NRC Research and/or Technical Assistance Rept

PDR

January 1983
EGG-WRR-6166

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

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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 annd 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

M-K	Morrison-Knudsen
MSE	Measurements System Engineering
MSLB	Main Steam Line Break
NESC	National Energy Software Center (ANL)
NPA	Nuclear Plant Analyzer
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)
NSSS	Nuclear Steam Supply System
NTAPD	NRC Technical Assistance Program Division (EG&G Idaho)
NTOL	Near-Term Operating License
OECD	Organization for Economic Cooperation and 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	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

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
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

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 (INEL)
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
WRRTF	Water Reactor Research Test Facilities (INEL)
WRVLIS	Westinghouse Reactor Vessel Level Indicating System

MONTHLY REPORT FOR

JANUARY 1983

J. A. Dearien, Manager

B. E. Williams
NRC Programs Branch

MONTHLY REPORT FOR

JANUARY 1983

WATER REACTOR RESEARCH TEST FACILITIES DIVISION

Gary W. Johnson for
P. North, Manager

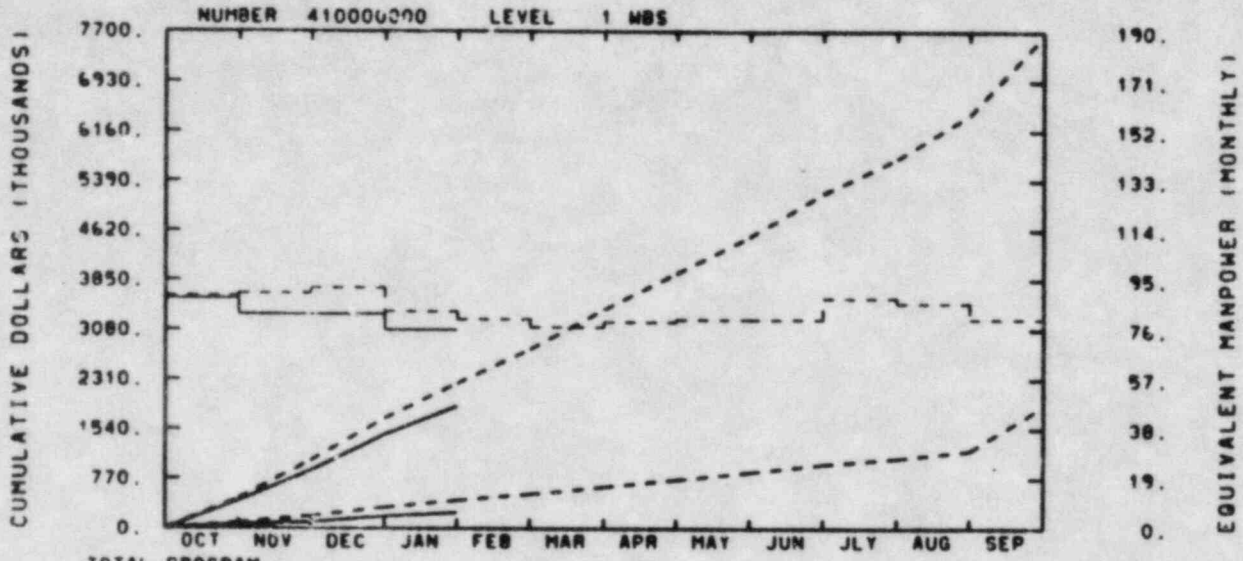
J. P. Crouch
J. P. Crouch
Plans and Budget Representative

RESPONSIBLE MANAGER
P. 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	1998								

MATERIAL

BUDGET	87	194	323	434	533	643	756	874	996	1087	1207	1898
ACTUAL	64	77	192	244								

MANPOWER

BUDGET	89	90	92	83	80	77	79	80	80	88	86	80
ACTUAL	88	82	82	76								

BUDGET

ACTUAL

LBL NO. A6038

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 148.9	$ 662.4
MATERIALS, SERVICES AND OTHER COSTS	47.1-	72.8
ADP SUPPORT	19.8	92.7
SUBCONTRACTS	3.5-	18.7
TRAVEL	2.8	7.0
INDIRECT LABOR COSTS	200.8	903.7
GENERAL AND ADMINISTRATIVE	52.5	240.3
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 372.2	$ 1,997.6

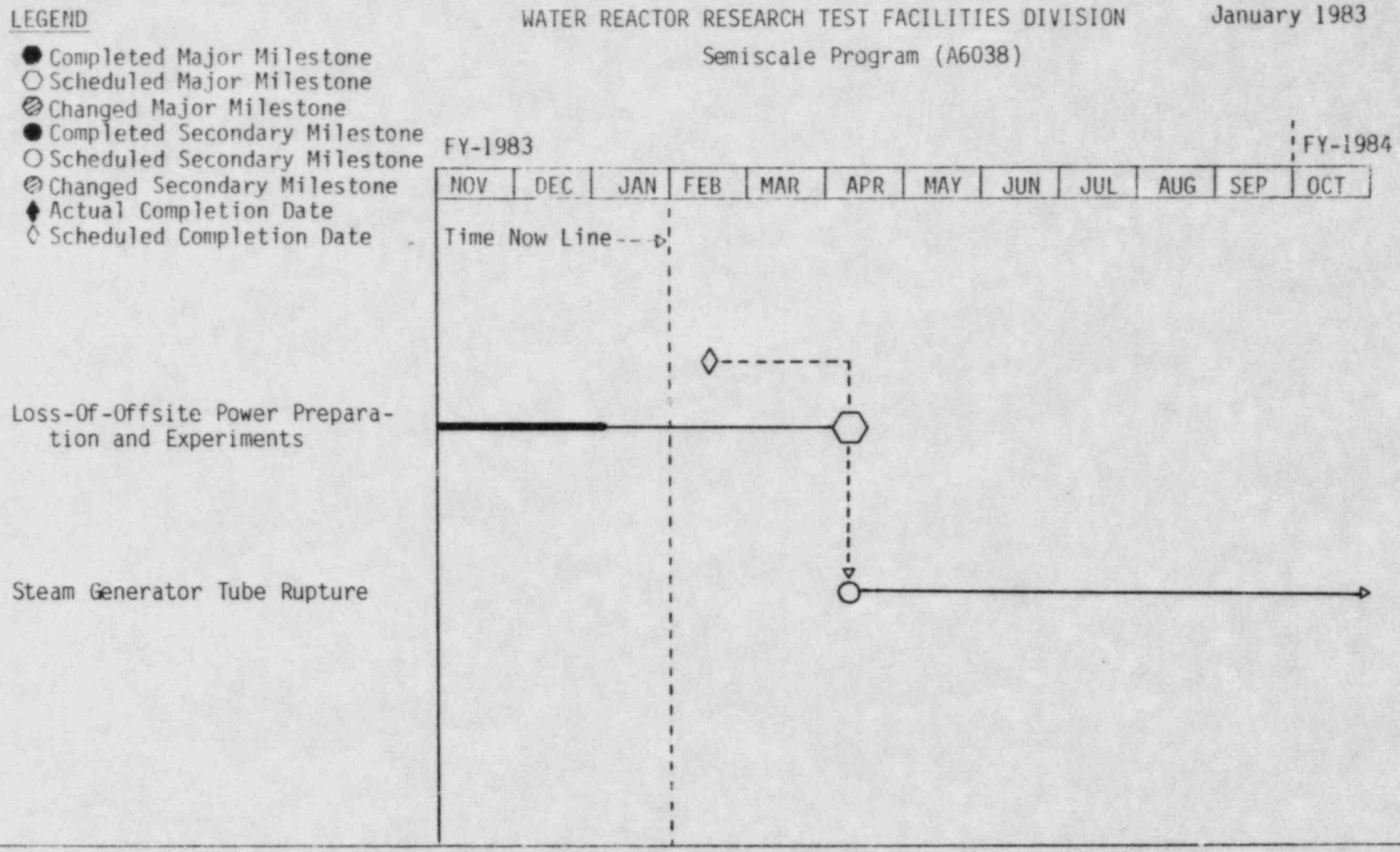
A6038

YTD VARIANCE: 248 (11%)

The underrun generally reflects scheduled baseline reduction per NRC/DOE-ID directive to $6,701K for the FY-1983 budget. February CCB action to effect reduction will realign the budget. However, transfer of THEF costs ($102.4K) into A6038 in January partially offset the actual underrun.

WATER REACTOR RESEARCH TEST FACILITIES DIVISION January 1983

Semiscale Program (A6038)



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NOTES:

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

Semiscale Loss-of-Offsite Power Test S-PL-4 was successfully conducted on January 28, 1983, simulating a 5% pump suction break with attendant loss of offsite power. The experiment revealed that a pump suction break behaves very similarly to that of an equivalent size pump discharge break. The Test Results Report covering the Intermediate Break Test Series was published.

Planning for the Steam Generator Tube Rupture Test Series progressed, with design of the break assembly and completion of the preliminary Experiment Operating Specification accomplished in January.

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 January 1983

Milestone	Scheduled Completion Date	Actual Completion Date
S-PL-3 QLR	January 2, 1983	Proposed: February 17, 1983
Configuration Reporting Plan	January 3, 1983	January 6, 1983
Test S-PL-5	January 19, 1983	Proposed: February 24, 1983

2. Summary of Work Performed in January 1983

A. 41C000000 - Intermediate Break Test Series Carryover

1. 41C119310 - IB Series Posttest Analysis

The Test Results Report (TRR) was transmitted on January 27, 1983. No further work is currently scheduled.

B. 412100000 - Special Projects

1. 412111200 - Semiscale Configuration Reporting System

The proposal for development and initiation of a configuration documentation and reporting system was transmitted to DOE for review and approval. Tasks required to implement the system will be initiated upon DOE approval of the plan.

2. 412123100 - Special Projects--Engineering

Engineering support was provided to prepare planning required for installation of the pump seal cavity cooling system to Drawing 417260.

Preparation of System Operation (SO) test procedure (SO-28-24) for installation of the seal cavity cooling pump was completed and the draft submitted for approval.

Start of drafting on final drawing for the broken loop steam generator enlarged work platform has been delayed by higher priority activities.

2B. Summary of Work Performed in January 1983 (continued)

The design effort on backup fixes for the vessel lower head Grayloc connection was continued, in the event the higher strength ASME SA 453, Grade 660 studs should prove unsatisfactory as a long term fix. Rocky Mountain Nuclear is performing calculations to establish basic configuration and dimensional requirements for a higher strength clamp.

A preliminary draft of specification for use in purchasing high speed pump bearings was prepared.

Fabrication of the vessel lower head support fixture, for use in supporting the head during removal of the Grayloc clamp, was completed.

A final design review was conducted for installation of the external heater overtemperature protection system. A Site Work Release (SWR) package and drawings (four new and eight interim) were released to support the installation. Test procedures Component Checkout (CC)-2B-41 and SO-2B-23 were issued for review and comments.

3. 412148100 - Semiscale Measurements Improvement

Work continued in support of the densitometer bench tests for evaluating background scatter and dead time corrections. The bench testing is 90% complete. The principle investigator from the Experiment Planning and Analysis Branch will spend the next several weeks evaluating the data.

C. 414110000 - Level of Effort

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

Work packages affected by the budget reduction were modified and submitted for approval. Presentations were prepared for a review group meeting to be held in early February. The following reports were reviewed; IB TRR, PL-1 Quick Look Report (QLR), PL-2 QLR, PL-3 Experiment Operating Specification (EOS) Appendix, PL-3 PTP's PL-4 EOS Appendix, PL-4 PTP, and a reanalysis of test S-SR-2.

Provided technical project support for potential two phase pump testing.

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

The SBLOCA RIL has been submitted for section level review.

2C. Summary of Work Performed in January 1983 (continued)

3. 414123100 - Engineering Level of Effort

Typing was completed on the draft revision for ES-70052, intact loop pump assembly and disassembly procedure.

Provided engineering coverage during final assembly of the spare high speed intact loop pump at Associated Machine, San Carlos, CA. Assembly was completed and the pump was shipped to EG&G Idaho.

Completion of the drawing for simplified upper bearing installation tool (high speed pump assembly) has been delayed because of higher priority work.

Information was obtained from Gralock engineering on teflon impregnated shaft seals for the high speed pumps. This type seal is being considered for potential improvement in service life.

Provided engineering support to Measurements Engineering on the core power computer reconfiguration for PL-S0 and PL-7 tests. Drawing 417743 was issued as part of a SWR to show the temporary wiring required.

4. 414148100 - Measurement Engineering - Level of Effort

Pressure and differential pressure data corrections were completed for test S-PL-3A.

Measurement requirements for the steam generator tube rupture break assembly were finalized and all transducers ordered.

Effort continued on calculating the uncertainty of various measurements installed for the power loss tests. This work is done on an as-needed basis in parallel with the basic overall uncertainty work required for all Semiscale experimental measurements.

Work has been initiated that will ultimately ensure that all data points acquired on the Semiscale Program will be available in the NRC data bank. The costs involved in reducing Semiscale data on the Cyber computer are being evaluated. The first step in this process would be to eliminate an obsolete format called Idaho Nuclear Data Processing (INDP) which is currently used by Semiscale (the only program at INEL using this format). Costs of eliminating INDP are being investigated. The data acquisition system was tested to find the total time required to reduce all acquired data in preparation for input to the Cyber. The maximum time to de-multiplex the data, make corrections and apply all mathematical functions

2C. Summary of Work Performed in January 1983 (continued)

is 32 hours per test. The majority of this 'run' time would be accomplished by the computer running alone at night.

The Steam-Air-Water (SAW) test loop was started up and two drag screen transducers were calibrated prior to installation for test S-PL-4.

The instrumentation needed and the installation procedures to be used were determined for controlling core power with the PDP-11 computer for test S-PL-7.

The new Preston analog to digital converter was installed into Data Acquisition System (DAS) II and the hardware operation was verified. Software installation and verification will commence February 21. It is presently planned to install the cabling from the amplifiers to the new Preston during the shutdown prior to the Steam Generator Tube Rupture Test Series.

D. 415119100 - Pre-Feedline/Steamline Break Planning

Pre-series research for FY-84 experiments was initiated.

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

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

EOS Appendices for S-PL-3 and S-PL-4 were transmitted. Test support was provided for experiment S-PL-3A and S-PL-4A. S-PL-3A was terminated due to excessive leakage and will be rerun in February. The scenarios for S-PL-5 and S-PL-7 were reviewed with NRC and appendix preparation continued. Core power computer requirements and check out test requirements for S-PL-7 were reviewed. Scenario, initial conditions, and boundary conditions were provided for S-PL-7 pretest prediction preparation.

2. 416119930 - S-PL Test Support, ECS

The pretest prediction analyses for S-PL-3 and S-PL-4 were completed and documented in letter reports. The RELAP5 calculations were redone several times for both tests as a result of changes to the EOS. RELAP5 model reconfiguration was started in order to perform the pretest prediction for test S-PL-7.

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

Operations is reviewing various Master Facility Drawings (MFD) and other drawings for as-building. Engineering support is being provided as required.

2E. Summary of Work Performed in January 1983 (continued)

The System Characterization (SC) test procedure for characterization testing of the pressurizer spray system was issued.

The SO test procedure SO-2B-22 on the rupture disc pressurization system was completed and issued.

The SWR for installation of the upper head vent system was cancelled.

Design of a new spool assembly to replace spools 3-PC-1A and 3-PC-19A was completed. An SWR package was prepared and issued to fabricate the spool and fabrication is approximately 90 percent complete. An SWR package was prepared to install the spool.

Design was initiated on two new High Pressure Injection System (HPIS) charging tanks and their support structure to provide the increased volume required for future tests. Approximate volumes will be 35 and 23 gallons for the intact and broken loops respectively. An SWR package was prepared for tank fabrication.

Electrical engineering support was provided for installation of external heaters on the pump suction break assembly. The as-built condition was documented and MFD drawing updated after the SWR package was closed out.

The as-building drawing effort for the interconnect, panel and control room chassis was completed and a revised MFD list issued.

The design and drawing was started for installing external heaters on spool piece no. 72 on the broken loop pump suction and on spool piece no. 23 (intact loop cold leg replacement spool).

4. 416136500 - Mechanical Instrumentation for Power Loss Test Series

Work consisted of providing support for PL series tests (S-PL-3 and S-PL-4). The drag device transducers were installed for S-PL-4 and a drag coefficient calibration test of the break spool in the SAW Loop was supported.

Work began on building larger suction tanks for the HPIS and Low Pressure Injection System (LPIS) pumps.

2E. Summary of Work Performed in January 1983 (continued)

5. 416136600 - Test Engineering for Power Loss Test Series

Pretest activities were provided to support the three attempts of S-PL-3. Work continued on preparation of the Experimental Data Report (EDR) to report S-PL-1, 2, and 3, but the major effort won't begin until S-PL-3 is completed.

A test plan for S-PL-4 was completed and pretest activities provided for S-PL-4. Posttest data review and qualification is presently proceeding with data tapes to be sent to Data Processing in TSB on February 7, 1983.

6. 416136700 - Operation Support for Power Loss Test Series

Wrote test procedure for test S-PL-3 and performed pretest activities. Much effort was placed on setting the HPIS pump voltage vs pressure curve to meet EOS Appendix requirements. Test S-PL-3 was attempted January 5, January 7, and January 13, 1983. Excessive leaks in instrumented spool portions of spool pieces 21 and 22 forced abandonment of the January 13, 1983 try. A new spool to replace 21 and 22 is being fabricated.

Wrote test procedure for S-PL-4 and performed pretest activities. Performed the Rupture Disc Pressurization SO Test. Effort was again placed on the HPIS pump curves and defining the orifice in the small break condensing system cooling water line. Test S-PL-4 was successfully performed on January 28, 1983.

Work is now going on to prepare for a repeat of S-PL-3, including the replacement spool for spools 21 and 22.

7. 416148600 - Loss of Power Test Series Data Acquisition

Instrumentation changeout for test S-PL-4 was completed and checked out by January 24, 1983.

F. 417119100 - SG Series Pretest Analysis

1. 417119100 - SG Series Pretest Analysis, Section A

Comments were incorporated from the section level review of the preliminary EOS. The document was submitted for branch level review. The document is expected to be ready to mail for external/internal review and comment in early February. The appendices for the EOS have been outlined. Work has begun on writing the appendices which will be modified to incorporate review comments and included in the final version of the EOS. EP&A personnel provided extensive input

2F. Summary of Work Performed in January 1983 (continued)

to the Design and Measurements branches with regard to modifications required for the Steam Generator (SG) Series. A task to calibrate the break assembly was outlined. Extensive scoping calculations and review were performed to evaluate the proposed test matrix.

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

RELAP5 scoping analyses for the S-SG test series were continued. A study was performed to investigate the influence of charging system makeup flow on transient signature for a 5-tube rupture simulation. The results of this and other scoping calculations will be used in the preparation of the EOS for the S-SG test series.

3. 417123100 - Tube Rupture Hardware Mods

A conceptual design review of the SG pressure relief, steam line break and condensing systems was conducted on January 7, 1983. In conjunction with this same meeting, a preliminary design review was conducted on the auxiliary feed system, pressurizer Pressure Operated Relief Valve (PORV) system and the tube rupture break assembly.

A final design review on the tube rupture break assembly was conducted on January 26, 1983. All detail and installation drawings for the break assembly were completed and are ready for release. Procurement of all hardware required for the break assembly was completed.

Preparation of an SWR package was started to fabricate the tube rupture break assembly.

A design proposal was completed for CC testing of the positive displacement flow transducer in the hot water makeup system.

Drafting is in progress on final design of the auxiliary feedwater system. Previously ordered long lead hardware (pumps, valves and other material) were received.

Drafting is in progress on final design of the steamline break system. Existing hardware from prior tests, which is to be re-installed in this system, was identified and located.

A preliminary design review was conducted on electrical design for the steam generator tube rupture break assembly, auxiliary feedwater system, SG pressure relief system and steam line break system. Responsibility for electrical

2F. Summary of Work Performed in January 1983 (continued)

design on auxiliary feedwater and SG pressure relief systems has been assigned to J. Woidtke. All long lead materials are available from in-house stock. Some short lead material remains to be ordered.

G. 419519600 - EP&A Posttest Analysis (NC, UT)

1. Aided code development personnel in an attempt to use the Semiscale film-boiling correlation in TRAC. When used in TRAC to calculate Lehigh data, the correlation worked well. However, when applied to THEF data, TRAC/Semiscale underpredicted the vapor temperature profile. The problem is in the way interfacial heat transfer is calculated in TRAC between the two data bases. The interfacial heat transfer is proportioned to G^2 and there is too large a difference in J between Lehigh and THEF data. Work continues to resolve this problem.

2. 419519601 - S-NC RELAP5 Posttest Analysis

The assessment of the capability of RELAP5/MOD 1.5 to accurately calculate the phenomena associated with single-phase, two-phase, and reflux natural circulation was resumed. A two-phase natural circulation calculation was repeated with the latest cycle of RELAP5 to assure consistency with results obtained from an earlier version with updates.

3. 419519604 - Test S-SR 2 RELAP5 Analysis

RELAP5/MOD 1.5 analysis of Test S-SR-2 (Feed and Bleed) was completed. Calculated results were interpreted using a feed-and-bleed map and were compared with similar analyses of the previous RELAP5 calculations of this test. The latest RELAP5 results and the feed-and-bleed map analyses were documented in a letter/report released in mid-January.

H. 9D0800000 - Semiscale Equipment

1. 9D0820600 - Intact Loop Pump

Engineering review was completed on vendor data submittals from Associated Machine in preparation for final assembly at the vendor's facility during week ending January 28, 1983. The pump assembly stand and specialized tools were delivered to Associated to support the assembly effort. Assembly was completed and the pump was shipped to EG&G Idaho.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

A. 412100000 - Special Projects

1. 412111200 - Semiscale Configuration Reporting System

Initiate tasks to implement the system following DOE approval of the proposal.

2. 412123100 - Special Projects--Engineering

Provide engineering support during installation of the pump seal cavity cooling system. Issue the pump seal cavity SO test procedure and conduct the test.

Initiate drafting on final drawing for the broken loop steam generator enlarged work platform, if schedule permits.

Issue Engineering Design File (EDF) to document the entire redesign effort on the vessel lower head Grayloc (clamp) connection when calculation results are received from Rocky Mountain Nuclear.

Complete preparation and release of specification for use in purchasing high speed pump bearings.

Begin fabrication of equipment enclosures for the external heater overtemperature protection system. Release test procedures CC-2B-41 and SO-2B-23 following completion of review and approval.

3. 412148100 - Semiscale Measurements Improvement

Data reduction and evaluation, and documentation of the test results will be completed. Documentation will include uncertainty analysis of selected data. Development of algorithms for data reduction (individual beams), including the uncertainty analysis, will be started.

B. 414110000 - Level of Effort

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

January budget and schedule status reports will be prepared. Presentations will be delivered at a review group meeting in Bethesda. FY-84 planning will be initiated. Review for the following reports will be provided; PL-5 and PL-7 EOS Appendices, PTP's for PL-5 and PL-7, SO-PL-7 test plan, QLR's for PL-1, PL-2, PL-3, and PL-4, and THEF reports on Two-Phase Loop Characterization, L5-1 Drag Disk testing, 2D/3D instrument testing, and Nine-Rod Bundle quench experiments.

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

2. 414119300 - SBLOCA RIL

The RIL will complete section review and be submitted for branch level review.

3. 414123100 - Engineering Level of Effort

Complete final revisions to draft of ES-70052C, intact loop pump assembly and disassembly procedure, based on latest pump assembly experience at Associated Machine.

Provide engineering coverage on the receipt of new intact loop pump from Associated Machine.

Complete preparation and release of drawing for simplified upper bearing installation tool (high speed pump assembly).

Prepare and issue specification for teflon-impregnated seals for potential use in the high speed pumps.

4. 414148100 - Measurement Engineering

a. Continue support of data system set up and operation during Power Loss Test Series.

b. Complete DAS II installation of Hewlett Packard operating system RTE-6 UM (work to start February 21).

c. Continue transducer calibration evaluation and data correction support for Power Loss Tests.

5. 414148200 - Data Acquisition LOE

Complete calibration of Venturi flow transducers procured for Steam Generator Tube Rupture Tests.

C. 415100000 - Feedline/Steamline Break Analysis

1. 415119100 - Pre-Feedline/Steamline Break Analysis

Research and analysis to define FY-84 experiment scope will continue.

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

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

EOS Appendices for PL-5 and PL-7 will be transmitted. QLR's for PL-1, PL-2, and PL-7 will be transmitted. Test support will be provided for rerun of PL-3 and tests PL-5 and SO-PL-7. Input for the PL-5 pretest prediction will be provided.

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

2. 416119930 - S-PL Test Support, ECS

The pretest prediction analyses for Test S-PL-5 and 7 will be completed and documented.

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

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

Start characterization testing of the pressurizer spray system to identify the effects of various spray rates and modes of operation on the pressurizer pressure.

Issue installation SWR package and complete installation of new spool assembly to replace spools 3-PC-1A and 3-PC-19A.

Release SWR package and complete fabrication of the two new HPIS charging tanks. Complete design of the tank support structure, prepare SWR package, and complete fabrication and installation of the structure and tanks.

Issue a drawing change and SWR package to install external heaters on spool piece no. 72 on the broken loop pump suction and on spool piece no. 23 (intact loop cold leg replacement spool).

4. 416136500 - Mechanical Instrumentation for PL

Work will consist of providing instrumentation support for tests S-PL-3, S-PL-5, and SO test.

5. 416136600 - Test Engineering for PL

The data obtained from test S-PL-4 will be qualified and data tapes sent to Data Processing in TSB by February 7, 1983. Work on the EDR to report tests S-PL-4, 5, and 7 will begin.

A test plan will be prepared and pretest activities provided for test S-PL-3. The data obtained will be qualified and sent to Data Processing in TSB by February 21, 1983. The results from this test will then be combined with the results of tests S-PL-1 and S-PL-2 in an EDR to report the results of these three tests.

Support will be provided as necessary to perform an SC Test on the steam generator downcomer and pressurizer spray line on February 14, 1983. The data will be processed and provided to EP&A and design as necessary.

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

A test plan will be written and pretest activities provided for test S-PL-5. The data obtained will be qualified and sent to Data Processing in TSB by March 8, 1983. The results will be included with results of test S-PL-4 in an EDR to report tests S-PL-4, 5, and 7.

6. 416136700 - Operation Support Power Loss

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

Test procedures will be written for tests S-PL-3 and S-PL-5 and tests performed February 10, 1983 and February 24, 1983 respectively. The SC Test of the steam generator downcomer and pressurizer spray line will be performed February 14, 1983.

E. 417119100 - SG Series Pretest Analysis

1. 417119100 - SG Series Pretest Analysis, Section A

The EOS for the SG series will be mailed for review. Work will continue on writing the appendice. Analytical support will be provided for Design, Measurements, and break assembly calibration.

2. 417119103 - SG Series Pretest Analysis, ECS Support

More RELAP5 scoping calculations will be performed for S-SG Series tests. Scenarios which include compounding failures (eg. steamline rupture causes steam generator tube ruptures), recovery procedures, and primary coolant pump operation variations (eg. continuous pump operations) will be simulated.

3. 417123100 - Tube Rupture--Hardware Mods

Conduct preliminary and final design reviews on the steam generator PORV and Steam Generator Relief Valve, and condensing system.

Conduct final design reviews on the auxiliary feedwater and steamline break systems.

Release all drawings for the tube rupture break assembly.

Complete the preparation of SWR package to fabricate the tube rupture break assembly.

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

Replace the elastomeric O-rings in the positive displacement flow transducer with metal O-rings for high temperature service.

Complete design changes and modify the hot water makeup system to adapt it for testing the positive displacement flow transducer.

Prepare CC test procedure for testing the positive displacement flow transducer in the hot water makeup system.

Design a video probe mounting bracket for the plenum location of tube rupture break system.

Prepare an EDF on analysis of 0.049-in. wall tubing in the tube rupture break assembly.

Complete final design and drafting of the auxiliary feedwater system and conduct a final design review. Prepare and issue SWR package to install the system and start installation.

Continue detail design and drafting on the steamline break system. Start preparations for a final design review to be conducted on or before March 4, 1983. Begin preparation of SWR package for installing the system.

Prepare electrical packages for final design reviews on the auxiliary feedwater, SG pressure relief and steamline break systems. Order remaining short lead time electrical materials for these systems. Begin preparation of drafting and SWR packages to satisfy electrical requirements.

F. 419519600 - Posttest Analysis

1. 419519601 - S-NC RELAP5 Posttest Analysis Report

RELAP5/MOD1.5 analysis of the S-NC Test Series will continue. Areas of investigation will include reflux mode scoping calculations and sensitivity calculations to study code response to changes in operating parameters such as core power and secondary side liquid inventory.

5. Problems and Potential Problems

None.

A6043 - Thermal-Hydraulic Experiments 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 January 1983

None.

2. Summary of Work Performed in January 1983

A. 481100000 - FY-82 Carryover

1. 481100310 - Two-Phase Test Reports

Submitted the Two-Phase Loop Characterization Report and the 2D/3D Hot Leg Spool Instrument EDR for section review.

2. 48199AA00 - Nine-Rod Bundle Quench Report

Presented experimental results at an ANS meeting in Santa Barbara; the final report awaits section/branch review prior to transmittal to technical editing for final processing.

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

The EDR was delivered for section review.

B. 487248100 - THEF Operations

Work continued on maintaining the facility in a ready stand-by condition.

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

Review of plans for final data reduction and reporting were reviewed with Dr. J. Chen of Lehigh and EG&G Technical staff. Measurement uncertainty analysis was initiated, and is scheduled for completion in February. The data report was approximately 20% complete at month end.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

A. 481100000 - FY-82 Carryover

1. 481100310 - Two-Phase Test Reports

The Two-Phase Loop Characterization report and 2D/3D Instrument EDR will be completed and transmitted.

2. 48199AA00 - Nine-Rod Bundle Quench Report

The report will be delivered to tech editing for final processing; transmittal will be postponed to March.

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

The report will be submitted for final branch review and approval.

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

Measurement uncertainty analysis will be completed. A first draft of the data report is planned for review beginning February 28. The second draft is scheduled for completion on March 31. Preparation for an ASME meeting presentation will also be performed.

5. Problems and Potential Problems

None.

MONTHLY REPORT FOR

JANUARY 1983

THERMAL FUELS BEHAVIOR PROGRAM

for W. A. Spencer, Manager

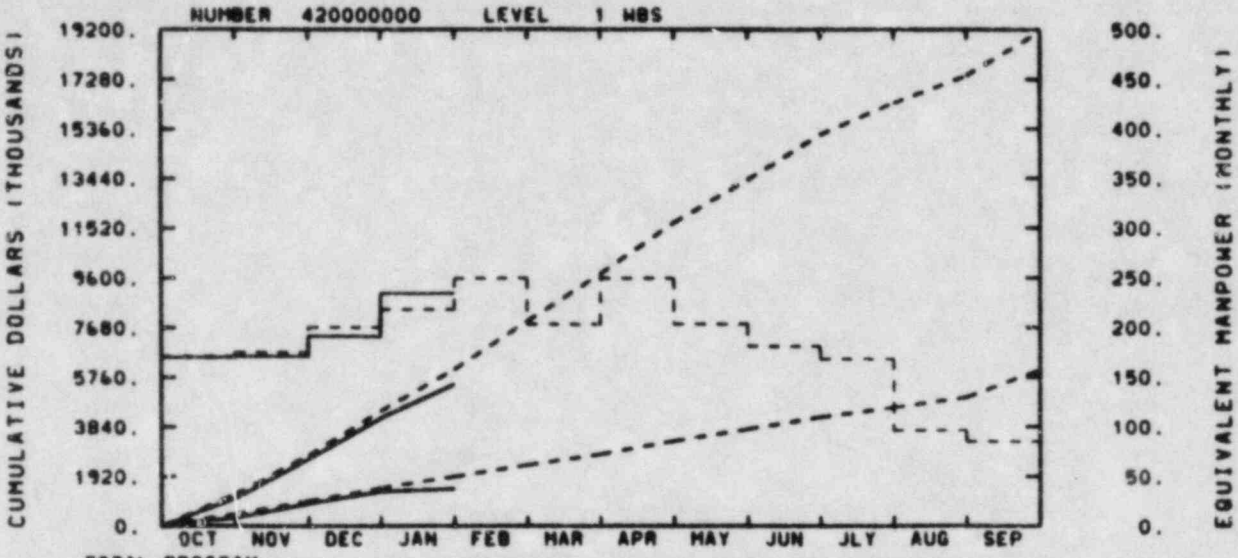
B. A. Bowman
Plans and Budget Representative

RESPONSIBLE MANAGER
W A SPENCER

EG&G IDAHO INC.

THERMAL FUELS BEHAVIOR PROGRAM

NUMBER 420000000 LEVEL 1 WBS



TOTAL PROGRAM

BUDGET	1231	2736	4449	6049	7914	9729	11713	13373	15128	16359	17418	19116
ACTUAL	1072	2585	4172	5471								

MATERIAL

BUDGET	467	961	1470	1905	2360	2768	3279	3742	4203	4575	4976	6048
ACTUAL	316	867	1334	1430								

MANPOWER

BUDGET	171	175	200	218	249	203	249	203	181	168	96	85
ACTUAL	170	171	191	234								

YTD VARIANCE: 578 (10%)

Individual cost graphs will give individual explanations.

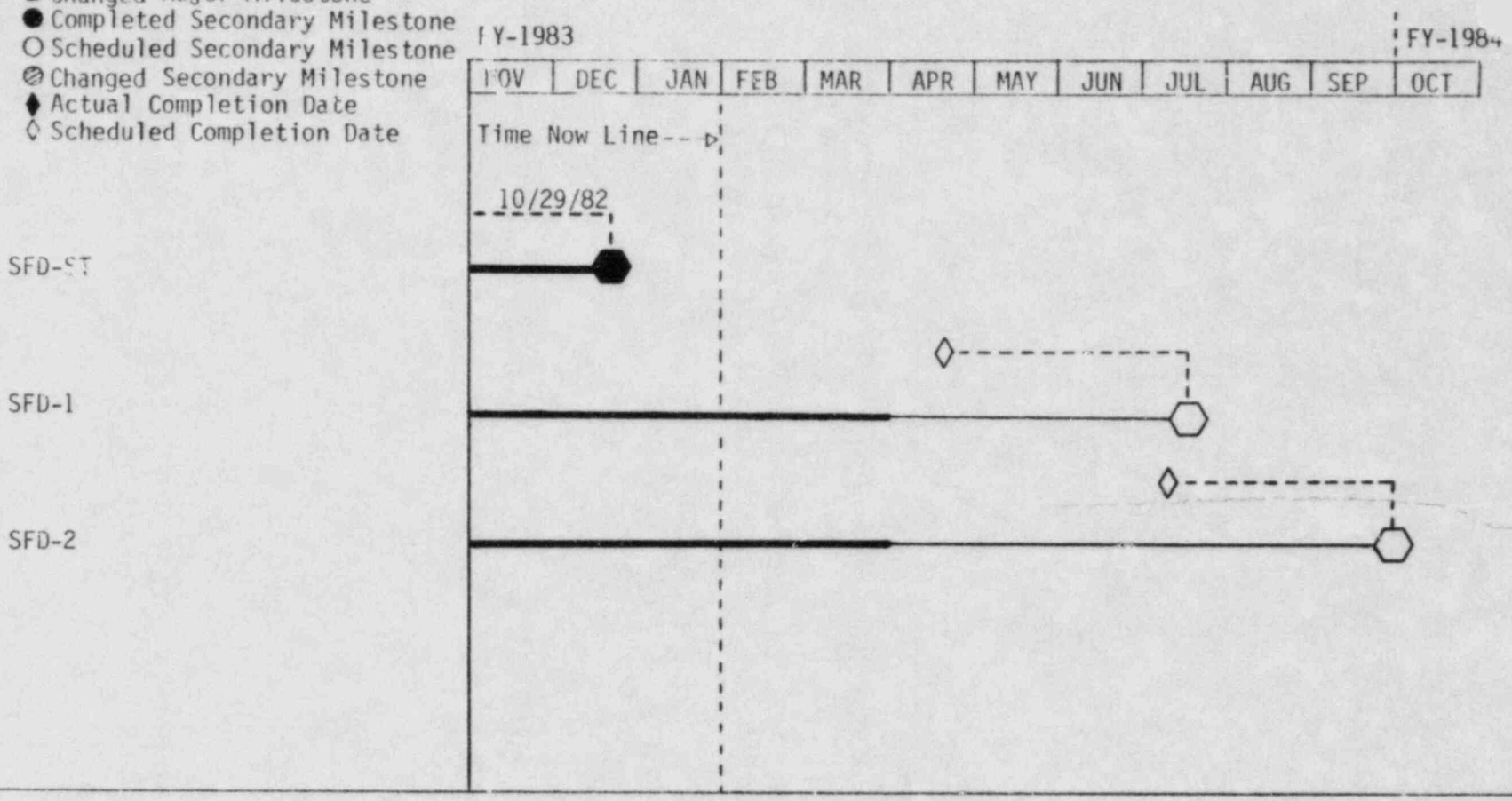
Explanations for major 189's will be made if the variance exceeds $25K. Minor 189 graphs will explain variance of over $10K.

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

THERMAL FUELS BEHAVIOR PROGRAM

January 1983



NOTES:

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

The containment tent and exhaust system, developed for posttest handling of Severe Fuel Damage (SFD) test assemblies, was installed over the Power Burst Facility canal and the fuel was removed from the SFD Scoping Test assembly and placed in the shipping container. The containment tent is being disassembled and will be stored until needed for additional defueling operations.

In preparation for receipt of the Scoping Test bundle at the hot cells, the necessary equipment to receive it, dry it, and prepare it for shipment to Argonne National Laboratory-West for neutron radiography has been installed. Shipment of the bundle to the hot cells is expected in February.

Some general plant modifications, such as overpressure protection for the loop cleanup and decontamination system and a safety improvement for handling liquid nitrogen have been completed, however, the main emphasis has been on the modifications for support of the next test, SFD 1-1. Specifically, the grab sample and filter units have been refurbished and installed, the installation of the new low flow subsystem was completed plus work on the electrical portion of the subsystem has been started, and the new low flow control improvement for the experiment cooling system was completed. In addition, final designs were completed and fabrication was started for routing the sample system steam line to a radiation detector, for adding the liquid sample dilution subsystem, and for adding a heating system to the main sample line.

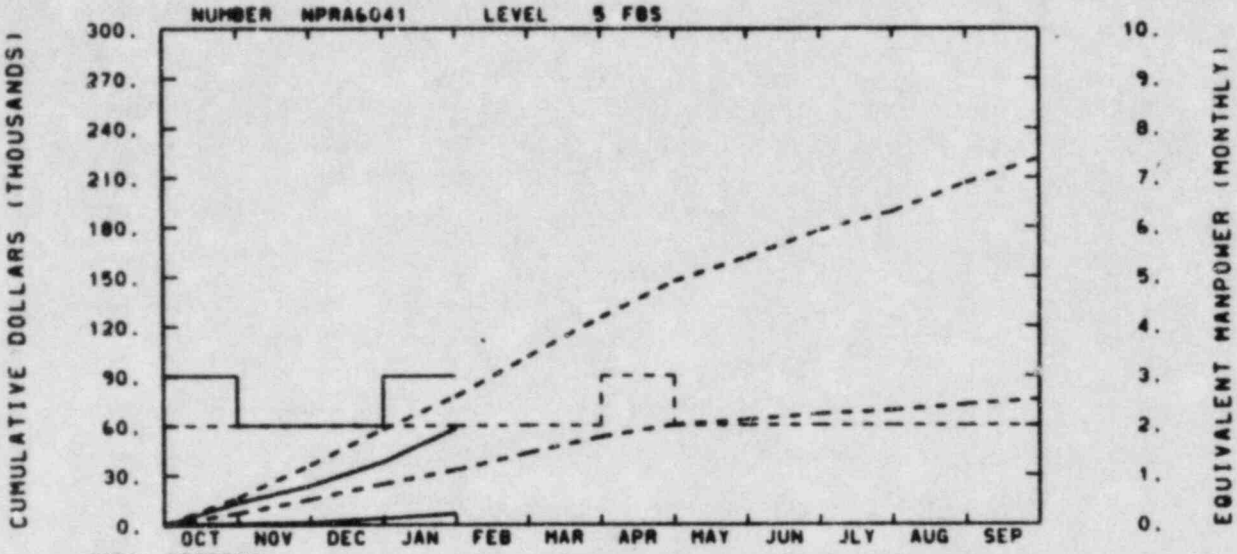
Formal conceptual design of the SFD Series II test train, including the upper plenum and associated instruments, was advanced during the reporting period to the point required for cost estimating and schedule development to begin. The cost estimates and schedules will be completed in early March. Significant developments in the design of the in-core portion of the test train occurred as a result of safety analyses, additional conceptual design, and technical community review of the fission product measurements. The new physics and thermal calculations that will be required as a result of the changes were begun.

RESPONSIBLE MANAGER
P.E.MACDONALD

EG&G IDAHO INC.

EXPERIMENT DESIGN AND ANALYSIS

NUMBER NPRA6041 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	16	36	58	78	102	125	147	162	178	189	207	222
ACTUAL	13	24	38	58								

MATERIAL

BUDGET	7	15	25	33	43	53	60	63	67	69	73	76
ACTUAL	1	2	4	7								

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6041

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 6.5	$ 19.1
MATERIALS, SERVICES AND OTHER COSTS	0.6	1.7
ADP SUPPORT	0.7	3.0
SUBCONTRACTS	0.0	0.0
TRAVEL	1.0	1.2
INDIRECT LABOR COSTS	8.9	26.2
GENERAL AND ADMINISTRATIVE	2.5	7.1
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 20.2	$ 58.3

A6041

YTD VARIANCE: 20 (26%)

The major contributor to the $20K underrun is the late start of the OPTRAN 1-1 Post Irradiation Examination; however, effort has increased and no impact on the scheduled finish date is anticipated at this time.

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 January 1983

None.

2. Summary of Work Performed in January 1983

a. Operational Transient (OPTRAN) Test Series

Sectioning of the OPTRAN 1-1 and 1-2 fuel rods began.

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

High frequency data (100 Hz) from the SFD-ST were processed and sent to the University of Washington for their analysis. Statistical and frequency analyses were performed on the pressure traces.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

a. Operational Transient (OPTRAN) Test Series

The six-inch pieces of the OPTRAN 1-1 and 1-2 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

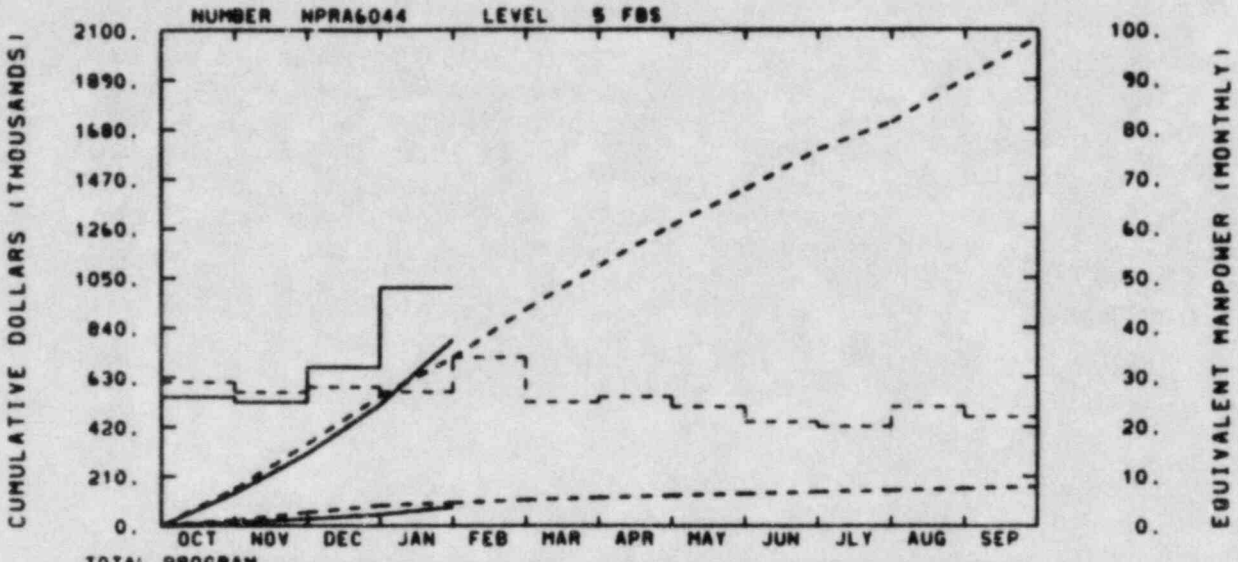
Review of the Test RIA 1-4 Fuel Behavior Report will occur as time permits.

