NRC Research and for Technical Assistance Rept

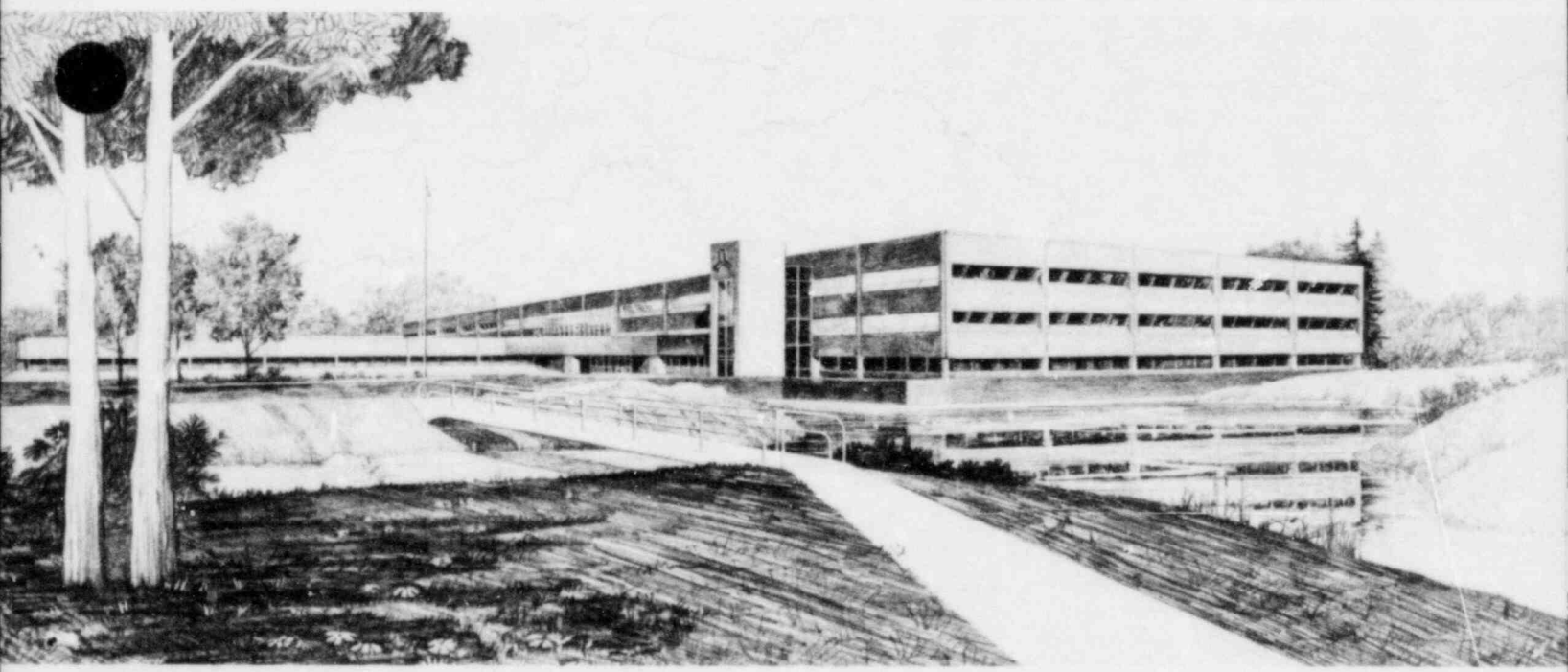
POR

September 1982
EGG-WRR-6066

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

J. A. Dearien

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



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

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

EG&G Idaho

189 LISTING BY PROGRAM

189 LISTING BY PROGRAM

ACRONYMS

A/E	Architect Engineer
ACRS	Advisory Committee on Reactor Safety
AECL	Atomic Energy of Canada Limited
AMB	Applied Mechanics Branch
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
BWR	Boiling Water Reactor
CA&AD	Code Assessment and Application Division
CAM	Constant Air Monitor
CC	Component Checkout
CCB	Change Control Board
CCTF	Cylindrical Core Test Facility
CDC	Control Data Corporation
CDD	Code Development Division
CDUM	Code Description and User's Manual
CE	Combustion Engineering
CHF	Critical Heat Flux
CLLMS	Conductivity Liquid Level Measurement System
CM	Corrective Maintenance
CPM	Critical Path Method
CSNI	Committee on Safety for Nuclear Installation
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
DER	Data Evaluation Report
DL	Division of Licensing
DOE	Department of Energy
DP	Differential Pressure
DSI	Division of Systems Integration
DSRR	Division of Systems and Reliability Research
DST	Division of Safety Technology
EI	Energy Incorporated
EICS	Electrical Instrumentation and Control System
EDF	Engineering Design File
EDR	Experimental Data Report
EM	Energy Measurements
ENICO	Exxon Nuclear Idaho Company, Incorporated
EOS	Experiment Operating Specifications

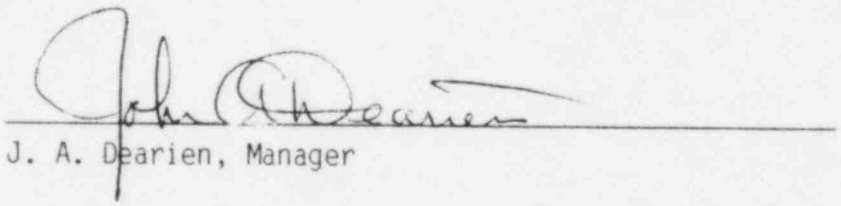
EP&A	Experimental Planning and Analysis
EPRI	Electric Power Research Institute
EQDB	Equipment Qualification Data Base
FCF	Facility Change Form
FDG	Fluid Distribution Grid
FIST	Full Integral Simulation Test
FMEA	Failure Mode Effects Analysis
FRG	Federal Republic of Germany
FSAR	Final Safety Analysis Report
GE	General Electric
GRS	Gesellschaft fur Reaktorsicherheit
HDR	Heiss Dampf Reaktor
HLS	Hot Leg Spool Piece
HPIS	High Pressure Injection System
HSST	Heavy Section Steel Technology
I&C	Instrumentation and Controls
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
LANSL	Los Alamos National Scientific Laboratory
LER	Licensee Event Report
LLD	Liquid Level Detection
LLL	Lawrence Livermore Laboratory
LOC	Loss-of-Coolant
LOCA	Loss-of-Coolant Accident
LOFT	Loss-of-Fluid Test
LPIS	Low Pressure Injection System
LTSF	LOFT Test Support Facility
LVDT	Linear Variable Differential Transformer
LWR	Light Water Reactor
MFD	Master Facility Drawing
MIT	Massachusetts Institute of Technology
MSLB	Main Steam Line Break

NESC	National Energy Software Center
NPRDS	Nuclear Plant Reliability Data System
NPSH	Net Positive Suction Head
NRL	Naval Radiation Laboratory
NRR	Nuclear Reactor Regulation
NSRDC	Naval Ship Research and Development Center
NSSS	Nuclear Steam Supply System
NTOL	Near-Term Operating License
OPTRAN	Operational Transient
OR	Operating Reactor
ORNL	Oakridge National Laboratory
P&IA	Plant and Instrument Air
P&ID	Process and Instrument Diagram
PAS	Probabilistic Analysis Staff
PBF	Power Burst Facility
PCM	Power Cooling Mismatch
PCP	Primary Coolant Pump
PCS	Primary Cooling System
PIE	Postirradiation Examination
PKL	Primary Coolant Loop
PM	Preventive Maintenance
PMG	Program Management Group
PMIS	Performance Management Information System
PNL	Pacific Northwest Laboratory
PORV	Power Operated Relief Valve
PPS	Plant Protection System
PR	Combination of PCM/RIA
PRAC	Power Reactors Advisory Committee
PWR	Pressurized Water Reactor
QA	Quality Assurance
QDR	Quality Discrepancy Report
QLR	Quick Look Report
QPP	Quality Program Plan
RCCS	Reactor and Canal Cleanup System
RCG	Radioactivity Concentration Guide
RES	Office of Nuclear Regulatory Research
RFQ	Request for Quotes
RIA	Reactivity Initiated Accident
RIL	Research Information Letter
ROSA	Rig of Safety Assessment
RPG	Radiation Protection Guide
RSB	Reactor Systems Branch
SAI	Scientific Applications Incorporated
SASA	Severe Accident Sequence Analysis
SBE	Small Break Experiment
SCDAP	Severe Core Damage Analysis Package
SCTF	Slab Core Test Facility

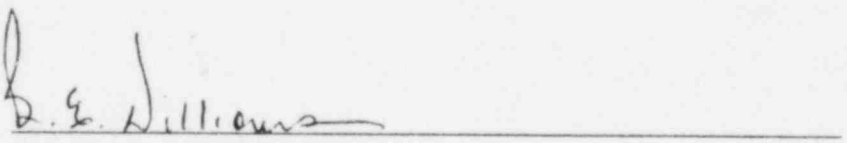
SDD	System Design Description
SEP	Systematic Evaluation Program
SER	Safety Evaluation Report
SHB	Single Heated Bundle
SO	Systems Operations
SOW	Statement of Work
SPERT	Special Power Excursion Reactor Test
SQRT	Seismic Qualification Review Team
SRP	Standard Review Plan
SRV	Safety Relief Valve
SSE	Safe Shutdown Earthquake
SSRT	Senior Seismic Research Team
SSTF	Steam Sector Test Facility
STP	Standard Temperature and Pressure
SWR	Site Work Release
TAN	Test Area North
TC	Thermocouple
TDP	Technical Development Program
TER	Technical Evaluation Report
TFBP	Thermal Fuels Behavior Program
TFCF	Transient Flow Calibration Facility
THTF	Thermal Hydraulic Test Facility
TLTA	Two Loop Test Apparatus
TMI	Three Mile Island
TRR	Test Results Report
TVA	Tennessee Valley Authority
UHI	Upper Head Injection
UIC	Unique Identification Code
USSP	United States Standard Problem
UPTF	Upper Plenum Test Facility
WBS	Work Breakdown Structure
WRRD	Water Reactor Research Department
WRRTF	Water Reactor Research Test Facilities

MONTHLY REPORT FOR

SEPTEMBER 1982



J. A. Dearien, Manager



B. E. Williams
Plans and Budget Branch

MONTHLY REPORT FOR

SEPTEMBER 1982

WATER REACTOR RESEARCH TEST FACILITIES DIVISION

Gary W. Johnsen for

P. North, Manager

Paul Bieg for

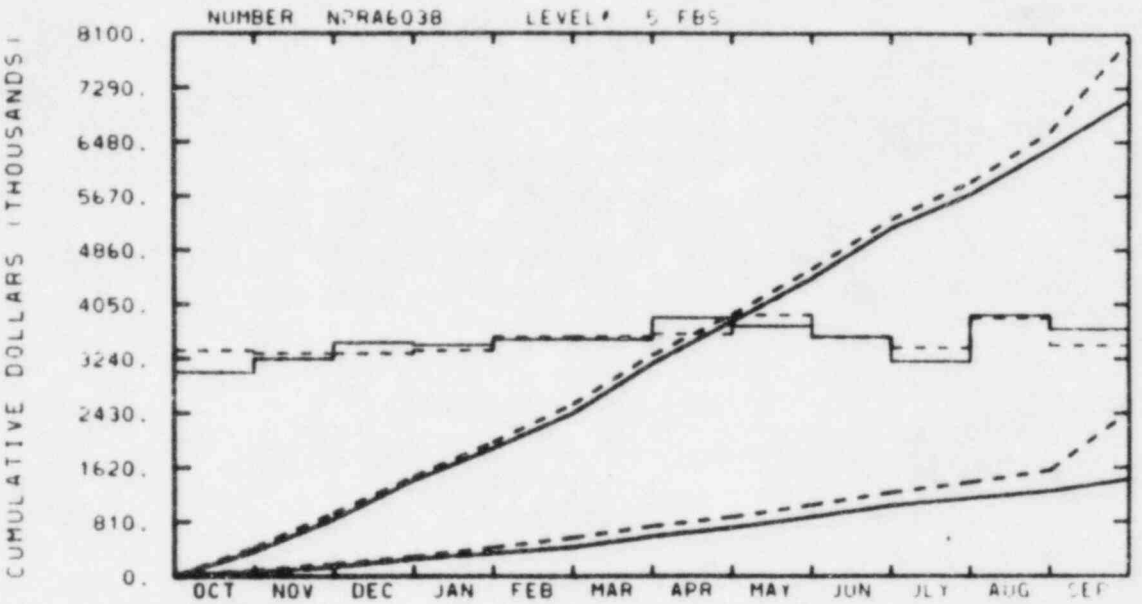
J. P. Crouch
Plans and Budget Representative

RESPONSIBLE
MANAGER
P. NORTH

EG&G IDAHO INC.

SEMISCALE PROGRAM

NUMBER N?RA6038 LEVEL* 5 FBS



TOTAL PROGRAM

BUDGET	430	944	1484	1997	2559	3290	3898	4577	5319	5875	6637	8019
ACTUAL	375	856	1435	1905	2424	3165	3796	4441	5189	5697	6387	7114

MATERIAL

BUDGET	85	187	296	434	576	743	886	1064	1247	1400	1582	2411
ACTUAL	65	141	264	345	435	593	727	885	1052	1162	1270	1444

MANPOWER

BUDGET	83	82	82	83	88	88	89	96	88	84	95	91
ACTUAL	75	80	86	85	87	87	95	92	88	79	96	93

YTD VARIANCE: 906 (11%)

Individual cost graphs will give individual explanations.

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

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

At month's end, Mod-2B modifications to the Semiscale system reached 85% complete, and were on schedule except for the pressurizer thermal liner. The present liner effort was all but terminated after the unit failed hydrotest and could not be repaired. The PL series will be conducted without the liner based on analyses that indicate the absence of the liner will not unduly compromise test objectives.

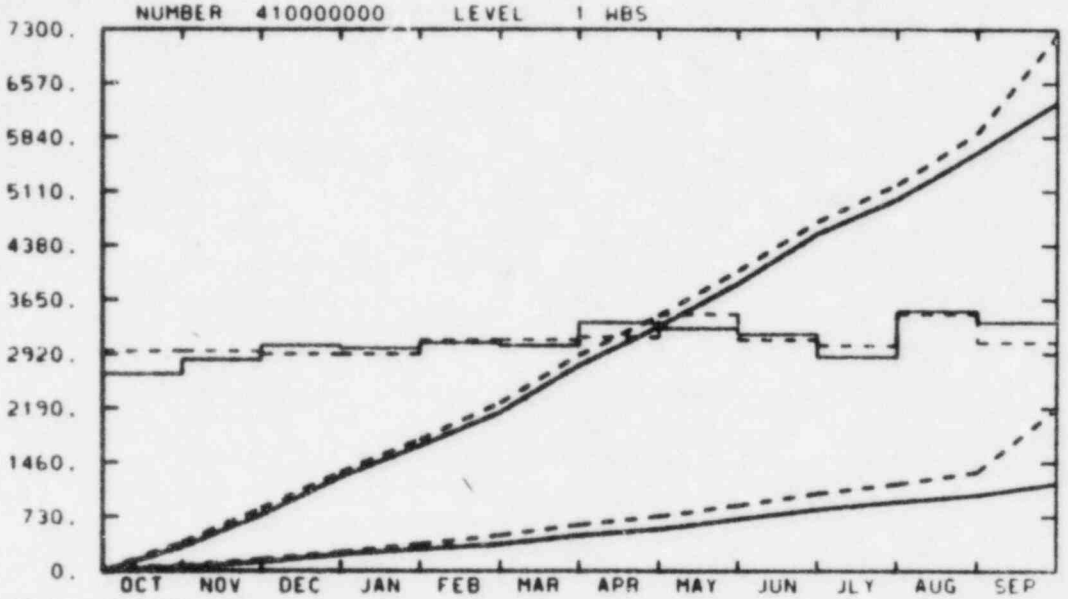
Data processing was begun on the large body of post-CHF data collected in the Blowdown Loop. Mechanical modifications to the Two-Phase Flow Loop for the upcoming Tee-Critical Flow Test Series were 90% complete.

ESPONSIBLE
NAGER
. NORTH

EG&G IDAHO INC.

SEMISCALE-WRRTF

NUMBER 410000000 LEVEL 1 WBS



TOTAL PROGRAM

BUDGET	384	845	1331	1773	2263	2906	3439	4045	4703	5202	5899	7216
ACTUAL	333	756	1273	1688	2139	2768	3295	3875	4539	5006	5636	6309

MATERIAL

BUDGET	72	161	257	368	483	623	739	890	1047	1175	1334	2190
ACTUAL	59	123	233	299	366	479	586	703	833	933	1025	1180

MANPOWER

BUDGET	77	77	76	76	81	81	82	90	81	79	90	80
ACTUAL	69	74	79	78	80	79	87	85	83	75	91	87

BUDGET

ACTUAL

A6038

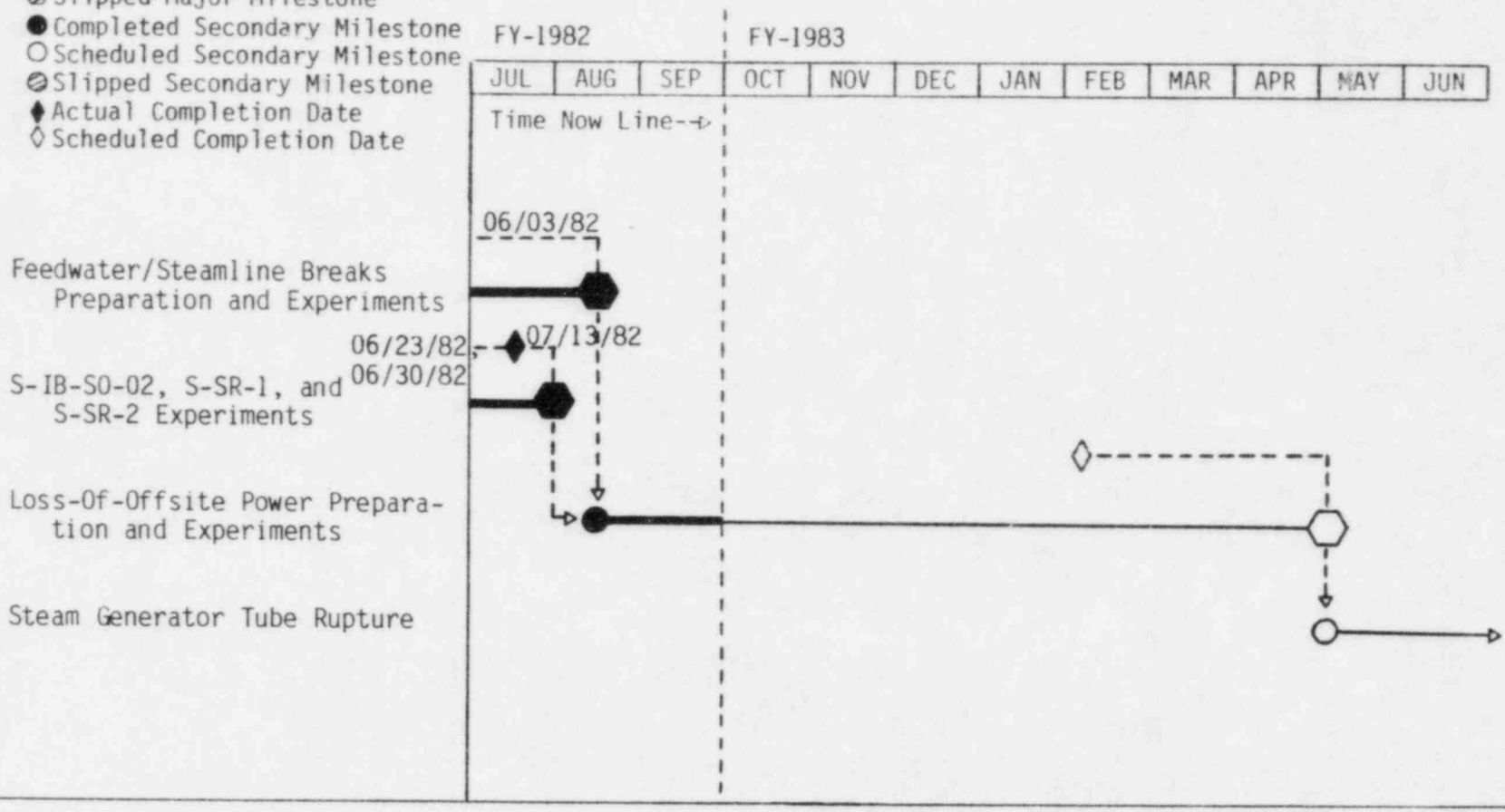
YTD VARIANCE: 907 (13%)

The $907K underrun consists of a year-end Management Reserve of $688K and a material dollar underrun of $218K. The underrun was due to reduced travel ($30K), reduced material purchases ($68K), decreased Cyber computer usage and IBM business computer usage ($40K), combined with other miscellaneous underruns. Most of the underrun was because of a concerted effort on the part of WRRTF Program personnel to minimize FY-1982 costs to obtain maximum carryover into FY-1983 without adversely affecting the operation readiness of the facility.

LEGEND

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

WATER REACTOR RESEARCH TEST FACILITIES DIVISION September 1982



I-05

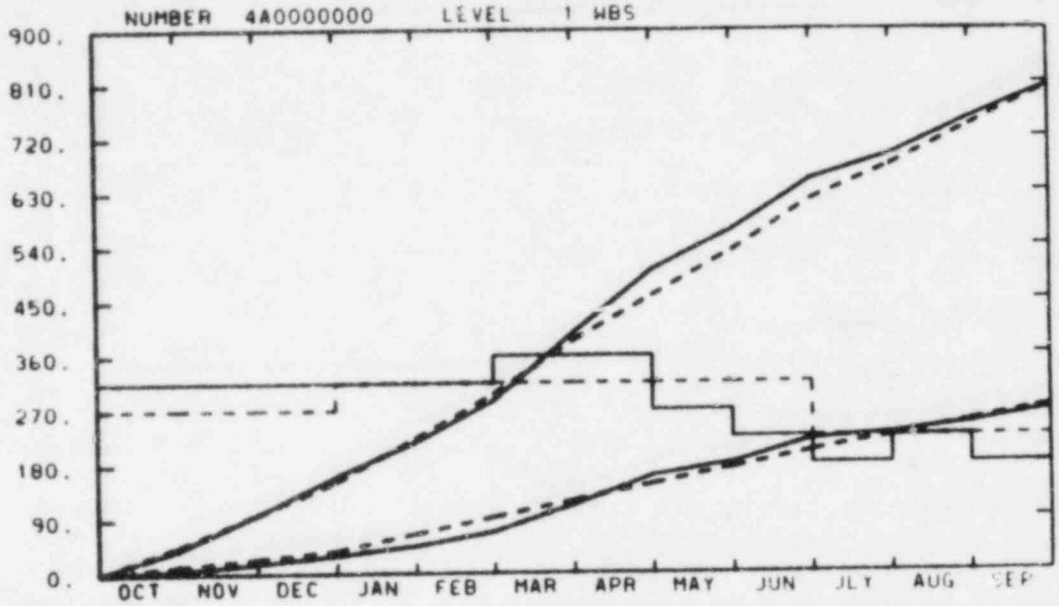
NOTES:

RESPONSIBLE MANAGER
F. AGUILAR

EG&G IDAHO INC.

RELAPS

NUMBER 4A0000000 LEVEL 1 WBS



TOTAL PROGRAM

BUDGET	46	99	153	224	296	384	458	532	616	672	739	802
ACTUAL	42	99	162	218	285	397	501	567	650	690	750	804

MATERIAL

BUDGET	13	26	39	66	93	121	147	174	200	225	249	273
ACTUAL	6	18	31	46	69	114	161	182	220	229	245	264

MANPOWER

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

A6038

YTD VARIANCE: <2>

1. 189a A6038 - Water Reactor Research Test Facilities Division

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

A. 412100000 - Special Projects

1. 412123300 - Special Projects--Engineering

Issued a revised drawing of the new seal coolant circulating pump. The installation planning (drawing, SWR, material ordering) will be started in October. The purpose of this task is to improve service life of the primary coolant pump seals and reduce primary system heat losses.

Thrust bearings for the primary pumps were redesigned to eliminate a bearing slip problem. Preload was increased by incorporating a dual spring design. The new springs have been ordered, and the drawings will be completed next month.

Completed fabrication of funnel holders for filling the densitometer detectors with liquid nitrogen.

Issued an SWR to fabricate drag transducer port plug assemblies. The plugs are being machined and will be completed in October. The plugs will be used for experiments in which drag transducer measurements are not required.

During the PL shutdown, several system improvements have been incorporated in order to reduce primary system leakage:

a. The carbon steel spool in the intact loop pump discharge (this is the last carbon steel piping in the primary system) has been replaced with a stainless steel spool.

b. Flexitallic gaskets on both steam generator plenums have been replaced.

c. The Lawrence pump has been replaced.

d. Thin section O-rings have been installed to seal drag disk and video probe penetrations.

3A. Summary of Work Performed in September 1982 (continued)

e. All piping spools and seal rings, have been inspected and damaged parts have been repaired or replaced.

B. 413100000 - Steamline/Feedline Break Test Series

1. 413111100 - Steamline/Feedline Break Series

The Quick Look Report for the Steamline Break Tests has received supervisory review. It is being retyped for branch manager review by 10-1-82. Completion is expected within a week of that date.

2. 413111130 - RELAP5 Posttest Document--Feedwater

A draft of the Posttest RELAP5 Analysis Report for Tests S-SF-1, 2, and 3c was completed and reviewed by management. Substantial modifications were made to the report and it is now undergoing final review by management. This report will be released during the first week of October.

3. 413111135 - RELAP5 Posttest Document--Steamline

Posttest RELAP5/MOD1 Calculations for Steamline Break Tests S-SF-4 and 5 were completed. Studies were performed to determine break discharge coefficients, primary and secondary heat loss to ambient sensitivity, and an optimum nodalization scheme for use as a basis for the RELAP5 model used for the final calculations. Documentation of these calculations is in progress and is expected to be ready for management review by the middle of October.

4. 413133110 - EDR for S-SF-1, 2, and 3C

EDR was published September 23, 1982.

5. 413133150 - EDR for S-SF-4 and 5

Work continued on preparation of EDR to report Tests S-SF-4 and S-SF-5. Text material was submitted to Technical Editing on September 16, 1982. Graphic Arts has completed the figures and Data Processing is producing plots on micro-fiche.

3. Summary of Work Performed in September 1982 (continued)

C. 414100000 - Level of Effort

1. 414119300 - Unplanned/Unscheduled Work

Analytical work on a film boiling study is complete. Work has begun on writing a paper suitable for submission to a technical journal. Completion is scheduled for this following month.

2. 414123100 - Engineering Level of Effort

Began incorporating primary system P&ID drawings and piping physical drawings on the CAD system.

Issued some written guidelines to clarify the use of as-built drawings. This action was in response to recent questions concerning which circumstances require as-built drawings.

Participated in a revised Mod 5 cost estimate in preparation for discussions with EPRI personnel.

3. 414136300 - Mechanical Instrumentation

Instrumentation has been installed for Test S-PL-1 per the Instrumentation List. Primary effort was spent on instrumenting the new pressurizer. Work included repair/building of the steam probes to support the Post CHF testing performed in THEF.

4. 414148100 - DAS and DDAPS Operations

a. Completed checkout and modification of Ortec 460 amplifiers. The checkout was to determine the source of the high countrate offset on the unipolar output of the 460. The problem was due to the design of the DC level restorer circuitry in the 460 which is limited to a maximum countrate of 100K/sec. It was found that the bipolar output does not have this problem so all of the 460's were modified to use the bipolar signal for density measurement.

b. Determined transducer ranges for pressure, and differential pressure measurements for the PL-1 & 2 tests scheduled in October.

3C. Summary of Work Performed in September 1982 (continued)

c. Calibration data was received and reviewed for status; approved 22 pressure transducers, 87 differential pressure transducers for use at Semiscale; disapproved of 9 without further checks; 1 differential pressure transducer is to be excessed.

d. Semiscale Uncertainty Report: "Methodology, NUREG/CR-2459 (EGG-2142, Vol 1)" was published and distributed.

e. A rough draft of Semiscale Uncertainty Report: "Temperature, NUREG/CR-2459 (EGG-2142, Vol 2)" should be completed on December 10, 1982, and be published by April 15, 1982.

f. Tests were run using the SAW Loop on the pressurizer spray nozzle and spray lines; also, a locked rotor resistance test on the intact loop pump was conducted. The R' on the pump was found to be 1.34×10^{7} in the reverse direction.

g. Inventoried and returned to records storage for destruction 61 boxes of analog tapes whose retention period had expired.

h. Reprocessed 20 digital data tapes whose 5 year retention period has expired.

D. 415100000 - Intermediate Break Test Series

1. 415119600 - EP&A Test Support

Transmitted the Quick Look Report for S-IB-3.

2. 415119700 - Post S-IB Series Analysis

Presented a comparison of results from S-IB-3 and LOBI B-R1M to Ispra representative. Continued analysis and report preparation in support of the Test Results Report with activities estimated at 95% and 60% complete respectively.

3. 415119730 - Post IB Series R&A by ECS

RELAP5/MOD1.5 (ZELAP) assessment and LOBI facility linkage (calculations needed to determine the sensitivity of Semiscale/LOBI facility differences on observed behavior) studies were resumed. Difficulties in achieving steam

3D. Summary of Work Performed in September 1982 (continued)

generator secondary steady-state conditions caused a slight schedule delay but resulted in identifying and correcting a mass error problem in the ZELAP vaporization/condensation calculation. A transient calculation of S-IB-3 was completed which did not agree very well with data. Results of this calculation are now being studied to determine what (if anything) might be done to improve calculation-to-data agreement.

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

1. 416119800 - Loss-of-Offsite Power--Pre-Series

Incorporated final comments into the Research Design Document. Incorporated review comments into the series EOS and submitted for final review and approval. Prepared and transmitted requirements for systems and procedures to be used to measure inventory remaining in the primary and secondary systems following S-PL experiments. Assessed effects of the pressurizer thermal liner on expected system response during S-PL experiments and provided a recommendation for use in continued liner development.

2. 416119830 - Thermal Liner

New pressurier models representing the Semiscale Mod-2B pressurizer with and without the thermal liner were devised and incorporated into the RELAP5 input deck. Scoping calculations for the loss of power test (S-PL-5) in which one of the three pressurizer relief valves sticks open were rerun with the two new pressurizer models to determine the affects of the thermal liner. A letter report documenting the differences was completed.

3. 416119900 - Loss-of-Offsite Power--Test Support

Transmitted final measurement requirements for S-PL-1. Performed analysis to determine effectiveness of using compact condensers to measure break flow energy. Continued preparation of the EOS Appendix for PL-1 with activity estimated 25% complete at month end. Provided assistance in preparation and review of SO and SC test procedures, completing 75% by month end.

4. 416123700 - Loss-of-Offsite Power--Hardware Mods

Installation of the PL hardware is progressing well. Present status is:

3E. Summary of Work Performed in September 1982 (continued)

a. Pressurizer system--90% complete

b. Intact loop pump/controls--85% complete

c. Steam generator pressure relief system--75% complete

d. Hot water makeup system--70% complete

e. Loop piping installation--95% complete.

Continued engineering support and field followup on the four pump electrical SWR's and steam generator relief vaive SWR. Issued field changes and P-ADCN's to facilitate installation. Three of the pump SWRs have been completed by the crafts. Issued electrical CC test procedures for the pump subsystem.

Issued field change to the upper head vent system SWR to incorporate electrical requirements changes.

Provided electrical engineering support and field followup to install the hot water makeup system electrical hardware/wiring.

Provided electrical engineering support and field followup on the five pressurizer SWR's currently being worked by the crafts. Three of SWRs have been completed by the crafts.

As-built drawings for pressurizer control chassis and pressurizer external heater control chassis have been through the review phase and are in the checking process.

The pressurizer thermocouple rake has been fabricated and installed.

The compact condensing system has been installed.

Excellent progress has been made on the system CC/SO/SC testing. There are a total of 32 test procedures. To summarize the status: 30 procedures have been issued, 10 tests have been completed, and the remaining tests are to be completed next month. Significant items to report are:

a. The pressurizer vessel hydrotest was completed.

b. Functional tests of the pressurizer control chassis were completed.

3E. Summary of Work Performed in September 1982 (continued)

c. The pressurizer spray nozzle CC testing was completed. This test resulted in the selection of the spray nozzle which will be used in the SO test series.

d. The spray line CC test was completed. It resulted in the establishment of the spray line flow vs ΔP characteristics curve. This information will be used to evaluate the effectiveness of the spray system to control pressure.

e. The intact loop pump locked rotor hydraulic resistance test was completed.

The initial draft of the final full system SO test (designated HOT-2B) has been completed.

In order to improve our ability to account for system fluid mass during the PL tests, it was recently decided to measure the amount of fluid remaining in the primary and secondary systems at the conclusion of each test. This required a "catch tank" system. The system has been designed. Drawings and an SWR have been issued and installation has started.

