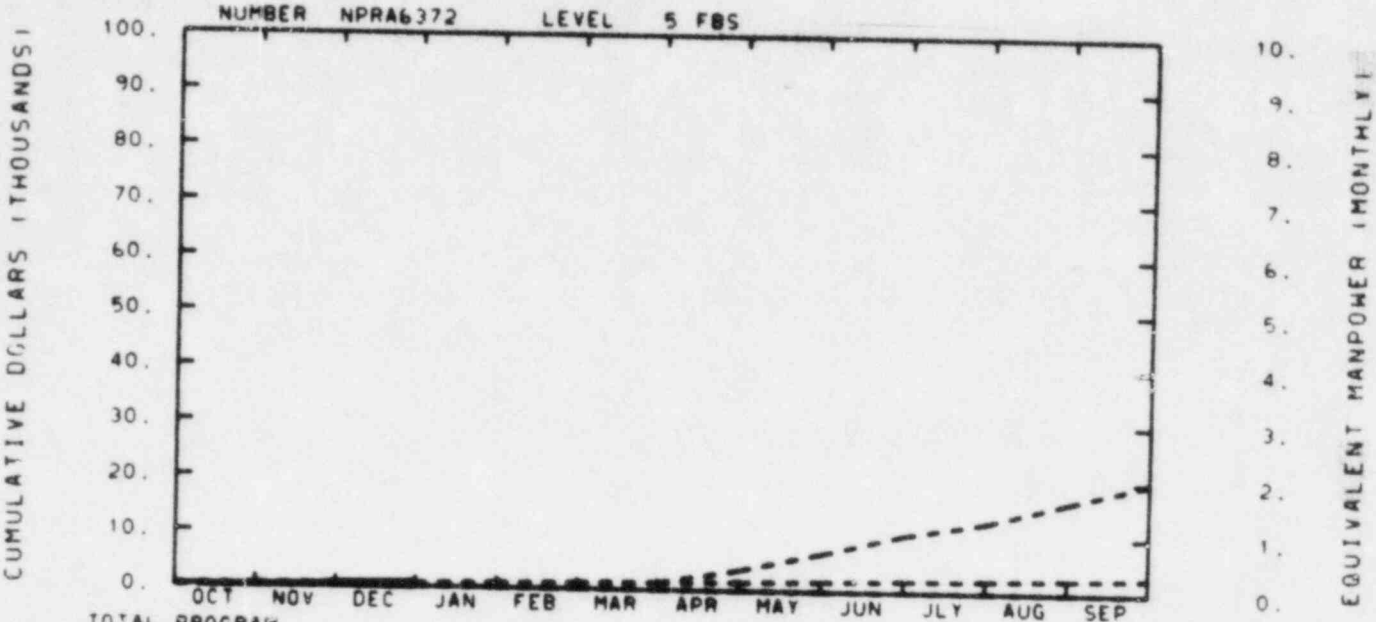
None.

RESPONSIBLE
ANAGER
E MACDONALD

EG&G IDAHO INC.

FISSION PRODUCT - PAST ACCIDENTS

NUMBER NPRA6372 LEVEL 5 FBS



TOTAL PROGRAM												
BUDGET	0	0	1	1	1	1	4	7	10	13	16	20
ACTUAL	0	1	1									
MATERIAL												
BUDGET	0	0	1	1	1	1	2	2	2	2	3	3
ACTUAL	0	0	0									
MANPOWER												
BUDGET	0	0	0	0	0	0	0	0	0	0	0	0
ACTUAL	0	0	0									

BUDGET

ACTUAL

189 NO. A6372

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 0.1	$ 0.4
MATERIALS, SERVICES AND OTHER COSTS	0.0	0.0
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	0.2	0.5
GENERAL AND ADMINISTRATIVE	0.0	0.1
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 0.3	$ 1.0

A6372: Fission Product Behavior During Past Accidents

EG&G Idaho Program/Technical Monitor: W. A. Spencer/P. E. MacDonald
DOE-ID Technical Monitor: N. Bonicelli
NRC Technical Monitor: M. Silberberg

The objective of this program is to investigate fission product behavior during past accidents and destructive tests. Well-characterized accidents were selected for detailed analysis. The remaining task is to analyze the Plutonium Recycle Test Reactor accident using TRAP-MELT to evaluate models regarding fission product release from fuel, transport of fission products through various containment barriers, potential physiochemical forms of fission products, and effects of water on fission product transport.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

None.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

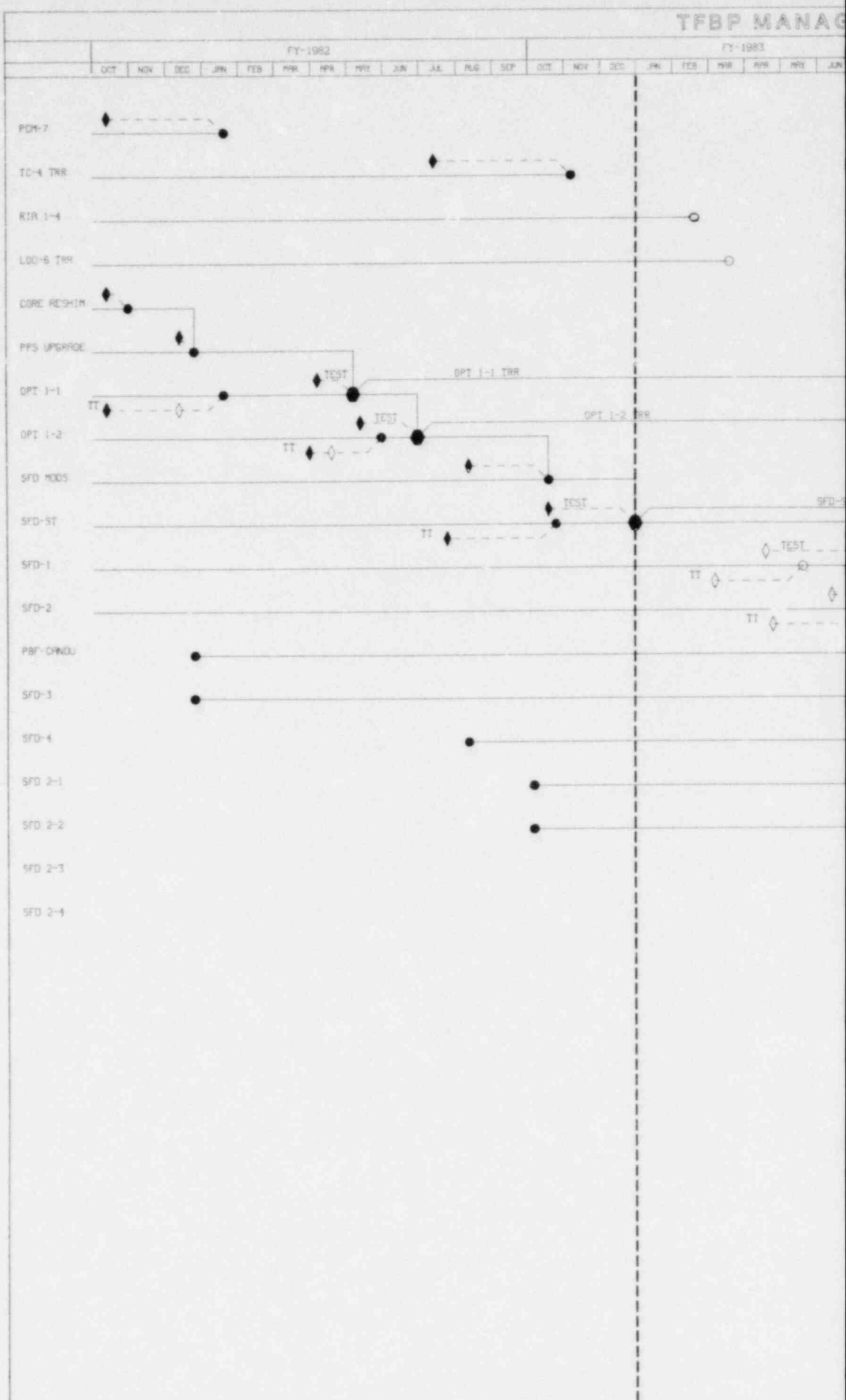
No further work will be done until the new version of TRAP-MELT is received from Battelle Columbus Laboratories.

5. Problems and Potential Problems

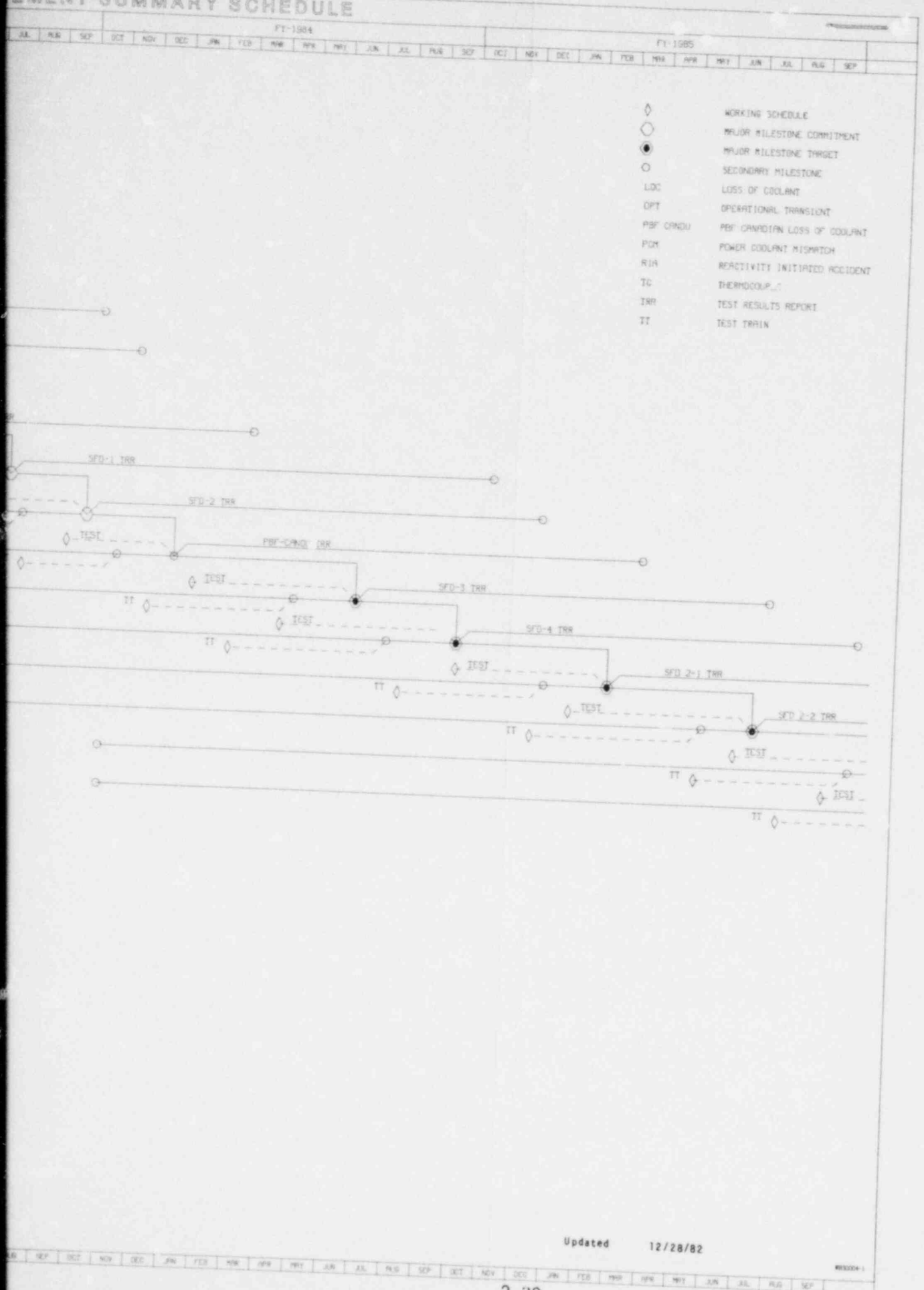
None.

THERMAL FUELS BEHAVIOR PROGRAM

MANAGEMENT SUMMARY SCHEDULE


TFBP MANAG
FY-1982
FY-1983
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
PDM-7
TC-4 TRR
RIR 1-4
LOD-6 TRR
CORE RESHIM
PPS UPGRADE
OPT 1-1
TEST
OPT 1-1 TRR
TT
OPT 1-2
OPT 1-2 TRR
SFD MODS
SFD-ST
SFD-1
SFD-2
PBF-OPNDU
SFD-3
SFD-4
SFD 2-1
SFD 2-2
SFD 2-3
SFD 2-4

EMENT SUMMARY SCHEDULE



Updated 12/28/82

THERMAL FUELS BEHAVIOR PROGRAM

CHANGE CONTROL BOARD ACTIONS

CHANGE CONTROL BOARD STATUS

Cost Account	CCB #	Description	Status	Date
42XXXXX	83-01	TFBP FY-1983 Baseline	Withdrawn	12/08/82
42XXXXX	83-03	TFBP FY-1983 Baseline - Rev. 1	Approved	12/20/82

CHANGE CONTROL BOARD ACTION

($000)

CCB #	Description	FY-1983	FY-1984	FY-1985/Beyond	Total Approved Action
83-03	TFBP FY-1983 Baseline - Revision 1	19,117.6			19,117.6

THERMAL FUELS BEHAVIOR PROGRAM

CAPITAL EQUIPMENT

THERMAL FUELS BEHAVIOR PROGRAM

CAPITAL EQUIPMENT COST REPORT
(A6091)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate at Complete
Pre FY-1983														
1/80	PBF P&M System	9E4S93060			227,508	155,341	-	1,254	218,757	3,266	223,277	4,231	0	227,508
1/81	Transient Rod Drive Control Subsystem Servo Upgrade	9E4810100	09/81	01/81	77,851	64,356	10/80	0	69,322	11,010	80,332	<2,481>	0	80,332
7/81	Data Qualification System Replace	9E4810600			91,471	70,009	-	0	85,998	0	85,998	5,473	0	88,990
1/82	FPDS Upgrade (82) and Hydrogen Monitor	9E4820100	06/82	06/82	210,296	125,812	06/82	0	207,793	5,004	212,797	<2,501>*	0	210,296
2/82	PBF Process Equipment and Instrumentation	9E4820200	10/82	10/82	30,435	30,000	08/81	1,772	28,631	32	30,435	0	0	30,435
3/82	SEM Upgrade	9E4820300	10/83		35,599	3,000		498	12,869	3,178	16,545	19,054	0	35,599
	Subtotal				673,160	448,518		3,524	623,370	22,490	649,384	23,776		
	Pre FY-1983 Costs				623,370	0		0	623,370	0	623,370	0		
	NET: Pre FY-1983				49,790	448,518		3,524	0	22,490	26,014	23,776		

NOTE: FY-1983 list will be added when funding is authorized.

* The $2,501 overrun is due to an accrual question on Contract K-1155; more is being accrued than original contract amount.

MONTHLY REPORT FOR

DECEMBER 1982

2D/3D PROGRAM

P. North, Manager

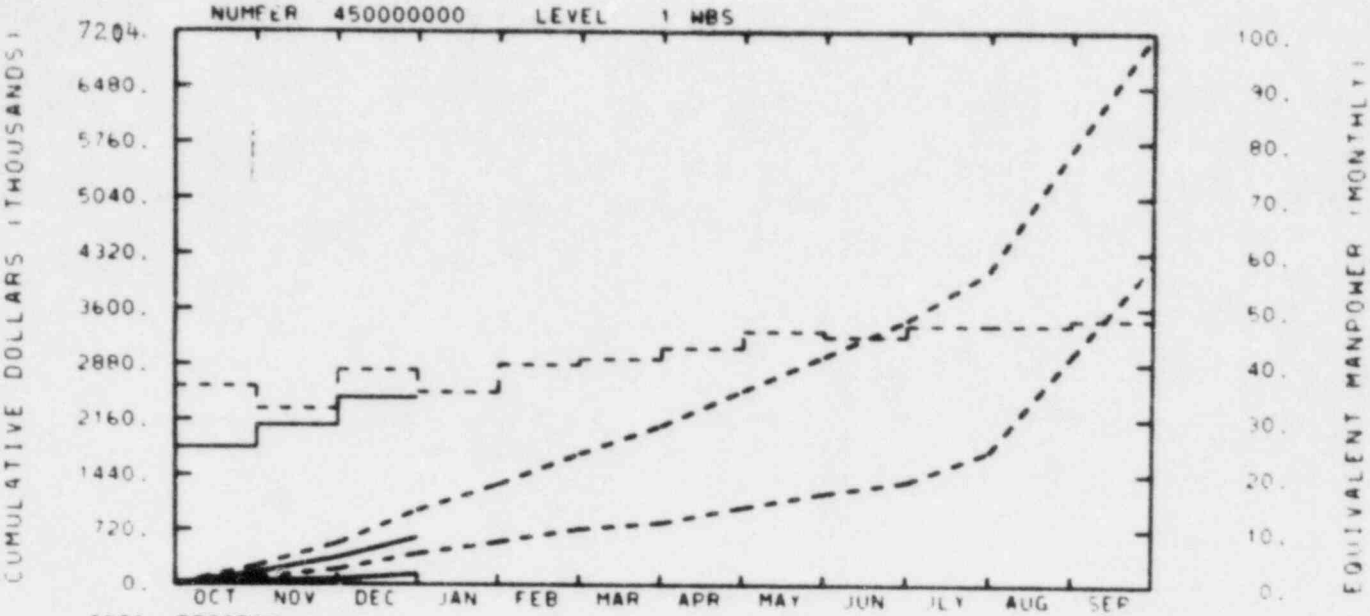
J. P. Crouch
Plans and Budget Representative

RESPONSIBLE
NAGER
NORTH

EG&G IDAHO INC.

2D-3D PROGRAM

NUMBER 450000000 LEVEL 1 WBS



TOTAL PROGRAM

BUDGET	243	539	978	1321	1722	2085	2539	2989	3456	4092	5650	7204
ACTUAL	153	353	623									

MATERIAL

BUDGET	83	199	405	562	738	818	1022	1204	1356	1749	2988	4190
ACTUAL	10	68	138									

MANPOWER

BUDGET	16	32	39	35	40	41	43	46	45	47	47	48
ACTUAL	25	29	34									

YTD VARIANCE: 355 (36%)

Individual cost graphs will give individual explanations.

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

PROGRAM MANAGERS

SUMMARY AND HIGHLIGHTS

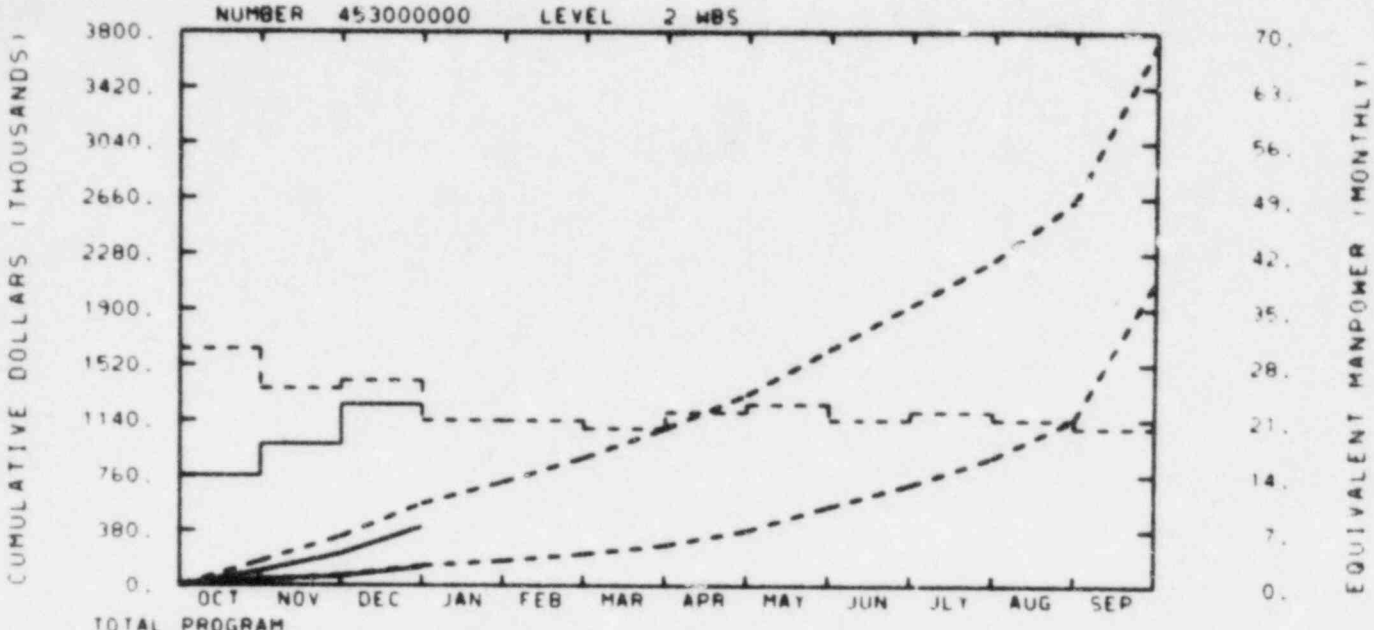
The UPTF turbine meter dummy probes were shipped to Germany on December 20, 1982. The refurbished LSI-II computer system and associated peripherals were shipped to Japan for installation and checkout next month. Included in this shipment was a new graphics terminal and software which will be used to display the wet and dry portions of the upper plenum and downcomer of the Cylindrical Core Test Facility during reflood tests.

RESPONSIBLE MANAGER
[redacted]RTH

EG&G IDAHO INC.

A6100 TECH SUPPORT & INSTRUMENT

NUMBER 453000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	166	339	567	717	885	1085	1315	1621	1925	2235	2638	3736
ACTUAL	98	220	408									

MATERIAL

BUDGET	37	68	137	172	219	281	380	547	697	886	1146	2094
ACTUAL	39	65	128									

MANPOWER

BUDGET	30	25	26	21	21	20	22	23	21	22	21	20
ACTUAL	14	18	33									

189 NO. A6100

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 48.2	$ 108.5
MATERIALS, SERVICES AND OTHER COSTS	60.8	108.5
ADP SUPPORT	0.6	1.2
SUBCONTRACTS	0.0	13.0
TRAVEL	0.0	0.7
INDIRECT LABOR COSTS	61.1	136.7
GENERAL AND ADMINISTRATIVE	17.1	39.0
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 187.8	$ 407.6

A6100

YTD VARIANCE: 159 (28%)

The underruns to date are caused by: 1) spread of level-of-effort account unequal to spending rate, $50K; 2) slow start on the Upper Plenum Test Facility (UPTF) Drag Disk, $30K; and 3) delayed start on the Slab Core Test Facility (SCTF-II) refurbishment, $80K. These delays are not expected to impact commitments.

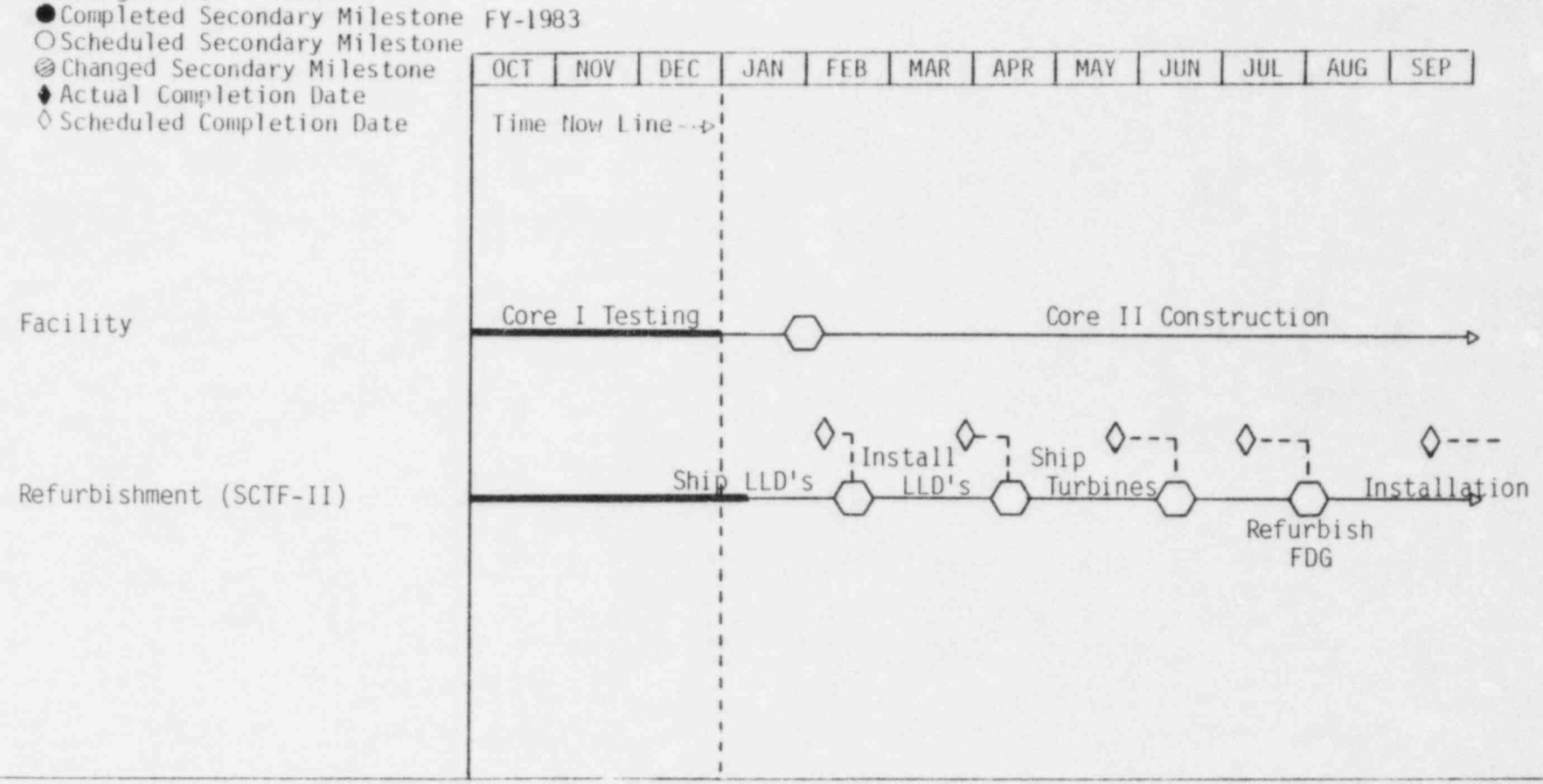
LEGEND

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

2D/3D PROGRAM

SCTF Projects (A6100)

December 1982



NOTES:

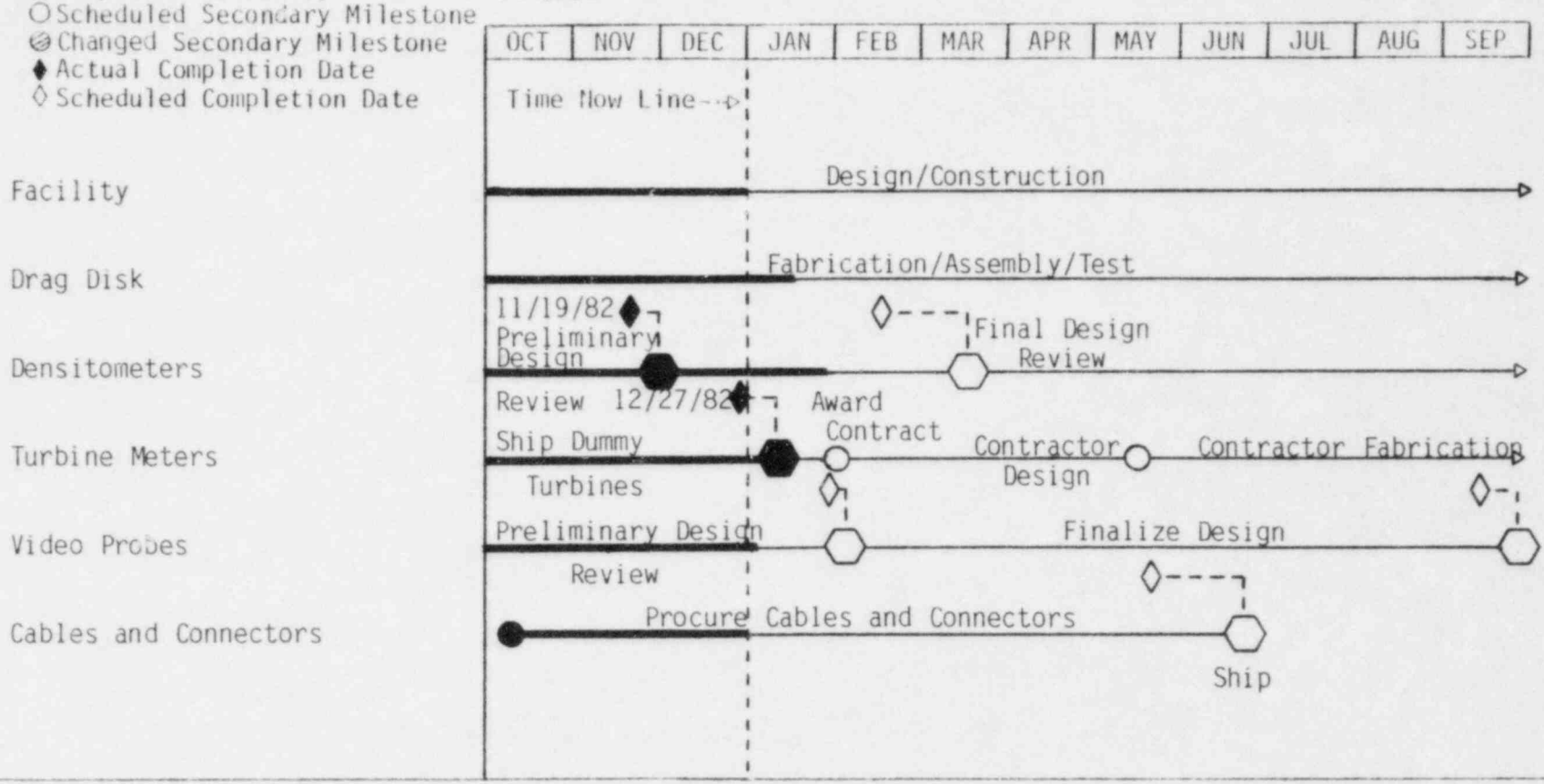
LEGEND

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

2D/3D PROGRAM

UPTF Projects (A6100)

December 1982



NOTES:

A6100: 3D Technical Support and Instrumentation
EG&G Idaho Technical Monitor: J. B. Colson
DOE-ID Technical Monitor: W. R. Young
NRC Technical Monitor: Y. S. Chen

The 3D Technical Support and Instrumentation Project provides instrumentation and technical support for the 2D/3D Refill and Reflood Program. This is a multinational program under an international agreement among the United States Nuclear Regulatory Commission (USNRC), the Federal Minister for Research and Technology (BMFT) of the Federal Republic of Germany (FRG) and the Japan Atomic Energy Research Institute (JAERI). This program is designed as an analytical and experimental study of the thermal-hydraulic behavior of emergency core coolant during the refill and reflood phases of a postulated Loss-of-Coolant Accident (LOCA) in a pressurized water reactor (PWR). Instrumentation is being provided for the Cylindrical Core Test Facility (CCTF) and Slab Core Test Facility (SCTF) in Japan and the Primary Coolant Loop (PKL) and the Upper Plenum Test Facility (UPTF) in FRG. These instruments, which are based on advanced instrumentation developed at the Idaho National Engineering Laboratory (INEL), are being designed, fabricated, tested, and installed in the test facilities. The NRC is being supported in a staff capacity for all aspects of the 2D/3D Program including experimental design, operational support and analysis of test results.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

A. Federal Republic of Germany (FRG) Upper Plenum Test Facility

1. 453071000 - Drag Disks

Fabrication has continued on a low priority basis. All parts for coil fabrication have been machined and inspected.

2. 453072000 - Gamma Densitometer

The preliminary design review report was issued. The action items from the review are being incorporated and the final design of the system has been initiated. Fabrication of the electronic modules has begun.

3. 453073000 - Turbine Meters

The UPTF turbine meter dummy probes were shipped to Germany December 20, 1982 with an expected arrival in Nurnberg of 27 December. Response to the turbine meter RFP has been

good with at least four companies indicating they will submit a bid proposal. An extension of one week has been granted for receipt of bids. Bids are now due on January 7, 1983.

B. Japan Atomic Energy Research Institution (JAERI) Slab Core Test Facility

1. 453091000 - Core II Refurbishment

The design of eight UCSP turbine meters for SCTF-II was completed and the drawings were released. The incore conductivity probes for SCTF-II were 70% completed. Paperwork was initiated to obtain the eight UCSP turbine meters.

2. 453092000 - Core III Refurbishment

No activity.

C. Operational Support

1. 453013000 - FRG Operational Support

The PKL spool piece densitometer detectors were repaired and are at ORTEC Paris waiting for shipment to Germany.

2. 453023000 - JAERI Operational Support

The refurbished LSI-11 system was shipped to Japan. The CCTF OLLD stalk repair was completed and the assembly was shipped to Japan.

3. Scheduled Milestones for January 1983

Node	Description	Due Date	Actual Date
	Ship dummy turbines	1-15-83	12-27-82

4. Summary of Work to be Performed in January 1983

A. FRG Upper Plenum Test Facility

1. 453071000 - Drag Disks

Fabrication will continue on a low priority basis.

2. 453072000 - Gamma Densitometers

The final design of the system will progress to approximately 50% completion. Fabrication of the electronic modules will continue on a low priority basis.

3. 45307300 - Turbine Meters

The bid proposals for final design and fabrication of the UPTF turbine meter systems will be evaluated and the vendor selection process completed.

B. JAERI Slab Core Test Facility

1. 453091000 - Core II Refurbishment

The sole source justification letter and purchase requisition will be given to purchasing to obtain the eight UCSP turbine meters. The fabrication of incore conductivity stalks will be completed and the stalks will be sent to JAERI in Japan.

2. 453092000 - Core III Refurbishment

A scheduling meeting will be held at Sandia for the SCTF-III work effort.

C. Operational Support

1. 453013000 - FRG Operational Support

Delivery of the repaired densitometer detectors to the PKL facility will be completed.

2. 453023000 - JAERI Operational Support

The LSI-11 system will be installed and a system checkout completed. The CCTF OLLD stalk will be installed, the optical fibers connected to the electronics, and a system checkout completed.

5. Problems and Potential Problems

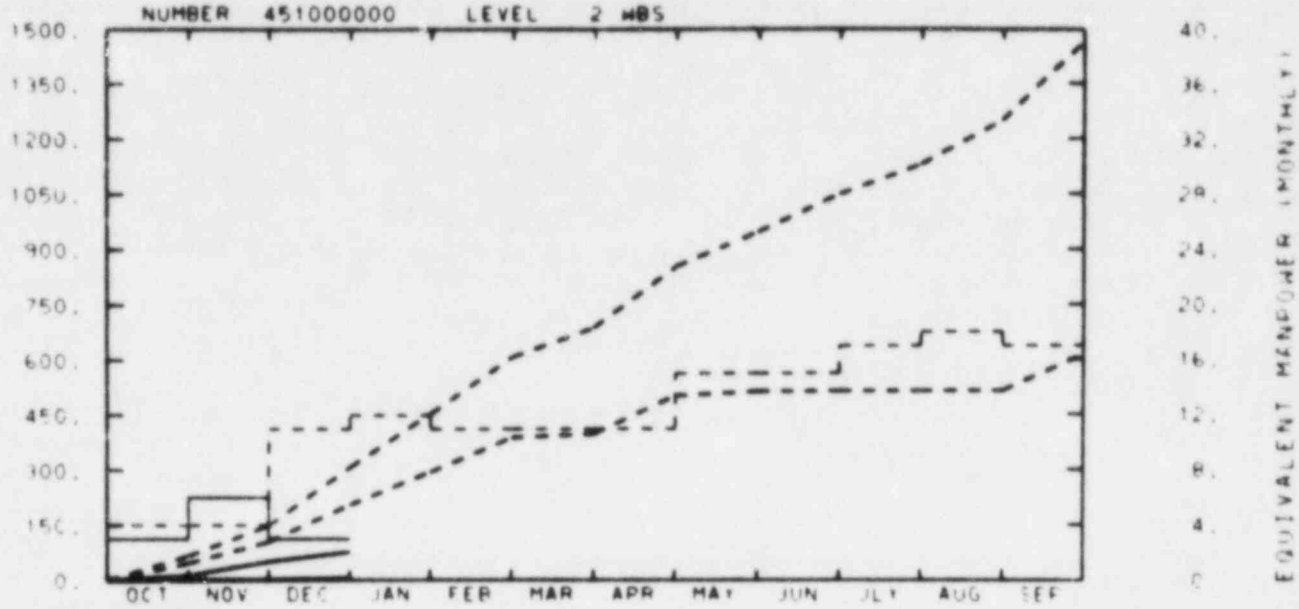
Although slow starts on the UPTF Drag Disk and SCTF-II refurbishment are not expected to impact commitments the manpower allocations to these tasks are being monitored very closely to insure no further delays occur.