5. Problems and Potential Problems

None.

RESPONSIBLE MANAGER
J P KESTER

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



TOTAL PROGRAM

BUDGET	156	347	549	711	916	1101	1271	1424	1593	1709	1892	2068
ACTUAL	139	306	513	788								

MATERIAL

BUDGET	25	57	86	99	110	120	129	136	144	150	159	167
ACTUAL	17	29	47	80								

MANPOWER

BUDGET	29	27	28	27	34	25	26	24	21	20	24	22
ACTUAL	26	25	32	48								

189 NO. A6044

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 90.5	$ 265.0
MATERIALS, SERVICES AND OTHER COSTS	29.4	71.1
ADP SUPPORT	2.5	6.2
SUBCONTRACTS	0.0	0.1
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	121.0	355.2
GENERAL AND ADMINISTRATIVE	30.7	91.0
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 274.1	$ 787.6

A6044

YTD VARIANCE: (77) (11%)

The actual variance is $69K because CCB 83-06 was approved on January 21, 1983, but has not been shown on the plot. Costs are running considerably ahead of the baseline estimates because so much of the modification work required for SFD 1-1 is being performed from general engineering accounts. The overrun appears, as a timing problem, primarily in the Loop Systems, the Handling Tools, and the Plant Instrumentation accounts. The net overrun is also somewhat offset by late accruing costs for the repair of the loop pump and because of a lack of assigned manpower in the Reactor and Instrumentation account. These reporting discrepencies will continue until the SFD 1-1 modification work is rebaselined.

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 January 1983

None.

2. Summary of Work Performed in January 1983

a. PBF Spare Loop Pump Repair

The helium leak test on the stator liner was successfully completed and the electrical terminal assemblies were installed. Rotor balancing and repair of the bearings were started.

b. Contamination Control System for the PBF Canal

The contamination control tent was successfully used during the defueling of the SFD Scoping Test test train. Disassembly of the tent is in progress and it will be stored until additional defueling work is undertaken.

c. SFD 1-1 Sample Bomb Replacement

During the assembly of the replacement sample bombs, it was determined that check valves on the liquid sample bombs were leaking. New seats and poppets have been procured and installed and are undergoing additional testing.

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

Installation of automatic overpressure protection of the LCDS was completed. This addition will assure that thermal expansion of the water in the ion exchange columns, caused by decay heat, will not result in excessive pressures if the columns are isolated from the loop system.

e. Liquid Nitrogen System Extension to the Reactor Building

The modification to provide liquid nitrogen to the Fission Product Detection System was completed. This modification will allow the detector dewars to be filled via valves rather than by hand.

2. Summary of Work Performed in January 1983 (continued)

f. SFD 1-1 Facility Modifications

Bundle Low Flow Injection System - The mechanical components were installed and are ready for hydrostatic testing. The electrical power and control system installation was started.

Experiment Cooling System Low Flow Control Improvements - Installation of the new throttling valve and operating hardware was completed.

Sample System Steam Line Reroute in Cubicle 13 - The final design review was conducted and hardware fabrication was started.

Sample System Dilution Injection System - The final design review was held and installation of the new equipment was started.

g. Technical Specifications

The revisions resulting from the annual review comments were prepared (DRR 5580) and EG&G Idaho internal review is about 50% complete.

A plan for reducing the number of Technical Specifications relief items for Severe Fuel Damage transients was completed and reviewed. Technical Specifications relief items are those for which the required reactor shutdown can be delayed without loss of adequate safety margin.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

a. PBF Spare Loop Pump Repair

Repair and replacement of all damaged parts will be completed; it is expected that final assembly will also be completed.

b. SFD 1-1 Facility Modifications

The following modifications are scheduled to be completed through preparation for integrated testing: Low bundle flow injection, Sample System dilution injection, Cubicle 13 steam line rerouting, low bundle flow reactor shutdown, experiment bundle-to-bypass differential pressure measurement, and sample bomb replacement.

The System Operation Test Procedure will be issued.

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

   c. Technical Specifications

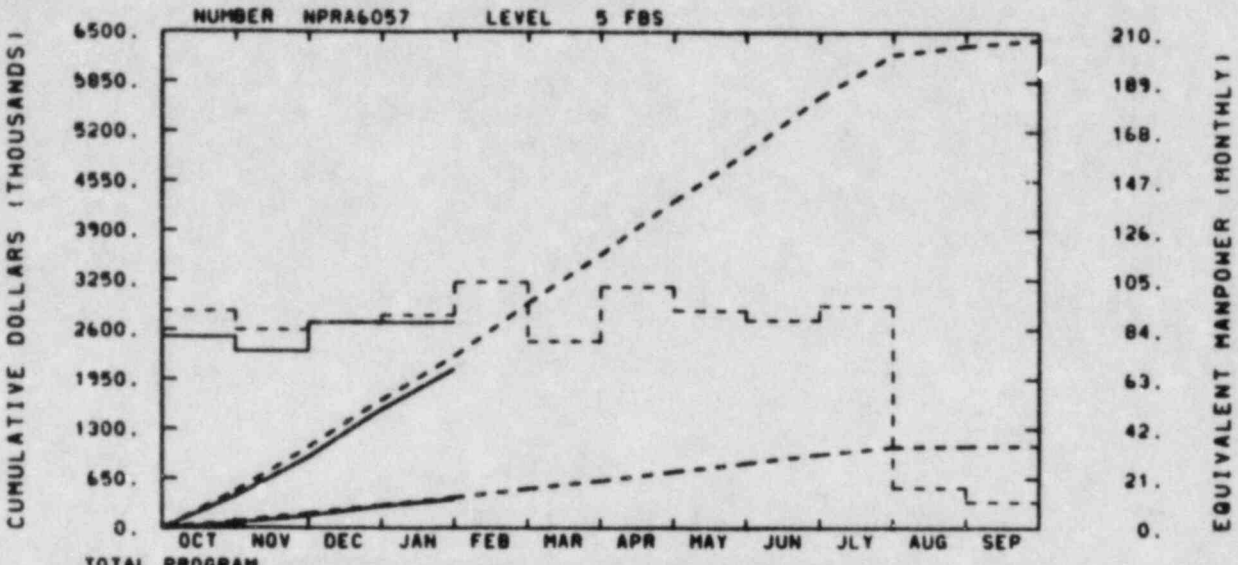
      The revisions resulting from the annual review and those needed prior to Test SFD 1-1 will be transmitted to DOE-ID for approval.

5. Problems and Potential Problems

   None.

RESPONSIBLE MANAGER
C O DOUCETTE

EG&G IDAHO INC.
PBF OPERATIONS
NUMBER NPRA6057 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	487	1059	1675	2253	2945	3582	4282	4926	5656	6211	6324	6406
ACTUAL	422	928	1551	2084								

MATERIAL

BUDGET	90	194	298	403	517	621	736	850	967	1060	1071	1078
ACTUAL	63	163	288	380								

MANPOWER

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

BUDGET
ACTUAL

189 NO. 46057

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 163.0	$ 629.5
MATERIALS, SERVICES AND OTHER COSTS	85.5	338.1
ADP SUPPORT	0.2	0.5
SUBCONTRACTS	3.3	27.4
TRAVEL	0.0	0.3
INDIRECT LABOR COSTS	224.0	864.5
GENERAL AND ADMINISTRATIVE	57.3	224.0
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 533.3	$ 2,084.3

A6057

YTD VARIANCE: 169 (8%)

The $169K underrun is due primarily to $125K outstanding commitments not yet costed. The remaining net underrun is due to understaffing in the Facility Operations Branch. Budget realignment is now in process to adjust budget to anticipated expenditures.

A6057: PBF Operations

EG&G Idaho Program/Technical Monitor: W. A. Spencer/C. O. Doucette, Jr.
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 January 1983

None.

2. Summary of Work Performed in January 1983

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.

Installation of the canal containment tent and exhaust system was completed. Removal of the fuel from the SFD Scoping Test (ST) test train and installation of the fuel into the shipping can was completed. Disassembly and storage of the canal containment tent in preparation for shipment of the fuel to the Hot Cells is continuing.

The Instrument and Data Section completed the January Preventive Maintenance (PM) examinations for the Data Acquisition and Reduction System, the January process and plant instrument calibrations, and repair of the underwater camera used for inspection of the in-pile tube. Calibration of the new Radiation Monitoring System detectors was completed as the new channels were installed.

b. PBF Operations Support

PM examinations for November, December, and January are complete, and the February examinations are 80% complete.

Corrective Maintenance efforts include the correction of plant deficiencies and support work for the SFD 1-1 plant modifications. The new silver zeolite housing has been installed and welded in place, the trays loaded with silver zeolite, and the waste gas room cleaned and decontaminated. Efforts are continuing on the reinstallation of the plant exhaust system and stack gas system.

2. Summary of Work Performed in January 1983 (Continued)

b. Data qualification is continuing for the Operational Transient (OPT) Tests 1-1 and 1-2 and the SFD-ST. Efforts have been initiated on SFD 1-1 preparation.

The initial review meeting on Draft "A" of the SFD 1-1 Experiment Operating Procedure (EOP) was completed and incorporation of SFD 1-1 modification-related changes into the Plant Operating Manual (POM) has been initiated.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

a. Hydrostatic pressure test of the Experimental Loop Coolant System will be completed.

b. SFD-ST fuel will be shipped to the Hot Cells for posttest examination.

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

d. All PM examinations for February will be completed.

e. Installation of the gasket-type silver zeolite system will be completed.

f. An OPT 1-1 and 1-2 data review meeting with the Data Integrity Review Committee will be held.

g. Updating of the POM with the SFD 1-1 modification-related changes will continue.

h. A final version of the SFD 1-1 EOP will be produced.

5. Problems and Potential Problems

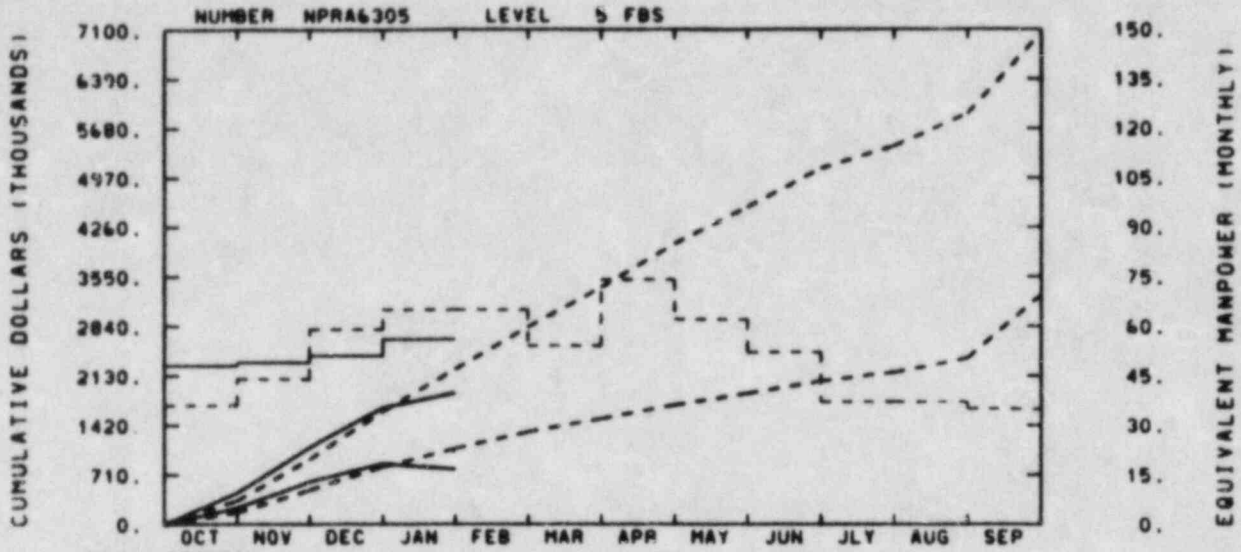
None.

RESPONSIBLE MANAGER
P E MACDONALD

EG&G IDAHO INC.

SEVERE FUEL DAMAGE

NUMBER NPRA6305 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	334	931	1620	2223	2829	3390	4015	4546	5100	5423	5889	7091
ACTUAL	446	1103	1672	1885								

MATERIAL

BUDGET	164	489	824	1084	1327	1513	1708	1876	2051	2174	2340	3294
ACTUAL	232	607	870	788								

MANPOWER

BUDGET	36	44	59	65	65	54	74	62	52	37	37	35
ACTUAL	48	49	51	56								

BUDGET

ACTUAL

189 NO. 86305

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 109.9	$ 408.2
MATERIALS, SERVICES AND OTHER COSTS	45.5	539.3
ADP SUPPORT	15.6	82.1
SUBCONTRACTS	155.8-	110.3
TRAVEL	5.5	8.4
INDIRECT LABOR COSTS	148.8	554.1
GENERAL AND ADMINISTRATIVE	42.3	182.1
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 212.8	$ 1,884.5

A6305

YTD VARIANCE: (338) (15%)

$202K of the $338K underrun is due to an incorrect January accrual against the Belgo-Nucleaire contract for the BR-3 fuel rods. The remainder of the variance ($136K) is primarily due to timing of test train procurement costs.

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 January 1983

None.

2. Summary of Work Performed in January 1983

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

Efforts on the reflood analysis continued. A meeting was held with the pretest consistency committee to review the planned work.

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

The SFD 1-2 EOS was reviewed and incorporation of comments is underway.

c. Postirradiation Examination (PIE) and Hot Cell Support

Installation of the hot cell equipment for receiving the SFD Scoping Test (ST) bundle, drying it, and preparing it for shipment to Argonne National Laboratory-West for neutron radiography was completed. The final procedures for these tasks were approved.

d. Severe Fuel Damage Analysis

A peer review meeting of the NUREG-0772 follow-on study (NUREG-0956) was attended.

e. Instrument Development and Fission Chamber

Thirty minutes of the SFD-ST 100-Hz data were sent to the University of Washington. A report entitled "Temporal Liquid Level Determination During PBF SFD-ST" was received from the University of Washington. This report will eventually become part of a larger report, which will also discuss fuel relocation and coolant velocity measurements.

2. Summary of Work Performed in January 1983 (Continued)

f. Test Train Assembly Facility (TTAF)

The SFD 1-1 test train retrofit of the steam line and check valve and the assembly of the SFD 1-2 test train continued. The preliminary design of the upper structure mods for SFD 1-3/1-4 was completed.

g. SFD - Series II

Formal conceptual design of the Series II test train, including the upper plenum and associated instruments, was advanced in January to the level required for cost estimating and schedule development to begin. A presentation of the conceptual design will take place on February 11. Cost estimates and schedules will be completed in early March.

Upper plenum design requirements were mostly resolved during a meeting between EG&G Idaho scientists and peers from Oak Ridge and Battelle Columbus Laboratories on fission products and aerosols. Space requirements for the upper plenum were markedly reduced, which in turn eased other space problems in the upper plenum and reduced insulation requirements on the video probe.

At Battelle Northwest Laboratory, development continued on techniques to improve the high temperature oxidation resistance of thermocouples. Five-micron layers of iridium were successfully spattered on tungsten-augmented-rhenium and pore rhenium substrates.

Purchases of alternate target materials, including tantalum carbide, thorium, and thoria, were initiated so that composite 2- and 3-layer systems can be made. A laser heating system was assembled so that high temperature testing of coated materials in a steam environment can begin next month.

Development of thoria and thoria properties at Los Alamos National Laboratory was mostly stopped in January pending status review.

Significant development in the design of the in-core portion of the test train occurred this month as a result of safety analyses, conceptual design, and the fission product meeting mentioned above. These changes, including a double water annulus and reduced asymmetric control rod configuration, required new physics and thermal calculations which were also begun this month.

2. Summary of Work Performed in January 1983 (Continued)

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

Analyses were completed to demonstrate that shroud integrity is maintained for the higher shroud conductivity values observed during the SFD-ST. Power Reactors Advisory Committee approval of the Experiment Safety Analysis document was formally requested. Additional calculations are being performed to resolve outstanding concerns.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

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

The quench calculations will be completed and efforts will begin on the draft report.

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

The SFD 1-2 EOS will be revised and submitted for review.

c. Severe Fuel Damage (SFD) Test 1-3 Experiment Prediction Report

Efforts will begin on the SFD 1-3 SCDAP analysis.

d. Postirradiation Examination (PIE) and Hot Cell Support

The SFD-ST bundle will be received at the Hot Cell. The bundle will be placed in the drying fixture and drying will begin.

e. Severe Fuel Damage Analysis

Written comments on NUREG-0956 will be completed.

f. Test Train Assembly Facility (TTAF)

The SFD 1-1 test train will be completed and delivered to PBF. The assembly of the SFD 1-2 test train will continue. The conceptual design of the SFD Series II test train will be completed and the final design of the SFD 1-3/1-4 upper structure mods will continue.

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

g. SFD - Series II

Costs and schedules for producing the Series II test trains will be completed in early March and preliminary design of the SFD 2-1 test train will begin.

Testing of coated thermocouples will begin.

A draft of the revised Experiment Requirements Document for Series II will be completed.

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

EG&G Idaho approval of the ESA was not received prior to the January 28, 1983 target date. Additional calculations will be performed to resolve concerns; approval is expected in early February. All schedule commitments to DOE-ID will be met.

5. Problems and Potential Problems

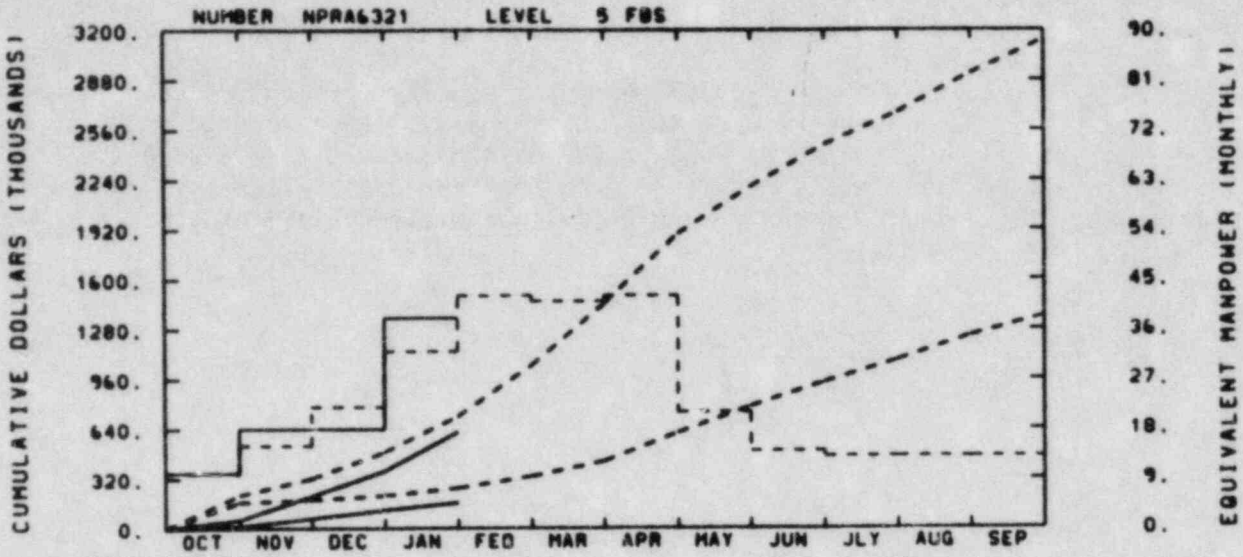
Belgo-Nucleaire is now quoting an effective enrichment of about 2.5% ^{235}U equivalent for the irradiated, low enriched BR-3 rods. An evaluation is being made as to whether these rods should be used in Series II, since power demands for the Series II tests may exceed that available from such a low effective enrichment.

RESPONSIBLE MANAGER
P E MACDONALD

EG&G IDAHO INC.

IN-PILE FISSION PRODUCT STUDIES

NUMBER NPRA6321 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	215	323	494	721	1045	1442	1822	2196	2464	2671	2921	3118
ACTUAL	55	209	373	620								

MATERIAL

BUDGET	168	184	212	260	334	431	614	782	938	1079	1230	1364
ACTUAL	13	65	118	165								

MANPOWER

BUDGET	10	15	22	32	42	41	42	21	14	13	13	13
ACTUAL	10	18	18	38								

BUDGET

ACTUAL

189 NO. A6321

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 75.4	$ 170.5
MATERIALS, SERVICES AND OTHER COSTS	37.7	138.7
ADP SUPPORT	3.2	6.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.2	2.8
INDIRECT LABOR COSTS	100.5	228.5
GENERAL AND ADMINISTRATIVE	29.9	73.1
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 246.9	$ 619.6

A6321

YTD VARIANCE: 101 (14%)

Major contributors to the $101K underrun are: The Fission Product Detection System - work associated with the SFD-ST has impacted the availability of manpower to support the OPTRAN and SFD-1 FPDS scope. Major efforts will switch to SFD-1 FPDS for test preparation to support the April test and OPTRAN FPDS scope will continue as time and people permit.

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 Severe Fuel Damage (SFD) test program (A6305).

1. Scheduled Milestones for January 1983

None.

2. Summary of Work Performed in January 1983

a. Fission Product Detection System (FPDS) Upgrade Completion

The Implementation Plan for the purchase of a reconditioned PDP-11/34 has been completed and is being circulated for approvals. Modification of the germanium detector shielding is 80% complete. A sample line concentration calibration was completed for the SFD Scoping Test (ST) geometry. Liquid nitrogen monitors are being added to the three germanium detectors.

b. Analysis Development

The GAUSS VIII - ORIGEN2 data processing package has been started. Preliminary calculations are being tried using unqualified data.

c. Severe Fuel Damage Scoping Test

Hot cell work on the SFD-ST samples has been completed. Additional work on filter debris is underway; size distribution analysis is being planned. Additional analysis on SFD-ST sample system components is being considered.

2. Summary of Work Performed in January 1983 (Continued)

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

Preparation of the fission product detection system for Test SFD 1-1 was initiated. Calibration plans have been developed and sources have been prepared. Software changes were made to permit automatic data acquisition. Sample system changes were reviewed and started.

e. SFD 1-1 Sample Line Heating

The final design review for the sample line heating task was held and installation of tubing and electrical controls has started.

f. SFD 1-1 Shielding

The final design review for the shielding over the reactor vessel and inside Cubicle 13 was held. Fabrication of parts for the Cubicle 13 shielding has started; materials are being staged and drawings released for the reactor vessel shielding.

g. Series I Chemistry

Scanning electron microscopy/energy dispersion spectroscopy examination of a steam line segment was completed. The acid-base-neutral leaching study of two steam line segments was completed.

h. Series II Measurement Development

A design for the Series II upper plenum was developed and reviewed with the NRC and scientists from Oak Ridge and Battelle Columbus. At the same review meeting, several measurement system concepts were presented and discussed; no significant changes were proposed. Analysis of PWR upper plenums continued; both geometry and off-normal thermal hydraulics are being investigated.

i. Fission Product Signature Analysis

The outline of a fission product behavior report was drafted and approved. The report will cover PBF Tests RIA 1-1, RIA 1-4, PR-1, and PCM-7.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

a. Fission Product Detection System (FPDS) Upgrade Completion

DOE approval of the computer procurement is expected, the shielding modifications will be completed, and the liquid nitrogen monitors will be installed and tested.

b. Analysis Development

The detailed, qualified bundle power history will be developed. GAUSS-ORIGEN calculations will proceed.

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

The results of hot cell sample analysis will be summarized, calibration data will be compiled, and a paper for a technical meeting will be started.

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

Final preparations will be made of the fission product detection system. Operational testing will be started on some of the sample system modifications.

e. SFD 1-1 Sample Line Heating

Tubing installation, heat tracing and heat system checkout on the main floor and in Cubicle 13 should be completed. Insulation of the new tubing will be started.

f. SFD 1-1 Shielding

Fabrication of the shielding in Cubicle 13 will be completed. Installation will follow hydrostatic tests and checkout of the line heating system. Fabrication of the shielding over the reactor vessel will be completed and installation will proceed as permitted by the test train connection welding and inspection operations.

g. Series I Chemistry

A filter debris sample will be examined for chemical composition information.

h. Series II Measurement Development

Schedule and cost estimates for the Series II measurement systems will be developed and discussed with management, and preliminary design efforts will begin. Thermal-hydraulic analysis of the Three Mile Island upper plenum will be completed.

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

i. Fission Product Signature Analysis

The fission product behavior report preparation will continue; release rate constants will be calculated, and the Introduction and some appendices will be drafted.

5. Problems and Potential Problems

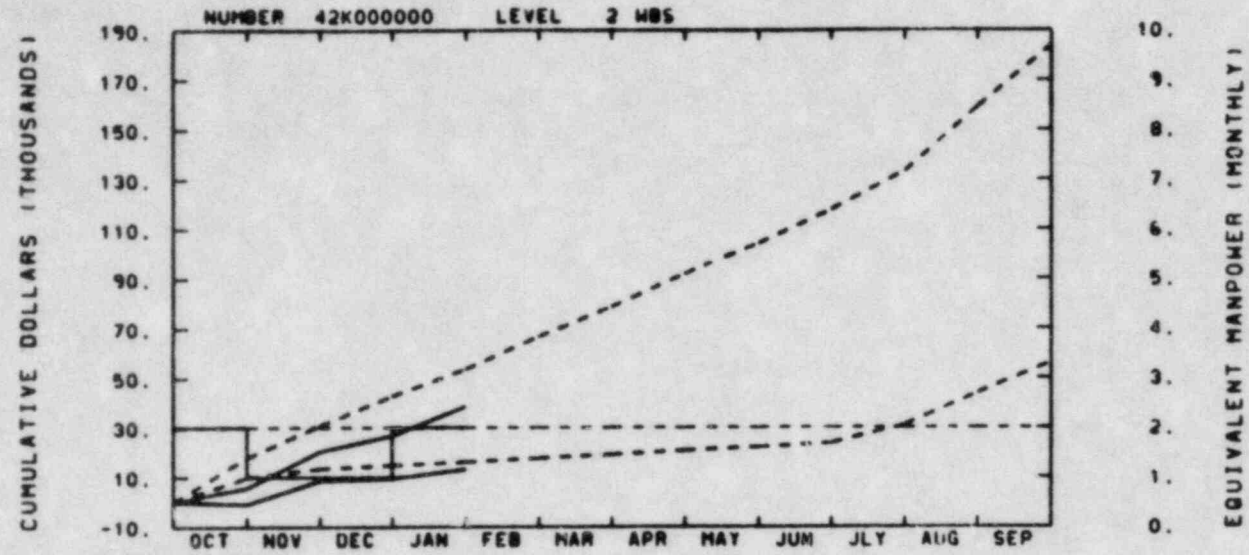
The original scope of the Fission Product Detection System Upgrade completion exceeds current total fiscal year funding and additional scope was identified during the Scoping Test. A set of Change Control Board (CCB) actions are in various program review cycles to resolve these issues.

RESPONSIBLE MANAGER
P E MACDONALD

EG&G IDAHO INC.

NRC REPRESENTATIVE TO KFK

NUMBER 42K000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	18	31	43	54	67	79	92	104	118	133	159	184
ACTUAL	6	20	27	39								

MATERIAL

BUDGET	10	13	15	16	18	19	21	22	24	31	44	56
ACTUAL	0	9	9	13								

MANPOWER

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

189 NO. A6352

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 5.1	$ 15.9
MATERIALS, SERVICES AND OTHER COSTS	2.7	4.2
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.7	8.5
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	2.0	6.4
GENERAL AND ADMINISTRATIVE	1.4	3.6
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 11.9	$ 38.6

A6352

YTD VARIANCE: 15 (28%)

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 January 1983

None.

2. Summary of Work Performed in January 1983

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

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

See 2. above.

5. Problems and Potential Problems

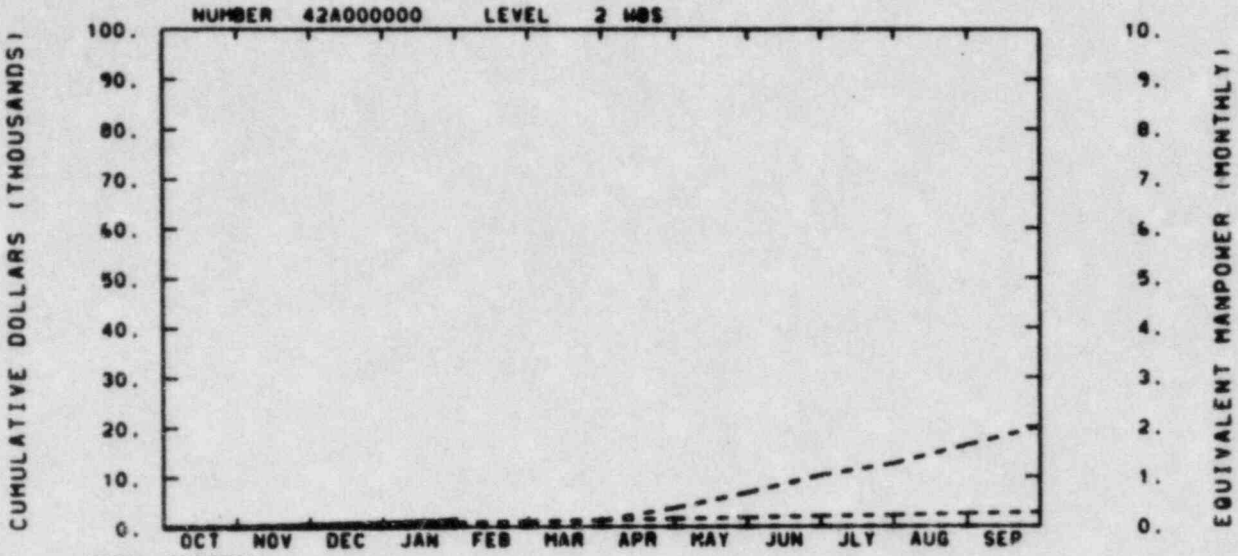
None.

RESPONSIBLE MANAGER
P E MACDONALD

EG&G IDAHO INC.

FISSION PRODUCT - PAST ACCIDENTS

NUMBER 42A000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	0	0	1	1	1	1	4	7	10	13	16	20
ACTUAL	0	1	1	2								

MATERIAL

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

MANPOWER

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

189 NO. A6372

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 0.1	$ 0.5
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	0.2	0.7
GENERAL AND ADMINISTRATIVE	0.1	0.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 0.6	$ 1.6

A6372

YTD VARIANCE: (1) (100%)

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 January 1983

None.

2. Summary of Work Performed in January 1983

None.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

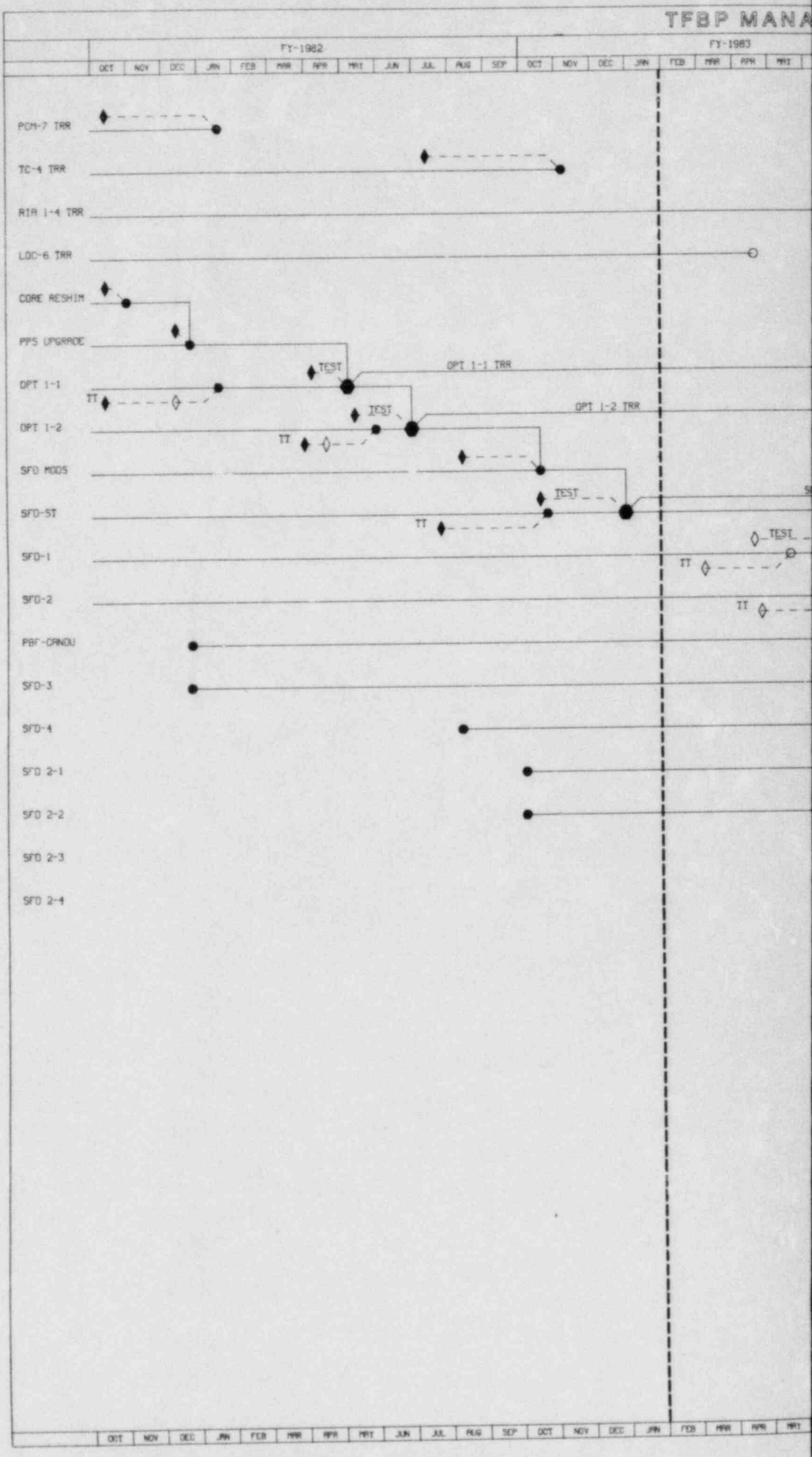
No further effort will be expended until the new version of TRAP-MELT is received from Battelle Columbus Laboratories.

5. Problems and Potential Problems

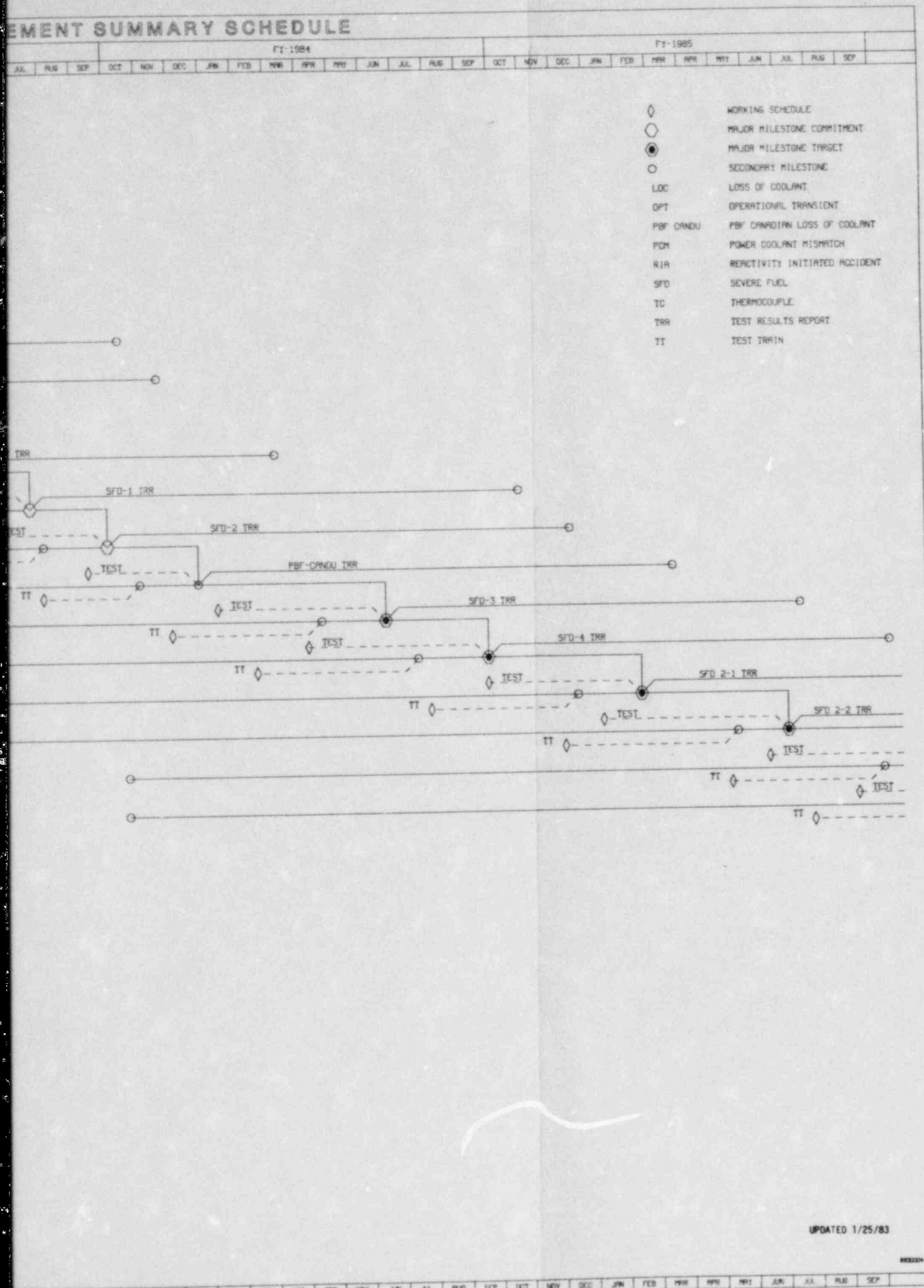
None.

THERMAL FUELS BEHAVIOR PROGRAM

MANAGEMENT SUMMARY SCHEDULE


TFBP MANA
FY-1982
FY-1983
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY
PCM-7 TRR
TC-4 TRR
RIA 1-4 TRR
LOC-6 TRR
CORE RESHIM
PPS UPGRADE
OPT 1-1
TEST
OPT 1-1 TRR
TT
OPT 1-2
TEST
OPT 1-2 TRR
TT
SFD MODS
SFD-ST
TEST
TT
SFD-1
TEST
TT
SFD-2
TT
PBF-CANDU
SFD-3
SFD-4
SFD 2-1
SFD 2-2
SFD 2-3
SFD 2-4
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY

EMENT SUMMARY SCHEDULE



UPDATED 1/25/83

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
4233J10	83-04	Data Qualification	Approved	01/21/83
426/425	83-05	SFD Test Train Instrumentation	Approved	01/21/83
4245B91	83-06	Plant Instrumentation	Approved	01/21/83
4263624	83-07	SFD 1-4 Long Lead Procurement	Approved	01/21/83
42MI112	83-08	Establish Discretionary Reserve	Approved	01/21/83

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
83-04	Data Qualification	15.2			15.2
83-05	SFD Test Train Instrumentation	64.9	10.0		74.9
83-06	Plant Instrumentation	8.0			8.0
83-07	SFD 1-4 Long Lead Procurement	(40.0)			(40.0)
83-08	Establish Discretionary Reserve	20.0			20.0

( ) Return to Management Reserve

THERMAL FUELS BEHAVIOR PROGRAM

STATUS BY 189

($000)

189 Number	New 189 Total
A6041	$ 225.2
A6044	2,075.3
A6057	6,420.9
A6305*	6,517.9
A6321	3,155.3
A6351	9.6
A6352	184.0
A6372	20.0
Subtotal	$18,608.2
Management Reserve	509.4
TOTAL	$19,117.6

* Includes Discretionary Reserve

MONTHLY REPORT FOR

JANUARY 1983

2D/3D PROGRAM

P. North, Manager

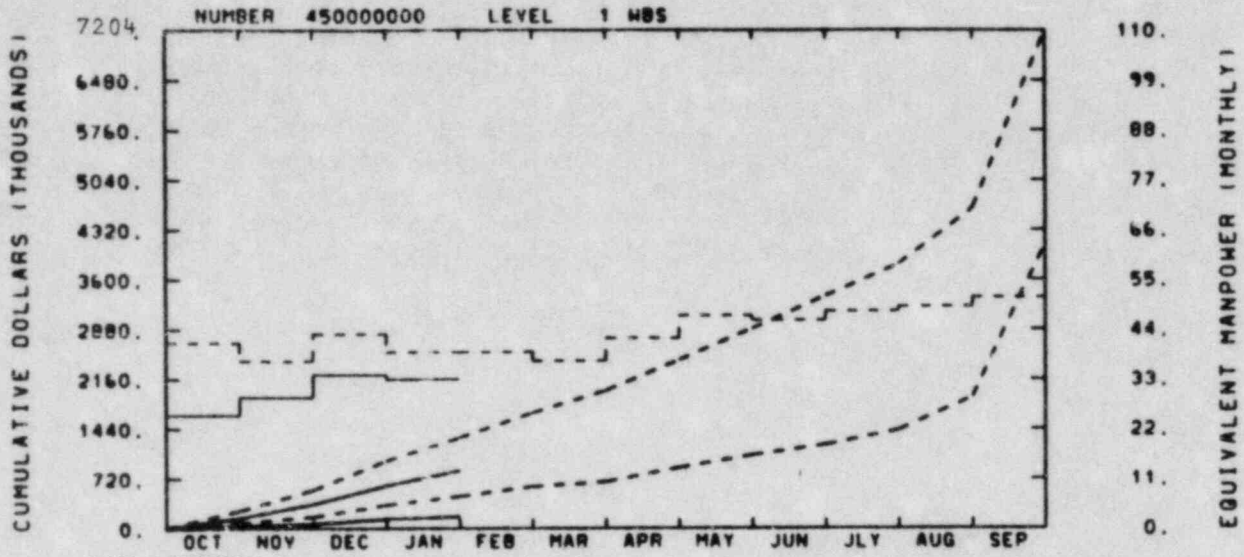
H. J. Heydt
Plans and Budget Representative

RESPONSIBLE MANAGER
P. NORTH

EG&G IDAHO INC.