5. 416148600 - Loss of Power Test Series

a. Continued work on checkout of new data acquisition computer system and associated software. Found some problems in data acquisition routines which have since been corrected. Failures of the 3325 frequency synthesizer limited checkout of some routines.

b. Completed formulation of a final instrument list for Test S-PL-1.

c. Continued work on instrumentation cabling and setup for Test S-PL-1, and scheduled CC, SO, and SC tests.

d. Continued work on loading the Semiscale data base measurand book file.

e. Received and installed the spare frequency synthesizer ordered to replace the defective one which is still out to Hewlett-Packard for repair.

3. Summary of Work Performed in September 1982 (continued)

F. 417100000 - Steam Generator Rupture Test Series

1. 417123100 - Tube Rupture Hardware Mods

Engineering studies started but progress was less than planned due to higher priority tasks, associated with the PL shutdown. Work will continue next month.

2. 417119200 - SG Pre-Series Analysis

Work was initiated on preparing for the steam generator tube rupture series. The first stage of the study involves conducting literature searches to identify the phenomena of interest and the major scenarios which need to be pursued.

G. 419100000 - Natural Circulation Test Series

1. 419519600 - EP&A Posttest Analysis (NC)

A paper covering results from the Semiscale Mod-2A Natural Circulation Test Series was presented at the 7th International Heat Transfer Conference in Munich, West Germany.

A paper entitled "Natural Circulation in a PWR Under Accident Induced Conditions" was accepted for presentation at the ANS/AIChE topical meeting in Santa Barbara. The final copy is being prepared for transmittal.

The Natural Circulation test series topical report was completed and approved. The report has gone to the publications division for final printing and distribution.

Work continues on preparation of a presentation at the Water Reactor Safety Research Information meeting covering results from Semiscale Mod-2A testing in FY-82.

H. 9D0800000 - Semiscale Equipment

1. 9D0810500 - SAW Loop Upgrade

The Hydrostatic Test of the first major portion of the Upgrade was performed and accepted on September 9, 1982.

2. 9D0820200 - Pressurizer Vessel

Fabrication of the pressurizer vessel was completed and the vessel passed hydrotest.

3H. Summary Work Performed in September 1982 (continued)

Fabrication of the pressurizer thermal liner was completed and the liner failed hydrotest. It is questionable as to whether or not the liner can be repaired; therefore, an assessment of conducting the PL tests without a thermal liner has been completed. This assessment, which was based on RELAP5 calculations indicates that the thermal/hydraulic effects of conducting the PL tests without the thermal liner will be minor. Therefore, we have decided to proceed without the thermal liner. This assessment will be verified during the SO testing. The long term effects of conducting experiments (after the PL series) without the thermal liner are being evaluated. This evaluation will be completed in October.

3. 9D0820600 - Intact Loop Pump

a. K-4669 Spare Intact Loop Pump--Associated Machine

The manufacturing plan was reviewed and comments were transmitted to the vendor. Several minor SDR's (discrepancy reports) were approved.

b. K-4666 Pump Motor Stator--Welco Industries

The hardware has been source inspected and shipped to EG&G.

I. 41B100000 - Intermediate Break Test Series Documentation

1. 41B118100 - S-IB-SO-2 and S-S-X Support

Completed incorporation of branch review comments into a letter report concerning results of S-IB-SO-2 and returned for Branch and Division approval and transmittal.

Semiscale EP&A coordinated, edited, and distributed a topical report which analyzed primary feed and bleed cooling in PWR type systems. A systematic study of feed and bleed cooling was detailed which involved examining the basic parameters that govern feed and bleed, identifying phenomena through reference to Semiscale experiments that influence those parameters, analyzing and interpreting the Semiscale results, verifying the ability of the RELAP5 code to correctly predict the Semiscale experiments, and finally using the RELAP5 code to study a representative scenario involving primary feed and bleed in a full-scale plant.

3I. Summary of Work Performed in September 1982 (continued)

2. 418118103 - Tests S-IB-SO-2, S-SR-1, S-SR-2

Work continued on preparation of EDR to report Tests S-SR-1 and S-SR-2. Text material was submitted to Technical Editing on September 10, 1982. Graphic Arts has completed the figures and Data Processing is producing plots on micro-fiche.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

A. 412100000 - Special Projects

1. 412123300 - Special Projects--Engineering

Start preparation of the engineering drawings and SWR to install the new pump seal cooling system.

Issue revised pump assembly drawings (409570 and 408489) to incorporate the dual spring design.

Revise the drawing of cooled thermocouple pitot tube rake.

Generate preliminary drawings for source holder and detector for vendor review and comment.

B. 413100000 - Steamline/Feedline Break Tests

1. 413133100 - Steamline/Feedline Break

This work was performed during FY-82 under 413133150. Work will continue on preparation of the EDR to report Tests S-SF-4 and S-SF-5, primary effort with Technical Editing.

C. 414000000 - Level of Effort

1. 414119300 - DOE/NRC Support

A film boiling study paper will be reduced for branch manager review.

5C. Summary of Work to be Performed in October 1982 (continued)

Two papers will be presented at the Water Reactor Safety Information meeting.

2. 414148100 - DAS & DDAPS Operation

a. Continue software checkouts on the 1000 System.

b. Assist in CC and SO tests for PL-1.

c. Coordinate instrument installation of PL-1.

D. 415100000 - Intermediate Break Test Series

1. 415119700 - Post S-IB Series Analysis

Complete analysis and first draft of the S-IB Test Results Report and submit for review by October 18. Initiate incorporation of comments following first review, and initiate preparation of a concluding statement letter.

2. 415119730 - Post IB Series R&A by ECS

RELAP5/MOD1 (ZELAP) assessment calculations and sensitivity studies will be completed and documented in the S-IB series topical report.

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

1. 416119900 - Test Support

The series EOS and Appendix for S-PL-1 will be completed and transmitted. Final measurement requirements for S-PL-2 will be issued. The Appendix for S-PL-2 will be prepared and provided for review. Final SO and SC procedures will be reviewed and test support provided as required. The objectives and configuration sections of the QLR for S-PL-1 will be provided for review, and preparation of like sections for S-PL-2 will be initiated. Final scoping calculation requirements will be prepared, and review of calculations for S-PL-3 and S-PL-4 will be initiated in support of EOS Appendix preparation for those experiments.

2. 416123700 - Loss-of-Offsite Power--Hardware Mods

Continue engineering support and field followup on the pressurizer and pump electrical SWRs and steam generator relief valve SWR. Provide engineering support in conducting CC and SO tests after craft work is completed.

5E. Summary of Work to be Performed in October 1982 (continued)

Provide electrical engineering support and field followup to install the hot water makeup electrical hardware/wiring. Assist in performing CC and SO tests.

Issue as-built drawings for the pressurizer control chassis and pressurizer external heater control chassis.

Continue engineering support of the installation of the pressurizer system. Provide on-site engineering coverage during conduct of the CC and SO tests.

Issue final pressurizer P&ID drawings (process and experimental instrumentation).

Issue an SWR to install some additional hardware on the pressurizer system, i.e., (a) safety relief valve on the surge line which will provide overpressure protection of the primary system when the pressurizer is isolated from the primary (isolation valve is closed), (b) valves to permit pressurizer venting directly to the sump. This is required during "startup" when it is undesirable to vent thru the condensing system.

Issue the final system SO test procedure (HOT-2B).

A significant paperwork effort will be required to "close out" all work instructions and assure that the system is ready to conduct the HOT-2B test. This will include:

a. closeout all SWR's

b. issue revised and/or as built drawings

c. closeout QDR's (discrepancy reports)

d. obtain final approval of all CC/SO test results.

Prepare SO test procedure for the rupture disc pressurization system used for the pump suction break experiment S-PL-4.

Complete the evaluation of conducting future experiments without the thermal liner. A cost/schedule estimate for a redesigned thermal liner will be part of this evaluation.

5E. Summary of Work to be Performed in October 1982 (continued)

3. 416136500 - Mechanical Instrumentation for PL

This work was performed during FY-82 under 414136300. Work will consist of providing support to the PL-series shutdown, primarily with respect to CC, SO, and SC Testing.

4. 416136600 - Test Engineering for PL

The Test Procedure for Test HOT-2B should be written, reviewed, and issued by October 8, 1982. Review of the primary system inventory measurement will continue with support work to any subsequent CC, SO, SC Testing. Support of other CC, SO, and SC Testing for the PL modification will continue.

Work will begin on the Test Plan for Test PL-1 based on the EOS and communication with EP&A on the EOS Appendix.

5. 416136700 - Operation Support-Power Loss

Work will consist primarily of support in completing construction work by October 8, 1982. Also included will be leak checking the Semiscale Mod-2B System and Checkout of the External Heaters. Test HOT-2B should be run by October 27, 1982.

F. 417100000 - Steam Generator Tube Rupture Test Series

1. 417119100 - SG Series Pretest Analysis

A preliminary research design document and a preliminary design requirements document will be written and transmitted. Work will begin on performing RELAP5 scoping calculations to help refine the test matrix.

2. 417123100 - Tube Rupture--Hardware Mods

Engineering studies will be completed. The initial investigations will focus on two issues: (a) the structural adequacy of the filler pieces, (b) the feasibility of using the U-tube ΔP pressure ports as a primary to secondary blowdown path. This item was scheduled to start in September, but was delayed due to higher priority work.

5. Summary of Work to be Performed in October 1982 (continued)

G. 419100000 - Natural Circulation Test Series Documentation

1. 419519635 - EP&A Posttest Analysis (NC, UT)

An assessment of the capability of RELAP5 to accurately calculate the phenomena associated with single-phase, two-phase, and reflux natural circulation will be started. This project will be in progress for approximately twelve weeks and will culminate with the publication of a RELAP5 assessment topical report.

H. 9D0800000 - Semiscale Equipment

1. 9D0820200 - Pressurizer Vessel

No further work is planned. This item will be dropped from future reports.

2. 9D0820600 - Intact Loop Pump

a. K-4669 Spare Intact Loop Pump - Associated Machine

Review and comment on revised manufacturing plan. Ship motor stator to Associated Machine Corp. for assembly into the spare pump.

b. K-4666 Pump Motor Stator - Welco Industries

Receive and inspect the stator at INEL and ship to Associated Machine.

6. Problems and Potential Problems

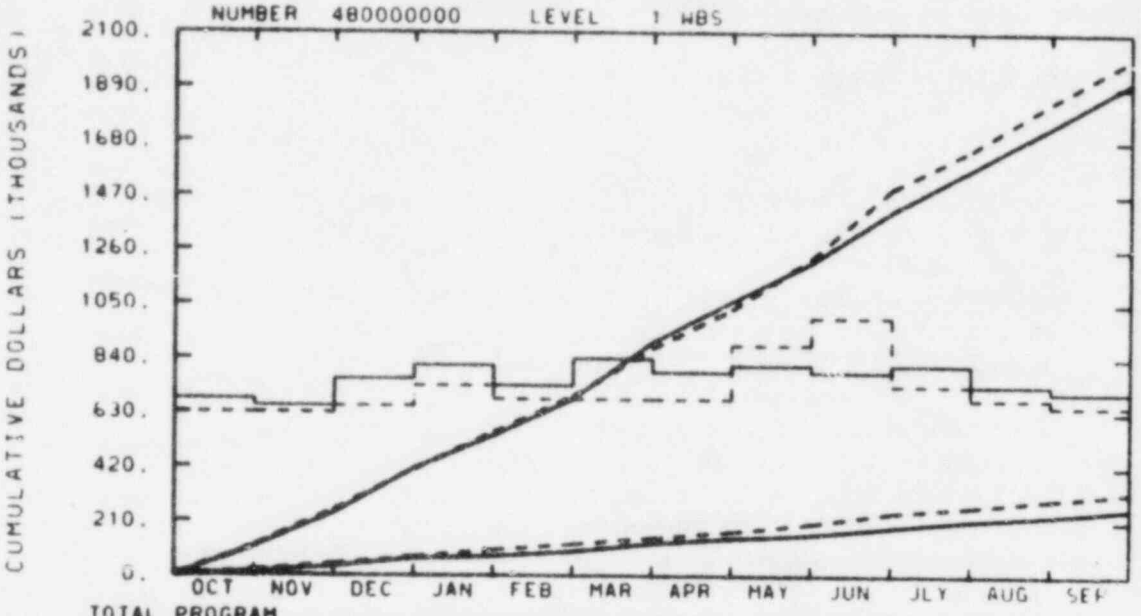
The failure of the pressurizer thermal liner to pass hydrotest and the inability to remedy leakage problems lead to the decision to proceed with the PL tests without any liner. RELAP5 analyses indicate the absence of the liner will time-shift system behavior, but not completely change system response. An alternate design concept for a liner is now being developed.

RESPONSIBLE MANAGER
P. NORTH

EG&G IDAHO INC.

SEPARATE EFFECTS TEST FAC-WRRTF

NUMBER 480000000 LEVEL 1 WBS



TOTAL PROGRAM

BUDGET	117	256	412	554	695	879	1031	1229	1497	1648	1836	2004
ACTUAL	112	244	414	542	684	904	1062	1214	1411	1573	1740	1913

MATERIAL

BUDGET	21	46	75	102	124	149	173	204	246	269	298	324
ACTUAL	15	36	69	77	96	127	148	162	190	216	235	261

MANPOWER

BUDGET	24	24	25	28	26	26	26	34	38	28	26	25
ACTUAL	26	25	29	31	28	32	30	31	30	31	28	27

BUDGET

ACTUAL

A6043 (LOFT Test Support Facility Portion)

YTD VARIANCE: 91 (5%)

Contributing factors to the year-end underrun were as follows: 1) a delay in post-test analysis for L5-1 and Nine Rod Quench Test and, 2) reduced FY-1982 material purchases consistent with slipped Critical Flow Testing in FY-1983. Also, actual labor rates were lower than budgeted rates, this contributing approximately $30K to the year-end underrun.

1. 189a A6043 - Thermal-Hydraulic Experiments Facility

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

A. 481100000 - THEF Test Projects

1. 481100100 - Planning and Supervision

Reviewed test project budget and schedule. Prepared work packages for carryover tasks required to complete reports for 2D/3D instrument tests, LOFT L2-1 drag disk rate tests, two-phase loop characterization, ad nine-rod bundle quench experiments. Participated in preparing project and budget proposals for FY-83 NRC funding consideration for TNEF.

2. 481100300 - Two-Phase Flow Loop Characterization

Initiated incorporation of comments from review of the characterization report.

3. 481101100 - Two-Phase Flow Testing

Work is proceeding on preparation for the two-phase critical flow testing. The facility has been nearly completely assembled. Instrumentation installation is underway. Hardware and instrumentation changes relative to those specified for the two-phase regime testing have been identified and transmitted to the design, operations and measurements branches. A letter EOS is being prepared to facilitate the change in experiment emphasis directed by the NRC. The target for start of testing is 11-1-82.

4. 481101130 - Two Phase Critical Flow Test

This work was performed during FY-82 under 481301015. Work will continue in preparation for the Two Phase Critical Flow Test. The CC Test should be completed by October 11, 1982 and the SO Test should be completed by October 18, 1982.

3A. Summary of Work Performed in September 1982 (continued)

5. 481202010 - THEF Engineering

Provided engineering assistance to the THEF project to prepare the two-phase loop for the proposed flow regime/critical flow tests. Loop drawings and SWR packages were issued.

Prepared and submitted for review CC and SO tests for the proposed two phase loop tests.

Provided engineering support to follow the electrical checkout of the makeup pump for the two phase loop. The as-built drawings to show electrical installation of the makeup pump are in the final phase of checking and release.

6. 481301009 - Operations Post CHF

Additional testing occurred in early September, with shutdown requirements completed. Work continued in conjunction with DAS personnel to improve the Densitometer measurement. This was to support both the Post CHF Test as well as future tests.

7. 481301015 - Two Phase Critical Flow Test

The steam system setup was completed. This included preheating and recirculating the #5 fuel oil for the steam generator.

A week was used in preheating the four steam vessels to 121°F, by injecting 15 lb. of utility boiler steam, before they could be filled to allow a Hydrostatic Test of the steam system. The Hydrostatic Test was performed on September 15, 1982, witnessed by Q.A.

A CC Test of the new make-up pump system was completed on September 27, 1982.

Work continued on support systems (Demin. Water, Water Softener, N^2, Etc.) as craft work was coordinated with construction work.

8. 48140109 - Post CHF Test

a. Completed the data and control system support of Post CHF test. The raw data is recorded on 101 digital tapes at THEF. The preliminary data report was issued on September 8. A single unbound copy of the data plots weighs 272 pounds.

3A. Summary of Work Performed in September 1982 (continued)

9. 481401011 - Two Phase Critical Flow Test

(Note: Plans and Budgets changed this job number to 481401015.)

a. Preparation of the data system for the Critical Flow Test has been 50% completed. Work releases have been issued to the crafts for instrument and cabling installation. This work is being done on a manpower available basis and is 5% complete. As of this date the data system readiness date is eight days behind schedule. Planned completion of this effort is October 19. One technician has been borrowed from Org. 530 (Inst. Assembly) with a second technician scheduled to report October 4. A third technician will be borrowed from the LOFT data operations group during the first week of October. Familiarization with and training on the THEF equipment will take place during the final stages of system setup.

The control system instrumentation installation and checkout is 50% complete. The planned completion date for this is October 15.

10. 481402010 - DAS Facility Maintenance

a. The one-inch turbine (50 gpm F.S.) that was life tested during the latter phases of the Post CHF test was returned to Instrument Assembly (Org. E530) for inspection after 180 hours run time at high temperature and 21 temperature cycles. No detectable wear or damage could be discerned within the tungsten carbide bearings or on the shaft. The hubs holding the shaft are housed within the flow straightening vane assembly. These parts (fabricated by Flow Technology Inc.) showed signs of wear and evidence of vane rotation. The Instrument Asembly group is reworking these parts. The unit will be further tested whenever the Blowdown Facility is again used.

The interface problems between the new ModComp Classic computer and the ModComp II has been resolved. The software for computing on-line mass flow data is scheduled to be in place for the Two Phase Critical Flow Test.

3A. Summary of Work Performed in September 1982 (continued)

11. 481402011 - Tomographic Densitometer

a. The opertion manual is 85% complete. New photomultiplier tubes are scheduled to arrive in mid-October. If funding can be arranged this system is scheduled to be operational during the second part of the Critical Flow Tests. (Two Phase Regime Studies.)

12. 48199AA00 - Nine-Rod Quench Tests

Revised the ANS paper to incorporate review comments and submitted to technical editing for final matte generation. Initiated incorporation of final comments to the test results report.

13. 48199AP00 - L5-1 Analysis/Report

Completed preparation of the EDR draft and submitted for first review.

B. 5J1251200 - Post CHF Heat Transfer Tests

Completed testing and initiated data processing to support post test analysis and report preparation. Conducted detailed examination of densitometer design and operation to assist in data interpretation and future development. Submitted an abstract for consideration at the ASME-JSME Joint Thermal Engineering Conference.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

A. 481100000 - THEF Test Projects

1. 481100300 - Two Phase Test Reports

Complete the Two-Phase Loop Characterization Report, and submit the 2D/3D instrument EDR for review.

2. 481101100 - Two Phase Flow Testing

Work will continue on preparing for the two-phase critical flow testing. System operation and characterization testing will be initiated.

5A. Summary of Work to be Performed in October 1982 (continued)

3. 4812020100 - THEF Engineering

Issue as-built drawings for the two phase loop makeup pump electrical installation.

Provide engineering support to complete installation of two-phase loop flow regime test/critical flow test equipment and the CC/SO testing.

4. 481401011 - Two Phase Critical Flow Test

a. Complete installation, setup and checkout of the data and control systems in preparation for the Critical Flow tests.

b. Complete software implementation enabling on-line mass flow calculations from the DAS.

5. 48199AA50 - Nine Rod Bundle Quench Test

Complete incorporation of comments and submit report for approval and transmittal.

6. 48199AP51 - LS-1 EDR

Initiate incorporation of review comments.

6. Problems and Potential Problems

None.

WATER REACTOR RESEARCH TEST FACILITIES DIVISION

CAPITAL EQUIPMENT

WATER REACTOR RESEARCH TEST FACILITIES DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6059)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete.
Pre FY-1982														
1/79	Low Energy Densitometer Support Electronics	9D1990230	01/79	07/79	103,884	103,884	-	0	103,884	0	103,884	0	C	103,884
7/79	ADPE Procurement	9D1989830	03/79	04/79	25,417	25,417	-	0	25,417	0	25,417	0	C	25,417
2/80	DDAPS Support and Replacement Equipment	9D1991520	-	03/80	95,800	95,800	03/80	0	95,800	0	95,800	0	C	95,800
3/80	Multibeam Gamma Densitometers and Detector Assemblies	9D1992210	-	04/80	117,912	117,912	05/80	0	111,278	6,634	117,912	0	C	117,912
4/80	ADPE Procurement	9D1991680	-	03/80	25,802	25,802	06/80	0	25,802	0	25,802	0	C	25,802
5/80	Control System Support Equipment	9D1992260	-	04/80	18,734	18,734	06/80	0	18,091	643	18,734	0	C	18,734
7/80	Air-Water Loop Upgrade Equipment	9D1991650	-	03/80	81,867	81,867	04/80	0	81,867	0	81,867	0	C	81,867
9/80	Densitometer Detectors	9D1993160	08/80	08/80	67,436	67,436	03/81	0	40,900	26,536	67,436	0	C	67,436

WATER REACTOR RESEARCH TEST FACILITIES DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6059)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete.
Pre FY-1982														
11/80	High Resolution Graphics (ADPE)	9D1993180	08/80	08/80	14,792	14,792	-	0	14,792	0	14,792	0	C	14,792
1/81	Common Support Equipment	9D0810100	01/81	01/81	35,324	35,324	-	58	5,346	36,237	41,641	< 6,317>	0	41,641
2/81	Spare Intact Loop Components	9D0810200	01/81	01/81	28,103	28,103	-	0	13,964	14,139	28,103	0	C	28,103
3/81	Optical Probes for Steam Generator	9D0810300	01/81	01/81	13,136	13,136	-	0	13,126	10	13,136	0	C	13,136
4/81	Mod-2A Test Loop Components	9D0810400	01/81	01/81	319,047	319,047	A/ 04/81	0	309,657	9,947	319,604	< 557>	C	319,604
5/81	Steam-Air-Water (SAW) Loop Upgrade Components	9D0810500	01/81	01/81	230,000	230,000	A/ 04/81	0	123,103	111,735	234,838	<4,838>	0	234,838
6/81	DDAPS Upgrade and Replacement	9D0810600	01/81	01/81	36,841	36,841	-	0	5,634	31,207	36,841	0	C	36,841
7/81	DAS Upgrade and Replacement	9D0810700	01/81	01/81	27,129	27,129	-	0	13,277	13,852	27,129	0	0	27,129
	Subtotal Pre FY-1982 Costs				1,241,224 -1,001,938	1,241,224		58	1,001,938 -1,001,938	250,940	1,252,936 -1,001,938	<11,712>		
	NET: Pre FY-1982				239,286	1,241,224		58	0	250,940	250,998	<11,712>		

WATER REACTOR RESEARCH TEST FACILITIES DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6059)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete.
FY-1982														
1/82	Pump Inlet Spool Pieces	9D0820100	12/81	01/82	57,000	57,000	-	0	0	59,109	59,109	<2,109>	0	57,000
2/82	Pressurizer	9D0820200	12/81	01/82	112,000	112,000	-	1,875	0	144,968	146,843	<34,843>	0	146,843
3/82	DDAPS	9D0820300	02/82	02/82	199,000	199,000	-	114,884	0	84,485	199,369	<369>	0	199,369
4/82	Data Acquisition System	9D0820400	03/82	-	237,000	237,000	-	139,426	0	59,023	198,449	38,551	C	217,000
5/82	Word Processor	9D0820500	02/82	02/82	6,000	6,000	-	5,618	0	0	5,618	382	0	5,618
6/82	Intact Loop Pump Components	9D0820600	02/82	02/82	159,974	159,974	-	149,889	0	0	149,889	10,085	0	149,839
7/82	Common Support Equipment	9D0820700	05/82	-	50,000	50,000	-	15,050	0	0	15,050	34,950	C	50,000
					820,974	820,974		426,742	0	347,585	774,327	46,647		
	GRAND TOTAL FY-1982 ACTIVITY				1,060,260	2,062,198		426,800	0	598,525	1,025,325	34,935		

MONTHLY REPORT FOR

SEPTEMBER 1982

THERMAL FUELS BEHAVIOR PROGRAM

W. A. Spencer, Manager

T. A. Olsen / bb for

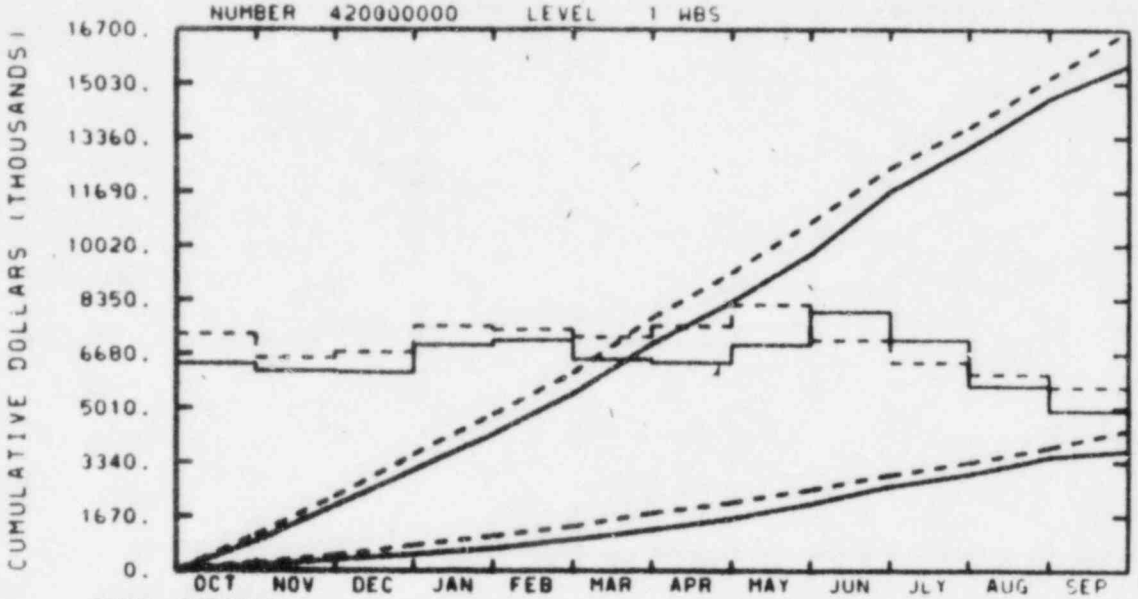
T. A. Olsen
Plans and Budget Representative

RESPONSIBLE MANAGER
A. SPENCER

EG&G IDAHO INC.

TFBP PROGRAM

NUMBER 420000000 LEVEL 1 WBS



TOTAL PROGRAM

BUDGET	1105	2288	3602	4828	6108	7796	9197	10764	12436	13677	15201	16713
ACTUAL	918	2012	3120	4220	5470	7003	8301	9779	11712	13056	14567	15614

MATERIAL

BUDGET	237	488	800	1081	1380	1785	2114	2515	2962	3345	3812	4351
ACTUAL	162	358	518	701	974	1275	1620	2074	2616	2981	3520	3711

MANPOWER

BUDGET	201	181	186	208	205	199	208	226	196	177	167	156
ACTUAL	176	170	169	192	196	180	177	192	220	196	157	136

BUDGET

ACTUAL

YTD VARIANCE: 1103 (7%)

Individual cost graphs will give individual explanations.

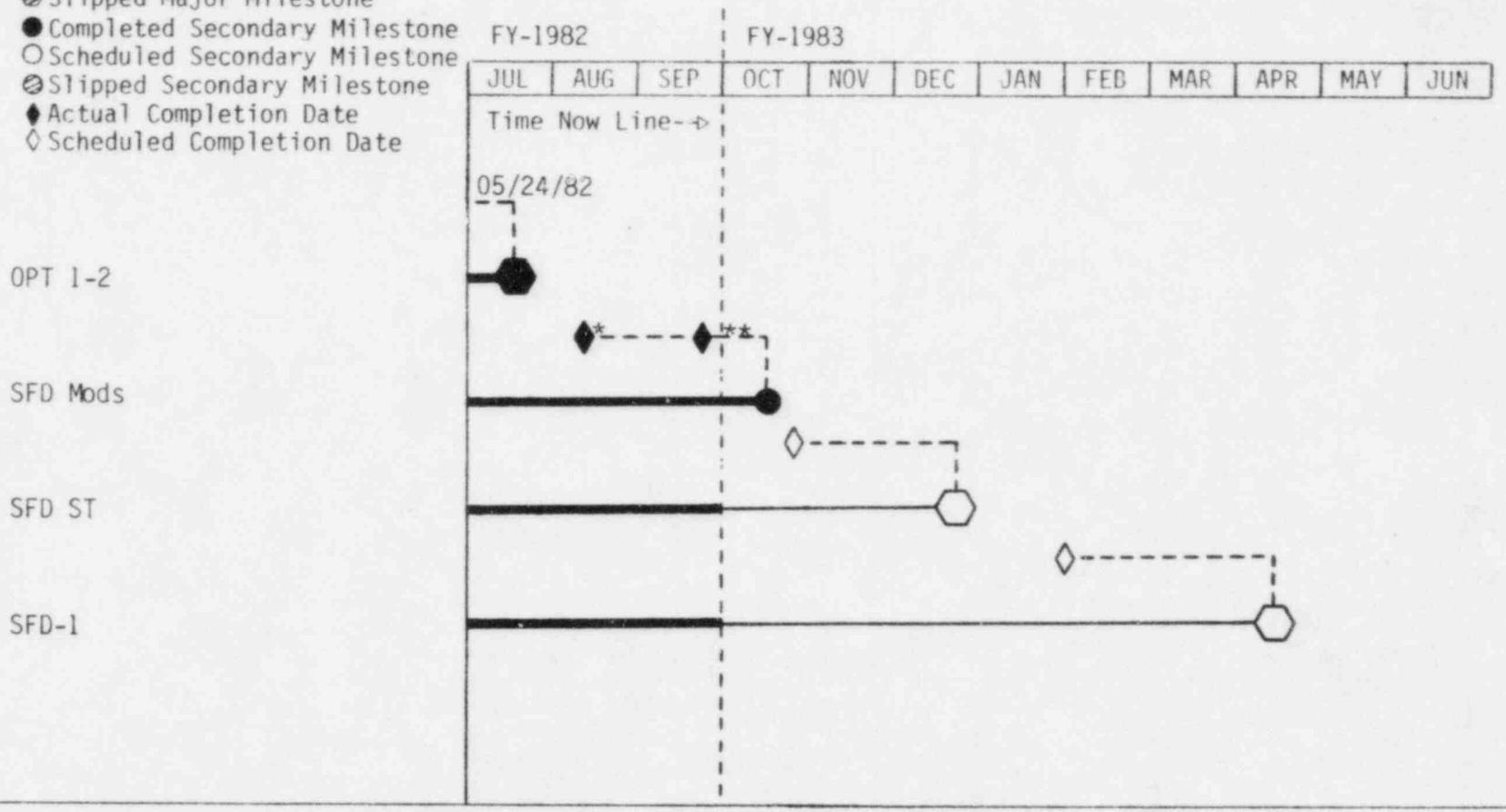
Explanations for major 189's will be made if the variance exceeds $25K. Minor 189 graphs will explain variance of over $10K.

Note: Figures represent baseline budget which exceeds TFBP BA by $495K.

LEGEND

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

THERMAL FUELS BEHAVIOR PROGRAM September 1982



NOTES: SFD-ST scheduled working completion date has been moved to October 24, 1982.

* SFD Mods installation was completed on August 6, 1982.

**SFD Mods SO testing was completed on September 23, 1982.

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

The primary efforts during the reporting period were directed toward completing preparations for performance of the Severe Fuel Damage Scoping Test (SFD-ST). The leaks in the test train head found last month were repaired, it was reinstalled in the in-pile tube, and the loop hydrostatic pressure test was completed. In addition, the fission product detection system for the Scoping Test is now fully operational, and all installation and system operational modifications have been completed.

Installation and checkout of several additional minor modifications were required following completion of the Systems Operational testing of the Severe Fuel Damage modification package.

The components and fuel for Test SFD-1 were received and final assembly activities were initiated. The parts fabrication and instrument activities for the SFD-2 test train are nearly complete.

The Program has generated an underrun for the fiscal year which will help alleviate the problem of unfunded scope in FY-82. It is intended that the required carryover scope will be incorporated into the FY-83 baseline and be covered by the available carryover funds.