RESPONSIBLE
AGER
NORTH

EG&G IDAHO INC.

A6282 FLUID DISTRIBUTION GRIDS

NUMBER 451000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	66	148	308	454	608	689	854	948	1050	1131	1250	1471
ACTUAL	13	51	77									

MATERIAL

BUDGET	46	105	206	295	389	399	532	513	514	514	514	613
ACTUAL	0	2	6									

BUDGET ------
ACTUAL ——————

MANPOWER

BUDGET	4	4	11	12	11	11	11	15	15	17	18	17
ACTUAL	3	6	3									

189 NO. A6282

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 8.7	$ 27.2
MATERIALS, SERVICES AND OTHER COSTS	3.7	5.4
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	11.4	35.8
GENERAL AND ADMINISTRATIVE	3.0	9.0
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 26.8	$ 77.4

A6282

YTD VARIANCE: 231 (75%)

Material supplier delays have resulted in $198K of uncosted materials and $27K of unused fabrication labor on the Upper Plenum Test Facility Fluid Distribution Grid (UPTF FDG). Also, a one-month delay in the installation of the Cylindrical Core Test Facility (CCTF-II) FDG Data System, as requested by the Japan Atomic Energy Research Institute (JAERI), accounts for a $6K underrun.

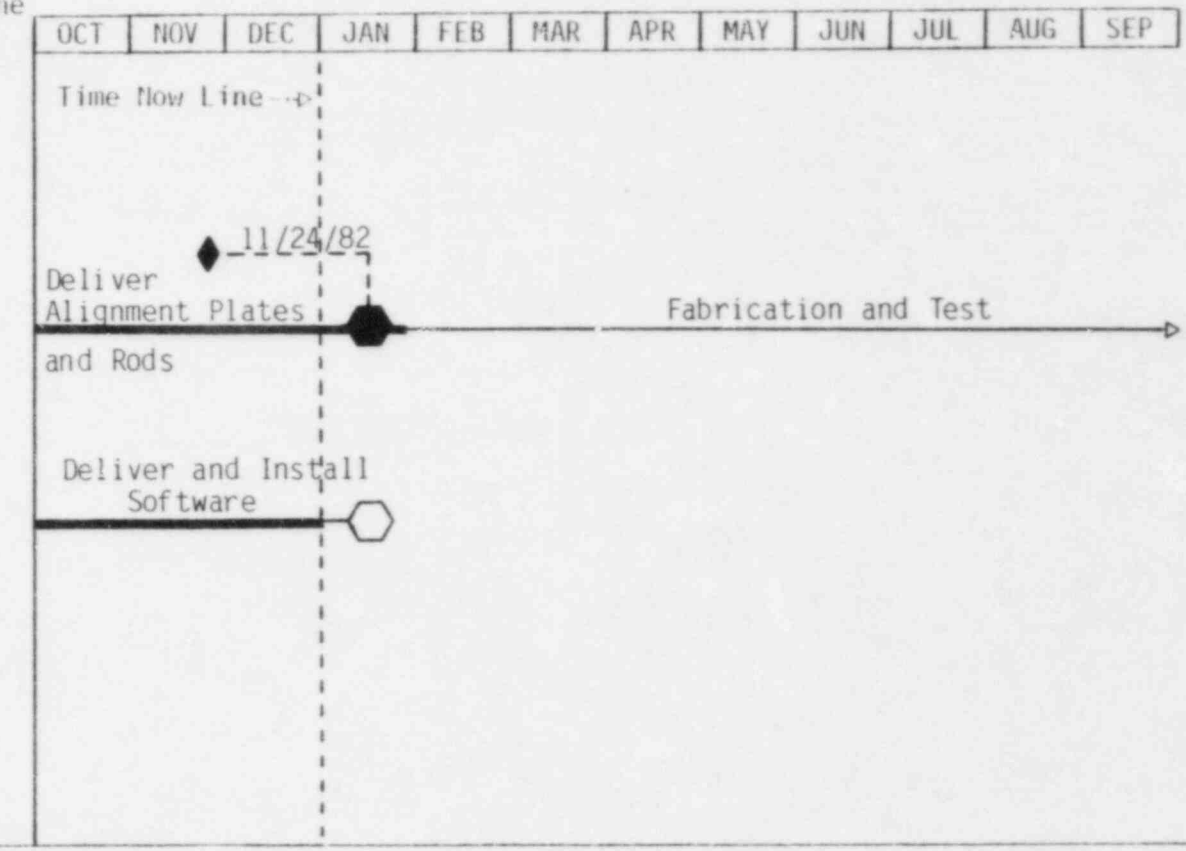
LEGEND

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

2D/3D PROGRAM

December 1982

Fluid Distribution Grids (A6282)



NOTES:

A6282: Fluid Distribution Grid System for 3D Program Facilities
EG&G Idaho Technical Monitor: J. B. Colson
DOE-ID Technical Monitor: W. R. Young
NRC Technical Monitor: Y. S. Chen

The fluid distribution measurement systems measure liquid level, and detect gross local voids and water distribution in various regions of each facility simulated core vessel for the 2D/3D Refill and Reflood Program. This is a multinational program under an international agreement among the United States Nuclear Regulatory Commission (USNRC), the Federal Minister for Research and Technology (BMFT) of the Federal Republic of Germany (FRG) and the Japan Atomic Energy Research Institute (JAERI). This program is designed as an analytical and experimental study of the thermal-hydraulic behavior of emergency core coolant during the refill and reflood phases of a postulated Loss-of-Coolant Accident (LOCA) in a pressurized water reactor (PWR). This instrumentation is being provided for the Cylindrical Core Test Facility (CCTF) and Slab Core Test Facility (SCTF) in Japan and the Upper Plenum Test Facility (UPTF) in FRG.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

A. 451012000 - JAERI Cylindrical Core Test Facility Core-II Fluid Distribution Grid

The acceptance demonstration held early this month was successful and all software, procedures, and draft manuals were accepted by JAERI representatives. The AED terminal was sent to Japan. Final manuals are in reproduction.

B. 451013000 - FRG Upper Plenum Test Facility Fluid Distribution Grid

The rough draft of the assembly procedure for the optical probe assembly was completed. The vendor for optical fiber has made an initial run. The vendor for optical tips has been delayed in his shipment because the sapphire windows were shipped late by his supplier. The fiber support guide was ordered. The sole source justification letter for the optical detectors was initiated. Purchase requisitions were submitted for the support material for fabrication of the UPTF FDG/LLD optical probes.

3. Scheduled Milestones for January 1983

Node	Description	Due Date	Actual Date
	Deliver and install OLLD software	1-15-83	

4. Summary of Work to be Performed in January 1983

A. 451012000 - JAERI Cylindrical Core Test Facility Core II Fluid Distribution Grid System

Final manuals will be issued and shipped to JAERI.

Installation of the AED terminal and software for FDG system in Japan will be completed. The demonstration of the FDG display will be given to JAERI personnel.

B. 451013000 - FRG Upper Plenum Test Facility Distribution Grid System

Source inspection will be performed on the optical fiber and the fiber will be shipped from the vendor. The optical tip vendor will have some tips fabricated. The conax seals for the upper plenum FDG/LLD stalks will be ordered. The sole source justification letter for optical detectors will be completed.

5. Problems and Potential Problems

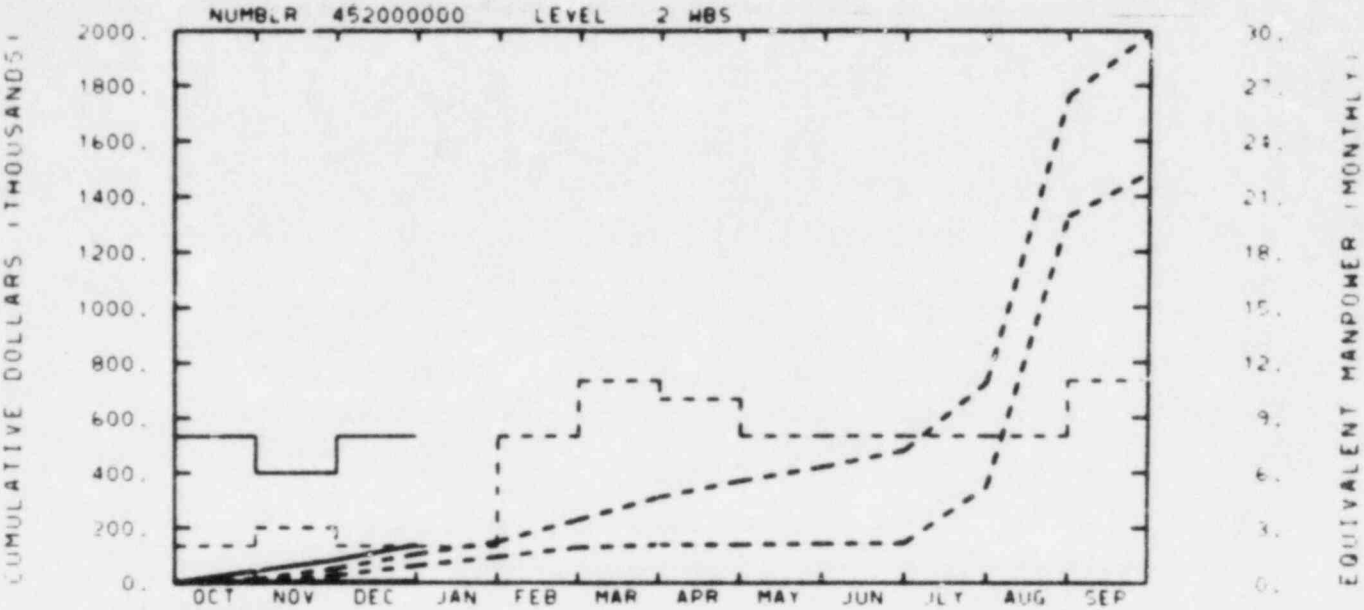
The late delivery of probe tips for the UPTF FDG is creating a delay in the planned fabrication of FDG sensors. Tasks are being rearranged such that this will not impact delivery schedules unless further delays occur.

RESPONSIBLE MANAGER
NORTH

EG&G IDAHO INC.

A6289 UPTF DA?

NUMBER 452000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	10	52	104	150	229	312	370	421	480	726	1761	1997
ACTUAL	42	82	138									

MATERIAL

BUDGET	0	26	62	95	129	139	139	143	145	349	1327	1483
ACTUAL	1	2	4									

MANPOWER

BUDGET	2	3	2	2	8	11	10	8	8	9	8	11
ACTUAL	8	6	8									

BUDGET ------

ACTUAL ——————

189 NO. A6289

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 20.0	$ 50.5
MATERIALS, SERVICES AND OTHER COSTS	2.2	3.1
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.6
INDIRECT LABOR COSTS	26.3	66.6
GENERAL AND ADMINISTRATIVE	6.8	16.9
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 55.3	$ 137.7

A6289

YTD VARIANCE: <34> (33%)

The temporary baseline for the Upper Plenum Test Facility Data Acquisition System (UPTF DAS) has been extensively modified to represent the present plan and will be updated by CCB action.

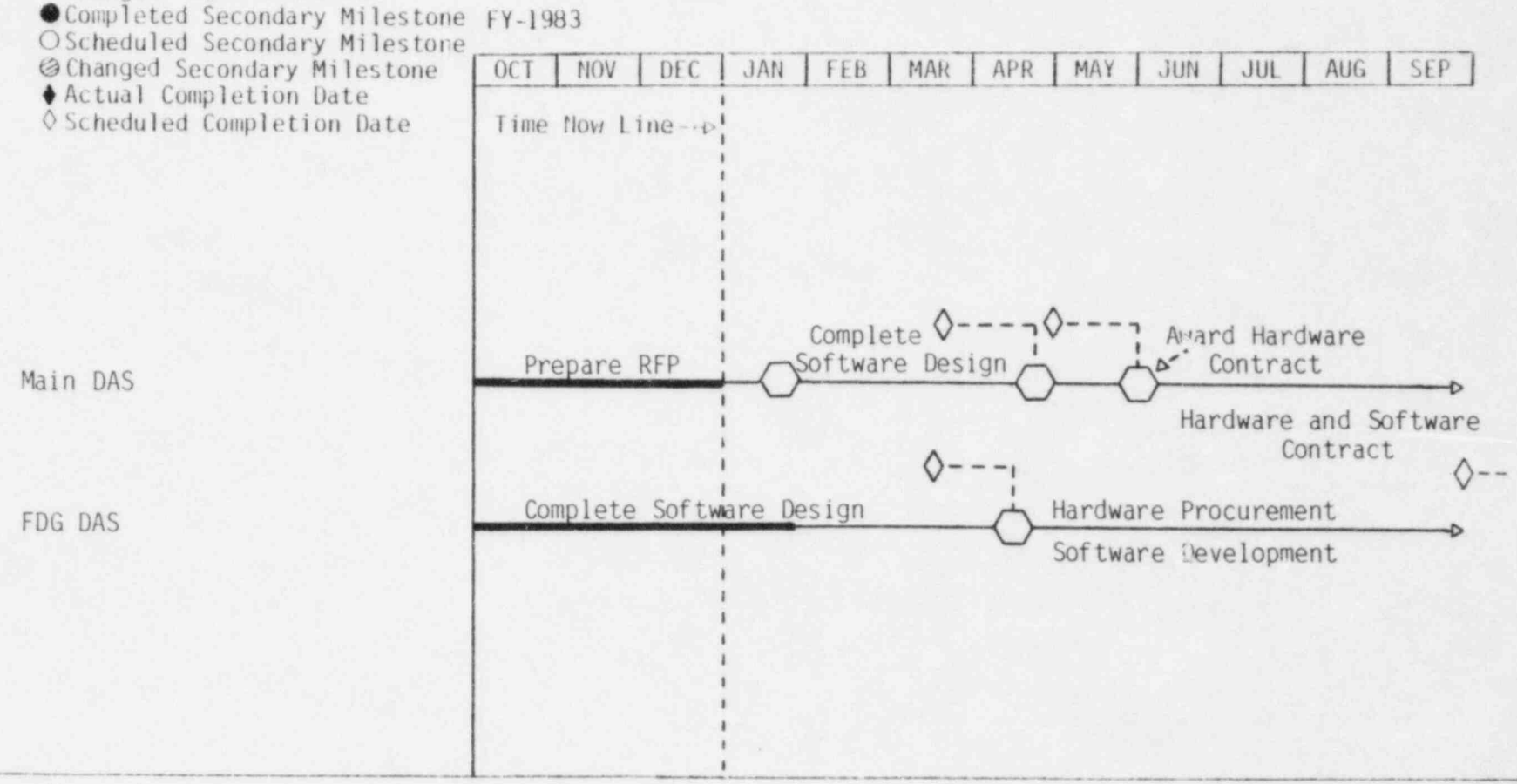
LEGEND

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

2D/3D PROGRAM

December 1982

UPTF Data Acquisition System (A6289)



NOTES:

A6289: FRG Upper Plenum Test Facility Data Acquisition System

EG&G Idaho Technical Monitor: J. B. Colson
DOE-ID Technical Monitor: W. R. Young
NRC Technical Monitor: Y. S. Chen

The Data Acquisition System (DAS) for the Upper Plenum Test Facility (UPTF) Project provides an electronic data acquisition system for the experimental measurements in UPTF. This test facility is part of a multinational program under international agreement among the United States Nuclear Regulatory Commission (USNRC), the Federal Minister for Research and Technology (BMFT) of the Federal Republic of Germany (FRG) and the Japan Atomic Energy Research Institute (JAERI). This Program is designed as an analytical and experimental study of the thermal-hydraulic behavior of emergency core coolant during the refill and reflood phases of a postulated Loss-of-Coolant (LOCA) in a Pressurized Water Reactor (PWR). The UPTF is to be constructed in Germany.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

The Implementation Plan, System Study, Hardware and Software Specifications, Statement of Work, and Instructions to Bidders for the Main DAS were all completed, passed through the EG&G approval cycle, and submitted to DOE. Work has started with Procurement on preparation of the RFP.

A draft Hardware Specification and a draft System Study were completed for the FDG DAS, and work started on the Software Specification.

3. Scheduled Milestones for January 1983

Node	Description	Due Date	Actual Date
	Mail RFP for Main DAS	1-24-83	

4. Summary of Work to be Performed in January 1983

DOE approval of the Implementation Plan for the Main DAS is expected about January 14. Work will continue on the RFP with Procurement. We are trying to meet a January 24 date for mailing the RFP.

Work will continue on preparation of procurement documentation for the FDG DAS Hardware, and the FDG DAS Software Specification.

5. Problems and Potential Problems

None.

2D/3D PROGRAM

CAPITAL EQUIPMENT

2D/3D PROGRAM

CAPITAL EQUIPMENT COST REPORT
(A6295)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate at Complete
Pre FY-1983														
1/80	Instrument Development Data System	9MB992530	05/80	05/80	24,600	24,600	05/80	53	23,549	0	23,602	998	C	23,602

MONTHLY REPORT FOR

DECEMBER 1982

NUCLEAR SAFETY METHODS DIVISION

F. Aguilar, Manager

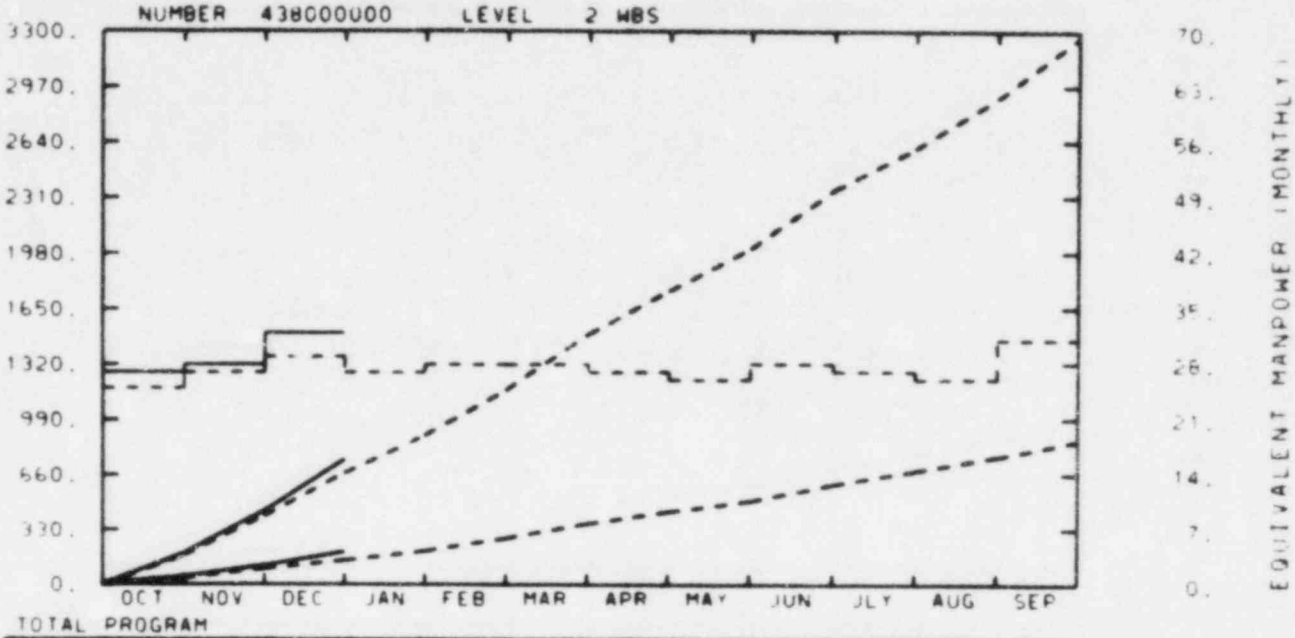
L. Morgan
Plans and Budget Representative

RESPONSIBLE MANAGER AGUILAR

EG&G IDAHO INC.

CODE DEVELOPMENT-RESEARCH

NUMBER 438000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	175	413	671	899	1168	1497	1757	2007	2352	2601	2901	3266
ACTUAL	188	445	754									

MATERIAL

BUDGET	39	95	145	202	279	367	438	503	602	683	767	860
ACTUAL	48	116	197									

MANPOWER

BUDGET	25	27	29	27	28	28	27	26	28	27	26	31
ACTUAL	27	28	32									

BUDGET

ACTUAL

YTD VARIANCE: <83> (12%)

Individual cost graphs will give individual explanations.

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

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

Successful checkout of SCDAP/MOD0 was completed on December 2, 1982. Activity began on SCDAP/MOD0 developmental assessment and the conceptual design for MOD1.

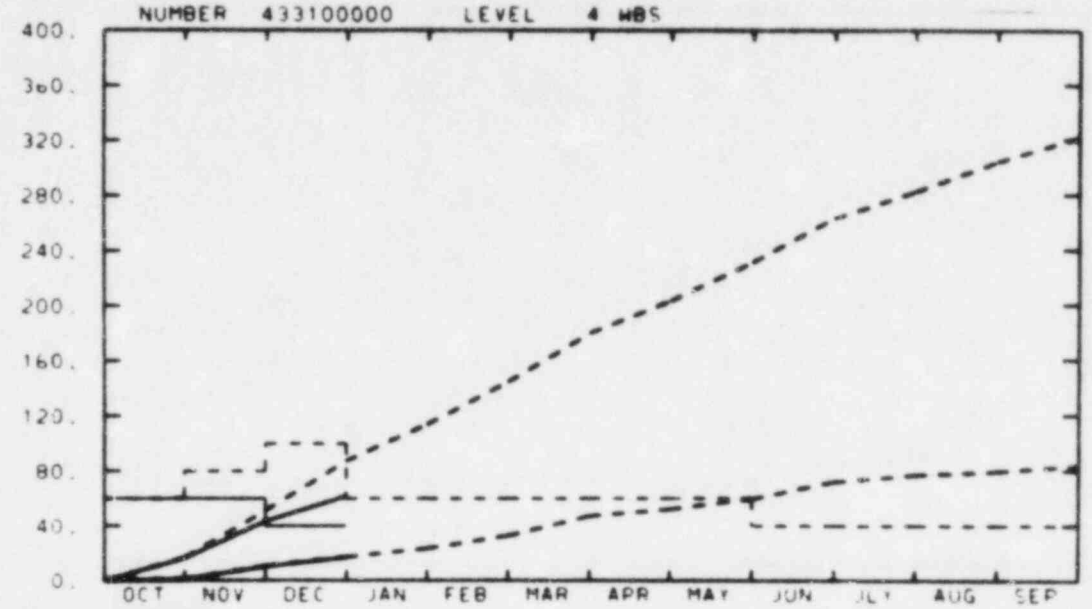
A preliminary set of functional requirements for the Nuclear Plant Analyzer (NPA) was published as scheduled for NRC, DOE, LANL, and TDC review, comment, and approval. Consensus was reached among LANL, TDC, and INEL on NPA design alternatives, and work continued on the conceptual design of the common user interface.

RESPONSIBLE
MAGER
HOWE

EG&G IDAHO

FUEL BEHAVIOR MODEL DEV (A6050)

NUMBER 433100000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	17	51	87	114	145	180	203	231	263	282	304	322
ACTUAL	16	43	62									

MATERIAL

BUDGET	1	11	17	23	33	47	52	59	72	77	79	84
ACTUAL	1	10	17									

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6050

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 4.2	$ 16.4
MATERIALS, SERVICES AND OTHER COSTS	0.4	1.9
ADP SUPPORT	6.1	12.2
SUBCONTRACTS	0.0	0.0
TRAVEL	0.4-	0.8
INDIRECT LABOR COSTS	5.9	22.9
GENERAL AND ADMINISTRATIVE	2.3	7.6
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 18.5	$ 61.8

A6050

YTD VARIANCE: 25 (29%)

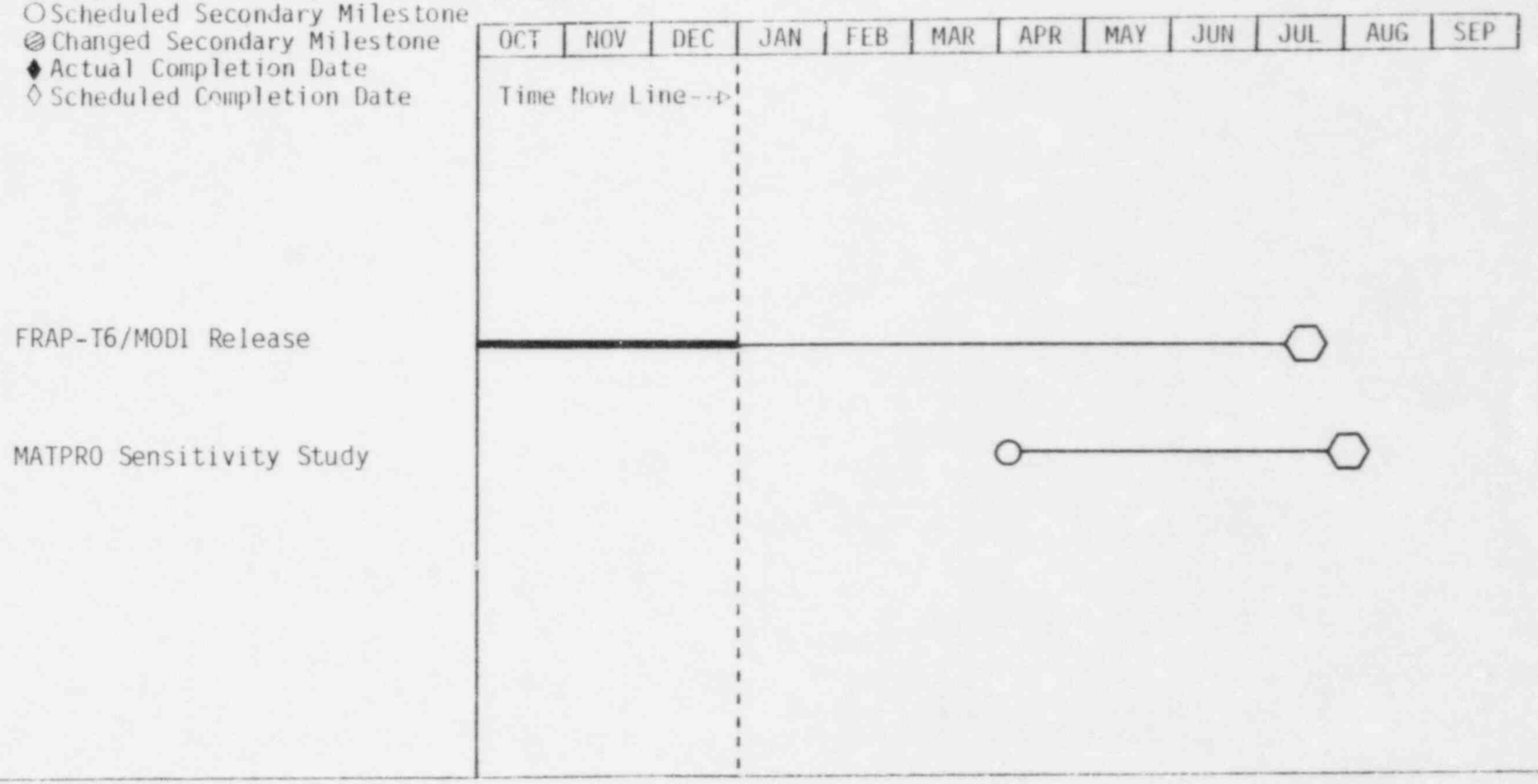
The year-to-date variance is caused by budgets not being consistent with the working plan. Revised work packages and budgets are currently in place, and will appear in the January monthly report.

NUCLEAR SAFETY METHODS DIVISION December 1982

Fuel Behavior Model Development (A6050)

LEGEND

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



NOTES: The milestones for FRAP-T6/MOD1 Release and MATPRO Sensitivity Study are currently being reviewed by NRC and, therefore, are subject to change.

189 A6050 - Fuel Behavior Model Development

EG&G Idaho Technical Monitor: T. M. Howe
DOE-ID Technical Monitor: D. Majumdar
NRC Technical Monitor: G. P. Marino

The Fuel Behavior Model Development Project provides for development and maintenance of (a) a "best estimate" computer code (FRAP-T) which predicts the thermal-mechanical-chemical behavior of light water reactor fuel rods during anticipated transients and postulated accidents including fuel failure probabilities and the associated release of fission products from the fuel rod after such events, (b) basic transient fuel rod behavior models which are required for the FRAP-T code and the SCDAP code, and LWR fuel rod materials properties models which serve as an environmental package (MATPRO) for the fuel behavior codes. Additionally, experimental data and analytical models from the Idaho National Engineering Laboratory (INEL) and other national laboratories, industry, etc., are reviewed and incorporated in the computer codes as appropriate. The analytical tools developed by this project are used by the Nuclear Regulatory Commission (NRC) to audit licensee submittals and by NRC's contractors to plan and interpret fuel behavior experiments.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

a. FRACAS-II

A study was completed using FRAP-T6 with the new FRACAS-II subcode to assess pellet-cladding mechanical interaction modeling. A letter report has been prepared describing this study and its results. This letter report was reviewed during late December and will be transmitted to DOE/NRC in early January.

b. FRAP-T6

The task to reduce the FRAP-T6 running time was begun in November by starting the examination and evaluation of the change in FRAPCON-2 code structure done at PNL to reduce FRAPCON-2 running time. This work will continue through June.

c. Transient Fuel Behavior Models

A letter was sent to Argonne National Laboratory (ANL) transmitting a microfiche listing of SCDAP/MODO for the purpose of supporting efforts to revise PARAGRASS for incorporation into

2. Summary of Work Performed in December 1982 (continued)

c. Transient Fuel Behavior Models (continued)

SCDAP. ANL is in the process of determing what must be done to PARAGRASS for this purpose and will report to INEL during early January.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

a. FRACAS-II

The letter report describing the results of the pellet-cladding mechanical interaction study using FRAP-T6 with FRACASS-II will be transmitted to DOE/NRC in early January.

b. FRAP-T6

A new version of FRAP-T6 will be transmitted to the National Energy Software Center. Work on the task to reduce the FRAP-T6 running time which began in November will continue at a low level of effort during January and February at which time the evaluation of using a code structure change similar to that used with FRAPCON-2 will be completed.

5. Problems and Potential Problems

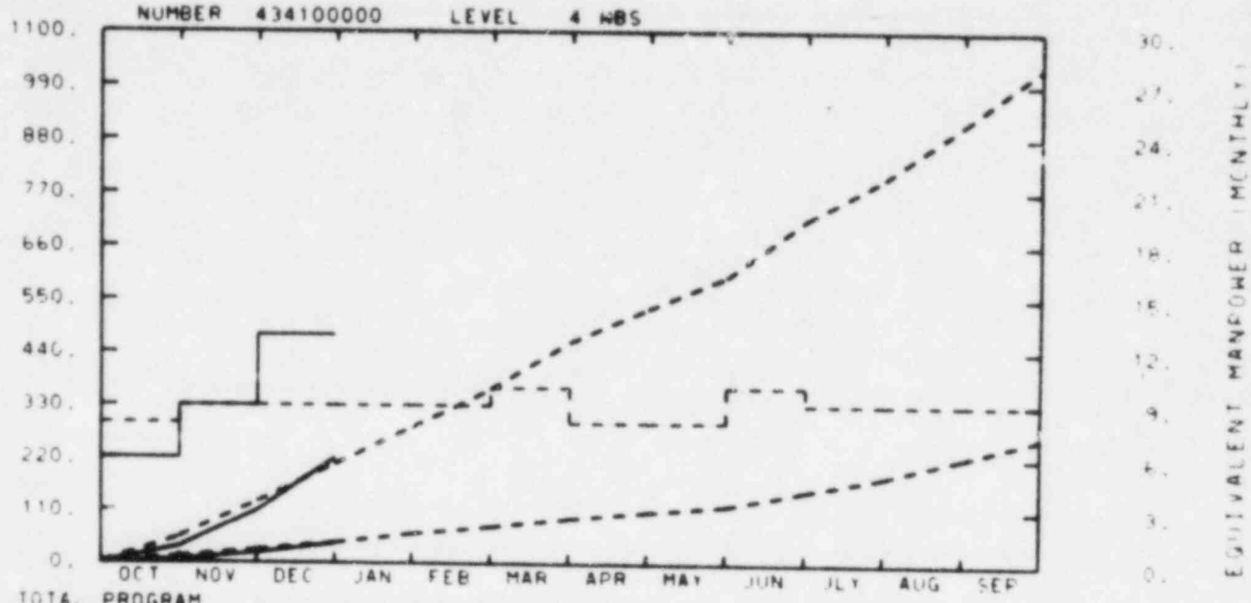
None.

RESPONSIBLE
MANAGER
WEAVER

EG&G IDAHO INC.

CODE DEVELOPMENT & IMPRV (A6052)

NUMBER 434100000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	54	128	207	284	364	461	531	597	714	799	910	1027
ACTUAL	34	109	219									

MATERIAL

BUDGET	13	28	41	62	77	94	108	121	151	182	222	263
ACTUAL	6	21	41									

MANPOWER

BUDGET	8	9	9	9	9	10	8	8	10	9	9	9
ACTUAL	6	9	14									

BUDGET ------

ACTUAL ——————

189 NO. A6052

COST CATEGORIES	($1.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 33.3	$ 66.1
MATERIALS, SERVICES AND OTHER COSTS	1.3	3.0
ADP SUPPORT	15.8	30.4
SUBCONTRACTS	0.0	0.0
TRAVEL	1.1	2.8
INDIRECT LABOR COSTS	45.3	90.1
GENERAL AND ADMINISTRATIVE	13.6	26.9
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 110.4	$ 219.3

A6052

YTD VARIANCE: <12> (6%)

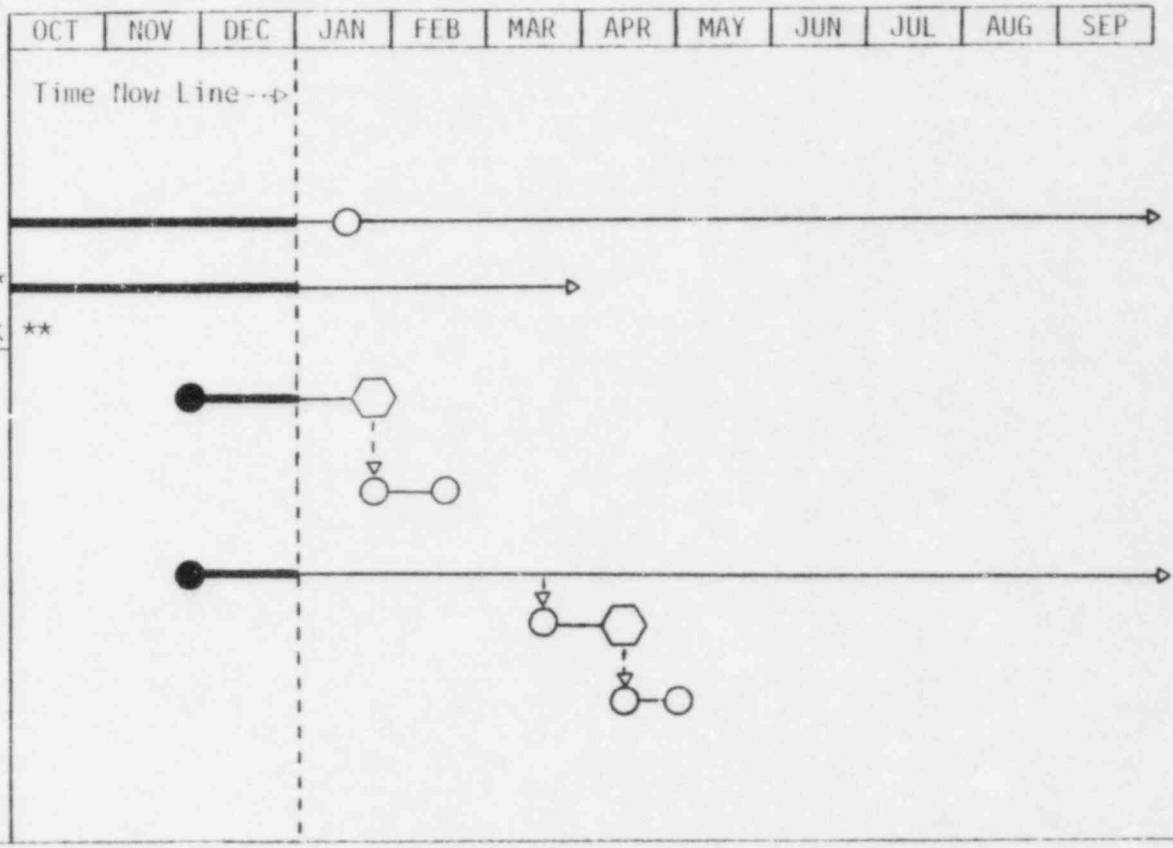
The variance is primarily a result of the increased effort on the Nuclear Plant Analyzer. This task will be rebudgeted when the total work plan is finalized in January.

LEGEND

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

NUCLEAR SAFETY METHODS DIVISION December 1982

Code Development and Improvement - Transient Analysis (A6052)
Code Development and Improvement - LOCA Analysis (A6329)



NOTES: * Integration of INEL Models is underway. A completion date for model integration including GE's and the content of the MOD1 code is now under review.