2D-3D PROGRAM

NUMBER 450000000 LEVEL 1 WBS



TOTAL PROGRAM

BUDGET	260	558	982	1312	1669	1990	2435	2886	3360	3820	4627	7204
ACTUAL	153	353	623	836								

MATERIAL

BUDGET	82	171	340	464	604	674	878	1057	1209	1421	1900	4106
ACTUAL	40	68	138	169								

MANPOWER

BUDGET	41	37	43	39	39	37	42	47	46	48	49	51
ACTUAL	25	29	34	33								

YTD VARIANCE: 476 (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

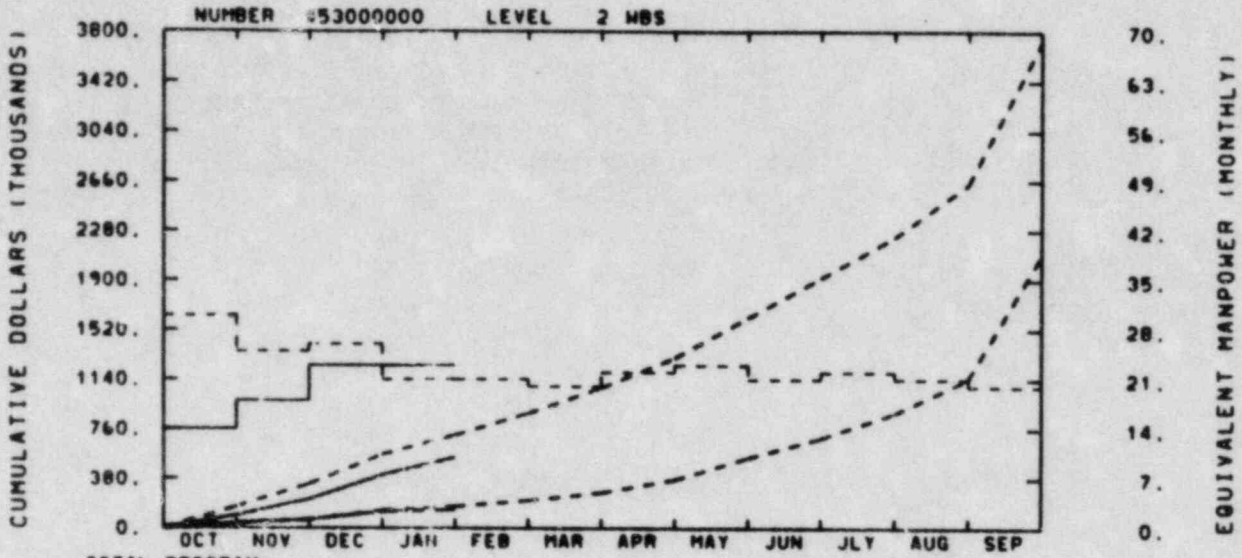
A Request for Proposal (RFP) package for the UPTF Main Data Acquisition System was mailed to prospective suppliers on January 28, 1983. A UPTF Video Probe preliminary design review was completed on January 21, 1983. The repaired LSI-11 computer system for the Fluid Distribution Grids and Liquid Level Detectors was installed and operation verified by INEL personnel in Japan. The refurbished upper plenum OLLD stalk was reinstalled in the CCTF facility in Japan along with a new graphics display terminal and associated software. New in-core Liquid Level Detectors were shipped to Japan for future installation into the SCTF core 2 facility.

RESPONSIBLE MANAGER
P. NORTH

EG&G IDAHO INC.

A6100 TECH SUPPORT & INSTRUMENT

NUMBER 453000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	165	336	563	712	878	1076	1306	1613	1918	2230	2636	3736
ACTUAL	98	220	408	542								

MATERIAL

BUDGET	35	65	133	167	212	272	372	540	690	881	1144	2094
ACTUAL	39	65	128	141								

MANPOWER

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

189 NO. A6100

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 46.9	$ 155.4
MATERIALS, SERVICES AND OTHER COSTS	1.6	110.1
ADP SUPPORT	1.4	2.6
SUBCONTRACTS	0.0	13.0
TRAVEL	7.7	8.4
INDIRECT LABOR COSTS	59.4	196.1
GENERAL AND ADMINISTRATIVE	17.1	56.1
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 134.1	$ 541.7

A6100

YTD VARIANCE: $170 (24%)

The year-to-date underrun is caused by: 1) spread of level-of-effort accounts is unequal to the spending rate, $45K; 2) the Upper Plenum Test Facility gamma densitometer work being behind schedule, $25K, and a cost savings of $20K; and 3) a delayed start on the SCTF-II, $55K, plus a cost savings of approximately $25K. The delays are not expected to impact commitment dates.

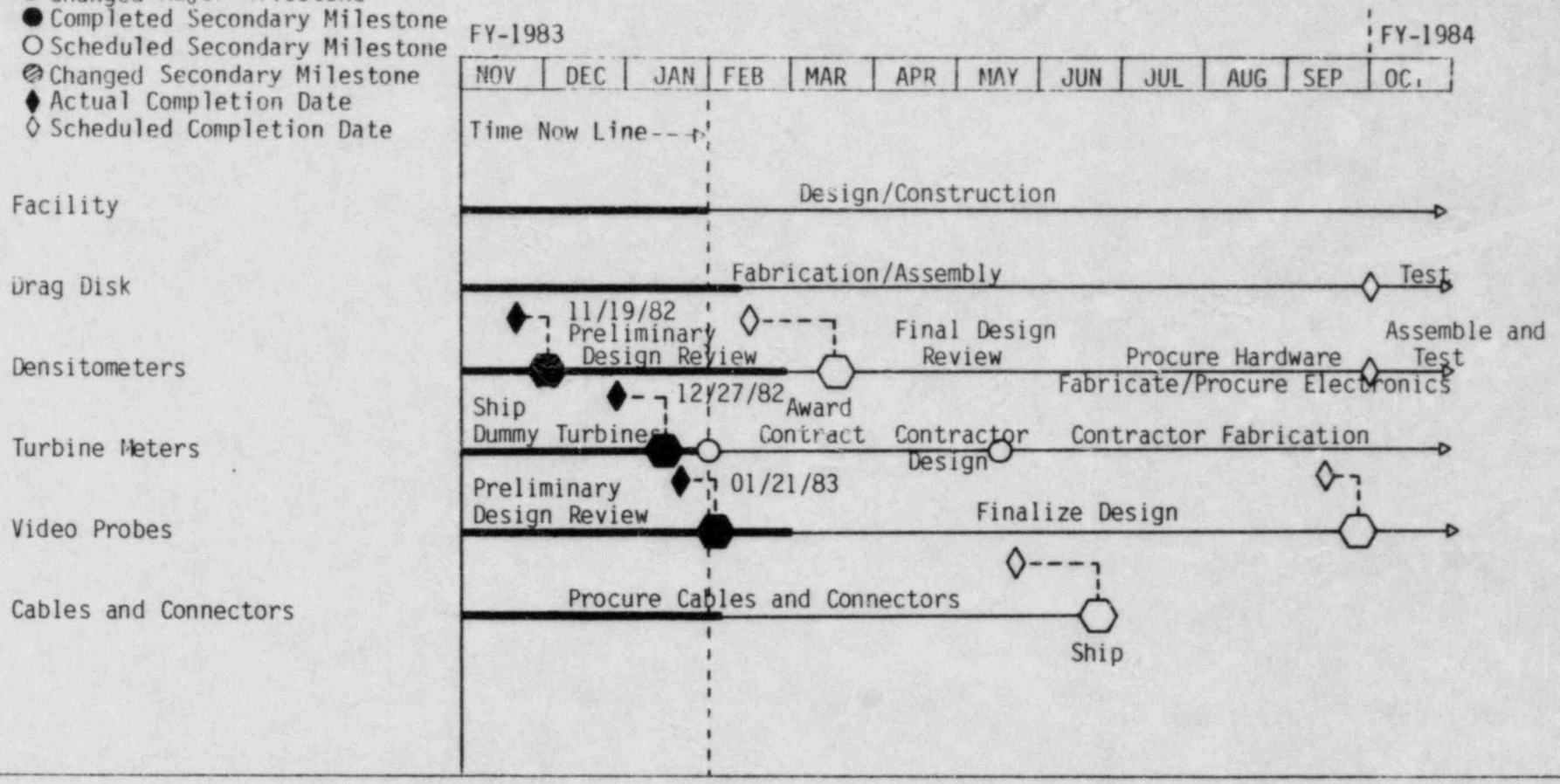
LEGEND

- 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)

January 1983



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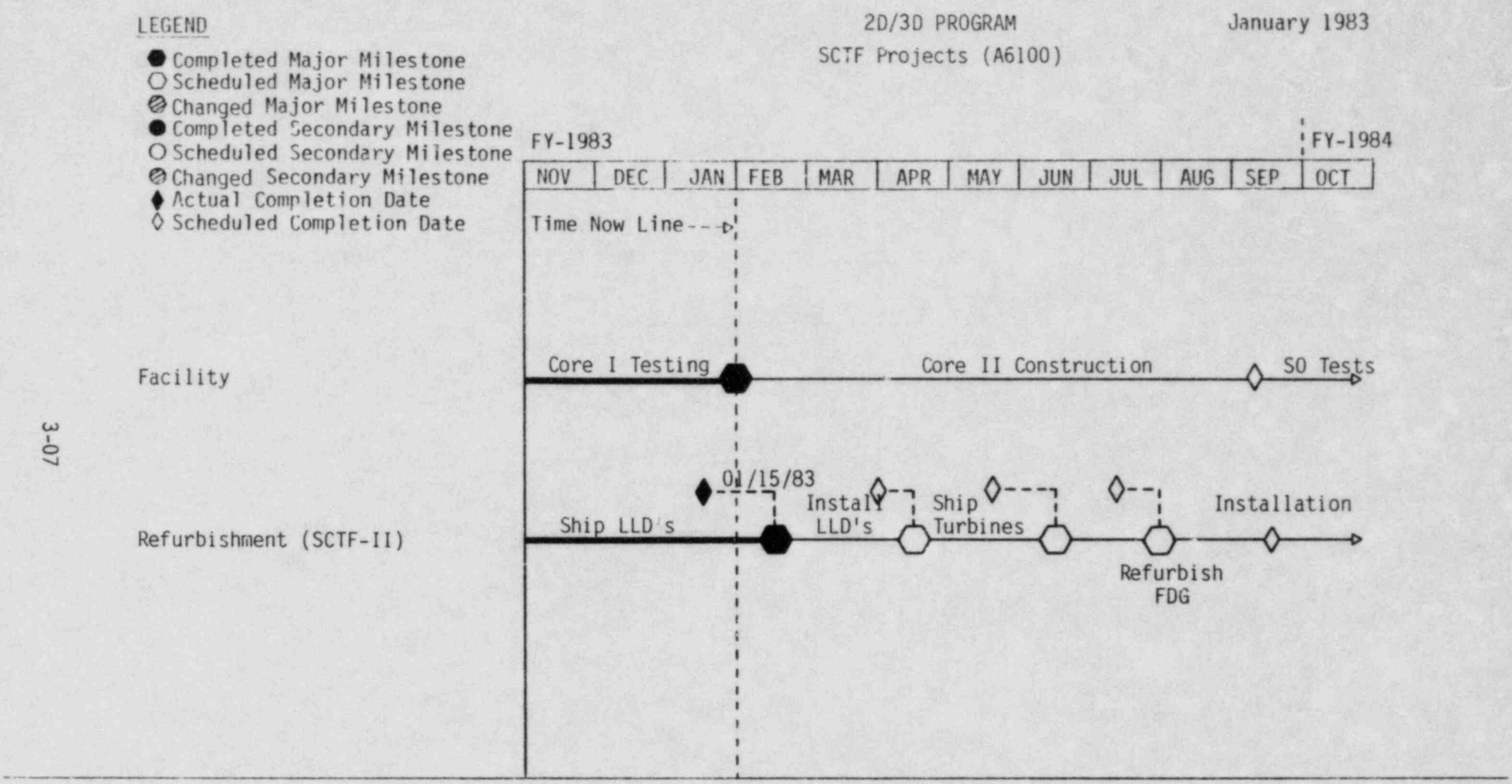

LEGEND
Completed Major Milestone
Scheduled Major Milestone
Changed Major Milestone
Completed Secondary Milestone
Scheduled Secondary Milestone
Changed Secondary Milestone
Actual Completion Date
Scheduled Completion Date
2D/3D PROGRAM
SCTF Projects (A6100)
January 1983
FY-1983
FY-1984
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
Time Now Line
Facility
Core I Testing
Core II Construction
SO Tests
01/15/83
Ship LLD's
Install LLD's
Ship Turbines
Refurbish FDG
Installation
Refurbishment (SCTF-II)

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 January 1983

Node	Description	Due Date	Actual Date
	Ship dummy turbine probes to Nurnberg	1-15-83	Pending*

* Dummy probes were shipped December 20, 1982 to arrive in Nurnberg on December 27, 1982. Probes were held up in Atlanta customs pending approval to release by the Department of Commerce.

2. Summary of Work Performed in January 1983

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 coil assembly has been initiated. Machining of parts for the drag-disk transducer has begun.

2. 453072000 - Gamma Densitometer

Final design of the densitometer system has progressed to approximately 60% completion. Fabrication of the electronic modules has continued on a low priority basis, proceeding to approximately 30% completion. The densitometer data system (DDS) computer and supporting hardware were received. The hardware was "hooked up" and programming of the computer to process the densitometer data and pass it to the main DAS has been initiated.

3. 453073000 - Turbine Meters

Bids on the UPTF Turbine Meter Systems were received from five companies. Evaluation of the proposals will be complete by month end.

4. 453074000 - Video Probes

The preliminary design of the UPTF Video Probe Systems was completed and the Preliminary Design Review was held on January 21, 1983.

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

1. 453091000 - Core II Refurbishment

The sole source justification letter and purchase requisition has been given to purchasing to obtain the eight UCSP turbine meters. Purchasing has sent the RFQ to Measurement Incorporated. The fabrication of the incore conductivity stalks was completed and the stalks were sent to JAERI in Japan. The purchase requisition for MgO cable was given to purchasing. The MgO cable will be used to refurbish the upper plenum and downcomer conductivity stalks.

2. 453092000 - Core III Refurbishment

A scheduling meeting was held at Sandia for the SCTF-II work effort. Sandia has made networks from the information gained at the meeting. The networks have been issued by Sandia.

C. Operational Support

1. 453013000 - FRG Operational Support

The densitometer detectors for the spool pieces were delivered to PKL by ORTEC-MUNICH. Another detector was found to be defective and was returned to ORTEC-MUNICH for repair.

2. 453023000 - JAERI Operational Support

The repaired LSI-11 System was installed and checked for proper operation in Japan. Circuit protectors were installed on the signal conditioning power to protect against power spikes generated by the JAERI electrical power system.

The refurbishment OLLD stalk was installed in the CCTF upper plenum on January 17, 1983 by INEL personnel.

3. Scheduled Milestones for February 1983

Node	Description	Due Date	Actual Date
	UPTF Video Probe Preliminary Design Review	02-03-83	01-21-83
	Ship incore LLD's	02-15-83	01-15-83

4. Summary of Work to be Performed in February 1983

A. FRG Upper Plenum Test Facility

1. 453071000 - Drag Disks

Fabrication will continue on a low priority basis with an estimate that coil assembly will proceed to 40% completion and machining parts for the drag-disk transducer will proceed to 10% completion. The remaining paperwork (SWRs) to complete the machining and assembly of the drag-disk transducers will be completed and given to manufacturing.

2. 453072000 - Gamma Densitometers

The final design will be completed, a design review package will be assembled; and a final design review will be conducted.

3. 45307300 - Turbine Meters

Selection of a subcontractor for fabrication of the UPTF turbine meter probe assemblies will be completed and the contract award made.

4. 453074000 - Video Probes

Action items from the preliminary design review will be evaluated and resolution initiated preparatory to starting final design activities.

B. JAERI Slab Core Test Facility

1. 453091000 - Core II Refurbishment

The purchase order will be issued for the eight UCSP turbine meters. The purchase order for the MgO cable will be issued, to be used to refurbish the upper plenum and downcomer conductivity stalks. Travel arrangements will be made for an EG&G employee to travel to Japan to remove the upper plenum and downcomer conductivity stalks and to install the new incore conductivity stalks.

2. 453092000 - Core III Refurbishment

No activity planned.

C. Operational Support

1. 453013000 - FRG Operational Support

No activity planned.

2. 453023000 - JAERI Operational Support

No activity planned.

5. Problems and Potential Problems

FRG UPTF Turbine Meters

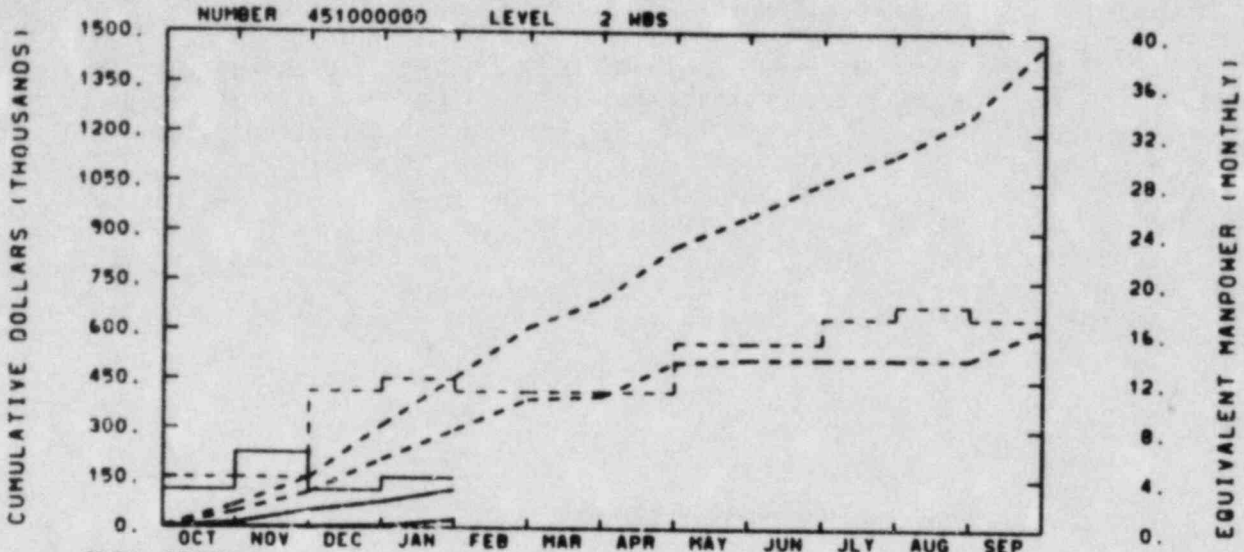
Information was received from FRG on January 25, 1983 indicating the turbine meter dummy probes had not arrived. The probes were shipped from INEL December 20, 1982 with arrival in Nurnberg scheduled for December 27, 1982. The probes were rerouted through Atlanta, Georgia where U.S. customs held them pending release approval from the Department of Commerce to secure the release of the probes and continue delivery to FRG.

RESPONSIBLE MANAGER
P. 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	111								

MATERIAL

BUDGET	46	105	206	295	389	399	502	513	514	514	514	613
ACTUAL	0	2	6	23								

MANPOWER

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

BUDGET ------

ACTUAL ——

189 NO. A6282

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 7.3	$ 34.4
MATERIALS, SERVICES AND OTHER COSTS	14.1	19.5
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	2.9	2.9
INDIRECT LABOR COSTS	5.6	45.4
GENERAL AND ADMINISTRATIVE	3.1	12.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 37.0	$ 114.4

A6282

YTD VARIANCE: 340 (75%)

The year-to-date underrun is caused by $270K of uncosted materials plus $70K of unused fabrication labor associated with the late delivery of probe tips from the vendor. No completion dates are expected to be impacted.

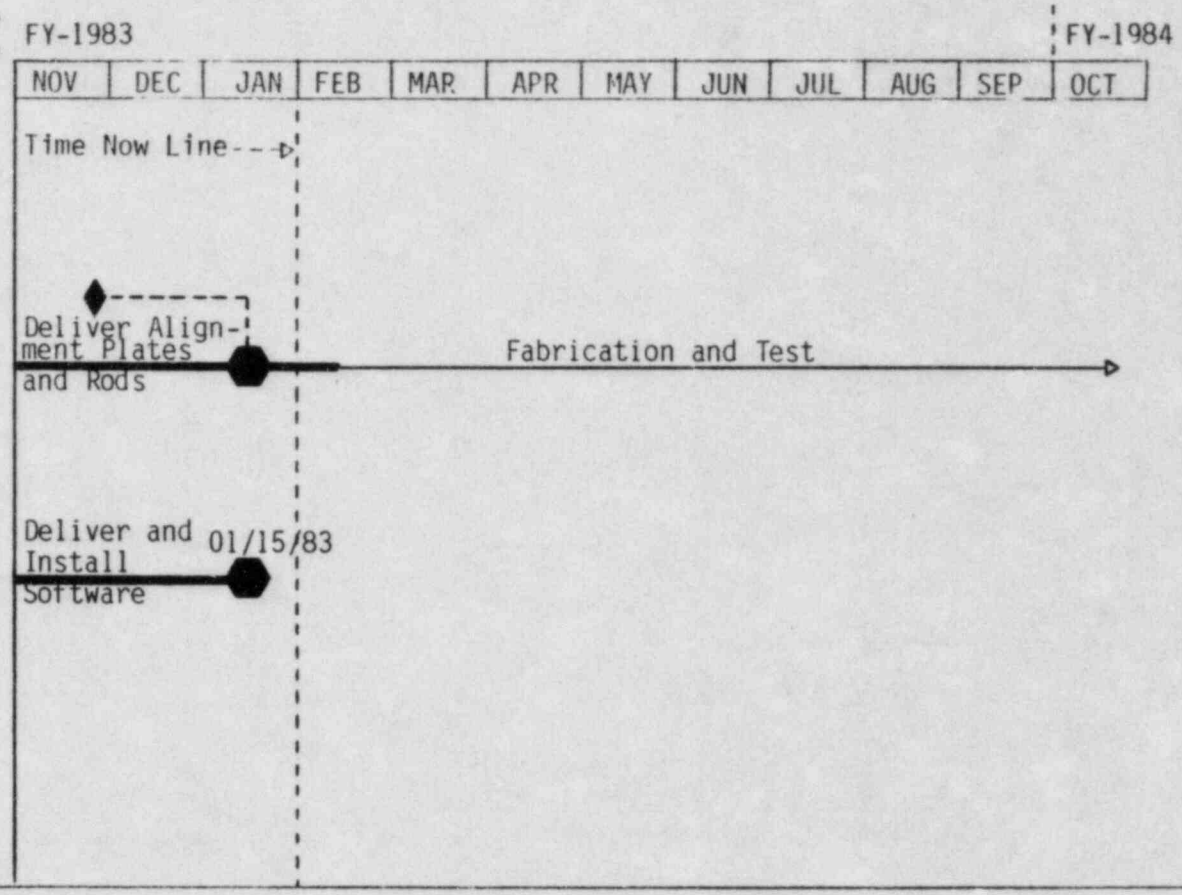
LEGEND

- ● 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

January 1983

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 January 1983

Node	Description	Due Date	Actual Date
	Deliver and install OLLD software	1-15-83	1-14-83

2. Summary of Work Performed in January 1983

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

The FRG optical system software users manual and additional pages to the operation and maintenance for CCTF-II FDG measurement system was completed and distributed. Installation of the AED terminal and software for FDG system in Japan was completed. The demonstration of the FDG display was given to JAERI personnel in Japan and was accepted by them.

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

Source inspection was performed on the optical fiber and was accepted. The first shipment of optical fiber has been received. Three sample optical tips have been received from the vendor. The conax seals for the upper plenum FDG/LLD stalks was ordered. The sole source justification letter for optical detectors was completed and given to purchasing. Acceptance of some pressure boundary material has been delayed until FRG accepts the concept that Certificate of Conformance is adequate for their needs. The probe assembly procedure was completed and issued.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

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

No activity planned.

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

The three sample optical tips will be helium leak tested and thermal shock tested. Source inspection will be performed on the optical tips. Fabrication of components for the probe and stalk assemblies will commence. Procurement of electronic parts for signal conditioners will continue.

5. Problems and Potential Problems

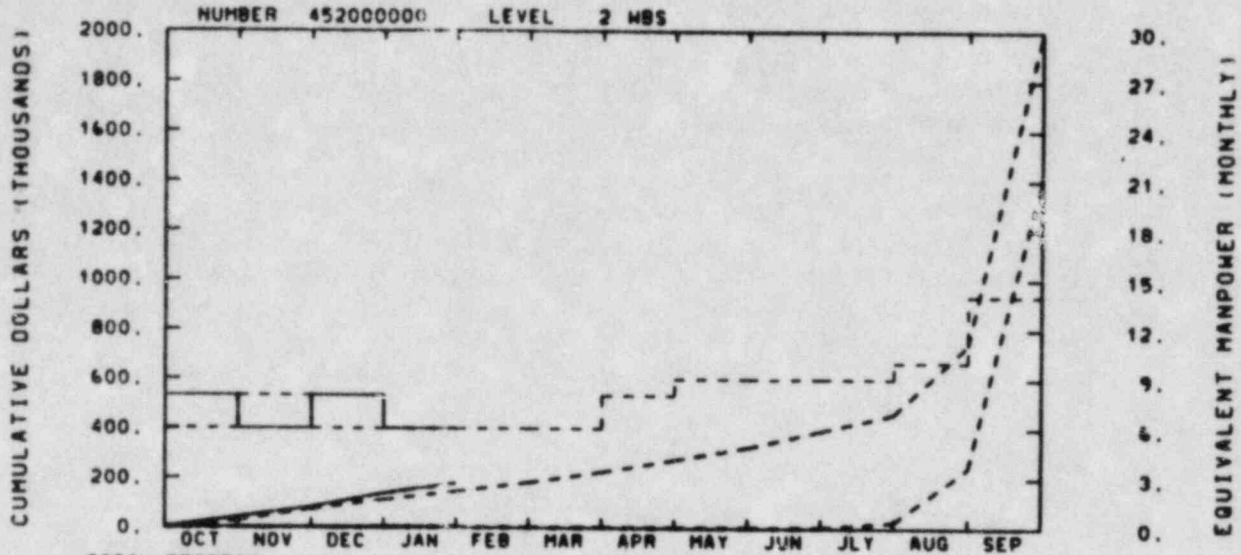
None.

RESPONSIBLE MANAGER
P. NORTH

EG&G IDAHO INC.

A6289 UPTF DAS

NUMBER 452000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	29	73	112	147	183	225	275	326	392	460	741	1997
ACTUAL	42	82	138	180								

MATERIAL

BUDGET	0	1	2	2	3	3	4	5	5	26	242	1400
ACTUAL	1	2	4	5								

MANPOWER

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

199 NO. A6289

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 15.7	$ 66.1
MATERIALS, SERVICES AND OTHER COSTS	0.5	3.6
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.6
INDIRECT LABOR COSTS	20.7	87.2
GENERAL AND ADMINISTRATIVE	5.2	22.1
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 42.1	$ 179.6

A6289

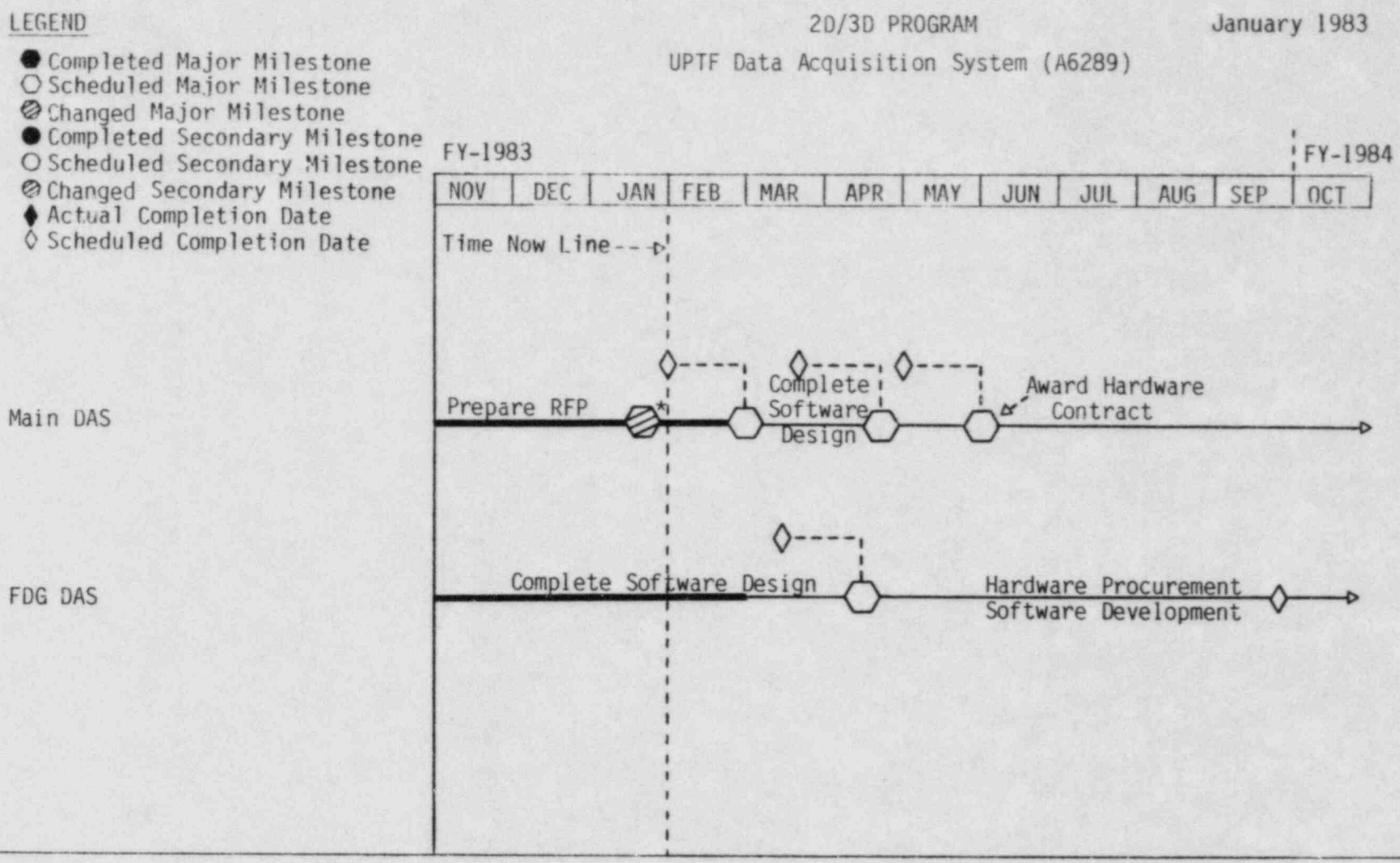
YTD VARIANCE: (33) (22%)

The year-to-date overrun is primarily caused by a rate variance in the support organizations. The situation is being monitored and no year-end problems are anticipated.

2D/3D PROGRAM

January 1983

UPTF Data Acquisition System (A6289)



NOTES: * Reference CCB 3D 83-05.

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 January 1983

None.

2. Summary of Work Performed in January 1983

The Implementation Plan and System Study for the Main DAS were approved by DOE. The RFP for the Main DAS was completed and mailed on January 28. The System Study for the FDG DAS was completed and signed off by Engineering Managers and 2D/3D Projects Office.

Work continued on the FRG DAS Hardware and Software Specifications, and the Main DAS Software Design Specification.

3. Scheduled Milestones for February 1983

Node	Description	Due Date	Actual Date
	Mail Main DAS RFP	2-28-83	1-28-83

4. Summary of Work to be Performed in February 1983

An evaluation committee will be formed and prepared for the evaluation of the Main DAS Hardware proposals due March 3. Work will continue on the Main DAS Software Design Specification and a first draft should be ready for review in February. Work will continue on the FRG DAS Hardware and Software Specifications.

5. Problems and Potential Problems

None.

MONTHLY REPORT FOR

JANUARY 1983

NUCLEAR SAFETY METHODS DIVISION

F Aguilar / JM Howe

F. Aguilar, Manager

L Morgan

L. Morgan
Plans and Budget Representative

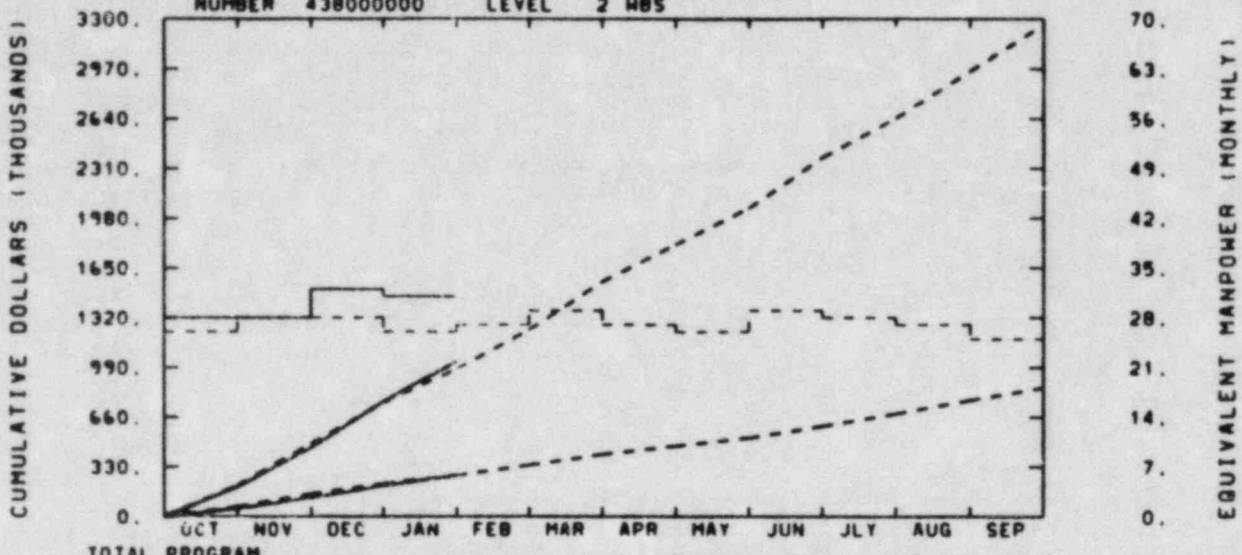
RESPONSIBLE MANAGER

F. Aguilar

EG&G IDAHO INC.

NUCLEAR SAFETY METHODS DIVISION

NUMBER 438000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	207	484	754	979	1238	1557	1806	2046	2381	2642	2954	3261
ACTUAL	195	453	762	1028								

MATERIAL

BUDGET	67	150	219	273	341	411	468	520	600	682	771	856
ACTUAL	54	123	203	274								

MANPOWER

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

YTD VARIANCE: (49) (5%)

Individual cost graphs will give individual explanations.

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

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

FRAP-T6 improvement is progressing ahead of schedule. Improved modeling of pellet-cladding mechanical interaction (PCMI) was inserted into a new version of FRAP-T6/MOD0, which was sent to the National Energy Software Center (NESC). The improved PCMI analysis had been planned for MOD1, which is to be released to the NESC in July.

The assembly of TRAC-BD1/MOD1 continued as did work on parallel activities including modification and checkout of a level tracking model. Modification of the interfacial shear package enabled resumption of the transient heat transfer studies.

Development of RELAP5/MOD2 made good progress. Incorporation of a two-energy equation formulation is somewhat ahead of schedule.

SCDAP/MOD1 design activities continued as scheduled. Post-test comparisons of SCDAP/MOD0 calculations with PBF's SFD-ST data were presented at a January 21 meeting of the ACRS. This analysis confirms that phenomenological modeling (like SCDAP) of core damage progression is feasible and has significance in enabling quantification of uncertainties in PRAs.

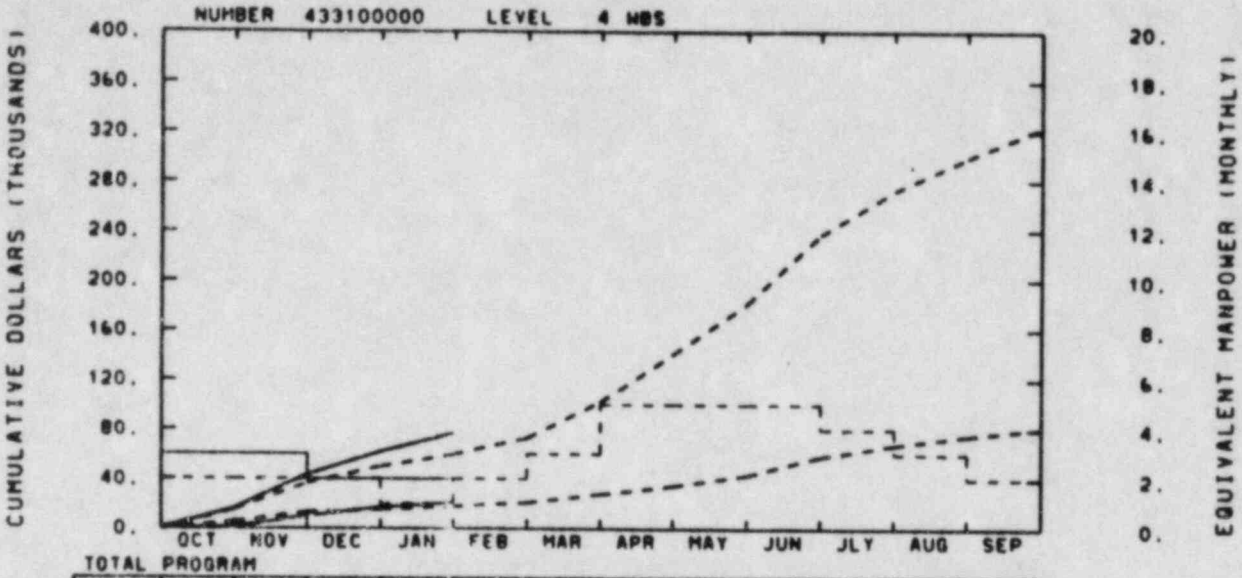
Coordination and development of the Nuclear Plant Analyzer continued to make good progress with the early publication of a draft conceptual design document.

RESPONSIBLE MANAGER
T. HOWE

EG&G IDAHO INC.

FUEL BEHAVIOR MODEL DEV (A6050)

NUMBER 433100000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	15	36	50	60	73	102	141	181	237	272	299	323
ACTUAL	16	43	62	77								

MATERIAL

BUDGET	5	13	15	18	21	28	35	43	58	68	75	81
ACTUAL	1	10	17	21								

BUDGET ------
ACTUAL ——————

MANPOWER

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

189 NO. A6050

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 4.1	$ 20.5
MATERIALS, SERVICES AND OTHER COSTS	0.6	2.5
ADP SUPPORT	2.3	14.5
SUBCONTRACTS	0.0	0.0
TRAVEL	0.3	1.1
INDIRECT LABOR COSTS	5.8	28.6
GENERAL AND ADMINISTRATIVE	1.8	9.4
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 14.9	$ 76.6

A6050

YTD VARIANCE: (17) (28%)

The $17K overrun reflects the fact that more effort has been expended on the FRAP-T6 improvement task than was planned. As a result, the task is progressing ahead of schedule, and no year-end closing problems are foreseen.

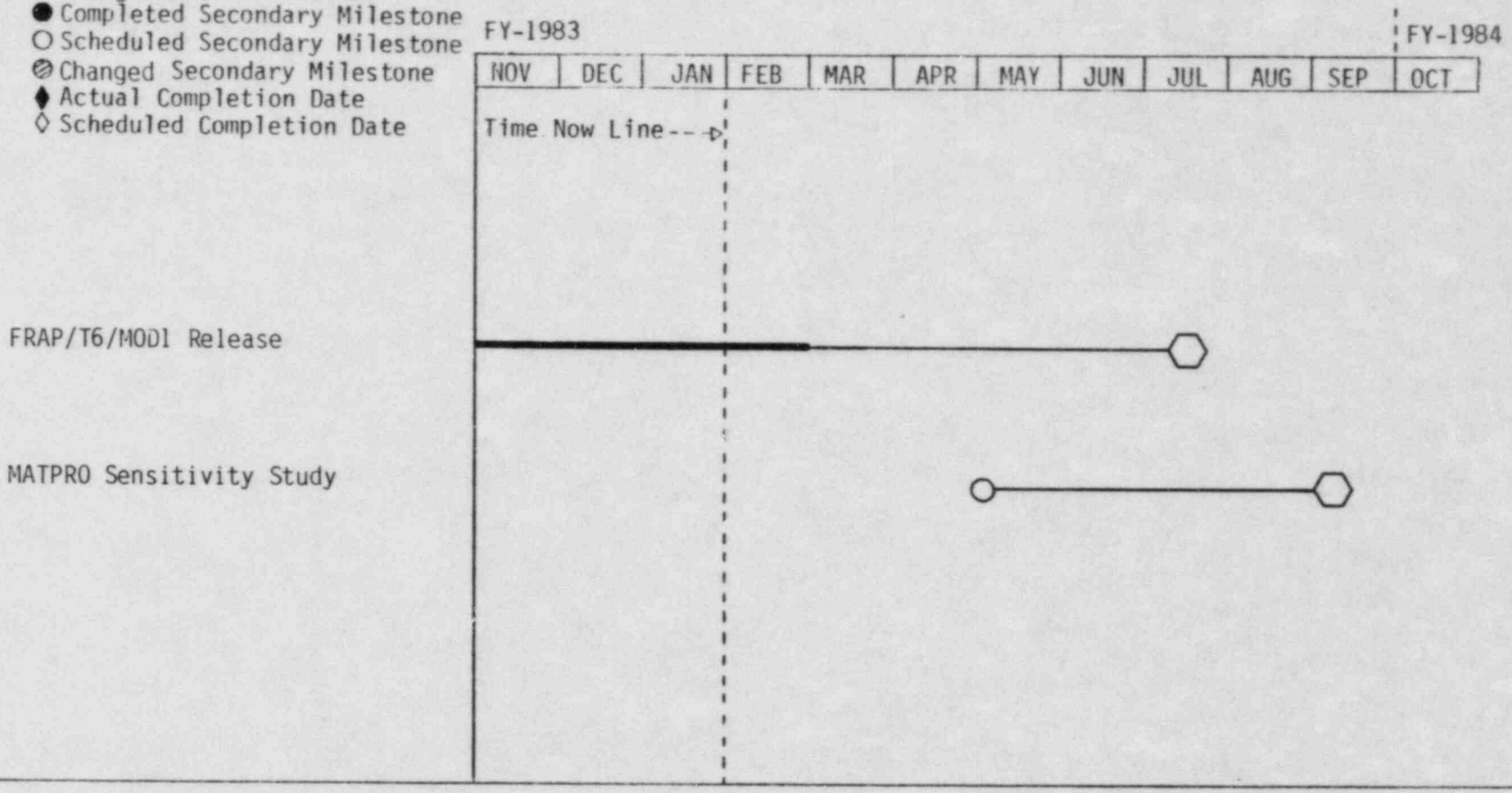
LEGEND

- ● 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

Fuel Behavior Model Development (A6050)

January 1983



NOTES: The FRAP-T6/MOD1 Release and MATPRO Sensitivity Study milestones are based on work scope agreement per F. Aguilar letter to J. E. Solecki (FA-130-82).

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 January 1983

None

2. Summary of Work Performed in January 1983

a. FRACAS-II

The letter report describing the results of the pellet-cladding mechanical interaction (PCMI) study using FRAP-T6 was expanded to include an overall plan of PCMI development for FRAP-T6. As a result, the report was not issued during January. The report will be provided to DOE/NRC during early February. This early assessment of the new FRACAS-II models supports completion of the FRAP-T6/MOD1 milestone activity.

b. FRAP-T6

A new version of FRAP-T6/MOD0 and the documentation required for its use were transmitted to the National Energy Software Center. This version includes: improved PCMI analysis (early axial PCMI, fuel relocation, trapped fuel stack and axial fuel slippage), flow area reduction due to ballooning, Powers-Meyer model of cladding ballooning, iodine release, EPRI's model for stress-corrosion-cracking assisted cladding failure, improved time-step control algorithm, FLECHT-SEASET correlation, and other corrections and improvements.