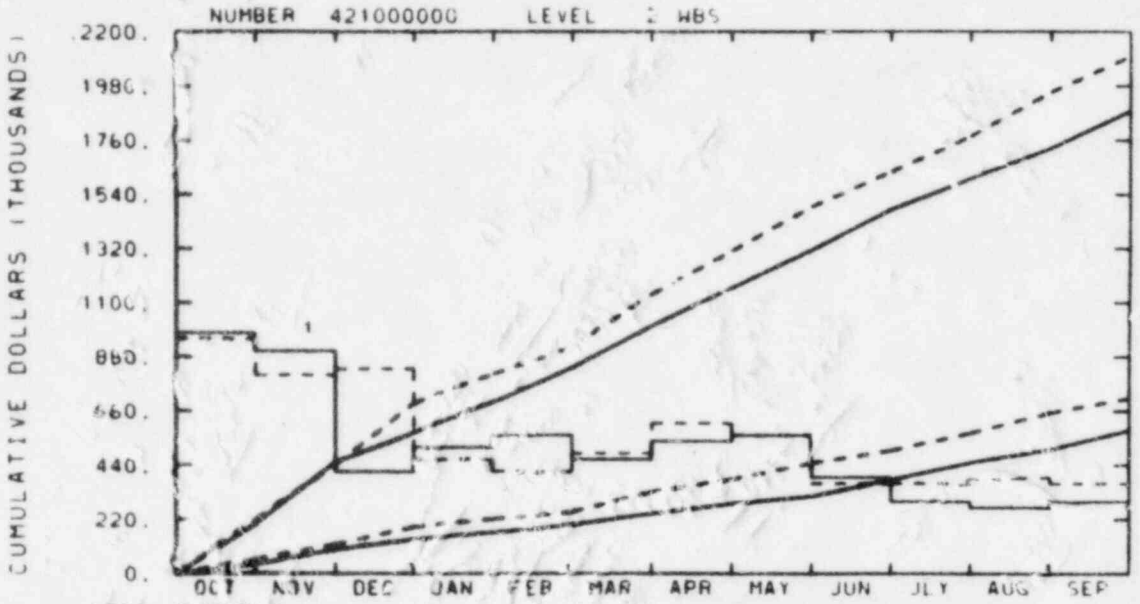
The execution of the SFD-ST is now governed by completion of the updating of operational documentation necessitated by review of the system operational testing data and operational experience to date, along with final review and closeout of open items.

RESPONSIBLE
NAGER
E.MACDONALD

EG&G IDAHO INC.

TFBP EXPER DESIGN & ANALYSIS

NUMBER 421000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	270	445	693	809	922	1134	1310	1490	1631	1776	1956	2100
ACTUAL	203	455	575	696	837	1006	1161	1315	1479	1605	1729	1879

MATERIAL

BUDGET	80	121	191	223	253	332	383	449	500	572	655	712
ACTUAL	38	100	140	169	200	245	285	315	381	452	506	581

MANPOWER

BUDGET	39	33	34	19	17	20	25	22	15	15	16	15
ACTUAL	40	37	32	21	23	19	22	23	16	12	11	12

A6041

YTD VARIANCE: 22 (11%)

The underrun was due to the deferral of OPTRAN PIE and TRR work scope to FY-1983.

1. 189a A6041 - Experiment Design & Analysis

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

a. Power-Cooling-Mismatch Test Series

No work was done on the Test PCM-7 Fuel Rod Materials Behavior Report.

b. Operational Transient (OPTRAN) Test Series

All of the Test OPT 1-1 and 1-2 fuel rods were pulsed eddy current scanned.

c. Loss-of-Coolant Accident Test Series

Review of the Test LOC-6 Fuel Rod Behavior Report has been delayed.

d. Reactivity Initiated Accident Test Series

Review of the Test RIA 1-4 Fuel Behavior Report has been delayed.

e. Fission Product Behavior Research

A paper was presented at the Thermal Reactor Safety Meeting. Calculations continued on release signatures for Test PCM-7.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

a. Power-Cooling-Mismatch Test Series

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

5. Summary of Work to be Performed in October 1982 (Continued)

b. Operational Transient (OPTRAN) Test Series

Gas analysis, void volume measurements, and gamma scanning of the Test OPT 1-2 test fuel rods will be completed.

c. Loss-of-Coolant Accident Test Series

Review of the Test LOC-6 Fuel Rod Behavior Report is still pending.

d. Reactivity Initiated Accident Test Series

Review of the Test RIA 1-4 Fuel Behavior Report is still pending.

e. Fission Product Behavior Research

Analysis will begin on OPT 1-2 and the sample injection data. Work will continue on the draft report of fission product behavior during PBF tests RIA 1-1, RIA 1-4, PR-1 and PCM-7.

6. Problems and Potential Problems

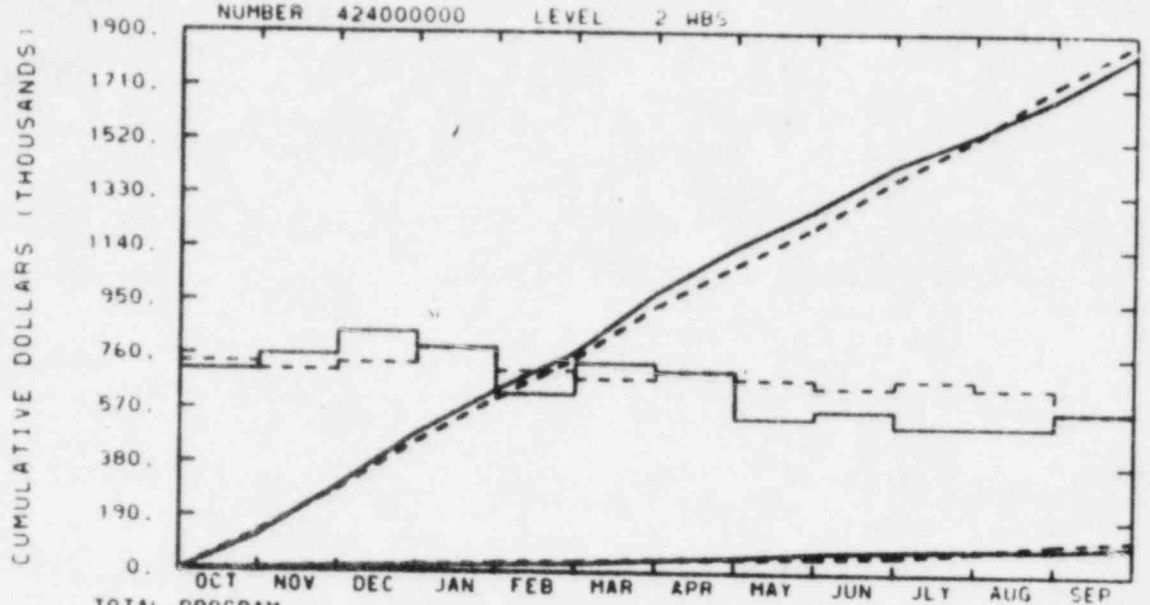
None.

RESPONSIBLE
ANAGER
F NESTER

EG&G IDAHO INC.

PBF ENGINEERING

NUMBER 424000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	135	288	456	609	750	933	1079	1218	1386	1534	1720	1871
ACTUAL	125	297	486	638	772	982	1143	1279	1435	1545	1673	1830

MATERIAL

BUDGET	7	16	25	33	38	47	52	57	64	84	110	126
ACTUAL	1	15	22	26	31	45	55	74	82	90	90	104

MANPOWER

BUDGET	27	26	27	29	26	25	26	25	24	25	24	21
ACTUAL	26	28	31	29	23	27	26	20	21	19	19	21

A6044

YTD VARIANCE: 41 (2%)

The majority of this underrun is carryover scope for repair of the loop pump and FY-82 procurement (not accrued) of SFD Sample System components for test SFD-1. A portion of the underrun was available because of reduced costs associated with completing TMI activities. Other TMI Response activities, ones related to Facility sampling and hydrogen management, are to be completed with FY-83 level-of-effort engineering funds.

1. 189a A6044 - PBF Design Engineering

2. Scheduled Milestones for September 1982

Node	Description	Due Date	Actual Date
N/A	Issue the final Experiment Safety Analysis report for the Severe Fuel Damage Scoping Test in sufficient time to allow one month for DOE-ID review prior to reactor startup for the test.	08-13-82E	08-13-82C*
N/A	Complete installation and S.O. testing of Severe Fuel Damage related mods.	09-30-82E	09-23-82C

3. Summary of Work Performed in September 1982

a. Severe Fuel Damage (SFD) Modifications

System Operation (SO) Testing of the Sample System and Experiment Cooling System was performed, thus completing the original SFD Mod SO Test. Additional experience for operating personnel will be provided during performance of an integrated system checkout test that will emphasize the transition from preconditioning to transient flow conditions.

b. PBF Spare Loop Pump Repair

Welding of qualification specimens was completed, with inspection scheduled for October. The replacement rotor and stator liners were received and weld preparation begun. Parts for the electrical penetrations were fabricated.

c. SFD Steam Sample Box Blower

Installation and checkout were completed on a blower to provide cooling and purging of the steam sample box. Cooling is required to prevent heat damage to electrical insulation; purging is provided to ensure a flammable concentration of hydrogen cannot accumulate in the sample box.

---

* This item was left off of last month's report.

3. Summary of Work Performed in September 1982 (continued)

d. SFD-1 Low Bundle Flow Injection Pump

Preliminary design was started on an injection pump system to provide the lower experiment bundle flows planned for the SFD-1 test.

e. LOCA Blowdown Tank/Knockout Drum Isolation

A modification was installed to isolate the blowdown tank (used as the collection vessel during SFD tests) from the knockout drum and to provide separate overpressure relief to the blowdown tank. This change will reduce the potential spread of radioactive contamination from the blowdown tank during and after the transient.

f. Safety Analysis - Severe Fuel Damage Scoping Test (SFD-ST)

The Experiment Safety Analysis report for the scoping test was revised to (a) accommodate the loop fuel inventory requirement after inspection of the OPTRAN 1-2 fuel rods, (b) allow the choice of a power shaping mode or a steady state mode (PPS-1 or PPS-2) for power level scrams, and (c) accommodate revisions of the Technical Specifications.

Analysis to increase the maximum allowable operating bundle power level during the SFD-ST temperature transient was completed.

g. Safety Analysis - Severe Fuel Damage Test (SFD-1)

Analyses were started to determine the effect of molten zircaloy oxidation on shroud melt-through.

h. Technical Specifications

The upgraded neutron fluence and revisions for the Severe Fuel Damage Test Series were issued as Revision 44.

Changes associated with separation of the blowdown tank and knockout drum were transmitted to DOE-ID for approval. On approval, this will be issued as Revision 45.

The annual review comments were completed (Reactor Safety Surveillance Report, PBF-82-11, and letter, COD-167-82).

The loop water chemistry specification changes were deferred until after the SFD-ST.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

a. PBF Spare Loop Repair

Weld qualification and weld preparation on the rotor should be completed. A trial run of the rotor can assembly procedure is scheduled for October.

b. SFD-1 Low Bundle Flow Injection Pump

A preliminary design review will be held to cover the new pump system required to provide the reduced bundle flow for SFD-1.

c. Contamination Control Equipment for Test Train Transfer

A device will be designed to reduce contamination spread from the test train during its transfer from the in-pile tube to the PBF canal. The device will also be used during the posttest gamma scanning of the experimental fuel bundle. It will be removed after the contamination control tent is erected.

d. SFD-ST Engineering Support

Engineering support will be provided for problem resolution during the SFD-ST.

e. SFD-ST and SFD-1 Analyses Work

Efforts on the SFD-1 Experiment Safety Analysis will continue. Technical support during the SFD-ST test will be provided. Thermal power measurements and chamber calibration will be performed during the conditioning phase of the SFD-ST.

6. Problems and Potential Problems

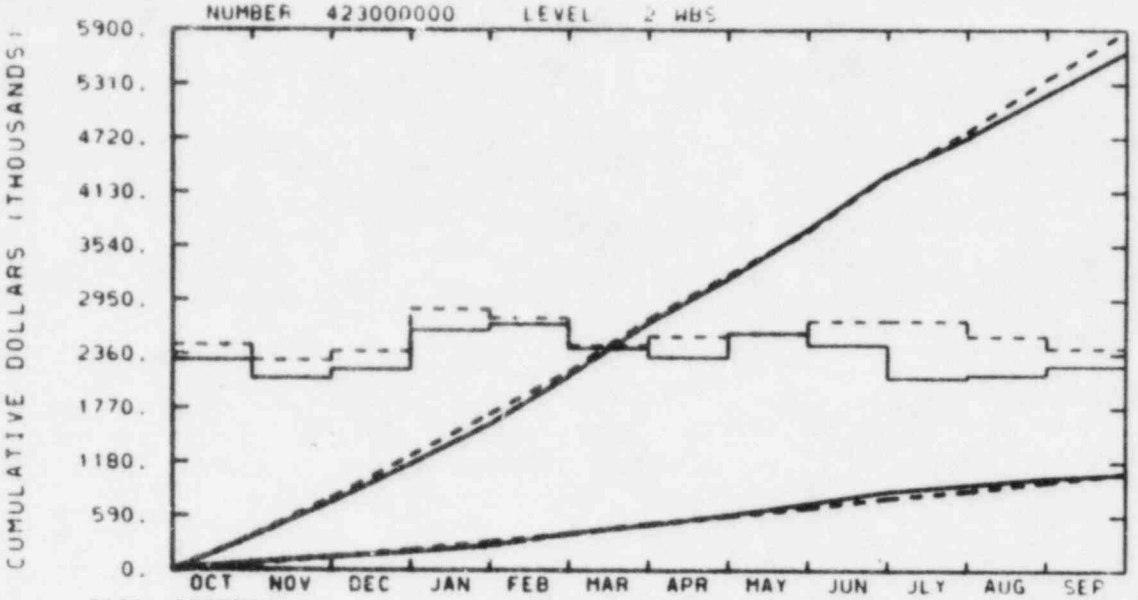
None.

RESPONSIBLE MANAGER
J.O.DOUCETTE

EG&G IDAHO INC.

PBF OPERATIONS

NUMBER 423000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	372	789	1250	1705	2172	2745	3224	3708	4316	4787	5363	5887
ACTUAL	365	746	1161	1595	2122	2705	3186	3727	4326	4722	5194	5660

MATERIAL

BUDGET	68	144	228	314	401	511	598	686	791	872	972	1085
ACTUAL	85	151	205	272	405	499	607	731	866	940	1013	1059

MANPOWER

BUDGET	75	70	73	87	84	75	78	79	83	83	78	74
ACTUAL	70	64	67	80	82	74	71	79	75	64	65	68

A6057

YTD VARIANCE: 227 (4%)

The $227K underrun is due to three reasons: 1) a cost transfer from PBF Training Program Improvement (TPI) to ATR ($60K), 2) requisitions written but not costed ($100K), and 3) EPRO vacancies ($67K).

1. 189a A6057 - PBF Operations

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

a. PBF Plant Operations

The work performed during this reporting period was primarily directed toward completion of the System Operational (SO) Testing of the new Severe Fuel Damage (SFD) plant modifications and preparation of the plant for performance of the Severe Fuel Damage Scoping Test (SFD-ST).

Repair of the test train head leaks, reinstallation of the test train into the in-pile tube and performance of the experimental loop hydrostatic pressure test were completed. Sections A, B, C, and D of the SFD plant modifications SO Tests were completed. A final integrated plant SO Test section E of the SFD plant modifications will be completed during heatup for performance of the preconditioning phase of the scoping test.

Trouble was experienced with disposal of liquid hot waste generated within the plant due to the inability of the Idaho Chemical Processing Plant (ICPP) to process liquid waste. Limited temporary storage is being provided until final disposal can be accomplished.

The Instrument and Data Section completed calibration and checkout of the plant process instrumentation and Data Acquisition and Reduction System (DARS) in preparation for the scoping test.

b. PBF Operations Support

Preventive Maintenance (PM) examinations for September and October have been issued and are scheduled to start during the shutdown window after the SFD-ST In addition, the combined efficiency test on the Reactor Building Silver Zeolite Filter Housing was completed.

Corrective Maintenance efforts include the completion of extensive planning for the installation of the new Silver Zeolite Filter Housing, completion of planning for temporary handling of liquid hot waste, and correction of plant deficiencies and support work for the SFD-ST.

3. Summary of Work Performed in September 1982 (Continued)

b. Data qualification for the Operational Transient Tests (OPT 1-1) and (OPT 1-2) is continuing. Comments have been incorporated into the draft report on the PBF Emergency Monitoring System and the document is now ready for printing. The DARS specification and directory have been prepared for PBF System Modifications SO Tests and the SFD-ST. Two Engineering Design Files were completed for the OPT 1-2 plant instrumentation description. The Data Verification System (DVS) was installed and checked out with the Data Qualification System for use during the SFD-ST. Calibration procedures were written for both the DVS and the Fission Chamber Instrumentation System.

Due to SFD Modifications SO Test operations and system mechanical changes, late updates to the SFD Plant Operating Manual (POM) chapters, startup checklists, and the SFD Experiment Operating Procedure (EOP) have been necessary, resulting in continued approval and incorporation work this month.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

a. The September and October PM examinations will be completed.

b. The load test on the Reactor Building 15-ton crane will be completed.

c. The SFD Scoping Test will be completed.

d. The SFD POM chapters, startup checklists, and EOP will be completed.

6. Problems and Potential Problems

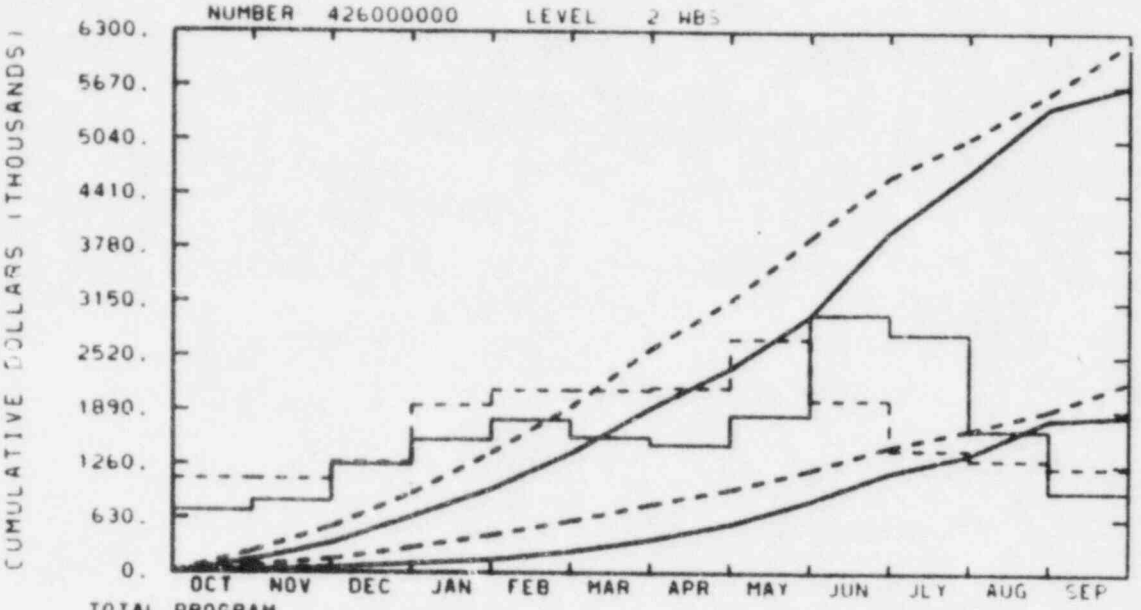
Liquid hot waste disposal. (For more information, see item 3a on the preceding page.)

ESPONSIBLE
AGER
J.BUESCHER

EG&G IDAHO INC.

SEVERE FUEL DAMAGE

NUMBER 426000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	242	534	926	1392	1922	2604	3169	3898	4[illegible]4	5062	5593	6231
ACTUAL	139	345	656	973	1387	1913	[illegible]378	2993	3974	4602	5426	5680

MATERIAL

BUDGET	71	159	298	440	605	796	970	1201	1472	1671	1900	2236
ACTUAL	20	58	108	155	251	388	567	841	1169	1380	1788	1837

MANPOWER

BUDGET	38	38	45	68	74	74	75	95	70	50	46	43
ACTUAL	25	29	44	54	62	55	52	66	105	97	58	33

BUDGET

ACTUAL

A6305

YTD VARIANCE: 551 (9%)

Spending was curtailed (necessarily) in order to close at fiscal year end within TFBP authorized BA of $5,725K. The graph reflects baseline budget and much of the underrun indicates scope which was required to be deferred to FY-1983 due to funding limitations.

1. 189a A6305 - TFBP Severe Fuel Damage

2. Scheduled Milestones for September 1982

Node	Description	Due Date	Actual Date
Final	Feasibility of On-line Fuel Monitoring	9/31/82	10/15/82E

3. Summary of Work Performed in September 1982

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

The boiloff and heatup analysis was redone with an initial bundle power of 12 kW that produces an initial heatup rate to 1.0 K/s.

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

A preliminary TRAC calculation was made of an average fuel rod in TMI-2 through the onset of reflooding and core cooldown.

c. Severe Fuel Damage (SFD) Tests 3 and 4 Experiment Specification Document (ESD)

The physics analysis used to set the fresh rod enrichments was completed and the enrichment requirements were sent to PNL.

d. Postirradiation Examination (PIE) and Hot Cell Support

Fabrication was completed on 80% of the hot cell items for handling of SFD assemblies, and several related procedures were issued for review. The Hot Cell Branch also generated a status report and tentative schedule on the developmental tasks for SFD rubble bed examinations. Drafting on the PBF in-canal gross gamma scanner was finished, a final design review was held successfully, and fabrication has commenced. A thin-sectioning approach on scanning electron microscope specimens was successfully attempted to reduce background radioactivity, thereby enhancing elemental composition determinations.

e. Severe Fuel Damage Analysis

Technical editing and composition of the topical report on the potential for fuel foaming during a severe accident continued.

3. Summary of Work Performed in September 1982 (Continued)

f. Severe Fuel Damage Fission Product Studies

The FPDS was readied for the SFD-ST and was fully operational on September 22. Hot cell preparation continued for grab sample analysis. Discussions were held with Oak Ridge National Laboratory (ORNL) and Battelle Columbus Laboratories (BCL) scientists concerning plans for future fission product and aerosol measurements at PBF.

g. Instrument Development and Fission Chamber

A follow-on subcontract has been prepared and is being procured to extend the services of the University of Washington into FY-83. The fission chamber instrument system hardware and software were completed and are ready for the test.

h. Test Train Assembly Facility (TTAF)

The components and fuel for SFD-1 were received at MTR and final assembly activities were initiated. With the exception of the fallback barrier and flow tube, the parts fabrication and instrument activities for the SFD-2 test train have been completed.

i. Phase II Program Development

The SFD Series 2 Design Basis and Experiment Specification Document was issued in preliminary form for review by design, program, hot cell, and safety organizations.

A summary document of Phase II physics calculations was completed through draft form and submitted for review.

j. Modifications

All installation and SO testing is complete.

k. Fission Product Signature Analysis

The paper on feasibility of fuel condition monitoring was presented at the Thermal Reactor Safety Meeting. A letter on the same subject to meet the above milestone was submitted to management for review. The draft report on the RFKM computer model was reviewed by management; final comments are being incorporated.

4. Scheduled Milestones for October 1982

Node	Description	Due Date	Actual Date
N/A	Issue EPR Draft for SFD-1	10/22/82	10/22/82E

5. Summary of Work to be Performed in October 1982

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

A draft EPR will be prepared for management review.

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

Analysis will be started on a fast reflood of a partially molten bundle.

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

Work will begin on the Quick Look Report for the SFD Scoping Test.

d. Postirradiation Examination (PIE) and Hot Cell Support

Fabrication of remaining hot cell items and draft versions of procedures for handling SFD assemblies will be completed. Fabrication of the PBF gross gamma scanner will be finished, and an installation and operating procedure will be initiated.

e. Severe Fuel Damage Analysis

Graphics and composition of the report on the potential for fuel foaming during a severe accident will continue. Publication is expected in November 1982.

f. Severe Fuel Damage Fission Product Studies

The SFD-ST will be monitored; quick look analysis will be performed, and hot cell work on the grab samples will be initiated.

g. Instrument Development and Fission Chamber

The fission chamber instrumentation will be used during the SFD-ST and test data will be sent to the University of Washington. Personnel from the University of Washington will participate in the preconditioning and transient part of the test.

h. Test Train Assembly Facility (TTAF)

The final assembly activities for SFD-1 will continue. The procurement of fallback barrier materials and components

5. Summary of Work to be Performed in October 1982 (Continued)

h. Test Train Assembly Facility (TTAF) (Continued)

for SFD-2 will be initiated. A formal design review of the SFD-3 and -4 fuel bundle and insulating shroud has been scheduled for 10/28 and 10/29/82. The SFD-3 and SFD-4 upper structure redesign, and the SFD Series 2 will be initiated.

i. Phase II Program Development

The SFD Series 2 Design Basis and Experiment Specification Document will be issued early in October and formal design of the test train will begin. Work will also begin on the Series 2 Experiment Requirements Document and the Experiment Predictions Report. A contract will be culminated for development of oxidation resistant thermocouples.

j. Fission Product Signature Analysis

The RFKM report will be completed and issued. The letter report on the feasibility of an on-line fuel condition monitoring will be transmitted.

6. Problems and Potential Problems

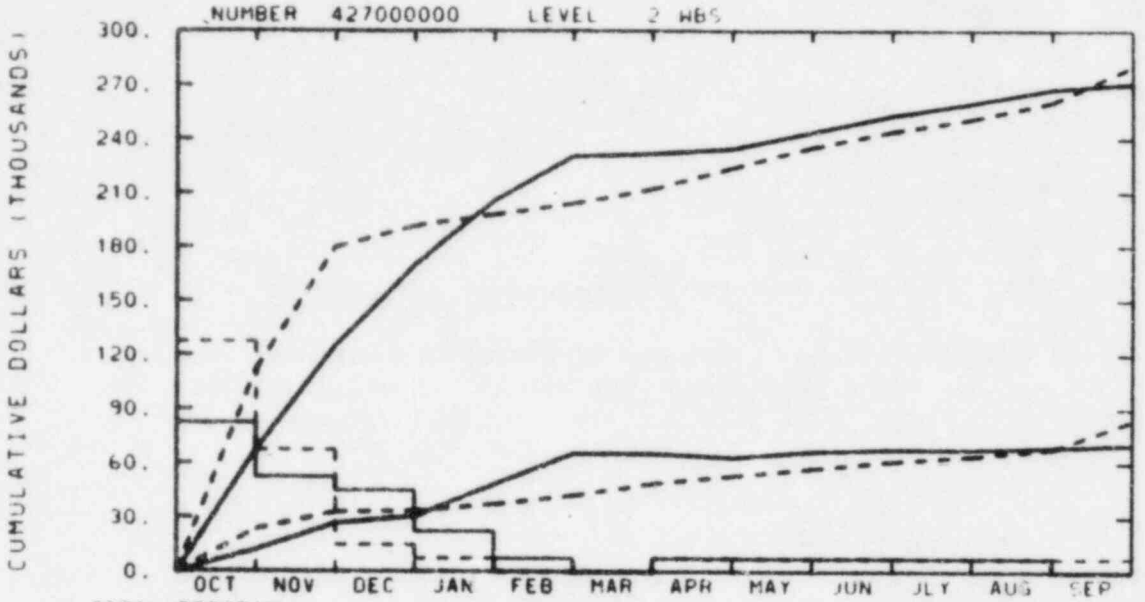
None.

RESPONSIBLE MANAGER
M. J. REILLY

EG&G IDAHO INC.

CORE MELT MITIGATION SYSTEM

NUMBER 427000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	112	180	192	198	204	212	224	235	244	251	260	281
ACTUAL	68	125	170	206	230	232	235	244	253	260	268	271

MATERIAL

BUDGET	24	33	34	37	42	49	53	57	61	64	68	84
ACTUAL	12	27	31	48	65	65	63	67	68	68	69	71

MANPOWER

BUDGET	17	9	2	1	0	0	1	1	1	1	1	1
ACTUAL	11	7	6	3	1	0	1	1	1	1	1	0

A6351

YTD VARIANCE: 10 (4%)

The $10K remaining is being carried forward to FY-1983 to cover publication of the Sequoyah Plant report as a NUREG and for outstanding commitments on subcontracts.

189a A6351

1. 189a A6351 - Core Melt Mitigation

2. Scheduled Milestones for September 1982

Forward Internal Report on Risk Reduction Studies to NRC (by September 30, 1982).

3. Summary of Work Performed in September 1982

Scheduled Milestone (#2 above) was completed as scheduled.

Meeting was held at EG&G Idaho on September 30 - October 1 with two foreign visitors from Battelle-NV.

4. Scheduled Milestones for October 1982

None

5. Summary of Work to be Performed in October 1982

NRC requested we publish EGG-PR-5633 as a NUREG report.

6. Problems and Potential Problems

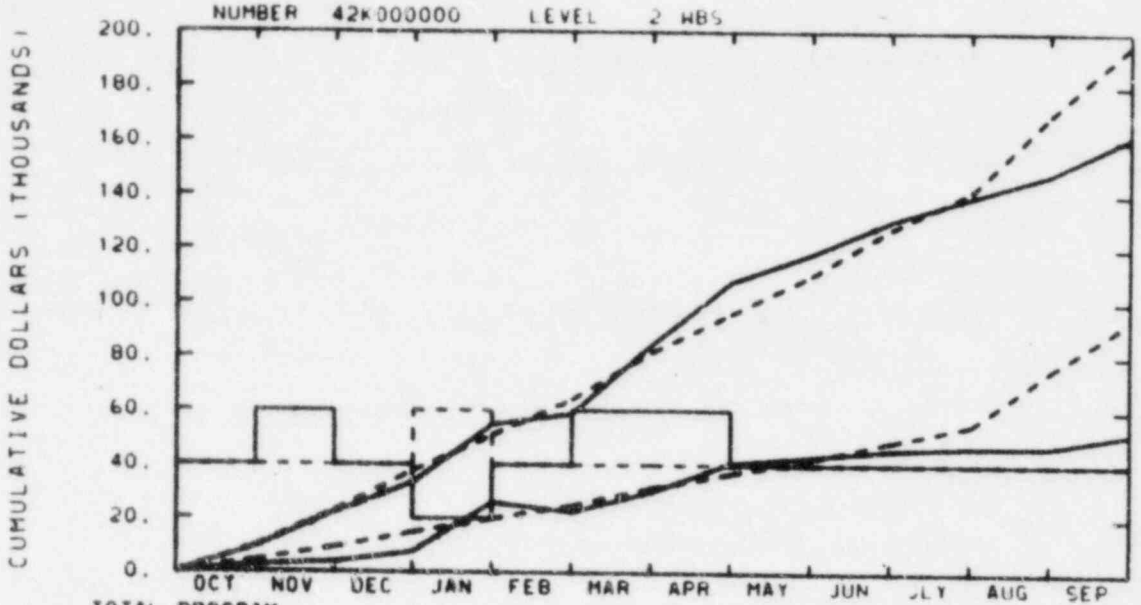
EGG-PR-5633 is being reviewed by EG&G Idaho management to determine if any additional revision is necessary prior to publishing in final form.

RESPONSIBLE
NAGER
R.HOBBINS

EG&G IDAHO INC.

NRC REP TO RFK

NUMBER 42K000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	10	23	38	51	64	82	96	110	127	141	170	196
ACTUAL	9	22	33	55	59	84	108	118	130	139	148	162

MATERIAL

BUDGET	4	9	15	20	25	32	37	42	49	55	75	93
ACTUAL	3	4	8	26	23	30	41	43	46	47	47	52

MANPOWER

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

A6352

YTD VARIANCE: 34 (17%)

The underrun is due to lower than anticipated expenses during FY-1982. The carryover funds are needed to cover outstanding commitments as well as FY-1983 scope.

189a A6352

1. 189a A6352 - NRC Representative to KfK

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

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

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

6. Problems and Potential Problems

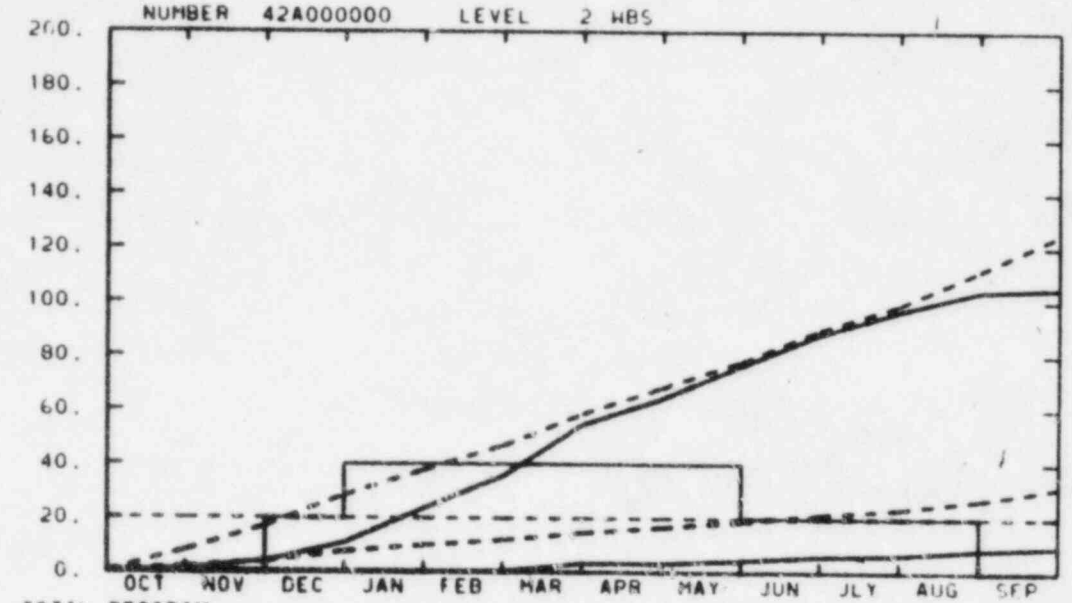
None.