** The conceptual design and integrated management plan schedule has been lengthened by two weeks to accommodate NRC. This is shown in this month's schedule. See FA-136-82.

189 A6052 - Code Development and Improvement

EG&G Idaho Technical Monitor: A. C. Peterson, Jr.
DOE-ID Technical Monitor: D. Majumdar
NRC Technical Monitor: F. Odar

The primary objective of this program is to develop and improve computer codes to predict the system response of light water reactors to postulated design basis loss-of-coolant accidents, operational transients, and anticipated transients without scram. The current emphasis of this program is the continued improvement of the TRAC-BWR computer code, which is an advanced best estimate code to analyze boiling water reactors. The design and development of a "Nuclear Plant Analyzer" using advanced computer codes is also being performed.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

a. Boiling Water Reactor (BWR) TRAC Development

Assembly of TRAC-BD1/MOD1 continued. Testing and checkout of candidate Version 15 continued. Testing of the non-condensible gas model was completed. Evaluation of the GE level model continued. Testing and checkout of the update for forward and reverse loss coefficients and Hancox two phase friction multiplier was completed and a rough draft of a completion report was prepared. Evaluation of the GE separator/dryer model was begun. A meeting was held on December 16 with Drs. L. Shotkin, F. Odar, and B. Beckner of NRC/RES to discuss the direction of the TRAC-BWR Code Development program for the coming year. The results of the meeting were that the feasibility of developing a 1-D version of TRAC-BWR would be assessed and that a program plan would be developed that includes an expanded amount of developmental assessment and evaluation of two-step numerics.

b. RELAP4/MOD5 and MOD7 Maintenance

"Level 1" maintenance was provided.

c. Nuclear Plant Analyzer (NPA) Development and Coordination

A preliminary set of functional requirements was published on schedule December 17, 1982 as an NSMD internal technical report. WR-NSMD-80-82 was distributed to NRC/RES, DOE-ID, LANL, and TDC for review, comment, and approval. A meeting among LANL, TDC, and INEL was held in Salt Lake City to reach consensus on a "rough" conceptual design for the common user interface including three

2. Summary of Work Performed in December 1982 (continued)

c. Nuclear Plant Analyzer (NPA) Development and Coordination (continued)

alternative hardware configurations for the workstation. Agreement was achieved on the workstation alternatives and the location (host or minicomputer) of certain functions. LANL requested that the scheduled January 11 working group meeting be postponed until the week of January 24, 1983 because of other LANL commitments. This was tentatively agreed upon pending NRC approval. Work continued on the conceptual design of the common user interface.

A meeting among the NRC/DAE director, staff, and EG&G personnel was held December 29, 1982 in Silver Spring to discuss WR-NSMD-80-82 and the problem of eliciting NRC in-house requirements. It was agreed that WR-NSMD-80-82 would not be distributed officially to the NRC offices, but that DAE staff would provide INEL with a list of in-house requirements by January 15, 1983. The design and planning schedule was stretched by two weeks to accommodate NRC and to resolve LANL's schedule conflict. The working group meeting was rescheduled to January 24, 1983. Finally, the requirement for a pilot capability by year end was dropped.

3. Scheduled Milestones for January 1983

Node	Description	Due Date	Actual Date
---	Draft CSD Document	01/24/83	---

4. Summary of Work to be Performed in January 1983

a. Boiling Water Reactor (BWR) TRAC Development

Assembly of TRAC-BD1/MOD1 will continue. The update for forward and reverse loss coefficients and Hancox two phase multiplier will be inserted into candidate Version 15. The completion report for this work will be issued. Candidate Version 15 will be made into an Official Code Version. Candidate Version 16 containing the non-condensible gas model will be created and checkout will begin. Evaluation of the GE level tracking and separator/dryer models will continue.

A draft of the program plan for TRAC-BWR development will be completed.

4. Summary of Work to be Performed in January 1983 (continued)

b. RELAP4/MOD5 and MOD7 Maintenance

"Level 1" maintenance will be provided.

c. Nuclear Plant Analyzer (NPA) Development and Coordination

NRC, DOE-ID, LANL, and TDC comments on the preliminary set of functional requirements will be reviewed and incorporated as appropriate into the conceptual design document. A preliminary draft conceptual design document will be distributed to LANL and TDC on January 17 to aid their preparation for the working group meeting. NRC's requirements will be incorporated into the draft CSD document to be distributed January 24. The working group meeting will be held the week of January 24, 1983.

5. Problems and Potential Problems

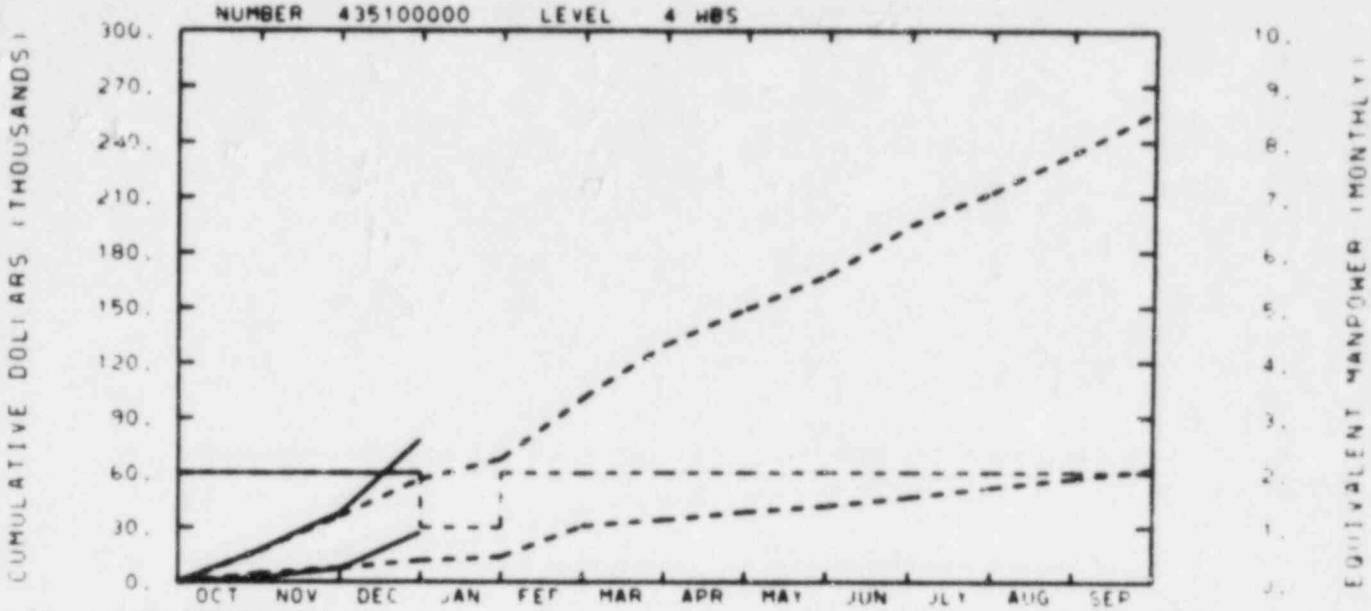
Delivery of the remaining GE LOCA models has been delayed. This delay may prevent their inclusion into TRAC-BD1/MOD1. A coordination meeting with GE has been tentatively scheduled for late January to discuss resolution of this potential problem.

RESPONSIBLE MANAGER
WEAVER

EG&G IDAHO INC.

TRAC-BWR HEAT TRANSFER (A6278)

NUMBER 435100000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	17	36	56	68	101	130	149	167	194	212	234	256
ACTUAL	18	38	58									

MATERIAL

BUDGET	5	8	12	14	31	34	39	42	46	52	57	62
ACTUAL	2	7	27									

MANPOWER

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

BUDGET

ACTUAL

189 NO. 46278

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 7.5	$ 18.7
MATERIALS, SERVICES AND OTHER COSTS	1.0	1.0
ADP SUPPORT	9.4	14.0
SUBCONTRACTS	8.8	8.8
TRAVEL	0.6-	1.2
INDIRECT LABOR COSTS	10.5	26.1
GENERAL AND ADMINISTRATIVE	3.9	8.5
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 40.5	$ 78.3

A6278

YTD VARIANCE: <22> (39%)

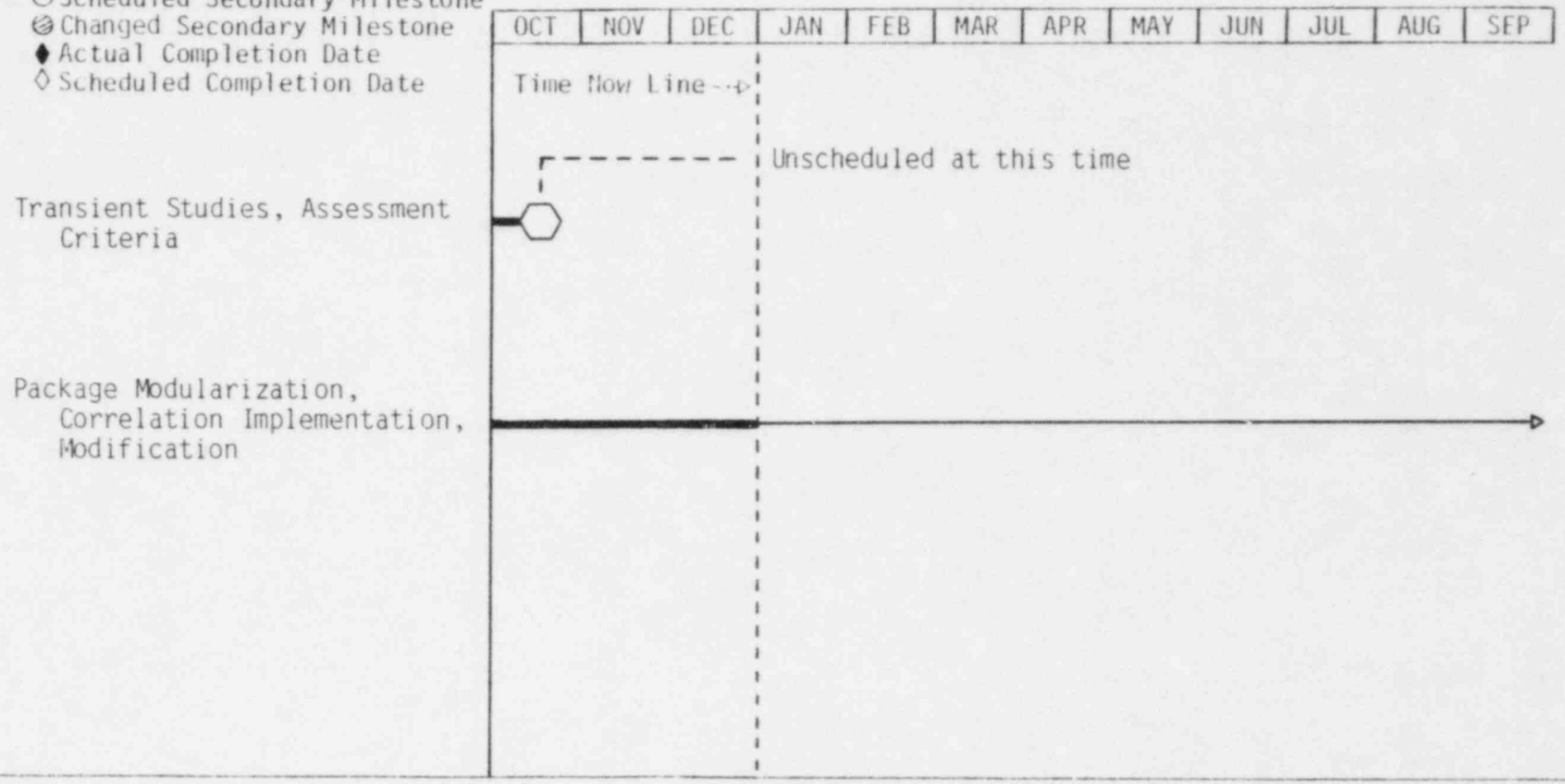
The variance is primarily a result of the payment of the subscription to the Heat Transfer and Fluid Flow Service in December. This task will be rebudgeted when the final work plan is finalized in January.

LEGEND

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

NUCLEAR SAFETY METHODS DIVISION December 1982

Heat Transfer (A6278)



NOTES: Conclusion of the transient studies, now suspended, is predicted on resolution of the interfacial shear problem. Interim heat transfer work is defined and progressing under the package modularization task. Final assessment of the heat transfer package will be scheduled after determination of the TRAC-BD1/MOD1 completion date.

189 A6278 - TRAC-BWR Heat Transfer

EG&G Idaho Technical Monitor: A. C. Peterson, Jr.
DOE-ID Technical Monitor: D. Majumdar
NRC Technical Monitor: M. Young

The primary objective of this program is to develop and assess a best estimate heat transfer package for the analysis of design-basis loss-of-coolant accidents, operational transients, and anticipated transients without scram of boiling water reactors. A best estimate heat transfer package is important for advanced reactor transient analysis computer codes that will be used by the Nuclear Regulatory Commission to audit nuclear power plant safety issues, evaluate operator guidelines, address unresolved safety issues, and design and interpret reactor safety experiments.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

Coding of the moving mesh reflood model for the channel wall was completed. The testing of the model was initiated. Modification of the interfacial shear package in TRAC-BWR continued. A provisional set of modifications to the interfacial shear package were prepared that gave a stable solution to the Lehigh test.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

The testing and checkout of the moving mesh reflood model for the channel wall will continue. The provisional set of modifications to the interfacial shear package will be tested using other separate effects tests such as the CISE adiabatic pipe experiment and the GE level swell experiment. The transient sensitivity study will proceed if the results of the calculation of these experiments are satisfactory.

5. Problems and Potential Problems

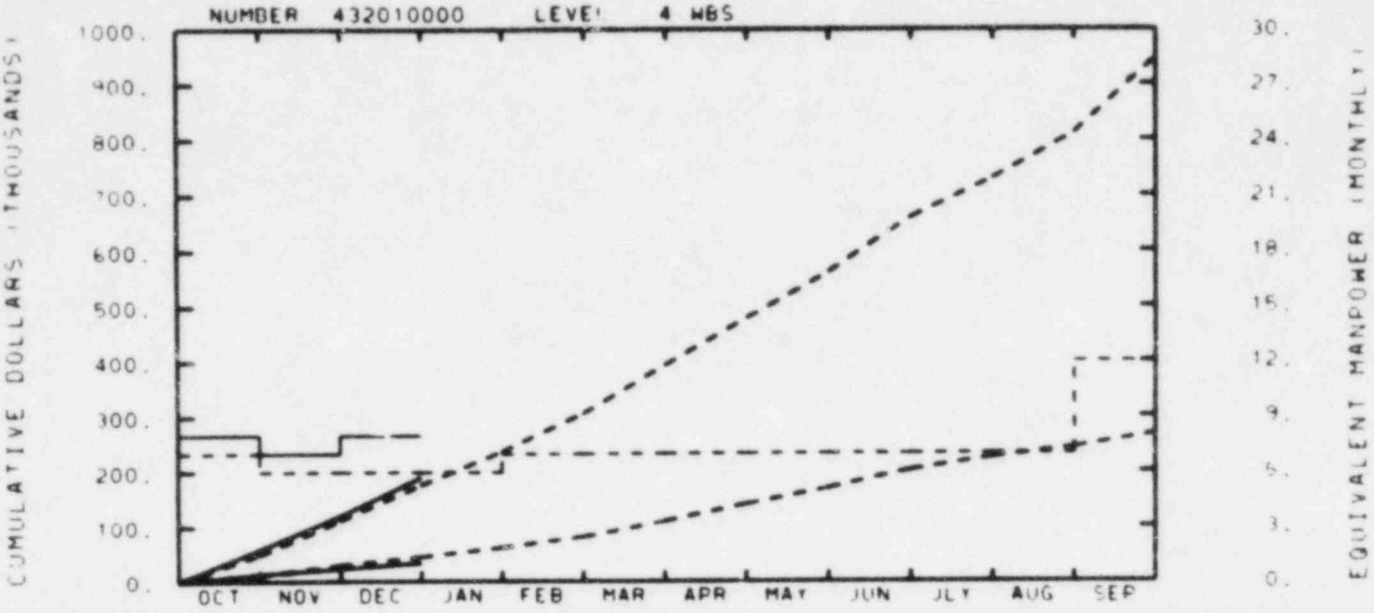
An interfacial shear problem which results in hydraulic oscillations continues to be encountered in the analysis of the Lehigh post-CHF heat transfer data and continues to impact the completion of the transient sensitivity study. The study will be resumed when the interfacial shear problem is resolved.

RESPONSIBLE MANAGER
RANSOM

EG&G IDAHO INC.

RELAP 5 (A6330)

NUMBER 432010000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	49	111	176	238	306	394	479	562	660	729	811	949
ACTUAL	59	120	191									

MATERIAL

BUDGET	12	30	45	62	82	110	141	170	203	226	244	268
ACTUAL	13	24	34									

MANPOWER

BUDGET	7	6	6	6	7	7	7	7	7	7	7	12
ACTUAL	8	7	8									

BUDGET - - - - - -

ACTUAL ———

189 NO. A6330

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 22.0	$ 57.3
MATERIALS, SERVICES AND OTHER COSTS	1.9	8.1
ADP SUPPORT	7.6	18.6
SUBCONTRACTS	0.0	0.0
TRAVEL	0.1-	3.3
INDIRECT LABOR COSTS	30.8	79.9
GENERAL AND ADMINISTRATIVE	8.7	23.4
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 70.9	$ 190.6

A6330

YTD VARIANCE: <15> (9%)

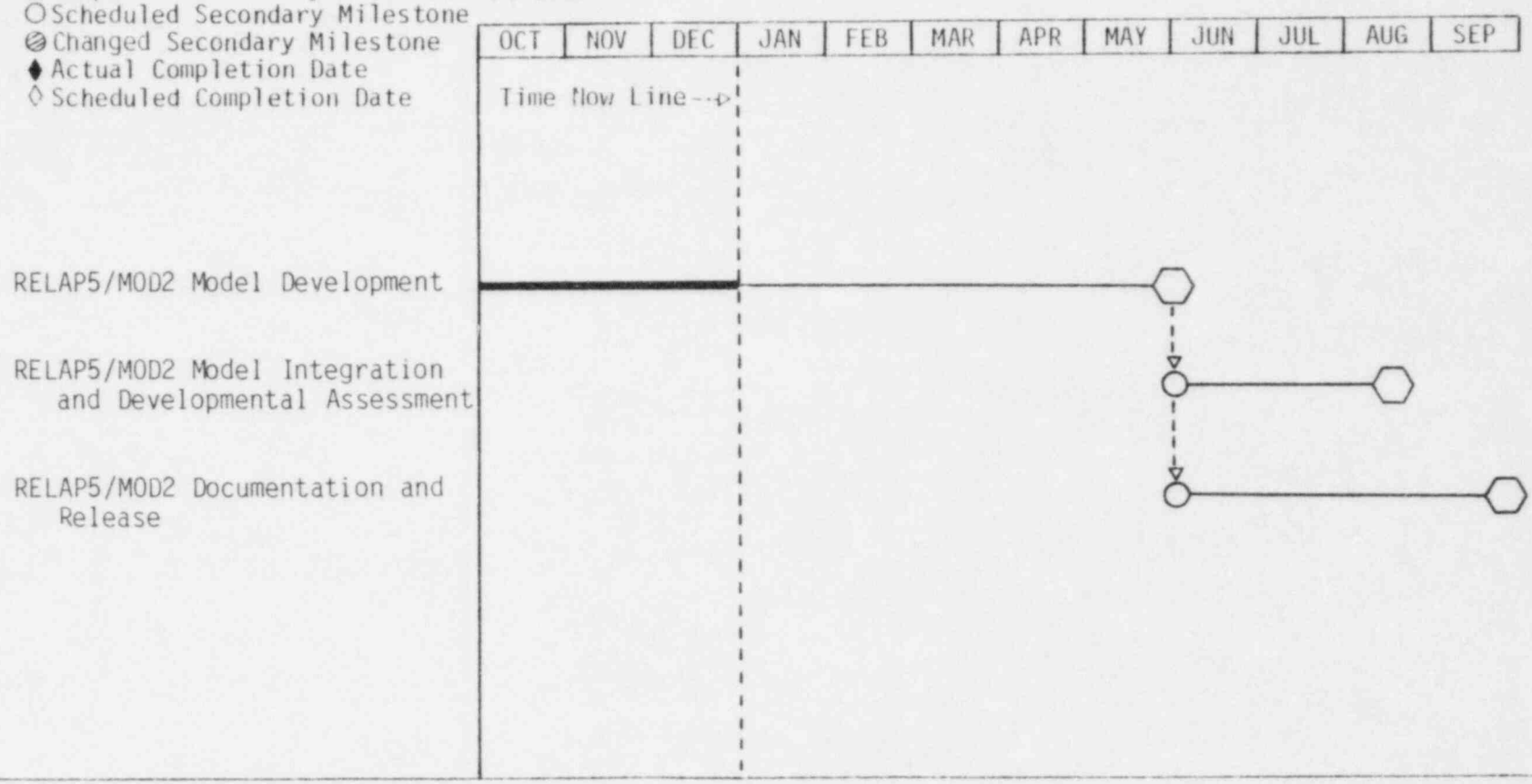
The year-to-date variance is caused by budgets not being consistent with the working plan. Revised work packages and budgets are currently in place, and will appear in the January monthly report.

NUCLEAR SAFETY METHODS DIVISION December 1982

RELAP5 (A6330)

LEGEND

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



NOTES: This schedule has been changed to reflect the RELAP5/MOD2 computer code development plan as transmitted by FA-112-82 on December 28, 1982.

189 A6330 - RELAP5

EG&G Idaho Technical Monitor: T. M. Howe
DOE-ID Technical Monitor: D. Majumdar
NRC Technical Monitor: Y. Chen

The primary objective of the project is to develop and improve the RELAP5 code to predict the system response of light water reactors to postulated design-basis loss-of-coolant accidents, operational transients, and anticipated transients without scram. RELAP5 provides the Nuclear Regulatory Commission (NRC) with a fast-running, economic, best-estimate analytical capability to audit nuclear power plant safety analysis reports, evaluate proposed guidelines and rules, address unresolved safety issues, and design and interpret reactor safety experiments. A secondary objective is to maintain RELAP5 on the Idaho National Engineering Laboratory (INEL) computer facility and provide NRC and its contractor analysts with assistance with the application of RELAP5.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

The model completion reports for the interphase drag model and the proportional-integral, lead/lag, lag, and constant control models were completed. A design proposal was prepared for a full nonequilibrium model, reviewed with DOE and NRC, and code modification was initiated to implement this model. The full nonequilibrium model task will replace the limited nonequilibrium task with no change in scheduled task completion dates. The design proposal for the dynamic gap conductance model was initiated and will be completed during January. The new ANS decay heat model with improved modeling of the actinides was completed and a completion report will be issued during January. The improvements to the internal plot package were completed and a completion report issued. The subcontract with PAC, Inc., was initiated and Dr. Trapp began work on the full non-equilibrium model formulation and coding. The meeting of the ACRG on review of blockage modeling, held in Bethesda, Maryland on December 14, 1982, was attended by Dr. H. Chow. The conclusions of the meeting were that the reflood data from Flecth-Seaset, CCTF and SCTF are consistent and that an empirical flow blockage model will be used in COBRA-TF rather than using a link with FRAP-T6.

The RELAP5 newsletter was issued and included updates for RELAP5/MOD1/Cycle 19. The MOD1 developmental assessment report was reviewed and will be issued in January. A formal presentation was prepared for the ANS Second International Topical Meeting on Nuclear Reactor Thermal Hydraulics and an informal program review was prepared and presented

2. Summary of Work Performed in December 1982 (continued)

to the NRC project manager. An invited paper entitled "A Review of Solution Approach, Methods and Recent Results of the RELAP5 System Code" was prepared for publication and presentation at the 1983 Mathematics and Computation Topical Meeting of the ANS to be held in Salt Lake City, Utah during March 1983. The FY-1983 work packages were completed, reviewed by NRC and DOE, and issued.

3. Scheduled Milestones for December 1982

None.

4. Summary of Work to be Performed in December 1982

The model proposals for the shaft component and the dynamic gap conductance model will be completed. Completion reports for the steady state improvements and the new ANS decay heat model will be issued. The coding and checkout of the full non-equilibrium model and associated constitutive models will continue through January and will be completed during March 1983. The RELAP5/MOD1 developmental assessment report will be completed and issued. A presentation will be made at the ANS Second International Topical Meeting on Nuclear Reactor Thermal Hydraulics. A special RELAP5 version (RELAP5/MOD1.6) will be created in support of the INEL NTAP program.

5. Problems and Potential Problems

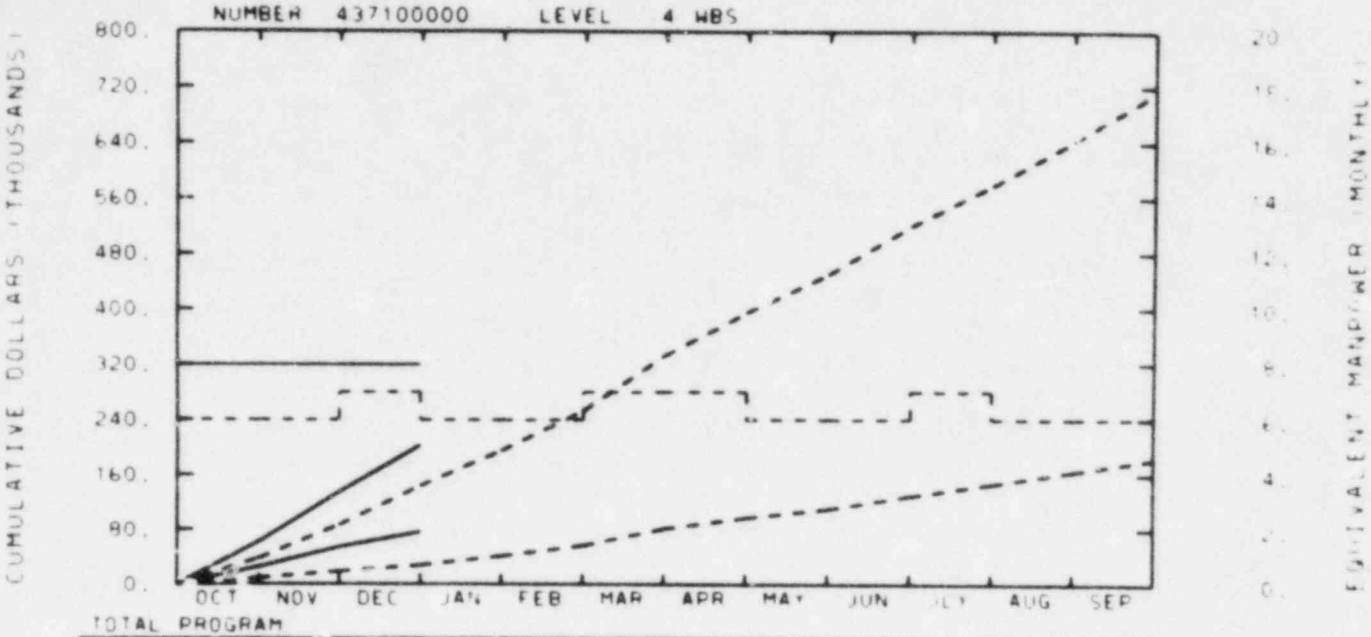
None.

RESPONSIBLE MANAGER
HOWE

EG&G IDAHO INC.

MODELING SEVERE FUEL DAMG(A6360)

NUMBER 437100000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	38	67	144	196	253	333	395	450	520	578	643	712
ACTUAL	62	135	203									

MATERIAL

BUDGET	9	19	28	41	57	81	98	111	130	147	165	183
ACTUAL	25	54	77									

MANPOWER

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

BUDGET ------

ACTUAL ——————

189 NO. 46360

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 16.9	$ 46.6
MATERIALS, SERVICES AND OTHER COSTS	1.7	3.8
ADP SUPPORT	18.4	61.9
SUBCONTRACTS	0.0	0.0
TRAVEL	0.4-	1.7
INDIRECT LABOR COSTS	23.4	64.4
GENERAL AND ADMINISTRATIVE	8.4	25.0
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 68.4	$ 203.4

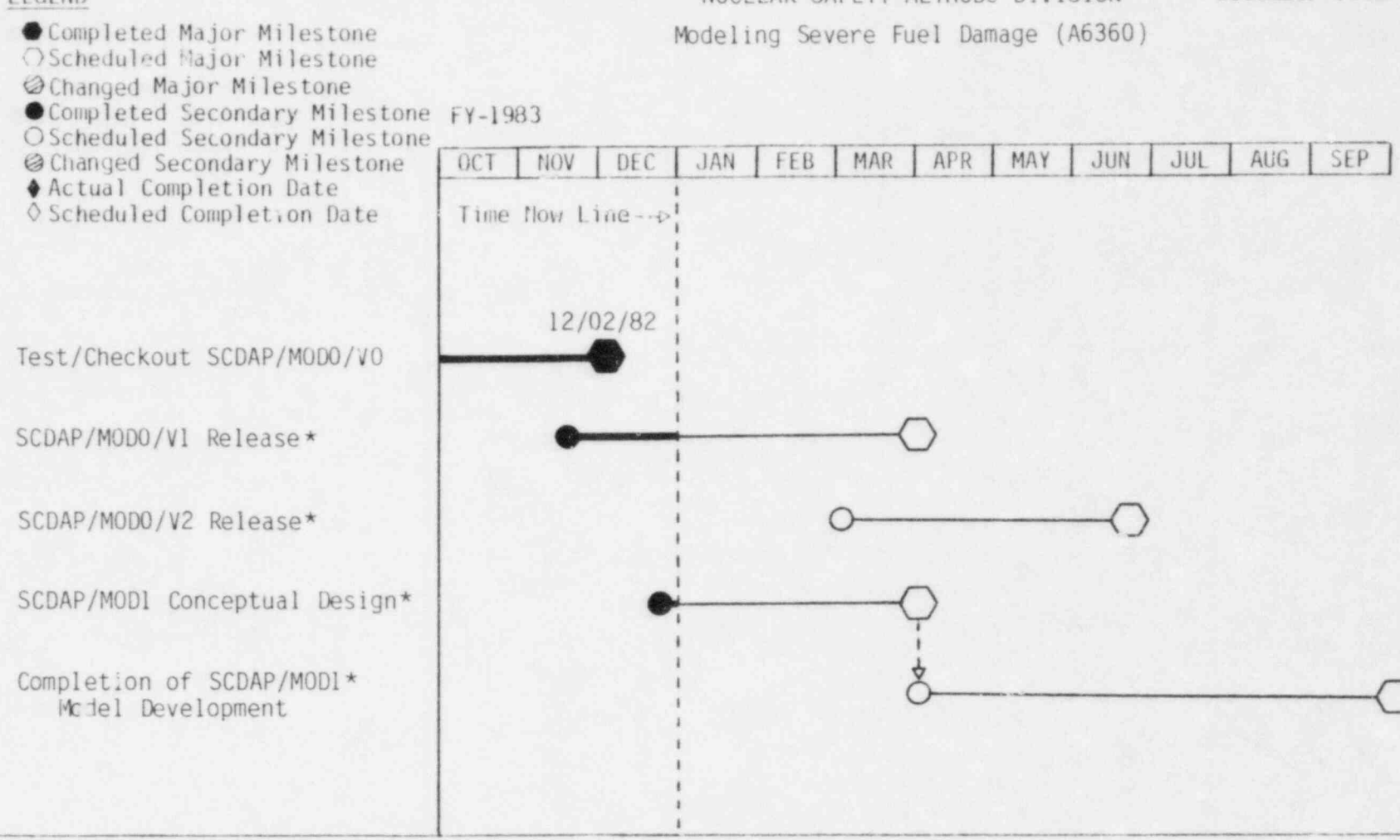
A6360

YTD VARIANCE: <59> (41%)

The year-to-date variance is caused by budgets not being consistent with the working plan. Revised work packages and budgets are currently in place, and will appear in the January monthly report.

NUCLEAR SAFETY METHODS DIVISION December 1982

Modeling Severe Fuel Damage (A6360)



NOTES: * The SCDAP Development schedule is still being negotiated with NRC. The additional milestones noted above reflect anticipated work scope.

189 A6360 - Modeling Severe Fuel Damage

EG&G Idaho Technical Monitor: T. M. Howe
DOE-ID Technical Monitor: D. Majumdar
NRC Technical Monitor: G. P. Marino

The Modeling Severe Fuel Damage Project provides for development and maintenance of a mechanistic computer code, SCDAP, to predict the thermal-mechanical-chemical behavior of a light water reactor core during severe reactor accidents. The individual models and integrated code developed in this project are the focal point of knowledge gained from the Nuclear Regulatory Commission's (NRC) Severe Fuel Damage Program as well as from industry and foreign sponsored research. The SCDAP project, coupled with NRC's severe fuel damage experimental programs, provides (a) the analytical methodology needed to identify and understand the phenomena which control LWR core behavior during severe accidents and (b) a capability to plan and interpret severe fuel damage experiments.

1. Scheduled Milestones for December 1982

Node	Description	Due Date	Actual Date
---	Complete SCDAP/MODO Testing/ Checkout	09/30/82	12/02/82

2. Summary of Work Performed in December 1982

a. SCDAP/MODO Checkout and Testing

Checkout of SCDAP/MODO is complete. This involved running three example cases (SFD-ST and two differing cases of SFD-1) and issuing the SCDAP/MODO user's manual. The manual includes a model description section, a code usage section, a sample calculation section which presents the results of the three example cases, and a user input section. The TMI-2 case was run using the SCDCOMP/SCDEBRIS version but was not run with the entire SCDAP code to reduce computer expenditures. The case will be run during the MODO developmental assessment activity. In conjunction with the checkout and testing activity, a restart feature for SCDAP/MODO was completed and incorporated in the MODO version.

b. Advanced LIQSOL Model Development

The final design of the extension of the LIQSOL model to include the calculation of melting and relocation of UO_2 and ZrO_2 was begun during December. The design will be completed during January at which time coding and testing will be initiated.

2. Summary of Work Performed in December 1982 (continued)

c. SCDAP/MODO Assessment

The development of a detailed plan to assess SCDAP/MODO using available experimental data and sensitivity studies was begun in December and will be completed during early January at which time the assessment calculations will begin. The analyses will be completed during early March. During December, developers examined results of code calculations to isolate potential models for detailed assessment.

d. SCDAP/MOD1 Conceptual Design

The conceptual design of SCDAP/MOD1 was initiated during December with a review of the MODO output to identify changes needed to improve readability and usefulness. These improvements will subsequently be incorporated into the code during January.

e. SCDAP Support

Posttest analysis of PBF SFD-ST based on the PBF Quick Look Report boundary conditions was begun using both SCDAP/MODO and SCDCOMP to provide information for the January 17, 1983 ACRS meeting. SCDAP/MODO pretest predictions of the PBF SFD-1 test were performed. The lengths effects study completed in November was documented in a letter report and was sent to DOE/NRC.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

a. Advanced LIQSOL Model Development

The final design of the extension of the LIQSOL model to include the calculation of melting and relocation of UO_2 and ZrO_2 will be completed. Coding and testing of the model extension will begin during January and will be completed during February.

b. SCDAP/MODO Assessment

Development of the detailed plan to assess SCDAP/MODO will be completed during early January. The assessment activities will begin during January and will focus on the component models and the debris behavior models. The assessment will continue through early March at which time a report describing the assessment will be issued.

4. Summary of Work to be Performed in January 1983 (continued)

c. SCDAP/MOD1 Conceptual Design

The conceptual design of SCDAP/MOD1 will continue during January. During January, the design activities will consider the approach to be used for core-wide modeling and the SCDAP/MOD1 architecture and data management.

d. SCDAP Support

Posttest comparisons of SCDAP/MODO calculations with PBF SFD-ST experimental data will be provided to DOE/NRC to provide information for the January 17, 1983 ACRS meeting. A letter report will be written and provided to DOE, NRC, and PBF on the SFD-1 calculations done using SCDAP/MODO.

5. Problems and Potential Problems

None.

NUCLEAR SAFETY METHODS DIVISION

CAPITAL EQUIPMENT

NUCLEAR SAFETY METHODS DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6094)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate at Complete
Pre FY-1983														
1/80	ADPE Item	9SB992740	N/A	N/A	10,000	10,000	-	0	11,468	0	11,468	<1,468>	0	11,468
1/81	Fuel Model Development Analysis Tool	9SB810100	N/A	N/A	10,000	6,569	-	0	6,569	0	6,569	3,431	0	6,559
	Pre FY-1983 Total				20,000	16,569		0	18,037	0	18,037	1,963		

NUCLEAR SAFETY METHODS DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6109)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate at Complete
Pre FY-1983														
1/79	O/L S/A Plotting System	9SA990240	N/A	N/A	27,906	0	-	0	23,288	0	23,288	4,618		27,906

MONTHLY REPORT FOR

DECEMBER 1982

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

R M Stallman for

B. F. Saffell, Jr., Manager

B E Williams

for E. L. Pierson
Plans and Budget Representative

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

A6047: The Boiling Water Reactor (BWR) Transient Reactor Analysis Code (TRAC-BD1) assessment with data from the BWR/6 reference tests in the Steam Sector Test Facility (SSTF) was completed and an interim report (EGG-NTAP-6146) was issued.