189 A6050

2. Summary of Work Performed in January 1983 (continued)

b. FRAP-T6 (continued)

The improved PCMI modeling was completed earlier than planned and hence was provided to NESC in this version of MOD0. The models were to have been provided to users in the MOD1 version to be released during July. The evaluation of the change in FRAPCON-2 code structure done at PNL was completed and indicates that the same scheme if used in FRAP-T6 will not result in a significant reduction in code running time (<5%). As a consequence, this approach will not be incorporated in FRAP-T6/MOD1. Because the new FRACAS-II models were included in MOD0, incorporation of PARAGRASS is the only activity remaining before the MOD1 code version can be created.

c. Transient Fuel Behavior Models

Argonne National Laboratory has studied a SCDAP/MOD0 listing to determine how to restructure PARAGRASS for incorporation into SCDAP. A meeting with ANL and PNL will be held during early February at the INEL to clearly define how PARAGRASS will interface with SCDAP/MOD0, FRAP-T6, and FRAPCON-2. PARAGRASS is needed to complete both the FRAP-T6/MOD1 milestone of this 189 and the SCDAP/MOD0/V2 milestone of 189a A6360.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

a. FRACAS-II

A report presenting the results of the PCMI study and the development plan for FRAP-T6 PCMI modeling will be transmitted to DOE/NRC.

b. FRAP-T6

A design report describing the updates to create FRAP-T6/MOD1 except for the PARAGRASS updates and describing the evaluation results of the FRAPCON-2 solution scheme study will be completed. A meeting will be held at the INEL with PNL personnel during early February to ensure consistency between FRAPCON-2 and FRAP-T6 and to exchange information needed to efficiently maintain these codes.

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

c. Transient Fuel Behavior Models

A meeting will be held at INEL with ANL and PNL personnel during early February to clearly define how PARAGRASS will be structured so that it accomodates the needs of SCDAP, FRAP-T6, and FRAPCON-2.

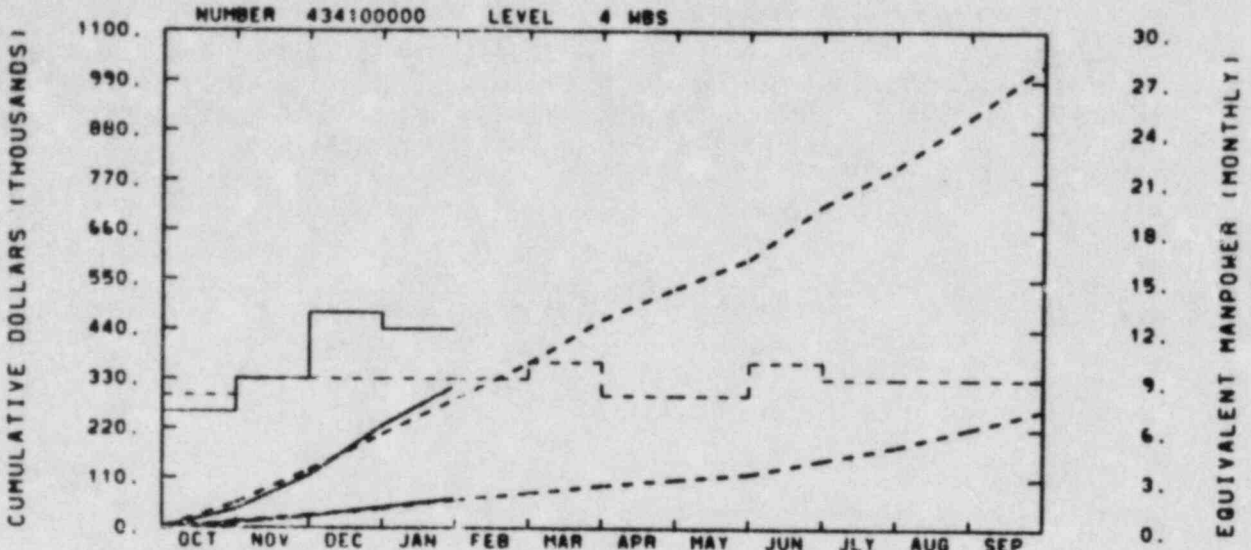
5. Problems and Potential Problems

None.

RESPONSIBLE MANAGER
A.C. PETERSON, JR

EG&G IDAHO INC.

Code Development & Improvement Transient Analysis (A6052)



TOTAL PROGRAM

BUDGET	54	128	207	284	364	461	531	597	714	799	910	1027
ACTUAL	40	116	226	314								

MATERIAL

BUDGET	13	28	43	62	77	94	108	121	151	182	222	263
ACTUAL	11	26	46	65								

MANPOWER

BUDGET	8	9	9	9	9	10	8	8	10	9	9	9
ACTUAL	7	9	13	12								

189 NO. A6052

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 26.0	$ 92.7
MATERIALS, SERVICES AND OTHER COSTS	3.9	7.1
ADP SUPPORT	5.7	44.3
SUBCONTRACTS	0.0	0.0
TRAVEL	2.5	5.3
INDIRECT LABOR COSTS	35.3	126.2
GENERAL AND ADMINISTRATIVE	10.8	38.6
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 88.2	$ 314.2

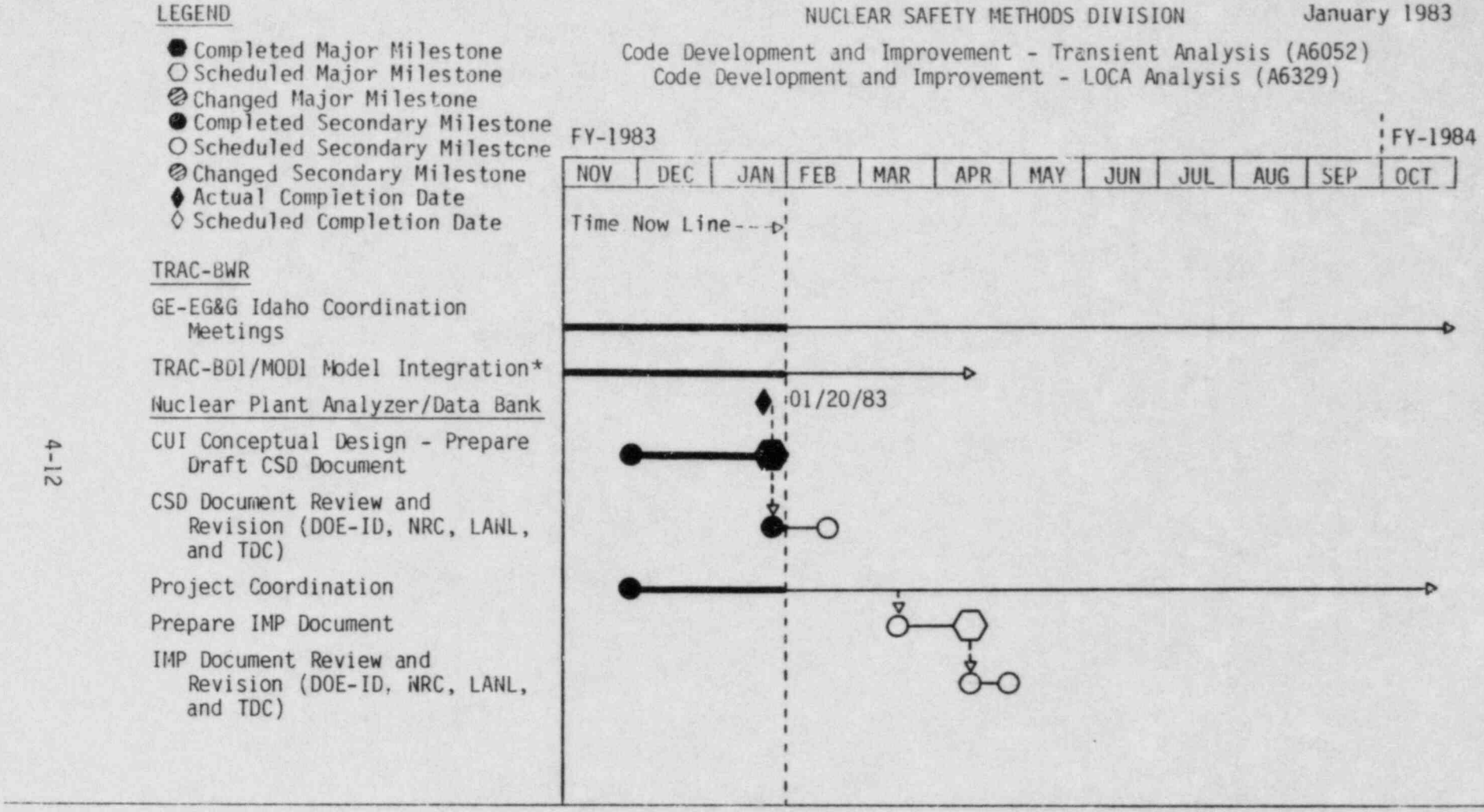
A6052

YTD VARIANCE: (30) (11%)

This is the original budget as of October, 1982. The overall budget was not revised because of anticipated changes to the TRAC-BWR task. The apparent $30K overrun is NPA related, and is in accordance with plan. The entire budget will be revised next month to account for the December plan for the NPA and revised TRAC-BWR plans.

NUCLEAR SAFETY METHODS DIVISION January 1983

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 January 15 GE-EG&G Idaho coordination meeting was canceled. The next meeting has not been determined as yet.

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 January 1983

Node	Description	Due Date	Actual Date
FA-136-82	Draft CSD Document	01/24/83	01/20/83

2. Summary of Work Performed in January 1983

a. Boiling Water Reactor (BWR) TRAC Development

1. TRAC-BD1/MOD1 Development

The assembly of TRAC-BD1/MOD1 was continued by incorporating the forward and reverse loss coefficients and heat transfer models into an official version of the code. The creation of an official code version including a noncondensible gas model and the effect of noncondensibles on critical flow was initiated. The remaining two models that were developed as part of the committed workscope for MOD1 development will be incorporated into official versions of the code and contained in the released version of MOD1.

2. Parallel Activities

The 3-D level model supplied by General Electric was modified and checked out as a working model. The documentation of the model was initiated. This model will e included in a future official version of MOD1.

Completion reports documenting the forward and reverse loss coefficients, noncondensible gas model and dynamic dimensioning modifications were issued.

2. Summary of Work Performed in January 1983 (continued)

a. Boiling Water Reactor (BWR) TRAC Development (continued)

2. Parallel Activities (continued)

The development of a separator/dryer model that has 1-D capability was initiated.

3. User Assistance

Assistance was provided to Reactor Simulation Analysis Branch personnel to support their TRAC-BD1 analysis of the steam sector test facility. Assistance was also provided to PBF to support their test prediction analyses for which they are using TRAC-BWR.

Project briefing and discussion were held with Dr. N. Aksan of the Swiss Federal Institute for Reactor Research, Wuerentinger, Switzerland. Dr. Aksan is performing analyses of the Neptune boil-off experiments using TRAC-BD1.

A letter was received from Hideto Aoki of the Neg. Tashiba corporation identifying difficulties in performing TRAC-BD1 calculations. A response to this letter was initiated. The response will be transmitted early next month.

4. Management Issues

An initial draft of the program plan for TRAC-BWR code development was completed. The final plan will be issued early next month.

b. RELAP4/MOD5 and MOD7 Maintenance

At the request of the NRC, the level of maintenance of RELAP4/MOD5 and MOD7 was changed from Level 1 to maintenance of a tape which will be updated with system changes. This activity will not be reported in future monthly reports.

c. Nuclear Plant Analyzer (NPA) Development and Coordination

A draft of the preliminary conceptual design document (SDD-83-001) for the NPA common user interface was distributed to Los Alamos National Laboratory (LANL) and Technology Development of California (TDC) on January 14, 1983 to allow review in advance of the working group meeting then scheduled for January 24, 1983. Wider distribution of the conceptual design

2. Summary of Work Performed in January 1983 (continued)

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

document was held up in order to incorporate functional requirements prepared by NRC/DAE. These were not received in time to incorporate in the preliminary design document, and the document was distributed to NRC and DOE-ID on January 20, 1983, ahead of schedule. The working group meeting was subsequently postponed to February 8-10, 1983 at the request of O. E. Bassett. TDC comments on the preliminary functional requirements (WR-NSMD-80-82) were received, acknowledged, and discussed. None were major concerns. The NRC functional requirements were received, and organization of them into presentation format began.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

a. Boiling Water Reactor (BWR) TRAC Development

1. TRAC-BD1/MOD1 Development

The noncondensible gas model and containment model will be incorporated into official code versions.

2. Parallel Activities

The completion report documenting the 3-D level model will be completed and issued. The development of a separator/dryer model will continue. The water and steam properties will be extended for use in feedwater heaters and condensers. This extension will be based on modifications supplied by LANL. These new models will be included in future official versions of the code.

3. User Assistance

A response to the letter from Hideto Aoki of the Neg. Toshiba Corporation resolving difficulties encountered in performing TRAC-BD1 calculations will be issued.

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

a. Boiling Water Reactor (BWR) TRAC Development (continued)

4. Management Issues

The final program plan will be issued and a new budget developed.

b. RELAP4/MOD5 and MOD7 Maintenance

The tapes of these codes will continue to be maintained.

c. Nuclear Plant Analyzer (NPA) Development and Coordination

Organization of NRC functional requirements into a presentation will be completed. The working group meeting will be held February 8-10 at LANL. The purpose of the meeting is to reach agreement on functional requirements and conceptual design. Also, implementation issues will be determined along with LANL, TDC, and INEL positions on the respective issues. Another goal is to reach agreement on how to close with NRC on the issues. Changes to the functional requirements and conceptual design stemming from the meeting will be worked.

5. Problems and Potential Problems

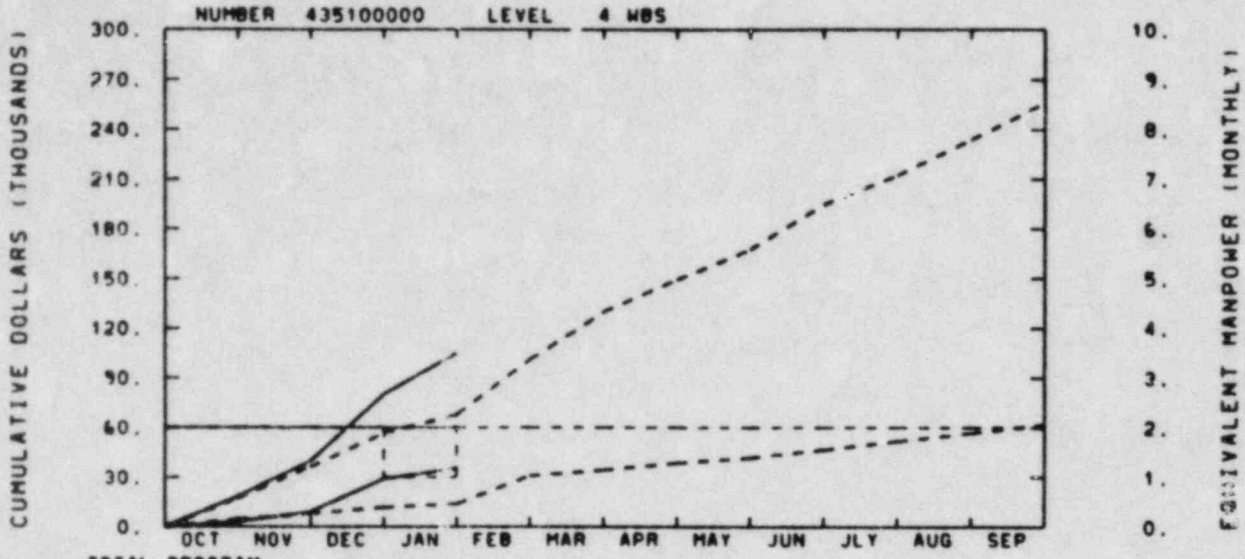
None.

RESPONSIBLE MANAGER
A.C. PETERSON, JR

EG&G IDAHO INC.

TRAC BWR HEAT TRANSFER

NUMBER 435100000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	17	36	56	69	101	130	149	167	194	212	234	256
ACTUAL	18	40	80	105								

MATERIAL

BUDGET	5	8	12	14	31	34	39	42	46	52	57	62
ACTUAL	3	9	29	35								

MANPOWER

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

BUDGET - - - - - -
ACTUAL ———

189 NO. A6278

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 6.8	$ 25.5
MATERIALS, SERVICES AND OTHER COSTS	0.0	1.0
ADP SUPPORT	5.6	22.4
SUBCONTRACTS	0.0	8.9
TRAVEL	0.0	0.1
INDIRECT LABOR COSTS	9.5	35.5
GENERAL AND ADMINISTRATIVE	3.1	11.8
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 25.0	$ 104.9

A6278

YTD VARIANCE: (37) (54%)

The program plan for this taak is under development and review because of a change in the initial work scope. This task will be rebudgeted next month consistent with the work plan.

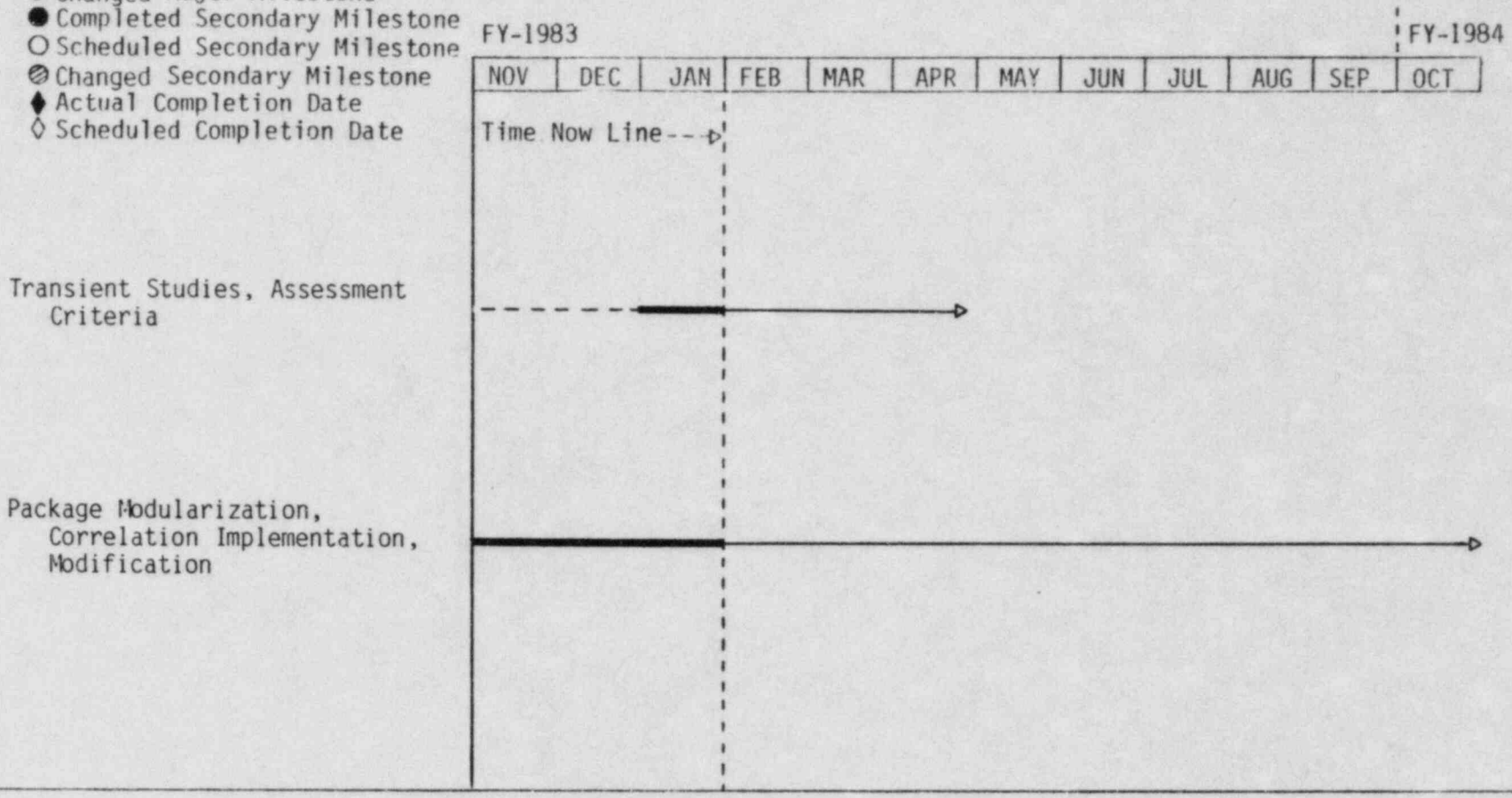
LEGEND

- ● 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

Heat Transfer (A6278)

January 1983



NOTES: The interfacial shear problem was resolved and the transient study was resumed this month. The schedule will be coordinated with the release of MOD1.

Interim heat transfer work is defined and progressing under the package modularization task.

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 January 1983

None.

2. Summary of Work Performed in January 1983

a. Transient Studies

A set of modifications to the interfacial shear package that gave stable solutions to the Lehigh post-CHF heat transfer tests were tested against other experimental results. These results were also stable and this set of modification will be used in the heat transfer study. The transient heat transfer study was resumed using Thermal Hydraulic Test Facility (THTF) data. The schedule for this task will be developed based on the release of MOD1 as identified in the final work plan of TRAC-BD1/MOD1 development.

b. Package Modularization

Testing of the moving mesh reflood model for the channel wall during reflood was continued.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

a. Transient Studies

The transient heat transfer study will continue using data from other experimental facilities. The work and schedule for this study will be established.

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

b. Package Modularization

The final checkout of the moving mesh reflood model will be completed.

5. Problems and Potential Problems

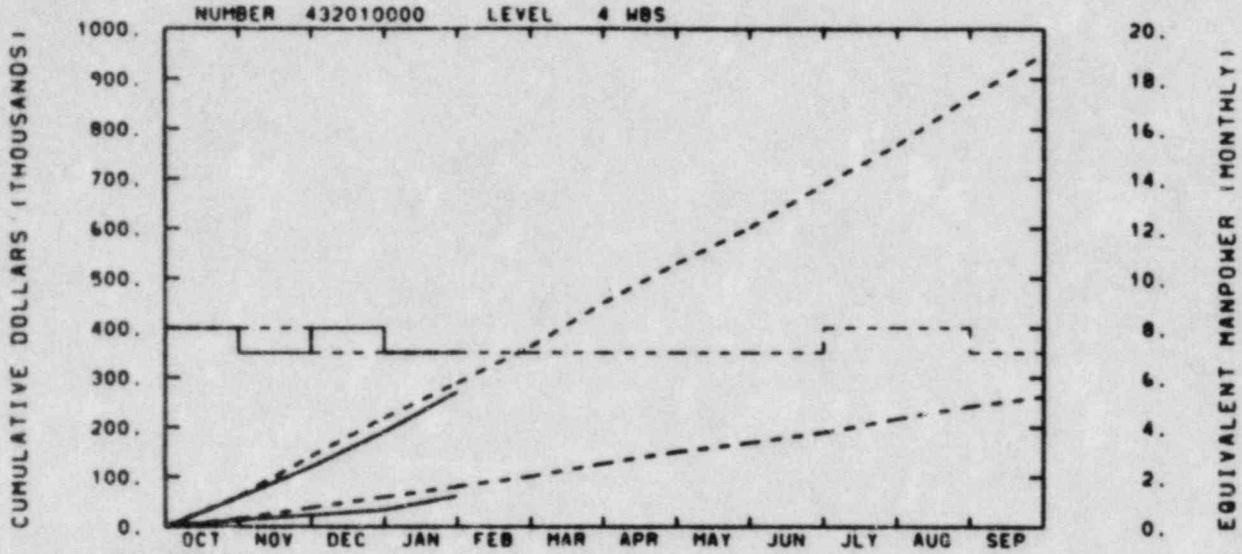
None.

RESPONSIBLE MANAGER
V. RANSOM

EG&G IDAHO INC.

RELAP 5 (A6330)

NUMBER 432010000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	60	141	219	289	362	449	529	602	688	767	863	950
ACTUAL	59	120	191	270								

MATERIAL

BUDGET	15	39	60	81	101	127	151	168	189	217	242	262
ACTUAL	13	24	34	62								

MANPOWER

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

BUDGET
ACTUAL

189 NO. A6330

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 19.2	$ 76.5
MATERIALS, SERVICES AND OTHER COSTS	3.5	11.7
ADP SUPPORT	8.5	27.1
SUBCONTRACTS	11.6	11.6
TRAVEL	1.8	5.1
INDIRECT LABOR COSTS	26.8	106.8
GENERAL AND ADMINISTRATIVE	8.3	31.8
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 79.7	$ 270.6

A6330

YTD VARIANCE: 19 (7%)

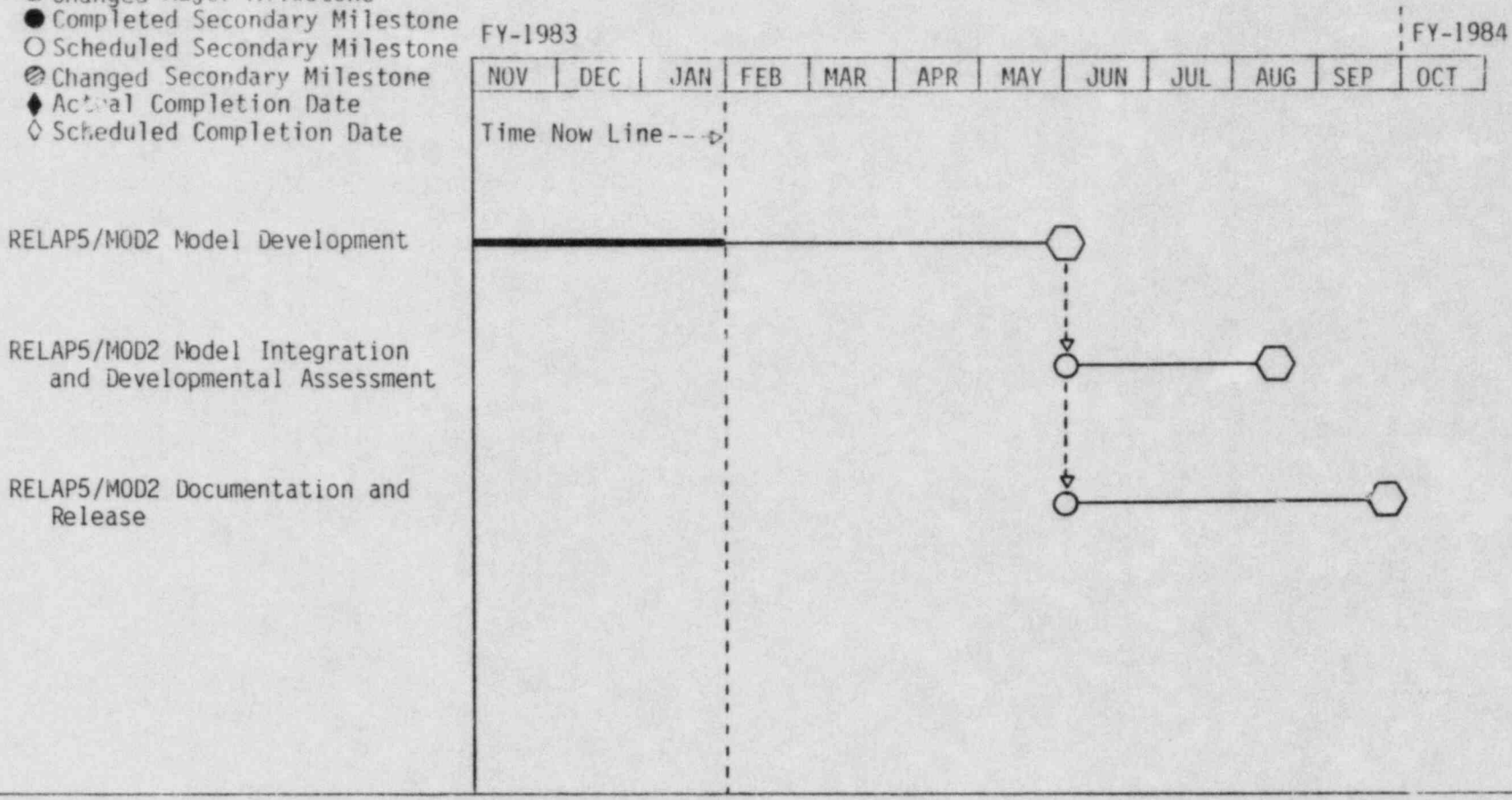
LEGEND

- 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

RELAP5 (A6330)

January 1983



NOTES: The RELAP5 milestones are based on work scope agreement per F. Aguilar letter to J. E. Solecki (FA-112-82).

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 January 1983

None.

2. Summary of Work Performed in January 1983

a. Programmatic Support

An invited lecture was presented at the ANS Second International Meeting on Nuclear Thermal Hydraulics. The lecture covered numerical methods used in thermal hydraulic codes and included results from frequency response tests using the RELAP5 code. These tests confirm the basic stability of the RELAP5 numerical scheme. A mission statement and the associated program requirements for the RELAP5 project were prepared and transmitted to the DOE and NRC project managers for use in future planning.

A coordination meeting was held with NTAP personnel in order to reach agreement on the features to be included in the MOD1.6 code. This code version will contain all features from the MOD1.5 code and the experimental code version, XELAP5, necessary for applications work including the operator guidelines evaluation task. Users will not be able to use the experimental code in the next few months because it will be undergoing revision to include the new full nonequilibrium constitutive models.

2. Summary of Work Performed in January 1983 (continued)

a. Programmatic Support (continued)

Project briefings were provided to Dr. H. Staedtke of the Joint Research Center, ISPRA, Italy and Dr. N. Aksan, of the Swiss Federal Institute for Reactor Research, Wuerenlingen, Switzerland.

A journal article documenting the theory of the RELAP5 two-phase choked flow mode was published in the International Journal of Multiphase Flow, Vol. 8, No. 6, pp. 669-681, 1982. A second journal article entitled "Hyperbolic Two-Pressure Models for Two-Phase Flow" has been accepted for publication in the Journal of Computational Physics.

The RELAP5/MOD1 developmental assessment report was not issued during January. This report has been written and needs review before it can be issued. The task has been progressing on a low level of effort so as to not interfere with completion of MOD2. The review is expected to be completed during February.

b. RELAP5/MOD2 Development

Constitutive Model Development

The completion reports for the heat transfer model with noncondensibles, the heat transfer coupling, and the improved interphase drag model were issued. The proposal for the complete nonequilibrium model, including the vapor generation model and the wall heat transfer extensions, was issued. The two energy equation hydrodynamic model was checked and a test problem having no mass transfer (water faucet problem) was run successfully. The common blocks of the code have been revised to include the new variables associated with the full nonequilibrium model and the Edward's pipe problem was run successfully using the full nonequilibrium vapor generation model. These tasks are slightly ahead of schedule.

Fuel Model

The completion report for the new ANS decay heat standard was issued. Work was initiated on the gap conductance model proposal. However, the model proposal was not completed as was expected. The modeling approach will be decided during February at which time the impact can be assessed and corrective actions taken.

2. Summary of Work Performed in January 1983 (continued)

b. RELAP5/MOD2 Development (continued)

Balance of Plant Models

The completion report for the additional control component was issued. Some rework of the separator model was necessitated by changes to the interphase drag constitutive model. These changes have been checked and installed in the code.

A design proposal for the shaft component was prepared and work was initiated on the programming. This component will be used to couple pumps, turbines, motors, and generators.

Some redevelopment work on the separator model in RELAP5/MOD1.5 and XELAP was required to resolve incompatibilities with the improved interphase drag model. This work was completed and documented in a notegram.

User Convenience

The improvements to the internal plot package were completed and completion report was written. The steady state model improvements (improved edits and use of low specific heats in conductors to accelerate thermal transients) were completed and a completion report was prepared and will be issued in February.

c. Configuration Control and Problem Resolution

With the creation of RELAP5/MOD1.6, there are four versions of the code under project configuration control and maintenance. These include RELAP5/MOD1, RELAP5/MOD1.5, RELAP5/MOD1.6 and XELAP5. RELAP5/MOD1.6 was created this month to provide INEL internal users with a version of the code containing the latest interactive features of the experimental code. This was necessitated by extensive changes being made to XELAP5 to install the full nonequilibrium capability.

There were 31 user motivated actions generated this month. These actions, combined with development additions, required the creation and testing of six cycles of XELAP5, one cycle of RELAP5/MOD1.5, and the creation of RELAP5/MOD1.6. The update synopses of these code versions were revised and distributed. One RELAP5/MOD1/Cycle 19 code transmittal was made to ISPRA, Italy.

2. Summary of Work Performed in January 1983 (continued)

c. Configuration Control and Problem Resolution (continued)

Of the 31 user actions, six concerned MOD1, nine concerned MOD1.5, and eighteen concerned XELAP5 (developmental version of RELAP5). The sources of these actions included four external users and ten internal (INEL) users. In order to better track and summarize user actions, a code problem report, which is to be completed by the problem originator, was initiated along with a computerized tracking and summary. This file will be maintained and periodically updated as part of the code configuration control task.

Mailing of the second RELAP5 newsletter was completed. 360 copies were mailed with several requests to be added to the distribution. A form for updating the distribution list was included.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

a. Programmatic Support

In addition to the normal project supervision, preparation of presentations, report review, and monitoring of project schedules, work will be initiated on a draft users guide. While no formal schedule has been set for completion of this draft, a goal will be to complete a draft before the MOD2 documentation tasks begin.

Review of the MOD1 developmental assessment report will begin during February and proceed at a level of effort not to interface with completion of the MOD2 model development. The review is expected to be completed during February.

b. RELAP5/MOD2 Development

Constitutive Model Development

The two energy equation formulation of the interphase mass transfer and the wall heat transfer will continue to be developed, coded, and checked. Test problems such as the Edward's pipe blowdown, the G.E. level swell tests, and the Bennet's heated tube experiment will be simulated and the results

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

b. RELAP5/MOD2 Development (continued)

Constitutive Model Development (continued)

compared to the results obtained with RELAP5/MOD1.5. The design proposal for the flow regime partitioning of the wall friction force will be prepared and modification of the reflood heat transfer model to the consistent with the two energy equation formulation will begin.

Fuel Model

Work will be initiated on the implementation of the dynamic gap conductance model. The modeling approach that was to have been selected during January will be decided, impacts of delays assessed, and corrective action taken to make sure that the overall schedule is maintained.

Balance of Plant Models

Coding and checkout of the shaft component model will be completed. The condenser model will be set up and tested using existing code components in order to determine what additional model development is needed in order to satisfactorily model a condenser.

User Convenience

The completion report describing the steady state model improvements and use of low specific heats in conductors to accelerate thermal transients will be issued.

c. Configuration Control and Problem Resolution

The first priority work will be to update the experimental version of the code as development proceeds and to keep the synopses up to date. The subroutine abstract comment cards will be updated to include the name of the principal author of each subroutine. Further development and/or modification of that subroutine will require the approval of the principal author in addition to the normal project manager and code architect approvals.

User motivated actions will be addressed on an as needed basis. Unusual demands on project resources will be brought to the attention of the EGG/DOE/NRC Technical monitors.

5. Problems and Potential Problems

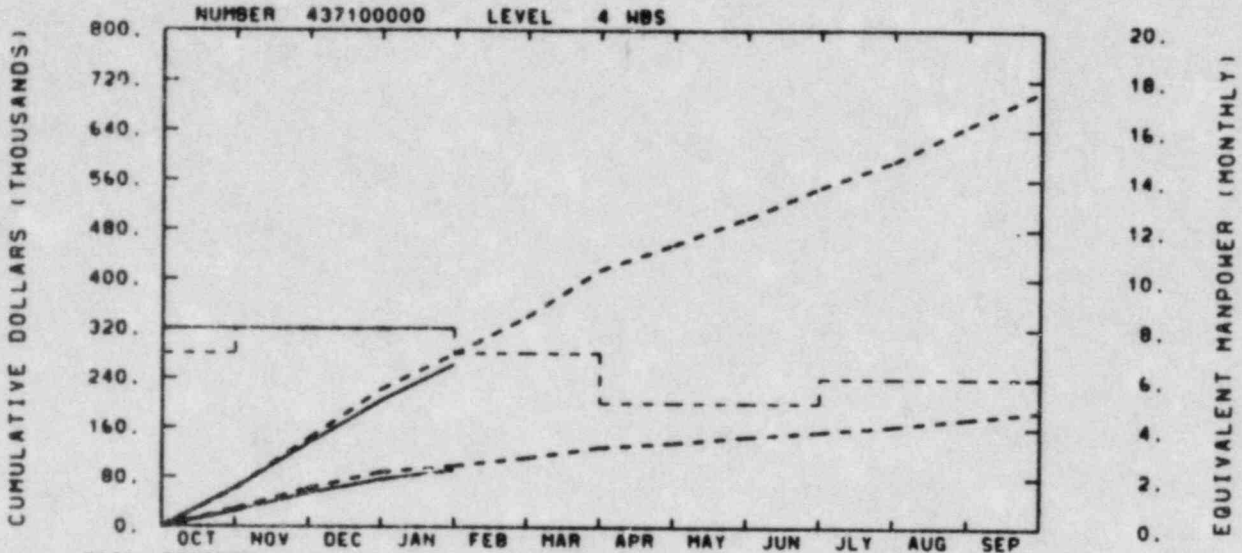
None.

RESPONSIBLE MANAGER
T. HOWE

EG&G IDAHO INC.

MODELING SEVERE FUEL DAMG(A6360)

NUMBER 437100000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	60	142	221	279	338	415	455	499	548	590	647	704
ACTUAL	62	135	203	262								

MATERIAL

BUDGET	29	62	88	99	112	129	136	146	154	164	176	188
ACTUAL	25	54	77	92								

MANPOWER

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

BUDGET ------

ACTUAL ——

189 NO. A6360

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 16.2	$ 62.9
MATERIALS, SERVICES AND OTHER COSTS	0.8	4.6
ADP SUPPORT	10.9	72.8
SUBCONTRACTS	0.0	0.0
TRAVEL	1.1	2.9
INDIRECT LABOR COSTS	22.4	86.8
GENERAL AND ADMINISTRATIVE	7.2	32.1
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 58.6	$ 261.9

A6360

YTD VARIANCE: 17 (6%)

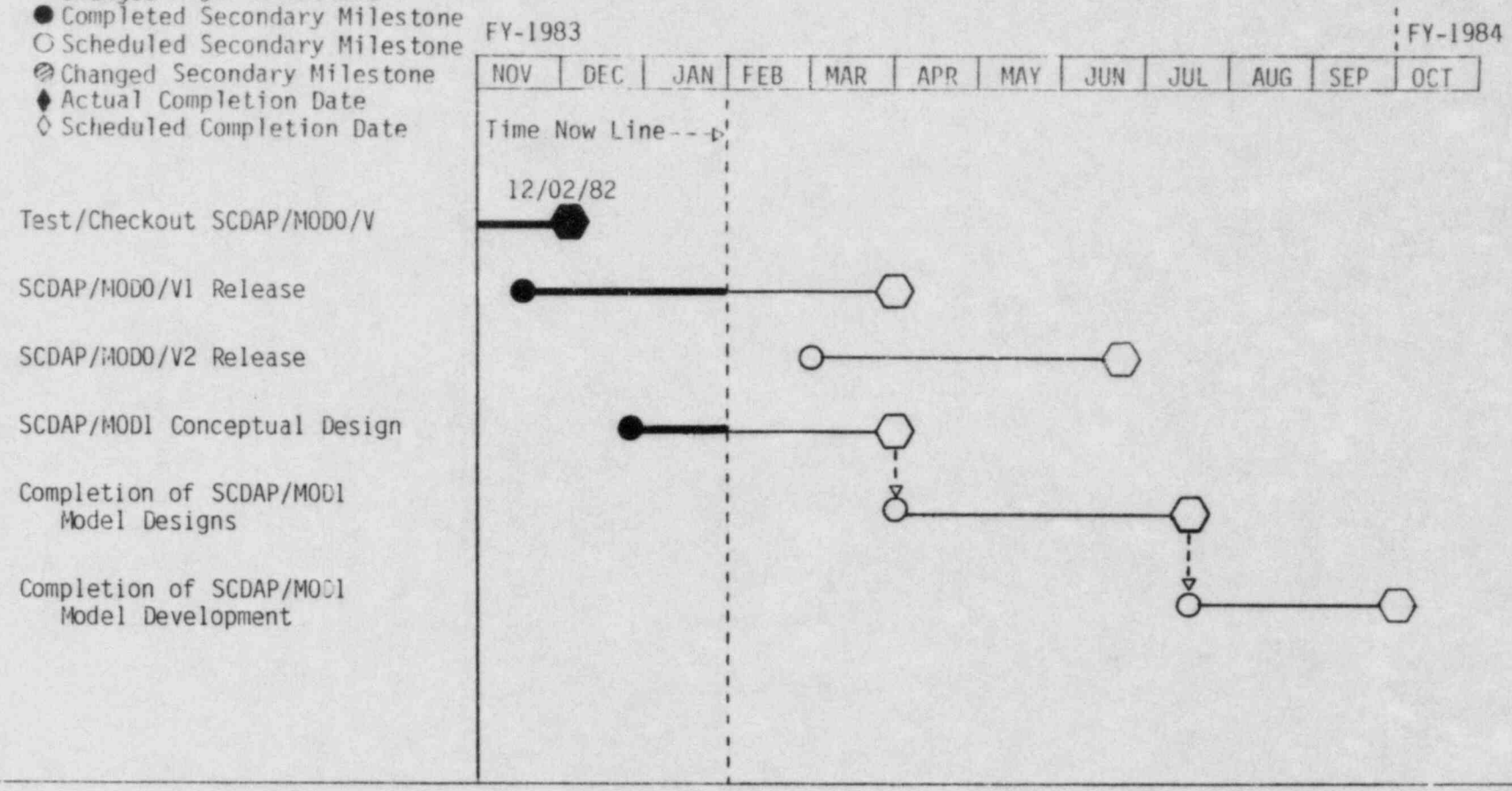
NUCLEAR SAFETY METHODS DIVISION

January 1983

Modeling Severe Fuel Damage (A6360)

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 noted above reflect work scope agreement per F. Aguilar letter to J. E. Solecki (FA-130-82). The milestone date of 09/30/83 for completion of SCDAP/MOD1 model development is a tentative date. A firm commitment date for completion of this milestone will be specified when the MOD1 model designs milestone is completed (07/11/83).

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 January 1983

None.

2. Summary of Work Performed in January 1983

a. Advanced LIQSOL Model Development

The design report of the extension of the LIQSOL model to include the calculation of melting of UO_2 and ZrO_2 was drafted and is being reviewed. The coding of the model has begun and will be completed along with testing in February. Work on the final documentation and incorporation of the model into SCDAP/MOD0 will begin in February and will be completed during March.

b. SCDAP/MOD0 Assessment

The detailed plan to assess SCDAP/MOD0 was completed. The MOD0 assessment activity contributes to satisfaction of the MOD1 conceptual design milestone. This includes participation of both NMSD and NTAP personnel. The assessment includes experimental data comparisons, code-to-code comparisons, examination of idealized cases, sensitivity studies, and visual inspection (run time, core storage, architecture, etc.) NSMD participation includes the experimental data comparisons, idealized case assessment, sensitivity studies, and visual inspection. During January most of the data for comparison of SCDAP with the Hagen experiment was obtained and information needs identified. Comparisons with the PBF SFD-ST experimental data to assess

2. Summary of Work Performed in January 1983 (continued)

b. SCDAP/MOD0 Assessment (continued)

SCDAP/MOD0 capabilities to calculate cladding temperature, hydrogen release, and fission product release were completed. A test case deck to assess the debris bed behavior models during debris bed heatup has been assembled and is being tested. The assessment activities will continue through early March culminating in the SCDAP/MOD0 developmental assessment report.

c. SCDAP/MOD1 Conceptual Design

The conceptual design of SCDAP/MOD1 continued during January. A review of models such as MOXY and COMIX which are potential alternatives for use as a core-wide model with flow diversion was completed. The alternatives for a graphics capability for SCDAP/MOD1 were examined and a decision was made to use ISDMS. A meeting was held to define modeling and coding desires for SCDAP/MOD1. The conceptual design will continue into March when a conceptual design report will be issued describing the long-range needs of SCDAP development, those desired for SCDAP/MOD1 and the code architecture and data management scheme that should provide for this desired code growth.

d. SCDAP Support

Posttest comparisons of SCDAP/MOD0 calculations with PBF SFD-ST experimental data were presented at the January 21, 1983 ACRS meeting. The initial calculation of PBF Test SFD-1 was completed. The results were not reported during December but will be included in the MOD0 assessment report. This delay in reporting until the MOD0 assessment is completed affords an opportunity to repeat the calculation after incorporation of updates resulting from the code assessment.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

a. Advanced LIQSOL Model Development

The coding and testing of the extension of the LIQSOL model to include the calculation of melting and relocation of UO_2 and ZrO_2 will be completed during February and the final documentation and the incorporation of the model into SCDAP/MOD0/V0 will be started during February. The effort is expected to be completed by the middle of March.