RESPONSIBLE
ANAGER
.W.CROUCHER

EG&G IDAHO INC.

FIS PROD BEHAV - PAST ACCIDENTS

NUMBER 42A000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	8	17	28	38	47	59	68	78	90	99	112	125
ACTUAL	1	4	11	24	36	55	64	76	88	97	104	105

MATERIAL

BUDGET	2	4	8	10	12	15	17	19	21	24	27	31
ACTUAL	0	0	0	0	1	3	3	5	6	7	9	10

MANPOWER

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

A6372

YTD VARIANCE: 20 (16%)

The $20K underrun will be carried over to FY-1983 to publish a report on Trap-Melt Analyses of the Plutonium Recycle Test Reactor Accident.

1. 189a A6372 - Fission Product Behavior During Past Accidents

2. Scheduled Milestones for September 1982

Node	Description	Due Date	Actual Date
N/A	General Review of Past Accidents and Destructive Tests (Informal Report)	09-01-82	09-30-82

3. Summary of Work Performed in September 1982

The general review report; "A Review of Fission Product Behavior During Past Accidents and Destructive Tests," EGG-TFBP-6026, by K. Vinjamuri, D. E. Kudera, D. W. Croucher, was published.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

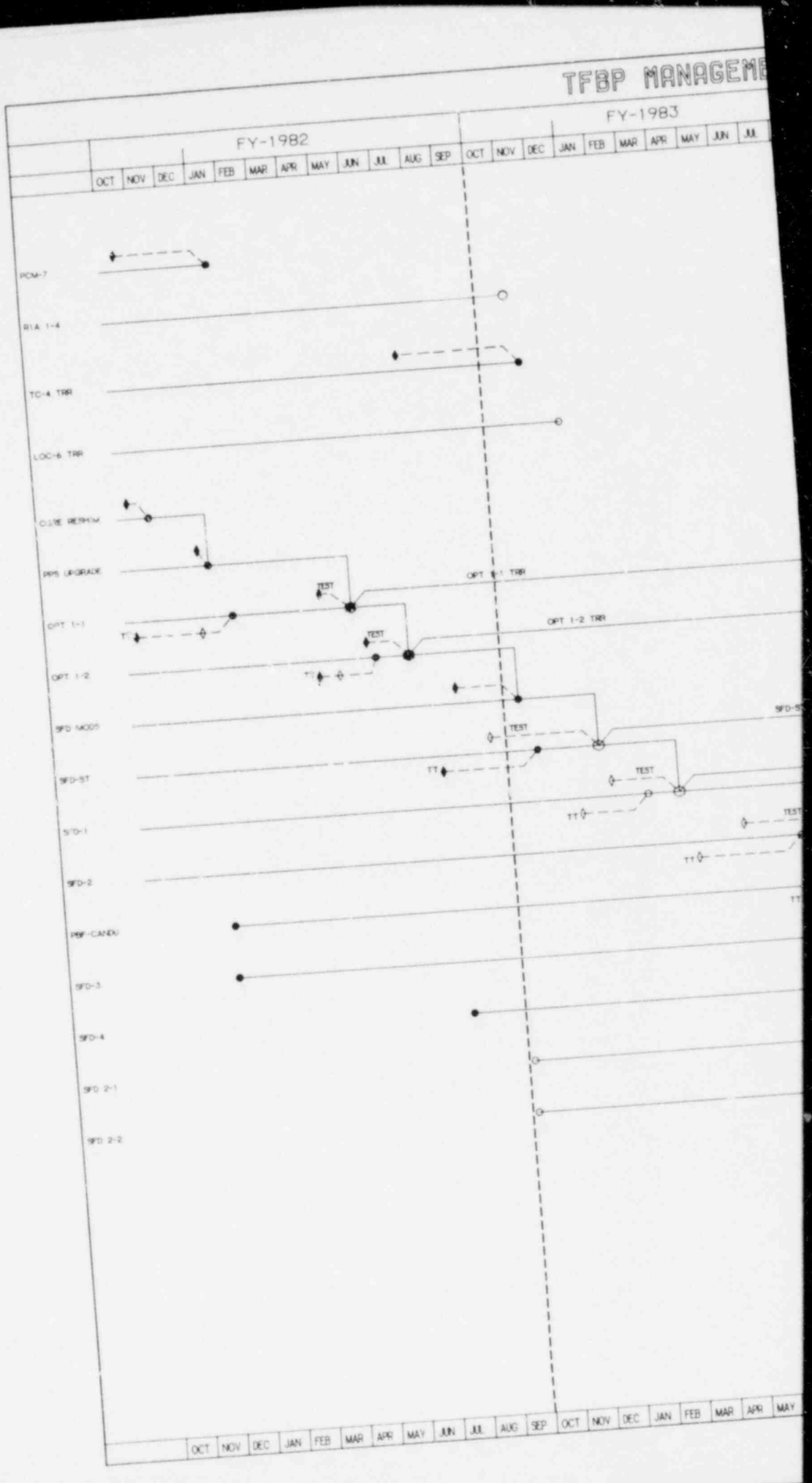
No further work will be done until the new version of TRAP-MELT is received from Battelle Columbus Laboratories.

6. Problems and Potential Problems

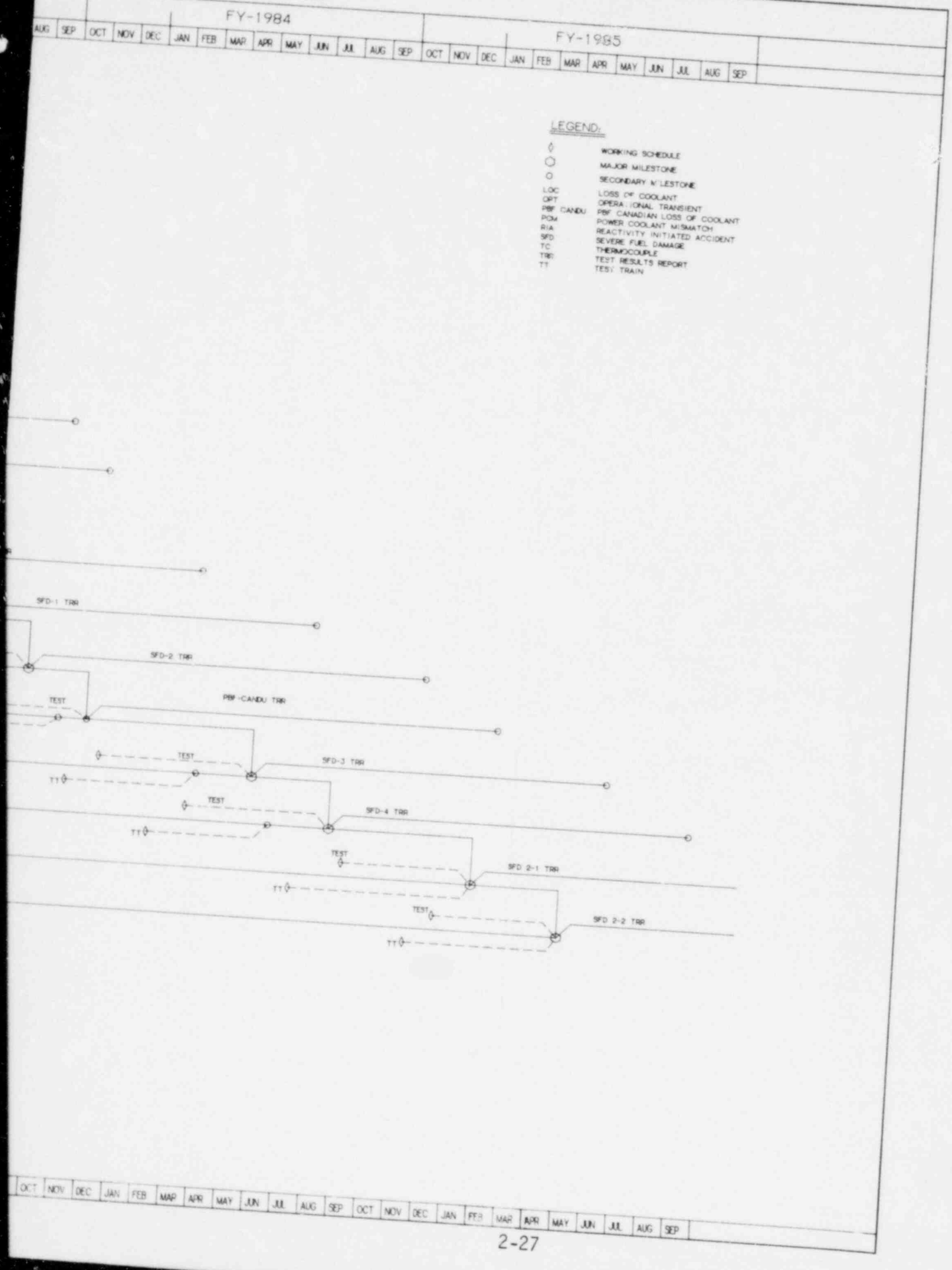
None.

THERMAL FUELS BEHAVIOR PROGRAM

MANAGEMENT SUMMARY SCHEDULE

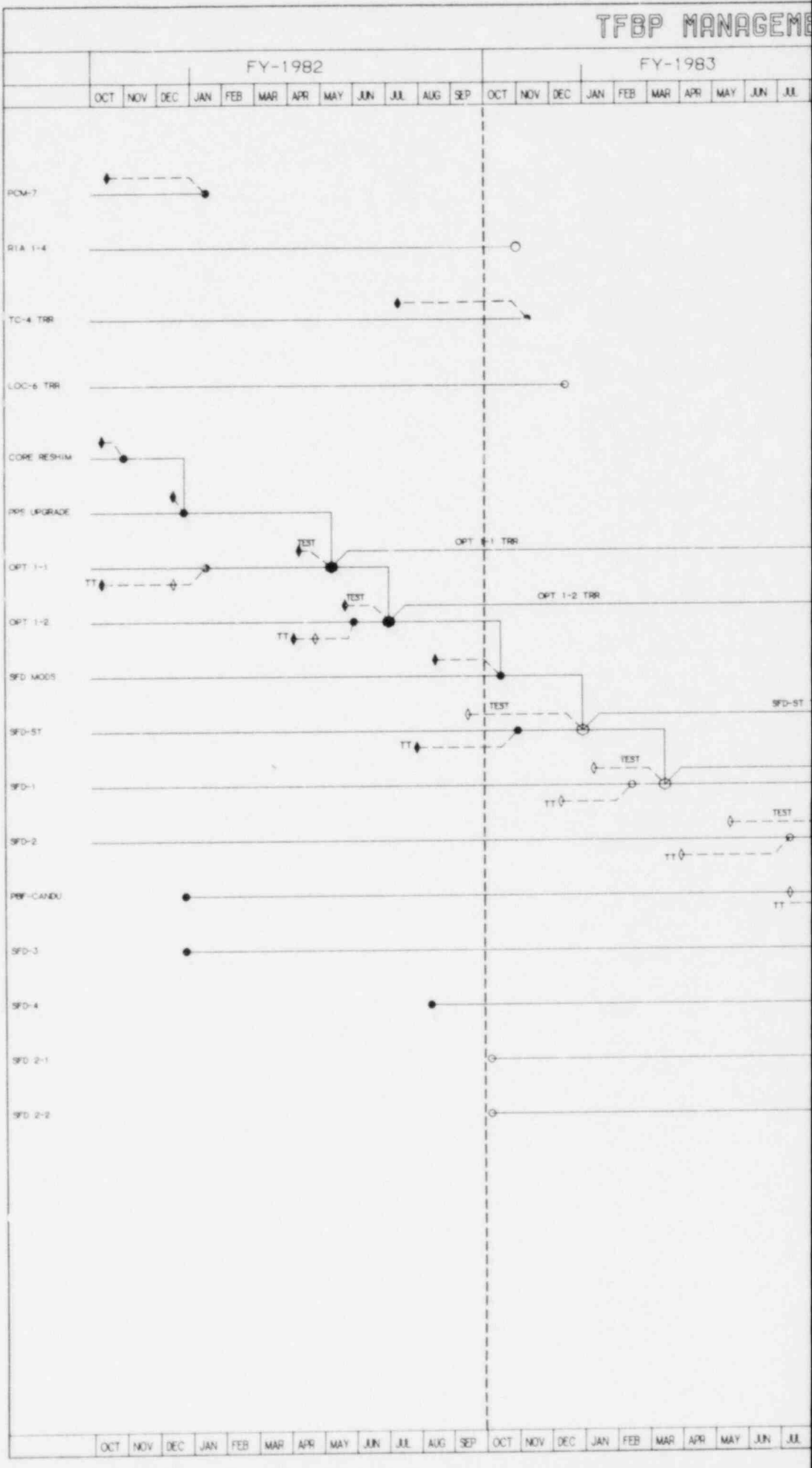

TFBP MANAGEME
FY-1982
FY-1983
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
PCM-7
RIA 1-4
TC-4 TRR
LOC-6 TRR
CORE REPHIM
PMS UPGRADE
OPT 1-1
OPT 1-1 TRR
OPT 1-2
OPT 1-2 TRR
SFD MODS
SFD-ST
SFD-1
SFD-2
PBF-CANDU
SFD-3
SFD-4
SFD 2-1
SFD 2-2
TEST
TT

ENT SUMMARY SCHEDULE



THERMAL FUELS BEHAVIOR PROGRAM

CHANGE CONTROL BOARD ACTIONS

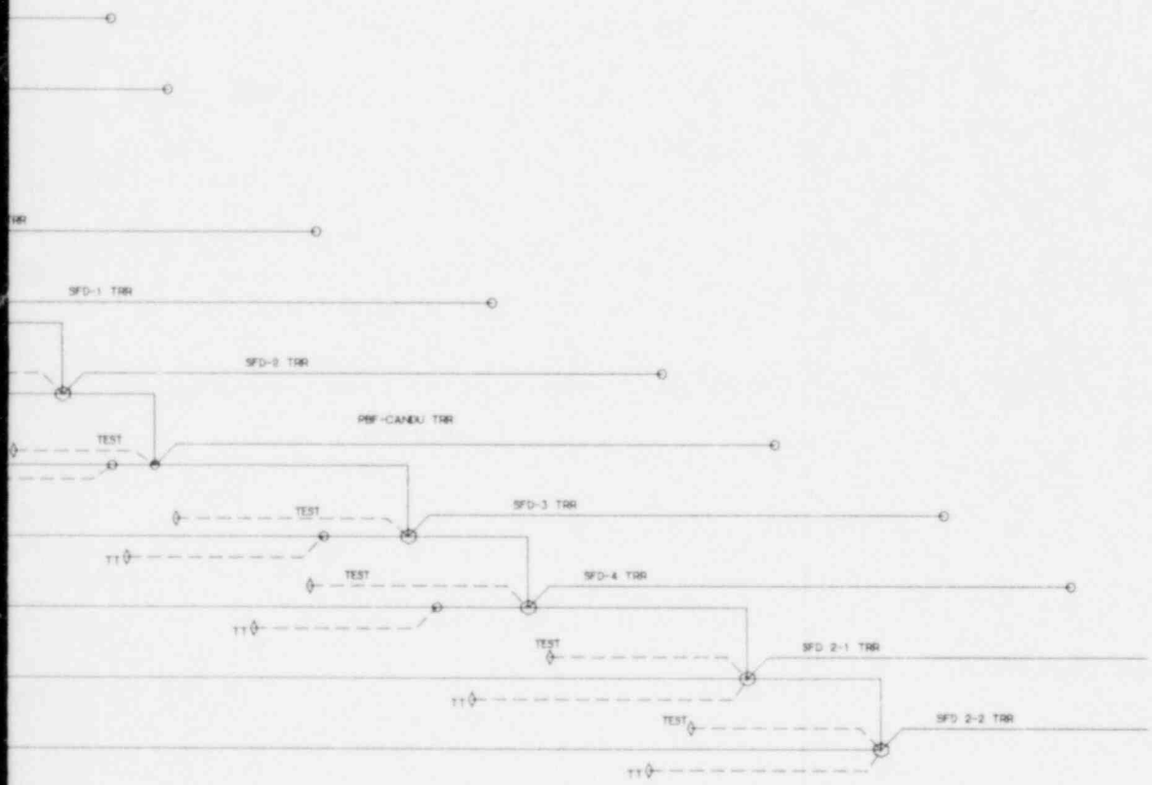

TFBP MANAGEME
FY-1982
FY-1983
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL
PCM-7
RIA 1-4
TC-4 TRR
LOC-6 TRR
CORE RESHIM
PPS UPGRADE
OPT 1-1
OPT 1-1 TRR
TEST
TT
OPT 1-2
OPT 1-2 TRR
SFD MODS
SFD-ST
SFD-1
SFD-2
PBF-CANDU
SFD-3
SFD-4
SFD 2-1
SFD 2-2

ENT SUMMARY SCHEDULE

	FY-1984												FY-1985											
AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP

LEGEND:

◊	WORKING SCHEDULE
○	MAJOR MILESTONE
○	SECONDARY MILESTONE
LOC	LOSS OF COOLANT
OPT	OPERATIONAL TRANSIENT
PBF CANDU	PBF CANADIAN LOSS OF COOLANT
PCM	POWER COOLANT MISMATCH
RIA	REACTIVITY INITIATED ACCIDENT
SFD	SEVERE FUEL DAMAGE
TC	THERMOCOUPLE
TRR	TEST RESULTS REPORT
TT	TEST TRAIN



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

THERMAL FUELS BEHAVIOR PROGRAM

CHANGE CONTROL BOARD ACTIONS

CHANGE CONTROL BOARD STATUS

Cost Account	CCB #	Description	Status	Date
42XXXXX	82-01	TFBP Test Schedule	Approved	01/24/82
42XXXXX	82-02	TFBP FY-1982 Baseline	Approved	02/04/82
4245F53	82-03	PPS Upgrade for OPTRAN	Approved	01/24/82
42M1112	82-04	Discretionary Reserve	Disapproved	01/24/82
4261824	82-06	Foreign Fuel Procurement	Approved	01/24/82
4261210	82-07	Severe Fuel Analysis	Approved	01/24/82
4233M10	82-08	PBF Visitor Display	Approved	02/23/82
4219C64	82-09	OPT 1-2 TRR	Approved	01/24/82
42M1112	82-10	Discretionary Reserve	Approved	01/24/82
423XXXX	82-11	PBF Operations	Approved	01/24/82
4262110	82-14	MTR Canal Alarm Power Change	Disapproved	02/04/82
4262110	82-15	Removal of Radiation Hazard (Pipe)	Approved	02/04/82
4244BXX	82-16	Small Loop Break/Loop and IRT Analysis	Approved	01/24/82
42XXXXX	82-17	Test Completion Schedule	Canceled	02/04/82
42XXXXX	82-18	Add $75K to A6372 and Re-establish A6356	Approved	02/04/82
4264110	82-19	FCV-1 Manual Positioner	Approved	02/04/82
4262410	82-20	Hot Cell Equipment and Procedure Development	Approved	02/04/82
4261510	82-21	FPDS Upgrade	Approved	02/04/82
4263423	82-23	SFD-2 Test Train Design	Canceled	02/04/82
4219C2X	82-24	OPT 1-2 Test Train	Approved	02/23/82
4264170	82-25	FPDS Sample System	Approved	02/23/82
4219BXX	82-26	OPT 1-1 Test Schedule	Approved	02/23/82
42XXXXX	82-27	Test Schedule (OPT 1-2, SFD Mods, SF-ST)	Approved	02/23/82
4233F51	82-28	SFD "C" Thermocouple	Approved	02/23/82
4219C26	82-29	OPTRAN 1-2 Test Train	Approved	03/24/82
4233D81	82-30	Corrective Maintenance	Approved	03/24/82
4292BXX	82-32	SFD 2-1 Test Series	Approved	04/29/82
4216F64	82-36	LOC-6 TRR	Approved	04/15/82
4245D91	82-37	PPS Investigation	Approved	04/29/82

CHANGE CONTROL BOARD STATUS (Continued)

Cost Account	CCB #	Description	Status	Date
4264170	82-38	Sample Shielding - SFD Mods	Approved	04/29/82
42XXXXX	82-39	Series II and SFD-ST Test Train Requirements	Approved	04/29/82
4219C32	82-40	OPTRAN 1-2 ESA	Approved	04/29/82
42M1112	82-41	Discretionary Reserve	Approved	04/29/82
4261510	82-42	FPDS Upgrade	Approved	05/27/82
4263126	82-43	SFD-ST/SFD-1 Test Trains	Approved	05/27/82
4233D91	82-44	Craft Shutdown Maintenance	Approved	05/27/82
4262210	82-47	Systems Analysis - Transfer of Funds to Management Reserve	Approved	07/20/82
4264XXX	82-48	SFD Mods - Engineering Overrun	Approved	07/02/82
4264XXX	82-49	SFD Mods - Construction Overrun	Approved	07/02/82
4292B23	82-50	SFD Series II Test Train Design	Approved	07/02/82
4244B9X	82-51	Safety Upgrades	Approved	07/02/82
42631FP/ 4261510	82-52	FPDS Upgrade	Approved	07/02/82
4232A11	82-53	Operating Crews	Approved	07/02/82
4233XXX	82-54	Schedule 189, A6057	Approved	07/02/82
4263523	82-55	SFD-3 Test Train Design	Approved	07/20/82
42641XX	82-57	SFD Mods - Overrun	Approved	07/20/82
42XXXXX	82-58	TFBP Test Schedule Revision	Withdrawn	07/20/82
4242C91	82-59	Plant System Cognizant Engineer	Approved	08/20/82
4262410	82-62	SFD Posttest Equipment and Procedure Dev.	Approved	08/20/82
4262140	82-64	Foreign Fuel Procurement	Approved	09/10/82
4263132	82-65	SFD-ST ESA	Approved	09/10/82

CHANGE CONTROL BOARD ACTION

($000)

CCB #	Description	FY-1982	FY-1983	FY-1984/Beyond	Total Approved Action
82-01	TFBP Test Schedule	N/A			N/A
82-02	TFBP Baseline	16,292.6			16,292.6
82-03	PPS Upgrade for OPTRAN	33.7			33.7
82-06	Foreign Fuel Procurement	10.0			10.0
82-07	Severe Fuel Analysis	20.0			20.0
82-08	PBF Visitor Display	29.7			29.7
82-09	OPT 1-2 TRR	< 80.0>	80.0		0.0
82-10	Discretionary Reserve	34.0			34.0
82-11	PBF Operations	25.0			25.0
82-15	Removal of Radiation Hazard	2.5			2.5
82-16	Small Loop Break/Loop and IPT Analysis	25.0			25.0
82-18	Add $75K to A6372 and Re-establish A6355	101.3			101.3
82-19	FCV-1 Manual Positioner	10.5			10.5
82-20	Hot Cell Equipment and Procedure Development	77.6			77.6
82-21	FPDS Upgrade	142.0			142.0
82-24	OPT 1-2 Test Train	32.7			32.7
82-25	FPDS Sample System	105.0			105.0
82-26	OPT 1-1 Test Schedule	N/A			N/A
82-27	Test Schedule (OPT 1-2, SFD Mods, SF-ST)	N/A			N/A
82-28	SFD "C" Thermocouple	10.0			10.0
82-29	OPTRAN 1-2 Test Train	10.8			10.8
82-30	Corrective Maintenance	100.0			100.0
82-32	SFD 2-1 Test Series	200.0			200.0
82-36	LOC-6 TRR	20.0			20.0
82-37	Reactor and Control	8.0			8.0
82-38	SFD Sample System Shielding Transport Plan	10.0			10.0

< > Return to Management Reserve

CHANGE CONTROL BOARD ACTION (Continued)

($000)

CCB #	Description	FY-1982	FY-1983	FY-1984/Beyond	Total Approved Action
82-39	SFD-ST Test Train/Series II Funding Requirements	<367.3>			<367.3>
82-40	OPTRAN 1-2 ESA	19.1			19.1
82-41	Discretionary Reserve	25.0			25.0
82-42	FPDS Upgrade	16.0			16.0
82-43	SFD-ST/SFD-1 Test Trains	212.5			212.5
82-44	Craft Shutdown Maintenance	54.0			54.0
82-47	Systems Analysis - Transfer of Funds to Management Reserve	<30.0>			<30.0>
82-48	SFD Mods - Engineering Funding	91.8			91.8
82-49	SFD Mods - Construction Funding	170.0			170.0
82-50	SFD Series II Test Train Design	50.0			50.0
82-51	Safety Upgrades	<55.0>			<55.0>
82-52	FPDS Upgrade	45.0			45.0
82-53	Operating Crews	<50.0>			<50.0>
82-54	Schedule 189, A6057	<42.0>			<42.0>
82-55	SFD-3 Test Train Design	<50.0>			<50.0>
82-57	SFD Mods - Funding Requirements	201.0			201.0
82-59	Plant System Cognizant Engineer	<6.0>			<6.0>
82-62	SFD Posttest Equipment and Procedure Dev.	32.1			32.1
82-64	Foreign Fuel Procurement	30.0	<30.0>		0.0
82-65	SFD-ST ESA	11.6			11.6

< > Return to Management Reserve

THERMAL FUELS BEHAVIOR PROGRAM

STATUS BY 189

($000)

189 Number	New 189 Total
A6041	$ 2,100.8
A6044	1,871.0
A6057	5,887.2
A6305	6,195.7
A6351 **	280.5
A6352	195.7
A6355	26.3
A6372	125.0
A6454*	0.6
Subtotal	$16,682.8
Management Reserve**	30.3
Discretionary Reserve	4.8
TOTAL	$16,717.9

The $16,717.9K figure represents the Thermal Fuels Behavior Program baseline budget. However, actual funding amounts to only $16,222.9K which is the FY-1982 cost ceiling for the Thermal Fuels Behavior Program.

* NRR Funding.
** Reflects $25.0K reallocation from Core Melt (A6351) to the TFBP Baseline Program Management Reserve.

THERMAL FUELS BEHAVIOR PROGRAM

CAPITAL EQUIPMENT

THERMAL FUELS BEHAVIOR PROGRAM

CAPITAL EQUIPMENT COST REPORT
(A6091)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete.
Pre FY-1982														
1/80	PBF P&M System	9E4993060	08/80	08/80	231,824	155,341	A/ 04/81	3263	191,528	27,229	222,020	9,804	0	227,508
5/80	Data System Module and Maint. System	9E4991940	-	-	66,463	66,500	0	0	61,911	8,868	70,779	<4,316>	C	1/ 70,779
16/80	FPDS Upgrade (80)	9E4991960	-	04/80	49,665	32,100	05/80	0	37,294	16,205	53,499	<3,834>	C	2/ 53,499
20/80	Data Conditioning Equipment	9E4810701	-	-	11,000	12,984	-	0	0	12,984	12,984	<1,984>	C	3/ 12,984
22/80	Radiation Instrumentation	9E4992990	-	08/80	80,793	78,272	A/ 02/81	0	78,273	732	79,005	1,788	C	79,005
1/81	Transient Rod Drive Control Subsystem Servo Upgrade	9E4810100	01/81	01/81	79,438	65,807	-	0	5,206	64,116	69,322	10,116	0	77,851
02/81	Remote SEM Installation	9E4810200	01/81	01/81	85,000	76,890	A/ 03/81	0	84,103	2,357	86,460	<1,460>	C	4/ 86,460
03/81	MTR Equipment	9E4810300	01/81	01/81	32,094	25,458	A/ 03/81	0	28,766	2,845	31,611	483	C	31,611

1/ $4,316 overrun will be covered from 9E4993060.

2/ $3,834 overrun will be covered from 9E4820300.

3/ $1,984 overrun will be covered from 9E4810100 $1,587 and 9E4992990 $397.

4/ $1,460 overrun will be covered from 9E4810300 $483 and 9E4820300 $977.

THERMAL FUELS BEHAVIOR PROGRAM
CAPITAL EQUIPMENT COST REPORT
(A6091)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete.
Pre FY-1982														
05/81	PBF Data System Magnetic Tape Recorders Replacement	9E4810800	01/81	01/81	67,282	66,000	-	0	0	65,376	65,376	1,906	0	66,847
06/81	FPDS Upgrade (81)	9E4810500	01/81	01/81	60,000	56,122	-	0	8,062	56,232	64,294	<4,294>	C	5/ 64,294
7/81	Data Qualification System Replacement	9E4810600	01/81	01/81	90,000	70,664	A/ 04/81	0	16,127	69,871	85,998	4,002	0	90,000
8/81	PBF Process Equip and Instrument.	9E4810700	-	-	35,200	35,000	A/ 05/81	0	21,288	15,303	36,591	<1,391>	M	6/ 36,591
	SUBTOTAL				888,759	741,138		3,263	532,558	342,118	877,939	10,820		897,429
PRE FY-1982 COSTS					-532,558									
NET: PRE FY-1982 UNCOSTED					356,201									
FY-1982														
1/82	FPDS Upgrade (82) & Hydrogen Monitor	9E4820100	10/81	11/81	200,000	105,151	-	2,503	0	207,793	210,296	<10,296>	M	7/ 210,296

5/ $4,294 overrun will be covered from 9E48203.
6/ $1,391 overrun will be covered from 9E4992990.
7/ $10,296 overrun will be covered from 9E48203.

THERMAL FUELS BEHAVIOR PROGRAM

CAPITAL EQUIPMENT COST REPORT
(A6091)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete.
FY-1982														
2/82	PBF Process Equipment and Instrumentation	9E4820200			30,000	30,000	-	1,804	0	28,631	30,435	< 435 >	M	8/ 30,435
3/82	Wave Length Spectrometer	9E4820300			55,000	4,132	-	3,148	0	12,869	16,017	38,983	0	35,599
	TOTAL FY-1982				285,000	139,283		7,455	0	249,293	256,748	28,252		276,330
	GRAND TOTAL FY-1982 ACTIVITY				1,173,759	880,421		10,718	532,558	591,411	1,134,687	39,072		1,173,759

8/ $435,0K overrun will be covered from 9E4810800.

MONTHLY REPORT FOR

SEPTEMBER 1982

2D/3D PROGRAM

P. North, Manager

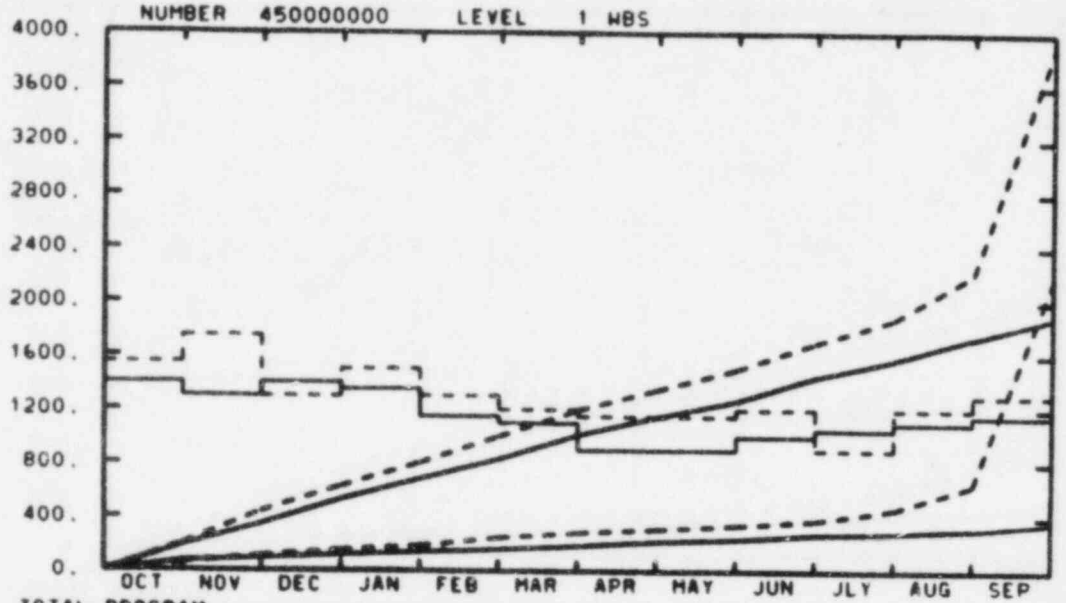
P. B. Keele
Plans and Budget Representative

RESPONSIBLE MANAGER
JB COLSON

EG&G IDAHO INC.