A6276: The draft report on instrumentation and controls systems (updating NUREG/CR-1740) was issued (EGG-EA-6135).

A6301: The Idaho National Engineering Laboratory (INEL) report on ASEP Workshop results was completed and transmitted to the NRC.

A6353: Two final reports related to the FY-1982 work were issued.

A6354: The SCDAP/MARCH hydrogen calculations final report was issued (EGG-NTAP-6148). ANO-II steam generator tube rupture calculations were initiated in support of an NRR/RSB request.

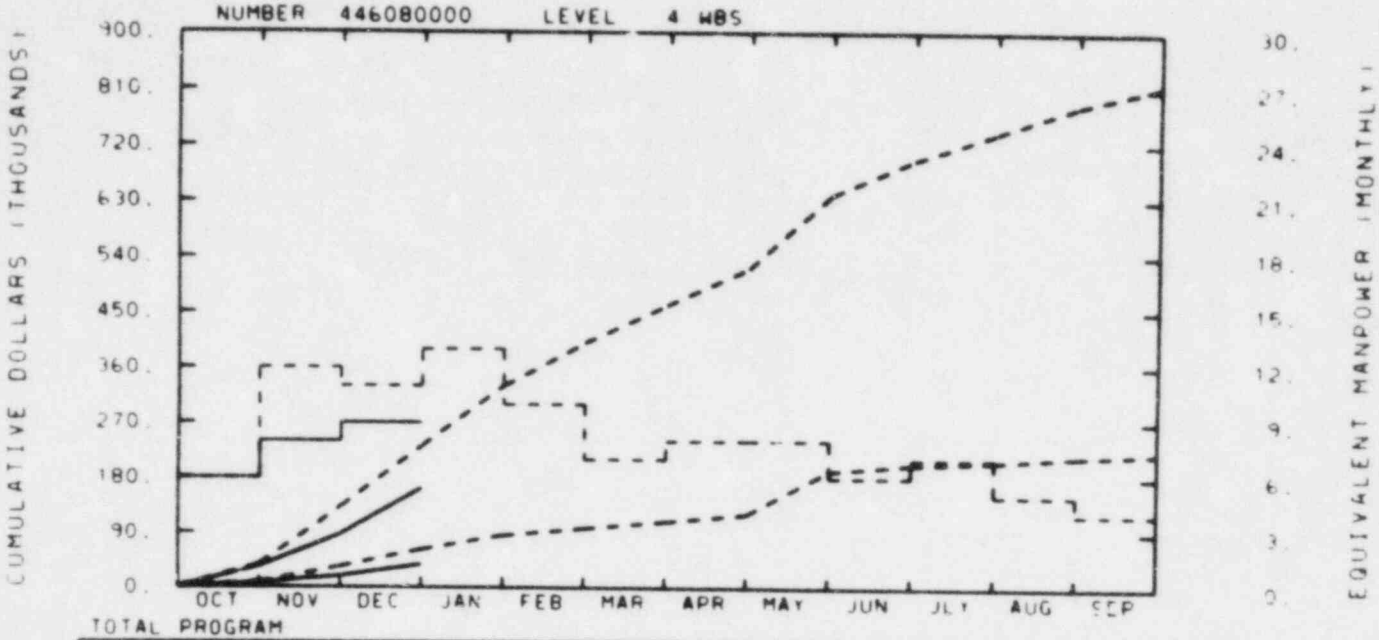
A6380: The required quarterly report (EGG-ID-6141) was completed and issued. The report describes the work done through December 1982 (including the FY-1982 work), and gives recommendations for further research on and implementation of various types of anticipating instrumentation.

PONSIBLE
AGER
SAFFELL

EG&G IDAHO INC.

TECHNICAL SURVEILLANCE A6039

NUMBER 446080000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	38	132	232	330	400	461	521	640	696	740	784	816
ACTUAL	34	87	163									

MATERIAL

BUDGET	[illegible]	34	62	86	98	109	121	191	202	207	215	220
ACTUAL	7	18	38									

BUDGET

ACTUAL

MANPOWER

BUDGET	6	12	11	1[illegible]	10	7	8	8	6	7	5	4
ACTUAL	6	8	9									

189 NO. A6039

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 22.4	$ 50.3
MATERIALS, SERVICES AND OTHER COSTS	2.2	6.8
ADP SUPPORT	14.8	23.1
SUBCONTRACTS	0.0	0.0
TRAVEL	0.2	3.4
INDIRECT LABOR COSTS	27.0	59.3
GENERAL AND ADMINISTRATIVE	9.3	20.0
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 75.9	$ 162.9

A6039

YTD VARIANCE: 69 (30%)

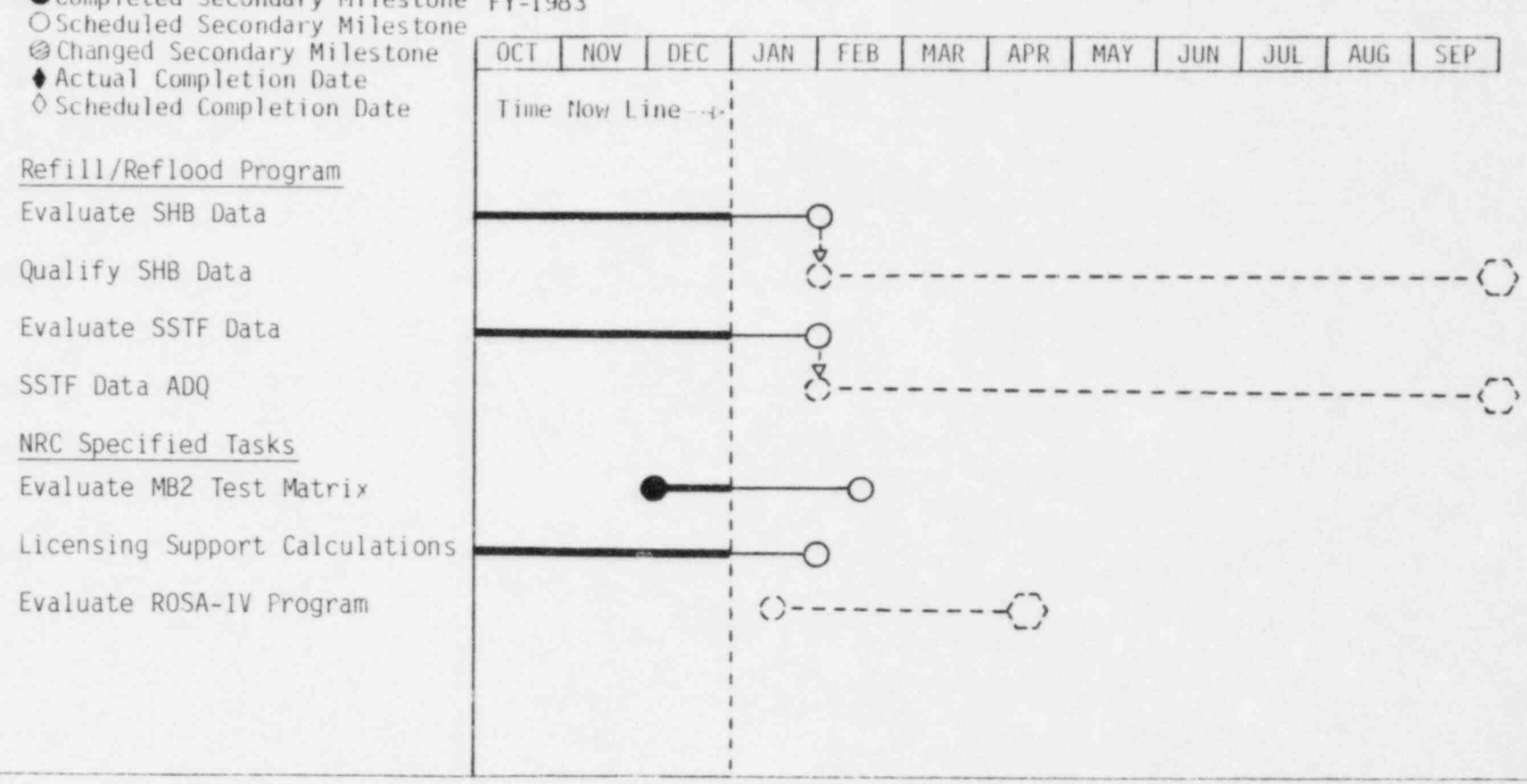
Approximately half of the subject underrun is related to new DOE/NRC directed tasks which have been delayed pending funding resolutions. The remaining underrun is associated with tasks which have been delayed to provide other on-call assistance or with tasks which have been extended in time to allow further consideration of their eventual work scope. It is anticipated that accelerated expenditures in the coming quarter will bring costs in line with budget.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION December 1982
Page 1 of 2

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

LEGEND

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

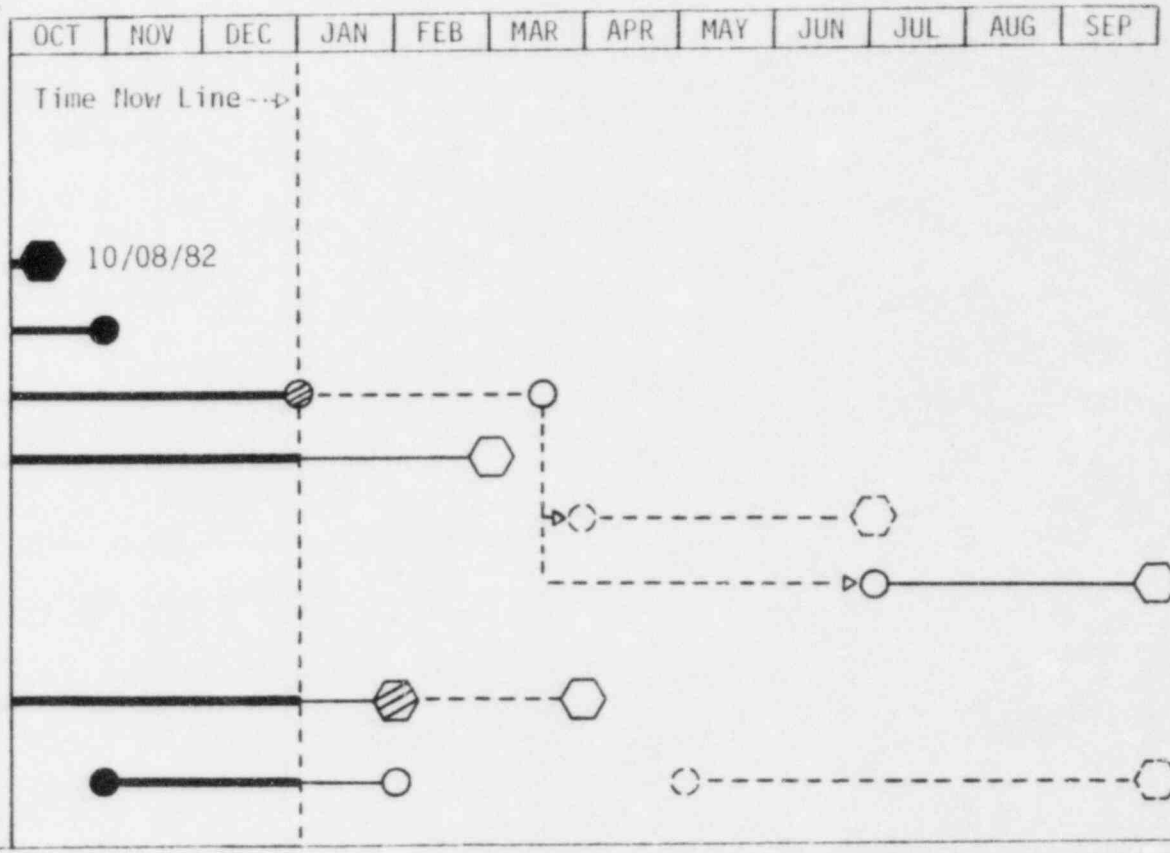


NOTES: - - - - - - Pending Task

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

LEGEND

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



NOTES: 1/ Seventy percent of the FIST ADQ software is operational. The remaining software requires further steady-state test data, which is planned for the second test scheduled for mid-January, 1983.

2/ Continued study of the blockage data will not impact the experimental program. Therefore, with DOE/NRC concurrence, the blockage study has been extended two months.

- - - - - - - Pending Task

A6039: INEL Technical Support to NRC for Industry, Cooperative Programs
EG&G Program/Technical Monitor: G. E. Wilson
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: W. D. Beckner

The objectives of this work are: To ensure the data from the industry experimental programs are adequate for assessment of thermal-hydraulic analysis models; to ensure the technical expertise available at the Idaho National Engineering Laboratory (INEL) and other national laboratories is transferred and used in the industry experimental programs, and to furnish on-call assistance to the Nuclear Regulatory Commission (NRC).

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

Boiling Water Reactor (BWR) Full Integral Simulation Test (FIST) Program:

The TRAC BWR/6 power transient calculation has been started and is currently 40 s into the transient. The FIST power transient steady state is complete. The Automated Data Qualification (ADQ) software has been completed and exercised for temperature and pressure measurements. We are awaiting data base information for the differential pressure measurements from special tests, to complete that portion of the ADQ software. The second cooled thermocouple velocimeter was fabricated and will be delivered to General Electric (GE) the first week of January. The data from the first FIST test are being reviewed by INEL personnel. This review has delayed the power transient calculation by about two weeks as the same personnel are doing both tasks. INEL supplied a technican to GE, in San Jose, the week of December 6 to help with drag disk and turbine meter installation and to insure operability.

BWR Refill/Reflood (R/R) Program:

The objective of the Single Heated Bundle (SHB) data analysis has been revised by the Department of Energy-Idaho Operations Office (DOE-ID)/NRC. By January 31, 1983, EG&G Idaho will determine: (a) Any SHB tests suitable, as is, for code development and assessment, and (b) any tests which might be made suitable with further data qualification effort. This review was initiated during December.

Full Length Emergency Cooling Heat Transfer-System Effects and Separate Effects Tests (FLECHT-SEASET) Program:

The blockage data evaluation task continued. Heat transfer coefficient data for selected tests from the 21-rod blocked bundle are being put on the INEL data bank. This data will be used for comparison with flooding experiment in blocked arrays (FEBA) data.

2. Summary of Work Performed in December 1982 (Continued)

EG&G Idaho personnel attended the Advanced Code Review Group meeting in Bethesda which dealt with FLECHT-SEASET data and blockage model development.

The natural circulation data evaluation task was initiated with a literature search and review. This initial effort was completed and will be used to determine the remaining scope of the task.

NRC Specified Tasks:

An in-depth technical review of the NRC/Electric Power Research Institute (EPRI)/Westinghouse, MB2 Steam Generator Program purposed test matrix was initiated.

3. Scheduled Milestones for January 1983

Description	Due Date	Actual Date
Single Heated Bundle Data Analysis	1-31-83	
Blockage Data Evaluation	1-31-83	
FIST ADQ Software	1-3-83	

4. Summary of Work to be Performed in January 1983

BWR-FIST Program:

Documentation of the FIST Data Review by INEL will be completed. INEL expects receipt of the special test data requested for ADQ and will begin incorporation into the software. INEL will be providing assistance in San Jose to help GE calibrate the two thermocouple velocimeters supplied by INEL. Work on the FIST/BWR/6 power transient calculation will continue.

BWR-R/R Program:

The review, described in Section 2, will be completed.

FLECHT-SEASET Program:

The flow blockage data evaluation task will continue. Data from selected tests from the 21-rod bundle task will be compared with comparable FEBA tests.

NRC Specified Tasks:

The MB2 steam generator program test matrix review will continue.

5. Problems and Potential Problems

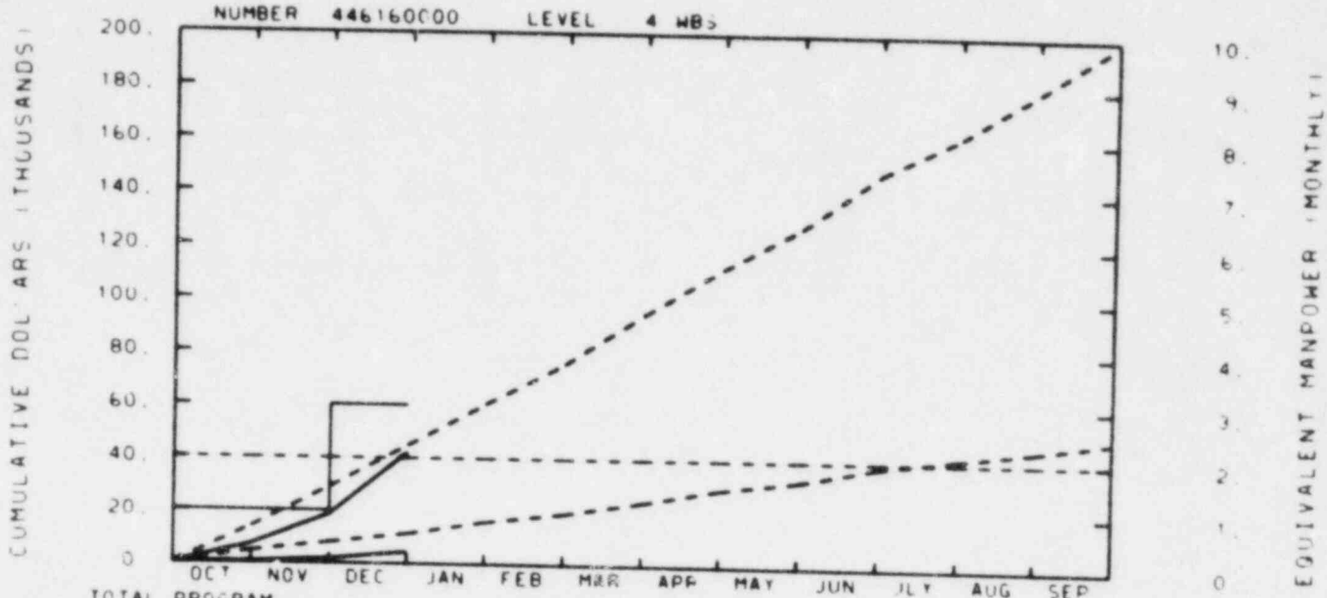
As noted in Section 2, the steady state data from the FIST checkout and first test was insufficient to bring the ADQ processing of the differential pressure measurements to an operational state. The necessary data acquisition will be performed during the second test, scheduled for the third week in January 1983. Completion of the ADQ task is expected seven weeks after this test (March 14, 1983). The current secondary milestone will be slipped accordingly.

RESPONSIBLE MANAGER
SAFFELL

EG&G IDAHO INC.

FUEL BEHAVIOR ANALYSIS A6046

NUMBER 446160000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	14	29	45	60	76	95	112	127	148	162	180	199
ACTUAL	7	19	42									

MATERIAL

BUDGET	5	8	11	16	19	24	29	33	38	42	45	49
ACTUAL	0	2	4									

MANPOWER

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

189 NO. A6046

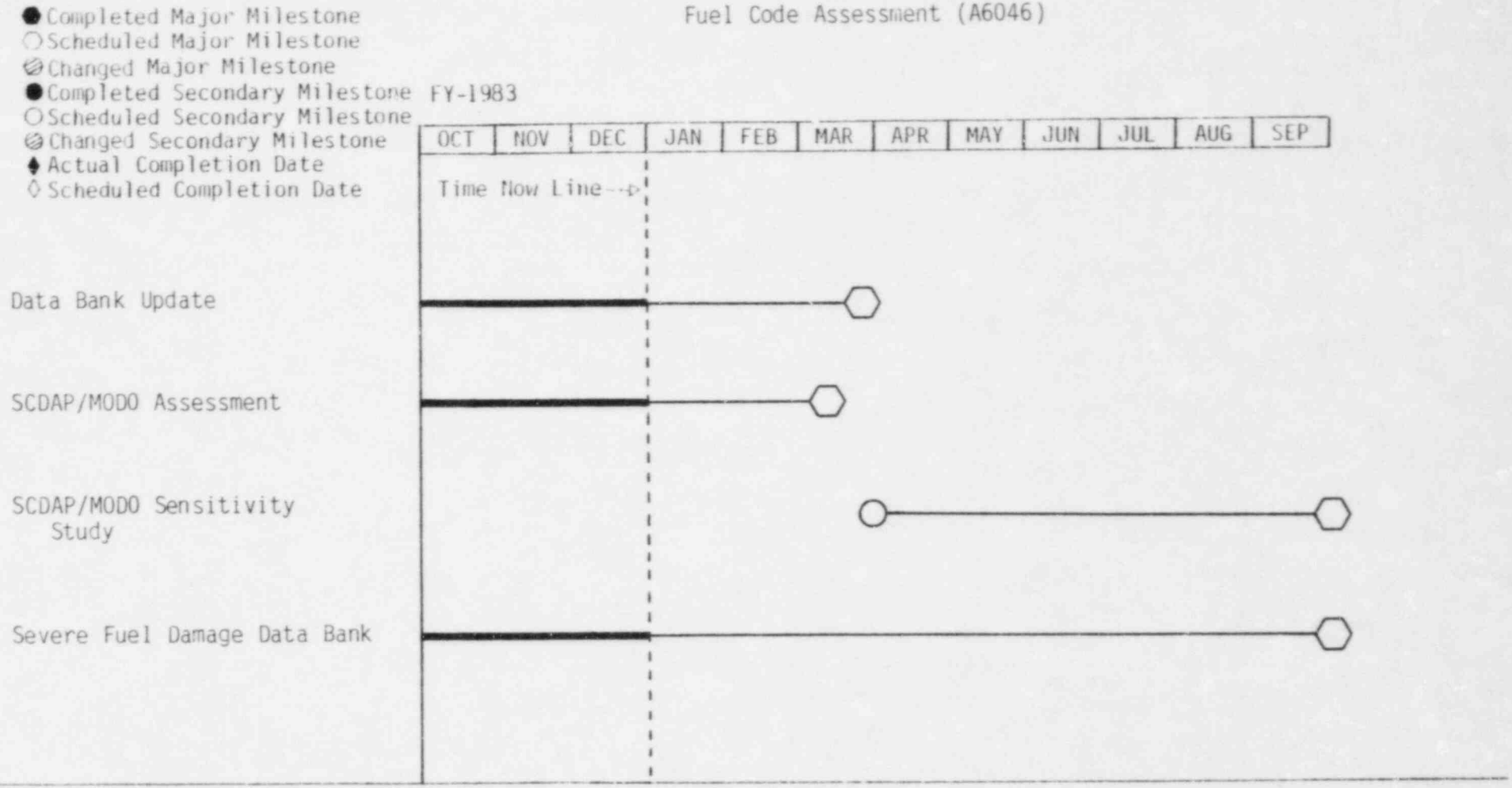
COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 7.6	$ 13.8
MATERIALS, SERVICES AND OTHER COSTS	0.7	0.8
ADP SUPPORT	1.6	3.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.1	0.1
INDIRECT LABOR COSTS	10.7	19.3
GENERAL AND ADMINISTRATIVE	2.9	5.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 23.6	$ 42.2

A6046

YTD VARIANCE: 3 (7%)

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION December 1982

Fuel Code Assessment (A6046)



NOTES: The SCDAP/MODO Assessment task has now been scheduled.

The SCDAP/MODO Sensitivity Study's start date has been delayed to coincide with the completion date of the SCDAP/MODO Assessment (March 13, 1983).

A6046: Fuel Behavior Analysis Assessment
EG&G Program/Technical Monitor: E. T. Laats
DOE Technical Monitor: D. Majumdar
NRC Technical Monitor: G. P. Marino

The objectives of this program are to independently assess and evaluate the capabilities of the Nuclear Regulatory Commission (NRC) fuel rod behavior codes SCDAP, FRAP-T, and FRAPCON. To support these objectives, this program also maintains a base of experiment data.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

SCDAP/MOD0 Assessment

The assessment matrix was developed and is being reviewed with SCDAP code development personnel for completeness.

A letter was issued that documented results of a scaling study, comparing the behavior of severe fuel damage events in the Power Burst Facility (PBF) and the Three Mile Island-2 reactor. The study used a preliminary version of the SCDCOMP module of SCDAP/MOD0.

Severe Fuel Damage Data Base

No work was performed during December.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

Work will continue on input deck development and debugging. The assessment matrix, defining all SCDAP/MOD0 assessment activities, will be completed.

5. Problems and Potential Problems

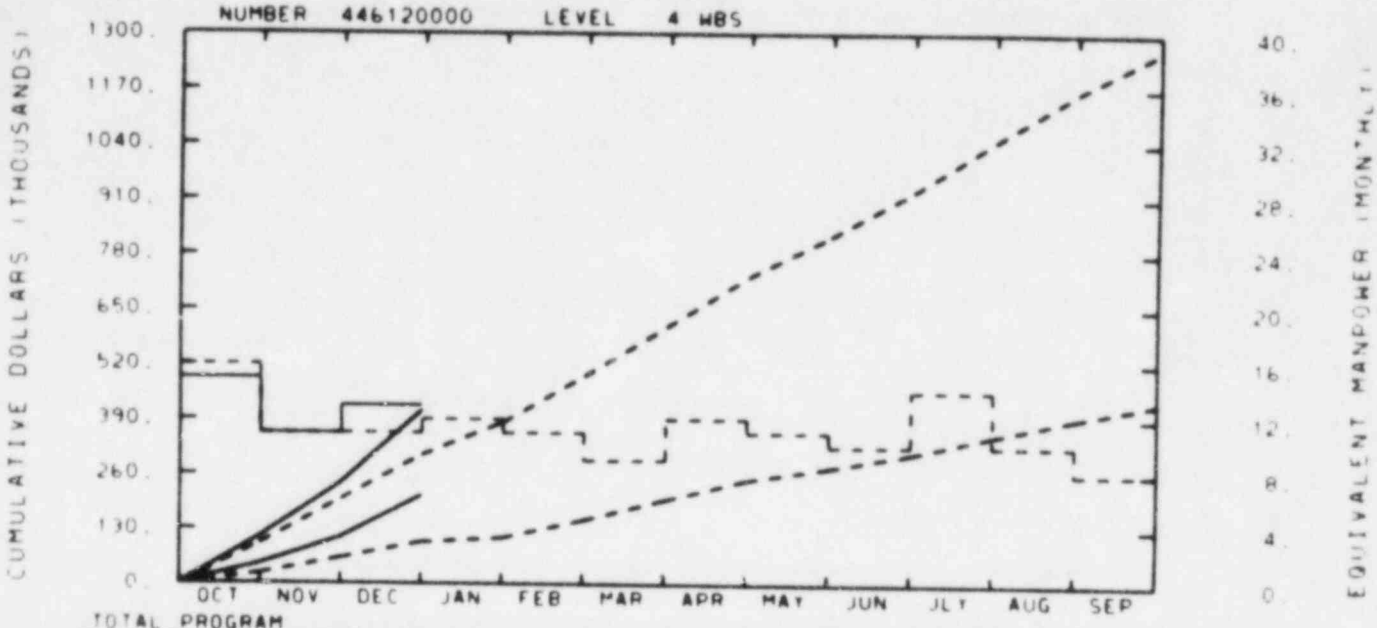
None.

RESPONSIBLE MANAGER
SAFFELL

EG&G IDAHO INC.

LOCA ANALYSIS ASSESSMENT A6047

NUMBER 446120000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	95	200	305	382	492	609	727	822	928	1047	1163	1262
ACTUAL	112	239	411									

MATERIAL

BUDGET	23	61	98	109	152	200	247	275	309	351	392	429
ACTUAL	47	110	209									

MANPOWER

BUDGET	16	11	11	12	11	9	12	11	10	14	10	8
ACTUAL	15	11	13									

BUDGET
ACTUAL

189 NO. A6047

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 26.8	$ 74.0
MATERIALS, SERVICES AND OTHER COSTS	1.5	6.2
ADP SUPPORT	84.5	168.8
SUBCONTRACTS	0.0	0.0
TRAVEL	0.8	8.4
INDIRECT LABOR COSTS	37.3	103.2
GENERAL AND ADMINISTRATIVE	21.1	50.5
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 172.0	$ 411.1

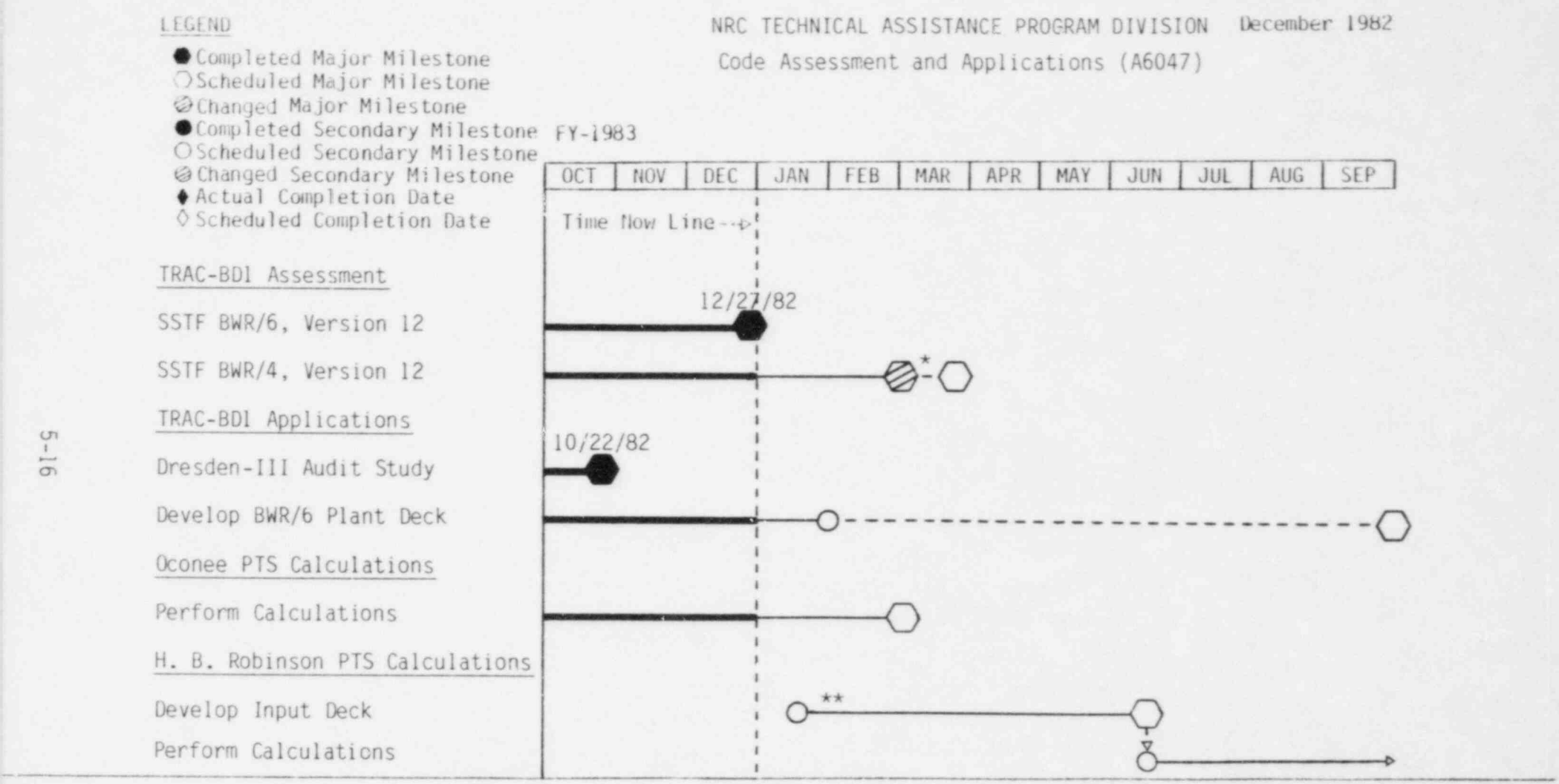
A6047

YTD VARIANCE: <106> (35%)

The budget reflected in the graph does not correspond with work scope being performed. Negotiation is still underway to determine FY-1983 objectives. As soon as a firm schedule is set, a new budget will be implemented.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION December 1982

Code Assessment and Applications (A6047)



NOTES: * Additional test information (refined initial conditions) has been required from the experimenter, which has resulted in a three week extension in this task.

** Insufficient plant information was received in December to start this task.

-------- Pending task

A6047: LOCA Analysis Assessment and Applications
EG&G Program/Technical Monitor: T. R. Charlton (PWR)
R. R. Schultz (BWR Applications)
G. E. Wilson (BWR Assessment)
DOE Technical Monitor: D. Majumdar
NRC Technical Monitor: F. Odar

The objective of this work is to provide technical suport to the Nuclear Regulatory Commission (NRC) in the assessment and application of advanced thermal-hydraulic safety analysis codes. The assessment results serve to inform the scientific community of the relative capabilities, validity and range of applicability of the NRC developed codes. Application of the codes provide a technical basis for NRC evaluations of calculations performed by reactor vendors, utilities and others during the licensing process.

1. Scheduled Milestones for December 1982

Description	Due Date	Actual Date
BWR/6, SSTF V12 Assessment	12-27-82	12-27-82C Saff-514-82

2. Summary of Work Performed in December 1982

The Boiling Water Reactor (BWR) Transient Reactor Analysis Code (TRAC-BD1) assessments with data from the BWR/4 and BWR/6 reference tests in the 30° Steam Sector Test Facility (SSTF) were continued. In the BWR/4 study, model development was completed and steady state initialization started (see Section 5). The BWR/6 study was completed and an interim report (EGG-NTAP-6146) issued.

The Grand Gulf BWR/6 plant model (TRAC-BD1) development continued. The results of first 4 pressurized thermal shock (PTS) analyses on Oconee were presented to Nuclear Reactor Regulation (NRR) and Office of Nuclear Regulatory Research (RES). Work continued on the next five analyses for Oconee PTS. Differences between Los Alamos National Laboratory (LANL) and Idaho National Engineering Laboratory (INEL) steam line break analysis results were investigated and identified. A recommendation on an isolatable small break analysis was made to RES and Oak Ridge National Laboratory.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

The TRAC-BD1 code assessment with SSTF BWR/4 data will continue.

The Grand Gulf model development will be completed.

The second Oconee small break (7a), the second overfeed trasnient (a) and the turbine bypass valves failure (10) transients will be completed and sent to ORNL early in January. The third and fourth small break transients (bn and c) will be completed late in January.

The H. B. Robinson plant deck model will be started if plant data is received.

5. Problems and Potential Problems

During the initial runs of the SSTF BWR/4, TRAC-BD2 code assessment we were unable to achieve a stable steady state condition with the reported, experimental initial and boundary conditions. Subsequent discussions with the experimenter indicated that certain initial mass inventories had a high degree of uncertainty and that they had determined what was thought to be more consistent values. These activities have delayed the analysis by three weeks. We will try to recover this delay; however, there is a possibility the completion of the study may also be delayed.

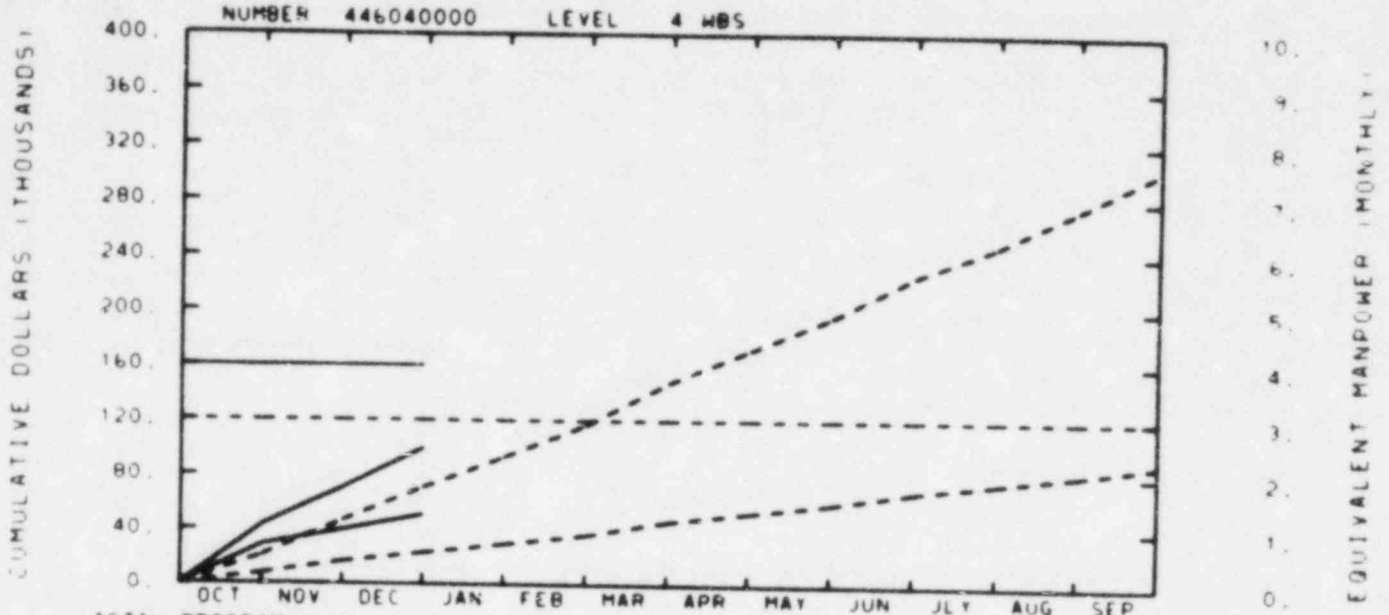
The information for H. B. Robinson plant was not received in December. The completion date for H. B. Robinson PTS analyses will begin to slip or fewer analyses will be conducted unless plant data is received by early January.