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

b. SCDAP/MOD0 Assessment (continued)

The SCDCOMP assessment will continue through February with comparisons of SCDCOMP with the Hagen experiments data will be completed. Two debris bed behavior assessment cases will be completed, one to assess debris bed heatup and another to assess debris transition and propagation modeling. A pretest prediction of the PBF SFD-1 will be made both to assess SCDAP and to provide support for the PBF program. Documentation of the assessment findings will begin during February and will be completed during March.

c. SCDAP/MOD1 Conceptual Design

The conceptual design of SCDAP/MOD1 will continue through February and culminate in the issuance of the conceptual design report in March. The conceptual design of the core-wide capability, the I/O and graphics capability the code architecture, data management, and automated sensitivity capability will be completed and the documentation begun during February.

d. SCDAP Support

Support will be provided as needed to the NRC and PBF in conducting the SFD-1 test and as other needs arise. Considerable help is expected to be given to PBF personnel during February as they begin to use the SCDAP code in their analysis efforts.

5. Problems and Potential Problems

None.

MONTHLY REPORT FOR

JANUARY 1983

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

B. F. Saffell, Jr., Manager

E. L. Pierson
Plans and Budget Representative

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

A6039: Two studies were completed in the Boiling Water Reactor (BWR) Refill/Reflood Program. One study concluded that qualification of the entire single heated bundle data base is not cost effective. However, selective qualification may be desirable. The other study made recommendations on the feasibility of performing automatic data qualification (ADQ) on the 30 Degree Steam Sector Test Facility (SSTF) data.

A6102: Data from 16 tests including SSTF and FLECHT-SEASET 21-Rod tests were added to the data base.

A6308: NUREG/CR-3103, a report on Predictor Displays, was published.

A6354: Four steam generator tube rupture analyses, requested late in December by NRR, were completed, analyzed, and presented at an ACRS meeting on January 27, 1983.

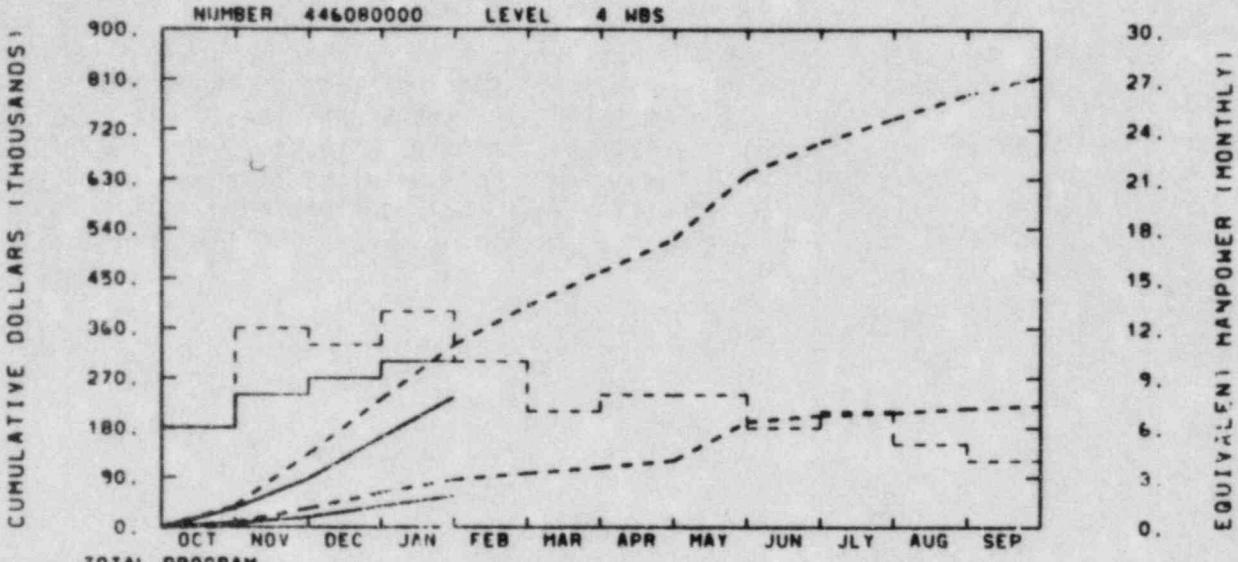
A6370: Two reports on Evaluation Procedures for Testing Class 1E Electrical Isolators were reviewed at a joint meeting of EG&G Idaho and NRC personnel. The NRC comments on the documents were favorable.

RESPONSIBLE MANAGER
B F 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	811
ACTUAL	34	87	163	230								

MATERIAL

BUDGET	8	34	62	86	98	109	121	191	202	207	215	220
ACTUAL	7	18	38	56								

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6039

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 21.6	$ 71.9
MATERIALS, SERVICES AND OTHER COSTS	1.8	8.7
ADP SUPPORT	5.7	32.8
SUBCONTRACTS	0.0	0.0
TRAVEL	4.2	7.6
INDIRECT LABOR COSTS	26.4	85.7
GENERAL AND ADMINISTRATIVE	8.9	28.9
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 72.6	$ 235.6

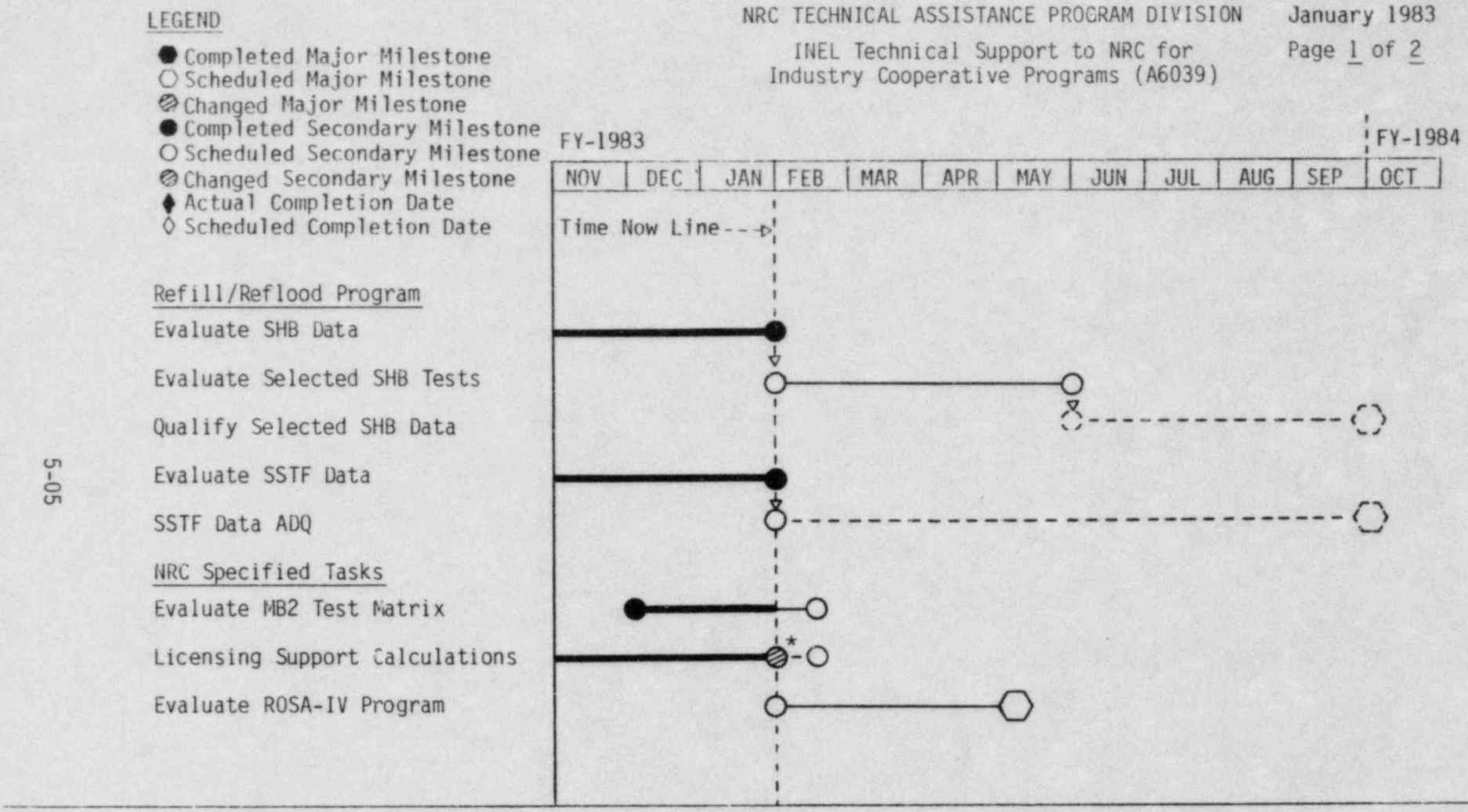
A6039

YTD VARIANCE: 94 (28%)

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 January 1983

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



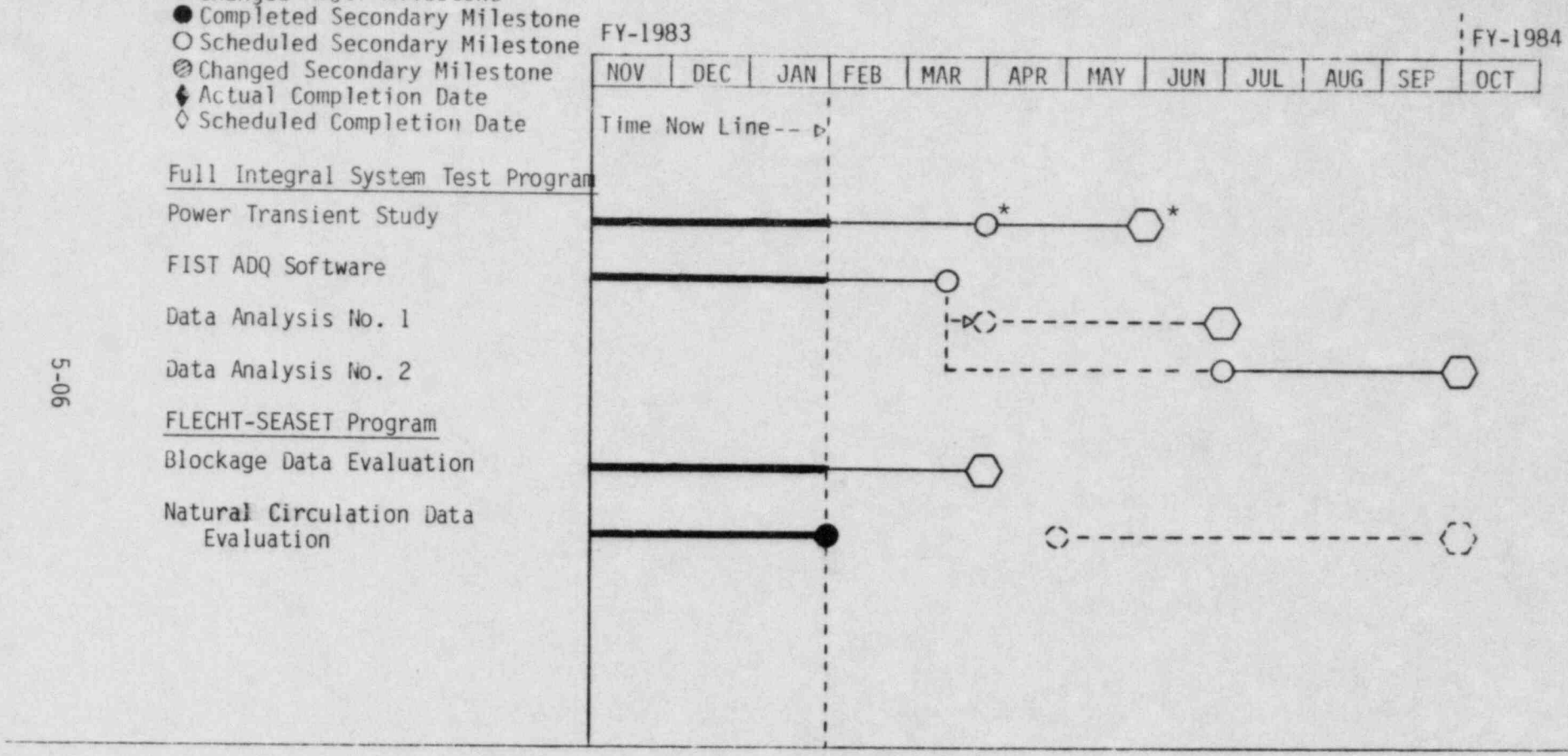
NOTES: ------ Pending Task

* This task has been extended two weeks to make use of new models in a new code version.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

January 1983

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



NOTES: * The FIST Power Transient Study has been delayed because of delays in receiving information from the experimenter and because of unplanned on-call assistance requested by NRC/DOE-ID. The task has been rescheduled so that the calculations will be completed by March 31, 1983, and the report by May 21, 1983.

--------- Pending Task

A6039: INEL Technical Support to NRC for Industry, Cooperative Programs
EG&G Program/Technical Monitor: G. E. Wilson (BWR)/D. M. Ogden (PWR)
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 January 1983

Description	Due Date	Actual Date
Single Heated Bundle Analysis	1/26/83	1/31/83C Saff-31-83
Steam Sector Test Facility (SSTF) Automatic Data Qualification (ADQ) Feasibility	1/31/83	1/31/83C Saff-40-83

2. Summary of Work Performed in January 1983

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

The INEL independent review (unscheduled on-call assistance task) of the data from the first FIST test was completed. Questions which are pertinent to the evaluation of the test as a matrix run are being worked with the experimenter. A recommendation to the Department of Energy (DOE) and the NRC will be made in February 1983.

The Power Transient study continued at a reduced level. The schedule for this task has been impacted by lack of information from General Electric (GE) and by various on-call assistance requests. Further impact is expected from the recent experimental problems experienced during the attempts to run the second test.

Development of the remaining portion (approximately 30%) of the ADQ software continued at a reduced rate. All of the steady state data necessary to complete the task was not obtained during the attempted second test. Further impact to the schedule is expected as a result of the experimental problems.

An INEL Instrument Technican was provided, on site at GE, to help calibrate and install the low mass flow measurement devices supplied by INEL to the program.

2. Summary of Work Performed in January 1983 (Continued)

BWR Refill/Reflood (R/R) Program:

The study to determine the possibility of further qualifying the entire single heated bundle data base for code development and assessment was completed. Qualification of the total data base is considered not to be cost effective. With additional data from the experimenter, qualification of selected tests may be possible. The task will be continued to determine the feasibility of this course of action.

The study to determine the feasibility of performing ADQ on the 30 degree (SSTF) data was completed. Recommendations were made to DOE/NRC.

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

FLECHT-SEASET 21 rod heat transfer data was put on the INEL data bank and is currently being compared with selected data from the Flooding Experiments in Blocked Arrays (FEBA) data base.

The results of the natural circulation data review were drafted in a letter transmitted in January.

NRC Specified Tasks:

The Anticipated Transient Without Scram (ATWS) calculational capability study continued. The schedule for this task was extended two weeks to make use of new models added to the RELAP5 code.

The MB-2 Steam Generator Program test matrix was reviewed. Results of the review were drafted in a letter to be released in February (see Item 3).

3. Scheduled Milestones for February 1983

Description	Due Date	Actual Date
MB-2 Evaluation Letter Report	2/18/83T	

4. Summary of Work to be Performed in February 1983

BWR-FIST Program:

Recommendations relative to the evaluation of the first test as a matrix run will be made to DOE/NRC. The experimental problems experienced on the attempted second test are expected to impact the other tasks in this program. The power transient study and ADQ software development will continue as appropriate. On-call assistance will be provided as requested.

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

BWR-R/R Program:

Further work in this program is pending DOE/NRC decisions relative to the recommendations identified in Section 2.

FLECHT-SEASET Program:

The blockage data evaluation task will be completed and a draft report initiated.

NRC Specified Tasks:

The ATWS calculational capability study will be completed.

The MB-2 Steam Generator Program test matrix review will be completed and documented.

5. Problems and Potential Problems

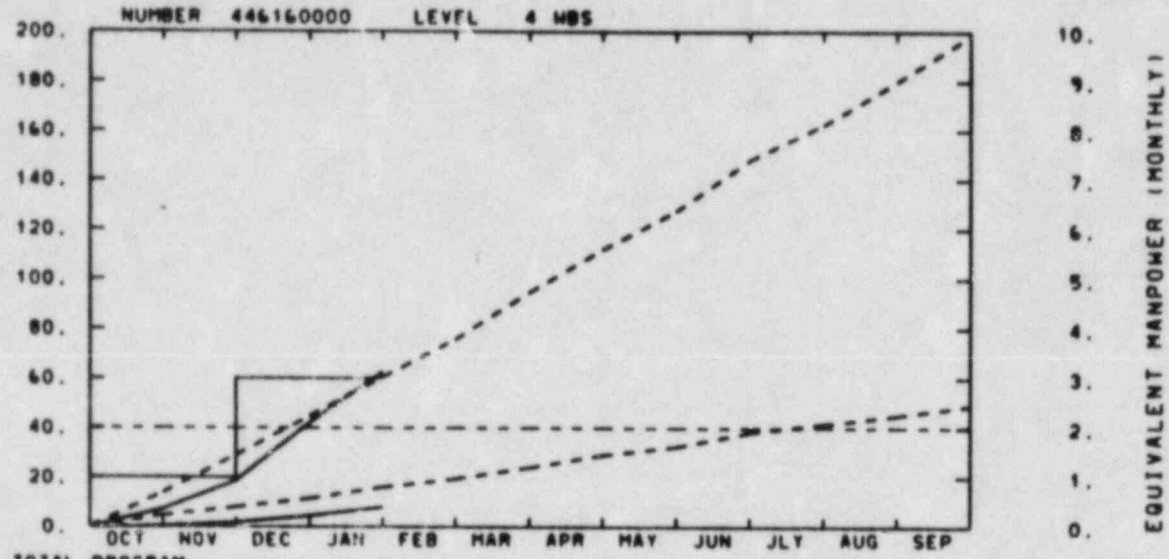
None.

RESPONSIBLE MANAGER
B F 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	63								

MATERIAL

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

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6046

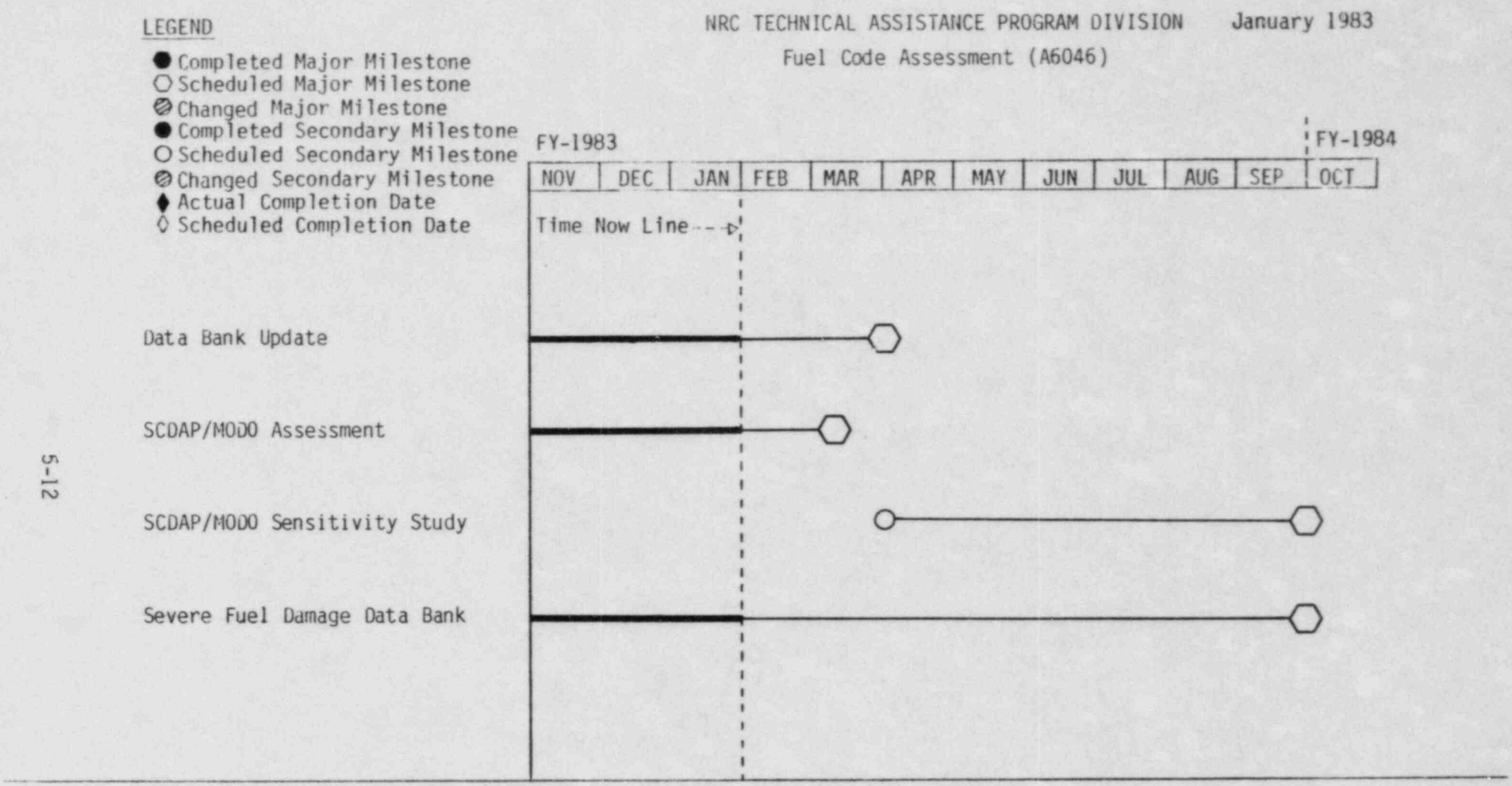
COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 6.3	$ 20.1
MATERIALS, SERVICES AND OTHER COSTS	0.1	0.9
ADP SUPPORT	1.3	4.3
SUBCONTRACTS	0.0	0.0
TRAVEL	1.6	1.7
INDIRECT LABOR COSTS	8.7	28.0
GENERAL AND ADMINISTRATIVE	2.5	7.7
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 20.5	$ 62.7

A6046

YTD VARIANCE: (3) (5%)

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION January 1983

Fuel Code Assessment (A6046)



NOTES:

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 January 1983

None.

2. Summary of Work Performed in January 1983

SCDAP/MOD0 Assessment

The assessment matrix was reviewed with SCDAP development personnel and areas of responsibility defined. Detailed requirements for the assessment of fuel damage (debris) models were developed and input for the calculation of the PBF-ST-2 experiment, which will be part of the assessment, is essentially complete.

Severe Fuel Damage Data Base

No work was performed during January.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Input for the PBF-ST-2 experiment will be completed and compared with similar SCDAP and TRAC input for accuracy and completeness. Input for assessing the debris models will be prepared and the analyses of the calculated results initiated.

5. Problems and Potential Problems

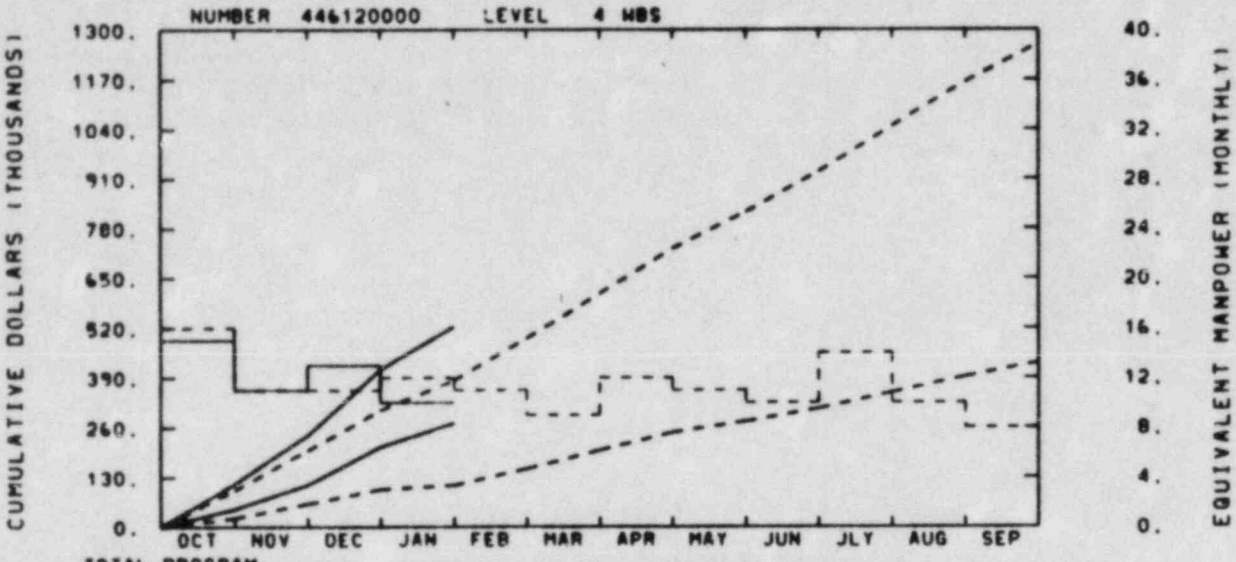
None.

RESPONSIBLE MANAGER
B F 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	523								

MATERIAL

BUDGET	23	61	98	109	152	200	247	275	309	351	392	429
ACTUAL	47	110	209	271								

MANPOWER

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

189 NO. A6047

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 18.3	$ 92.3
MATERIALS, SERVICES AND OTHER COSTS	0.3	6.4
ADP SUPPORT	53.1	221.9
SUBCONTRACTS	0.0	0.0
TRAVEL	0.9	9.3
INDIRECT LABOR COSTS	25.4	128.6
GENERAL AND ADMINISTRATIVE	13.7	64.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 111.7	$ 522.7

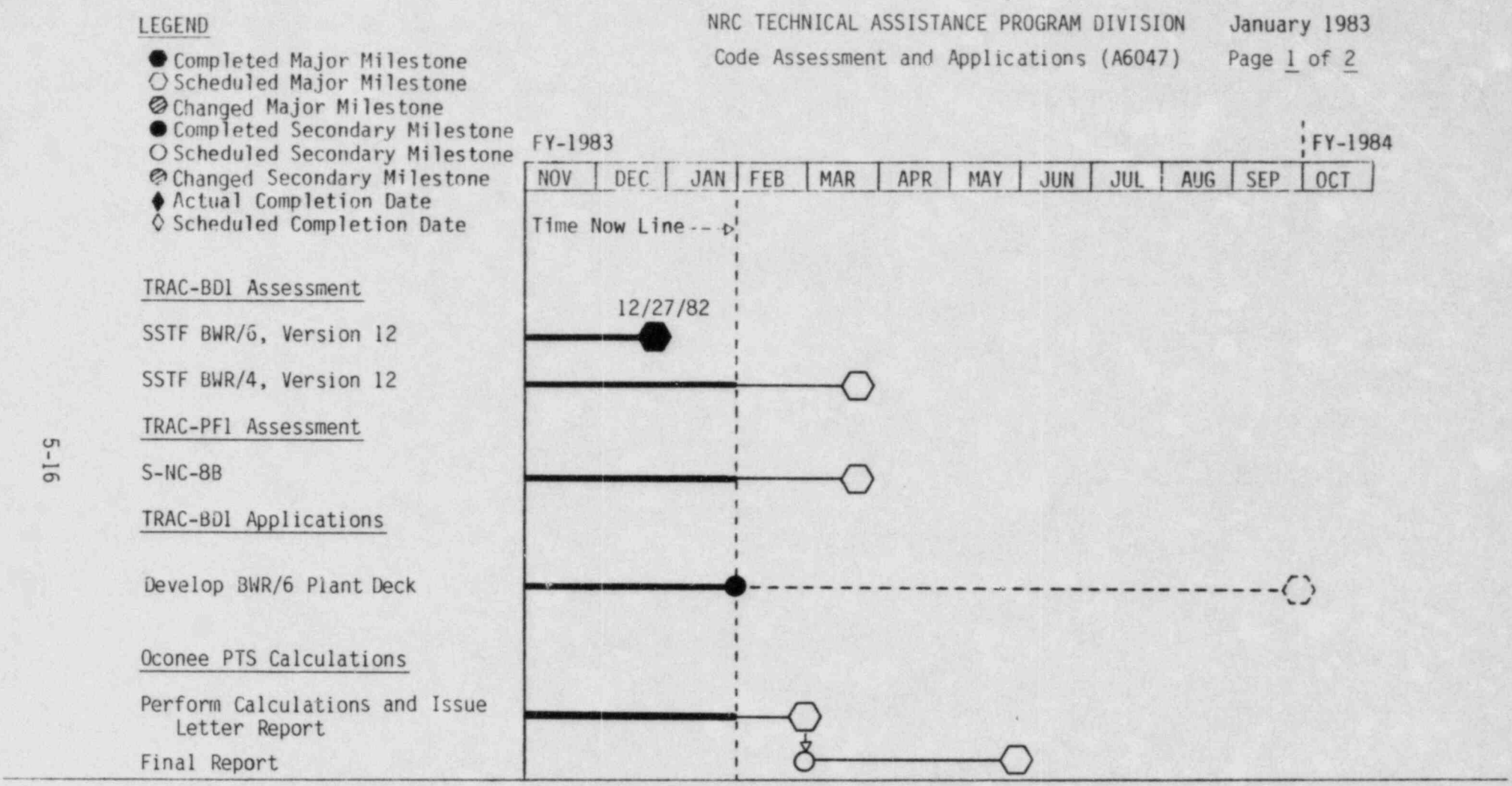
A6047

YTD VARIANCE: (141) (37%)

The budget reflected in the graph does not correspond with work scope being performed. The FY-1983 objectives and work scope were finalized in January, 1983. The new schedules and budget will be implemented in February, 1983.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION January 1983

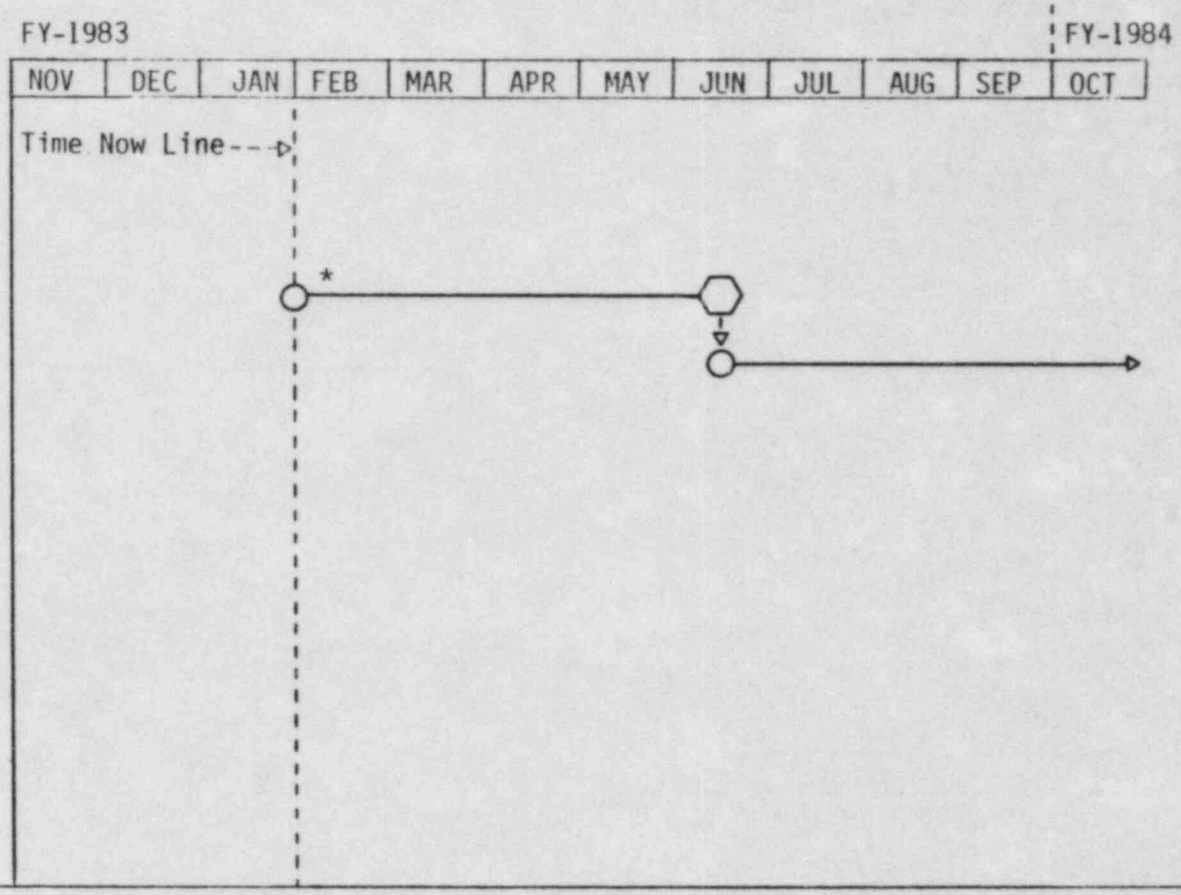
Code Assessment and Applications (A6047) Page 1 of 2



NOTES: - - - - - - - Pending Task

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



H. B. Robinson PTS Calculations

Develop Input Deck

Perform Calculations

NOTES: * Additional plant information is required to complete the task; however, sufficient information is now available for its' initiation.

A6047: LOCA Analysis Assessment and Applications
EG&G Program/Technical Monitor: D. M. Ogden (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 January 1983

None.

2. Summary of Work Performed in January 1983

The Boiling Water Reactor (BWR) Transient Reactor Analysis Code (TRAC-BD1) assessment with data from the BWR/4 reference test in the 30° Steam Sector Test Facility (SSTF) continued. Steady state initialization was completed and the transient analysis initiated.

The initial, TRAC-BD1 model development work for the BWR/6 Grand Gulf plant deck was completed.

The second Oconee small break and the second feedwater overfeed transient were completed. The results will be sent to Oak Ridge National Laboratory (ORNL). The turbine bypass valve failure transient is 40% completed. The small isolatable break transient was defined and the calculation initiated.

The TRAC-PF1 assessment calculation of Semiscale Test NC-8 was completed. Subsequent analysis is continuing.

The H. B. Robinson plant deck model development was delayed pending the transmittal of additional plant information.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

The TRAC-BD1 assessment with SSTF, BWR/4 test will continue.

No further work with the BWR/6 Grand Gulf plant deck is planned, pending any further DOE/NRC direction.

The turbine bypass valve failure and the small isolatible break transients will be completed and results transmitted to ORNL.

The TRAC-PF1 assessment calculation and subsequent analyses will be completed and a draft report will be initiated.

The H. B. Robinson plant deck will be started with available data. Additional plant information will be requested.

5. Problems and Potential Problems

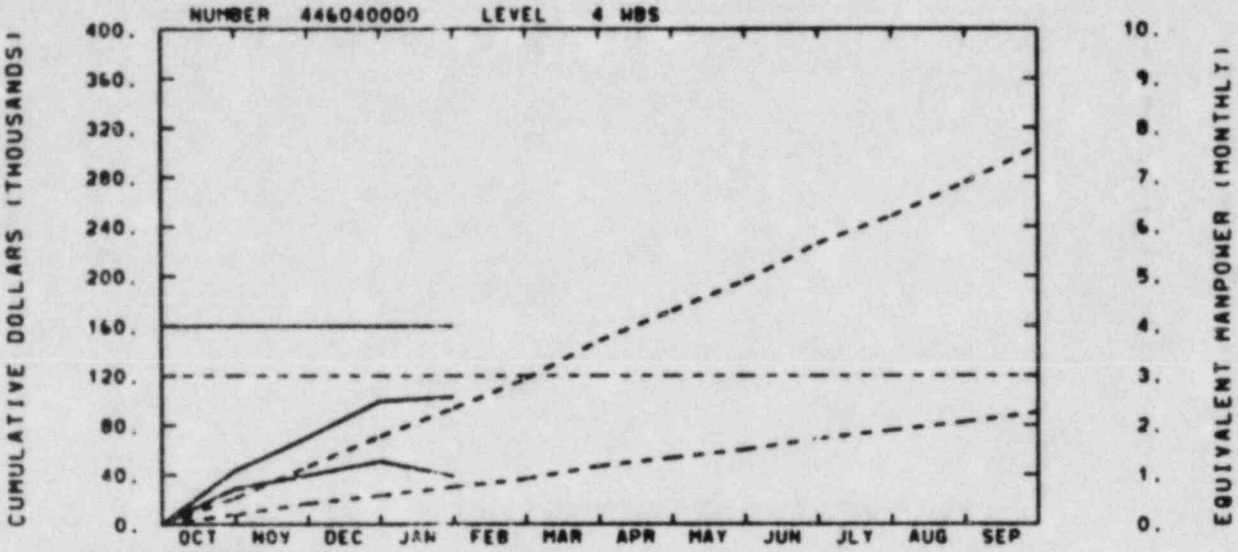
Limited information on H. B. Robinson is available and the development of the plant deck will be initiated with this information. However, more detailed information is required for a maximum effort on the deck development. Thus a delay in the transmittal of the required information will delay that work.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

DATA BANK A6102

NUMBER 446040000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	21	47	71	94	117	140	172	196	226	248	275	304
ACTUAL	43	70	100	103								

MATERIAL

BUDGET	8	17	23	30	37	47	54	60	69	76	83	90
ACTUAL	29	40	51	31								

MANPOWER

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

WBS NO. A6102

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 5.8	$ 24.0
MATERIALS, SERVICES AND OTHER COSTS	0.4	0.7
ADP SUPPORT	11.5-	30.3
SUBCONTRACTS	0.0	0.0
TRAVEL	0.4	2.8
INDIRECT LABOR COSTS	7.8	32.4
GENERAL AND ADMINISTRATIVE	0.4	12.6
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 3.3	$ 102.8

A6102

YTD VARIANCE: (9) (10%)

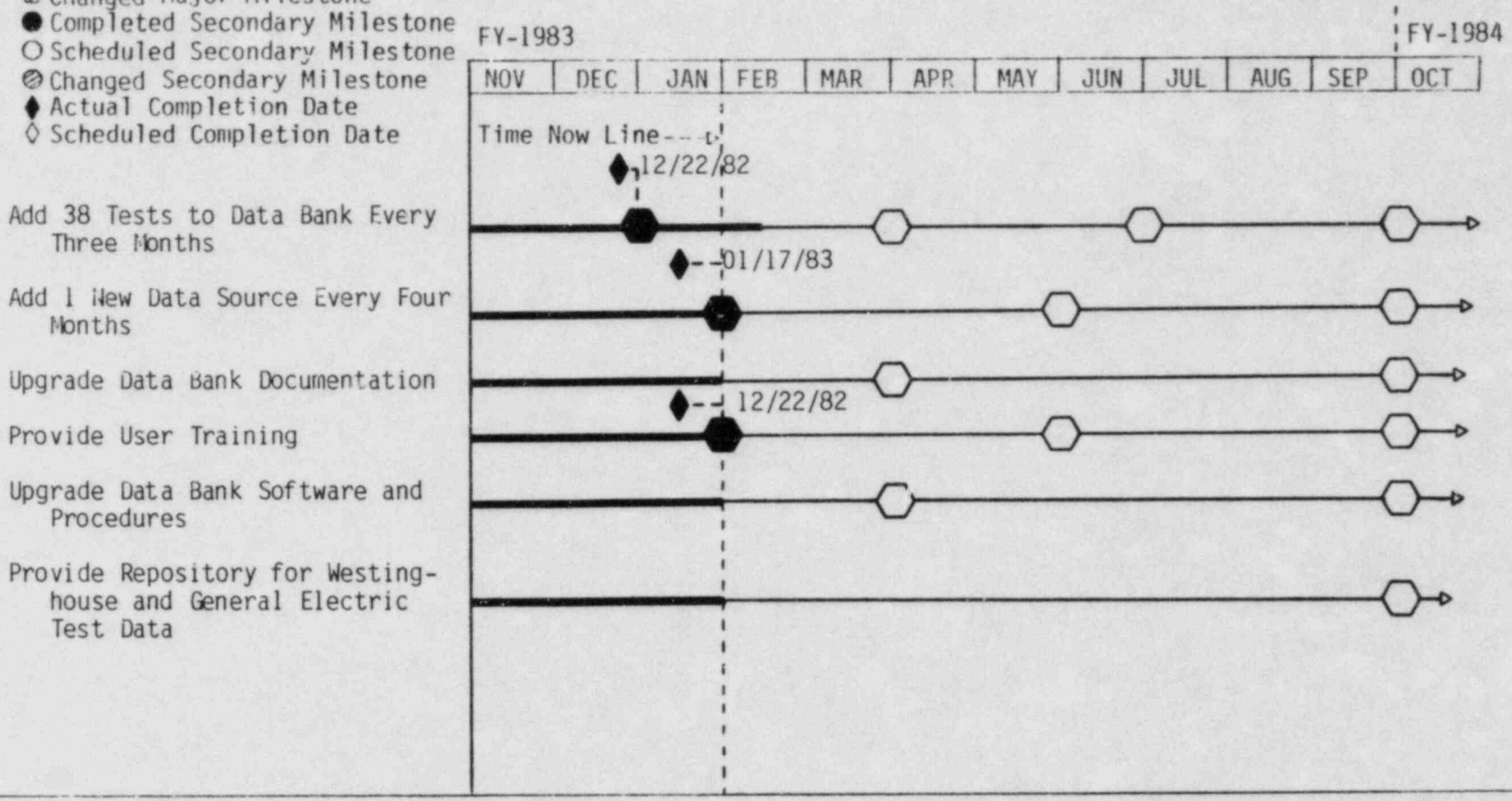
A computer credit was received for a tape storage overcharge that was incurred during the month of October, bringing costs in line with budget.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION January 1983

NRC/DAE Data Bank (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 January 1983

Description	Due Date	Actual Date
Add 1 new Data Source	1-31-83T	1-17-83C Saff-17-83

2. Summary of Work Performed in January 1983

Data from 16 tests were added to the Data Bank. They include Steam Sector Test Facility (SSTF) Tests 053, 055, 056, 057, 059, 063, 064, 065, 067 and FLECHT-SEASET 21-rod Tests 42306B, 41709B, 41907B, 42606A, 43412B, 42430A, and 43112A.

Enhanced graphics capabilities are being developed for the Data Bank, to allow test system diagrams to be displayed on the user's terminal. The diagrams will illustrate where test instrumentation is located.

A Data Bank Encounter Newsletter was printed and mailed to Bank users. The newsletter described latest Bank contents, as well as a revised data file procedure storage procedure intended to reduce costs of using the bank.

The Data Bank users manual is being upgraded to reflect the latest Bank contents and software developments. The manual will be issued as a formal (NUREG/CR) report later this year.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Work will continue in the data entry, software development, and user assistance areas.