2D-3D PROGRAM

NUMBER 450000000 LEVEL 1 WBS



TOTAL PROGRAM

BUDGET	200	441	629	805	1000	1195	1348	1501	1699	1879	2213	3900
ACTUAL	187	348	530	684	832	1012	1147	1267	1444	1575	1742	1898

MATERIAL

BUDGET	61	113	156	189	250	286	313	342	379	465	642	2167
ACTUAL	71	94	119	140	163	188	222	239	275	291	320	330

MANPOWER

BUDGET	31	35	26	30	26	24	23	23	24	18	24	24
ACTUAL	28	26	28	27	23	22	18	18	20	21	22	23

BUDGET - - - - -

ACTUAL ———

YTD VARIANCE: 2002 (51%)

Individual cost graphs will give individual explanations.

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

PROGRAM MANAGER'S SUMMARY AND HIGHLIGHTS

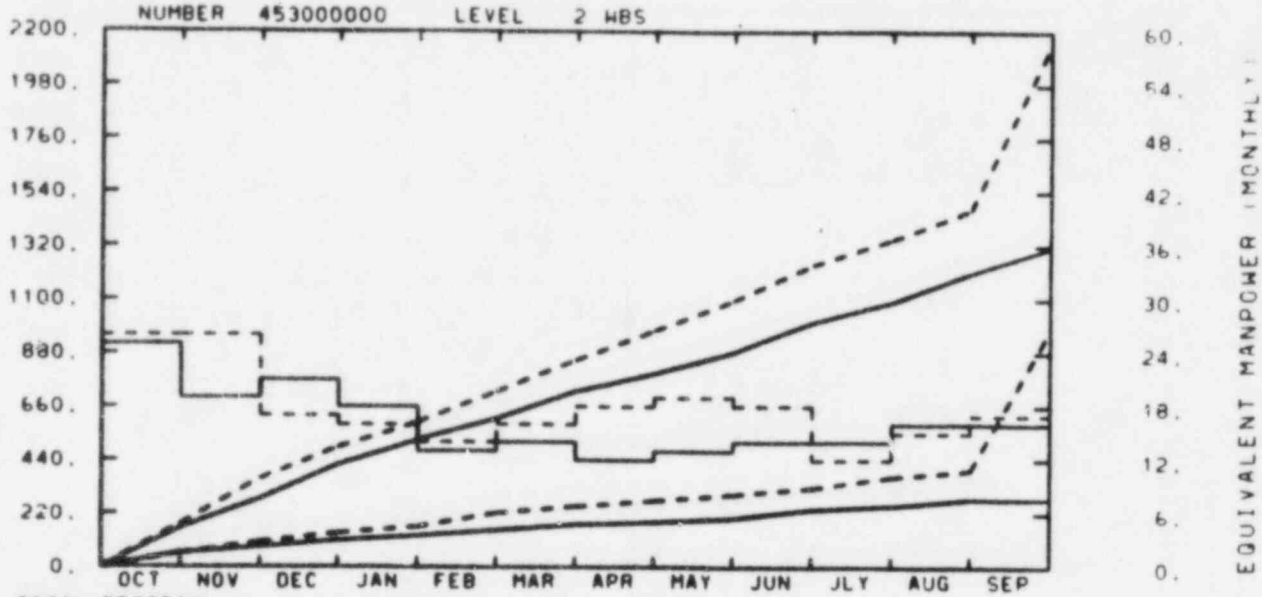
The preliminary envelope design of the UPTF turbine was completed and a design review held on September 29, 1982. The slotted guide tubes for supporting turbine stalks in the UPTF facility were completed and shipped to the Federal Republic of Germany.

ESPONSIBLE
ANAGER
JB COLSON

EG&G IDAHO INC.

A6100 TECH SUPPORT & INSTRUMENT

NUMBER 453000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	176	362	493	596	720	850	972	1096	1242	1347	1468	2149
ACTUAL	161	280	421	523	609	723	797	883	1006	1090	1210	1315

MATERIAL

BUDGET	57	104	140	167	222	250	274	299	326	371	398	976
ACTUAL	60	83	110	130	153	176	186	202	238	253	282	291

MANPOWER

BUDGET	26	26	17	16	14	16	18	19	18	12	15	17
ACTUAL	25	19	21	18	13	14	12	13	14	14	16	16

BUDGET - - - - - -

ACTUAL ———

A6100

YTD VARIANCE: 834 (39%)

As projected, work scope associated with UPTF Instrumentation ran behind the original FY-1982 baseline. A lack of specifications resulted in this underrun, however, interface meetings held during the fourth quarter of FY-1982 have resolved most of these specification problems. The year-end underrun was previously projected, but, with the establishment of the FY-1983 baseline in October, schedules will be updated to reflect the agreements reached in the recent interface meetings.

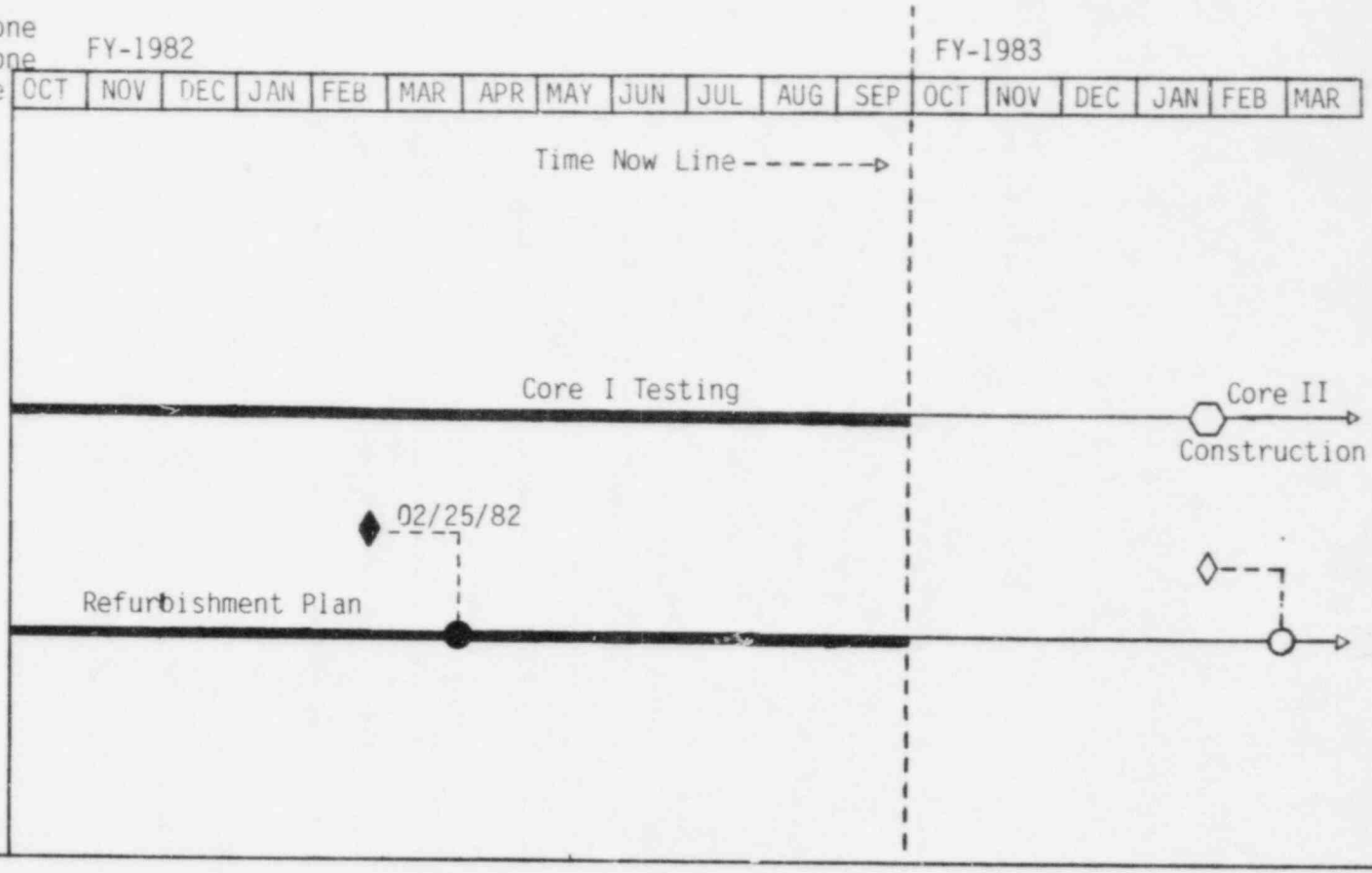
LEGEND

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

2D/3D PROGRAM

SCTF Projects

September 1982



NOTES:

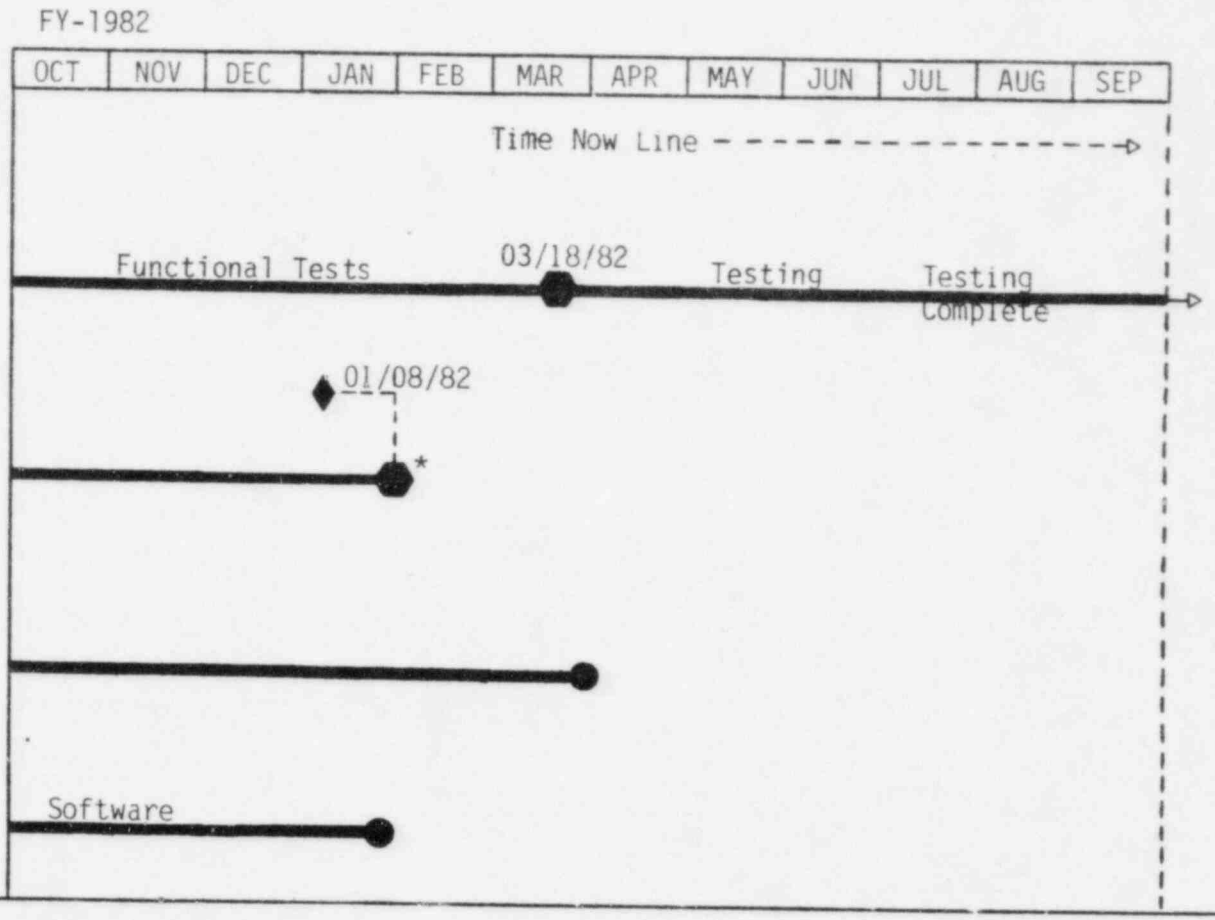
LEGEND

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

2D/3D PROGRAM

CCTF-II Projects

September 1982



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

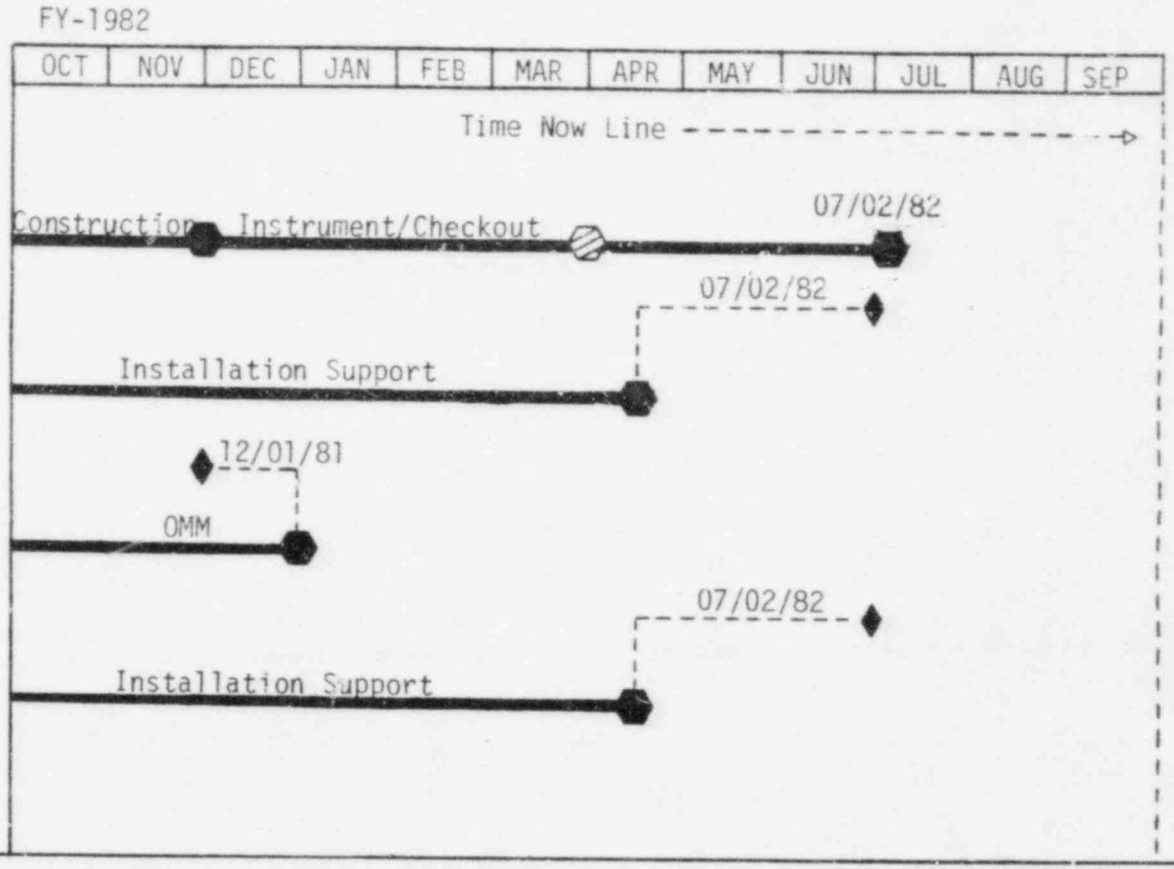
LEGEND

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

2D/3D PROGRAM

PKL Projects

September 1982



NOTES: Instrument installation support and checkout is complete except resolution of problems encountered in checkout testing.

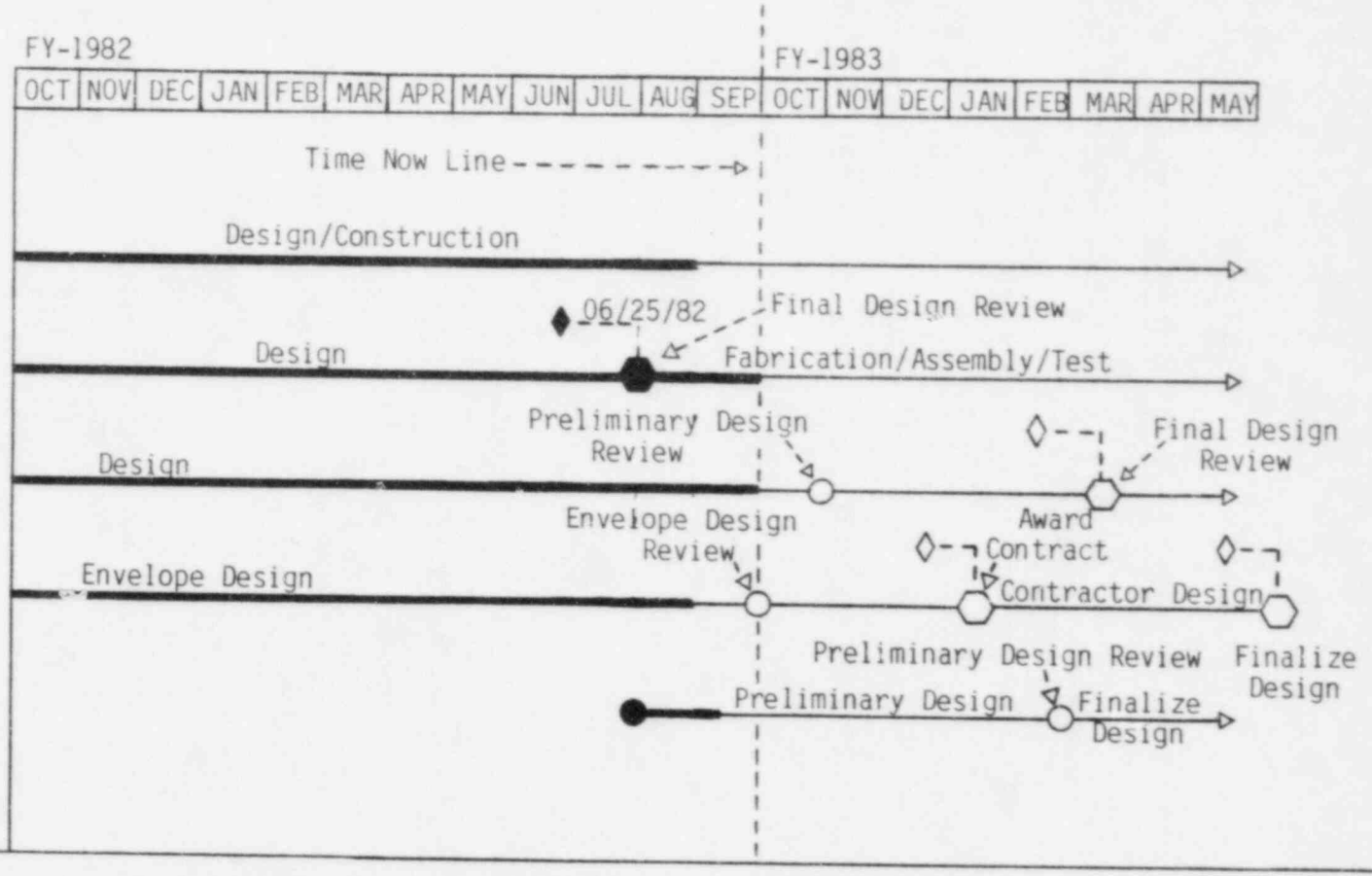
LEGEND

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

2D/3D PROGRAM

UPTF Projects

September 1982



NOTES:

1. 189a A6100 - 3D Technical Support and Instrumentation

2. Scheduled Milestones for September 1982

None

3. Summary of Work Performed in September 1982

A. Federal Republic of Germany (FRG) Primary Coolant Loop Instrument

1. 453052000 - Spool Pieces

The end caps for the PKL densitometer detectors were repaired at ORNL and have been shipped to Ortec Paris for reassembly and checkout. Three Bay Lab amplifiers that were supposely shipped from PKL to San Ramon for repair are still lost. PKL personnel have returned from vacation and are resuming the search through their shipping department.

B. FRG Upper Plenum Test Facility

1. 453071000 - Drag Disks

The action items from the design review have been incorporated into the drawings. Procurement of the drag-disk hardware has continued with sufficient hardware arriving to initiate fabrication.

2. 453072000 - Gamma Densitometers

The optimization tests were completed and analysis of the test data has begun. Design drawings of the densitometer electronics have been completed. Densitometer hardware bracket design was completed. A draft of the Instrumentation Software Functional Specification is approximately 25% completed.

3. 453073000 - Turbine Meters

Testing was completed on turbine capsules with graphite, jewel, and ball bearings. Evaluation of the results was initiated.

The slotted guide tubes for supporting turbine stalks in the UPTF facility were shipped to Germany.

The envelope design for UPTF turbines was completed and a preliminary design review was held on September 29, 1982.

3. Summary of Work Performed in September 1982 (continued)

C. Japan Atomic Energy Research Institution (JAERI) Cylindrical Core Test Facility Core II Instruments

1. 453082000 - Spool Piece & Drag Disk Refurbishment

No activity.

D. JAERI Slab Core Test Facility

1. 453091000 - Core II Refurbishment

The purchase requisition for nine new gadolinium sources for use on the CCTF-II and SCTF-II spool pieces was submitted. The conax seals for turbine meters was delivered to JAERI in Japan.

2. 453092000 - Core III Refurbishment

No activity.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

A. FRG Primary Coolant Loop Instruments

1. 453052000 - Spool Pieces

The PKL densitometer detectors will be assembled, pumped down, and checked out at Ortec Paris prior to shipment back to FRG. Arrival of the detectors at EG&G Munich is expected in mid October.

B. FRG Upper Plenum Test Facility

1. 453071000 - Drag Disks

Planning for drag-disk transducer fabrication will be completed and fabrication will be initiated.

2. 453072000 - Gamma Densitometers

A preliminary design review will be conducted to review the electronic design, hardware design, and software specification.

5B. Summary of Work to be Performed in October 1982 (continued)

3. 453073000 - Turbine Meters

The results from the graphite bearing turbine tests will be evaluated and comparisons made between the graphite and jewel bearing materials. A procurement package will be initiated for the system design and fabrication of the UPTF turbine meter systems.

C. JAERI Cylindrical Core Test Facility Core II Instruments

1. 453082000 - Spool Piece and Drag Disk Refurbishment

No activity planned.

D. JAERI Slab Core Test Facility

1. 453091000 - Core II Refurbishment

The new conductivity probes will be modified in preparation for assembly. A work release will be issued to fabricate four incore conductivity stalks for SCTF-II. Design will commence of the eight UCSP turbine meters for SCTF-II.

2. 453092000 - Core III Refurbishment

No activity planned.

6. Problems and Potential Problems

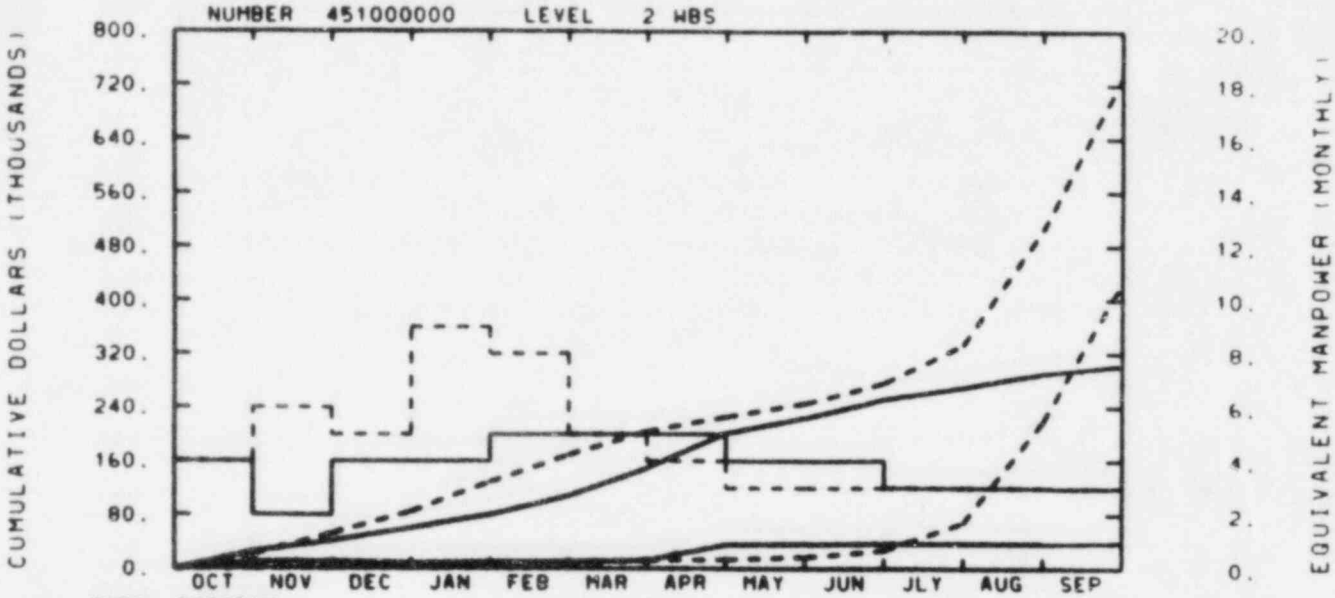
None.

SPONSIBLE
NAGER
JB COLSON

EG&G IDAHO INC.

A6282 FLUID DISTRIBUTION GRIDS

NUMBER 451000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	21	52	85	129	169	204	226	246	276	333	504	730
ACTUAL	26	41	60	80	108	149	201	224	252	269	290	309

MATERIAL

BUDGET	1	2	4	7	9	13	14	18	27	68	218	425
ACTUAL	10	11	8	10	10	12	36	37	37	38	38	39

MANPOWER

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

BUDGET - - - - - -

ACTUAL ———

A6282

YTD VARIANCE: 421 (58%)

The FY-1982 work scope associated with the UPTF FDG continued to run behind the baseline schedule. The underrun position for FY-1982 is primarily due to material purchases budgeted but not costed for Optical Probe materials. These purchases will be costed early in FY-1983, with no adverse affects to delivery schedules.

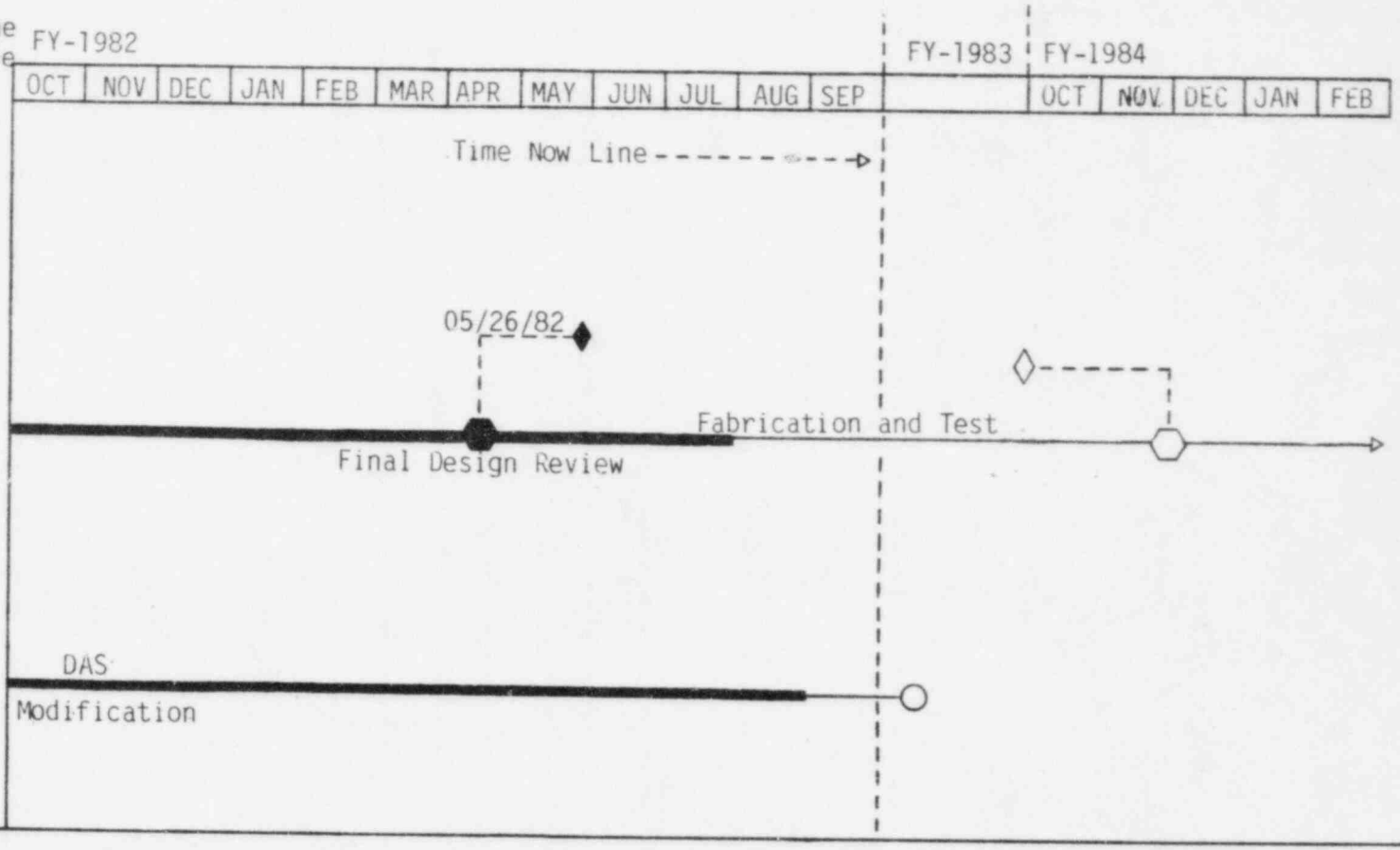
LEGEND

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

2D/3D PROGRAM

Fluid Distribution Grids

September 1982



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

CCB 3D 82-06 was approved to establish a new baseline schedule.

1. 189 A6282 - Fluid Distribution Grid System for 3D Program Facilities

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

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

A rough draft of the software documentation (Operations, Users, and Maintenance Manual) was completed. The problem with the AED Display and its interface with the LSI-11 is still not resolved. Potential solutions include AED correction of their interface software, EG&G Correction of the AED software, and purchase of an LSI 11/23 processor which supposedly does not have the interface problem. AED Engineers and our Purchasing Department are working with EG&G software engineers on the problem. This problem represents the only significant tasks remaining to complete the project.

B. 451013000 - FRG Upper Plenum Test Facility

A quality survey was performed on the optical tip manufacturer and the manufacturer approved. The purchase order was placed with the optical tip manufacture. New quotes on Inconel Tubing for optical fibers was received. Quotes have also been received from the optical fiber manufacturers. The electrical specification for the signal conditioner to the DAS interface has been written. The routing of the optical leads to the signal conditioners was evaluated. The drawing for the alignment plates was completed. The assembly drawing for the signal conditioner was released and distributed to Germany.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

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

Software documentation will be reviewed and should be completed. Work will continue on the AED interface problem and it should be resolved.

5. Summary of Work to be Performed in October 1982 (continued)

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

A site work release will be issued for the fabrication of the UPTF FDG/LLD optical probes. A purchase order will be placed for the optical fibers and Inconel tubing. A purchase requisition will be issued to fabricate the alignment plates. A site work release will be issued to fabricate the dummy rods for the UPTF FDG/LLD stalks. The mechanical drawings for the stalk assemblies will be released.