RESPONSIBLE
MANAGER
SAFFELL

EG&G IDAHO INC.

DATA BANK A6102

NUMBER 446040000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	21	46	71	93	117	148	172	196	225	248	275	303
ACTUAL	43	70	100									

MATERIAL

BUDGET	8	16	23	30	36	46	53	60	68	75	82	89
ACTUAL	29	40	51									

MANPOWER

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

BUDGET

ACTUAL

LBS NO. A6102

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 6.6	$ 18.2
MATERIALS, SERVICES AND OTHER COSTS	0.1	0.3
ADP SUPPORT	10.3	41.8
SUBCONTRACTS	0.0	0.0
TRAVEL	0.5-	2.5
INDIRECT LABOR COSTS	9.0	24.6
GENERAL AND ADMINISTRATIVE	3.6	12.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 29.1	$ 99.6

A6102

YTD VARIANCE: <29> (41%)

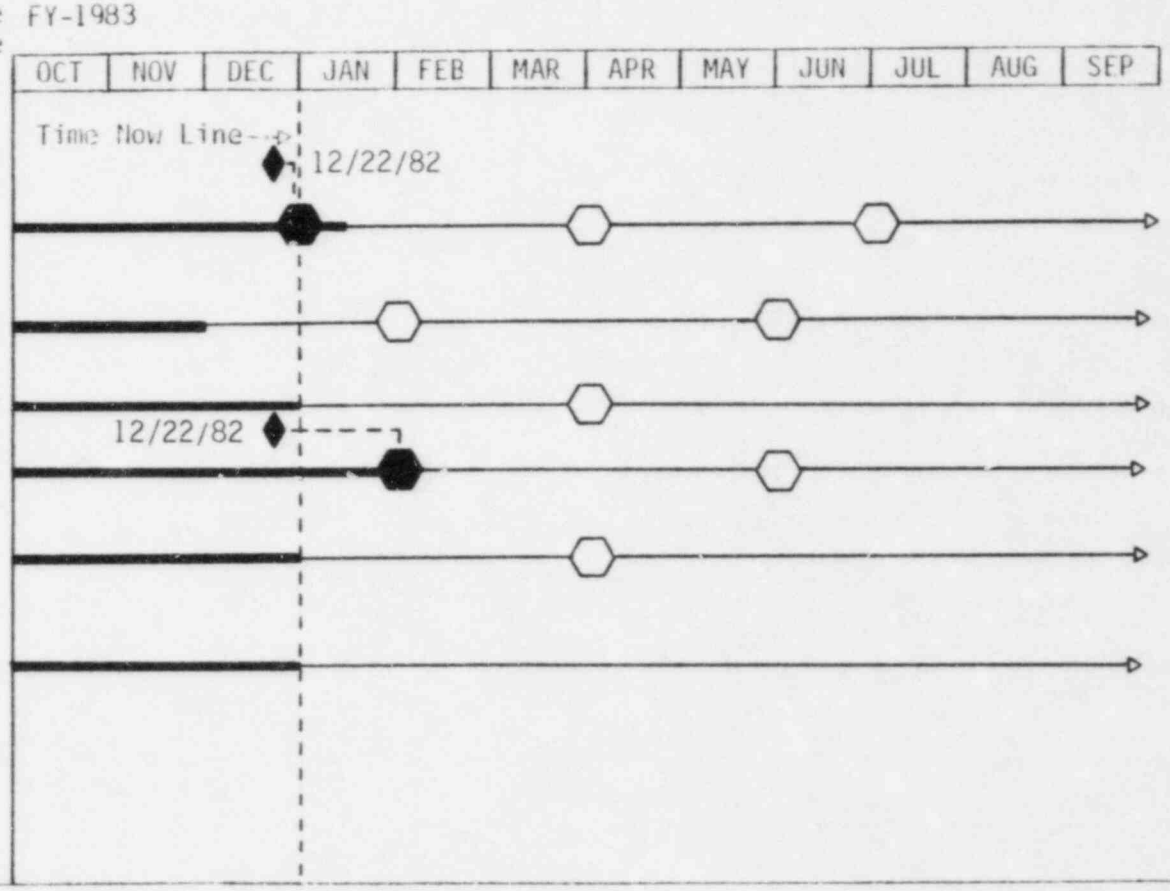
Higher than expected computer costs were incurred early in the fiscal year. Measures are now being implemented to recover from the overspending.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION December 1982

Data Bank Processing System (A6102)

LEGEND

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



NOTES:

A6102: NRC/DAE Data Bank
EG&G Program/Technical Monitor: E. T. Laats
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: M. W. Young

The objective of the Nuclear Regulatory Commission/Division of Accident Evaluation (NRC/DAE) Data Bank program is to provide a well controlled, documented repository for experiment data that supports the nuclear reactor safety industry. Toward this goal, the data base is continually being enlarged, assistance is provided to users in the form of training seminars and documentation, and the software employed by the Bank is continually upgraded.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

Data from three facilities were added to Data Bank. They include Loss of Fluid Test (LOFT) facility Test L9-4, Single Heated Bundle Facility (SHBF) Tests 1011 and 7302, and Steam Sector Test Facility (SSTF) Tests 339, 204, 215, 220, 342, and 068.

The Advanced Data Bank User's Training Session was completed and is ready for presentation. The session emphasizes use of software that enhances and economizes the data storage, manipulation, and display capabilities.

A Data Bank Encounter newsletter was assembled and printed for distribution during the first week of January 1983. Work has begun an upgrading the formal (NUREG) user's manual for republication in Spring of 1983.

3. Scheduled Milestones for January 1983

Description	Due Date	Actual Date
Add 38 tests to Data Bank	1-3-83	12-22-82C Saff-511-82
Provide User Training	1-31-83	12-22-82 Saff-511-82

4. Summary of Work to be Performed in January 1983

Data entry activities will continue.

The Encounter newsletter will be distributed to the 450 registered Data Bank users.

Updating of the formal user's manual will be completed and the document will be given to Technical Publications for editing.

5. Problems and Potential Problems

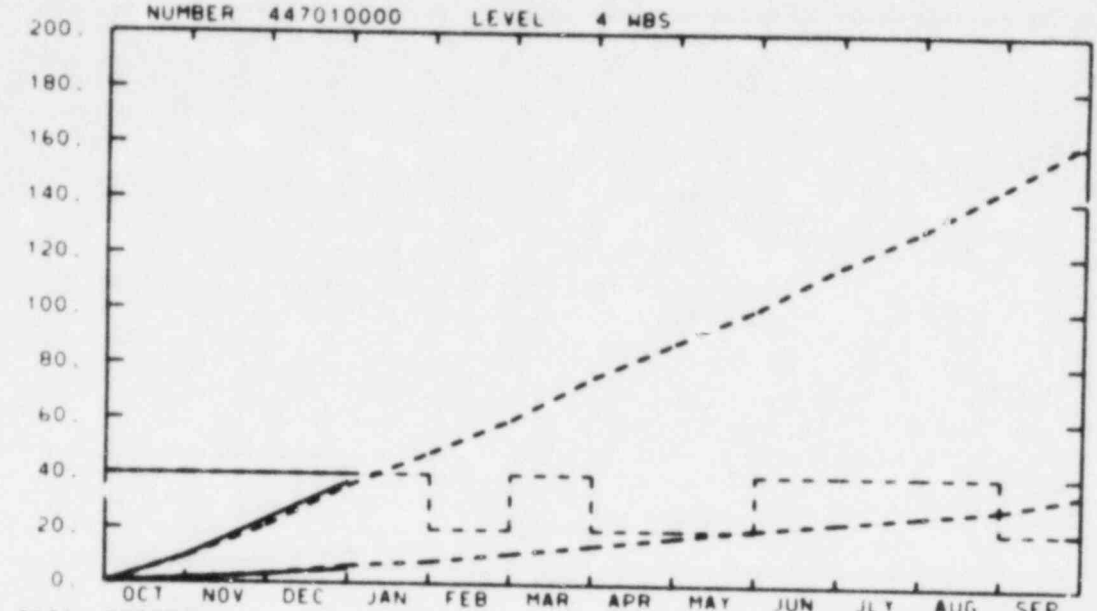
None.

RESPONSIBLE
MANAGER
D F SAFFELL

EG&G IDAHO INC.

LER FAILURE RATE A6276

NUMBER 447010000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	9	21	36	48	60	76	88	101	116	129	145	162
ACTUAL	10	23	37									

MATERIAL

BUDGET	1	3	6	8	11	14	17	21	23	26	29	34
ACTUAL	2	3	5									

MANPOWER

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

BUDGET

ACTUAL

LOG NO. A6276

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 4.3	$ 12.0
MATERIALS, SERVICES AND OTHER COSTS	0.0	0.3
ADP SUPPORT	2.0	4.4
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	5.8	15.9
GENERAL AND ADMINISTRATIVE	1.7	4.6
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 13.8	$ 37.2

A6276

YTD VARIANCE: <1> (3%)

A6276: Licensee Event Report (LER) Failure Rate Analysis
EG&G Program/Technical Monitors: J. H. Linebarger/M. E. Stewart
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: R. C. Robinson

The objectives of this project are to summarize and evaluate nuclear power plant component failure data as reported in the LERs and to estimate component failure rates by using the summarized component failure data.

1. Scheduled Milestones for December 1982

Description	Due Date	Actual Date
Instrumentation & Control Update Draft Report	12-31-82	12-21-82C Saff-508-82

2. Summary of Work Performed in December 1982

The draft report on instrumentation and control systems (updating NUREG/CR-1740) was issued. Research for the inverter study continued.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

The inverter study will continue.

5. Problems and Potential Problems

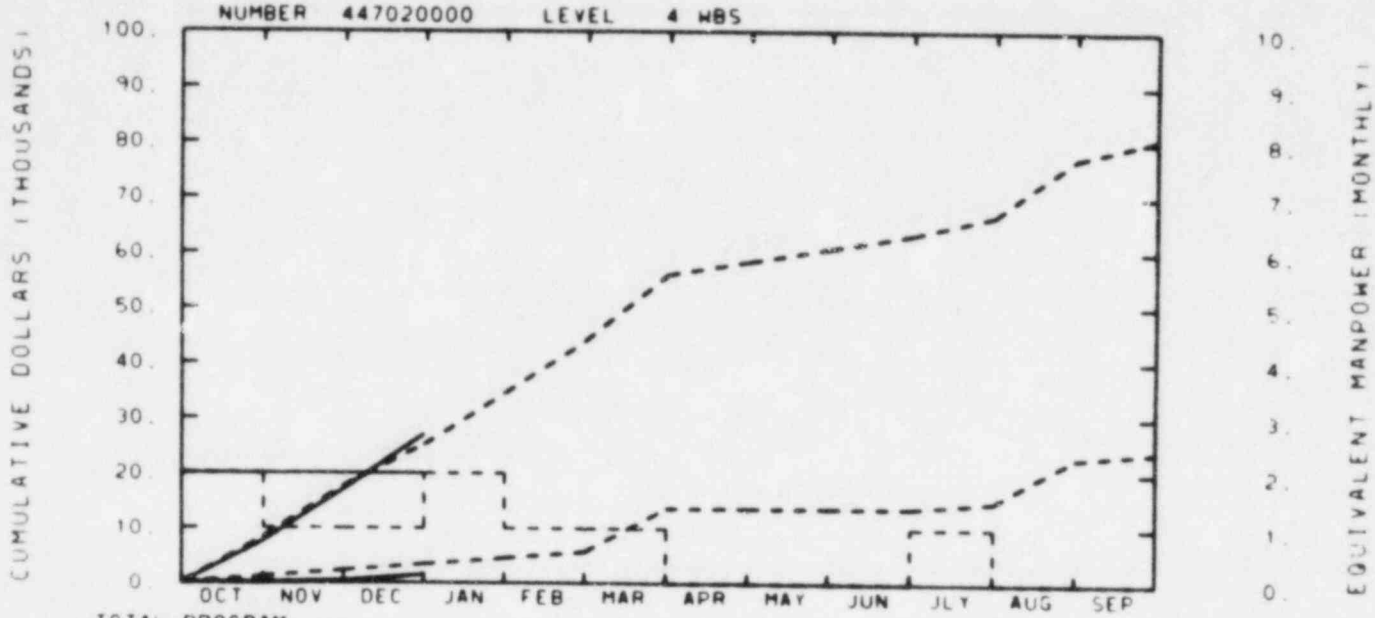
None.

ONSIBLE
ER
SAFFELL

EG&G IDAHO INC.

COMMON CAUSE STAT MODELING A6283

NUMBER 447020000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	8	18	25	35	44	56	58	61	63	67	77	81
ACTUAL	8	17	27									

MATERIAL

BUDGET	1	2	3	5	6	14	14	14	14	15	23	24
ACTUAL	0	0	1									

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6283

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 4.2	$ 11.7
MATERIALS, SERVICES AND OTHER COSTS	0.4	0.4
ADP SUPPORT	0.5	0.9
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	3.6	10.7
GENERAL AND ADMINISTRATIVE	1.2	3.3
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 9.9	$ 27.0

A6283

YTD VARIANCE: <2> (8%)

A6283: Common Cause Data Analysis
EG&G Program/Technical Monitors: J. H. Linebarger/N. D. Cox
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: L. E. Lancaster

The objective of this project is to develop and apply software that uses the Binomial Failure Rates (BFR) model to estimate common cause failure rates with tolerance bounds in support of risk assessment quantification.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

The engineering review of the recent Licensee Event Reports (LERs) on Instrumentation and Controls (I&C) was completed. The analysis of the updated data file began.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

The analysis of the updated I&C data file will continue.

5. Problems and Potential Problems

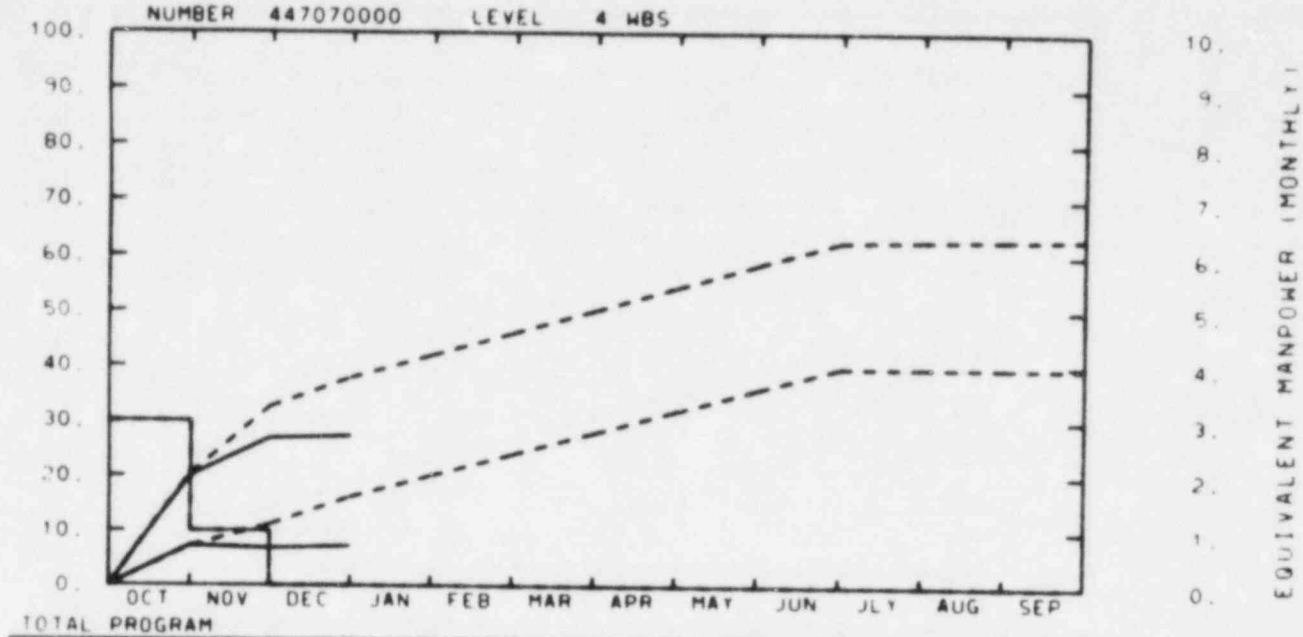
None.

RESPONSIBLE MANAGER
SAFFELL

EG&G IDAHO INC.

PLANT STATUS MONITORING A6294

NUMBER 447070000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	20	33	38	42	46	50	54	58	62	63	63	63
ACTUAL	20	27	27									

MATERIAL

BUDGET	7	11	16	20	24	28	32	36	40	40	40	40
ACTUAL	7	7	7									

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6294

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 0.0	$ 7.6
MATERIALS, SERVICES AND OTHER COSTS	0.0	2.4
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.4	4.5
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	0.0	10.0
GENERAL AND ADMINISTRATIVE	0.0	2.8
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 0.4	$ 27.3

A6294

YTD VARIANCE: 11 (29%)

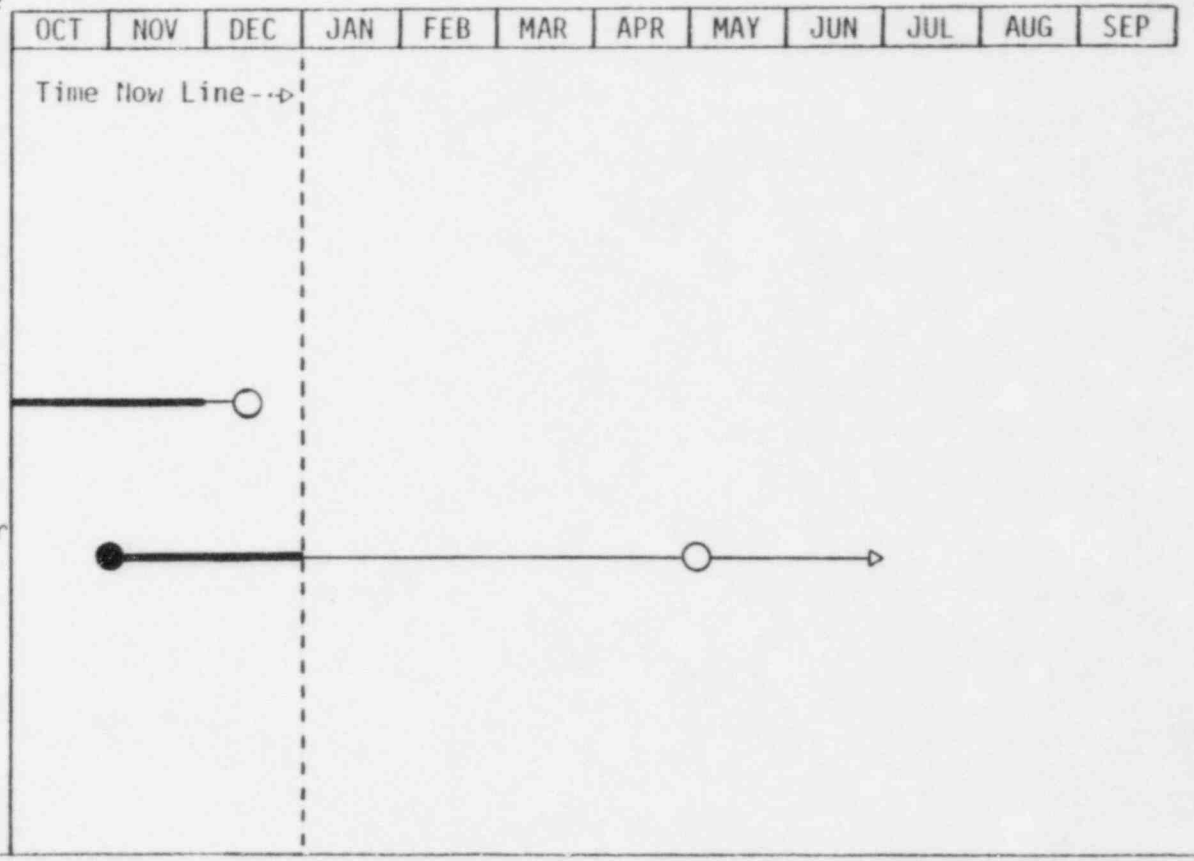
An accrual for the Wood-Leaver subcontract was made against A6331; however, 25% of the estimated charges should have been accrued against A6294, which would have brought the costs in line with the budget. This error will be corrected next month.

LEGEND

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

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION December 1982

Plant Status Monitoring (A6294)



NOTES: Diagnostic Algorithm work was stopped due to lack of funds.

A new task in support of A6331 has been added to this schedule.

A6294: Plant Status Monitoring
EG&G Program/Technical Monitors: J. H. Linebarger/M. E. Stewart
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: M. L. Au

The objective of this project is to define the necessary and sufficient information needed by an operator to unambiguously know the status of the plant during accident conditions.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

Work on finalizing the Diagnostic Algorithm Development Report was stopped due to depletion of funds for support of this work. Management is in the process of resolving future disposition of the report.

Additional comments are being incorporated into the Wood-Leaver report on Emergency Procedure Guidelines (EPG) methodology. The associated NUREGs will now be published in late January or early February.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

The EPG NUREGs will be published the latter part of this month or in early February.

Funding from this project will be used to support Wood-Leaver work on General Electric EPG analysis, discussed under FIN A6331 progress, as planned.

5. Problems and Potential Problems

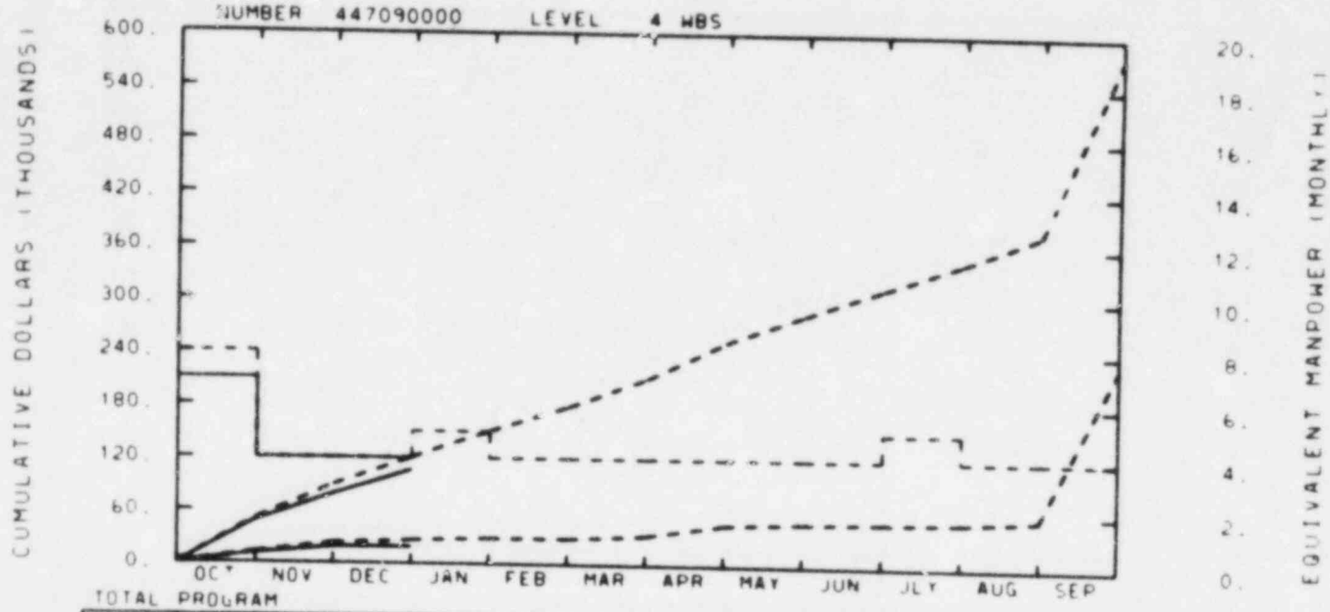
None.

RESPONSIBLE
GER
SAFFELL

EG&G IDAHO INC.

ACCIDENT SEQUENCE EVAL A6301

NUMBER 447090000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	51	89	121	151	179	211	253	284	314	344	377	576
ACTUAL	49	79	107									

MATERIAL

BUDGET	13	23	27	29	29	34	47	49	51	52	56	227
ACTUAL	11	19	19									

MANPOWER

BUDGET	8	4	4	5	4	4	4	4	4	5	4	4
ACTUAL	7	4	4									

BUDGET - - - - -

ACTUAL ———

189 NO. A6301

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 10.3	$ 32.8
MATERIALS, SERVICES AND OTHER COSTS	0.1	1.8
ADP SUPPORT	0.4	0.5
SUBCONTRACTS	0.0	5.2
TRAVEL	0.0	10.2
INDIRECT LABOR COSTS	13.6	43.7
GENERAL AND ADMINISTRATIVE	3.4	12.5
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 27.8	$ 106.7

A6301

YTD VARIANCE: 14 (12%)

A6301: INEL Accident Sequence Evaluation Program (ASEP)
EG&G Program/Technical Monitors: J. H. Linebarger/W. H. Sullivan
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: P. Baranowsky

The objective of the project is to determine the generic light water reactor (LWR) accident sequences which will be used to investigate licensing issues.

1. Scheduled Milestones for December 1982

Description	Due Date	Actual Date
Idaho National Engineering Laboratory (INEL) Report on ASEP Workshop Results	12-10-82	11-18-82C Notegram to NRC Technical Monitor

2. Summary of Work Performed in December 1982

Probabilistic Risk Assessment (PRA) data is being gathered and analyzed. An additional member was temporarily added to the technical staff to assist in the PRA data gathering and analysis effort.

The Nuclear Regulatory Commission (NRC) Project Manager elected not to transmit the Workshop Results Report until further notice.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

The technical staff will continue to gather and analyze PRA information. An interim example of our progress to date will be sent to NRC management for review.

5. Problems and Potential Problems

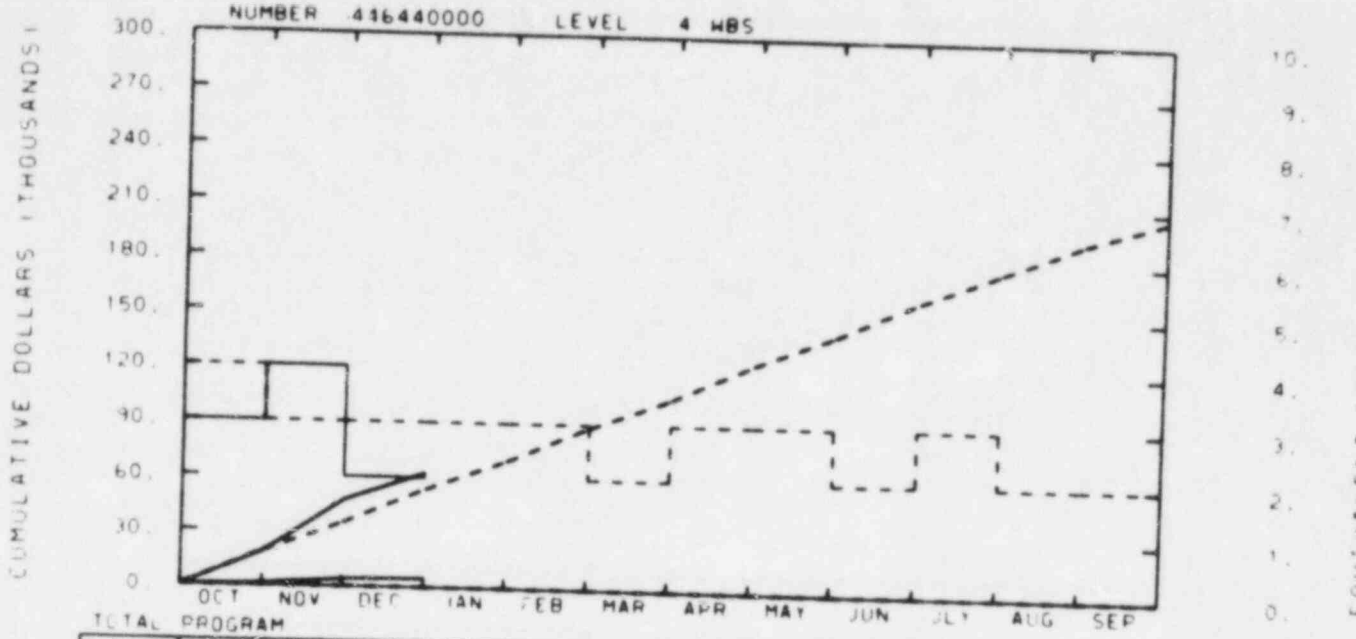
None.

RESPONSIBLE
MANAGER
SAFFELL

EG&G IDAHO INC.

HDR EVALUATION A6306

NUMBER 436440000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	19	35	54	70	88	104	124	140	160	176	193	206
ACTUAL	18	47	62									

MATERIAL

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

MANPOWER

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

BUDGET - - - - -

ACTUAL ———

189 NO. A6306

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 5.5	$ 21.8
MATERIALS, SERVICES AND OTHER COSTS	0.1	1.4
ADP SUPPORT	0.5	1.3
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	1.6
INDIRECT LABOR COSTS	7.3	28.7
GENERAL AND ADMINISTRATIVE	1.9	7.7
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 15.3	$ 62.5

A6306

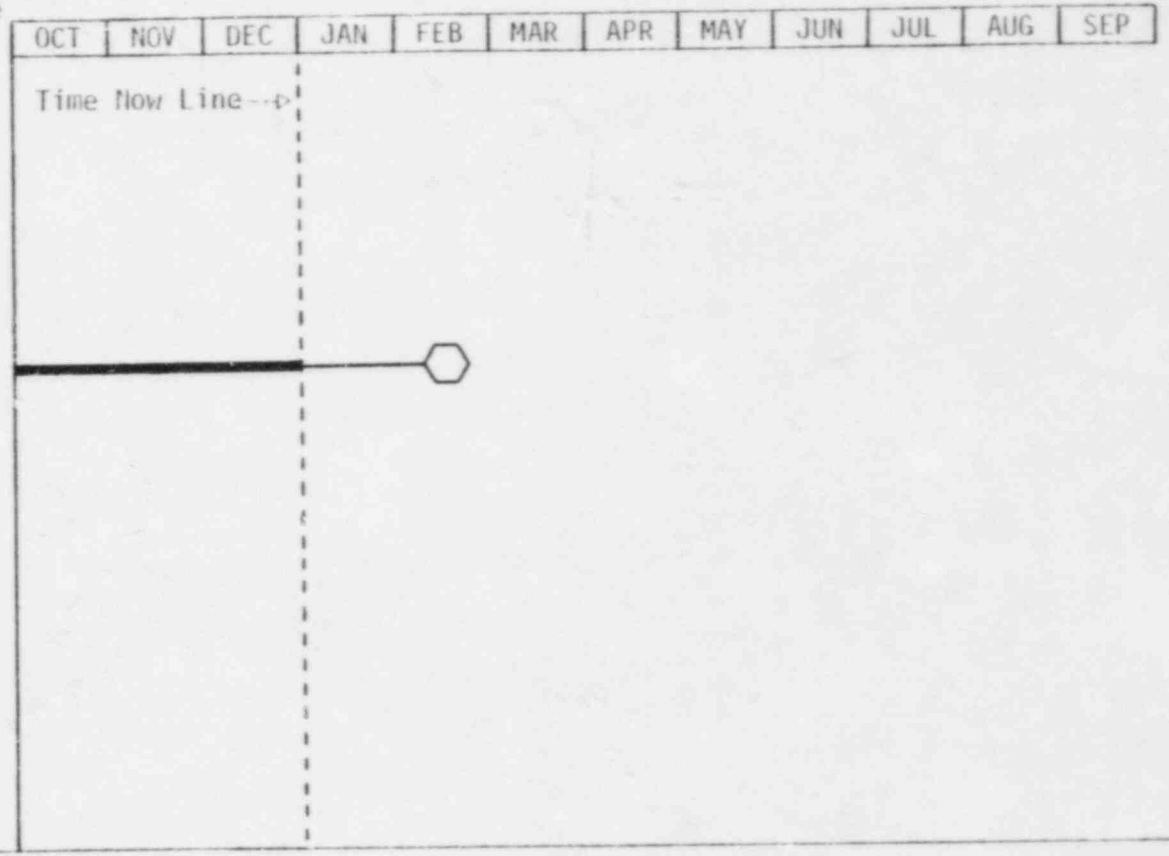
YTD VARIANCE: <8> (15%)

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION December 1982

HDR Mechanical Component Response Analysis (A6306)

LEGEND

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



NOTES: All nodes are subject to change based on HDR's schedule.

The milestones for Containment Analysis and Flood Water Storage Tanks have been combined and will be issued as one final report, Vibrations Tests Report.

A6306: Heiss Dampf Reaktor (HDR) Mechanical Component Response Analysis Testing
EG&G Program/Technical Monitors: B. L. Barnes/R. G. Rahl
DOE Technical Monitor: G. L. Vivian
NRC Technical Monitor: J. O'Brien

The Nuclear Regulatory Commission (NRC) Office of Nuclear Regulatory Research (RES), Division of Reactor Safety Research, has initiated a cooperative effort with the Federal Republic of Germany (FRG) in the Heiss Dampf Reaktor (HDR) testing program to study the response of nuclear power plant systems subjected to ground excitation. The HDR is a decommissioned reactor being used for structural and hydraulic research. This project involves performing experimental impedance testing on the flood water storage tanks and the containment building and evaluation of the change in structural properties with level and type of excitation.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

A draft report on the results of tests performed on two vessels at HDR was sent to the NRC Technical Monitor for review and comment. NRC comments were received the early part of December and are currently being incorporated into the final report. Due to some major additions requested, the publication of the report was delayed. It was also requested that the report be issued as an informal NUREG report with an RM distribution category.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

EG&G Idaho will add the additional information requested by the NRC Technical Monitor and send the report to printing. Distribution will be made by the middle part of February.

5. Problems and Potential Problems

New FY-1983 funding is urgently needed since only $14K remains to date of the $76K interim budget.

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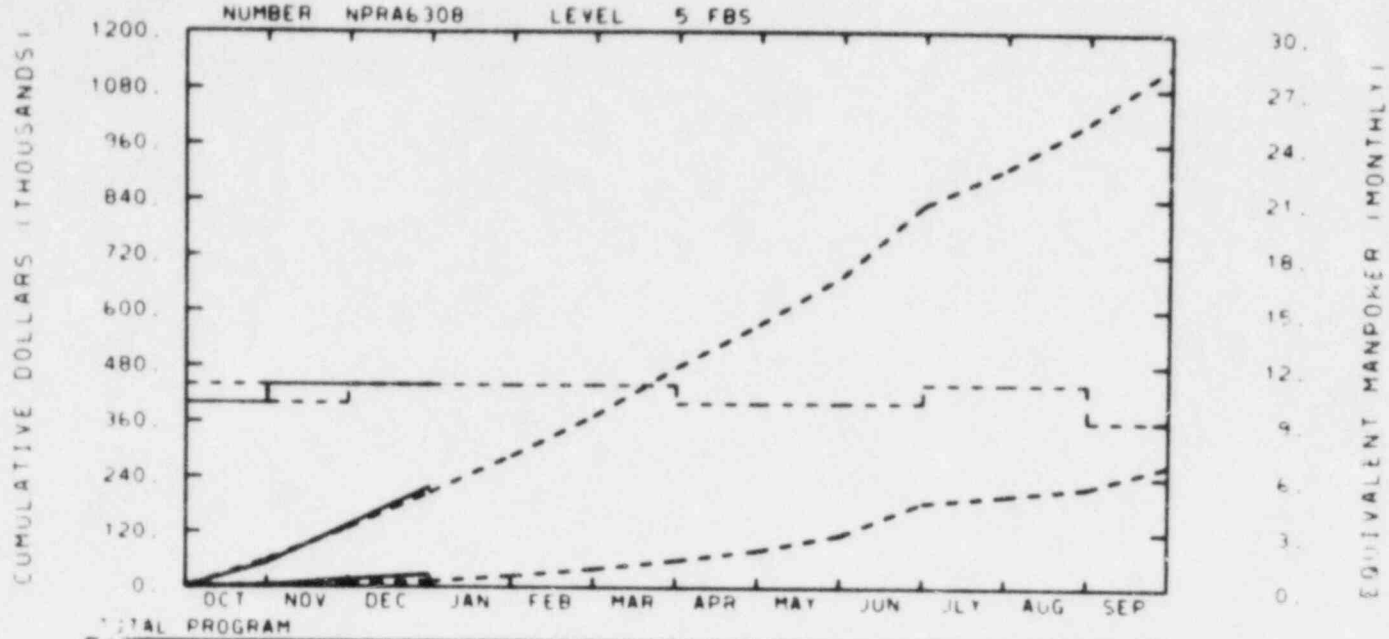
EG&G IDAHO INC.