5. Problems and Potential Problems

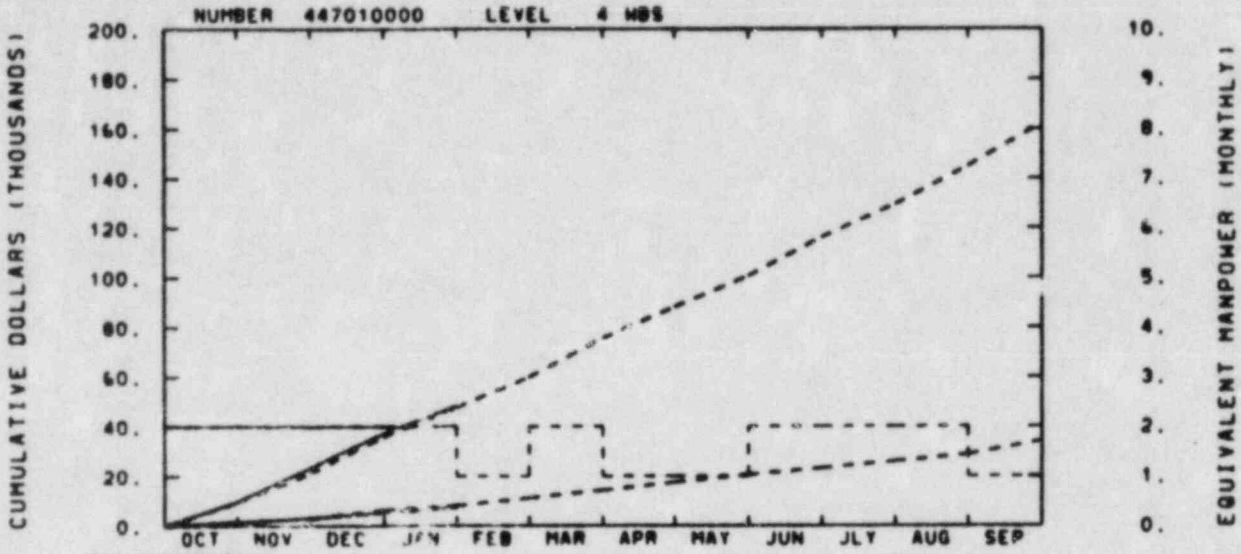
None.

RESPONSIBLE MANAGER
B 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	49								

MATERIAL

BUDGET	1	3	6	8	11	14	17	21	23	26	29	34
ACTUAL	2	3	5	7								

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6276

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 3.5	$ 15.4
MATERIALS, SERVICES AND OTHER COSTS	0.1	0.5
ADP SUPPORT	1.6	6.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	4.6	20.5
GENERAL AND ADMINISTRATIVE	1.4	5.9
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 11.2	$ 48.3

A6276

YTD VARIANCE: 0

A6276: Licensee Event Report (LER) Failure Rate Analysis
EG&G Program/Technical Monitors: J. H. Linebarger/C. D. Gentillon
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 January 1983

None.

2. Summary of Work Performed in January 1983

The capability of calculating point estimates based on the chi-square distribution for failure rates in cases where no failures are observed was developed in response to a concern expressed by the NRC Technical Monitor. In addition, existing software was adapted to produce "whisker" plots of failure rate estimates and corresponding chi-square bounds, thus enhancing scatter plots of the failure rates, as well as providing the capability for plots of the summary failure rate information.

Instrumentation and control components based on critical hours failure rates for plant operation were calculated for comparison with those based on calendar hours.

The identification of systems associated with inverters continued and the development of coding schemes for a computerized data base on inverter events began.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Coding schemes for describing inverter events will be worked out and coding will begin.

5. Problems and Potential Problems

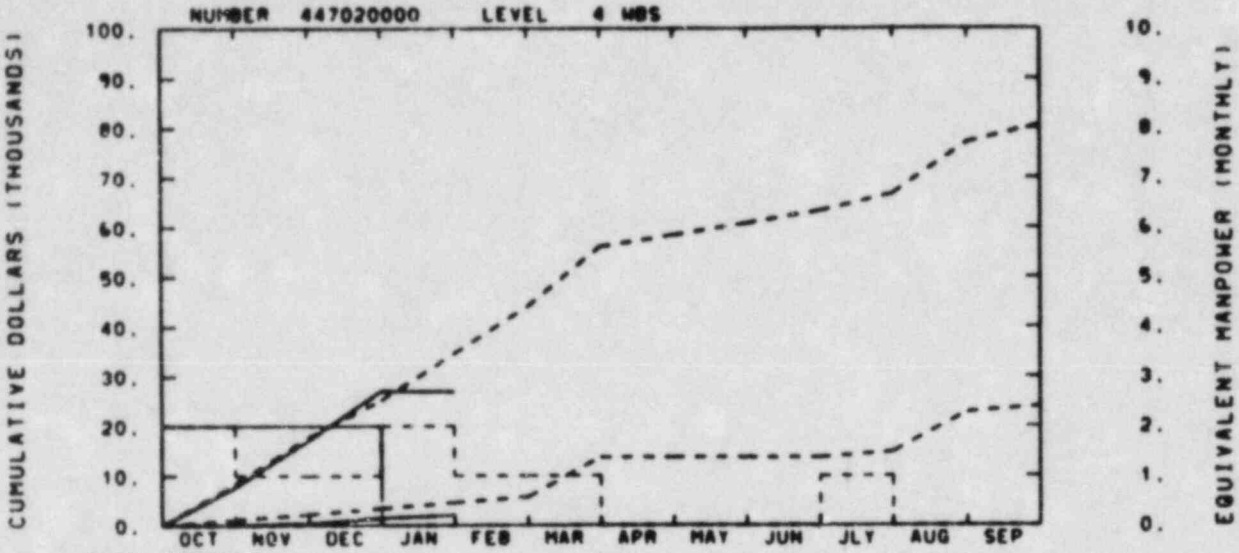
None.

RESPONSIBLE MANAGER
B F 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	27								

MATERIAL

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

MANPOWER

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

BUDGET - - - - - -
ACTUAL ———

189 NO. 46283

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 2.0-	$ 9.7
MATERIALS, SERVICES AND OTHER COSTS	0.0	0.4
ADP SUPPORT	0.5	1.4
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	1.4	12.1
GENERAL AND ADMINISTRATIVE	0.0	3.3
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 0.1-	$ 26.9

A6283

YTD VARIANCE: 8 (23%)

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 January 1983

None.

2. Summary of Work Performed in January 1983

Attempts to analyze certain data from Licensee Event Reports (LERs) on Instrumentation and Controls were made. However, operational problems with the BFR code were experienced. These problems are being resolved.

Work on methodology improvements continued at Pennsylvania State University.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Work on methodology improvements, will continue. Problems with the analysis of data are expected to be eliminated.

5. Problems and Potential Problems

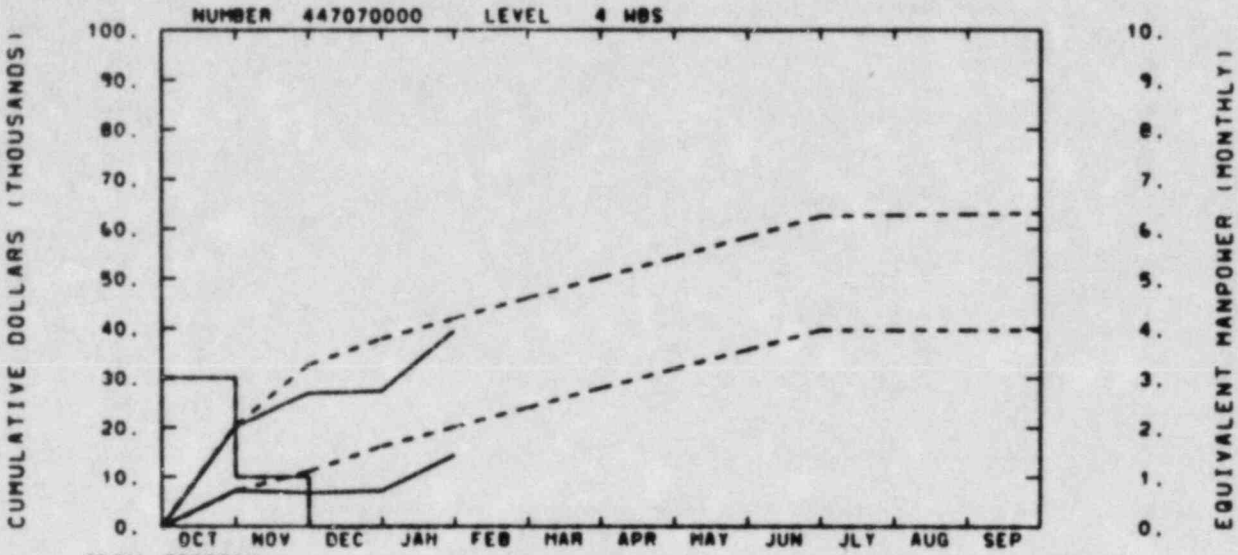
None.

RESPONSIBLE MANAGER
B F 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	64
ACTUAL	20	27	27	40								

MATERIAL

BUDGET	7	11	16	20	24	28	32	36	40	40	40	40
ACTUAL	7	7	7	14								

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6294

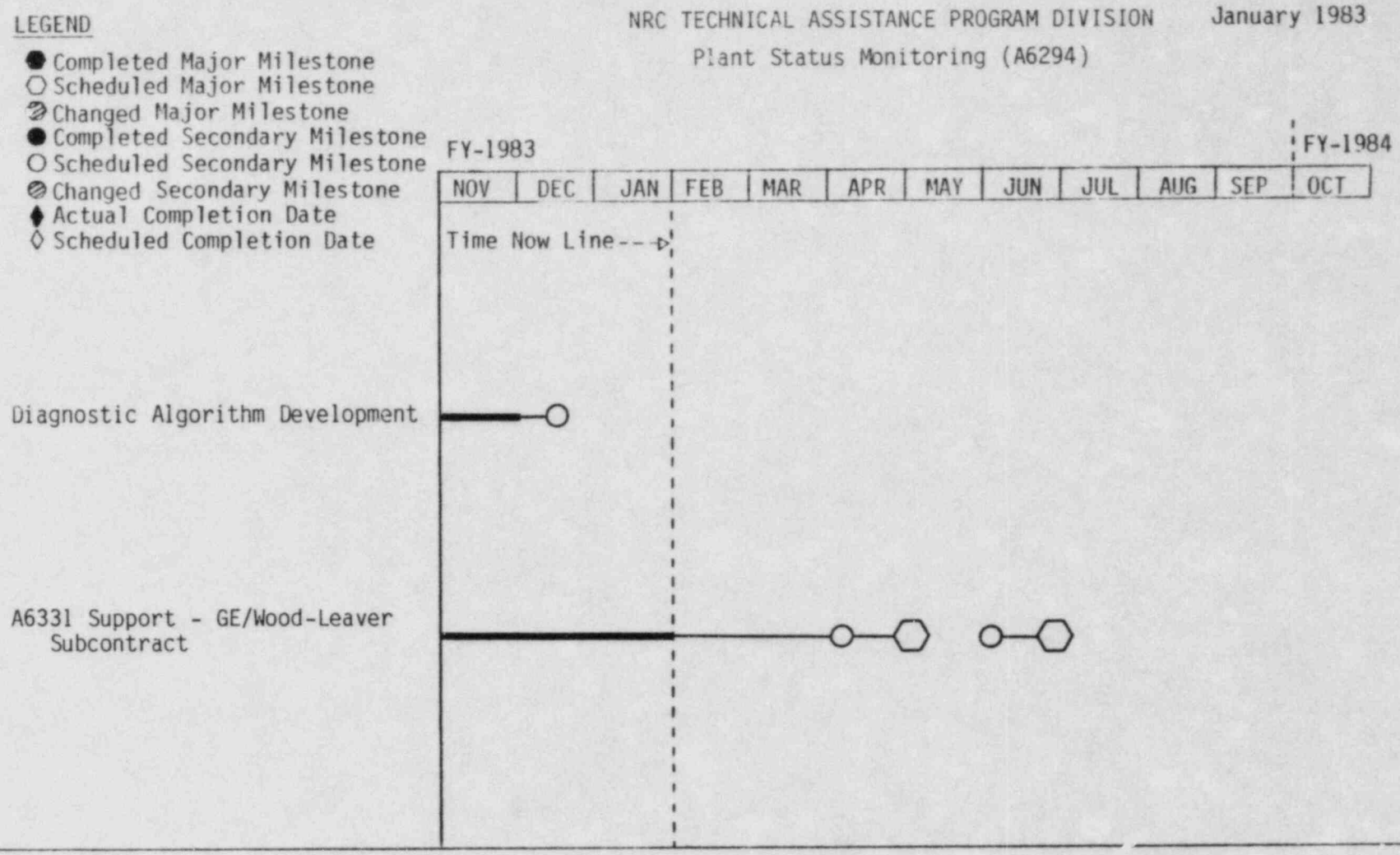
COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 1.9	$ 9.5
MATERIALS, SERVICES AND OTHER COSTS	0.7	3.1
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	6.4	11.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	2.5	12.5
GENERAL AND ADMINISTRATIVE	0.7	3.5
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 12.2	$ 39.6

A6294

YTD VARIANCE: 2 (5%)

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION January 1983

Plant Status Monitoring (A6294)



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

* The schedule in June depends on support from a utility. The final report will be issued one month after utility review and comment on the draft report.

A6294: Plant Status Monitoring
EG&G Program/Technical Monitors: J. H. Linebarger/W. H. Sullivan
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 January 1983

None.

2. Summary of Work Performed in January 1983

The updated version of Volume II of the Emergency Procedure Guidelines (EPG) methodology report, which incorporates comments received from reviewers of the draft document, was received from Wood, Leaver and Associates (WLA) during the latter part of the month. This document will now be published as a NUREG by Idaho National Engineering Laboratory (INEL) in February. As a result of more extensive review comments, WLA will not have the companion document, Volume I, ready for NUREG publication until mid to late February.

The remaining project funds will be used to support WLA work on the General Electric EPG analysis, which is discussed under FIN A6331 progress.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

As the updated version of Volumes I and II of the EPG Methodology reports are received from WLA, INEL will publish the reports as NUREG documents.

5. Problems and Potential Problems

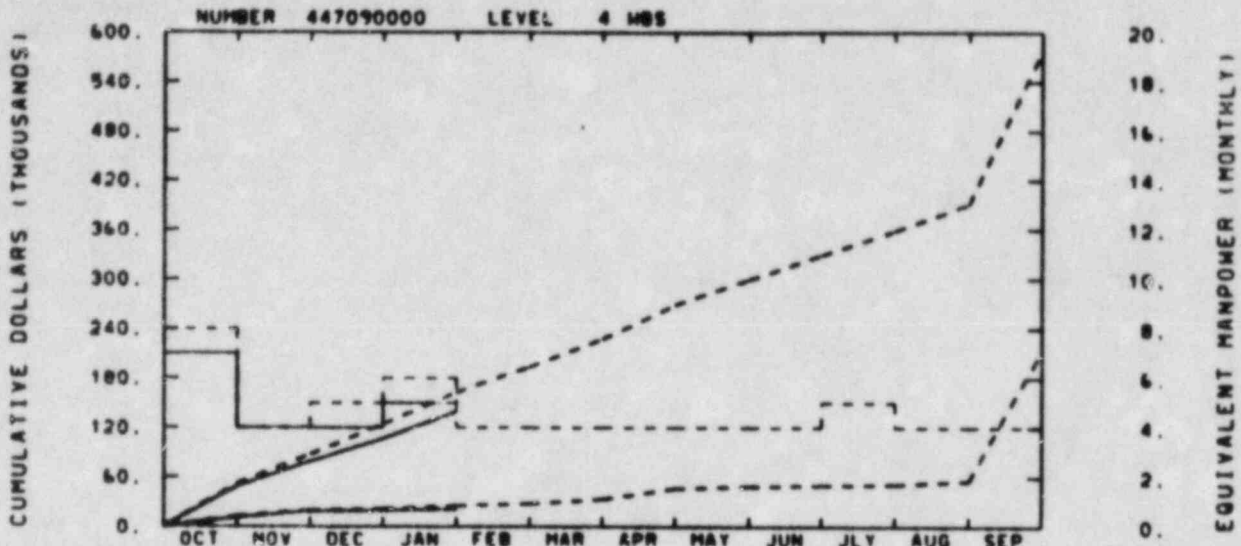
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

ACCIDENT SEQUENCE EVAL A6301

NUMBER 447090000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	52	87	124	161	193	227	269	300	329	359	391	577
ACTUAL	49	79	107	140								

MATERIAL

BUDGET	13	20	22	25	28	33	46	49	50	51	55	213
ACTUAL	11	19	19	21								

MANPOWER

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

BUDGET - - - - - -
ACTUAL ———

189 NO. A6301

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 11.9	$ 44.7
MATERIALS, SERVICES AND OTHER COSTS	1.1	2.9
ADP SUPPORT	0.8	1.3
SUBCONTRACTS	0.3-	4.9
TRAVEL	0.0	10.2
INDIRECT LABOR COSTS	15.7	59.3
GENERAL AND ADMINISTRATIVE	4.1	16.6
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 33.3	$ 139.9

A6301

YTD VARIANCE: 23 (14%)

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 January 1983

None.

2. Summary of Work Performed in January 1983

The technical staff continued to gather and analyze Probabilistic Risk Assessment (PRA) information. An interim progress report, which provided a more extensive and technically detailed report of the Idaho National Engineering Laboratory (INEL) staff's accomplishments to date, was sent to the Nuclear Regulatory Commission (NRC) Technical Monitor for review.

The Sandia National Laboratory (SNL) Technical Monitor met with the technical staff to review progress. In addition, the SNL Technical Monitor and the EG&G Idaho Technical Monitor made initial preparations for a planning meeting and an SNL/NRC management briefing to be held at SNL during the week of January 31.

3. Scheduled Milestones for February 1983

Description	Due Date	Actual Date
Document PRA Data Gathering Work	2-28-83T	

4. Summary of Work to be Performed in February 1983

The technical staff will continue the PRA data gathering effort and report the results of their activity in an informal report by the end of the month.

The Technical Monitor will participate in a planning meeting and an SNL/NRC management briefing at SNL.

5. Problems and Potential Problems

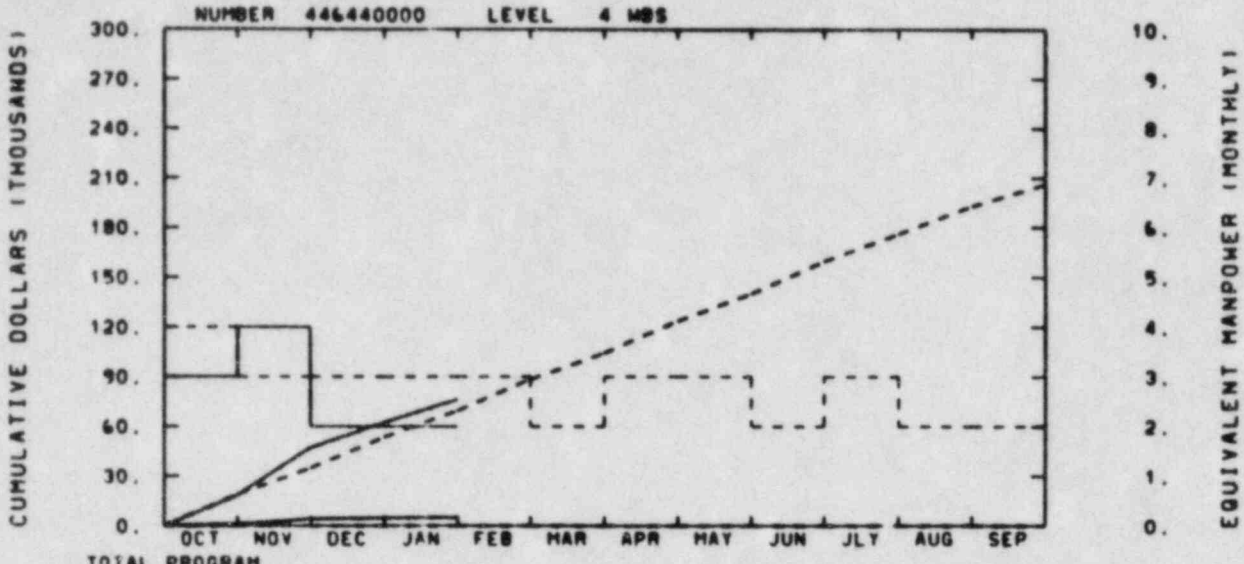
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

WDR EVALUATION A6306

NUMBER 446440000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	19	35	54	70	88	104	124	140	160	176	193	206
ACTUAL	18	47	62	76								

MATERIAL

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

MANPOWER

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

BUDGET
ACTUAL

189 NO. A6306

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 5.1	$ 26.9
MATERIALS, SERVICES AND OTHER COSTS	0.1	1.5
ADP SUPPORT	0.2	1.5
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	1.6
INDIRECT LABOR COSTS	6.8	35.6
GENERAL AND ADMINISTRATIVE	1.7	9.4
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 12.9	$ 76.5

A6306

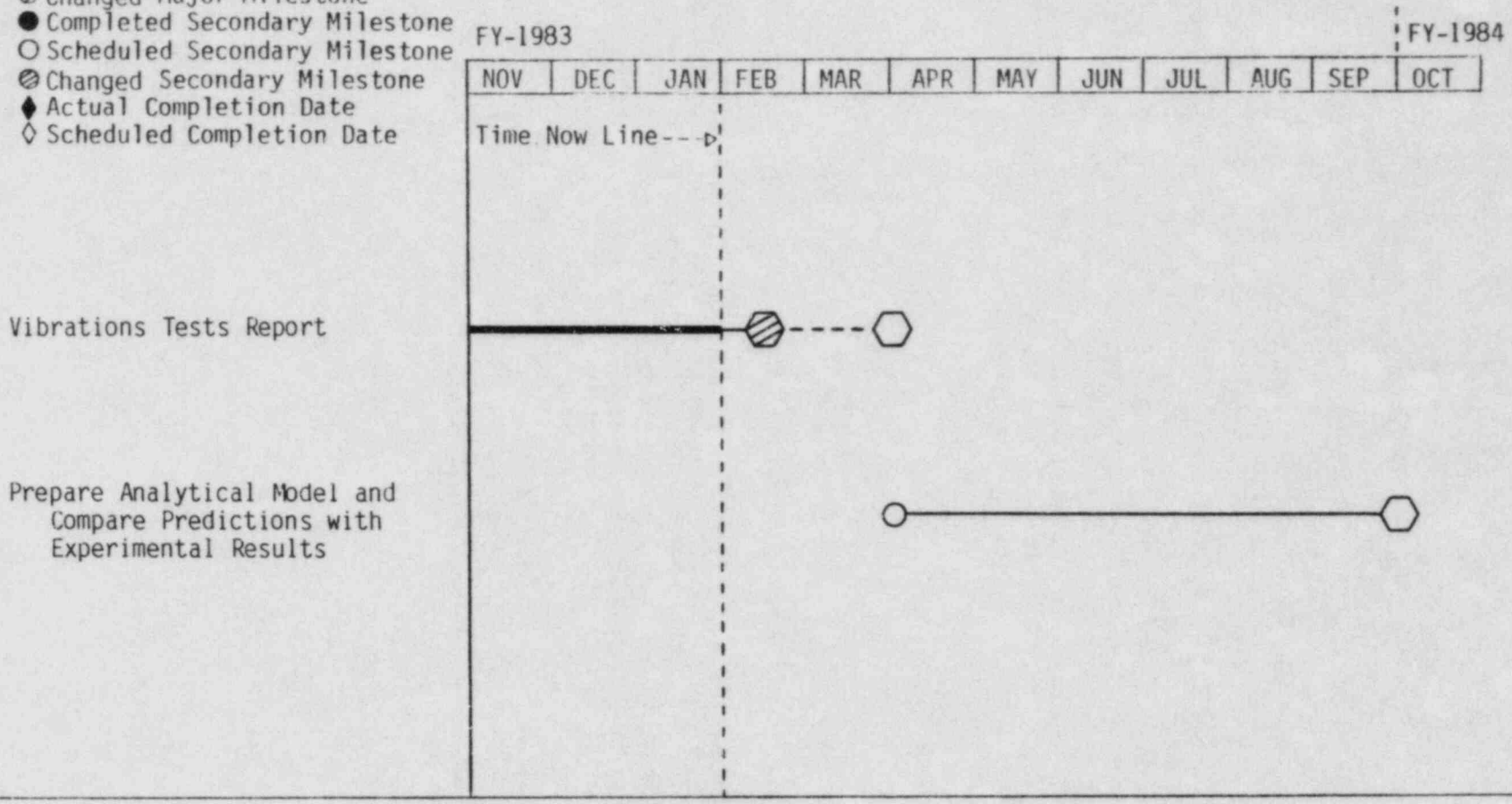
YTD VARIANCE: (6) (9%)

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 January 1983

HDR Mechanical Component Response Analysis (A6306)



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

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 January 1983

None.

2. Summary of Work Performed in January 1983

All of the major comments and requested revisions to the draft report on test results of two vessels tested at HDR have been incorporated in the final report. The report will be issued in March.

Preliminary scoping work on developing analytical models of the two test vessels was initiated this month.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Work will continue on modeling the two test vessels.

5. Problems and Potential Problems

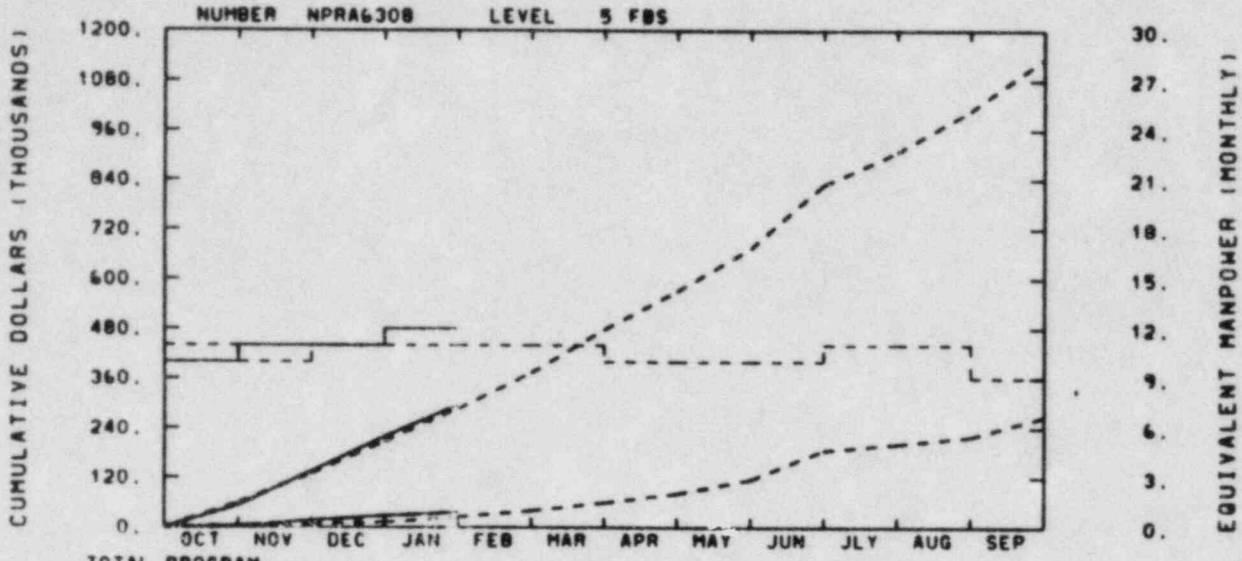
None.

RESPONSIBLE MANAGER
B F SAFFELL

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	296								

MATERIAL

BUDGET	4	8	12	25	41	60	82	115	186	201	219	268
ACTUAL	3	16	28	37								

MANPOWER

BUDGET	11	10	11	11	11	11	10	10	10	11	11	9
ACTUAL	10	11	11	12								

BUDGET

ACTUAL

189 NO. A6308

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 25.6	$ 96.9
MATERIALS, SERVICES AND OTHER COSTS	2.3	17.3
ADP SUPPORT	1.0	5.2
SUBCONTRACTS	0.0	1.1
TRAVEL	4.2	11.2
INDIRECT LABOR COSTS	34.4	130.3
GENERAL AND ADMINISTRATIVE	9.4	35.9
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 76.9	$ 295.7

A6308

YTD VARIANCE: (10) (3%)

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 January 1983

None.

2. Summary of Work Performed in January 1983

Test consoles for the evaluation facility were set in place and cathode ray tubes (CRTs) were installed.

Prebid tours for the remaining evaluation facility modifications (sound deadening, lighting, etc.) were completed.

The report on Predictor Displays was published this month (NUREG/CR-3103).

Comments on the pressure-temperature display were incorporated and display programming has started.

Data for the CRT design consideration report continue to be gathered.

Identification of the interactive display evaluation experiment design was initiated.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Data reduction and analysis of the most recently completed display evaluation experiment will continue. Work on developing the response tree experiment will continue.

Design of an interactive experiment for display evaluation will continue.

5. Problems and Potential Problems

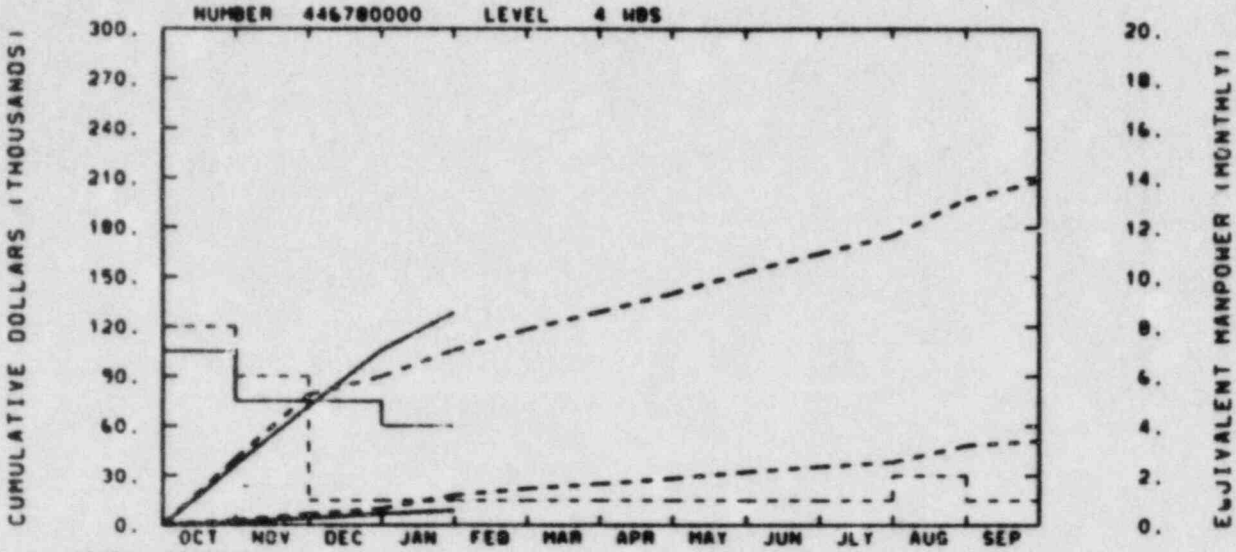
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

LOW LEVEL WASTE RISK METH A6310

NUMBER 446780000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	40	79	90	104	118	129	140	153	164	175	197	209
ACTUAL	36	72	106	123								

MATERIAL

BUDGET	3	7	10	19	22	25	28	32	35	38	48	51
ACTUAL	2	4	7	9								

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6310

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 7.7	$ 45.0
MATERIALS, SERVICES AND OTHER COSTS	0.3	1.0
ADP SUPPORT	1.6	6.9
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	10.4	59.8
GENERAL AND ADMINISTRATIVE	2.8	15.8
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 22.8	$ 128.5

A6310

YTD VARIANCE: (23) (22%)

The manpower will remain at a higher than anticipated level at least through February. The budget will be updated next month.

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 January 1983

None.

2. Summary of Work Performed in January 1983

A report describing the results of Tasks I and II (Consequence Model Review and Revision) is being prepared.

An automated method of conducting sensitivity studies and uncertainty analyses neared completion. A test sensitivity case study was completed. Work on integrating the scenario probability file into the risk calculations was started.

FY-1983 costs through January 1983 were 128.5K. Total expenditures for the project, FY-1982 and FY-1983, were 219.5K.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Preparation of the report on Tasks I and II will be completed for planned issuance in late March or early April.

Completion of our automatic sensitivity and uncertainty analysis computer subroutines is expected. A sensitivity analysis of the ATMOS code is also expected. Insertion of scenario probabilities into the appropriate data file will be initiated.

A letter report suggesting changes in consequence modeling will be completed.

5. Problems and Potential Problems

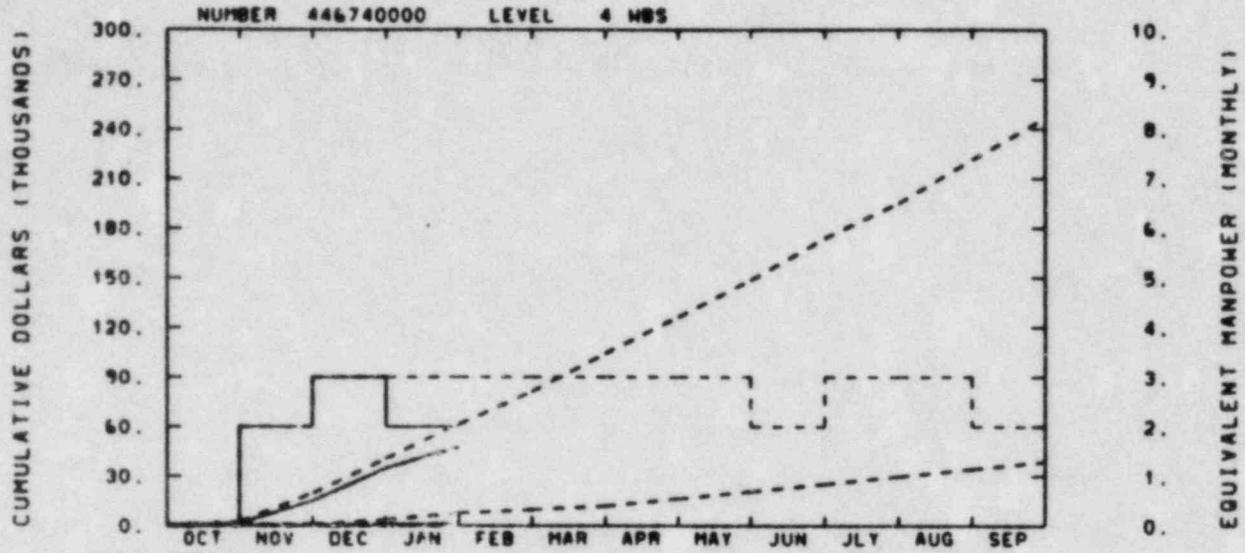
None.

RESPONSIBLE MANAGER
B F 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	248
ACTUAL	1	15	35	47								

MATERIAL

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

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6313

COST CATEGORIES	($0.0 K) CURRENT MONTH	($0.0 K) YEAR-TO-DATE
DIRECT SALARIES	$ 4.5	$ 17.4
MATERIALS, SERVICES AND OTHER COSTS	0.0	0.0
ADP SUPPORT	0.5	1.1
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	6.0	23.0
GENERAL AND ADMINISTRATIVE	1.5	5.8
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 12.5	$ 47.3

A6313

YTD VARIANCE: 14 (23%)

This project was understaffed in January. This problem has been resolved and costs should be in line with budget by the end of March.

A6313: Initiating Event Data Evaluation
EG&G Program/Technical Monitors: J. H. Linebarger/C. D. Gentillon
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 January 1983

None.

2. Summary of Work Performed in January 1983

The comparison of initiating event data in EPRI-NP-2230 and other sources (primarily the Gray Books) continued.

Several probabilistic risk assessments of nuclear power plants were surveyed to identify the grouping of initiating events in risk assessment event trees and the use of recovery factors.

The Electric Power Research Institute (EPRI) was contacted to request a computer tape of the initiating event data used in EPRI-NP-2230 for further statistical evaluation.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

The effort to obtain and categorize additional intiating event data will continue. Extraction of data from the Gray Books for all operating plants not included in EPRI-NP-2230 will begin.

5. Problems and Potential Problems

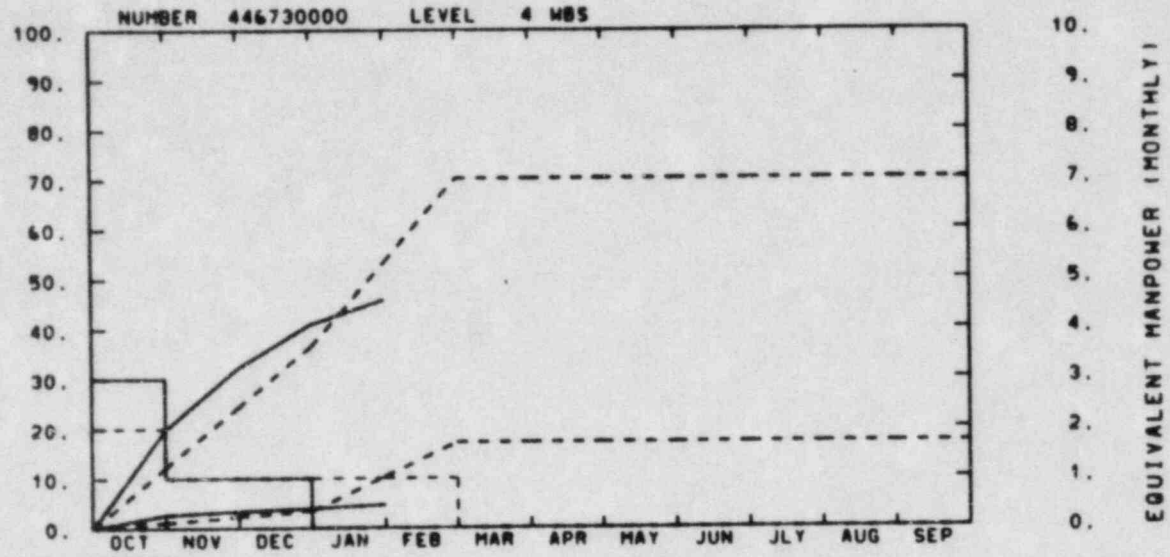
None.

RESPONSIBLE MANAGER
B F 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	46								

MATERIAL

BUDGET	1	2	3	10	17	17	17	17	17	17	17	17
ACTUAL	3	3	4	5								

MANPOWER

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

189 NO. A6315

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 1.5	$ 15.2
MATERIALS, SERVICES AND OTHER COSTS	0.0	1.9
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.6	2.1
INDIRECT LABOR COSTS	2.1	20.9
GENERAL AND ADMINISTRATIVE	0.6	5.6
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 4.8	$ 45.7

A6315

YTD VARIANCE: 7 (13%)

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 January 1983

None.

2. Summary of Work Performed in January 1983

Drafts of remaining report sections were received from other participating national laboratories.

Summary of results by other laboratories was deferred pending resolution of problems regarding fission product transport calculations.

Project personnel traveled to Oak Ridge on January 26 to meet with Brookhaven. Oak Ridge National Laboratories and NRC personnel regarding fission product transport calculations.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Letters will be prepared commenting on the draft reports submitted by the other participating national laboratories.

The schedule for the project will be revised based on results of the meeting in Oak Ridge on January 27, 1983.

5. Problems and Potential Problems

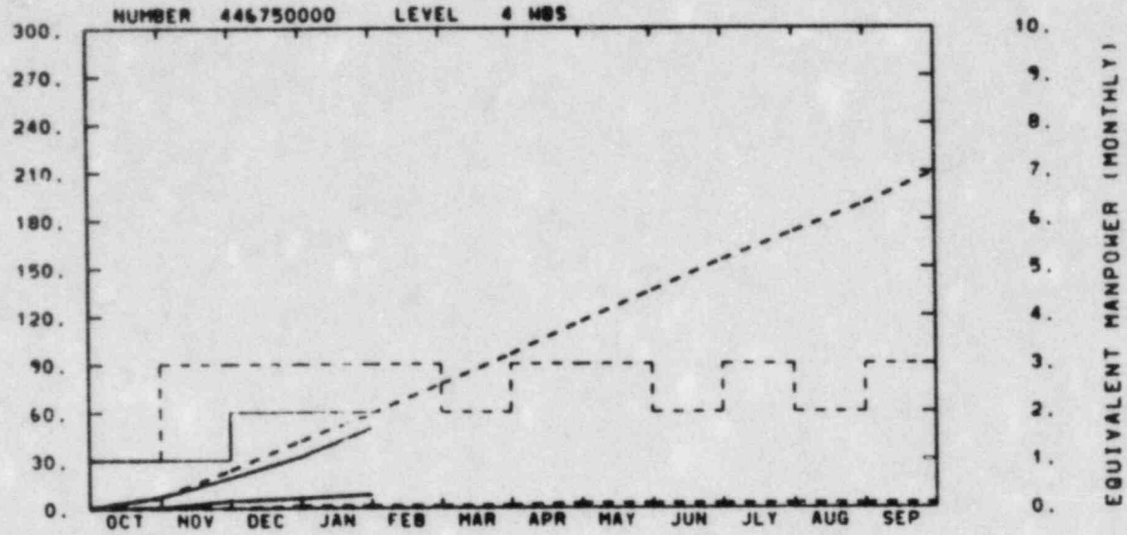
None.

RESPONSIBLE MANAGER
B F 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	50								

MATERIAL

BUDGET	0	0	1	1	1	1	3	3	3	3	3	3
ACTUAL	0	5	6	8								

MANPOWER

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

BUDGET ------

ACTUAL ——————

189 NO. A6316

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 5.8	$ 15.5
MATERIALS, SERVICES AND OTHER COSTS	0.5	5.4
ADP SUPPORT	0.9	1.5
SUBCONTRACTS	0.0	0.0
TRAVEL	0.5	0.5
INDIRECT LABOR COSTS	7.7	20.7
GENERAL AND ADMINISTRATIVE	2.1	6.1
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 17.5	$ 49.7

A6316

YTD VARIANCE: 9 (15%)

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 January 1983

Description	Due Date	Actual Date
Issue Test Plan for FY-1983 Piping Vibration	1-15-83T	1-7-83C Saff-5-83

2. Summary of Work Performed in January 1983

A test plan covering proposed tests for FY-83 was issued. Discussions were conducted with ANCO Engineers personnel concerning EG&G Idaho support of piping vibration tests scheduled for the Spring of 1983. A meeting of the Pressure Vessel Research Committee in San Francisco was attended on January 20-21.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work Performed in February 1983

Planning and procurement for FY-83 tests will be continued.

5. Problems and Potential Problems

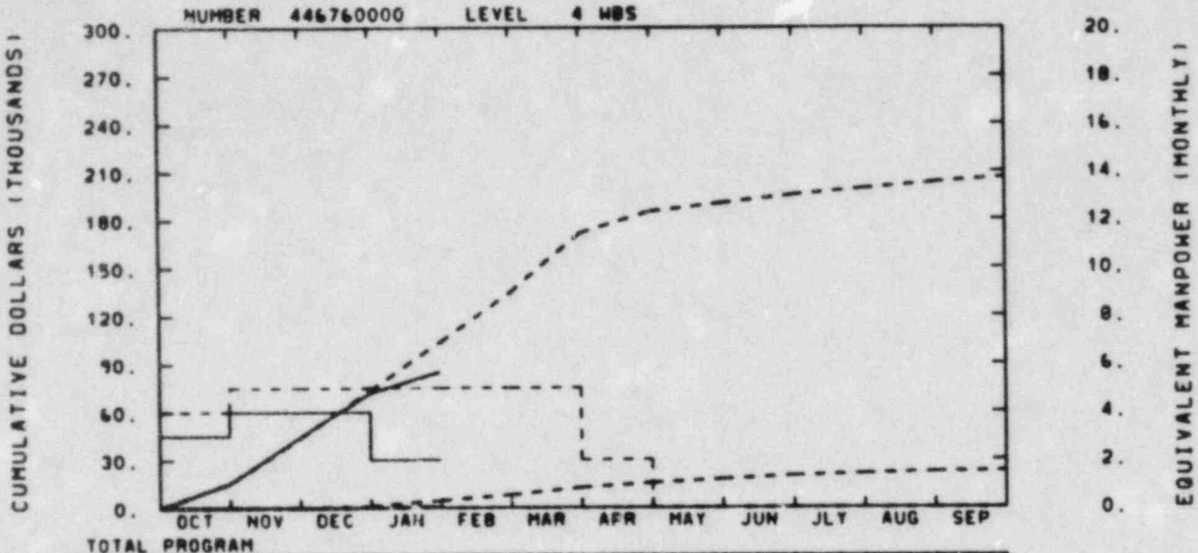
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

DATA FOR MREP A6317

NUMBER 446760000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	15	43	73	104	134	171	185	190	195	199	203	209
ACTUAL	15	44	72	85								

MATERIAL

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

MANPOWER

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

189 NO. A6317

COST CATEGORIES	($0.0 K) CURRENT MONTH	($0.0 K) YEAR-TO-DATE
DIRECT SALARIES	$ 4.8	$ 31.9
MATERIALS, SERVICES AND OTHER COSTS	0.5	0.7
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	6.3	42.1
GENERAL AND ADMINISTRATIVE	1.6	10.4
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 13.2	$ 85.1

A6317

YTD VARIANCE: 19 (18%)

The work has been rescheduled at a lower manpower level for the entire year. The budget will be updated next month.