6. Problems and Potential Problems

A. JAERI CCTF-II Fluid Distribution Grid System

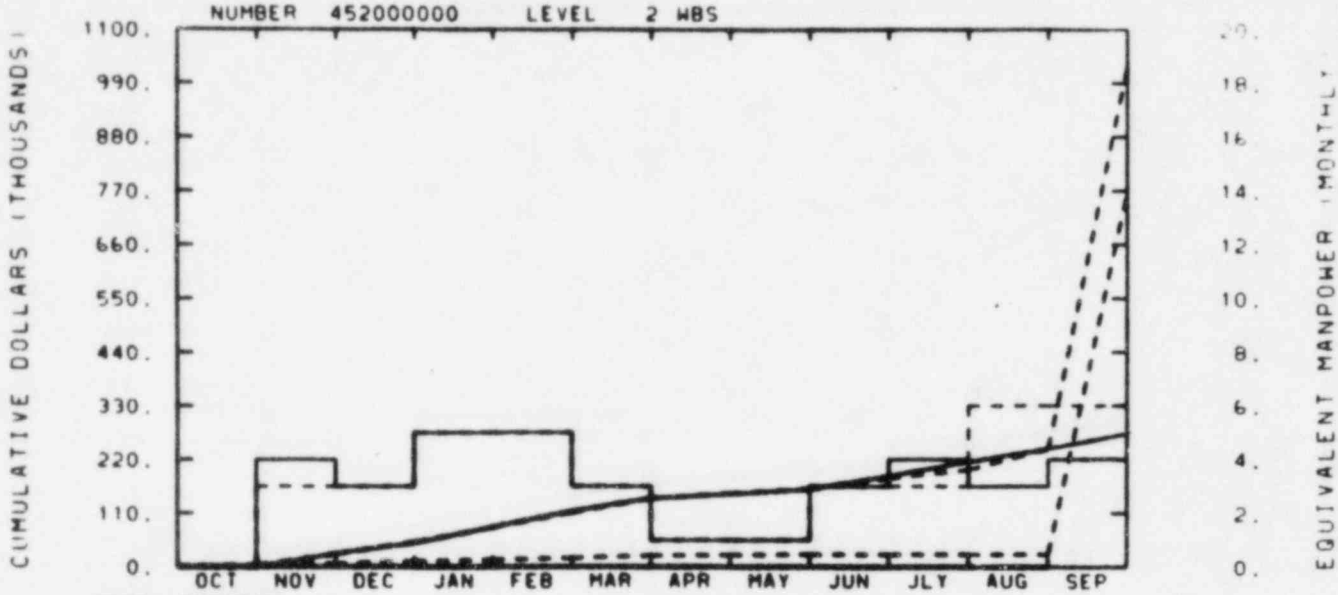
The AED interface problem continues to prevent completion of the project.

PONSIBLE
AGER
B COLSON

EG&G IDAHO INC.

A6289 UPTF DAS

NUMBER 452000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	3	27	51	80	111	141	150	160	181	199	242	1021
ACTUAL	0	27	49	82	114	141	149	160	186	216	241	274

MATERIAL

BUDGET	3	7	11	15	18	23	24	25	25	25	26	766
ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0

MANPOWER

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

A6289

YTD VARIANCE: 747 (73%)

The year-end underrun position was due to having a planned Management Reserve carryover of approximately $740K. This carryover will be used to accomplish work scope scheduled during FY-1983.

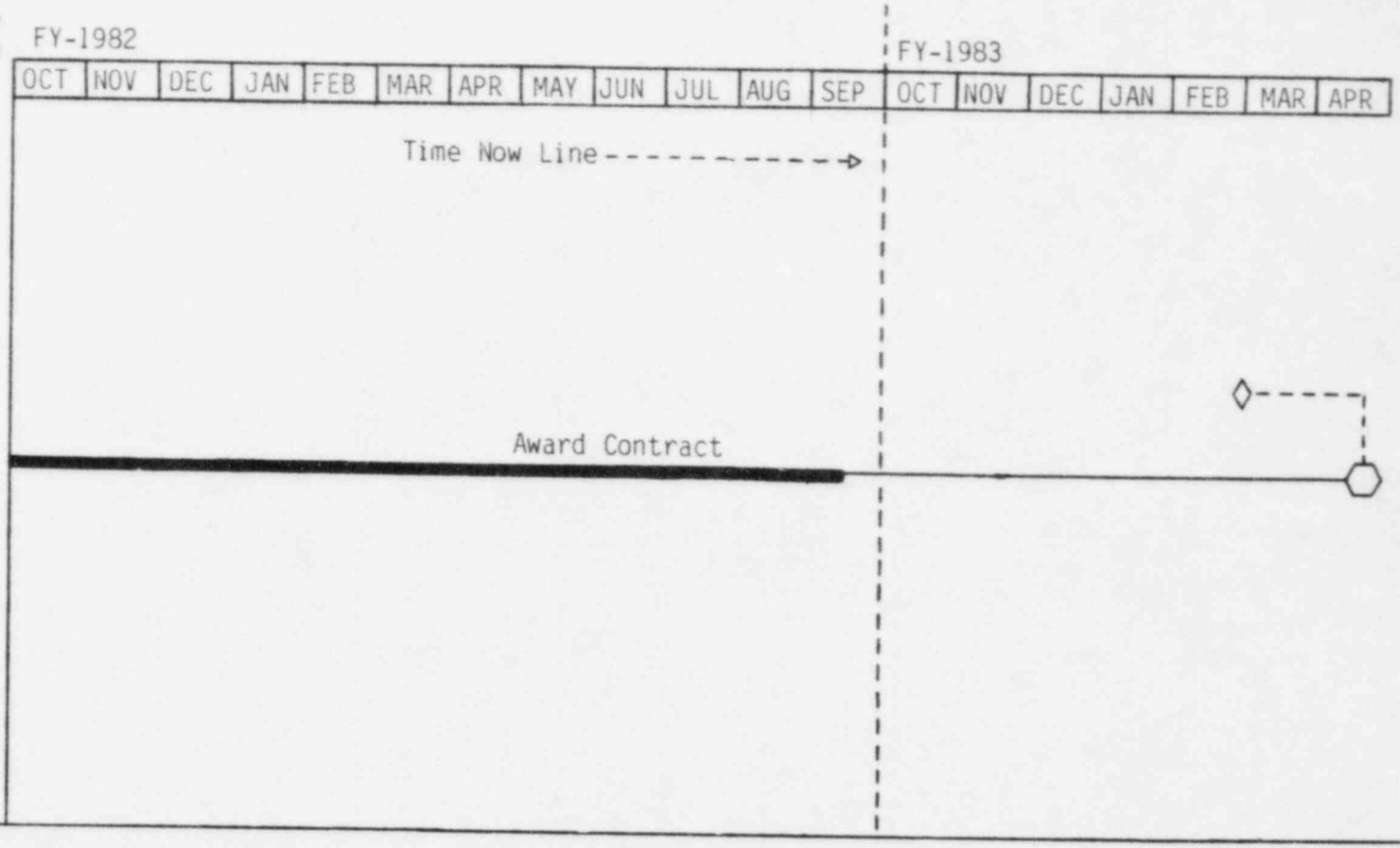
LEGEND

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

2D/3D PROGRAM

UPTF Data Acquisition System

September 1982



NOTES:

1. 189 A6289 - FRG Upper Plenum Test Facility Data Acquisition System

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

The main DAS hardware specification was completed in preparation for preliminary comments by all interfacing agents in Washington October 5, and in preparation for a formal design review at INEL in mid or late October. A rough draft of the MAIN DAS software specifications was prepared and is now in review. The system study for the FDG DAS was completed with the recommendation that it be a separate stand-alone system.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

Design reviews for the UPTF DAS Hardware Specification will be completed and the specification will be finalized. The Software Specification will be reviewed and comments incorporated.

6. Problems and Potential Problems

None.

2D/3D PROGRAM

CAPITAL EQUIPMENT

2D/3D PROGRAM

CAPITAL EQUIPMENT COST REPORT
(A6295)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete.
Pre FY-1982														
1/80	Instrument Development Data System	9M5992530	05/80	05/80	24,600	24,600	05/80	53	23,515	34	23,602	998	C	23,602

MONTHLY REPORT FOR

SEPTEMBER 1982

CODE DEVELOPMENT DIVISION

F. Aguilar, Manager

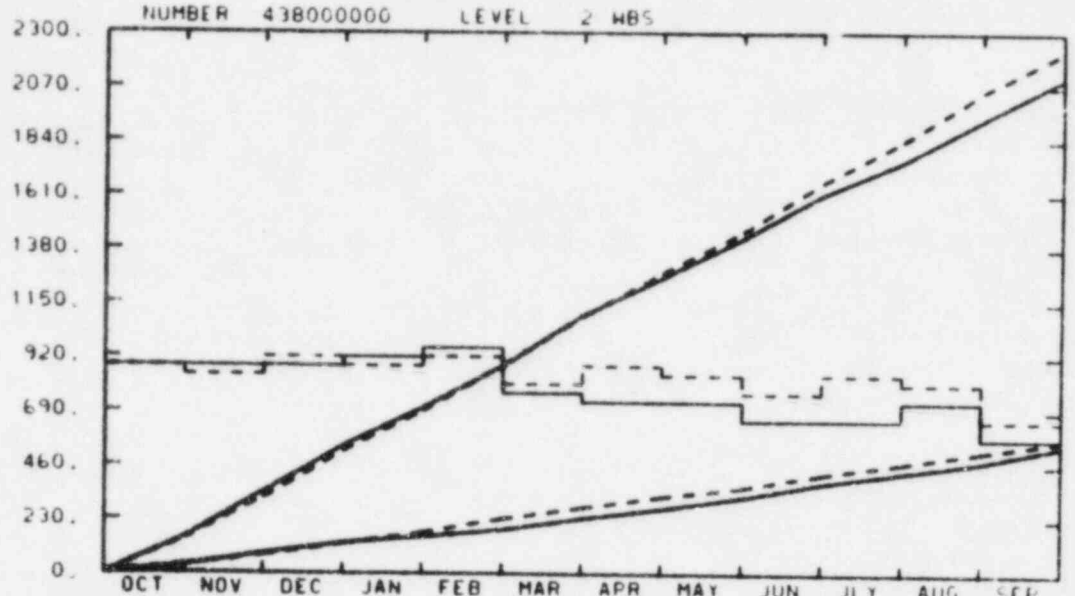
L. Morgan
Plans and Budget Representative

SPONSIBLE
ANAGER
F. AQUILAR

EG&G IDAHO INC.

RES - CODE DEVELOPMENT

NUMBER 438000000 LEVEL 2 WBS



TOTAL PROGRAM

BUDGET	147	321	522	693	885	1093	1279	1454	1663	1840	2051	2223
ACTUAL	150	347	543	705	882	1097	1259	1427	1611	1754	1934	2110

MATERIAL

BUDGET	35	79	129	175	234	282	329	368	424	472	522	569
ACTUAL	32	85	131	158	187	237	277	327	386	431	476	546

MANPOWER

BUDGET	23	22	24	23	24	21	23	22	20	22	21	17
ACTUAL	23	23	23	24	25	20	19	19	17	17	19	15

BUDGET

ACTUAL

YTD VARIANCE: 113 (5%)

Individual cost graphs will give individual explanations.

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

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

The TRAC-BD1/MOD1 model development milestone was satisfied on September 29, 1982, ahead of the September 30 schedule date. The completion of this milestone represents a significant step in the development of TRAC-BD1/MOD1. TRAC-BD1/MOD1 will be complete when LOCA models now under development at the General Electric Company can be incorporated into the code.

Testing of the FRACAS-II model updates was completed and a report describing the new models was issued on September 30, 1982, the milestone date. These updates were incorporated into FRAP-T6 and testing of this new code version was completed on the milestone date, September 30, 1982.

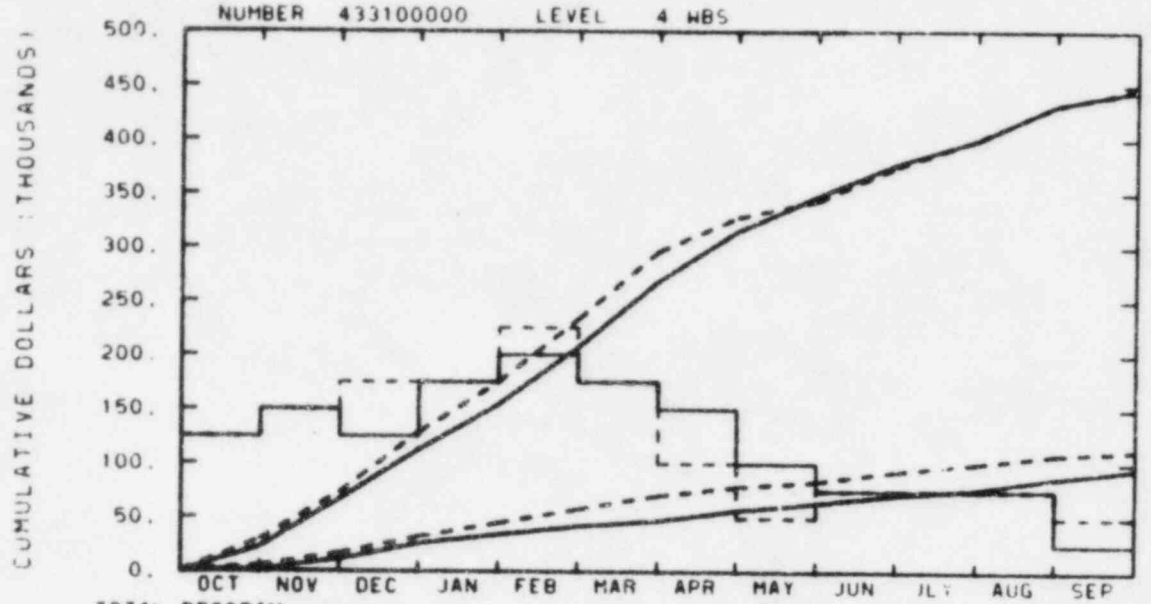
Significant progress was made in the checkout of SCDAP/MOD0, although the September 30 checkout milestone was slipped. The major subcodes of SCDAP/MOD0 are all functional with the exception of the fission gas release model for the debris model. It is anticipated that the checkout of SCDAP/MOD0 will be completed by November 15, 1982. Appropriate management actions have been taken to minimize the impact of this schedule slippage.

RESPONSIBLE
NAGER
AQUILAR

EG&G IDAHO INC.

FUEL BEH MDL DEVEL(A6050)

NUMBER 433100000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	30	73	129	175	233	296	328	344	375	400	432	447
ACTUAL	23	67	113	155	207	268	315	348	378	400	432	446

MATERIAL

BUDGET	5	17	32	45	58	71	79	84	93	100	109	113
ACTUAL	2	12	26	34	42	47	57	64	71	77	87	95

MANPOWER

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

BUDGET

ACTUAL

A6050

YTD VARIANCE: 1

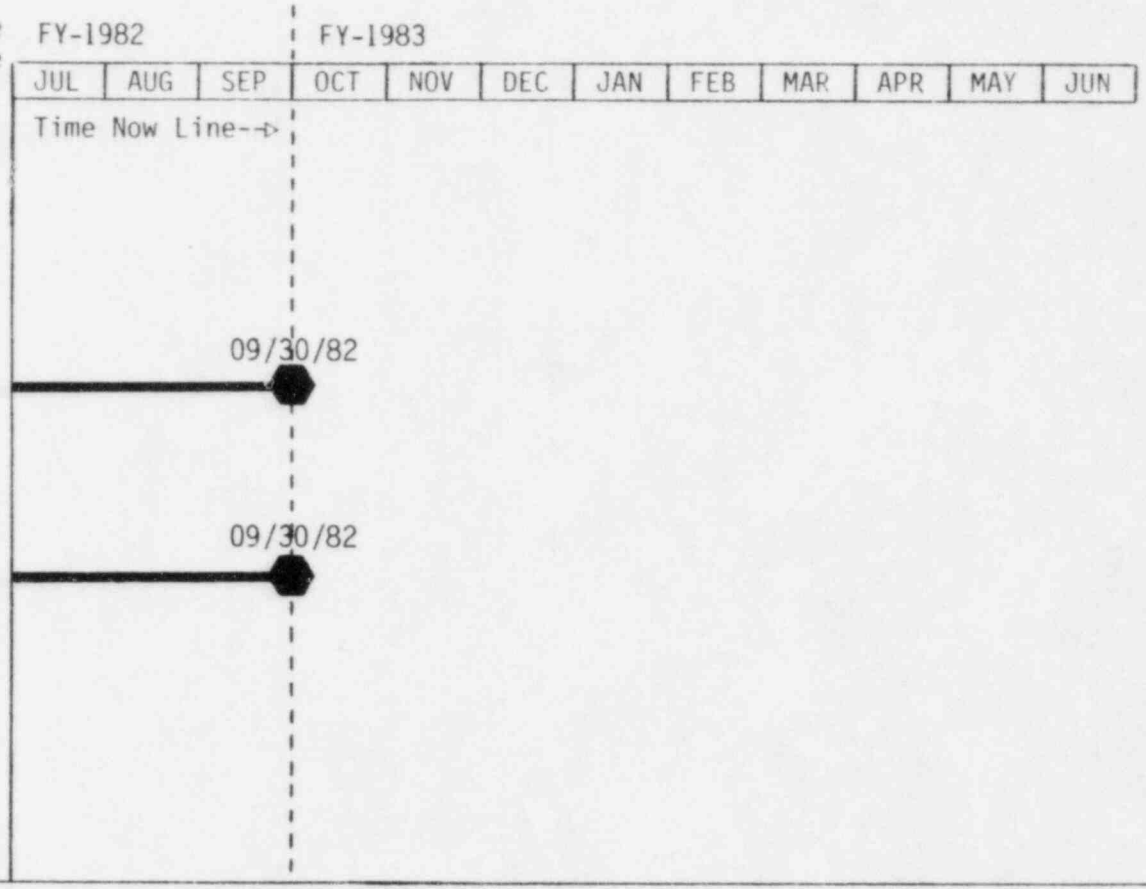
LEGEND

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

CODE DEVELOPMENT DIVISION

September 1982

Fuel Behavior Model Development (A6050)



NOTES:

189a A6050

1. 189a A6050 - Fuel Behavior Model Development

2. Scheduled Milestones for September 1982

Node	Description	Due Date	Actual Date
NA	FRACAS-II Model Updates	09/30/82	09/30/82 (FA-91-82)
NA	FRAP-T6/MOD1 Model Updates	09/30/82	09/30/82 (FA-91-82)

3. Summary of Work Performed in September 1982

a. FRACAS-II

Testing of the trapped-fuel stack model and integral testing of the trapped-fuel stack, axial-radial pellet-cladding mechanical interaction (PCMI), and new fuel relocation models were completed during September. A report describing these models was issued on September 30, 1982, the milestone date.

b. FRAP-T6

The FRACAS-II model updates were incorporated into FRAP-T6 and testing of this new code version was completed on the milestone date, September 30, 1982.

c. Transient Fuel Behavior Models

Testing of the fission gas release models for SCDAP/MOD0 was completed. A draft model description report was completed except for the sections describing the model implementation in SCDAP/MOD0. The entire report will be issued during October 1982 at which time listing of the release subroutines and calling subroutines will be provided to ANL to be used as a guide for restructuring PARAGRASS for incorporation into SCDAP during FY-1983.

4. Scheduled Milestones for October 1982

None

5. Summary of Work to be Performed in October 1982

a. FRACAS-II

The fuel creep and fuel-fragment relaxation models developed during FY-1982 will be incorporated into FRACAS-II. An empirical model for slippage between fuel and cladding will be developed, tested, and incorporated into FRACAS-II. Using these models and the models developed for FRACAS-II during FY-1982, an assessment of several PCMI cases will begin. This study will be completed during November.

b. FRAP-T6

The code version developed during late FY-1982 will be sent to NESC along with supporting documentation.

c. Transient Fuel Behavior Models

The description report for the fission gas release models of SCDAP/MODO will be issued. Information will be provided to ANL for restructuring of PARAGRASS.

6. Problems and Potential Problems

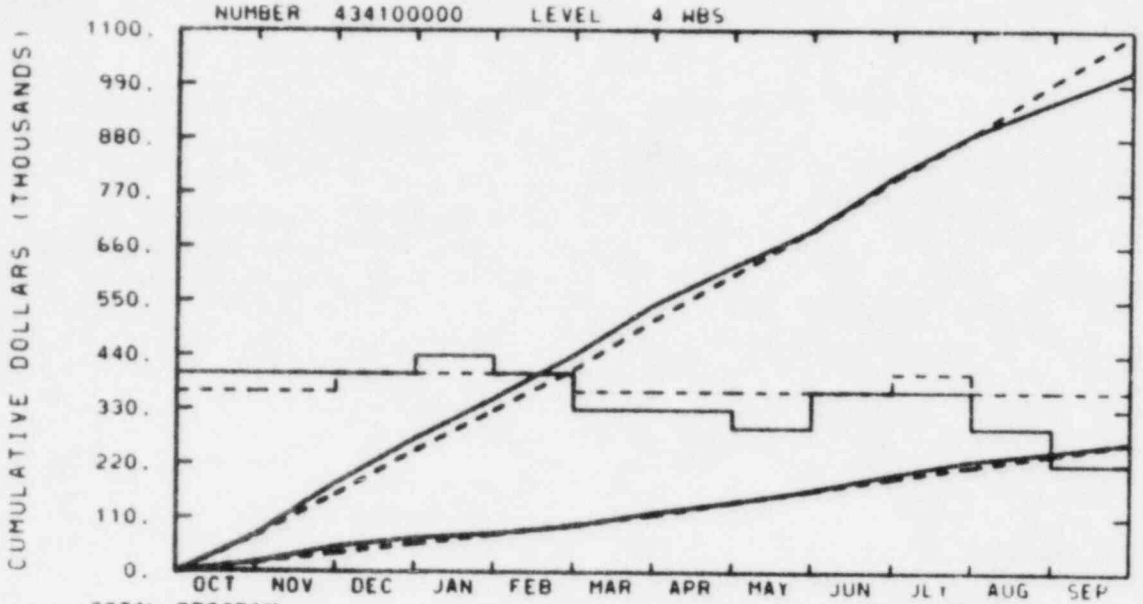
None

RESPONSIBLE MANAGER AQUILAR

EG&G IDAHO INC.

LOSS-OF-COLNT ACC (A6052)

NUMBER 434100000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	74	158	248	328	412	511	605	695	799	889	996	1093
ACTUAL	76	181	272	353	441	542	622	695	804	890	956	1019

MATERIAL

BUDGET	19	39	58	78	97	117	144	168	192	217	241	265
ACTUAL	20	52	70	79	95	122	144	168	201	229	246	266

MANPOWER

BUDGET	10	10	11	11	11	10	10	10	10	11	10	10
ACTUAL	11	11	11	12	11	9	9	8	10	10	8	8

A6052

YTD VARIANCE: 74 (7%)

The $74K underrun consists of $10K unused RELAP4 maintenance, $24K unused TRAC-BWR user assistance and a planned underrun of $40K reserved for the implementation of the FRAP Fuel Model into TRAC-BD1/MOD1. These funds have been carried over into FY-1983 and will be used for RELAP4 maintenance, TRAC-BWR user assistance and the implementation of the FRAP Fuel Model into TRAC-BD1/MOD1.

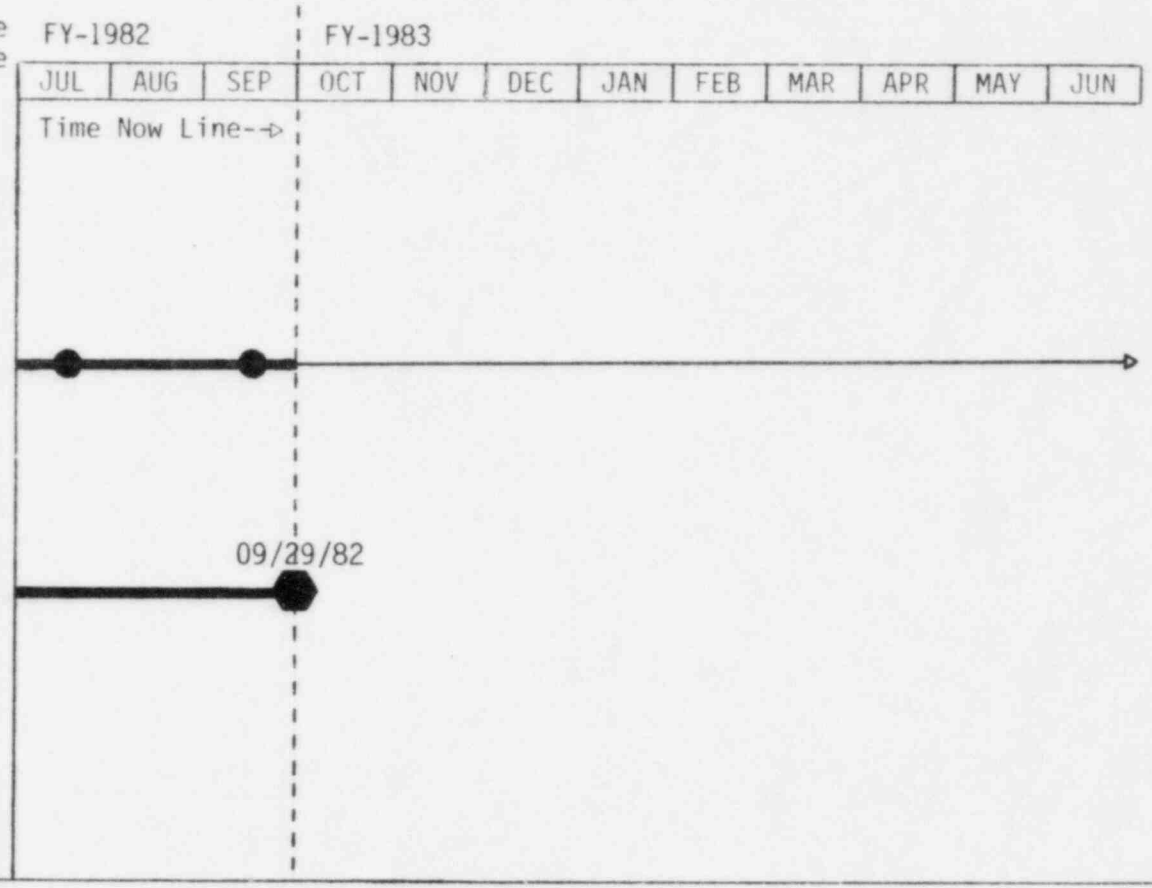
LEGEND

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

CODE DEVELOPMENT DIVISION

TRAC-B Development (A6052)

September 1982



NOTES:

1. 189a A6052 - Code Development and Improvement

2. Scheduled Milestone for September 1982

Node	Description	Due Date	Actual Date
NA	Completion of TRAC-BD1/MOD1 Model Development	9/30/82	9/29/82 (FA-94-82)

3. Summary of Work Performed in September 1982

a. Boiling Water Reactor (BWR) TRAC Development

The model development milestone for TRAC-BD1/MOD1 was satisfied on September 29 with the issuance of the last completion report for tasks included in the committed work scope for FY-1982. The completion reports issued in September include reports for the containment systems model, the balance of plant models, including turbine and feedwater heater models, and for the Browns Ferry development assessment calculations.

An INEL-GE coordination meeting was held on September 21 in San Jose, California. The status of the GE models was discussed. A draft completion report for the GE separator/dryer model was received. The impact of the delay in the delivery of the remainder of the GE models to INEL was also discussed. These delays are a result of funding problems in the NRC/EPRI/GE Refill-Reflood Program.

Work continued on evaluation of the GE level model. The implementation of the latest interfacial shear recommendations of Dr. Ishii continued. Work was begun on the assembly of candidate Version 15. This code version will contain the heat transfer updates generated by work in the TRAC-BWR Heat Transfer activity funded under FIN A6278

b. RELAP4/MOD5 and MOD7 Maintenance

"Level 1" maintenance was provided.

4. Scheduled Milestones for October 1982

None

5. Summary of Work for October 1982

a. Boiling Water Reactor (BWR) TRAC Development

Work will continue on assembly of candidate Version 15 and on evaluation of the GE level model. Work will be resumed on the implementation of the moving mesh reflood model on the fuel bundle channel wall. Work on interfacing the FRAP fuel model to TRAC will also be resumed. Evaluation of the GE separator/dryer model will begin.

b. RELAP5/MOD5 and MOD7 Maintenance

"Level 1" maintenance will be provided.

6. Problems and Potential Problems

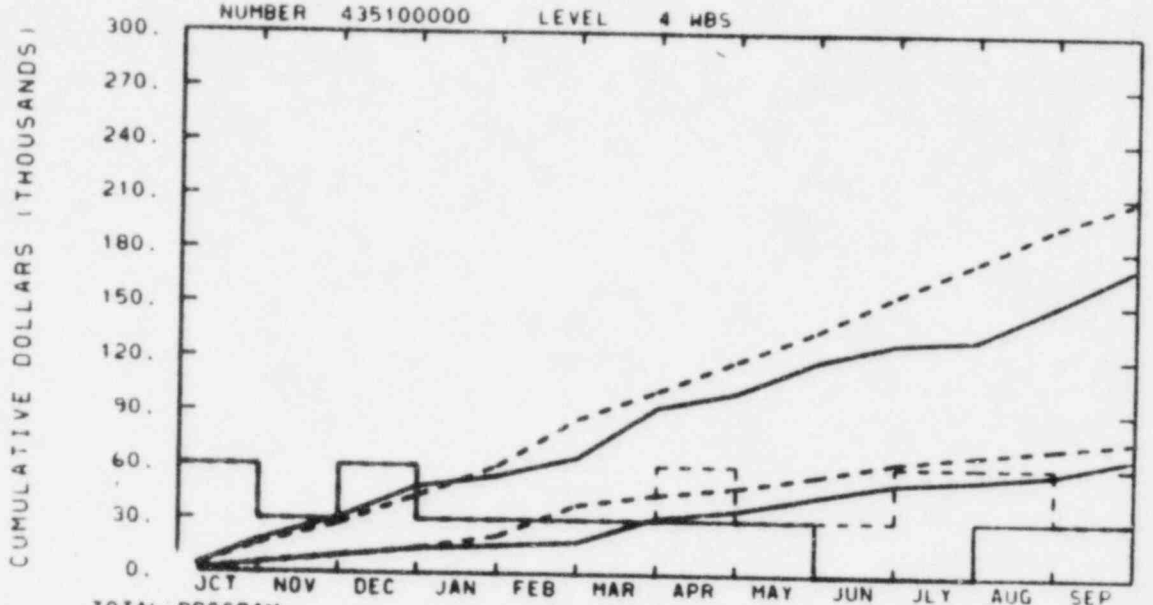
The delay in the delivery of the GE LOCA models has impacted the final assembly and developmental assessment of TRAC-BD1/MOD1. The final schedule for the assembly and testing of TRAC-BDL/MOD1 cannot be drawn up at this time because GE cannot give INEL a delivery schedule until the funding problems in the NRC/EPRI/GE REfill-Reflood are resolved. A Program Management Group meeting is scheduled for late in October at which time the resolution of the funding problems will be discussed. The final schedule for TRAC-BD1/MOD1 assembly and testing will be drawn up as soon as the GE delivery schedule is received.

RESPONSIBLE
ANAGER
. AQUILAR

EG&G IDAHO INC.

HET TRAN CORRLATN (A6278)

NUMBER 435100000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	16	28	43	60	86	101	118	135	155	174	194	209
ACTUAL	18	31	48	54	64	92	101	118	128	131	150	172

MATERIAL

BUDGET	5	10	14	21	38	44	48	55	62	67	71	75
ACTUAL	5	10	14	16	18	31	36	44	51	53	57	66

MANPOWER

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

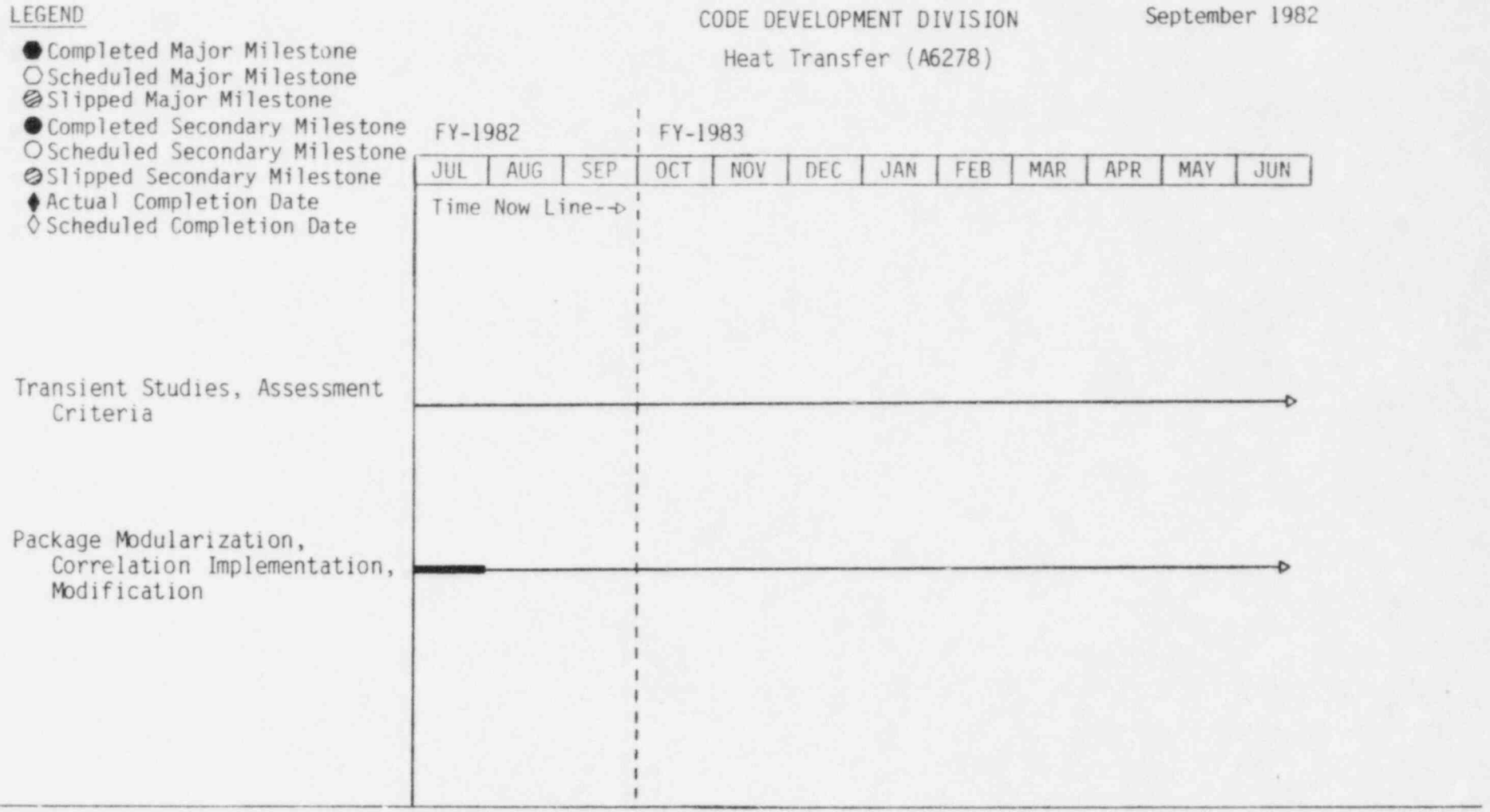
BUDGET

ACTUAL

A6278

YTD VARIANCE: 37 (18%)

The $37K underrun consists of $3.0K unused NRC Technical Assistance, $6.5K HTFS subcontract for subscriptions, $24.0K labor and $3.5K computer that has not been costed due to the problem with the interfacial shear model. This $37K has been carried over into FY-1983 to complete the Transient Sensitivity Study.