DISPLAY DESIGN AND EVAL A6308

NUMBER NPRA6308 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	59	129	207	286	373	478	570	673	828	907	1007	1133
ACTUAL	52	135	219									

MATERIAL

BUDGET	4	8	12	25	41	60	82	115	166	201	219	268
ACTUAL	3	16	28									

MANPOWER

BUDGET	11	10	11	11	11	11	10	10	10	11	11	9
ACTUAL	10	11	11									

BUDGET ------

ACTUAL ——————

189 NO. A6308

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 26.9	$ 71.4
MATERIALS, SERVICES AND OTHER COSTS	5.7	15.0
ADP SUPPORT	1.8	4.2
SUBCONTRACTS	5.7	1.1-
TRAVEL	2.0-	7.1
INDIRECT LABOR COSTS	36.3	95.9
GENERAL AND ADMINISTRATIVE	9.2	26.4
CAPITAL EQUIPMENT	0.0	0.1
TOTALS	$ 83.6	$ 218.8

A6308

YTD VARIANCE: <12> (6%)

A6308: Display Design and Evaluation
EG&G Program/Technical Monitor: O. R. Meyer
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: J. P. Jenkins

The objective of this work is to provide data to the Nuclear Regulatory Commission (NRC) on evaluation methods and design criteria related to visual display in nuclear power plant control rooms. The data is to serve as a technical basis for NRC standards, guidelines and other regulatory activities.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

Test consoles for the evaluation facility arrived during this month but many discrepancies were noted. These discrepancies are being corrected.

Simulator-based evaluation of displays using a distractor has been completed. Data reduction and analysis is in progress.

The checklist for CRT display evaluation has been finalized.

The reports on response trees and predictor displays are in final editing and printing.

Specifications for the pressure-temperature display were completed and are being reviewed.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

The test consoles will be installed in the evaluation facility.

Bids for the remainder of the planned facility modifications will be solicited.

Data reduction and analysis of the most recently completed display evaluation experiment will continue.

4. Summary of Work to be Performed in January 1983 (Continued)

Review of the specifications for the pressure-temperature display will be completed and programming will begin.

Work on developing the response-tree experiment will continue.

5. Problems and Potential Problems

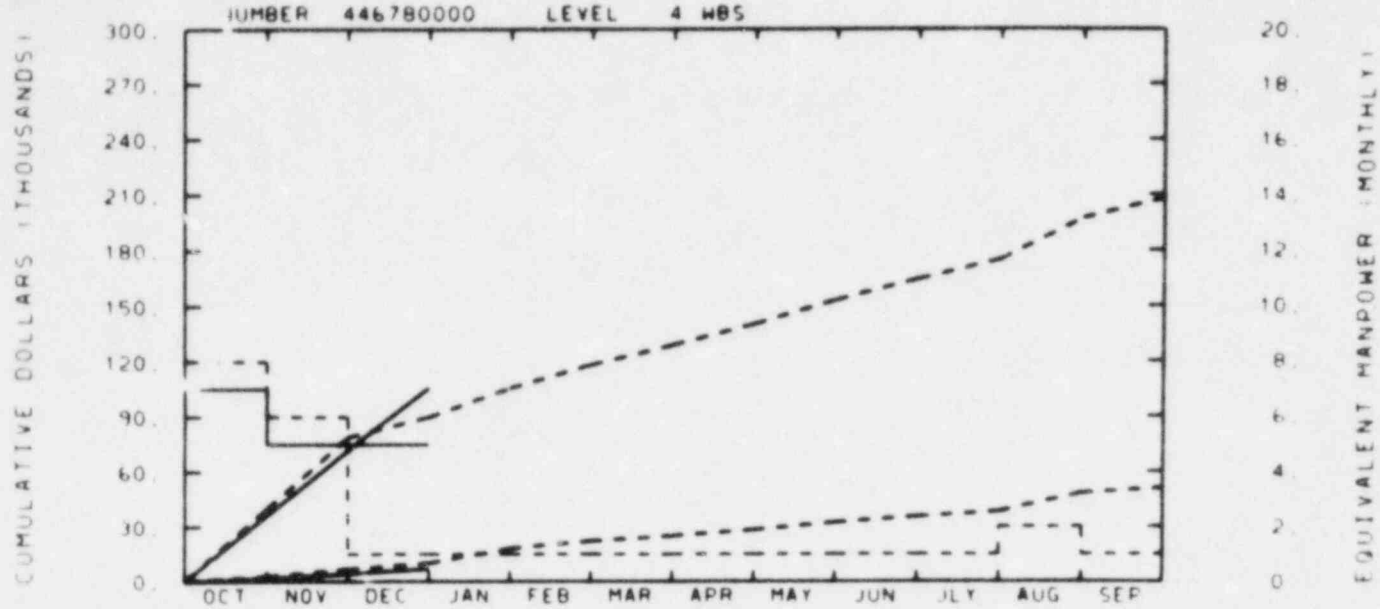
Given the present expenditure rate, carryover money from FY-1982 will be exhausted during February 1983.

SPONSIBLE
GER
AFFELL

EG*G IDAHO INC.

LOW LEVEL WASTE RISK METH A6310

NUMBER 446780000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	40	79	90	106	118	129	140	153	164	175	197	208
ACTUAL	36	72	106									

MATERIAL

BUDGET	3	7	10	18	22	25	28	32	35	38	48	51
ACTUAL	2	4	7									

MANPOWER

BUDGET	8	6	1	1	1	1	1	1	1	1	2	1
ACTUAL	7	5	5									

BUDGET

ACTUAL

189 NO. A6310

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 11.8	$ 37.3
MATERIALS, SERVICES AND OTHER COSTS	0.2	0.7
ADP SUPPORT	2.1	5.3
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	15.7	49.4
GENERAL AND ADMINISTRATIVE	4.2	13.0
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 34.0	$ 105.7

A6310

YTD VARIANCE: <16> (18%)

More effort than anticipated was necessary to get the needed computer code operating satisfactorily. That work is completed. The manpower for future work reduced, which will bring costs in line with budget.

A6310: Low Level Waste Risk Methodology Development
EG&G Program/Technical Monitors: J. H. Linebarger/N. D. Cox
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: T. J. McCartin

The objective of this project is to develop a low level waste risk assessment methodology to assess the performance of low level waste repositories and define appropriate criteria for low level waste site and design features.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

The verification of the subroutines UNSAT and AQUIFR within the shallow land burial consequence code, BURYIT, was completed. A data file for scenario probabilities was added to BURYIT; however, estimated values of the probabilities have not been inserted. A report describing the consequence model review and revision (Tasks I and II) was started. Efforts to adapt BURYIT for automated sensitivity studies continued. FY-1983 costs through December 1982 were 106.0K. Total expenditures for the project, FY-1982 and FY-1983, were 197.0K

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

The report covering Tasks I and II will be completed. Publication is expected in February. The automated sensitivity study capability will be completed and sensitivity studies will begin. Development of a format suitable for risk presentation (probability times consequences) will be started. Insertion of probability numbers into the probability data file is expected to begin.

5. Problems and Potential Problems

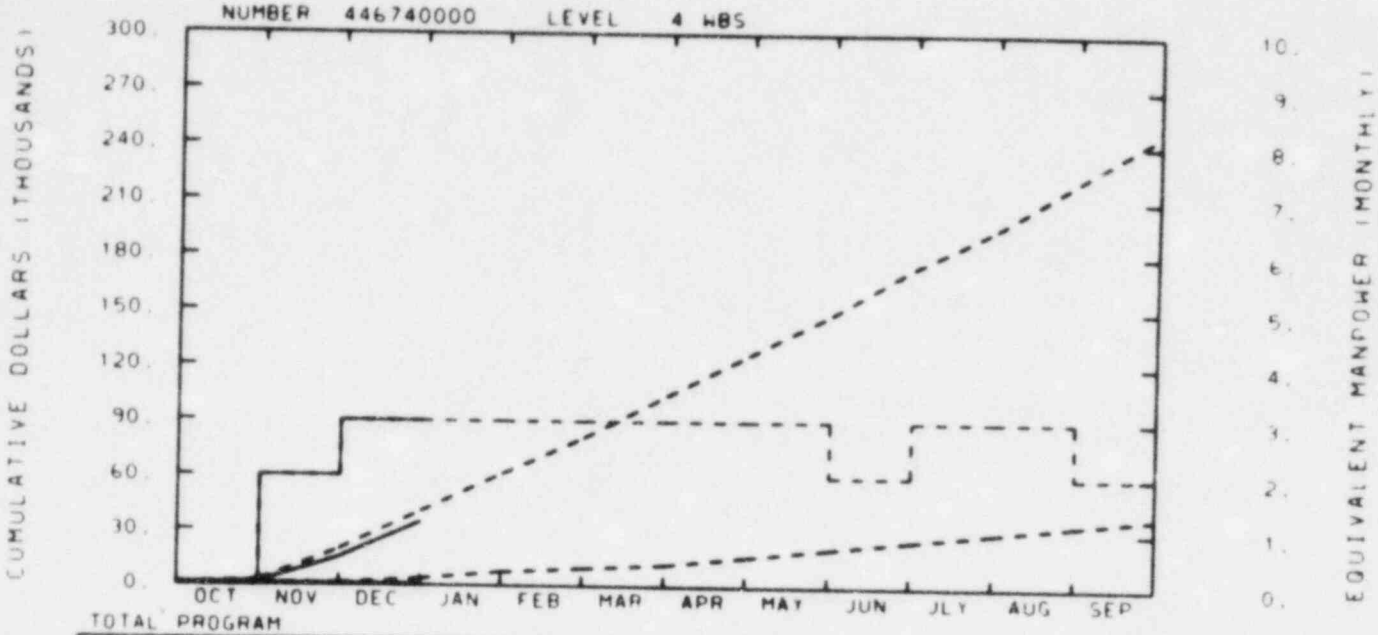
None.

RESPONSIBLE
MANAGER
SAFFELL

EG&G IDAHO INC.

INITIATING EVENT DATA EVAL A6313

NUMBER 446740000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	2	20	41	61	81	104	126	148	174	195	221	247
ACTUAL	1	15	35									

MATERIAL

BUDGET	0	1	4	8	10	12	16	21	25	30	34	39
ACTUAL	0	0	1									

MANPOWER

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

BUDGET
ACTUAL

189 NO. A6313

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 7.3	$ 12.9
MATERIALS, SERVICES AND OTHER COSTS	0.0	0.0
ADP SUPPORT	0.3	0.7
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	9.7	17.0
GENERAL AND ADMINISTRATIVE	2.4	4.3
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 19.7	$ 34.9

A6313

YTD VARIANCE: 6 (15%)

A6313: Initiating Event Data Evaluation
EG&G Program/Technical Monitors: J. H. Linebarger/M. E. Stewart
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: R. C. Robinson

The objective of this project is to develop initiating event frequencies for use in probability risk assessments (PRAs).

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

Initiating event data acquisition for additional plants was completed with a verification of data in EPRI-NP-2230 from plants identified as outliers. Licensee Event Reports (LERs) graybook data, and other sources were used, with the first phase focusing on boiling water reactors.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

Work analogous to 2 above will be focused on pressurized water reactors.

5. Problems and Potential Problems

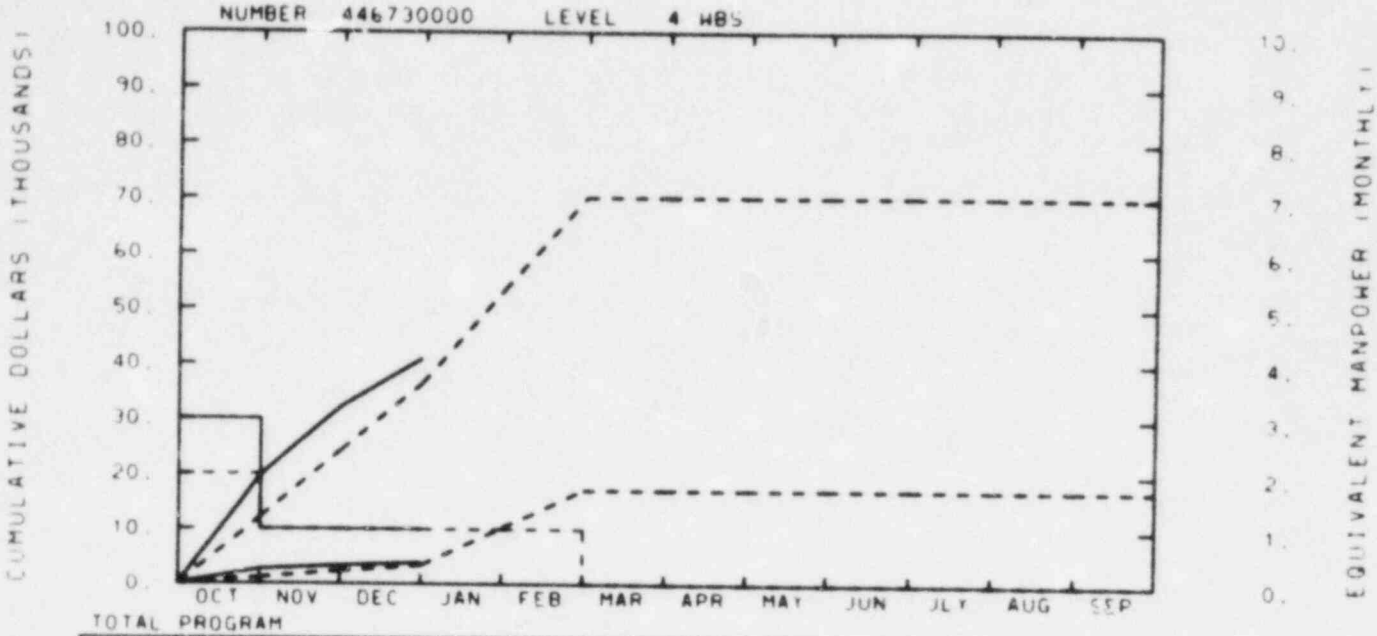
None.

RESPONSIBLE
GER
SAFFELL

EG&G IDAHO INC

PRELIM HTGR SITING EVAL A6315

NUMBER 446730000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	12	24	36	53	70	70	70	70	70	70	70	70
ACTUAL	20	32	41									

MATERIAL

BUDGET	1	2	3	10	17	17	17	17	17	17	17	17
ACTUAL	3	3	4									

MANPOWER

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

BUDGET
ACTUAL

199 NO. A6315

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 3.0	$ 13.7
MATERIALS, SERVICES AND OTHER COSTS	0.7	1.9
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.2-	1.5
INDIRECT LABOR COSTS	4.2	18.9
GENERAL AND ADMINISTRATIVE	1.1	5.0
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 8.8	$ 40.9

A6315

YTD VARIANCE: <5> (14%)

Assignments have been adjusted to make the spending rate compatible with the budget. This project is expected to be completed within budget.

A6315: Preliminary HTGR Siting Evaluation
EG&G Program/Technical Monitors: H. L. Magleby/H. J. Reilly
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: J. C. Glynn

The objective of this project is to identify and analyze accident sequences whose consequences envelope the consequences of all High Temperature Gas-Cooled Reactor (HTGR) sequences believed to be credible. This will allow evaluation by the Nuclear Regulatory Commission (NRC) of the possibility that the HTGR has significantly different siting characteristics than Light Water Reactors (LWRs). The resolution of which design (HTGR or LWR) presents a lower risk would be of significant benefit to policy makers in deciding whether the current pace of HTGR development should be changed.

The major task to be performed is to develop source terms by identifying and analyzing accident sequences for the 2240 MWt HTGR design whose associated consequences envelope the consequences of credible HTGR accident sequences. A second task is to evaluate the inherent susceptibility of the 2240 MWt HTGR to core damage accidents caused by "externally" initiated events including floods, seismic events and severe wind (tornados, hurricanes). Also, INEL will identify the major areas of and reasons for conservatism in the analysis, and will complete the preparation of the final report.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

EG&G Idaho personnel traveled to Washington on December 2 and 3 to meet with the NRC and Brookhaven National Laboratory (BNL) on various project problems.

Drafts of report sections were received from BNL, Oak Ridge National Laboratory (ORNL) and Los Alamos National Laboratory (LANL).

The appendix on event trees was drafted.

The appendices on susceptibility to fire, windstorms and floods were revised.

The main text was revised based on decisions made at the December 2 meeting.

Review of drafts from other laboratories was begun.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

Drafts of remaining report sections from other laboratories are expected to be received in January.

Review of draft report sections from other laboratories will be completed and revisions requested as appropriate.

A summary of results by other laboratories will be started.

A presentation is planned for the visit of the Director of the Office of Nuclear Research to INEL. A trip is planned to General Atomics to discuss the report.

5. Problems and Potential Problems

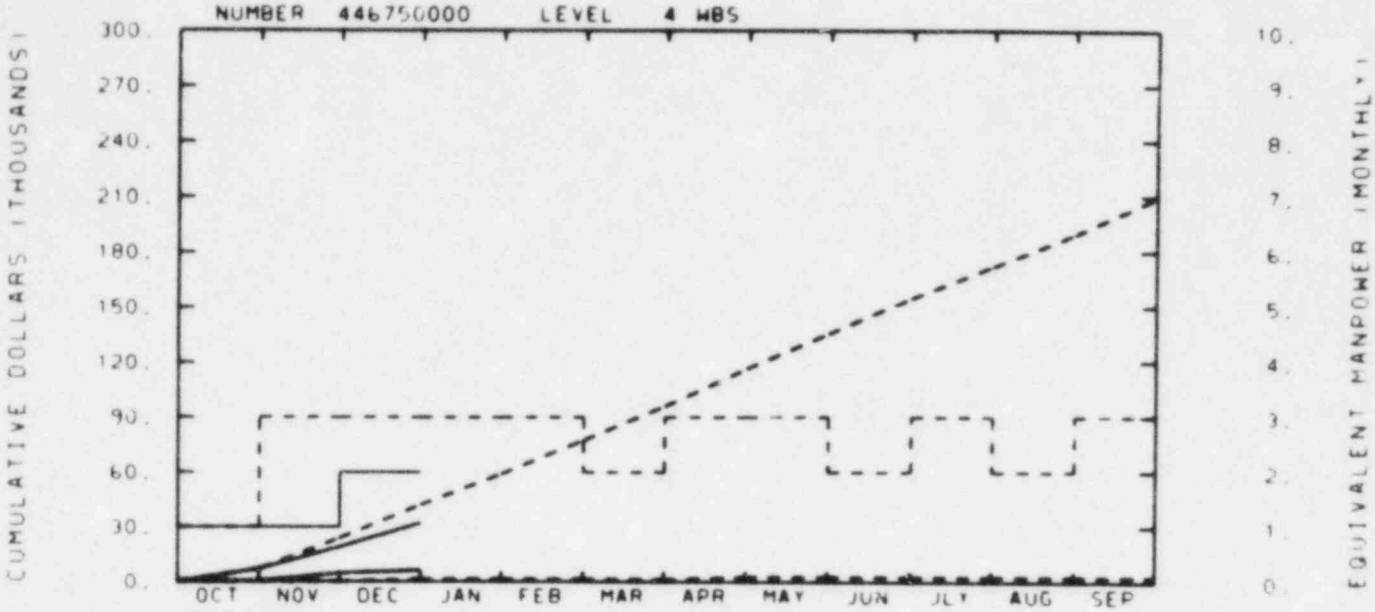
In telephone conversations with NRC it was indicated that consideration was being given to doing additional calculations for the release, migration and deposition of the fission products which would require adding performers from the participating laboratories. The most recent informal schedule for the project shows completion February 28, 1983. Additional calculations may cause this date to slip. Late arrival of draft report material from other laboratories is also impacting the schedule. Spending at INEL has been reduced to less than one full time equivalent to accommodate the slippage.

RESPONSIBLE
MANAGER
SAFFELL

EG&G IDAHO INC.

PARAMETERS INFL DAMP PIPNG A6316

NUMBER 446750000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	7	24	42	59	77	96	116	136	155	172	190	210
ACTUAL	7	19	32									

MATERIAL

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

MANPOWER

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

BUDGET - - - - - -

ACTUAL ———

I&B NO. A6316

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 4.3	$ 9.8
MATERIALS, SERVICES AND OTHER COSTS	1.4	4.9
ADP SUPPORT	0.1	0.4
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	5.9	13.0
GENERAL AND ADMINISTRATIVE	1.6	4.0
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 13.3	$ 32.3

A6316

YTD VARIANCE: 10 (24%)

A6316: Parameters Influencing Damping in Piping Systems
EG&G Program/Technical Monitors: B. L. Barnes/R. G. Rahl
DOE Technical Monitor: G. L. Vivian
NRC Technical Monitor: J. O'Brien

The objective of this program is to investigate the factors which influence damping in piping systems and provide guidelines for selecting damping values for ues in piping dynamic analyses. Experience and previous investigations have shown that the effects of piping supports are a dominant factor in apparent damping of piping system dynamics. Additionally, the use of higher damping values holds much promise for reduced numbers of seismic supports. This will both reduce system installation costs and also improve system operational reliability for frequent thermal transients.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

A preliminary test plan for EG&G Idaho pipe vibration tests to be conducted in FY-1983 was finalized. The pipe vibration tests to be conducted with ANCO Engineers are now tentatively scheduled to begin in March 1983. Arrangements were set up for an EG&G Idaho/ANCO telephone conference the first week of January 1983 to work out interface details.

3. Scheduled Milestones for January 1983

Description	Due Date	Actual Date
Issue preliminary test plan	1-15-82T	

4. Summary of Work Performed in January 1983

Planning and procurement for FY-1983 tests will be continued.

5. Problems and Potential Problems

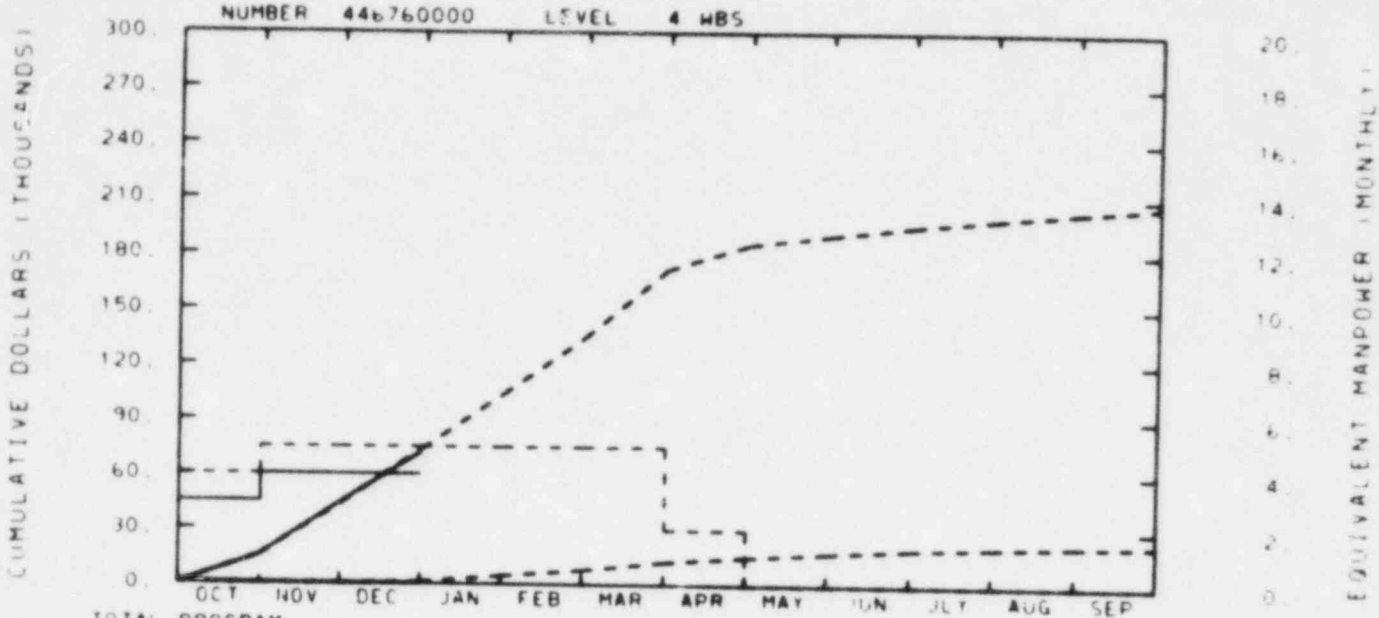
None.

RESPONSIBLE
AGER
SAFFEL

EG&C IDAHO INC.

DATA FOR NREP A6317

NUMBER 446760000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	15	43	73	104	134	171	185	190	195	199	203	206
ACTUAL	15	44	72									

MATERIAL

BUDGET	0	0	1	5	8	13	15	18	20	21	22	23
ACTUAL	0	0	0									

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6317

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 10.3	$ 27.1
MATERIALS, SERVICES AND OTHER COSTS	0.2	0.2
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	13.6	35.8
GENERAL AND ADMINISTRATIVE	3.4	8.8
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 27.5	$ 71.9

A6317

YTD VARIANCE: 1 (1%)

A6317: Data for NREP
EG&G Program/Technical Monitors: J. H. Linebarger/M. E. Stewart
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: J. W. Johnson

The objective of this project is to develop a generic reliability data base to be used in the National Reliability Evaluation Program (NREP).

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

Studies of pumps and valves in preparation for an engineerng analysis of their failure modes was continued. Work on diesel generators and instrumentation and control components was redirected as a result of a scope and funding reduction from the NRC.

The draft NUREG on data bases for risk assessment was summarized in a paper to be submitted to the 4th EuRe Data Conference, sponsored by the European Reliability Data Association.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

The paper summarizing the work on data bases will be finalized and submitted.

The engineering analysis of pump and valve failure modes will continue, with work focusing on specific pump and valve failure models critical to the safety of nuclear power plants.

5. Problems and Potential Problems

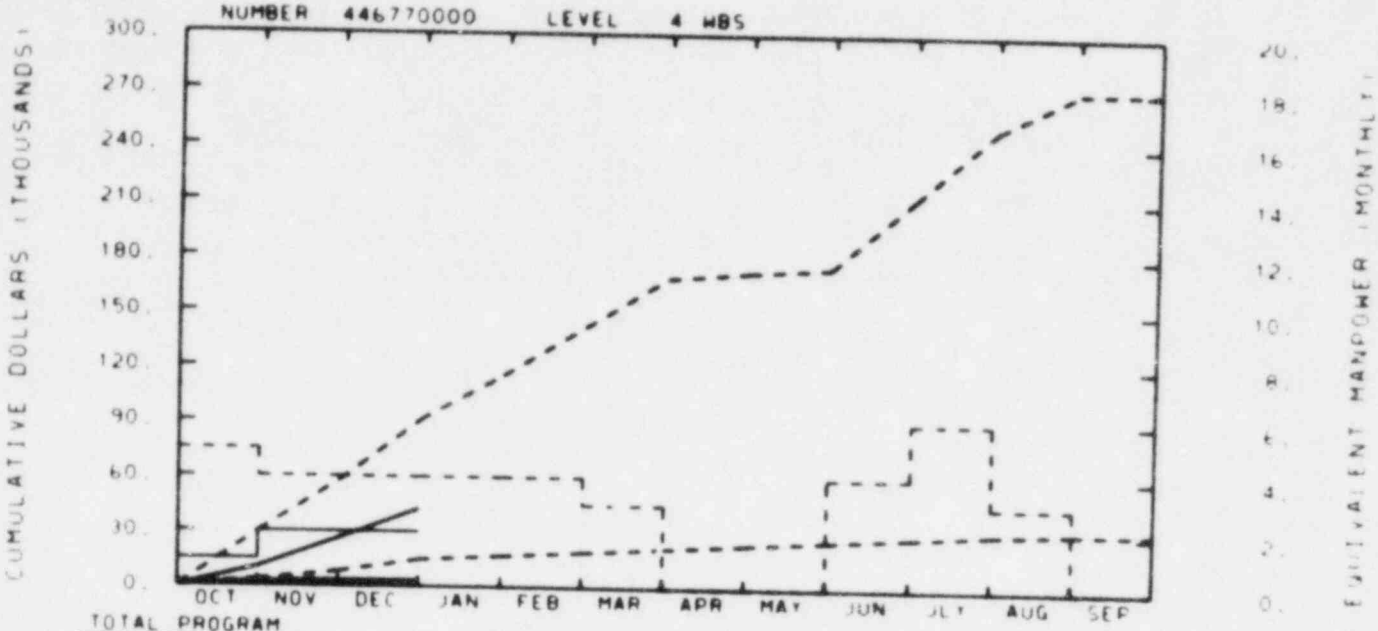
None.

RESPONSIBLE MANAGER
[redacted] SAFFELL

EG&G IDAHO INC.

SYS REQ/STD DEV ANNEAL RPV A6318

NUMBER 446770000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	30	58	91	115	142	168	172	174	212	249	270	271
ACTUAL	10	26	43									

MATERIAL

BUDGET	3	8	15	17	19	22	24	26	29	31	32	32
ACTUAL	2	3	3									

MANPOWER

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

BUDGET - - - - - -

ACTUAL ———

IRS NO. A6318

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 6.1	$ 14.8
MATERIALS, SERVICES AND OTHER COSTS	0.1	0.8
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.1	2.2
INDIRECT LABOR COSTS	8.0	19.6
GENERAL AND ADMINISTRATIVE	2.0	5.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 16.3	$ 42.6

A6318

YTD VARIANCE: 48 (53%)

This task shall be rebudgeted to reflect delays encountered in receipt of the Electric Power Research Institute/Westinghouse report on thermal annealing. Partial compensation for the underexpenditure will be provided by the addition of unplanned thermal stress analysis and an unplanned subcontract to Cooperheat Corporation for approximately $25K.

A6318: System Requirements and Standards Development for Annealing of Reactor Pressure Vessels
EG&G Program/Technical Monitors: B. L. Barnes/W. L. Server
DOE Technical Monitor: G. L. Vivian
NRC Technical Monitor: A. Taboada

Several commercial reactor pressure vessels (RPVs) now in service were manufactured using materials very sensitive to radiation exposure and are reaching a high degree of radiation embrittlement, i.e., nonconformance with current design lifetime requirements. To allow continued safe operation of these reactors, a thermal anneal cycle is under consideration to restore the fracture toughness properties of the RPVs back to an acceptable level.

The primary objectives of this work are to establish criteria for the development of standards to be applied to proposed in-situ thermal annealing procedures for commercial RPVs and to identify those technical areas which require additional research before such criteria can be established.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

The NRC Technical Monitor visited the Idaho National Engineering Laboratory (INEL) to review the work to date. Major emphasis will now be directed towards the system aspects of annealing rather than the material properties. If necessary, the Technical Monitor would like to delay the topical report on parametric effects of annealing in order to assure rapid progress on the systems aspects. A sole source subcontract to Cooperheat to develop a new annealing procedure is now in process.

Plans to visit Cooperheat in England and the BR-3 reactor people in the Belgium have been initiated. The trip is scheduled for the end of February 1983. American Society for Testing and Materials (ASTM) Task Group E10.02.07 meeting announcements for January 1983 in Orlando have been sent out.

The annual report is essentially finished and should be sent out for review next month. The FY-1983 work scope is 31% complete and 31% of the FY-1983 funds have been expended.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

The ASTM task group meeting will be attended in Florida. The annual report will be submitted to the NRC Technical Monitor for review.

5. Problems and Potential Problems

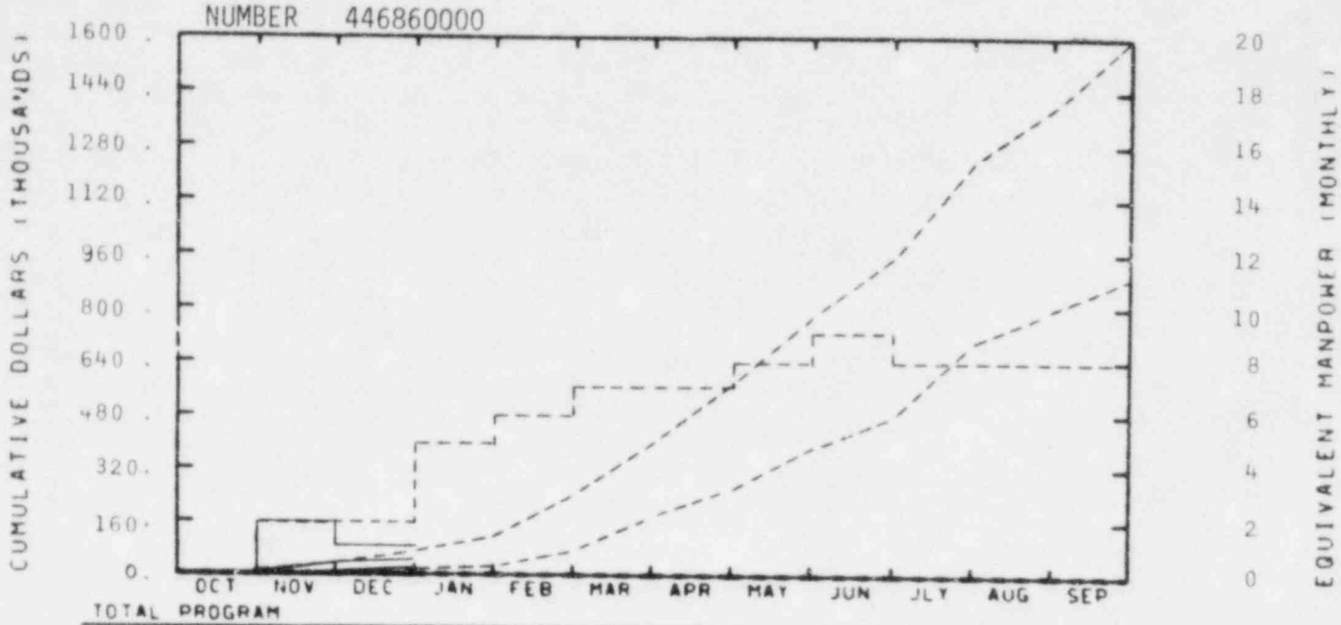
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO, INC.

EQUIPMENT QUALIFICATION A6322

NUMBER 446860000



TOTAL PROGRAM

BUDGET	2	21	65	124	241	412	591	774	950	1231	1409	1592
ACTUAL	2	21	32									

MATERIAL

BUDGET	0	2	3	6	60	169	273	377	482	687	791	898
ACTUAL	0	2	3									

MANPOWER

BUDGET	0	2	5	6	7	7	8	9	8	8	8	8
ACTUAL	0	2	1									

BUDGET ------

ACTUAL ——————

I&I NO. A6322

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 3.7	$ 10.8
MATERIALS, SERVICES AND OTHER COSTS	0.0	0.0
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.7	2.2
INDIRECT LABOR COSTS	5.1	14.7
GENERAL AND ADMINISTRATIVE	1.3	3.9
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 10.8	$ 31.6

A6322

YTD VARIANCE: 33 (51%)

The program is in the formulation stages. As tasks are more rigorously defined in January and February, the budget estimate will be made more certain. A budget reflective of the more rigorously defined tasks will then be generated.

A6322: Equipment Qualification Research Program (EQRP)
EG&G Program/Technical Monitor: J. A. Hunter
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: W. E. Campbell

The objective of the program is to provide an improved technical basis for the development of requirements and acceptance criteria for the dynamic (including seismic) and environmental qualification of mechanical equipment and dynamic qualification of electric equipment.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

A meeting was held with Energy Technology Engineering Center (ETEC) personnel to review and tour test facilities, to discuss test requirements for containment purge/vent valve testing, and to discuss related equipment qualification programs including NRC supported snubber research and previously considered safety/relief valve testing.

Extensive and useful information addressing purge/vent valve analysis and test results was received from NRR Equipment Qualification Branch (EQB). The information is being used to assist in the development of a purge/vent valve research test specification. To assist in the identification of the industry purge/vent valvue population, EQB files generated by the industry response to the TMI NRC Action Plan Task II.E.4 will be used.

A meeting was also held with ANCO engineers to discuss their EQ capabilities that could support EQRP. During the meeting, ANCO test facilities were toured, the EQRP purpose and general scope were discussed, and ANCO EQ experience was discussed. Several documents describing ANCO EQ capabilities, EQ experience, and suggested approach to developing criteria for qualification of mechanical components were obtained.

A presentation describing NRC sponsored EQ programs at INEL was made to NRR and RES personnel. During this meeting, the EQRP was discussed with NRR-EQB personnel.

A meeting was held with the Atomic Industrial Forum (AIF) working group on environmental qualification of mechanical equipment. The NRC-RES and EG&G Idaho EQRP program managers attended. During the meeting W. E. Campbell, NRC-RES EQRP Program Manager, presented an overview of the status of EQ rules and programs. J. A . Hunter, EG&G Idaho EQRP Program Manager, described the EG&G Idaho role in the EQRP. The AIF working group requested that they be asked to review EQRP plans.

2. Summary of Work Performed in December 1982 (Continued)

Suggestions for information to be requested of the Japanese equipment qualification programs at the Isogo Engineering Laboratory were transmitted to NRC-RES. This input will serve as a portion of the background material to be used to develop potential cooperative EQ exchanges between the United States and Japan.

A presentation describing EQRP was prepared to be given in January to the Director of the NRC Office of Nuclear Regulatory Research during a meeting at INEL.