A6317: Data for NREP
EG&G Program/Technical Monitors: J. H. Linebarger/R. E. Wright
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 January 1983

None.

2. Summary of Work Performed in January 1983

The paper entitled, "A Nuclear Regulatory Commission Overview of Data Bases for Nuclear Power Plant Risk Assessment", was finalized in preprint format for submission to the 4th EuRe Data conference, sponsored by the European Reliability Data Association. The paper was submitted for possible publication in the proceedings of that conference. Funding is not available to send an author to present the paper.

The engineering analysis of pump and valve failure modes was continued. Scope and personnel have been adjusted to coincide with NRC redirection as previously noted. Specific pump and valve applications have been defined for future in-depth failure mode analysis. Formats for the failure mode analyses are being developed.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

The engineering analysis of pump and valve failure modes will continue. Additional technical data from pump and valve suppliers will be requested. Work will focus on initiation of the failure mode analyses and preliminary drafting of the introductory section for the draft reports.

5. Problems and Potential Problems

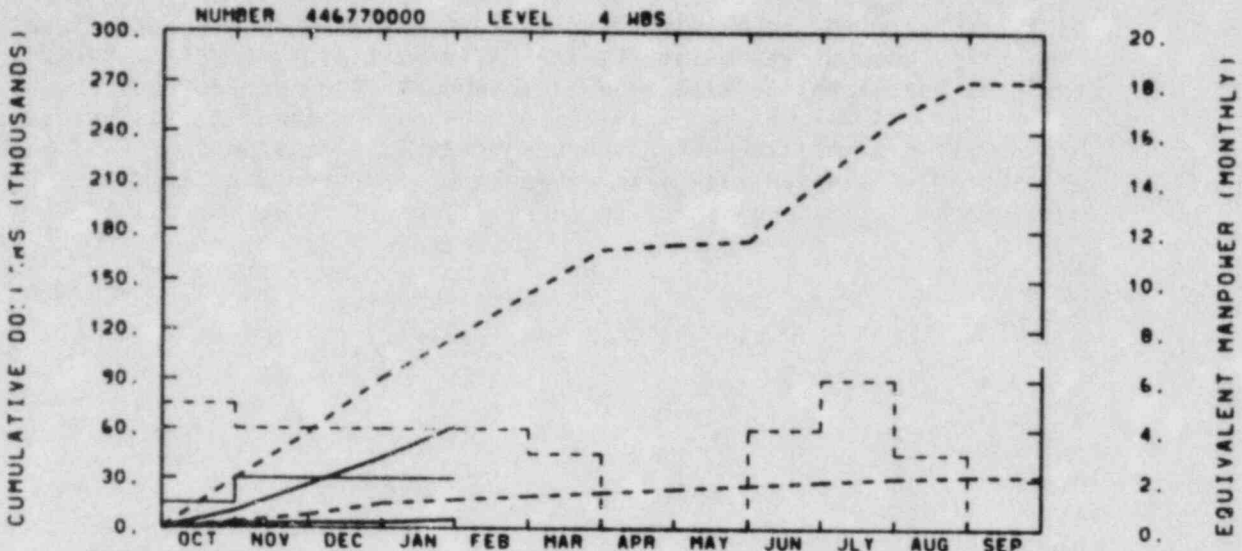
None.

RESPONSIBLE MANAGER
B F 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	61								

MATERIAL

BUDGET	3	8	15	17	19	22	24	26	29	31	32	32
ACTUAL	2	3	3	5								

MANPOWER

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

BUDGET
ACTUAL

189 NO. A6318

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 6.4	$ 21.1
MATERIALS, SERVICES AND OTHER COSTS	0.6	1.4
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.9	3.1
INDIRECT LABOR COSTS	8.4	28.0
GENERAL AND ADMINISTRATIVE	2.3	7.5
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 18.6	$ 61.1

A6318

YTD VARIANCE: 54 (47%)

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 approximatey $25K. A budget reevaluation is underway.

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 January 1983

None.

2. Summary of Work Performed in January 1983

The American Society for Testing and Materials (ASTM) Task Group Meeting (E10.02.07) on In-Situ Annealing was attended in Orlando, Florida. The first meeting of this task group was held to define the ASTM E10 scope and effort needed to address this issue for the nuclear industry. Discussions ensued in which the general philosophy was that the ASTM E10.02 task group look at the materials problems (namely the vessel material) and that some other organization, (such as the American Society of Mechanical Engineers (ASME)), evaluate the overall system problems. It was decided that the different groups of members representing the reactor vendors, architect/engineers, and experimentalists provide a basic flow chart of the decision-making process for planning and subsequently completing a thermal annealing procedure. These groups are to provide this input to the EG&G Idaho Task Group chairman by the end of February. A review document on the existing base of data is to be written by the EG&G Idaho Task Group chairman and J. R. Hawthorne of Materials Engineering Associates. Once this information is complete, the scope of the task group can be better defined in terms of what particular standards and/or guides need to be written. A task group meeting is planned for June in Colorado Springs, and an interim meeting may be scheduled in April if warranted.

2. Summary of Work Performed in January 1983 (Continued)

The draft annual report was completed and will be officially submitted to the NRC. Work on the topical report of parametric effects of annealing is in progress. Due to the recent emphasis placed on the system aspects, the NRC Technical Monitor has asked for a short delay in completing the parametric annealing work in order to concentrate on the system problems.

The subcontract to Cooperheat is currently in negotiation and may be awarded this month. At the end of this month, the Materials Engineering Branch Chief will be visiting the Idaho National Engineering Laboratory facilities to review this project.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

This ASME meetings of Section XI of the Boiler and Pressure Vessel Code will be attended in California. The foreign trip to review European activity on annealing will be taken at the end of February. Hopefully, the Cooperheat subcontract will be initiated and questions from Cooperheat regarding the potential commercial reactor facilities must be addressed.

5. Problems and Potential Problems

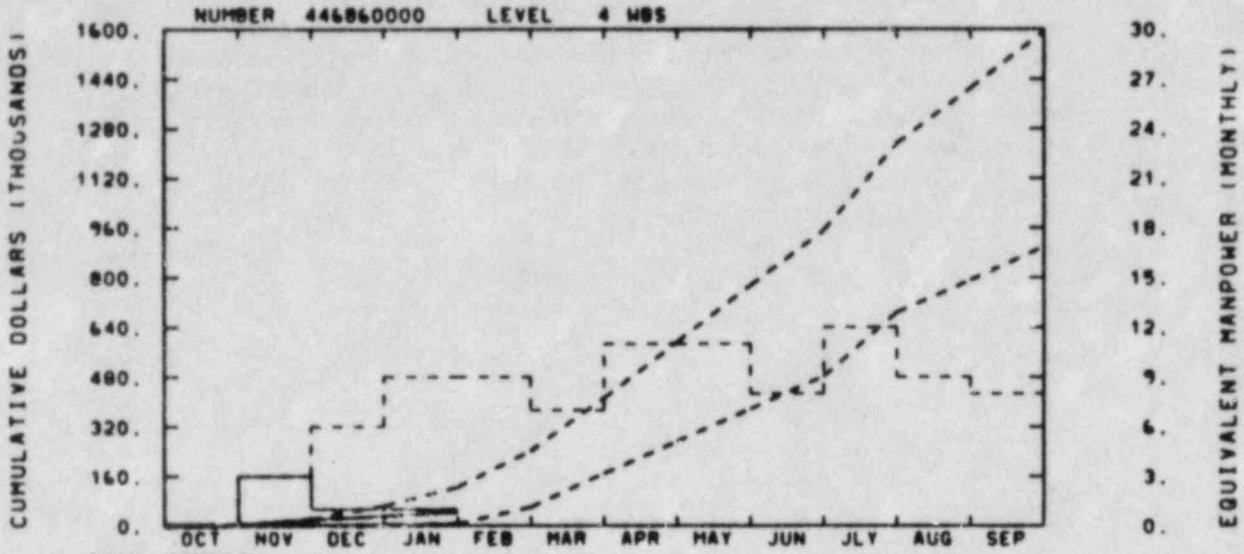
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

EQUIPMENT QUALIFICATION A6322

NUMBER 446860000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	2	21	65	124	241	412	592	774	950	1232	1410	1593
ACTUAL	2	21	31	43								

MATERIAL

BUDGET	0	2	3	6	60	169	273	377	482	687	791	898
ACTUAL	0	2	3	4								

MANPOWER

BUDGET	0	3	6	9	9	7	11	11	8	12	9	8
ACTUAL	0	3	1	1								

189 NO. A6322

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 3.9	$ 14.7
MATERIALS, SERVICES AND OTHER COSTS	0.2	0.2
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.8	3.0
INDIRECT LABOR COSTS	5.3	20.0
GENERAL AND ADMINISTRATIVE	1.4	5.3
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 11.6	$ 43.2

A6322

YTD VARIANCE: 81 (65%)

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 electrical equipment.

1. Scheduled Milestones for January 1983

None.

2. Summary of Work Performed in January 1983

The EQRP final Form 189 was transmitted to the Nuclear Regulatory Commission-Office of Regulatory Research (NRC-RES).

Work continued to develop the containment purge/vent valve research test program. The test reports and valve performance analysis reports received from Nuclear Reactor Regulation (NRR)-Equipment Qualification Branch (EQB) were evaluated as part of the process of identifying important test parameters and conditions. Valve vendor price and delivery time information was received in preparation for valve procurement. In an attempt to assess the valve industry population, a literature search addressing purge/vent valves was requested through Planning Research Corporation which manages the NRC document control system. Additional information concerning valve population and test/analysis results was requested from NRR-EQB.

Work continued to organize the Technical Advisory Group (TAG). A list of potential participants was developed. Confirmation of a willingness to participate was obtained from some of the candidates. A draft work breakdown structure was partially completed for use in the first TAG meeting.

The risk study strategy planning was finalized. Participants will include key personnel from the Accident Sequence Evaluation Program, Seismic Safety Margin Research Program, the Brookhaven National Laboratory A-46 Seismic Study, and the EQRP. The meeting will be held on February 15 and 16 in Idaho Falls. Advance material packages were assembled and distributed to meeting participants.

A draft proposal that addresses a proposed study to investigate mechanical equipment under dynamic loads was received from Dr. Sami Masri at the University of Southern California (USC). The proposal submits that a 5 year study which was terminated by NRC approximately 1.5 years ago be continued within EQRP. The proposal will be evaluated in February.

2. Summary of Work Performed in January 1983 (Continued)

A meeting was held in Idaho Falls with a representative of National Technical Systems (NTS) for the purpose of gaining knowledge of NTS's test/analysis capabilities which could support EQRP.

Contact was also made with Structural Mechanics Associates to discuss the appropriateness of incorporating a study to evaluate a probabilistic approach to defining combined dynamic environments.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

The containment purge/vent valve test requirements document will be finalized, population survey will be completed and test valve procurement initiated.

The TAG membership will be finalized. The first meeting will be held in the last half of the month pending the development of minimal schedule conflicts of the participants. A draft work breakdown structure will be completed for use in the meeting.

The EQRP risk study strategy planning meeting will be held in Idaho Falls on February 15 and 16. It is anticipated that this planning session will define activities, durations, and performers required to evaluate the initial risk study.

The draft proposal received from Dr. Masri of USC will be evaluated for possible incorporation into the EQRP. If it is found to be congruent with the EQRP objectives, it will be incorporated into the program.

The Structural Mechanics Associates proposal will be evaluated for incorporation in EQRP.

5. Problems and Potential Problems

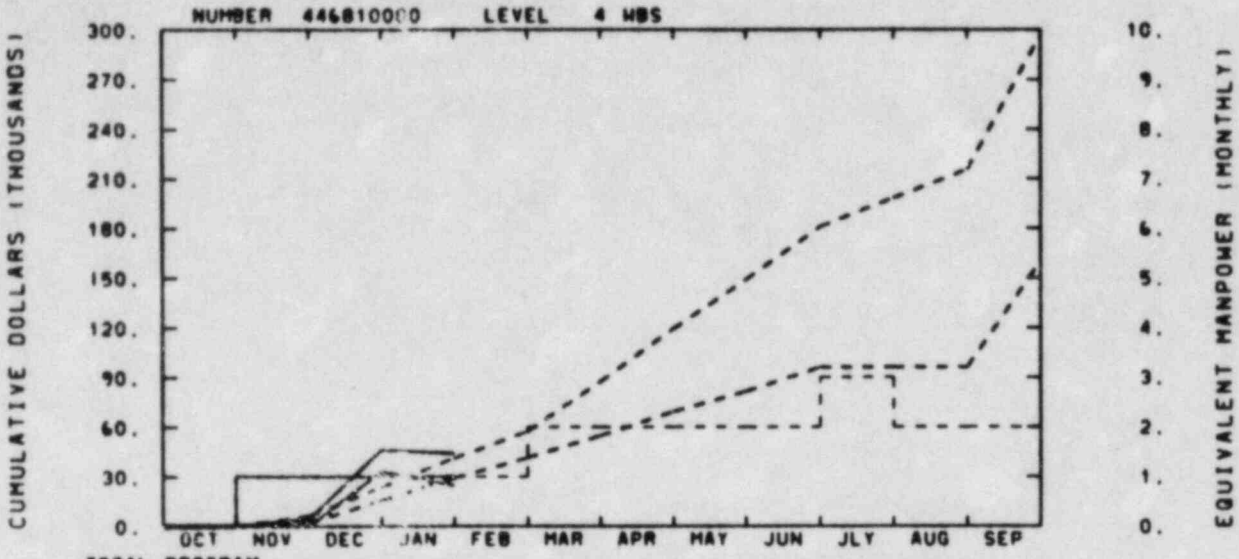
None.

RESPONSIBLE MANAGER
B F SAFFELL

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	44								

MATERIAL

BUDGET	0	2	16	29	41	55	69	82	96	96	96	160
ACTUAL	0	0	33	25								

MANPOWER

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

BUDGET
ACTUAL

189 NO. A6331

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 2.4	$ 7.3
MATERIALS, SERVICES AND OTHER COSTS	0.9-	2.6
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	8.3-	20.6
TRAVEL	0.9	0.9
INDIRECT LABOR COSTS	3.2	9.7
GENERAL AND ADMINISTRATIVE	0.8	2.9
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 1.9-	$ 44.0

A6331

YTD VARIANCE: (3) (7%)

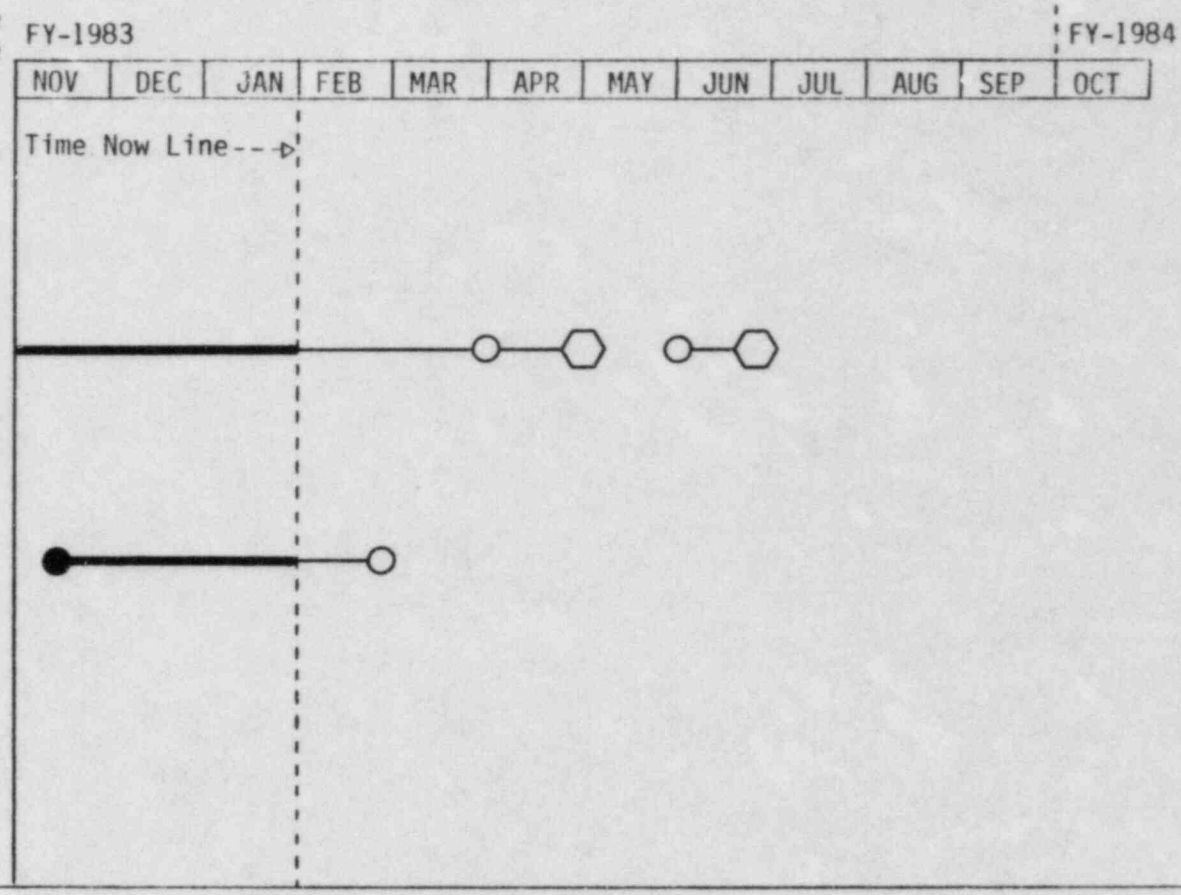
Work planned for FY-1983 has been deferred until FY-1984. The budget will be corrected next month reflecting this change.

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 January 1983

Emergency Operating Procedure Guidelines (A6331)



NOTES:* The schedule in June depends on support from a utility. The final report will be issued one month after utility review and comment on the draft report.

A6331: Emergency Operating Procedure Guidelines
EG&G Program/Technical Monitors: J. H. Linebarger/W. H. Sullivan
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 January 1983

None.

2. Summary of Work Performed in January 1983

The EG&G Idaho staff has analyzed two accident sequences that were recommended by Wood, Leaver and Associates (WLA) to enhance the EG&G Idaho staff training. A meeting of the WLA and EG&G Idaho technical participants was held at EG&G Idaho during the last week in January to discuss training progress and to finalize plans for the remainder of the tasks to be accomplished.

The funding previously authorized for the Babcock and Wilcox (B&W) and Combustion Engineering (CE) studies (200 K) was deferred until FY-1984. The impact of this change is being assessed.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

The WLA subcontract and the program milestones will be updated to reflect the final program plans.

The WLA technical staff will continue to analyze the General Electric Emergency Procedure Guidelines in accordance with the plans developed at the January meeting. However, the degree of involvement of the EG&G Idaho staff in this work will be substantially reduced due to the loss of FY-1983 funding.

5. Problems and Potential Problems

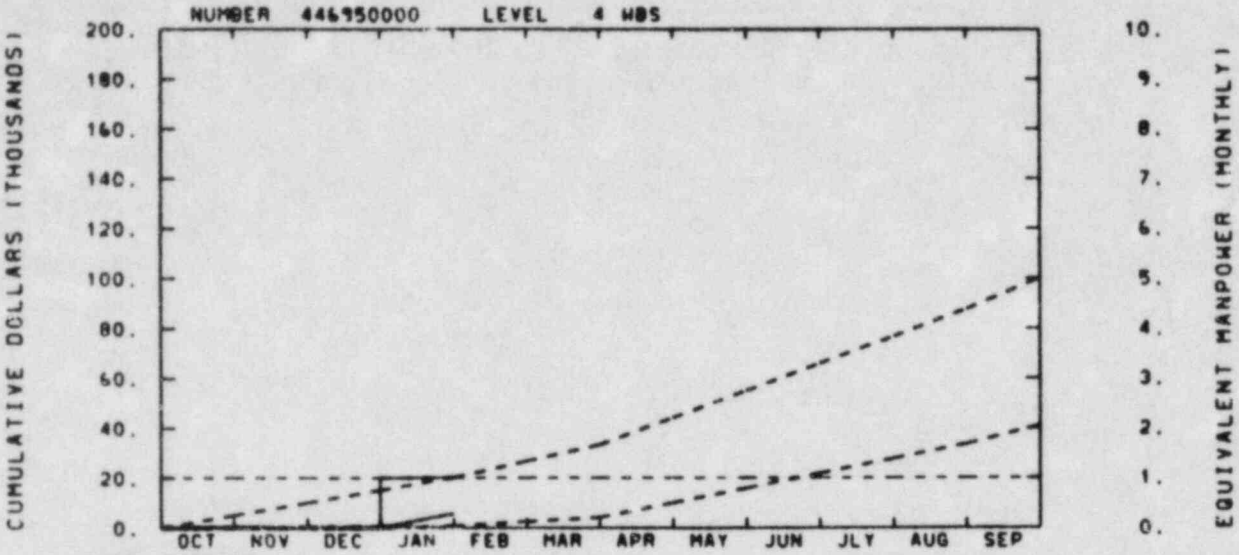
Deferral of FY-1983 funding will reduce the degree of EG&G Idaho involvement in applying the methodology in FY-1983. The loss of this experience will reduce the scope of work which can be accomplished for the $200K funding planned for FY-1984. Without this training, the scope of the work deferred until 1984 will be reduced.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

AEOD THERM HYD HANDBOOK A6336

NUMBER 446950000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	5	10	15	20	27	33	44	55	66	77	88	100
ACTUAL	0	0	0	6								

MATERIAL

BUDGET	0	0	1	1	2	4	10	16	22	28	34	41
ACTUAL	0	0	0	0								

MANPOWER

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

BUDGET ------

ACTUAL ——————

189 NO. A6336

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 2.0	$ 2.0
MATERIALS, SERVICES AND OTHER COSTS	0.1	0.1
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	2.9	2.9
GENERAL AND ADMINISTRATIVE	0.7	0.7
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 5.7	$ 5.7

A6336

YTD VARIANCE: 14 (70%)

An error was made in the initial input of this budget. It will be corrected next month. Therefore, the true variance is $1K (14%) instead of the variance that is shown.

A6336: Development of a Systems Analysis Handbook
EG&G Program/Technical Monitors: T. R. Charlton/R. W. Garner
DOE Technical Monitor: P. E. Litteneker
NRC Technical Monitor: J. Hopenfeld/W.Lanning

The objective of this work is to develop the format of a Systems Analysis Handbook (SAH) that can be used for pressurized water reactors (PWRs) and boiling water reactors (BWRs) and the collection and analyses of the required information for the SAH. The SAH will be a set of loose leaf notebooks with the information in a readily usable format.

1. Scheduled Milestones for January 1983

None.

2. Summary of Work Performed in January 1983

The task was initiated with primary emphasis on obtaining an overview of the data requirements and literature search for the specific data desired. The data are being classified as plant specific, vendor specific, and generic.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

A meeting will be held with the Nuclear Regulatory Commission (NRC) and EG&G Idaho personnel to discuss data requirements, feasibility, and handbook format.

Evaluation and identification of data requirements will continue. The meeting with NRC personnel on February 15, 1983 will determine feasibility and document format.

5. Problems and Potential Problems

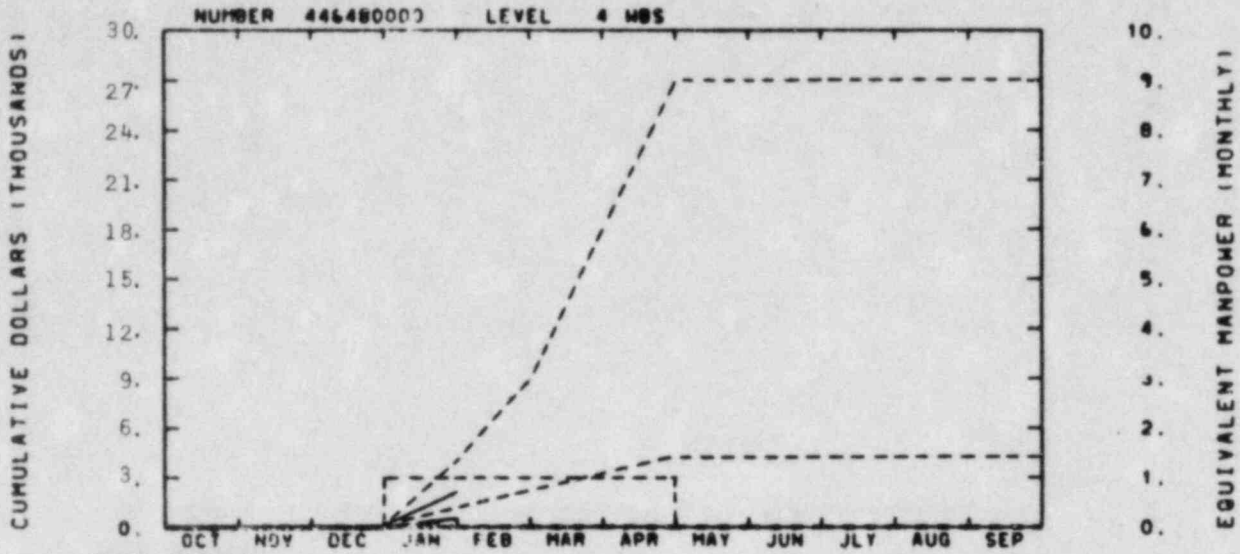
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

KUOSHENG SRV DISCHARGE A6353

NUMBER 446480000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	0	4	9	18	27	27	27	27	27	27
ACTUAL	0	0	0	2								

MATERIAL

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

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6353

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 0.7	$ 0.7
MATERIALS, SERVICES AND OTHER COSTS	0.0	0.0
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.1
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	0.9	0.9
GENERAL AND ADMINISTRATIVE	0.2	0.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 1.8	$ 1.8

A6353

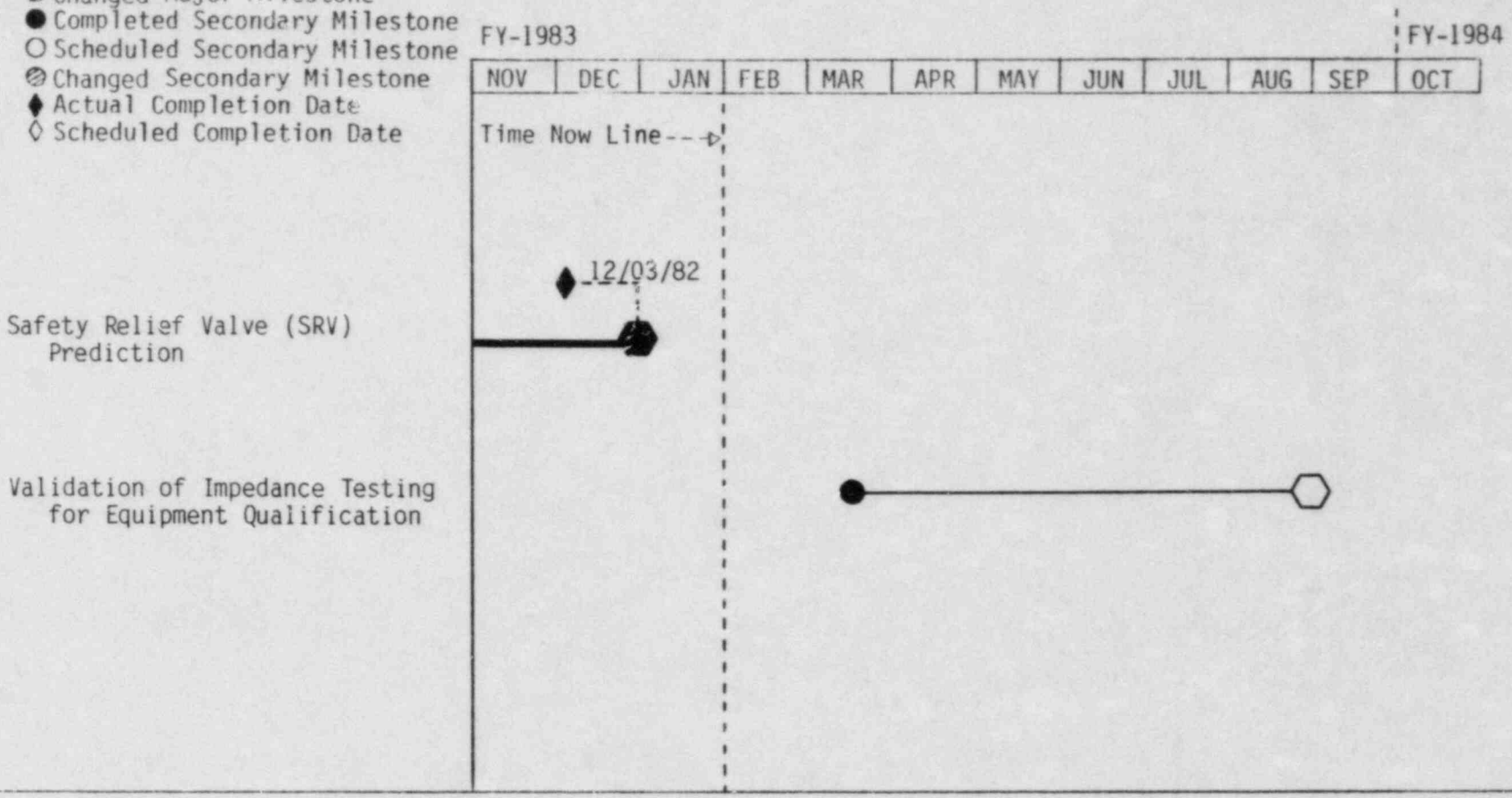
YTD VARIANCE: 2 (50%)

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 January 1983

Kuo-Sheng (A6353)



NOTES:

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 January 1983

None.

2. Summary of Work Performed in January 1983

The computer program which will use the impedence test results to predict the SRV test accelerations was written.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Debugging of the computer program written in January will begin.

5. Problems and Potential Problems

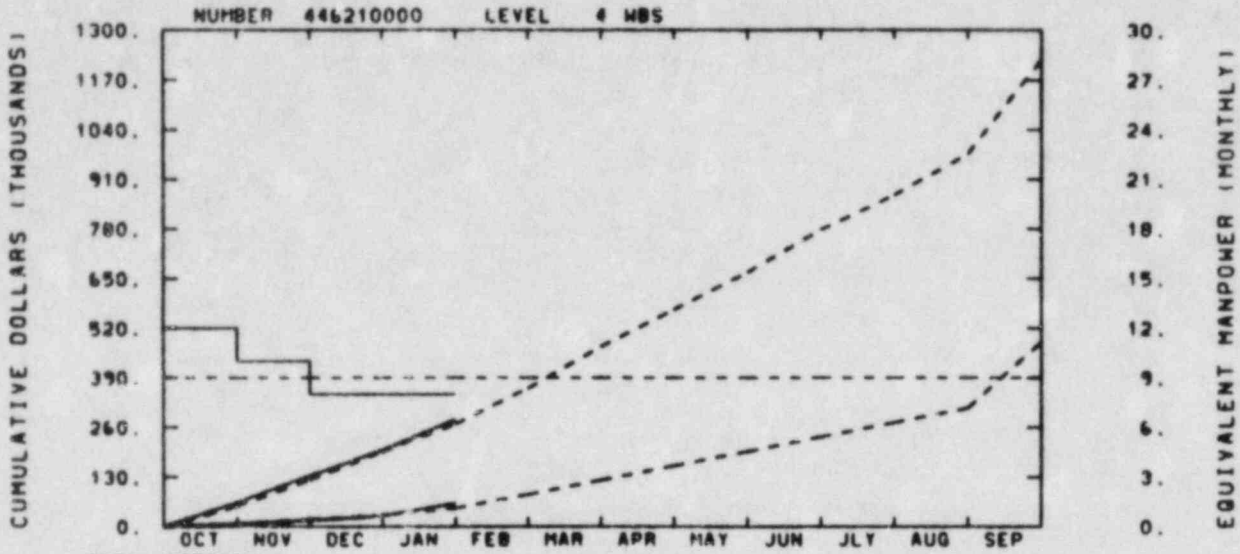
None.

RESPONSIBLE MANAGER
B F 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	1222
ACTUAL	63	133	200	280								

MATERIAL

BUDGET	7	19	31	48	84	122	160	197	235	272	310	483
ACTUAL	8	17	29	62								

MANPOWER

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

BUDGET
ACTUAL

189 NO. A6354

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 19.2	$ 82.7
MATERIALS, SERVICES AND OTHER COSTS	15.0	18.0
ADP SUPPORT	11.1	32.5
SUBCONTRACTS	0.0	0.0
TRAVEL	3.2	3.8
INDIRECT LABOR COSTS	22.0	108.9
GENERAL AND ADMINISTRATIVE	9.9	34.4
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 80.4	$ 280.3

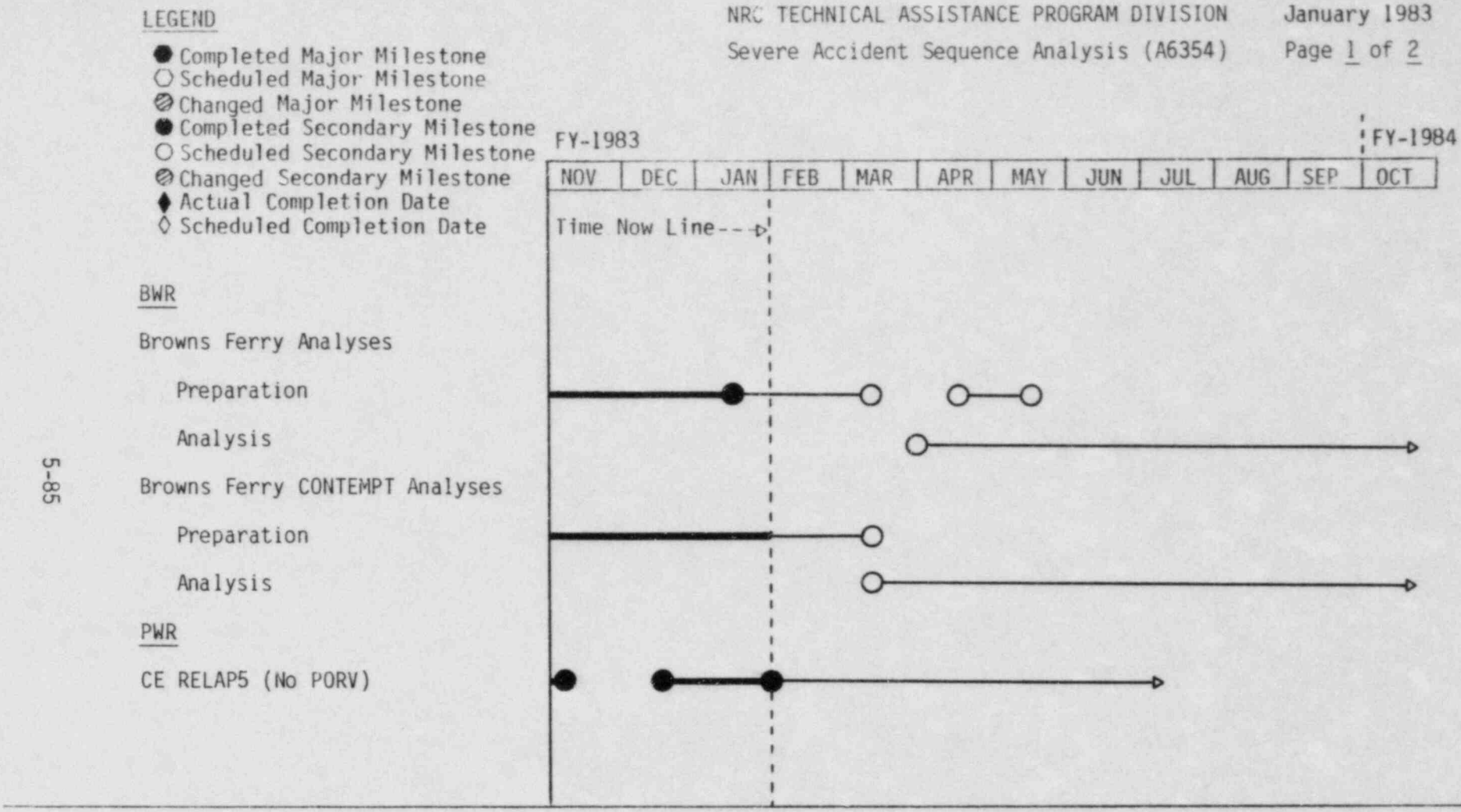
A6354

YTD VARIANCE: (12) (4%)

The budget does not reflect an additional $155K that has just been received. The budget will be updated next month.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION January 1983

Severe Accident Sequence Analysis (A6354) Page 1 of 2

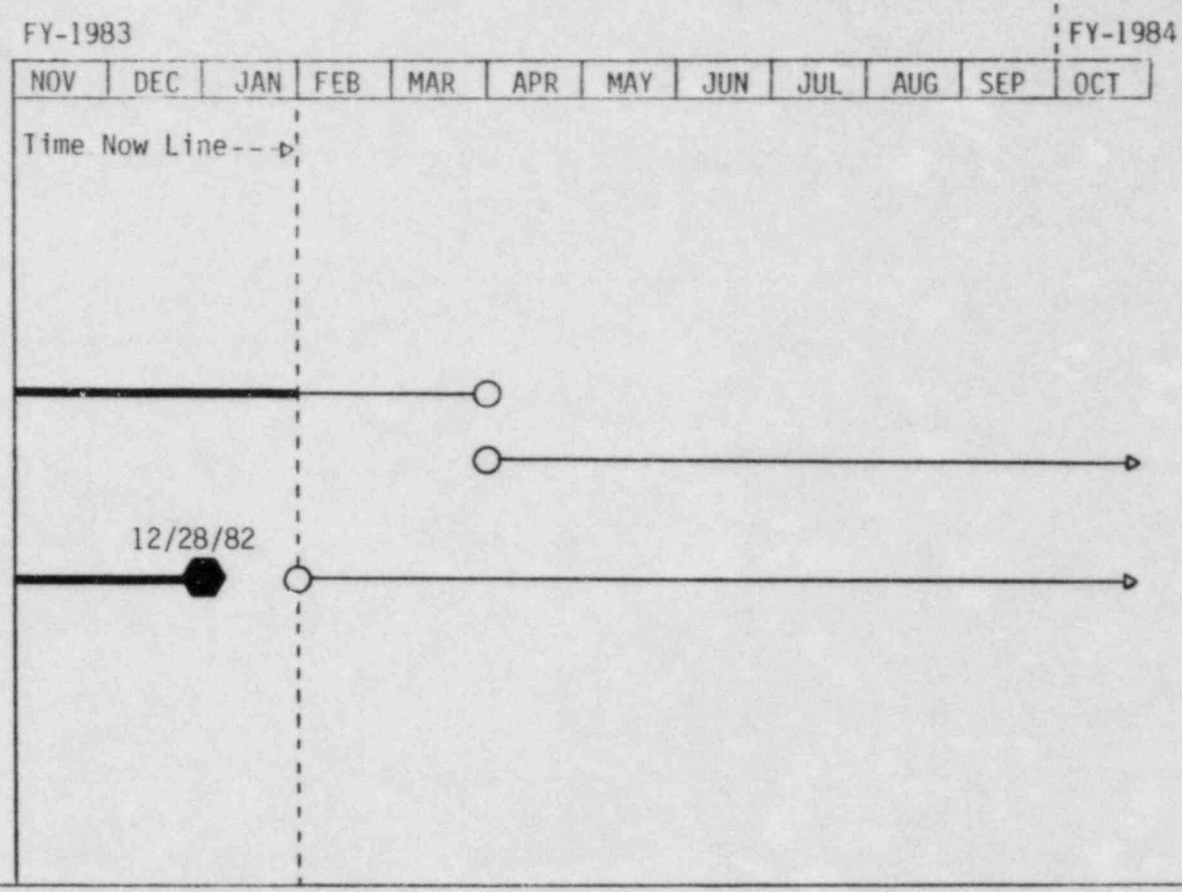


NOTES: CESSAR 80 work has been deleted from the schedule after consultation with the NRC Technical Monitor. The need for this analysis is not clear at this time; however, a specific need may arise in the future.

The acronym "IREP" was removed from the Browns Ferry Analyses designation to indicate that IREP, ASEP, Operator Guidelines, and ATWS rulemaking considerations will be used in determining what specific anaiyses to perform.

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:

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. A resident representative in the United Kingdom is also funded by this activity, and is reported separately to the Nuclear Regulatory Commission (NRC).

1. Scheduled Milestones for January 1983

None.

2. Summary of Work Performed in January 1983

Browns Ferry (BF) Analysis:

A paper entitled "Application of the RELAP5 Code to the Station Blackout Transients at the Browns Ferry Unit One Plant" was presented at the 2nd American Nuclear Society/American Society of Mechanical Engineers International Topical Meeting on Nuclear Reactor Thermal Hydraulics in Santa Barbara, California.

Quality assurance and upgrading of the RELAP5 model began. This work is scheduled to be completed in March.

Upgrading and adapting CONTEMPT to perform containment calculations in parallel with RELAP5 Nuclear Steam Supply System (NSSS) calculations continued. The needed plotting and restart capabilities will be completed in March.

Preliminary discussions to develop an integrated strategy for selecting calculation sequences were held. A decision was made to develop an Anticipated Transient Without Scram (ATWS) strategy separate from a strategy for selection of other types of sequences. This decision was based on four considerations. The first was preliminary information from the Accident Sequence Evaluation Program (ASEP). The second is the ATWS rulemaking which is in progress. The third is the difficulty and cost of calculating ATWS events. The fourth is the lack of experimental data. A decision was also made to wait for ASEP results and combine these results with other information such as Interim Reliability Evaluation Program (IREP) results, significant findings from the review of emergency operating procedures and engineering judgment. The initial ASEP results will be available early in February. This dovetails with the need to quality-assure the RELAP5 model and the availability of additional Browns Ferry information to perform the quality assurance review.

2. Summary of Work Performed in January 1983 (Continued)

Browns Ferry (BF) Analysis: (Continued)

The possibility of coordinating the INEL ATWS strategy with the work Brookhaven National Laboratory (BNL) is doing for NRR was explored. The results are promising. The plan is to integrate their work, as applicable, into the INEL strategy. In addition, the feasibility of each lab independently performing the same calculation to provide a benchmark for further calculations will be considered.

The ATWS strategy will also include the calculations being performed under FIN A6039. In addition, there are plans to discuss a coordinated INEL/ORNL ATWS calculation.

ANO-2 Analysis:

Four ANO-2 steam generator tube rupture scenarios were calculated, analyzed, and furnished to NRR/RSB. The results were presented to the ACRS on January 27, 1983. The question being addressed is the need for PORVs on CE plants.

A short progress report was presented and modeling details were discussed at a meeting on January 12, 1983 in Washington, D.C. with the NRC, CE, and representative of other laboratories.