NOTES: The TRAC BWR Heat Transfer milestone chart is adapted form FA-68-81 and has been revised as per FA-154-81.

189a A6278

1. 189a A6278 TRAC-BWR Heat Transfer

2. Scheduled Milestones for September 1982

None

3. Summary of Work Performed in September 1982

Work continued on implementing and testing of the latest interfacial shear recommendations of Dr. Ishii. Several corrections and modifications were also discussed at the GE-INEL coordination meeting held on September 21 at San Jose. The transient sensitivity study has been delayed pending the resolution of the interfacial shear problems. The final version of the paper to be presented at the Tenth Water Reactor Safety Research Information Meeting was approved and sent to NRC for the generation of preprints.

4. Scheduled Milestones for October 1982

None

5. Summary of Work to be Performed in September 1982

A presentation describing the work performed under this activity. will be presented at the Tenth Water Reactor Safety Research Information Meeting. Work will continue on resolving the problems in the interfacial shear model which has been delaying the heat transfer work.

6. Problems and Potential Problems

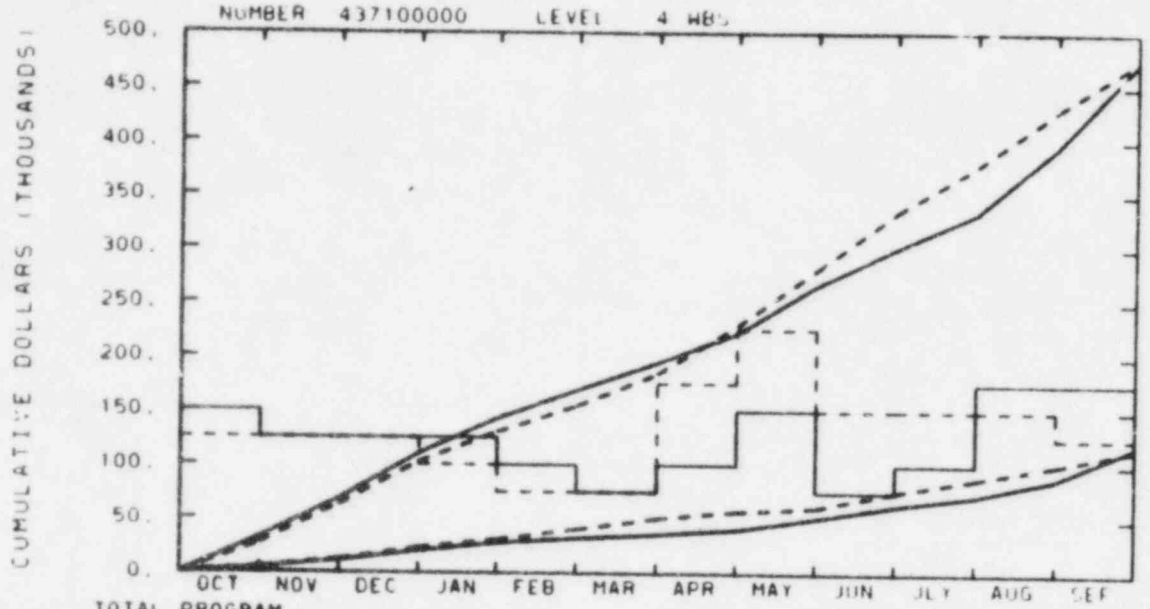
The interfacial shear problems encountered in the analysis of the Lehigh post-CHF heat transfer data has severely impacted the completion of the transient sensitivity study. The transient sensitivity study cannot be resumed until this problem is resolved. Work is currently proceeding to implement the latest interfacial shear recommendations of Dr. Ishii in the hope that the interfacial shear problems can be resolved.

SPONSIBLE
NAGER
. AQUILAR

EG&G IDAHO INC.

MDL SEV FUEL DAM (A6360)

NUMBER 437100000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	28	63	102	130	154	184	229	281	334	377	430	478
ACTUAL	33	69	110	143	163	194	222	266	301	333	395	473

MATERIAL

BUDGET	5	13	24	31	41	51	58	61	76	88	101	114
ACTUAL	5	12	21	28	32	36	41	51	63	72	88	118

MANPOWER

BUDGET	5	5	5	4	3	3	7	9	6	6	6	5
ACTUAL	6	5	5	5	4	3	4	6	3	4	7	7

A6360

YTD VARIANCE: 2

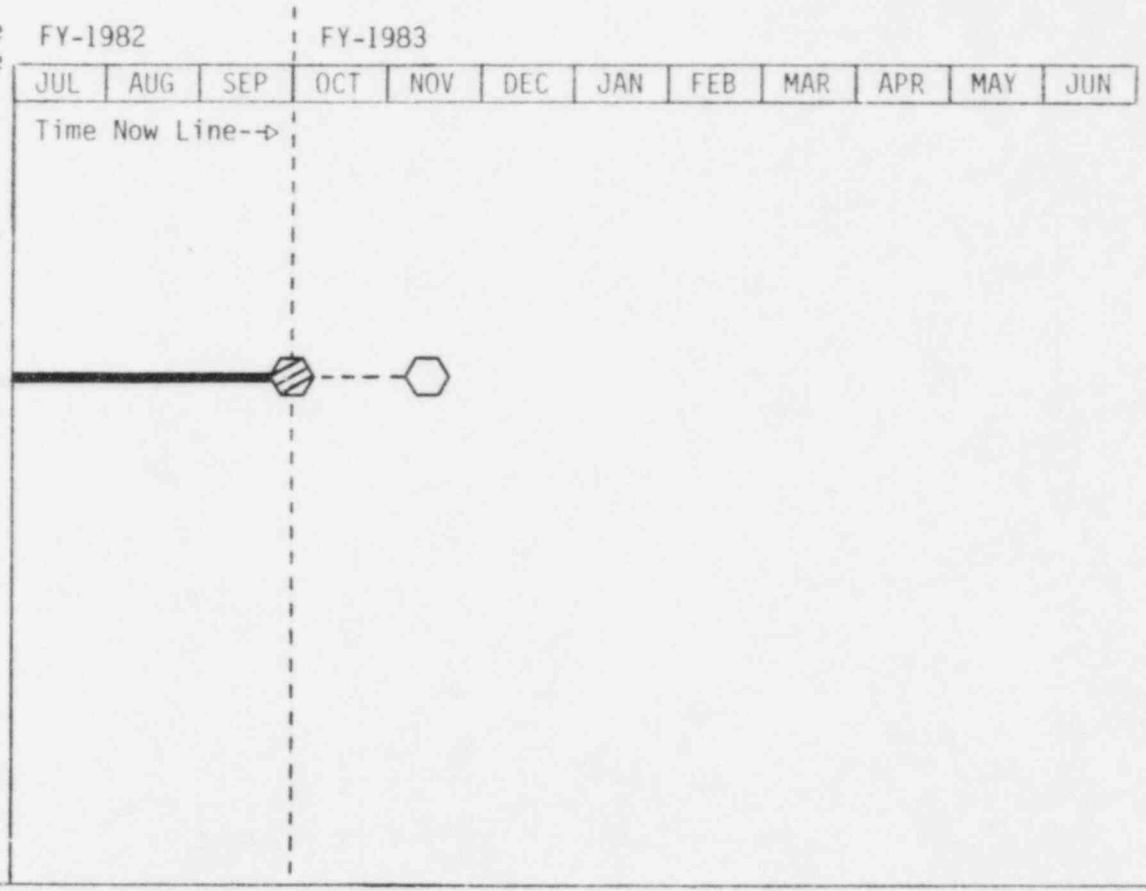
LEGEND

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

CODE DEVELOPMENT DIVISION

September 1982

Modeling Severe Fuel Damage (A6360)



NOTES:

1. 189a A6360 - Modeling Severe Fuel Damage

2. Scheduled Milestones for September 1982

Node	Description	Due Date	Actual Date
NA	Test/Checkout SCDAP/MODO	09/30/82	11/15/82

3. Summary of Work Performed in September 1982

a. SCDAP/MODO Checkout and Testing

During September, activities centered on trying to make the three major subcodes of SCDAP/MODO and the code as a whole functional. The intact component behavior subcode (SCDCOMP) is now functional. Checkout and testing of SCDCOMP are in process and are expected to be completed during October. Preparation of a report describing SCDCOMP was not begun during September as planned. However, this report will be completed by the end of October or early November. Design reports for several of the models contained in SCDCOMP were updated to reflect changes made to these models since the original model development and documentation. The thermal-hydraulics subcode (SCDBUND) is also functional. Due to the number of problems encountered in making SCDBUND functional, preparation of a report to describe the subcode was not begun during September as planned. Preparation of this report will begin during October and the report will be completed by early November. A problem was found in the linkage between SCDBUND and SCDCOMP which prevents functionality. Work is in process to isolate the cause of the problem and correct it. This is expected to be completed during early October. The linkage between SCDBUND and the debris models appears to be functional. Testing of this linkage is in process and will be completed by the end of October. With the exception of the fission gas release models, the debris behavior and damage propagation models are functional. The fission gas release models were incorporated into the debris behavior models, and the debris transition models were updated to calculate the input variables required by the release models. Checkout of these model updates is in process and should be completed during early October. The linkage between SCDCOMP and the debris models is functional with the exception of a new routine being developed to initialize material temperatures within a newly formed debris region. Programming of this routine is in process and should be completed during early October. Checkout of this routine and the balance of the debris modeling will be completed by the end of October. The design report describing the debris transition models will also be completed during October.

Little progress was made on preparation of the SCDAP/MODO user's manual during September. However, the intensity of work on the manual will increase during early October, and the manual will be completed by early November.

4. Schedules Milestones for October 1982

None

5. Summary of Work to be Performed in October 1982

a. SCDAP/MODO Checkout and Testing

SCDAP/MODO will be made completely functional during October and checkout will be completed by performing an analysis of two test cases: TMI-2 and PBF-ST. Preparation of supporting documentation will continue during the month. All documents will be completed during early November.

b. Advanced LIQSOL Model Development

The LIQSOL model will be reviewed to determine the modifications required to allow calculations of melting and relocation of UO_2 fuel and ZrO_2. Preparation of a preliminary design report will begin and be completed during November.

c. SCDAP/MODO Assessment

Several idealized test cases will be calculated with the SCDAP/MODO code to assess the code and its models. This activity will continue through February 1983.

d. SCDAP Support

A prediction of the PBF test SFD-ST will be completed prior to the test. The results of the lengths effects study will be provided to DOE/NRC in letter form.

6. Problems and Potential Problems

The SCDAP/MODO checkout activity was not completed by the September 30, 1982 milestone date in spite of the management actions taken during August and September to hold the schedule. As noted above, the checkout will be completed by November 15, 1982. Every effort will be made during the period to minimize this schedule impact.

CODE DEVELOPMENT DIVISION

CAPITAL EQUIPMENT

CODE DEVELOPMENT DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6094)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete.
Pre FY-1982														
1/80	ADPE Item	9SB992740	06/80	06/80	10,000	10,000	07/80	0	11,468	0	11,468	<1,468>		
1/81	Fuel Model Development Analysis Tool	9SB810100	05/81	06/81	10,000	6,569	-	0	1,937	4,632	6,569	3,431		
	TOTAL				20,000	16,569		0	13,405	4,632	18,037	1,963		20,000

CODE DEVELOPMENT DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6109)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) DOE Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete.
Pre FY-1982														
1/79	O/L S/A Plotting System	9SA990240	08/79	08/79	27,906	0	-	0	21,351	1,937	23,288	4,618		27,906

MONTHLY REPORT FOR

SEPTEMBER 1982

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

B. F. Saffell, Jr., Manager

E. L. Pierson
Plans and Budget Representative

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

A6047 Documentation of the FRIGG assessment task was completed and released.

A6102 Further test data was added to the Data Bank. In addition, the Data Bank documentation was updated, user training was implemented, Data Bank software/procedures were updated, and General Electric/Westinghouse data was reported.

A6283 The report "Common Cause Fault Rates for Valves: Estimates Based on Licensee Event Reports at U.S. Commercial Nuclear Power Plants, 1976-1980" was issued to NRC.

A6326 EG&G Idaho personnel visited the Watts Bar and Limerick plants to collect information regarding containment penetrations.

A6354 The documentation of the Browns Ferry Unit 1 station blackout was completed and released. In addition a paper was accepted and released for inclusion in the 2nd International Topical Meeting at Santa Barbara, California in January 1983.

A6369 The following reports were issued:

a. Interpretation of Regulatory Guide 1.97, Revision 2 Requirements with Respect to Range, Accuracy, Response Time, and Qualification, EGG-EE-5985.

b. Preliminary Recommendations for Changes to Regulatory Guide 1.97, Revision 2, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," EGG-EE-6043.

A6370 The following reports were issued:

a. Preliminary Assessment of Backfitting Criteria for Digital Control and Protection Systems (Task 6), EGG-EE-6060.

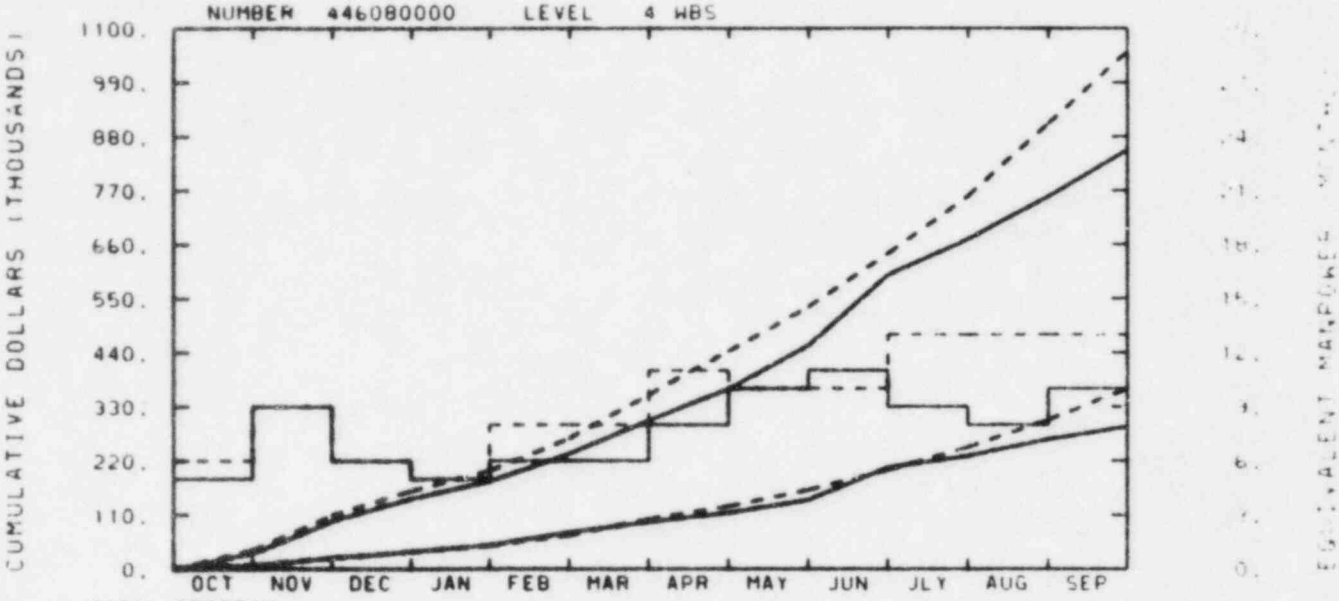
b. Signal Isolation Device and Stored Program Digital Computer Problems Experienced by U.S. Commercial Nuclear Power Plants, EGG-EE-6052.

RESPONSIBLE MANAGER
F SAFFELL

EG&G IDAHO INC.

TECHNICAL SURVEILLANCE A6039

NUMBER 446080000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	38	110	159	200	265	355	443	533	641	758	906	1053
ACTUAL	32	98	143	178	234	302	367	455	598	671	757	852

MATERIAL

BUDGET	7	23	36	48	69	102	128	161	202	248	303	366
ACTUAL	7	23	36	50	75	96	115	141	206	230	264	289

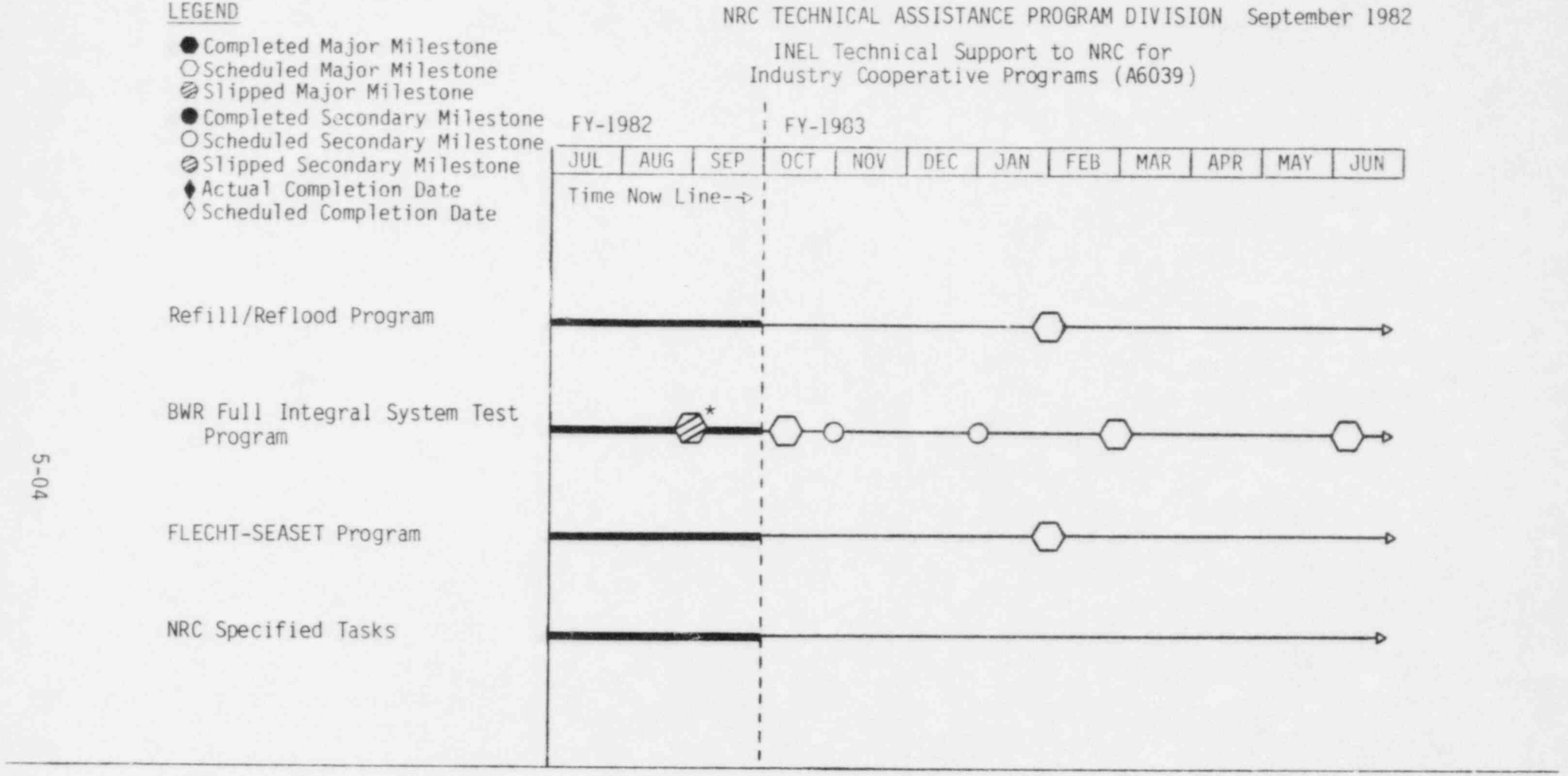
MANPOWER

BUDGET	6	9	6	5	8	8	11	10	10	13	13	13
ACTUAL	5	9	6	5	6	6	8	10	11	9	8	10

A6039

YTD VARIANCE: 201 (19%)

The $201K carryover is consistent with work scope being carried into FY-1983.



NOTES: * The milestone slip is a result of the need for additional calculations for a better understanding of the BWR/6-FIST comparative behavior (as approved by DOE-ID and the NRC).

189a A6039

1. INEL Technical Support to NRC for Industry Cooperative Programs

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

Boiling Water Reactor (BWR) Full Integral Simulation Test (FIST) Program: The BWR/6-FIST scaling study was concluded and a draft document is now in management review. The CDC data reduction software was exercised with a data tape generated during a FIST shakedown test. Minor inconsistencies were uncovered and corrected. The data was reduced and made available to General Electric (GE) personnel for their review. Work continues on the FIST Automated Data Qualification (ADQ) software and the gamma densitometers.

BWR Refill/Reflood (R/R) Program: All Single Heated Bundle (SHB) differential pressure data was found to be inconsistent with published GE documents. Data reduction was identified to correct this inconsistency.

Full Length Emergency Cooling Heat Transfer-System Effects and Separate Effects Tests (FLECHT-SEASET) Program: The blockage data evaluation task was continued. Enhancement factors were derived for the rod temperature data from the flooding experiments with Blocked Arrays (FEBA) data base. Analysis of the enhancement factors relative to the FLECHT-SEASET 21 rod blockage data base was initiated.

4. Scheduled Milestones for October 1982

Description	Due Date	Actual Date
BWR/6-FIST Study & Documentation	10-8-82	
Develop FIST data reduction software (Secondary)	10-31-82	
Develop FIST ADQ software (Secondary)	01-03-83	

5. Summary of Work to be Performed in October 1982

BWR-FIST Program: Work on the FIST power transient study using TRAC-BD1 will be started. Both the Data Reduction and ADQ software will be completed and documented. EG&G Idaho personnel will participate in a review group meeting in Washington and a Program Management Meeting in San Jose, California.

5. Summary of Work to be Performed in October 1982 (Continued)

BWR-R/R Program: SHB data will undergo data reduction procedures resulting in a consistent format.

A data evaluation program for reflood tests will be modified to address core spray tests.

FLECHT-SEASET Program: The blockage data evaluation task will continue.

6. Problems and Potential Problems

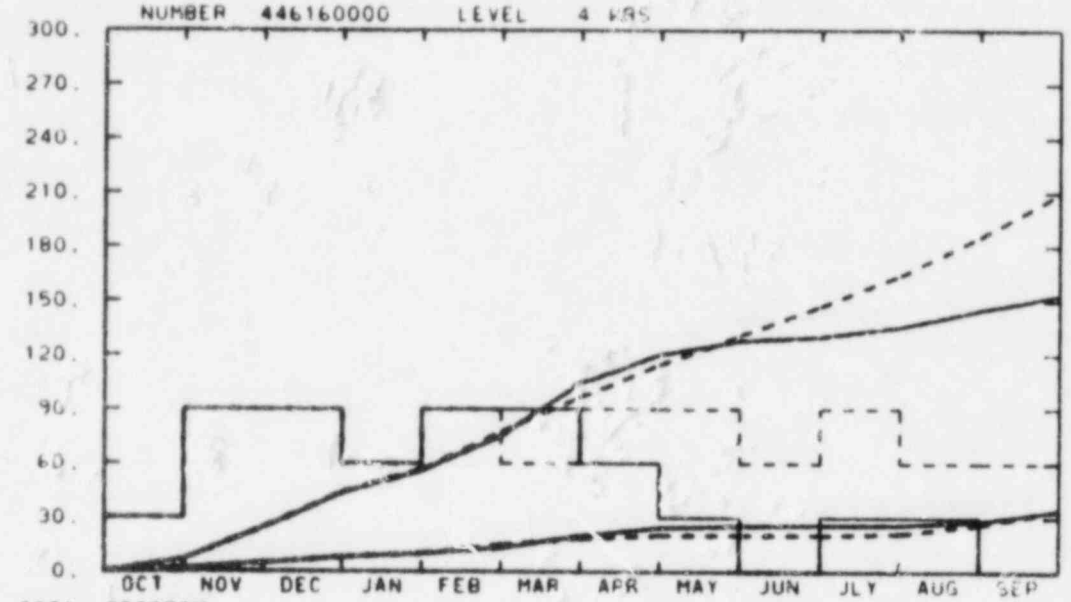
None.

SPONSIBLE
AGER
SAFFELL

EG&G IDAHO INC.

FUEL BEHAVIOR ANALYSIS A6046

NUMBER 446160000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	7	25	44	57	78	96	115	131	147	164	185	210
ACTUAL	7	24	44	56	75	104	120	128	130	136	145	153

MATERIAL

BUDGET	2	5	8	10	15	18	20	20	20	21	26	34
ACTUAL	2	5	8	10	13	20	24	25	26	26	28	34

MANPOWER

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

BUDGET

ACTUAL

A6046

YTD VARIANCE: 57 (27%)

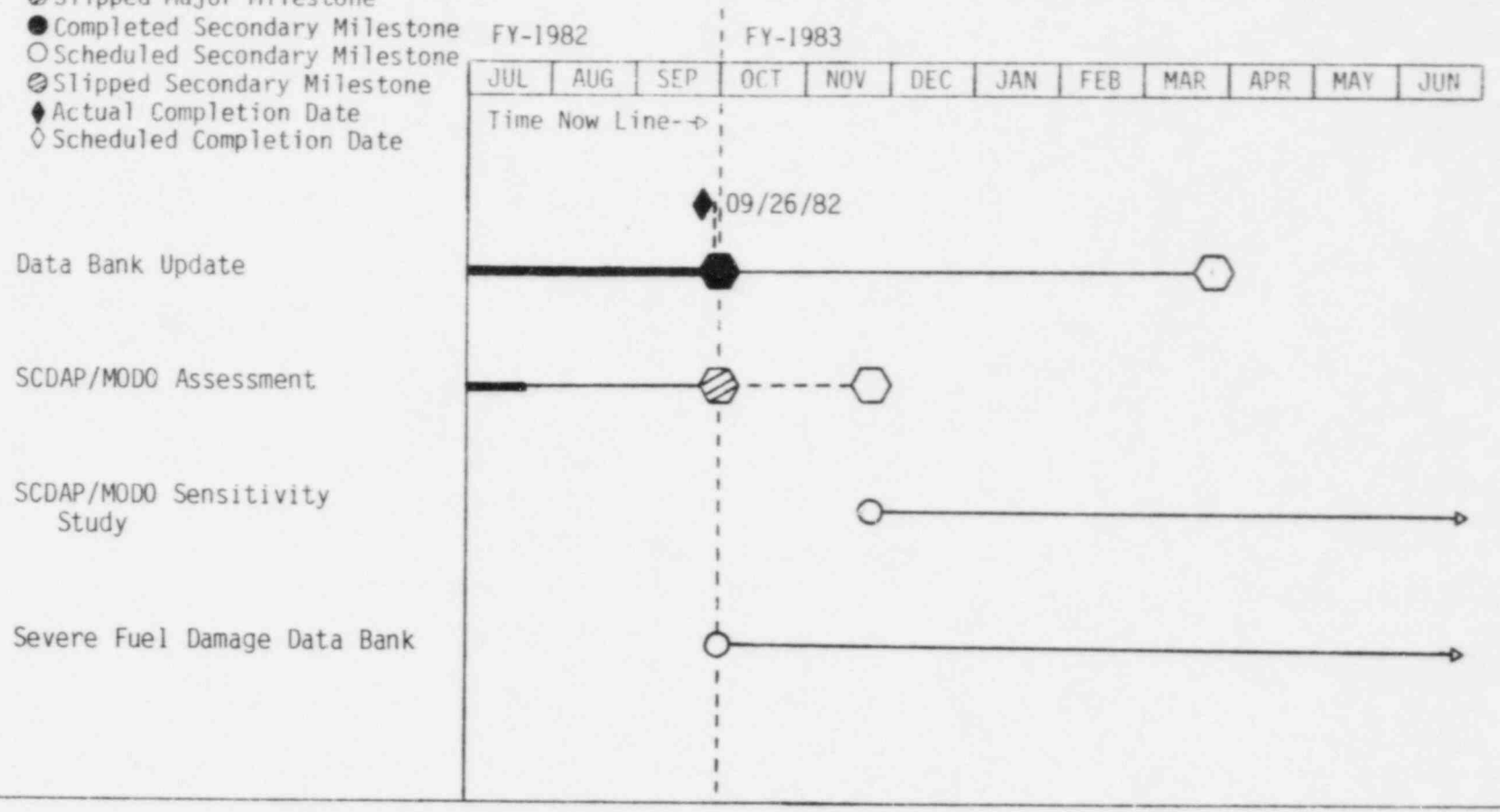
The underrun is due to a delay in receipt of SCDAP/MODO for assessment. Funding of $57K will be carried into FY-1983 to complete the SCDAP assessment.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION September 1982

Fuel Code Assessment (A6046)

LEGEND

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



NOTES:

189a A6046

1. Fuel Behavior Analysis Assessment

2. Scheduled Milestones for September 1982

Description	Due Date	Actual Date
Data Bank Update	9-30-82	9-28-82 Saff-398-82

3. Summary of Work Performed in September 1982

The addition of Halden IFA-527 data to the Fuels Data Base was completed. A report was issued (EGG-NTAP-6056) that describes the entire Fuels Data Base, as well as access to the Base via the Idaho National Engineering Laboratory (INEL) Fuel Code Assessment Data Bank and the Nuclear Regulatory Commission/Division of Accident Evaluation (NRC/DAE) Data Bank.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

If the SCDAP/MODO code becomes available, the assessment of that code will continue.

Work will start on the Severe Fuel Damage Data Bank, to be used in future SCDAP assessment activities.

6. Problems and Potential Problems

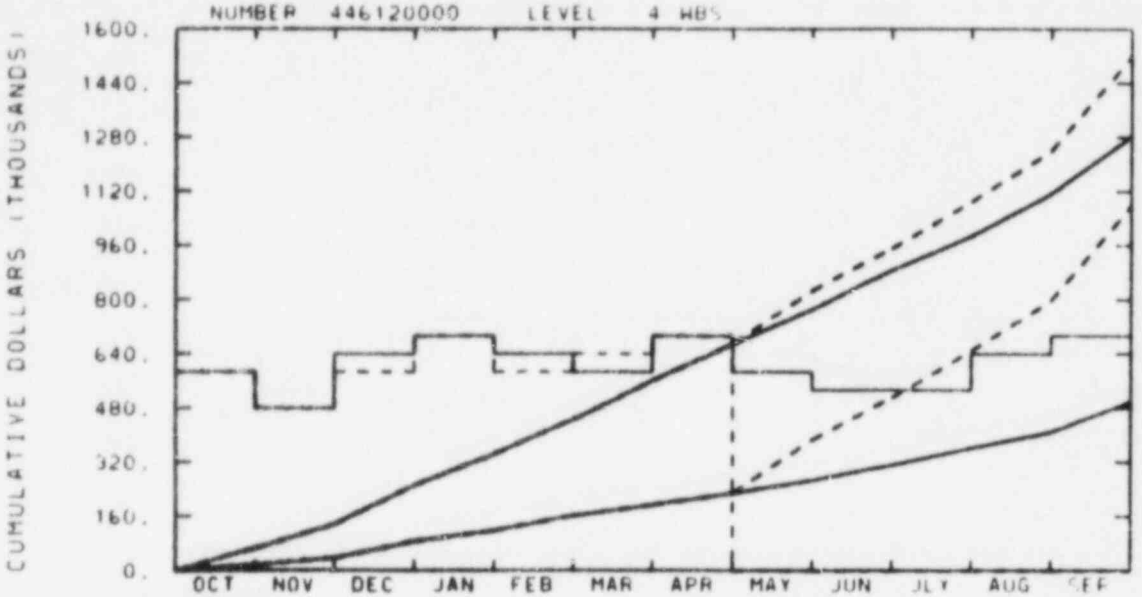
None.