A preliminary approach to developing the EQRP risk study was developed.

Preliminary guidelines for the EQRP Technical Advisory Group (TAG) were developed. The guidelines define TAG potential participants, objectives, and methodology for EQRP task development. Similar items were developed for the EQRP steering group.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

The EQRP final Form 189 will be transmitted to NRC-RES. Work will continue to complete a draft test specification for research testing of containment purge/vent valves. The industry valve population will be surveyed initially through EQB TMI Action Plan Task II.E.4 files. Preliminary actions that will lead to test procurement will be completed.

A presentation describing the EQRP will be made to the Director of the NRC Office of Nuclear Regulatory Research in a meeting at INEL.

The EQRP TAG will be organized. The goal is to conduct the first meeting in late January or early February. A more detailed program schedule and scope will be developed subsequent to the first meeting of the TAG.

The approach to be used in performing the risk study will be finalized. It is planned to convene a meeting of key personnel from the Seismic Safety Margin Research Program, Accident Sequence Evaluation Program, and the NRC-NRR sponsored Brookhaven National Laboratory program to develop a method to identify seismic sensitive systems and components to map out a strategy for performing the EQRP risk study. If necessary, proposals to redirect the participating programs will be developed to support the EQRP risk study.

5. Problems and Potential Problems

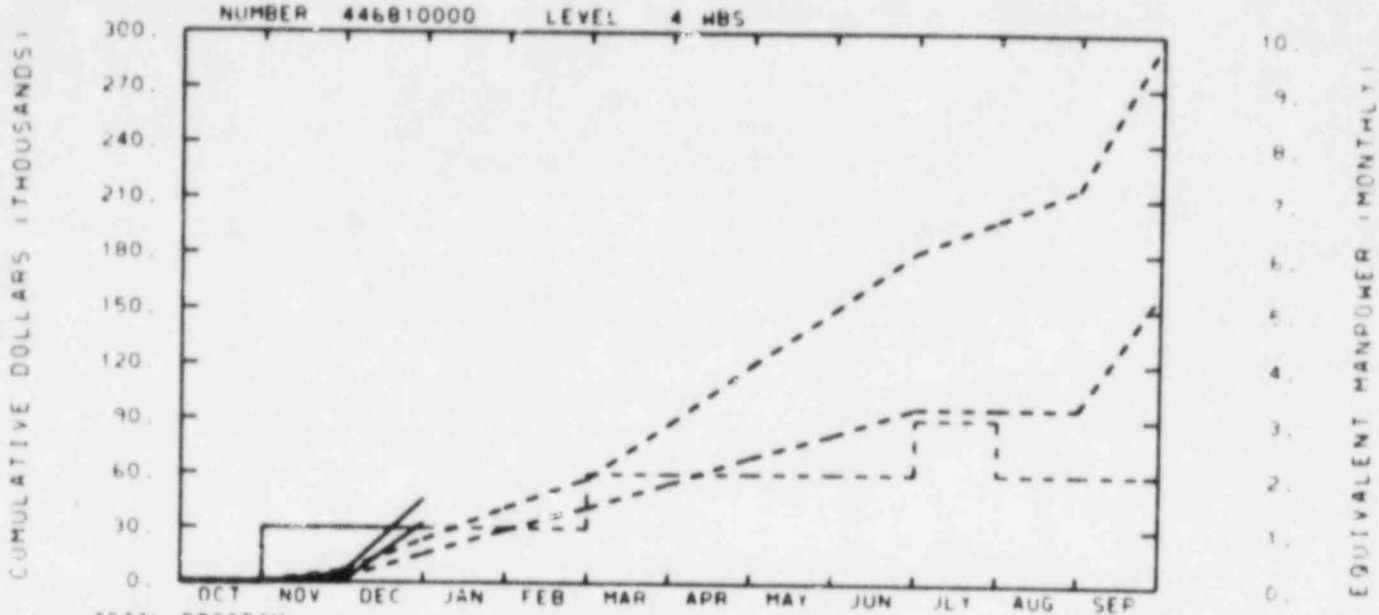
None.

RESPONSIBLE MANAGER
F SAXELL

EG&G IDAHO INC.

EMRGY OP PROCD GUIDELINES A6331

NUMBER 446810000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	6	24	41	57	87	119	149	181	198	215	297
ACTUAL	0	4	46									

MATERIAL

BUDGET	0	2	16	29	41	55	69	82	96	96	96	160
ACTUAL	0	0	33									

MANPOWER

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

189 NO. A6331

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 3.3	$ 4.9
MATERIALS, SERVICES AND OTHER COSTS	3.4	3.5
ADP SUPPORT		0.0
SUBCONTRACTS	[illegible]	28.9
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	4.4	6.6
GENERAL AND ADMINISTRATIVE	1.6	2.1
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 41.6	$ 46.0

A6331

YTD VARIANCE: <22> (92%)

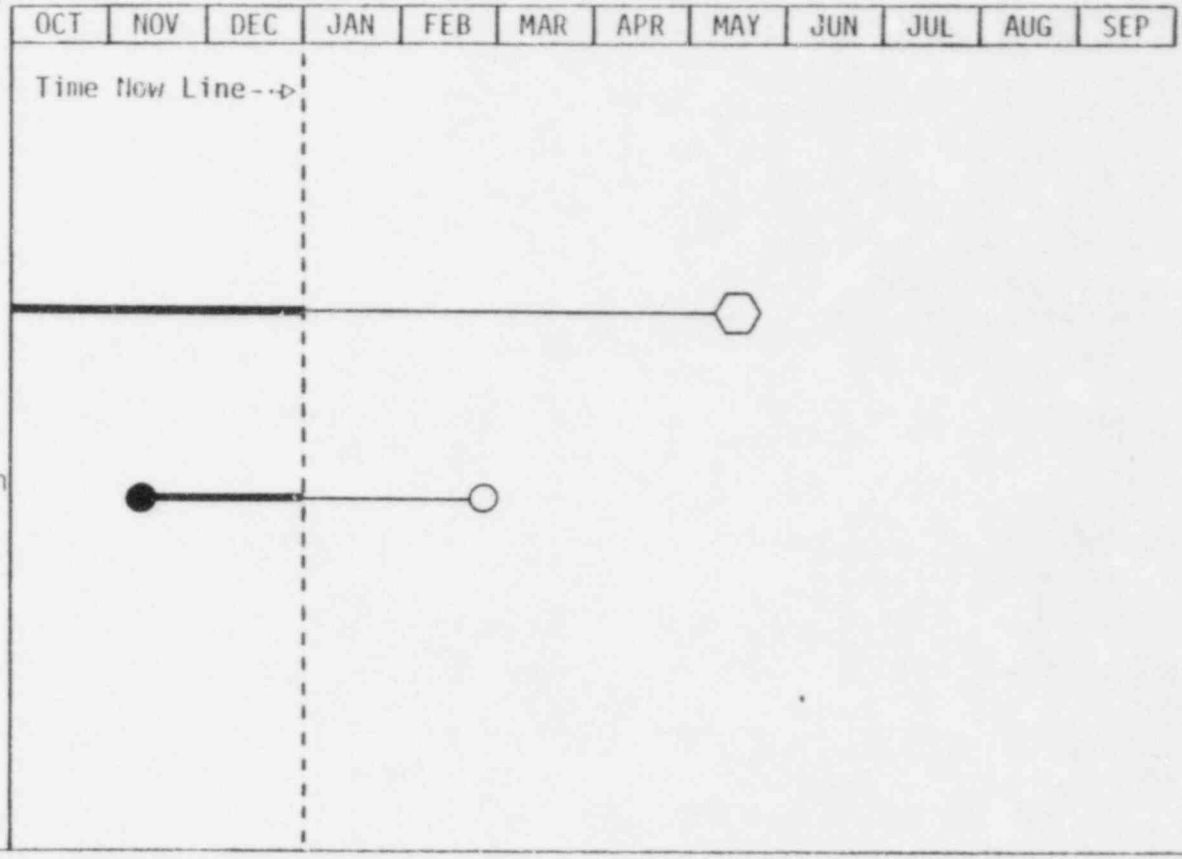
A $28K estimated accrual was levied for Wood-Leaver subcontract expenses. This accrual was based on a previous subcontract so it was not consistent with budget estimates or actual costs. The accrual schedule has been modified and should bring costs in line with budget in January.

LEGEND

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

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION December 1982

Emergency Operating Procedure Guidelines (A6331)



NOTES:

A6331: Emergency Operating Procedure Guidelines
EG&G Program/Technical Monitors: J. H. Linebarger/M. E. Stewart
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: M. L. Au

The objective of this project is to determine whether emergency procedure guidelines (EPGs), when translated to plant specific procedures, provide unambiguous guidance to the operator under all risk-significant multiple failure accident conditions.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

EG&G Idaho principals met with Wood-Leaver to arrange plans and a schedule for the tasks to be accomplished. Training for the EG&G Idaho engineer involved in this project has commenced. Both shops are in the process of familiarizing themselves with the General Electric (GE) guidelines and GE accident scenarios.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

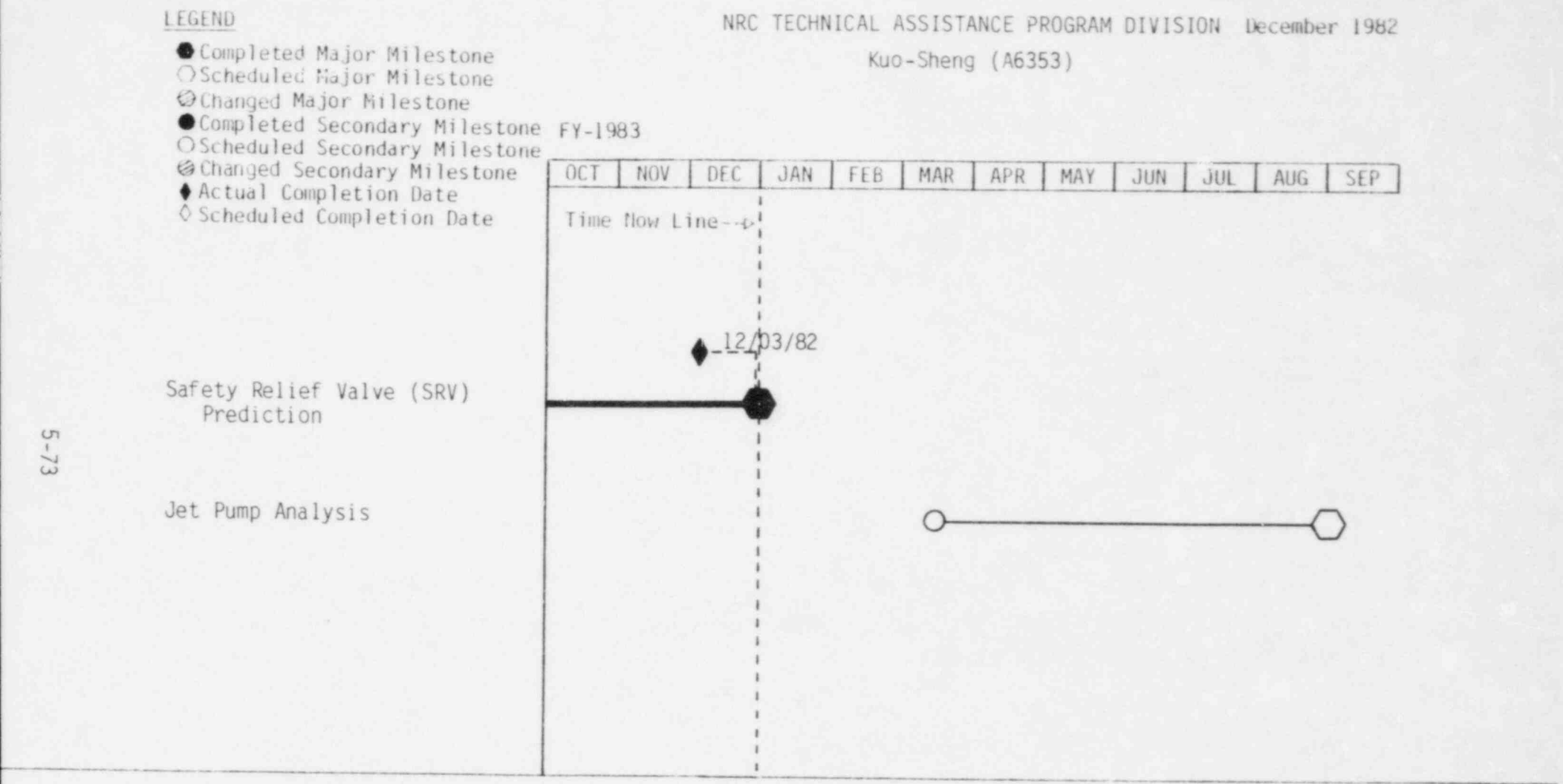
A progress meeting will be held about mid-month to resolve any questions and assign specific sequences for analysis. Work will continue to focus on familiarization with GE accidents and accident procedures.

5. Problems and Potential Problems

The NRC Technical Monitor's budget was cut 40% for FY-1983. As yet, NRR has not provided written support for A6331 although verbal support has been given. The NRC Technical Monitor is attempting to obtain written backing. If he is unsuccessful, the added $200K originally allocated for this project will not be provided and the scope of work will be renegotiated.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION December 1982

Kuo-Sheng (A6353)



NOTES: The Jet Pump Analysis task has been added due to receipt of additional FY-1983 funding.

A6353: Kuosheng Safety Relief Valve (SRV) Discharge and Piping Vibrational Tests
EG&G Program/Technical Monitors: B. L. Barnes/R. G. Rahl
DOE Technical Monitor: G. L. Vivian
NRC Technical Monitor: J. O'Brien

This task involves evaluation of structural dynamics impedance testing data obtained from the Kuosheng Nuclear Power Plant in Taiwan. Predictions of similar structural dynamic variables for other plants will be based upon the evaluations of the Kuosheng tests.

1. Scheduled Milestones for December 1982

Description	Due Date	Actual Date
Kuosheng Safety Relief Valve Discharge	12-15-82T	12-13-82C Saff-474-82
ACCEL plots--Kuosheng	12-15-82T	12-14-82C Saff-476-82

2. Summary of Work Performed in December 1982

The final two reports related to FY-1982 work under this FIN number were issued during December.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

None. Impedance test validation is scheduled to begin in March.

5. Problems and Potential Problems

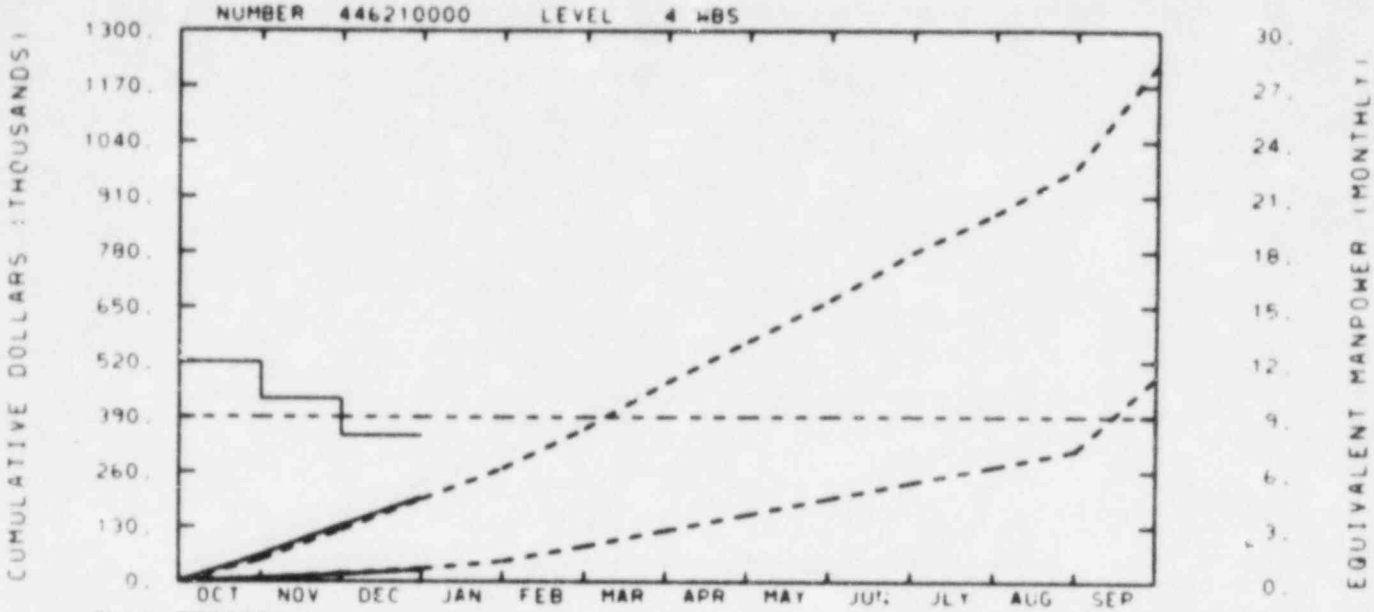
The level of activity on this project has been kept low since only $5K in funding has been received to date. The balance of funding is needed before any significant level of activity can be started for the task..

RESPONSIBLE
AGER
SAFFELL

EG&G IDAHO INC.

SEVERE ACCIDENT SEQ ANAL A6354

NUMBER 446210000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	52	122	196	268	362	471	569	666	777	868	976	1223
ACTUAL	63	133	200									

MATERIAL

BUDGET	7	19	31	48	84	122	160	197	235	272	310	483
ACTUAL	8	17	29									

MANPOWER

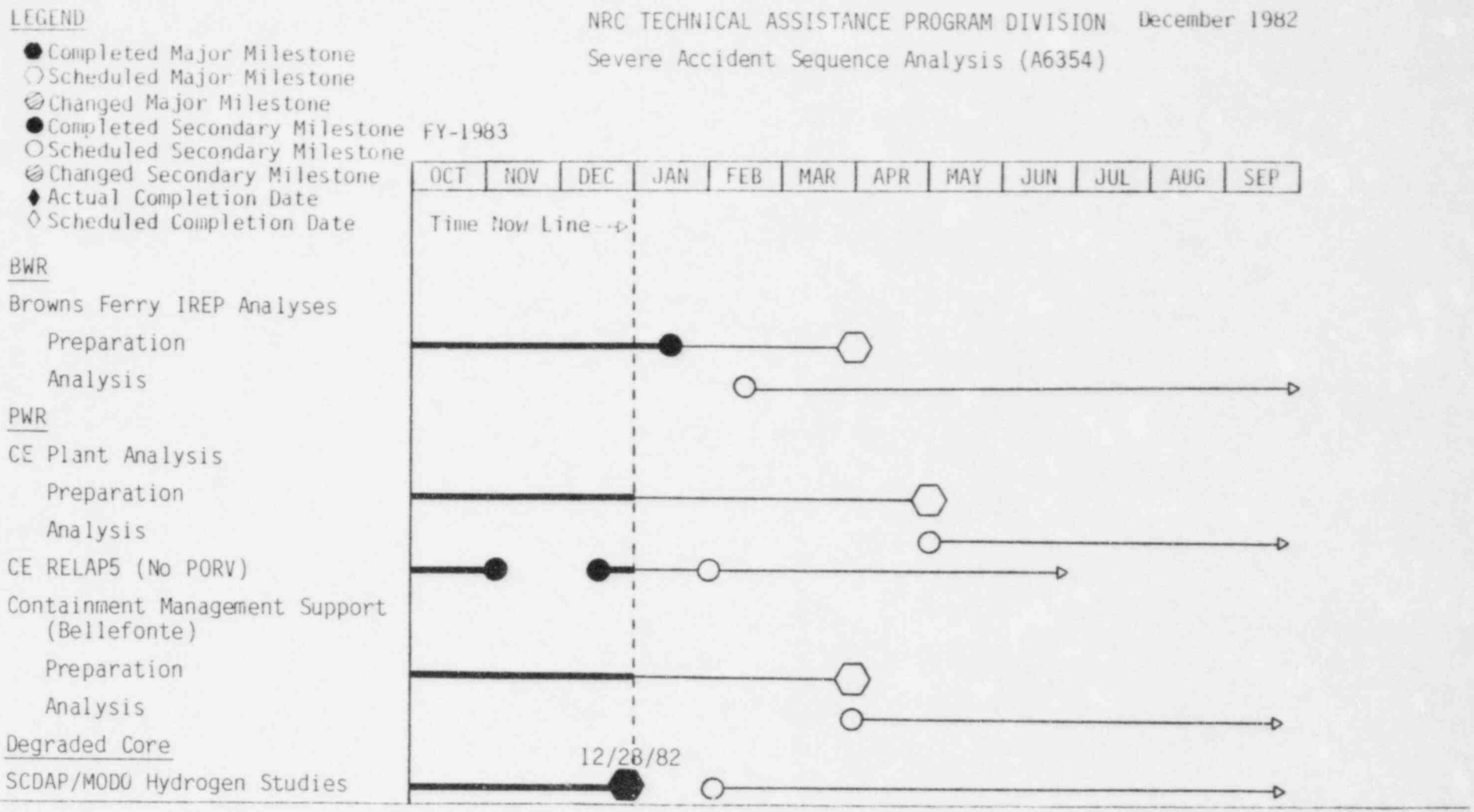
BUDGET	9	9	9	9	9	9	9	9	9	9	9	9
ACTUAL	12	10	8									

189 NO. A6354

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 20.6	$ 63.5
MATERIALS, SERVICES AND OTHER COSTS	1.1	3.0
ADP SUPPORT	9.5	21.5
SUBCONTRACTS	0.0	0.0
TRAVEL	0.3-	0.6
INDIRECT LABOR COSTS	27.9	86.9
GENERAL AND ADMINISTRATIVE	8.2	24.6
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 67.0	$ 200.1

A6354

YID VARIANCE: <4> (2%)



NOTES: A new calculation has been added to the CE RELAP5 work per NRC direction.

A6354: Severe Accident Sequence Analysis Program (SASA)
EG&G Program/Technical Monitor: J. H. Linebarger
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: R. T. Curtis

The objective of this project is to use deterministic calculational tools to provide detailed analyses of severe accident sequences to support, verify, and modify probabilistic event sequences, to aid in the development of accident recovery strategies, to provide parametric values for experimental programs such as containment testing, and to point out the need for additional computer code development and experimental data.

1. Scheduled Milestones for December 1982

Description	Due Date	Actual Date
Final Report SCDAP/MARCH Hydrogen Calculations	12-31-82T	12-28-82C Saff-530-82

2. Summary of Work Performed in December 1982

Browns Ferry (BF) Analysis:

The preliminary study to determine which of the transients listed in the Interim Reliability Evaluation Program (IREP) report should be analyzed was completed. Seventeen (17) were selected as candidates for analysis. This list will be reduced based on additional screening criteria such as status of Anticipated Transient Without Scram (ATWS) rulemaking, Accident Sequence Evaluation Program (ASEP) results, availability of analyses from other sources, and transient uniqueness.

The BF model, containing the vessel control systems, has been initialized and is ready to run transients on RELAP5/MOD1.6 which will be released in January. However plant information recently recieved from the Tennessee Valley Authority (TVA) will be used to upgrade the model prior to conducting further analyses.

A short term study was completed to determine whether to recommend coupling RELAP5 to CONTEMPT, a containment code. The coupling effort was scoped and costed. It was decided to continue CONTEMPT modifications, in particular developing the graphics and restart capabilities, so that CONTEMPT can be run independently, using RELAP5 calculational results as boundary conditions. If calculations show significant feedback from containment to the vessel, then a RELAP5/CONTEMPT link will be reconsidered.

According to the current schedule CONTEMPT should be ready to run transients when the initial RELAP5 results are available to drive the calculations.

2. Summary of Work Performed in December 1982 (Continued)

CESSAR 80 Analysis:

The proprietary data required to develop the model has not been received although the information was mailed. The model development is still on hold.

Bellefonte Analysis:

Development of the Bellefonte input model continued on schedule. Tentative meeting schedules to compare MARCH and RELAP5 models (Idaho National Engineering Laboratory (INEL) and Sandia National Laboratory (SNL)--February) and to discuss input decks and which transients to run (INEL, SNL and Tennessee Valley Authority (TVA)--March) were agreed upon.

CE Analysis:

A Nuclear Reactor Regulation (NRR)/RSB-requested task to calculate the response of a Combustion Engineering (CE) plant without a Power Operated Relief Valve (PORV) (ANO, Unit 2) during a steam generator tube rupture event was started. The input model was modified and initialized. The specific scenarios to be calculated were defined.

SCDAP Analysis:

The final report was completed and issued.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

Browns Ferry (BF) Analysis:

A final recommended calculational matrix will be prepared for both RELAP5 and CONTEMPT calculations. Preparation will be made to initiate RELAP5 calculations using MOD1.6.

CESSAR 80 Analysis:

Model prepartion will be reinitiated upon receipt of the needed plant data.

Bellefonte Analysis:

Input deck preparation will continue. A list of additional information required to complete the RELAP5 model will be transmitted to TVA.

4. Summary of Work to be Performed in January 1983 (Continued)

CE Analysis:

Calculations on selected scenarios will begin. The results of the initial analysis will be given to the NRC by January 27 to meet an ACRS commitment. An INEL representative will meet with representatives of CE, Argonne National Laboratory, and the NRC to discuss the input modeling being used for the calculation and the results of an initial calculation.

SCDAP Analysis:

None. Additional work will not begin for at least a month. Discussions will be held with the NRC Technical Monitor (J. Larkins) to determine what should be done in the light of current hydrogen rulemaking decisions.

5. Problems and Potential Problems

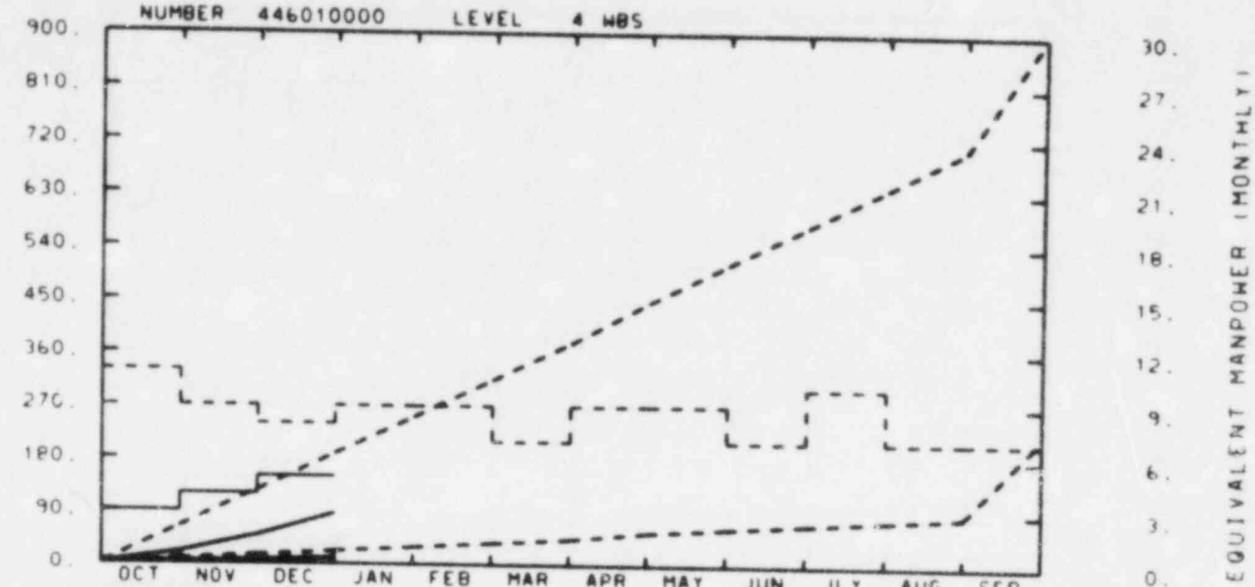
None.

RESPONSIBLE
AGER
SAFFELL

EG&G IDAHO INC.

SAFETY & RELIEF VAL A6356

NUMBER 446010000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	63	126	189	251	314	377	4-7	511	576	640	705	900
ACTUAL	30	49	87									

MATERIAL

BUDGET	7	15	22	30	37	44	56	64	71	78	86	222
ACTUAL	3	6	11									

MANPOWER

BUDGET	11	9	9	9	9	7	9	9	7	10	7	7
ACTUAL	3	4	5									

BUDGET

ACTUAL

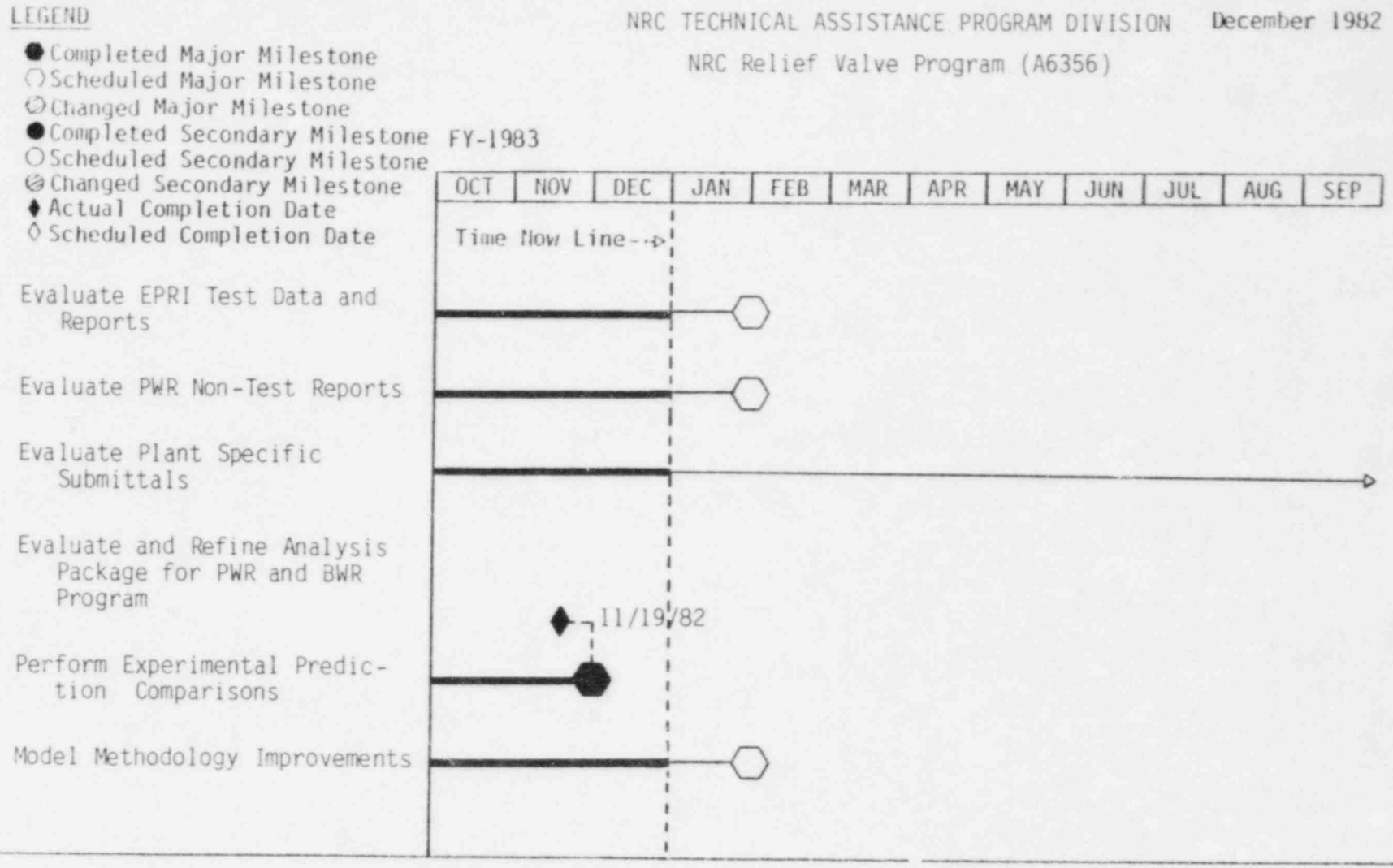
189 NO. A6356

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 12.7	$ 28.4
MATERIALS, SERVICES AND OTHER COSTS	0.3	0.9
ADP SUPPORT	3.8	7.7
SUBCONTRACTS	0.0	0.0
TRAVEL	0.3-	3.8
INDIRECT LABOR COSTS	17.2	38.6
GENERAL AND ADMINISTRATIVE	4.7	10.7
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 38.4	$ 87.1

A6356

YTD VARIANCE: 102 (54%)

The underrun is due primarily to the prolonged schedule for receiving plant specific system analyses from the utilities. The in-place budget assumes the analyses will be received and evaluated in FY-1983. It now appears that they will be received in FY-1983 such that evaluation will be expanded into FY-1984. The budget will be realigned to conform to the new schedule in the near future.


LEGEND
Completed Major Milestone
Scheduled Major Milestone
Changed Major Milestone
Completed Secondary Milestone
Scheduled Secondary Milestone
Changed Secondary Milestone
Actual Completion Date
Scheduled Completion Date
NRC TECHNICAL ASSISTANCE PROGRAM DIVISION December 1982
NRC Relief Valve Program (A6356)
FY-1983
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
Time Now Line
Evaluate EPRI Test Data and Reports
Evaluate PWR Non-Test Reports
Evaluate Plant Specific Submittals
Evaluate and Refine Analysis Package for PWR and BWR Program
11/19/82
Perform Experimental Prediction Comparisons
Model Methodology Improvements

NOTES:

A6356: NRC Safety/Relief Valve Program
EG&G Program/Technical Monitor: J. A. Hunter
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitors: H. I. Gregg, F. C. Cherny

The Three Mile Island-2 (TMI-2) accident sequence included a failure of a power-operated relief valve to close. This, and other operating experience, raised a significant question about the performance qualification of primary system safety valves, relief valves, associated block valves and piping. As a result, the Nuclear Regulatory Commission (NRC) established requirements that performance verification be provided by full scale prototypical testing. The requirements were first identified in NUREG-0578 and have since been clarified in Sections II.D.1 and II.D.2 of NUREG-0660 and Item II.D.1 of NUREG-0737. The nuclear industry has established programs to provide for the required performance verification. EG&G Idaho is assisting the NRC in monitoring and evaluating these programs. EG&G Idaho is providing for program system integration by monitoring the industry test programs to insure that licensing requirements of the NUREG documents are met. EG&G Idaho is also assisting by providing evaluation of the plant specific submittals to assure the applications of the test results to the specific plants are adequate.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

In response to the requirements of NUREG-0737, Item II.D.1.A, that the utilities conduct performance tests to demonstrate the adequacy of the primary system safety and relief valves, the Pressurized Water Reactor (PWR) Utility Participants transmitted seven Electric Power Research Institute (EPRI) test program reports to the NRC by letter David P. Hoffman to Harold Denton dated September 30, 1982. EG&G Idaho is conducting a systematic review of these reports by having experts in the fields of mechanical design, safety analysis, operations, instrumentation, thermal-hydraulic and structures review the reports for adequacy in each of their specialties. Reports 1 through 5 are reports establishing the valve models, fluid conditions, pressures and flow rates used in the tests. The progress of the review of these five reports is included under Task 2 below. Report 6 is a summary report of the test results and the progress of the review is included under Task 1 below. Report 7 presents comparisons of RELAP5 calculations with representative tests and its review was completed in August 1982.

2. Summary of Work Performed in December 1982 (Continued)

EG&G Idaho is also conducting a similar review of the three detailed test reports. The reports are:

EPRI/C-E Safety Valve Test Report July 1982 (10 volumes)
EPRI/Wyle Power Operated Relief Valve Phase III Test Report March 1982 (11 volumes)
EPRI PWR Safety and Relief Valve Test Program PORV Block Valve Information Package May 1982.

The progress of these reviews is included under Task 1 below. A review is also being conducted on the report review of Pressurized Safety Valve Performance as observed in the EPRI Safety and Relief Valve Test Programs WCAP-10105, which was submitted to the NRC by the Westinghouse Owners Group. The progress of this review is included under Task 2 below.

Task 1: Evaluate EPRI Test Data and Reports

The evaluation of the Safety and Relief Valve Test Report, Report 6 above, was completed. Comments from the reviewers have been received. These comments will be combined in a review summary report.

Work continued in combining the review comments concerning the Electric Power Research Institute (EPRI) Pressurized Water Reactor (PWR) Block Valve Information Package to provide a review summary report.

Task 2: Evaluate PWR Non-Test Reports

The evaluation of the valve selection report, the three valve inlet fluid condition reports and the test conditions justification report, reports 1 through 5 above, was completed. Comments were received from the reviewers. The comments will be combined in a review summary report.

Task 3: Evaluate Plant Specific Submittals

A draft safety evaluation report was prepared for the San Onofre 2 and 3 PWR submittals. A revision will be prepared incorporating the results of the test report reviews, Tasks 1 and 2 above.

Structural information necessary to perform a confirmatory analysis for San Onofre 2 and 3 was identified. Work was initiated to identify the thermal-hydraulic data, required to perform the confirmatory analysis.