Bellefonte Analysis:

Development of the RELAP5 plant deck continued on schedule. Plans were made to hold modeling discussions with Sandia at INEL in February. A meeting will be scheduled with Tennessee Valley Authority (TVA) early in March to obtain additional plant information, discuss modeling details, and coordinate what scenarios to calculate.

During a telecon between Sandia and INEL, it was decided to review and revise, as needed, the initially agreed upon calculation scenarios. Each lab will use the ASEP information, now available and other pertinent factors to formulate a list of scenarios. The two lists will be exchanged and coordinated in February prior to the meeting with TVA.

SCDAP Analysis:

Discussions were held with ASEP technical representatives from Sandia and INEL to determine the more probable scenarios which would produce hydrogen, steam, and non-condensible gas overpressures. This list is currently being reviewed and compared with the SCDAP development schedule to formulate an analysis plan.

The plan will be coordinated with the NRC Technical Monitor and implemented when approved.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Browns Ferry (BF) Analysis:

Quality assurance and updating of the RELAP5 NSSS model will continue. CONTEMPT adaptation will continue and be nearly completed. Work on refining a calculational strategy will continue using information obtained from the ASEP program.

ANO-2 Analysis:

A plan to redo the ANO-2 loss-of-feedwater calculation will be formulated. Coordination with NRR will continue to determine if additional steam generator tube rupture scenarios should be calculated. Documentation of all the ANO-2 calculations will begin.

Bellefonte Analysis:

Development of the RELAP5 plant deck will continue. A final list of needed plant data will be transmitted to TVA. Sandia and INEL will meet to review RELAP5 and MARCH modeling consistency. Plans for a meeting with TVA early in March will be finalized, and a list of calculational scenarios will be coordinated by Sandia and INEL.

SCDAP Analysis:

An analysis plan will be developed, in concert with the SCDAP development plan, and coordinated with the NRC Technical Monitor.

5. Problems and Potential Problems

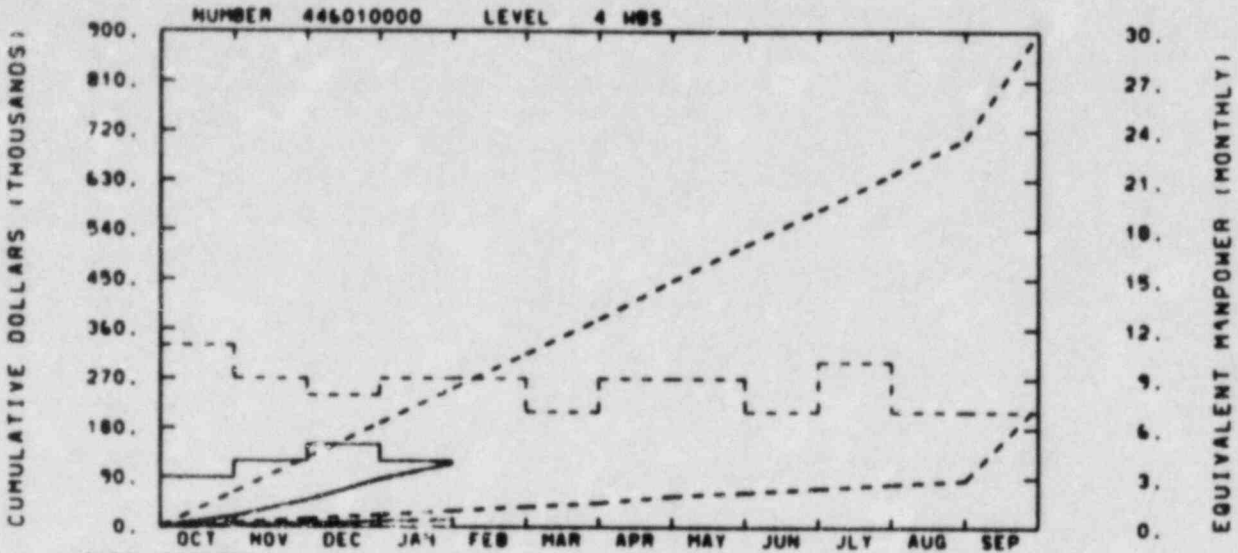
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

SAFETY & RELIEF VAL A6356

NUMBER 446010000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	63	126	189	251	314	377	447	511	576	640	705	900
ACTUAL	20	49	87	115								

MATERIAL

BUDGET	7	15	22	30	37	44	56	64	71	78	86	222
ACTUAL	3	6	11	14								

MANPOWER

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

BUDGET - - - - - -
ACTUAL ———

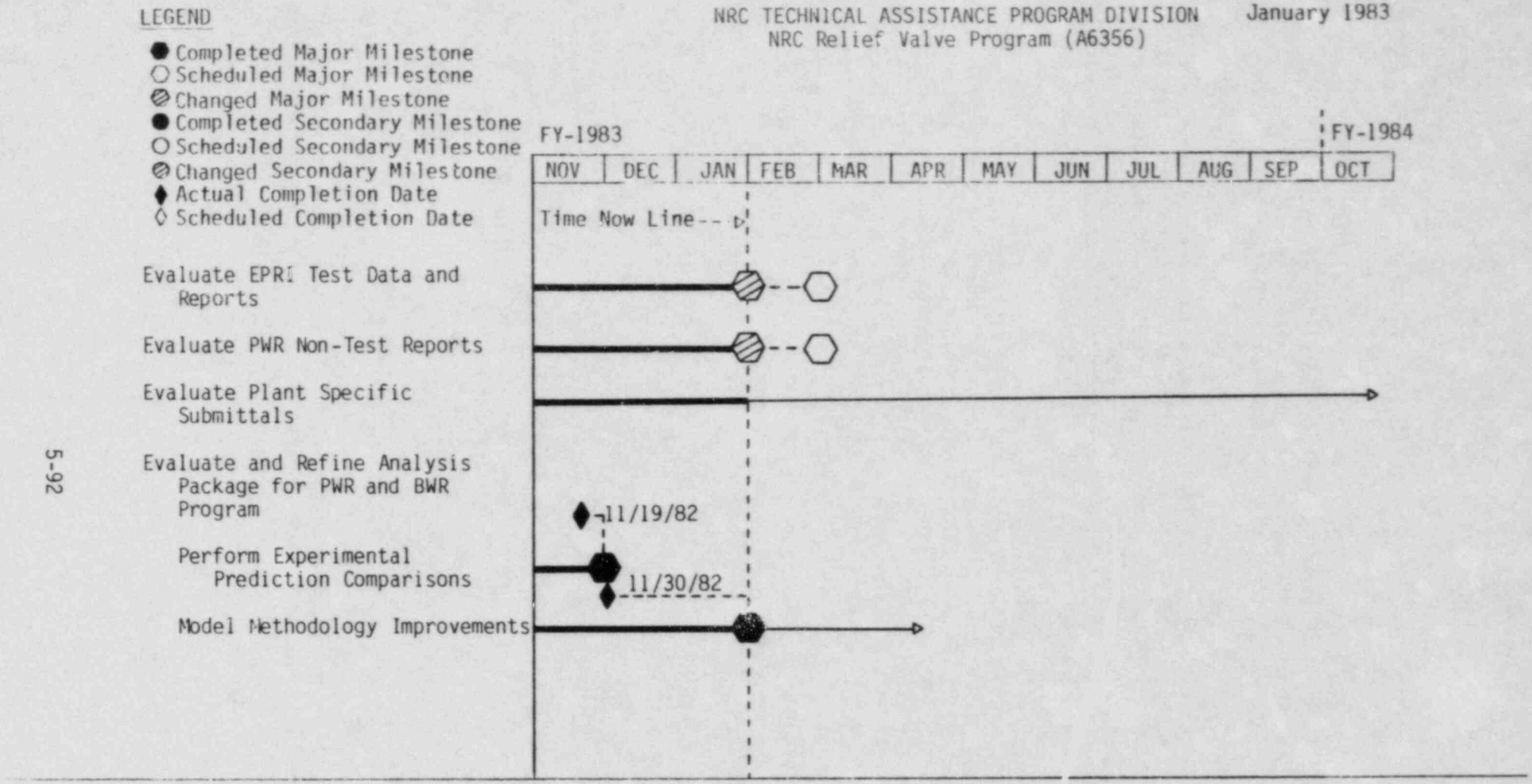
189 NO. A6356

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 5.4	$ 37.7
MATERIALS, SERVICES AND OTHER COSTS	0.9	1.8
ADP SUPPORT	1.9	9.5
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.8
INDIRECT LABOR COSTS	12.7	51.3
GENERAL AND ADMINISTRATIVE	3.5	14.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 28.4	$ 115.3

A6356

YTD VARIANCE: 136 (54%)

The underrun is due primarily to the prolonged schedule for receiving plant specific system analyses from the utilities. The budget assumes the analyses will be received and evaluated 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.


NRC TECHNICAL ASSISTANCE PROGRAM DIVISION
NRC Relief Valve Program (A6356)
January 1983
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
FY-1983
FY-1984
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
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
11/30/82
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 questio 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 January 1983

None.

2. Summary of Work Performed in January 1983

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-hydraulics 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 the review of this report has been completed and previously reported.

2. Summary of Work Performed in January 1983 (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.

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 and work was initiated to incorporate the comments in an evaluation report.

Work continued to evaluate and combine comments concerning the Electric Power Research Institute (EPRI) Pressurized Water Reactor (PWR) Block Valve Information Package.

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 continued. Comments were received from the reviewers and work was initiated to incorporate the comments in an evaluation report.

Task 3: Evaluate Plant Specific Submittals

A draft safety evaluation report was previously 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.

Reviews were begun for five BWR plant submittals, Browns Ferry Units 1, 2, and 3, Cooper, Fitzpatrick, Big Rock Point and LaCrosse.

Structural information necessary to do an audit calculation for San Onofre 2 and 3 was identified. Work was continued to identify the necessary thermal-hydraulic data

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

a. Perform Experimental Prediction Comparison

This task was previously completed.

2. Summary of Work Performed in January 1983 (Continued)

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 was completed.

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. Work continued on revising R5FORCE the technique used to evaluate piping hydraulic loads from RELAP5 output. The revision to handle computation of loads through the RELAP5 branches was completed and work continued to correct difficulties with force balances on elements.

Effort continued to evaluate the thermal-hydraulic guidelines using the Virgil C. Summer PWR safety/relief valve system. Additional work is now being delayed pending resolution of the R5FORCE difficulties.

Three EPRI generated papers related to the program that were presented at the ASME winter annual meeting have been reviewed. A letter report was prepared detailing the comments.

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. A suggested agenda previously transmitted to the NRC is being revised to incorporate items identified in the recent reviews of the EPRI test reports.

3. Scheduled Milestones for February 1983

Description	Due Date	Actual Date
Review of EPRI Test Reports	2-1-83T	3-1-83E
Review of EPRI Test Condition Selection Reports	2-1-83	3-1-83E

4. Summary of Work to be Performed in February 1983

Task 1: Evaluate EPRI Test Data and Reports

Evaluations of the Safety and Relief Valve Test Report, the EPRI/CE and EPRI/Wyle detailed test reports, and preparation of a final EPRI PWR Block Valve report will be continued.

Task 2: Evaluate PWR Non-Test Reports

Evaluations of the valve selection report, the three vendor inlet fluid conditions reports and the test conditions justification report will be continued.

4. Summary of Work to be Performed in February 1983 (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 when they are completed.

The evaluation of the 5 submittals for BWR plants will continue.

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

Work will continue to resolve the R5FORCE difficulties. When the difficulties are resolved the analysis of the behavior of safety/relief valve system of the Summer plant will be continued.

A suggested agenda for a meeting with EPRI and NRC personnel will be transmitted.

5. Problems and Potential Problems

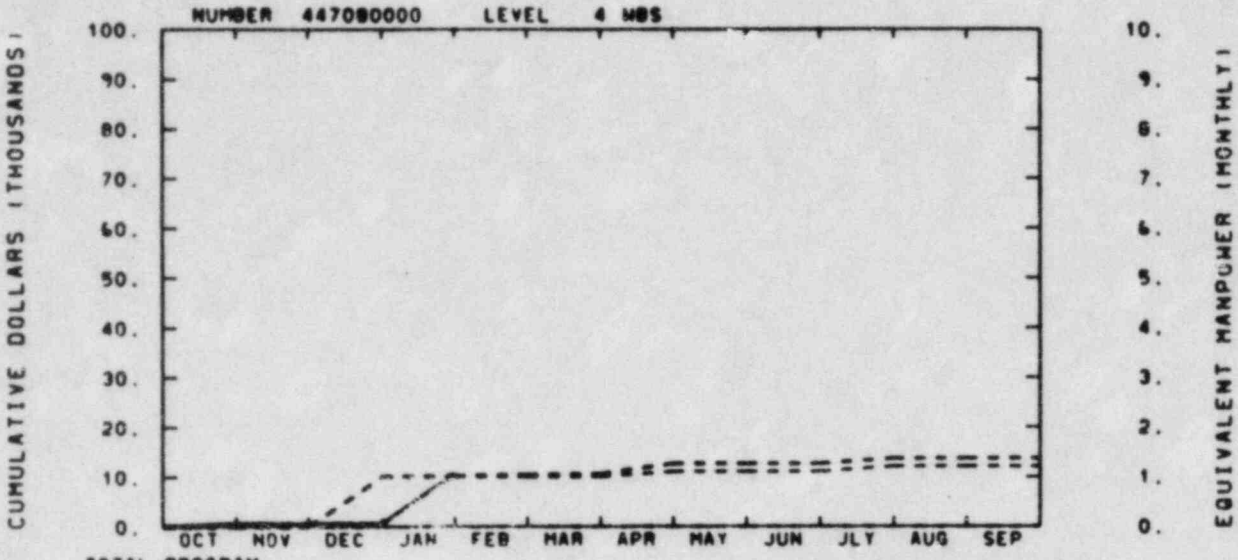
None.

RESPONSIBLE MANAGER
B F 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	11								

MATERIAL

BUDGET	0	0	10	10	10	10	11	11	11	12	12	12
ACTUAL	1	1	1	11								

MANPOWER

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

BUDGET
ACTUAL

189 NO. A6358

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 0.0	$ 0.1
MATERIALS, SERVICES AND OTHER COSTS	1.0	1.5
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	8.9	8.9
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	0.0	0.1
GENERAL AND ADMINISTRATIVE	0.1	0.2
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 10.0	$ 10.8

A6358

YTD VARIANCE: (1) (10%)

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 January 1983

None.

2. Summary of Work Performed in January 1983

EG&G Idaho transmitted to the subcontractor, the University of Texas, Austin, the final increment of funding for the project on January 5, 1983. The total funding transmitted is now $69410. The project is scheduled to end on May 31, 1983; however, the current rate of expenditure is such that an extension of the performance period can be accommodated, if necessary.

The activities for the month consisted of programming and testing several different methodologies for computing tolerance bounds on estimated failure rates. Monte Carlo simulations of known distributions are being used in the testing of methods.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

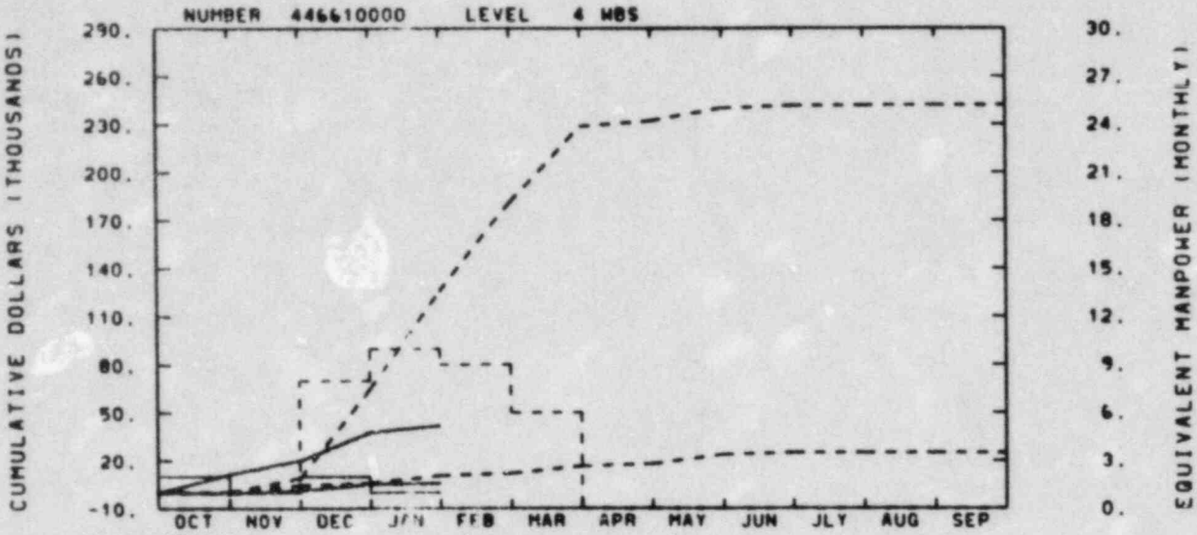
The programming and testing of methods will continue with the ultimate objective of identifying the better methods and quantifying their performance.

5. Problems and Potential Problems

None.

RESPONSIBLE MANAGER
B F 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	42								

MATERIAL

BUDGET	0	5	6	11	12	17	18	24	25	25	25	25
ACTUAL	0	1	5	6								

MANPOWER

BUDGET	0	1	8	10	9	6	0	0	0	0	0	0
ACTUAL	2	1	2	1								

189 NO. A6367

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 1.4	$ 13.6
MATERIALS, SERVICES AND OTHER COSTS	0.1	3.2
ADP SUPPORT	0.1	0.9
SUBCONTRACTS	0.0	0.0
TRAVEL	0.1	1.0
INDIRECT LABOR COSTS	1.9	19.1
GENERAL AND ADMINISTRATIVE	0.5	5.1
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 4.1	$ 41.9

A6367

YTD VARIANCE: 83 (66%)

The $83K 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. A new 189 will be submitted reflecting the changes.

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 January 1983

Description	Due Date	Actual Date
Task 9--Letter Report on Fatigue Cracks	1-31-83T	12-10-82C Saff-479-82

2. Summary of Work Performed in January 1983

Task 4--Report on Allowable Valve Leakage:

Final NRC review comments were received during late January. The final report will be published during February.

Task 6--Review of Valve Testing Standards: Work has been completed and the draft report submitted for typing, editing and review.

Task 7--Review of Supports Examination and Testing Standards: There was no activity on this task during January.

Task 9: Evaluation of the Basis for Section XI Flaw Acceptance Standards: The computer code for calculating stress intensity factors for part-through cracks was further refined and checked. Compilation of fatigue crack growth data to be used for the Section XI, Appendix A and the more sophisticated analyses is in progress.

Task 11: No work was done on this task during January.

Task 12: Assignments from the last Section XI meetings in November were completed and transmitted for action at the February meetings. Plans for attending the February meetings were established. FY-1983 work planned for this task is about 25% complete.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Task 4: The final report will be published in February.

Task 6: The review of the draft report will be completed by EG&G Idaho, followed by submittal to the NRC Technical Monitor for comment.

Task 7: No effort is planned until NRC comments are received on the preliminary draft report.

Task 9: The Section XI Appendix A type of analysis will be started and possibly completed. Further search for crack growth data showing the effects of mean stress, threshold, retardation, and environment will continue. The Section XI meeting in California will be attended.

Task 11: Now that new funding has been received, work will commence on this task during February.

Task 12: An EG&G Idaho technical person will participate in a report on meetings of the Section XI Working Group on NDE, Subgroup on Water Cooled Systems, and Subcommittee during the week of February 7 in La Jolla, California.

5. Problems and Potential Problems

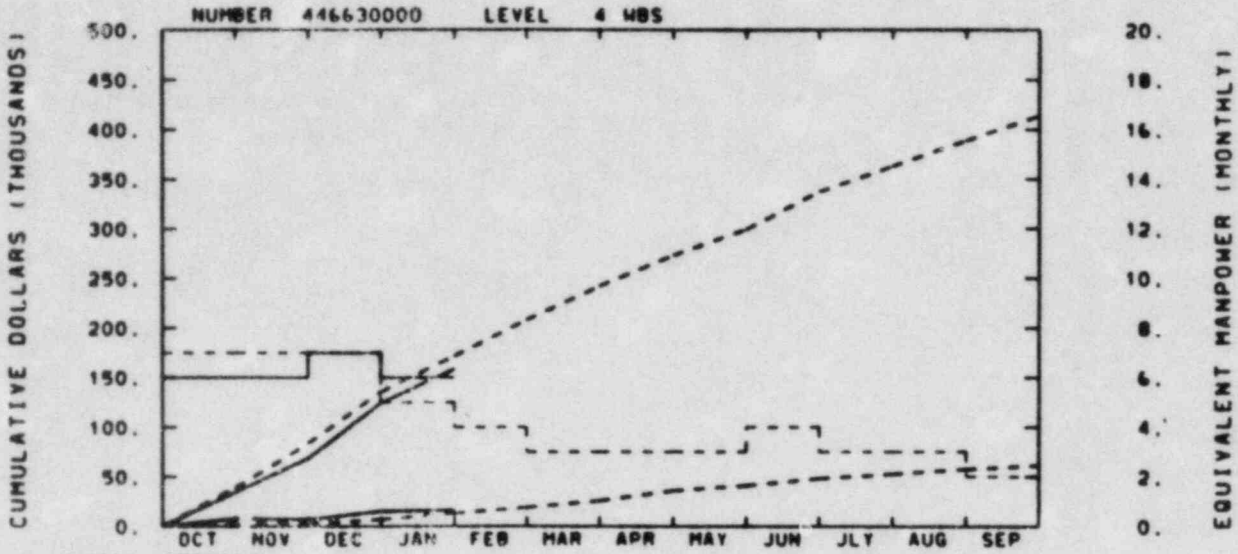
None.

RESPONSIBLE MANAGER
B 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	415
ACTUAL	34	69	124	159								

MATERIAL

BUDGET	2	3	7	13	19	26	36	41	48	53	57	61
ACTUAL	0	7	15	16								

MANPOWER

BUDGET	7	7	7	5	4	3	3	3	4	3	3	2
ACTUAL	6	6	7	6								

BUDGET

ACTUAL

189 NO. A6369

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 12.8	$ 53.9
MATERIALS, SERVICES AND OTHER COSTS	0.2	5.6
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.6	6.7
TRAVEL	0.0	3.0
INDIRECT LABOR COSTS	16.8	71.1
GENERAL AND ADMINISTRATIVE	4.2	18.3
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 34.6	$ 158.6

A6369

YTD VARIANCE: 13 (8%)

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 (NPPIE)
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 January 1983

None.

2. Summary of Work Performed in January 1983

Work on the interim assessment report which is due in February continued. Work continued on a letter report detailing tasks to be accomplished by the NPPIE program in the near term. The EG&G Idaho Technical Monitor was asked to, and will present, a paper to the Institute of Electrical and Electronic Engineers (IEEE) Nuclear Power Engineering Committee (NPEC) Winter Meeting, the subject of which is how data from TMI is directly affecting the product of this program and, indirectly, regulations governing accident management instrumentation.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

A letter report detailing tasks to be accomplished by the NPPIE program will be issued. An interim assessment of generic instrumentation systems to meet the provisions of Regulatory Guide 1.97 (Report No. EGG-EE-6154) will be released. Work on a topical report with regard to application of post-TMI Core Exit Thermocouple data to the commercial industry will continue.

5. Problems and Potential Problems

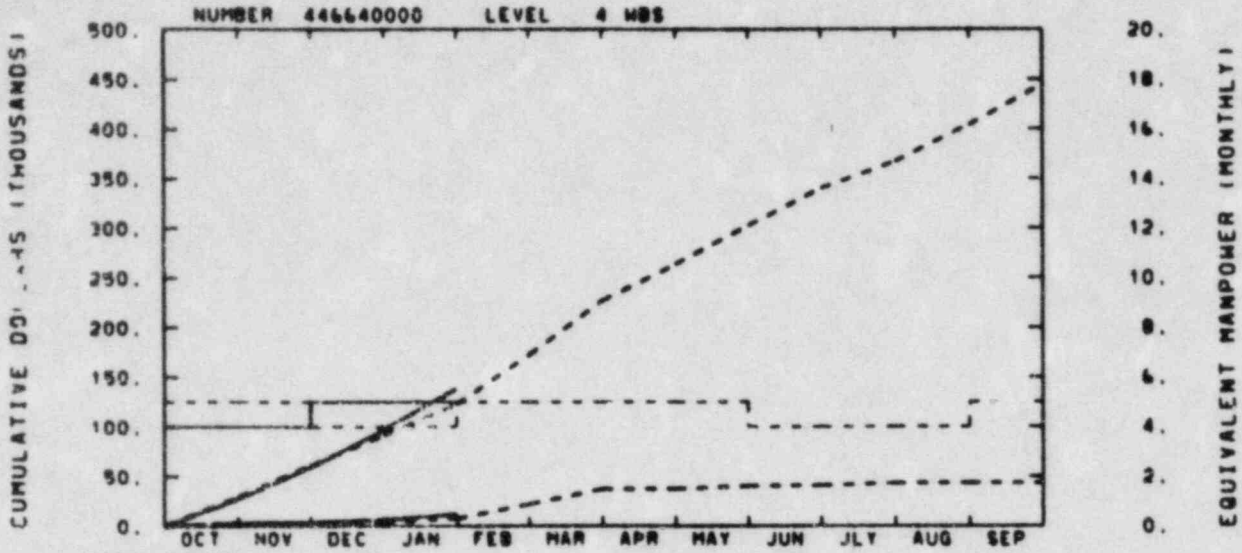
Due to self imposed changes in format and addition of information not previously known, release of the letter report cited in Item 2 above has been delayed into February 1983.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

RES ASSESS CON AUTO A6370

NUMBER 446640000 LEVEL 4 MBS



TOTAL PROGRAM

BUDGET	30	61	91	122	172	227	263	302	340	367	404	444
ACTUAL	27	59	97	118								

MATERIAL

BUDGET	2	2	4	8	22	37	37	40	41	43	43	43
ACTUAL	3	4	6	12								

MANPOWER

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

189 NO. A6370

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 13.6	$ 47.7
MATERIALS, SERVICES AND OTHER COSTS	3.2	6.9
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	2.0	3.9
INDIRECT LABOR COSTS	17.9	63.2
GENERAL AND ADMINISTRATIVE	4.8	16.7
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 41.5	$ 138.4

A6370

YTD VARIANCE: (16) (13%)

The overrun was due to an additional effort required in revising the isolation criteria and in providing the NRC with an estimate for the assistance of the EG&G Idaho Quality Assurance Group.

A6370: Microprocessor Based Design and Plant Control Automation
EG&G Program/Technical Monitors: E. W. Roberts/D. M. Adams
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 January 1983

Description	Due Date	Actual Date
Evaluation Procedures for Testing Class 1E Analog Isolation Amplifiers	1-31-83	12-29-82C Saff-500-82
Evaluation Procedures for Testing Class 1E Digital Isolators	1-31-83	1-7-83C Saff-8-83

2. Summary of Work Performed in January 1983

The above reports were reviewed with the Nuclear Regulatory Commission (NRC) in a Washington D.C. meeting. The review produced favorable comments. EG&G Idaho and the NRC are in agreement, with minor exceptions, on the testing activity for electrical isolators.

EG&G Idaho distributed copies of the revised report "Preliminary Assessment of Design Issues Related to the Use of Programmable Digital Devices for Safety and Control Systems", to the NRC and selected personnel who are working in this area.

A major activity in January was the preparation of a milestone report, "Interim Criteria for the Use of Programmable Devices in Safety and Control Sytems". This report is due February 15, 1983 as a T-date.

The Form 189 was corrected, incorporating comments from the Department of Energy (DOE) and formally submitted.

EG&G Idaho has gathered and analyzed a significant amount of hardware data for the comparative risk assessment task. Work is continuing in this area.

3. Scheduled Milestones for February 1983

Description	Due Date	Actual Date
Interim Criteria for the Use of Programmable Digital Devices in Safety and Control Systems	2-15-83T	

4. Summary of Work to be Performed in February 1983

EG&G Idaho will finalize the above milestone report and prepare for a program review with the NRC in February. This review will include assessment of the interim digital criteria, the risk asessment task and a planning effort for future program activities.

EG&G Idaho, will begin the backfitting task towards the last of February.

5. Problems and Potential Problems

EG&G Idaho needs the capital equipment dollars identified in the Form 189 test equipment for the isolation task.

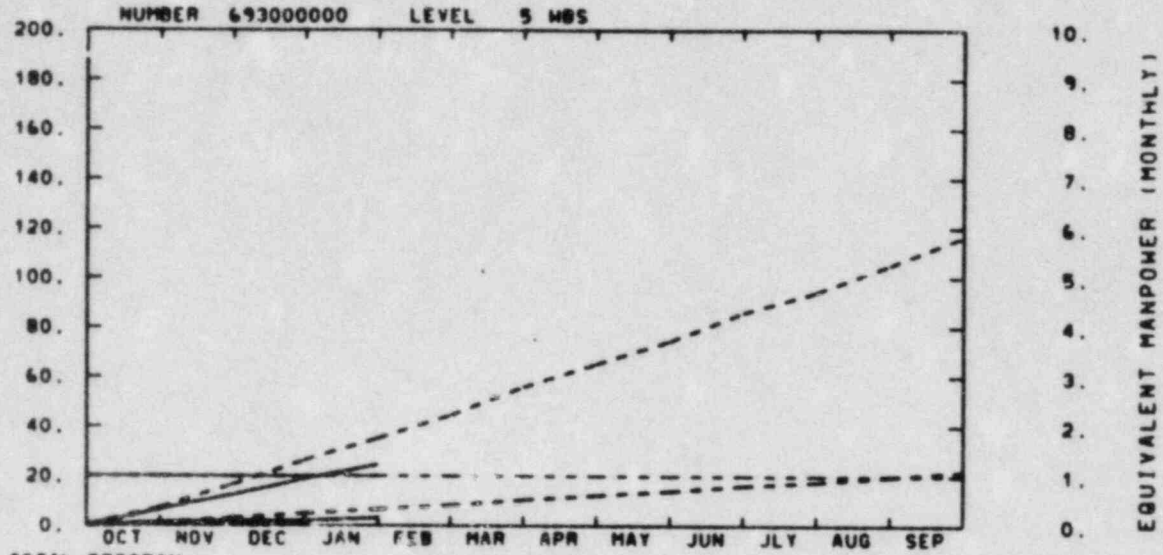
EG&G Idaho in conjunction with the NRC needs to define in more detail the power isolation task so that it can be scheduled and cost estimates can be made.

RESPONSIBLE MANAGER
B F 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	25								

MATERIAL

BUDGET	1	3	5	7	8	10	12	14	16	18	20	22
ACTUAL	1	2	2	3								

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	$ 1.7	$ 8.0
MATERIALS, SERVICES AND OTHER COSTS	1.1	3.0
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.1
INDIRECT LABOR COSTS	2.4	10.9
GENERAL AND ADMINISTRATIVE	0.6	2.9
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 5.8	$ 24.7

A6371

YTD VARIANCE: 10 (29%)

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 January 1983

None.

2 Summary of Work Performed in January 1983

Review of the first draft of the Probabilistic Analysis Staff (PAS) NUREG was completed. Preparation of the second draft and review of the draft Regulatory Guide were also completed. Information, references, etc. were gathered and organization of the final report begun.

Planned and initiated work to complete active research goals. These are, survey of current air sampling methods and perform controlled aerosol generation at an INEL work site and compare concentrations measured using various air samplers.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Continue review of PAS-NUREG draft. Complete the survey of licensee practices, complete the controlled aerosol release studies and continue preparation of the final report.

5. Problems and Potential Problems

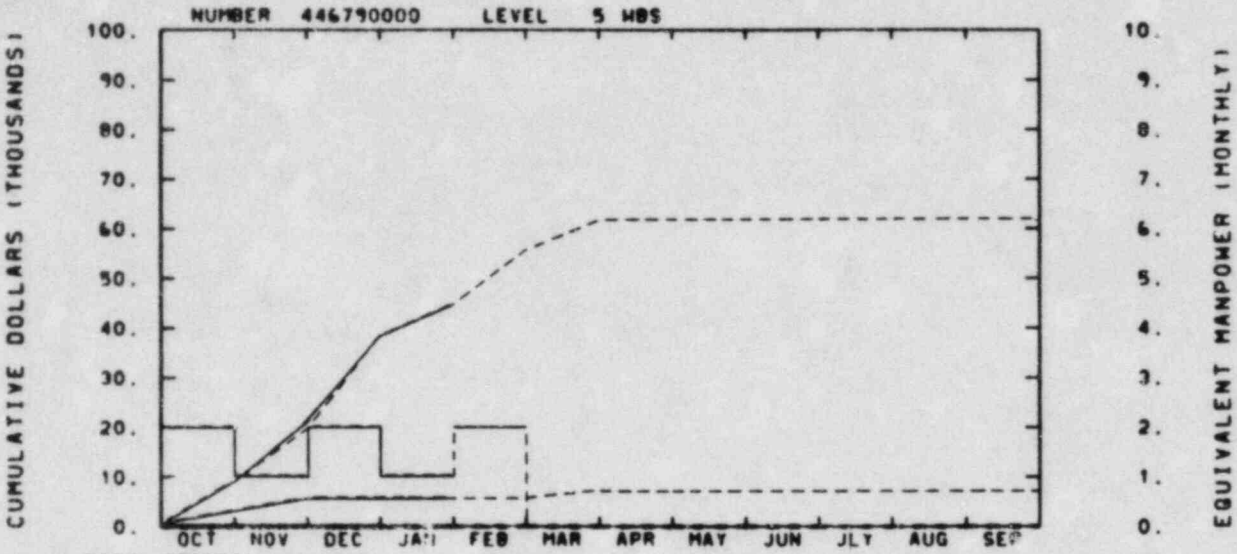
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

ON-LINE REMOTE MONITORING A6374

NUMBER 446790000 LEVEL 5 WBS



TOTAL PROGRAM

BUDGET	9	20	38	44	56	62	62	62	62	62	62	62
ACTUAL	9	21	38	44								

MATERIAL

BUDGET	2	4	4	4	4	6	6	6	6	6	6	6
ACTUAL	2	4	4	4								

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6374

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 2.1	$ 15.0
MATERIALS, SERVICES AND OTHER COSTS	0.0	0.0
ADP SUPPORT	0.0	1.3
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	2.3
INDIRECT LABOR COSTS	2.7	19.8
GENERAL AND ADMINISTRATIVE	0.7	5.4
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 5.5	$ 43.8

A6374

YTD VARIANCE: 0

A6374: On-Line Remote Monitoring of Reactor Coolant Activity
EG&G Program/Technical Monitors: J. W. Mandler
DOE Technical Monitor: G. L. Vivian
NRC Technical Monitor: G. S. Lewis

The objective of this project is to evaluate currently available on-line radiation monitors for detection of failed fuel. This project will evaluate gross and isotopic monitors to determine their capability to provide an early indication of fuel cladding breach and to yield information to the reactor operator to aid in the control of the event sequence.

1. Scheduled Milestones for January 1983

None.

2. Summary of Work Performed in January 1983

During January revisions to the draft report pertaining to "On-Line Remote Monitoring of Reactor Coolant Activity" were initiated and are expected to be continued until the end of the month.

Because of funding delays, the milestone for January, completion of report "Evaluation of Currently Available On-Line Radiation Monitors for Detection of Failed Fuel", has been rescheduled for March 31, 1983.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Continue to evaluate collected technical information and complete the draft report.

5. Problems and Potential Problems

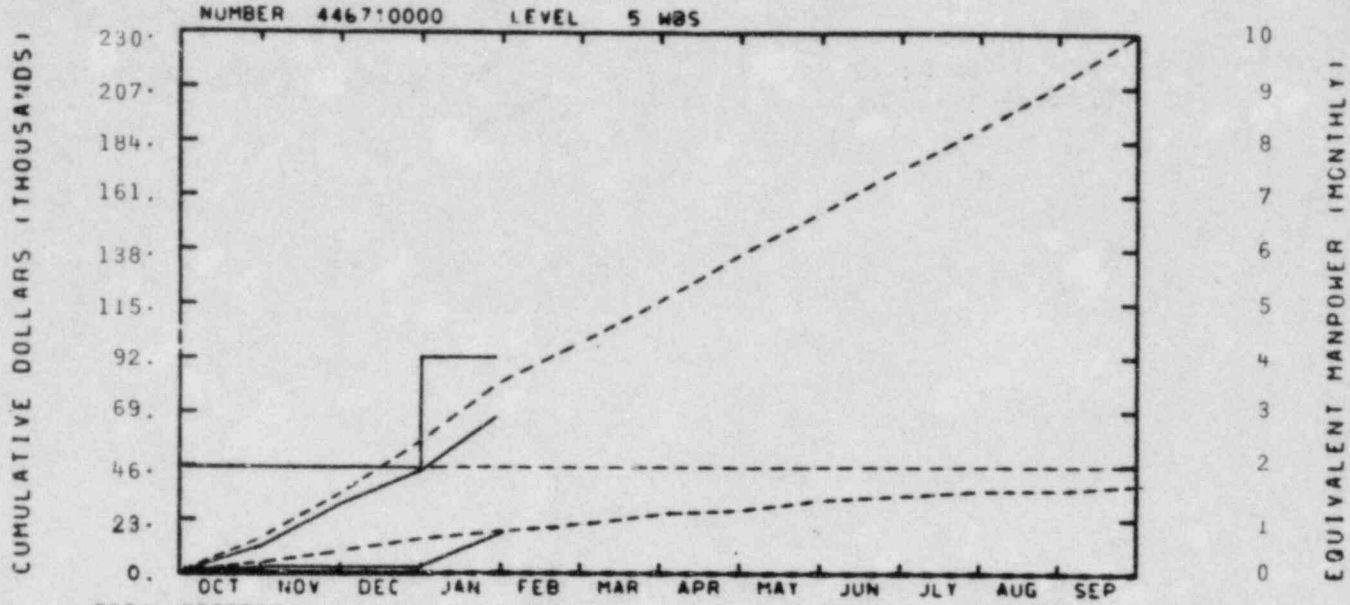
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

TWO-PHASE INSTRUMENT EVAL A6376

NUMBER 4467:0000 LEVEL 5 WBS



TOTAL PROGRAM

BUDGET	16	38	56	80	98	117	135	153	171	189	210	230
ACTUAL	15	29	45	66								

MATERIAL

BUDGET	0	4	9	17	20	22	25	26	28	29	34	36
ACTUAL	1	1	1	17								

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6376

COST CATEGORIES	($0.0 K) CURRENT MONTH	YEAR-TO-DATE
DIRECT SALARIES	$ 7.8	$ 24.5
MATERIALS, SERVICES AND OTHER COSTS	0.2	0.9
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	10.3	32.3
GENERAL AND ADMINISTRATIVE	2.5	8.0
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 20.8	$ 65.7

A6376

YTD VARIANCE: 14 (18%)

A new NRC Form 189 is being prepared. The budget will be changed to reflect the new work scope.

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. 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 January 1983

None.

2. Summary of Work Performed in January 1983

The NRC technical review group consisting of N. N. Kondic, Roger Woodruff and Richard Lee reviewed the progress of this project including the FY-1982 work and, after detailed discussion of the proposed tests and evaluations contained in the report EGG-ID-6141, fully approved these proposals. Work will begin immediately to start modifications and material purchases for the testing evaluation phase of this project.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

A letter report will be prepared on the design and performance specification recommendations for instruments to detect two-phase conditions and measure low flow rates under one- and two-phase conditions. The NRC Technical Monitor gave permission to delay this letter report for three weeks.

Continue preparations for the testing and evaluation phase of this project. Continue the on-going literature search.

5. Problems and Potential Problems

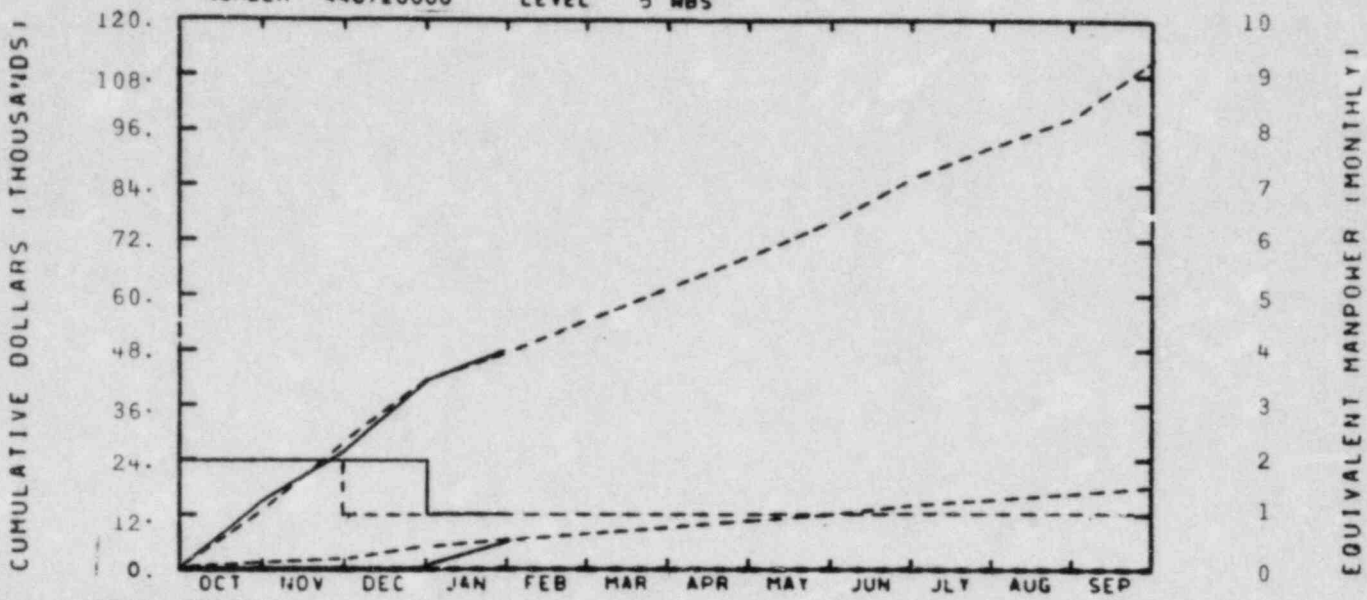
None.

RESPONSIBLE MANAGER
B F 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	48								

MATERIAL

BUDGET	1	2	5	6	7	9	10	11	14	15	16	18
ACTUAL	0	0	0	6								

MANPOWER

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

BUDGET

ACTUAL

189 NO. A6380

COST CATEGORIES	CURRENT MONTH ($0.0 K)	YEAR-TO-DATE ($0.0 K)
DIRECT SALARIES	$ 2.6	$ 17.9
MATERIALS, SERVICES AND OTHER COSTS	0.1	0.1
ADP SUPPORT	0.0	0.0
SUBCONTRACTS	0.0	0.0
TRAVEL	0.0	0.0
INDIRECT LABOR COSTS	3.4	23.8
GENERAL AND ADMINISTRATIVE	0.8	5.9
CAPITAL EQUIPMENT	0.0	0.0
TOTALS	$ 6.9	$ 47.7

A6380

YTD VARIANCE: (1) (2%)

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 January 1983

None.

2. Summary of Work Performed in January 1983

There was a technical review of the project; past work and future plans were generally approved. Work has started on locating and reviewing references on acoustic data processing techniques.

3. Scheduled Milestones for February 1983

None.

4. Summary of Work to be Performed in February 1983

Existing techniques for processing acoustic data will be reviewed. Work will start on developing new techniques.

5. Problems and Potential Problems

None.

MONTHLY REPORT FOR

JANUARY 1983

GPP AND LINE ITEMS

R. E. Rice, Manager
Facilities Management Division

R. L. D. Hess
Planning and Budgets Division

EG&G IDAHO, INC.

GPP ITEM

PROGRAM WATER REACTOR RESEARCH TEST FACILITIES DIVISION

FY-1983

($000)

MANAGER P. North

189 No. A6038

Task Initiated o
Task Completed △

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

Month

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