2. Summary of Work Performed in December 1982 (Continued)

Task 4: Evaluate and Refine Analysis Package for PWR and BWR Programs

a. Perform Experimental Prediction Comparison

This task was previously completed.

b. Model Methodology Improvements

A letter report for the study determining the number of nodes necessary to represent a piping leg in RELAP5 to obtain appropriate values of the hydraulic loads will be drafted.

A task to generate a consistent set of guidelines for application of RELAP5 to plant system continued. A study applying the guidelines to the Summer PWR plant continued. A need to revise R5FORCE, the technique used to evaluate piping hydraulic loads from RELAP5, output was identified. The revision will permit computation of the loads through the RELAP5 branch component.

Preparation for a meeting with EPRI and NRC personnel to discuss safety/relief valve test results and an evaluation of RELAP5 conducted by ITI/EPRI continued.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

Task 1: Evaluate EPRI Test Data and Reports

Preparation of the review summary reports for the Safety and Relief Valve Test Report, and the EPRI PWR Block Valve report will be continued. Evaluation of the EPRI/CE and EPRI/Wyle 10 and 11 volume detailed test reports will be continued.

Task 2: Evaluate PWR Non-Test Reports

Preparation of the review summary reports for the valve selection report, the three vendor inlet fluid conditions reports and the test conditions justification report will be continued.

Task 3: Evaluate Plant Specific Submittals

A draft safety evaluation report was previously prepared for the San Onofre 2 and 3 PWR submittals. The report will be revised incorporating the test report reviews, Tasks 1 and 2 above.

4. Summary of Work to be Performed in January 1983 (Continued)

Task 4: Evaluate and Refine Analysis Package for PWR and BWR Programs

a. Perform Experimental Prediction Comparison

This task is complete.

b. Model Methodology Improvements

A letter report for the study determining the number of nodes necessary to represent a piping leg in RELAP5 to obtain appropriate hydraulic load values will be completed.

The draft guidelines for application of RELAP5 to plant system analysis will be updated based on report evaluations and additional analysis results. A study applying the RELAP5 guidelines to the Summer PWR plant will continue.

The code R5FORCE will be revised to handle the RELAP5 branch component.

Preparations will be completed for a meeting with EPRI and NRC personnel discussing Safety/Relief valve test results and analysis of hydraulic loading of PWR systems based on the results of the EG&G Idaho review of the EPRI reports.

5. Problems and Potential Problems

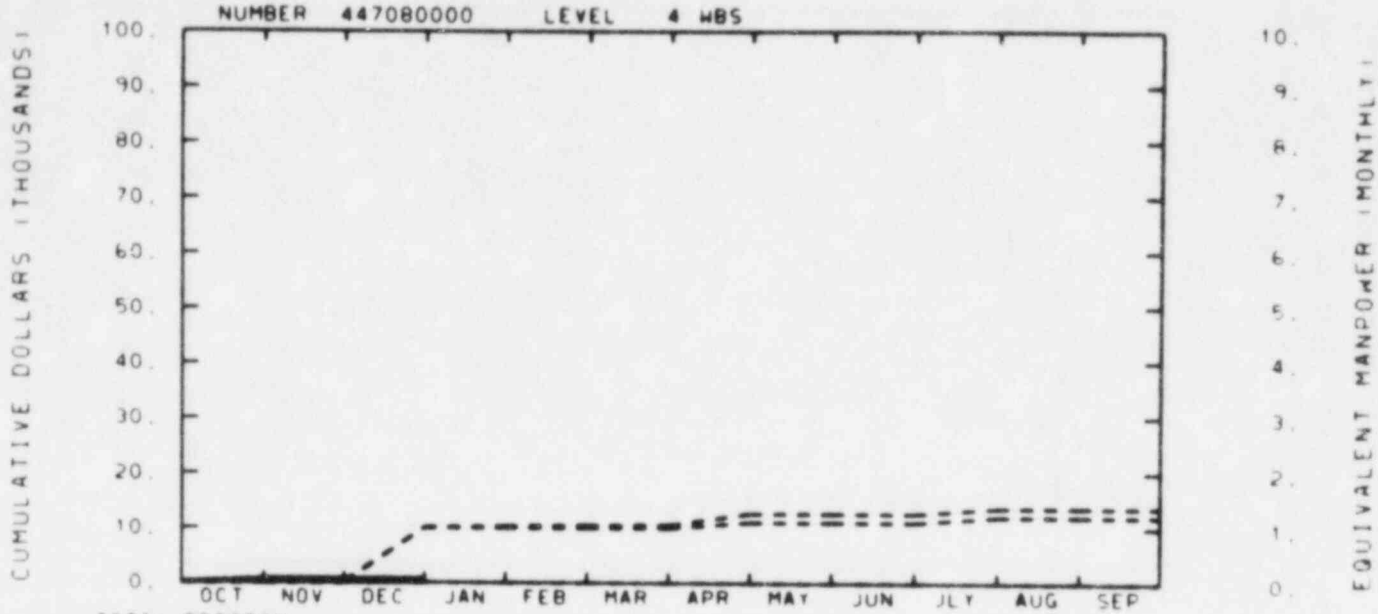
None.

RESPONSIBLE
MANAGER
J. SAFFELL

EG&G IDAHO INC.

APPLIED JAMES/STEIN A6358

NUMBER 447080000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	10	10	11	11	13	13	13	14	14	14
ACTUAL	1	1	1									

MATERIAL

BUDGET	0	0	10	10	10	10	11	11	11	12	12	12
ACTUAL	1	1	1									

MANPOWER

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

BUDGET ------

ACTUAL _____

189 NO. A6358

COST CATEGORIES	CURRENT MONTH ($).0 K	YEAR-TO-DATE ($).0 K
DIRECT SALARIES	$ 0.0	$ 0.0
MATERIALS, SERVICES AND OTHER COSTS	0.0	0.6
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	0.0	0.0
GENERAL AND ADMINISTRATIVE	0.0	0.1
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 0.0	$ 0.7

A6358

YTD VARIANCE: 9 (90%)

A6358: Applied James-Stein Estimators
EG&G Program/Technical Monitors: J. H. Linebarger/N. D. Cox
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: L. E. Lancaster

The objective of this project is to explore James-Stein techniques for pooling data in component failure rate calculations to see if they offer advantages over maximum likelihood techniques.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

The subcontractor, University of Texas, Austin, has continued to make progress in developing and testing methods for interval estimation of failure rates. The process of transmitting the final increment of the subcontractor's funding was started and will be completed next month.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

The subcontractor will continue developing and testing interval estimation methods.

5. Problems and Potential Problems

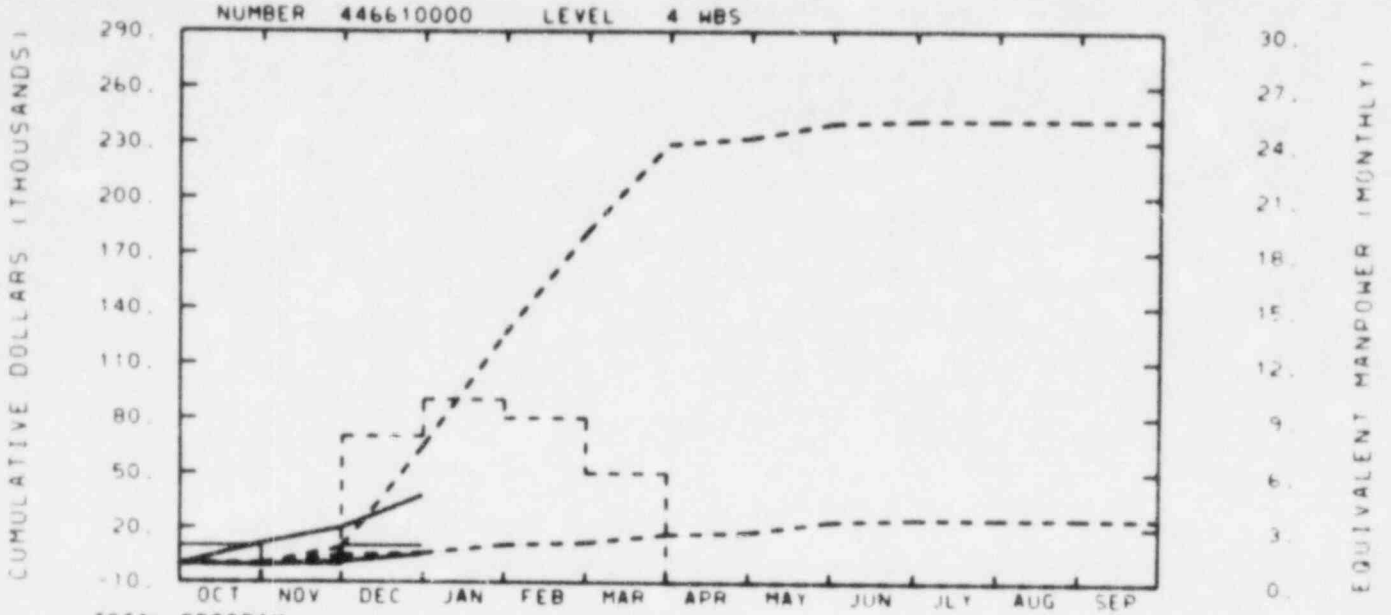
None.

RESPONSIBLE
MANAGER
[redacted] SAFFELL

EG&G IDAHO INC.

SECTION XI SUPPORT A6367

NUMBER 446610000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	9	65	125	181	229	232	240	241	242	242	242
ACTUAL	11	20	38									

MATERIAL

BUDGET	0	5	6	11	12	17	18	24	25	25	25	25
ACTUAL	0	1	5									

MANPOWER

BUDGET	0	1	8	10	9	6	0	0	0	0	0	0
ACTUAL	2	1	2									

IBG NO. A6367

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 5.2	$ 12.2
MATERIALS, SERVICES AND OTHER COSTS	3.0	3.1
ADP SUPPORT	0.6	0.8
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.8
INDIRECT LABOR COSTS	6.8	16.2
GENERAL AND ADMINISTRATIVE	2.1	4.6
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 17.7	$ 37.7

A6367

YTD VARIANCE: 27 (42%)

The $27K underexpenditure has occurred because projects planned (budgeted) to start early in FY-1983 have been delayed pending receipt of FY-1983 funding and because of unplanned delays in receipt of NRC review comments on draft reports written by EG&G Idaho technical personnel.

A6367: Support of NRC on ASME Code Section XI Activities
EG&G Program/Technical Monitor: B. L. Barnes
DOE Technical Monitor: G. L. Vivian
NRC Technical Monitor: E. Baker

The objective of this work is to provide technical assistance to the Nuclear Regulatory Commission (NRC), Office of Nuclear Regulatory Research relative to review of the American Society of Mechanical Engineers (ASME) Code Documents, Code Addenda, and Code Cases. Frequently, issues arise relative to Section XI of the ASME Code where the NRC staff involved perceive a need for additional data or evaluation before establishing a staff position. These issues range from the need for data on the number of pipe supports to be exempted by certain code provisions to the reasonable and prudent limits of valve leakage allowable in a nuclear power plant.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

Task 6--Review of Valve Testing Standards: The preliminary report is being revised, based on comments from the NRC. Revisions are nearly complete.

Task 7--Review of Supports Examination and Testing Standards: There was no activity on this task during December.

Task 9: Evaluation of the Basis for Section XI Flaw Acceptance Standards: The official submittal of the report describing the new work was made. The thermal stress analyses have been completed for the thirteen transients, and the computer code for calculating stress intensity factors for part-through cracks in cylinders is now running.

Task 12: No activity took place this month.

3. Scheduled Milestones for January 1983

Description	Due Date	Actual Date
Letter report on Fatigue Crack Growth Analysis	1-31-83T	12-10-82C Saff-499-82

4. Summary of Work to be Performed in January 1983

Task 6: Final revisions will be completed and the report will be retyped and reviewed.

Task 7: No effort is planned until NRC comments are received on the preliminary draft report.

Task 9: The Section XI crack growth analysis and the more sophisticated fatigue analysis will be initiated.

Task 12: Plans will be established for participating in the next American Society for Mechanical Engineers Boiler and Pressure Vessel Code, Section XI meetings in February.

5. Problems and Potential Problems

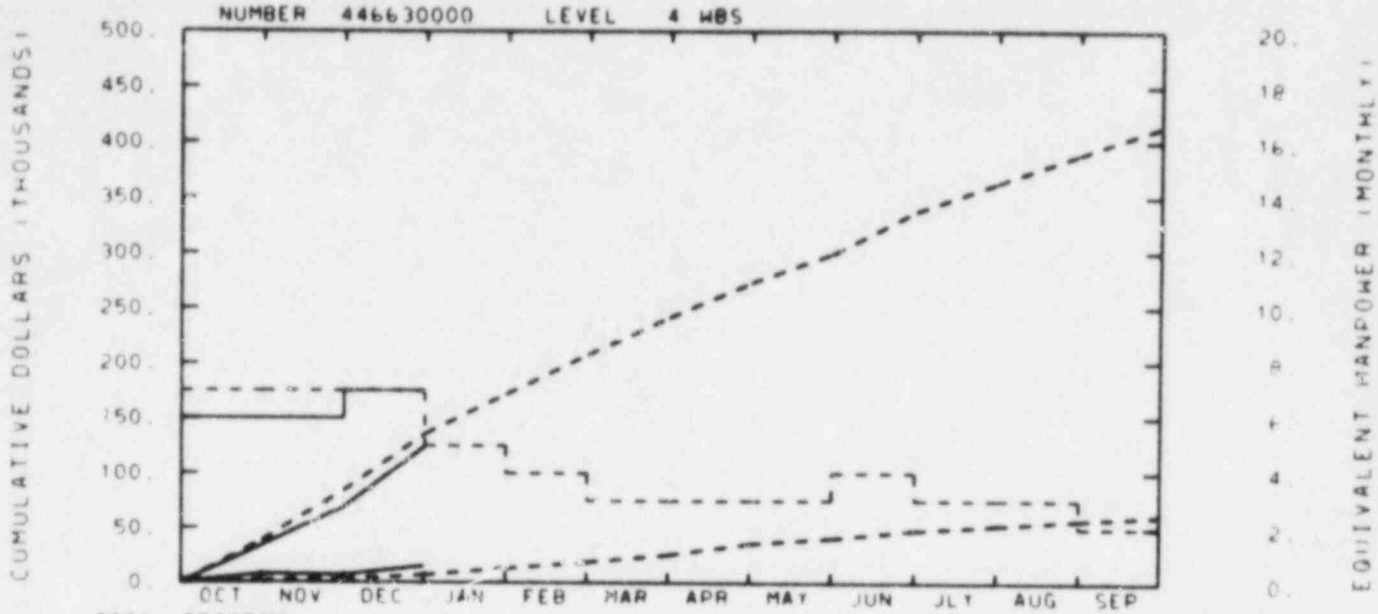
This project is in immediate need of FY-1983 funding. The FY-1982 carryover funds (45K) are nearly gone ($7K remaining).

RESPONSIBLE
MANAGER
F. SAFFELL

EG&G IDAHO INC.

NUCLEAR POWER PLANT INST A6369

NUMBER 446630000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	39	84	136	172	208	242	273	299	337	363	389	414
ACTUAL	34	69	124									

MATERIAL

BUDGET	2	3	7	13	19	26	36	41	48	53	57	61
ACTUAL	8	7	15									

MANPOWER

BUDGET	7	7	7	5	4	3	3	3	4	3	3	2
ACTUAL	6	6	7									

BUDGET

ACTUAL

WBS NO. A6369

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 17.8	$ 41.2
MATERIALS, SERVICES AND OTHER COSTS	4.0	5.4
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	4.2	6.0
TRAVEL	0.0	3.0
INDIRECT LABOR COSTS	23.4	54.3
GENERAL AND ADMINISTRATIVE	5.9	14.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 55.3	$ 124.1

A6369

YTD VARIANCE: 12 (9%)

The thermocouple scoping test, which was anticipated, was not conducted. The data will now be obtained from Oak Ridge National Laboratory. Future test and evaluation tasks will be added as the need arises bringing budget and costs back into line.

A6369: Nuclear Power Plant Instrumentation Evaluation
EG&G Program/Technical Monitors: E. W. Roberts/J. A. Rose
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: R. Feit

The general objectives of this program are threefold; (a) to identify problems facing the nuclear industry in meeting the intent of 10 CFR 50, Appendix A, Criteria 13, 19 and 64, with regard to accident management instrumentation range, accuracy, response time and equipment qualification, (b) to find practical, cost effective solutions to those problems and (c) to examine Regulatory Guide 1.97 to determine adequacy of the current version and to recommend changes as appropriate.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

Work was started on a letter report detailing the specific tasks to be accomplished by this program in the near term.

Work continued on preparation of an interim report assessing the current status of plant systems being used to meet the intent of RG 1.97 and to identify areas where design or qualification problems exist.

Preparation of a report relating to core exit temperature measurements problems has been initiated. Extensive use will be made of previously completed research work. (NOTE: Testing of Three Mile Island-type thermocouples (TCs) by this program was deleted. To run a scoping test at this time, while justifiable from a scientific point of view, was deemed not to be in the fiscal best interests of this program nor of the NRC research effort.)

3. Scheduled Milestones for January 1983

Letter report detailing tasks to be accomplished by the NPPIE program in the near term.

4. Summary of Work to be Performed in January 1983

Work on the interim assessment report which is due in February will continue.

5. Problems and Potential Problems

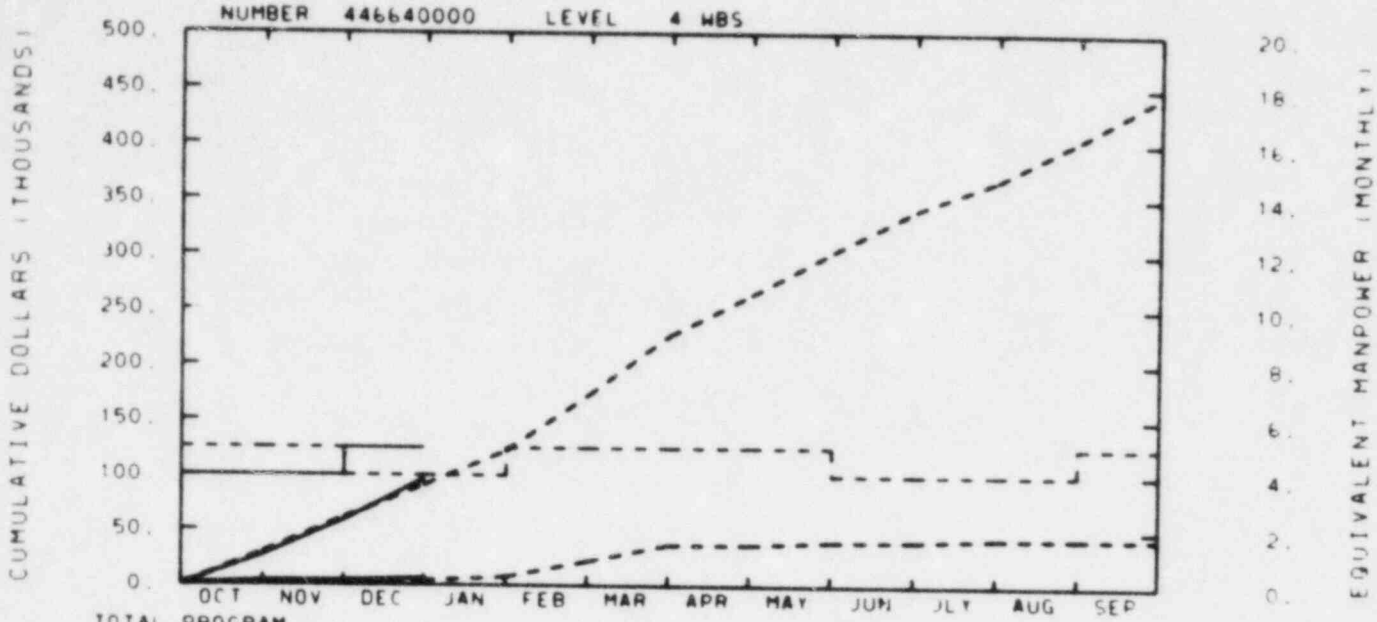
None.

RESPONSIBLE
AGER
SAFFELL

EG&G IDAHO INC.

RES ASSESS CON AUTO A6370

NUMBER 446640000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	30	61	91	122	172	227	263	302	340	367	404	444
ACTUAL	27	59	97									

MATERIAL

BUDGET	2	2	4	8	22	37	37	40	41	43	43	43
ACTUAL	3	4	6									

MANPOWER

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

BUDGET - - - - - -

ACTUAL ———

18º NO. A6370

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 13.4	$ 34.2
MATERIALS, SERVICES AND OTHER COSTS	2.3	3.7
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	1.9
INDIRECT LABOR COSTS	17.6	45.2
GENERAL AND ADMINISTRATIVE	4.7	11.9
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 38.0	$ 96.9

A6370

YTD VARIANCE: <6> (7%)

A6370: Microprocessor Based Design and Plant Control Automation
EG&G Program/Technical Monitors: C. F. Obenchain/E. W. Roberts
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: D. W. Boehm

This research project is concerned with the potential safety issues associated with programmable, digital, computer-based nuclear plant control and protection systems and with the adequacy of isolation of isolation methods in nuclear power plants.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

EG&G Idaho has written the Form 189 in response to the letter from K. R. Goller to C. E. Williams dated November 17, 1982. The Form 189 is currently being reviewed.

EG&G Idaho has completed the revisions to the draft report "Preliminary Assessment of Design Issues Related to the Use of Programmable Digital Devices for Safety and Control Systems". This report is currently being printed and will be distributed in the near future.

Based on the above report EG&G Idaho is in the process of writing "Interim Criteria for Digital Systems". This report is due in February 1983. EG&G Idaho is also working on Task 5, the probability risk assessment comparison between analog systems and digital systems for nuclear power reactor applications. A literature search was conducted and numerous titles were found that deal with software reliability. It appears that software reliability can be characterized with the same statistical model presently used for hardware reliability theory. Work is continuing in this area in preparation for the June deadlines.

EG&G Idaho also prepared two evaluation procedures for the evaluation of isolation devices; one for analog devices and one for digital devices. These reports will be discussed in January with the NRC.

3. Scheduled Milestones for January 1983

Milestones for this task as defined in the Form 189 are currently under review.

4. Summary of Work to be Performed in January 1983

The efforts described in Paragraph 2 will continue. EG&G Idaho will present to NRC the isolation evaluation plan in a Washington meeting.

5. Problems and Potential Problems

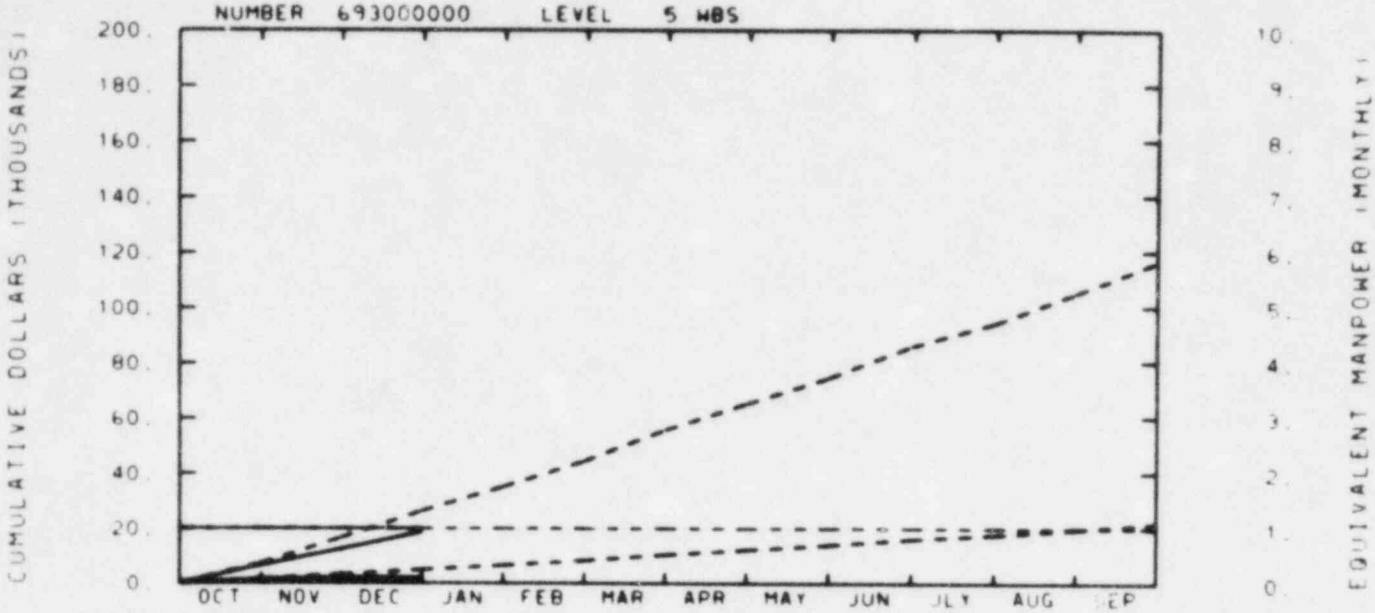
EG&G Idaho needs to receive capital equipment money as soon as possible to purchase test equipment for isolation testing.

RESPONSIBLE
MANAGER
SAFFELL

EG&G IDAHO INC.

RADIOLOGICAL AIR SAMPLING A6371

NUMBER 693000000 LEVEL 5 WBS



TOTAL PROGRAM

BUDGET	7	17	26	35	45	56	65	75	86	94	105	116
ACTUAL	7	12	19									

MATERIAL

BUDGET	1	3	5	7	8	10	12	14	16	18	20	22
ACTUAL	1	2	2									

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6371

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 2.4	$ 6.2
MATERIALS, SERVICES AND OTHER COSTS	0.4	1.9
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.5-	0.1-
INDIRECT LABOR COSTS	3.3	8.5
GENERAL AND ADMINISTRATIVE	0.8	2.3
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 6.4	$ 18.8

A6371

YTD VARIANCE: 7 (27%)

A6371: Technical Assistance Contract for Evaluation of and Guidance for Radiological Air Sampling
EG&G Program/Technical Monitor: B. L. Rich
DOE Technical Monitor: Pete J. Dirkmaat
NRC Technical Monitor: Alan Roecklein

The objectives of this work are to: Survey current sampling techniques, equipment and plant conditions, test air sampling/monitoring equipment and evaluate current sampling methods and recommend preferred methods.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

Planned aerosol release/dispersal studies to be performed at the Idaho National Engineering Laboratory (INEL).

Submitted the first draft of the Probabilistic Analysis Staff (PAS)-NUREG to the Nuclear Regulatory Commission (NRC). Review of the draft will continue.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

Continue review of PAS-NUREG draft. Prepare a second draft for submittal during January 1983.

Survey the NRC licensee industries which have not yet been covered by site visits.

Set up aerosol release/dispersal studies at typical nuclear facilities on the INEL site.

5. Problems and Potential Problems

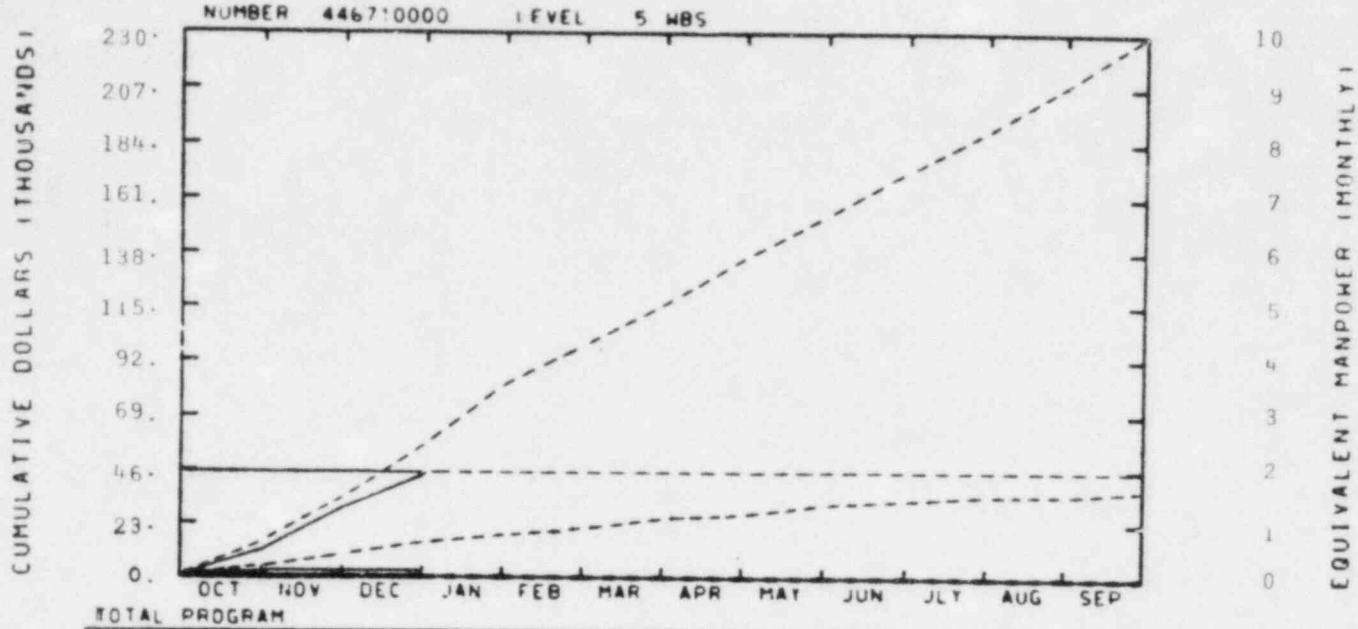
None.

RESPONSIBLE
ANAGER
F SAFFELL

EG&G IDAHO INC.

TWO-PHASE INSTRUMENT EVAL A6376

NUMBER 4467:0000 LEVEL 5 WBS



TOTAL PROGRAM

BUDGET	16	35	56	80	98	117	135	153	171	189	210	230
ACTUAL	15	29	45									

MATERIAL

BUDGET	0	4	9	17	20	22	25	26	28	29	34	36
ACTUAL	1	1	1									

MANPOWER

BUDGET	2	2	2	2	2	2	2	2	2	2	2	2
ACTUAL	2	2	2									

BUDGET

ACTUAL

189 NO. A6376

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 6.2	$ 16.7
MATERIALS, SERVICES AND OTHER COSTS	0.0	0.7
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	8.1	22.1
GENERAL AND ADMINISTRATIVE	2.0	5.4
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 16.3	$ 44.9

A6376

YTD VARIANCE: 12 (21%)

A new Program Brief has been supplied by the NRC. A new 189 will be written to reflect the new Program Brief and a new budget will be implemented upon acceptance of the 189.

A6376: Two Phase Instrumentation Evaluation
EG&G Program/Technical Monitors: E. W. Roberts/G. D. Lassahn
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: N. Kondic

The goal of this project is to perform research to evaluate/test instruments/methods for the measurement of parameters which characterize two phase phenomena during normal and accident conditions primarily in the primary system of Pressurized Water Reactors (PWRs). Additionally, this project suggests the testing or investigation of instruments/methods to measure low velocity fluid flow rates, voiding in the steam generator U-tubes, and methods to estimate the location and size of a break in the primary system piping.

1. Scheduled Milestones for December 1982

None.

2. Summary of Work Performed in December 1982

The NRC interim report was completed. The report discusses the evaluation of instruments and systems usable to detect and measure the presence of two phase conditions in the primary coolant system.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

Preparatory work in anticipation of NRC approval of proposed testng will continue. The ongoing literature search will also be continued.

5. Problems and Potential Problems

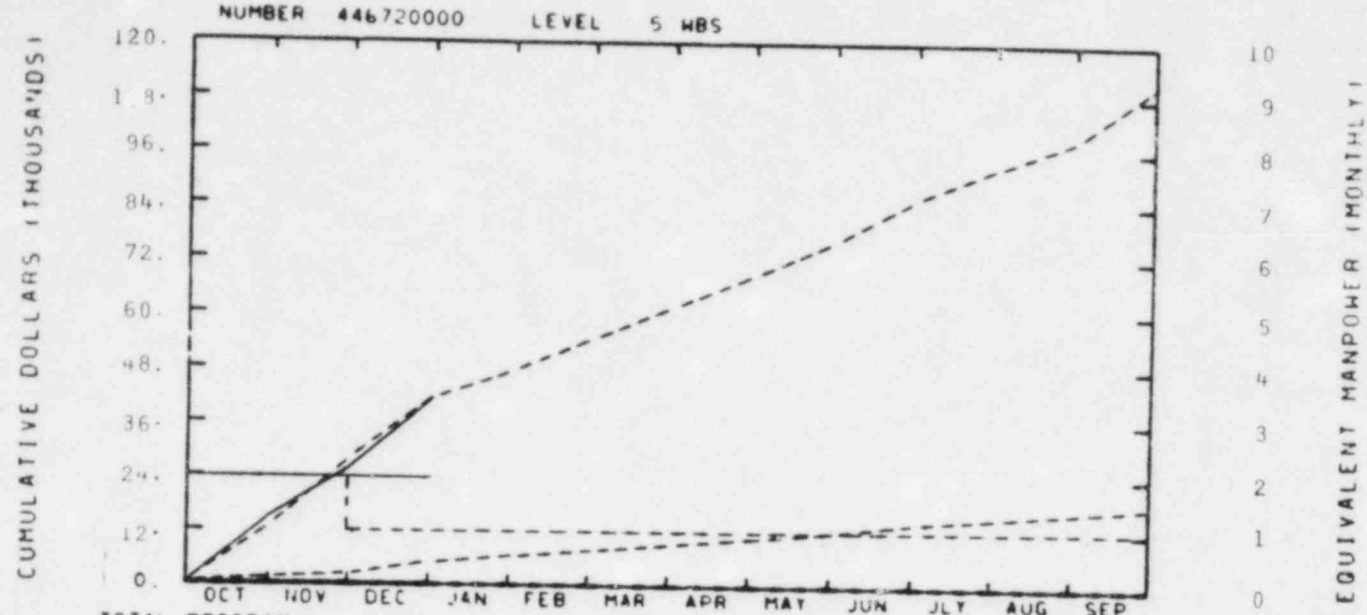
None.

RESPONSIBLE
NAGER
SAFFELL

EG&G IDAHO INC.

DIAGNOSTIC INST EVAL A6380

NUMBER 446720000 LEVEL 5 WBS



TOTAL PROGRAM

BUDGET	13	28	41	47	54	62	69	76	86	92	99	111
ACTUAL	15	26	41									

MATERIAL

BUDGET	1	2	5	6	7	9	10	11	14	15	15	18
ACTUAL	0	0	0									

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6380

COST CATEGORIES	($1.0 K) CURRENT MONTH	($1.0 K) YEAR-TO-DATE
DIRECT SALARIES	$ 5.5	$ 15.4
MATERIALS, SERVICES AND OTHER COSTS	0.0	0.0
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	7.4	20.4
GENERAL AND ADMINISTRATIVE	1.8	5.0
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 14.7	$ 40.8

A6380

YTD VARIANCE: 0

A6380: Diagnostic Instrumentation Evaluation
EG&G Program/Technical Monitors: E. W. Roberts/G. D. Lassahn
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: N. Kondic

The goals of this project are to identify anticipatory measurements, which are useful in predicting accidents in nuclear power plants; to evaluate the instrumentation available for these measurements; and to recommend fruitful areas of research to develop new measurement techniques for anticipatory measurements.

1. Scheduled Milestones for December 1982

Description	Due Date	Actual Date
Quarterly Report	12-21-82T	12-22-82C Saff-512-82

2. Summary of Work Performed in December 1982

The required quarterly report was completed on December 22, 1982. It describes the work done through December 1982 (including the FY-1982 work), and gives recommendations for implementation and further research on various types of anticipatory instrumentation.

3. Scheduled Milestones for January 1983

None.

4. Summary of Work to be Performed in January 1983

A NRC technical review is expected during January 17-19. The results of this review will determine the direction of future work. Until then, work will be done on theoretical aspects of acoustic techniques.

5. Problems and Potential Problems

None.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

CAPITAL EQUIPMENT

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6093)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate at Complete
Pre FY-1983														
UNASSIGNED		9E5810100	N/A	11/82	5,000	848	-	0	0	0	0	5,000	0	5,000

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6117)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate at Complete
Pre FY-1983														
UNASSIGNED		9KA820000	N/A	12/82	3,139	2,703	-	0	0	0	0	3,139	0	3,139

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6366)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate at Complete
Pre FY-1983														
UNASSIGNED		9KH820000	N/A	N/A	3,395	N/A	-	0	0	0	0	3,395	0	3,395

MONTHLY REPORT FOR

DECEMBER 1982

GPP AND LINE ITEMS

R E Rice

R. E. Rice, Manager
Facilities Management Division

R L D Hess

R. L. D. Hess
Planning and Budgets Division

EG&G IDAHO, INC.

GPP ITEM

PROGRAM WATER REACTOR RESEARCH TEST FACILITIES DIVISION

FY-1983

189 No. A6038

($000)

MANAGER P. North

EA No.	Item Description	Original PA Amount	Current Estimated Cost	Project To Date Costs
93520	WRRTF Water Well Upgrade	$ 125	$ 88	EG&G $ 30.5 M-K $ 57.5

Task Initiated ○
Task Completed △

Month

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