PONSIBLE
AGER
SAFFELL

EG&G IDAHO INC.

LOFA ANALYSIS ASSESSMENT A6047

NUMBER 446120000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	66	137	252	345	446	561	670	827	951	1089	1240	1519
ACTUAL	67	138	252	345	446	561	669	771	807	987	1113	1283

MATERIAL

BUDGET	18	37	68	119	163	195	230	387	511	649	798	1077
ACTUAL	18	38	88	119	163	195	229	267	313	362	410	499

MANPOWER

BUDGET	11	9	11	13	11	12	13	0	0	0	0	0
ACTUAL	11	9	12	13	12	11	13	11	10	10	12	14

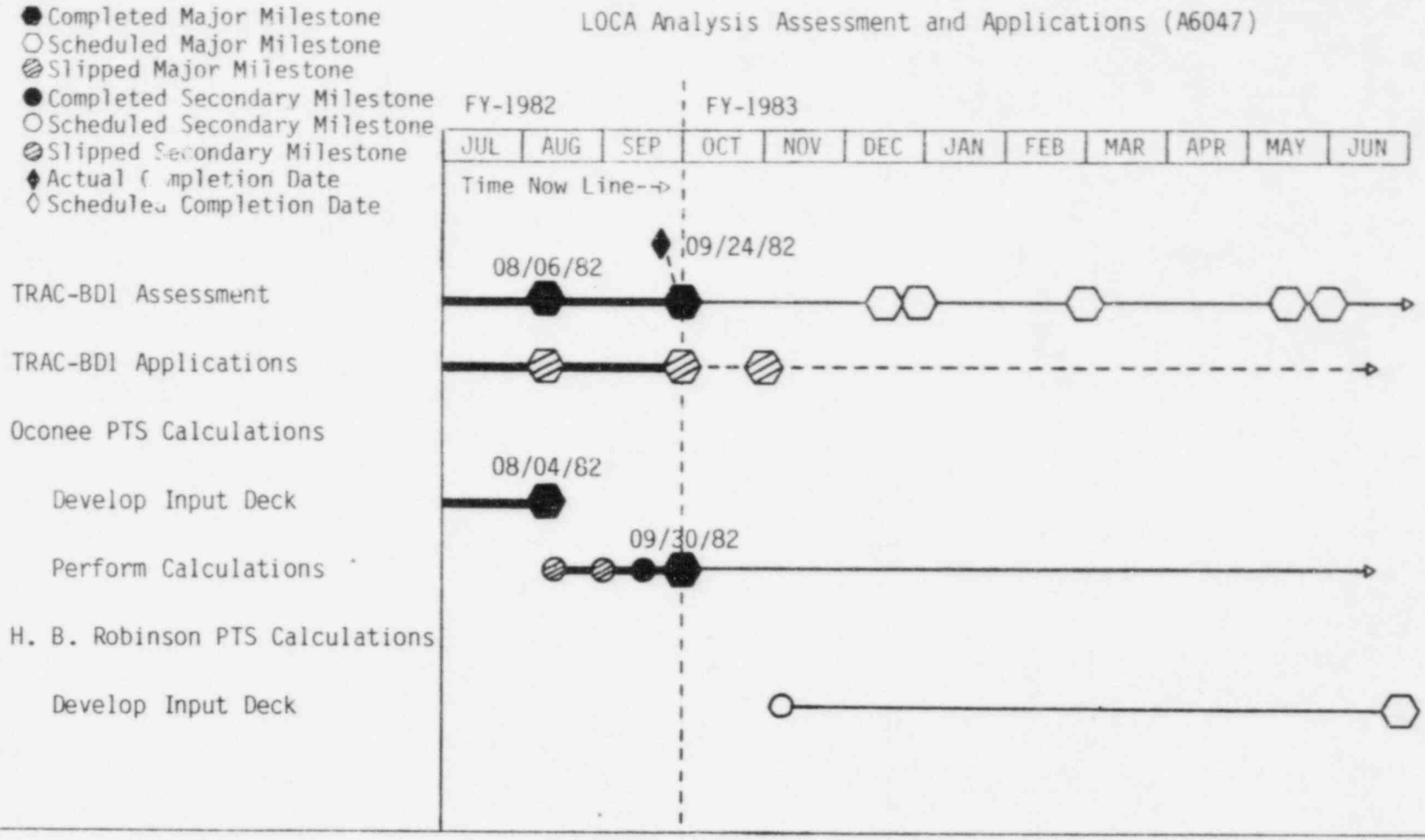
A6047

YTD VARIANCE: 236 (16%)

The $236K carryover is consistent with the work scope being carried into FY-1983.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION September 1982

LOCA Analysis Assessment and Applications (A6047)



NOTES:

189a A6047

1. LOCA Analysis Assessment and Applications

2. Scheduled Milestones for September 1982

Description	Due Date	Actual Date
FRIGG Assessment	9-30-82T	9-24-82C Saff-378-82

3. Summary of Work Performed in September 1982

The interim report documenting the Boiling Water Reactor (BWR) Transient Reactor Analysis Code (TRAC-BD1) assessment using FRIGG data was issued. The TRAC-BD1 assessment with 30 degree Steam Sector Test Facility (SSTF) BWR/6 reference test data continued. The TRAC-BD1 assessment using the SSTF BWR/4 reference test data was initiated.

Calculations of a main steamline break, steam generator overfeed and small hot leg break LOCA were performed using the RELAP5/MOD1.5 computer code. The results requested by Oak Ridge National Laboratory (ORNL) were transmitted to ORNL, Los Alamos National Laboratory (LANL) and the Nuclear Regulatory Commission (NRC).

4. Scheduled Milestones for October 1982

Description	Due Date	Actual Date
United States Standard Problem 9 (USSP9)	10-21-82T	
BWR/3 Applications	10-30-82T	

5. Summary of Work to be Performed in October 1982

The TRAC-BD1 assessments with the SSTF BWR/4 and BWR/6 reference test data will continue.

The USSP9 preliminary comparison report will be issued.

Letter reports documenting the analysis of the three calculations performed for pressurized thermal shock (PTS) will be completed. A presentation of these results will be made at the 10th Water Reactor Safety Information Meeting. The results of these calculations will be discussed with Duke Power, NRC and ORNL on October 20, 1982.

A fourth calculation in support of the PTS analysis will be performed. This calculation will be an assessment calculation based on the March 14, 1980 reactor trip in Oconee Unit 3.

6. Problems and Potential Problems

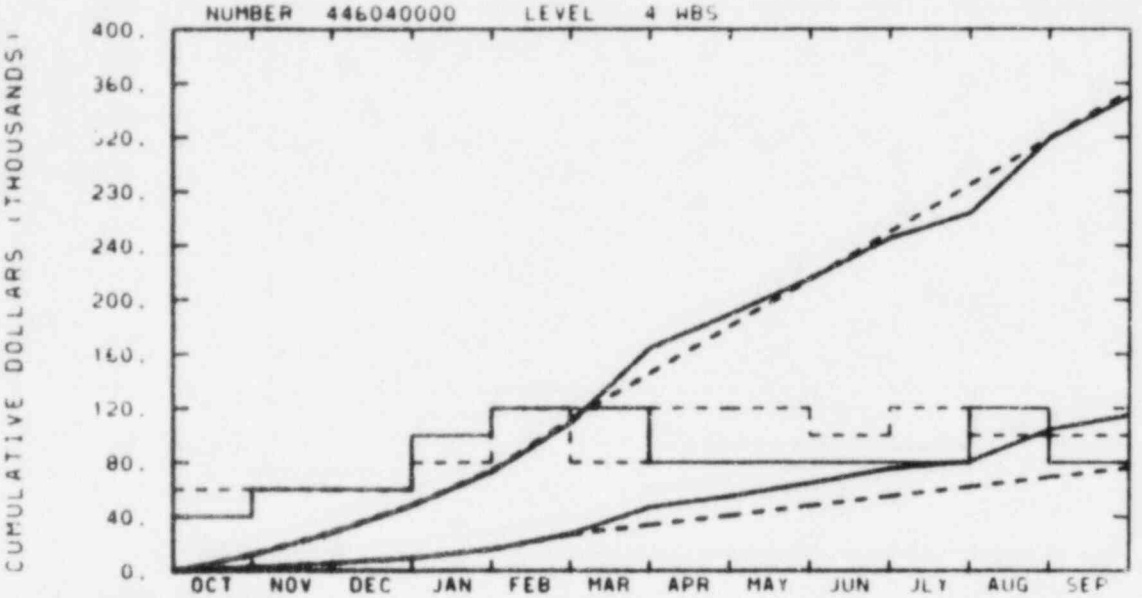
None.

SPONSIBLE
AGER
SAFFELL

EG&G IDAHO INC.

DATA BANK A6102

NUMBER 446040000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	12	29	49	74	112	145	180	215	250	285	319	354
ACTUAL	12	28	48	73	109	164	189	216	245	264	319	350

MATERIAL

BUDGET	2	6	10	16	27	34	41	48	55	62	69	76
ACTUAL	2	6	10	16	27	47	55	65	75	81	104	115

MANPOWER

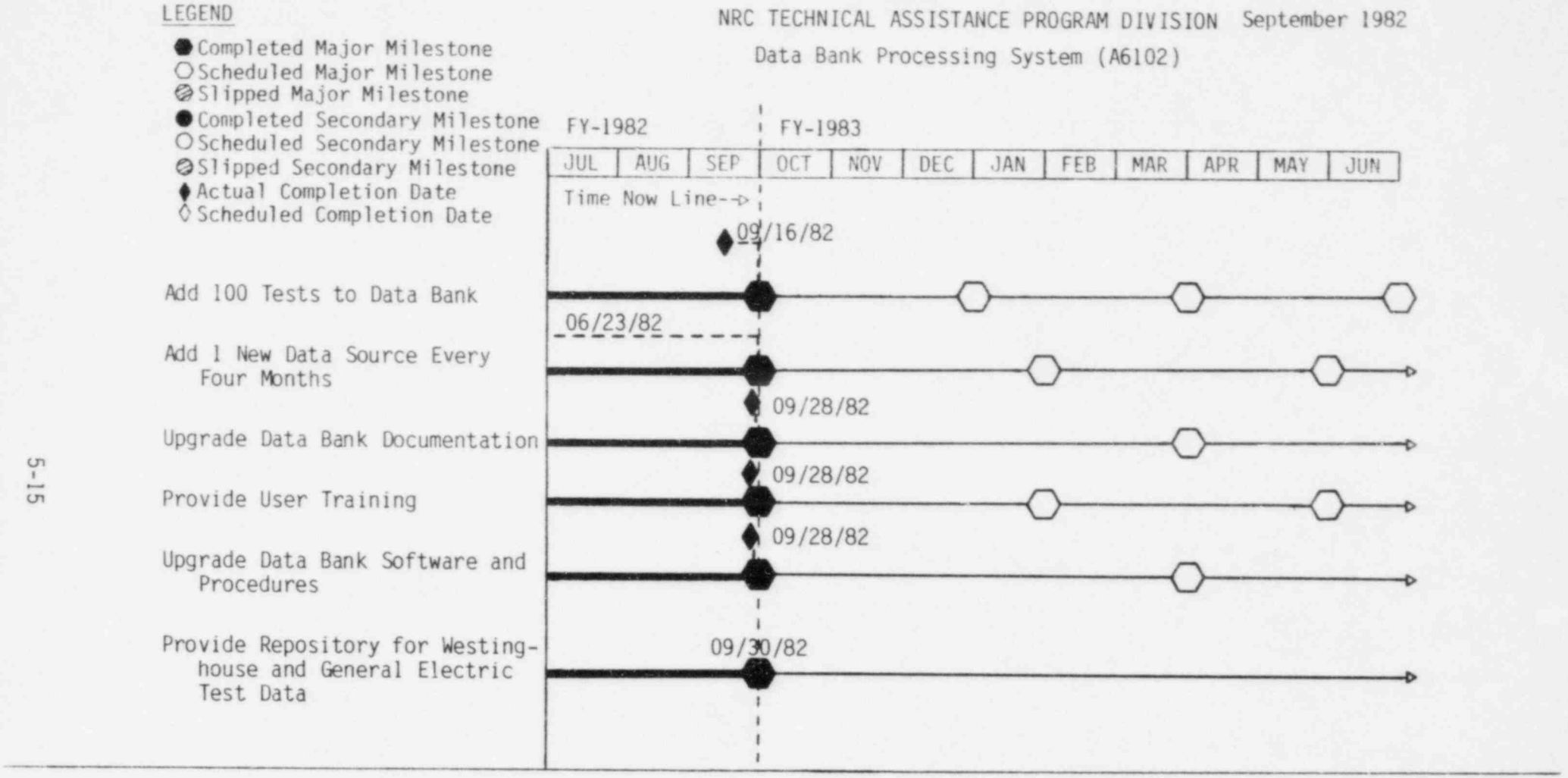
BUDGET	3	3	3	4	6	4	6	6	5	6	5	5
ACTUAL	2	3	3	5	6	6	4	4	4	4	6	4

BUDGET

ACTUAL

A6102

YTD VARIANCE: 4 (1%)


LEGEND
Completed Major Milestone
Scheduled Major Milestone
Slipped Major Milestone
Completed Secondary Milestone
Scheduled Secondary Milestone
Slipped Secondary Milestone
Actual Completion Date
Scheduled Completion Date
NRC TECHNICAL ASSISTANCE PROGRAM DIVISION September 1982
Data Bank Processing System (A6102)
FY-1982
FY-1983
JUL
AUG
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
Time Now Line-->
09/16/82
Add 100 Tests to Data Bank
06/23/82
Add 1 New Data Source Every Four Months
09/28/82
Upgrade Data Bank Documentation
09/28/82
Provide User Training
09/28/82
Upgrade Data Bank Software and Procedures
Provide Repository for Westinghouse and General Electric Test Data
09/30/82

NOTES:

189a A6102

1. NRC/DAE Data Bank

2. Scheduled Milestones for September 1982

Description	Due Date	Actual Date
Add tests to Data Bank	9-30-82T	9-16-82 Saff-381-82
Upgrade Data Bank Documentation	9-30-82T	9-28-82 Saff-401-82
Provide User Training	9-30-82T	9-28-82 Saff-396-82
Upgrade Data Bank Software and Procedures	9-30-82T	9-28-82 Saff-402-82
Provide General Electric (GE), Westinghouse, data reporting	9-30-82T	9-30-82 Saff-397-82

3. Summary of Work Performed in September 1982

Five milestones were completed this month. The activities conducted to complete these milestones included the following:

Steady state data provided by the Oak Ridge National Laboratory (ORNL) were added to the Bank, as well as data from two Single Heated Bundle Facility (SHBF) Tests (6301 and 1013).

The on-line Data Bank documentation was upgraded to reflect recent changes.

A user's training session was conducted at the ORNL for the pressurized water reactor (PWR) Blowdown Heat Transfer and Multirod Burst Test Programs' personnel.

The documentation of standardized data entry and maintenance procedures was completed and issued as report number EGG-IS-6044.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

Work will continue or commence in the following areas:

Data entry activities will continue. Current priorities are to enter SHBF data.

5. Summary of Work to be Performed in October 1982 (Continued)

Work will commence on an addition to the on-line "HELP" information file, to include a list of stored tests, categorized by test type (e.g., LOCA, operational transient).

Data will be entered into the Data Bank Source/User Directory, which will include non-INEL data providers and Bank users.

A study will be started to determine how to add test facility schematic drawings to the Data Bank.

6. Problems and Potential Problems

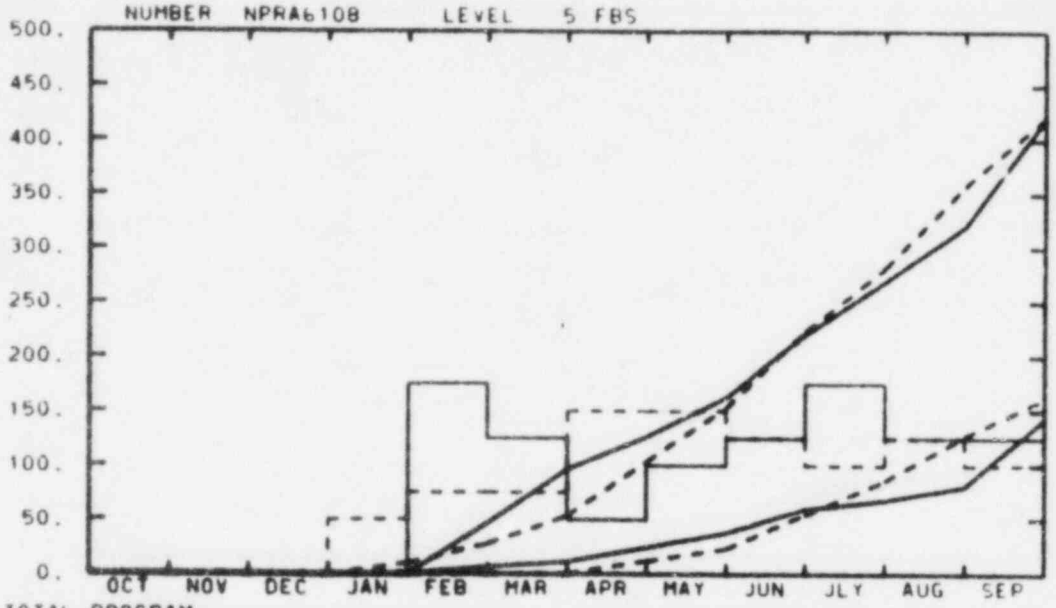
None.

RESPONSIBLE MANAGER WINTER

EG&G IDAHO INC.

DIAGNOSTIC GRAPHICS RES A6108

NUMBER NPRA6108 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	0	0	0	10	28	54	104	154	224	282	358	421
ACTUAL	0	0	0	0	47	97	127	163	221	270	321	421

MATERIAL

BUDGET	0	0	0	0	0	1	12	24	55	86	127	162
ACTUAL	0	0	0	0	7	12	25	38	60	68	81	143

MANPOWER

BUDGET	0	0	0	2	3	3	6	6	5	4	5	4
ACTUAL	0	0	0	0	7	5	2	4	5	7	5	5

BUDGET

ACTUAL

A6108

YTD VARIANCE: 0

189a A6108

1. Diagnostic Graphics Research

2. Scheduled Milestones for September 1982

Description	Due Date	Actual Date
Draft Response Tree report	9-30-82E	
Draft Prediction Display report	9-30-82E	
Letter report on Safety Parameter Display System Survey	9-30-82E	

3. Summary of Work Performed in September 1982

Task 1 - Effects of Control Room Modifications: Report printed and distributed as of September 3, 1982. Task is now complete.

Task 2 - Advanced Display Concepts: Response Tree report is complete.

Task 3 - Graphics Display Research Facility (GDRF): Completed in June with the publication of NUREG/CR-2711.

Task 4 - Upgrade Experimental Capability: Bids were sent out for the console for the display experiment facility.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

Task 1 - Effects of Control Room Modifications: Previously complete.

Task 2 - Advanced Display Concepts: The letter report on Safety Parameter Display System Survey is in draft form and will be ready to issue the week of October 4, 1982.

The report on the Prediction Display is in draft form ready for editing and will be completed by the end of October.

Task 3 - Graphics Display Research Facility: Previously complete.

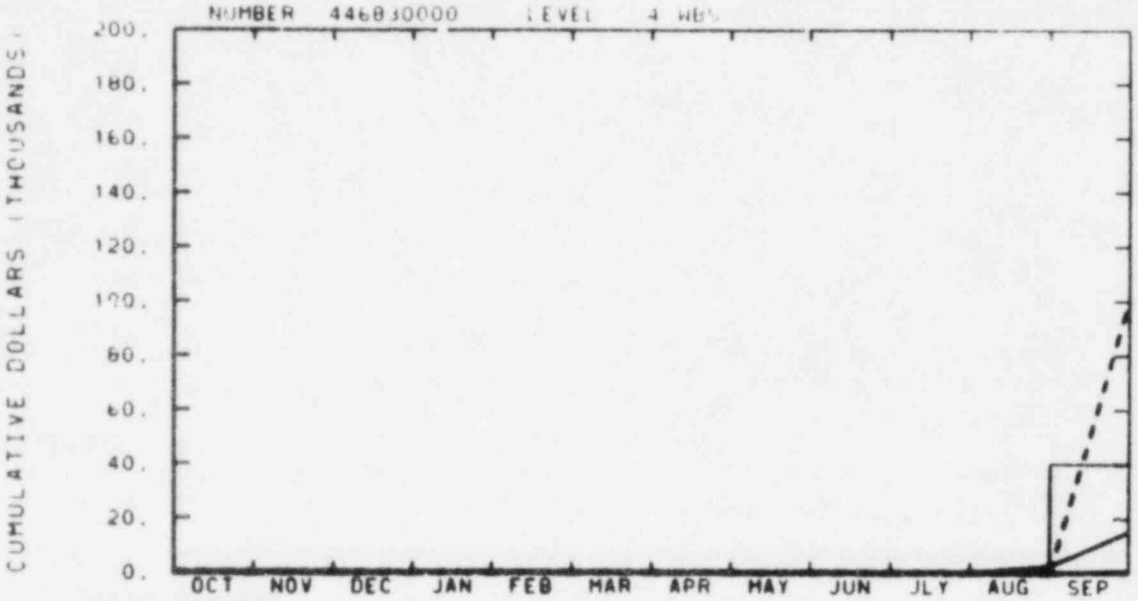
Task 4: Upgrade Experimental Capability:

6. Problems and Potential Problems

None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.
AUTO TRENDS & PATTERN ANAL A[illegible]
NUMBER 446830000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	0	0	0	0	0	100
ACTUAL	0	0	0	0	0	0	0	0	0	0	3	15

MATERIAL

BUDGET	0	0	0	0	0	0	0	0	0	0	0	100
ACTUAL	0	0	0	0	0	0	0	0	0	0	0	1

MANPOWER

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

BUDGET
ACTUAL

A6231

YTD VARIANCE: 85 (85%)

An additional $25K was received in late September resulting in a carryover of $110K which is consistent with the work scope to be completed in FY-1983.

189a A6231

1. Automated Trends and Pattern Analysis for Operational Data

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

The remaining pertinent data from Oak Ridge National Laboratory's (ORNL) sequence coding and search system (SCSS) were loaded into the CDC "DMS-170" data base management system. Programs to display Licensee Event Reports (LERs), enter data, and retrieve data were developed. Work to display count information based on categories in the data started.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

A briefing for the Nuclear Regulatory Commission's (NRC) Office of the Analysis and Evaluation of Operational Data on present and future capabilities to analyze SCSS data in DMS-170 will take place October 14, 1982.

The programming and application efforts described in Item (3) above will be completed. Development of a capability to retrieve counts of events in the SCSS based on event timing will begin.

6. Problems and Potential Problems

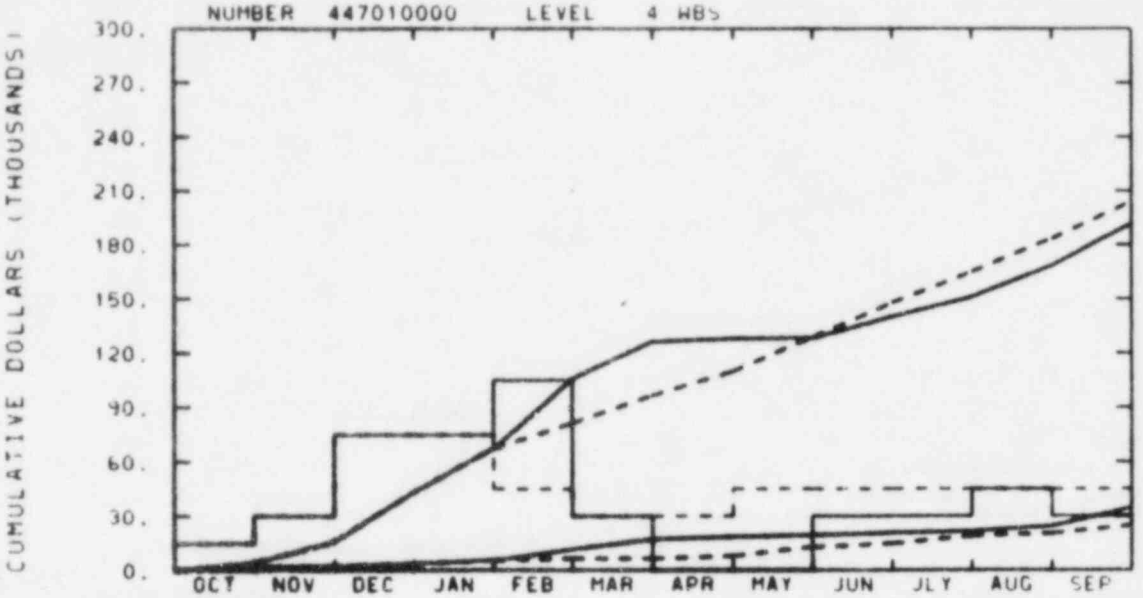
None.

RESPONSIBLE
MANAGER
F SAFFELL

EG&G IDAHO INC.

LER FAILURE RATE A6276

NUMBER 447010000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	4	16	43	67	81	97	110	129	148	165	183	204
ACTUAL	4	16	43	67	106	126	128	128	140	151	168	192

MATERIAL

BUDGET	1	2	4	5	7	7	8	13	15	19	20	25
ACTUAL	2	2	4	6	12	17	19	20	21	22	24	35

MANPOWER

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

A6276

YTD VARIANCE: 12 (6%)

The $12K carryover is consistent with work scope being carried into FY-1983.

1. Licensee Event Report (LER) Failure Rate Analysis

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

Computer runs generating rate estimates and plots, as well as summary tables and bar charts, were completed and the text of NUREG/CR-1740 was rewritten to reflect the updated information on instrumentation and control system events.

The interim report on battery and battery charger events was updated to include more NRC comments.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

The report on battery and battery charger events, documenting the special study, will be finalized.

The draft update report on instrumentation and control systems will be reviewed internally.

Review of LERs involving inverters will be initiated.

6. Problems and Potential Problems

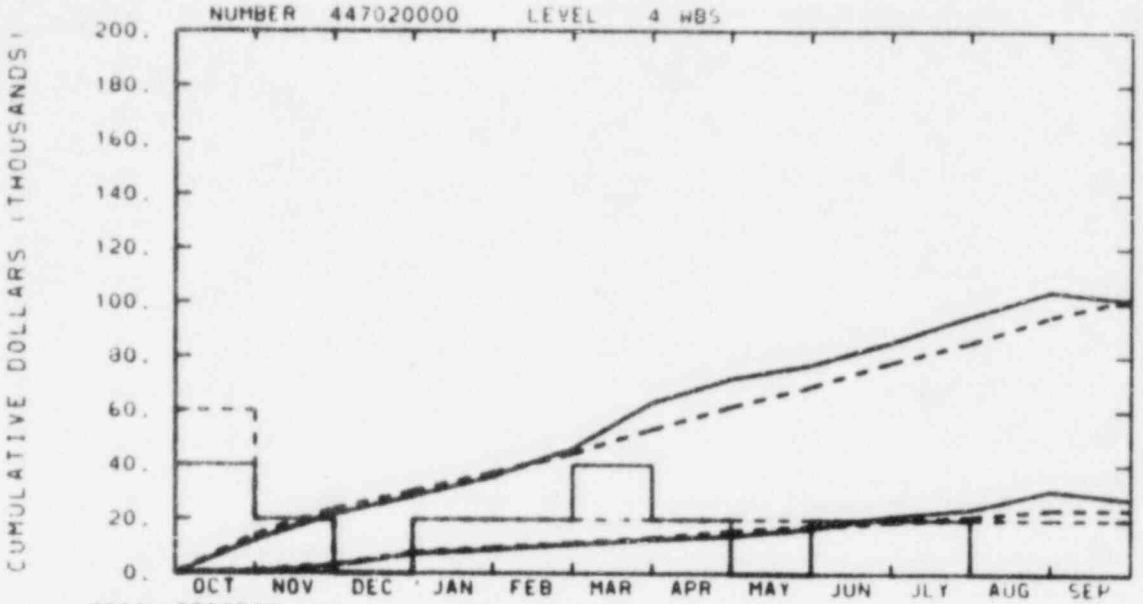
None.

SPONSIBLE
NAGER
B F SAFFELL

EG&G IDAHO INC.

COMMON CAUSE STAT MODELING A6283

NUMBER 447020000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	14	24	31	37	44	53	62	69	78	85	95	102
ACTUAL	12	22	29	36	46	63	72	77	86	95	104	101

MATERIAL

BUDGET	1	3	8	10	11	13	16	18	19	21	24	24
ACTUAL	0	3	7	9	11	13	14	17	21	24	31	28

MANPOWER

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

A6283

YTD VARIANCE: 1 (1%)

189a A6283

1. Common Cause Data Analysis

2. Scheduled Milestones for September 1982

Description	Due Date	Actual Date
Valves Common Cause NUREG	9-30-82	9-23-82 Saff-391-82
I&C Common Cause NUREG	9-30-82T	8-31-82C Saff-355-82
Users Guide to BFR	9-30-82T	8-3-82C Saff-320-82

3. Summary of Work Performed in September 1982

The valve common cause report was printed, and a camera-ready copy was sent to the NRC for publication as a NUREG.

The Instrumentation and Control (I&C) common cause report, printed in August, was officially released.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

The examination of updated data on I&C systems will begin.

6. Problems and Potential Problems

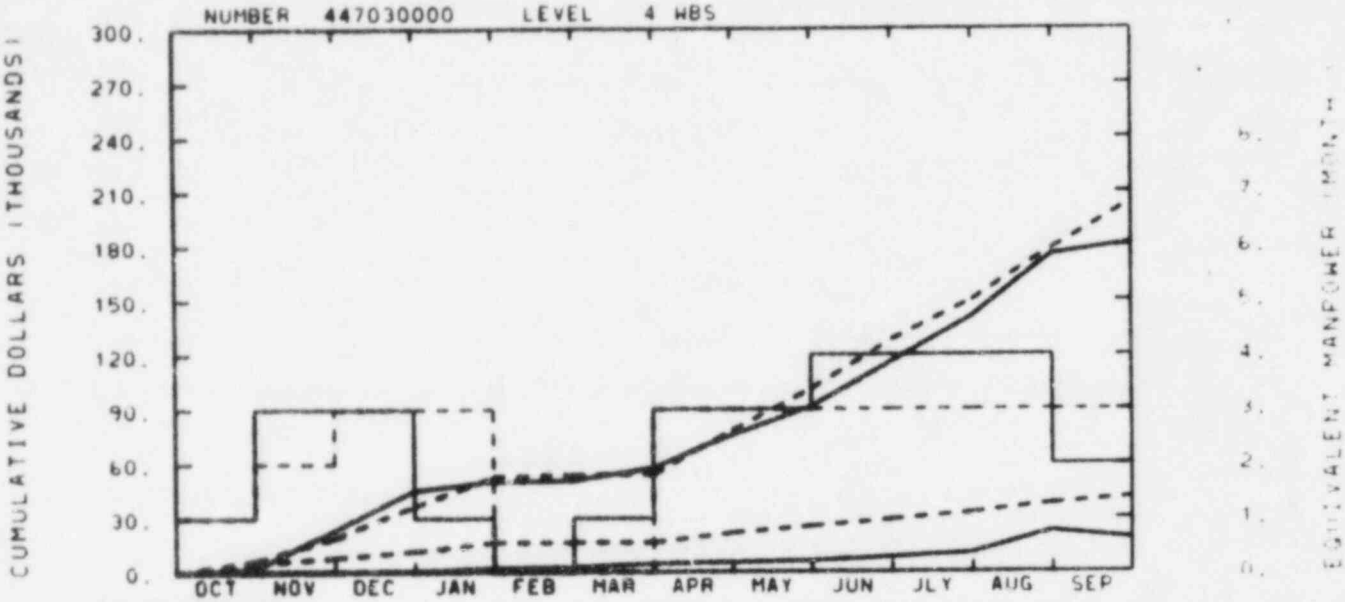
None.

RESPONSIBLE
GER
SAFFELL

EG&G IDAHO INC.

NPRDS DATA ANALYSIS A6290

NUMBER 447030000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	7	19	37	53	54	54	78	101	128	150	178	204
ACTUAL	2	24	45	50	51	58	76	91	116	141	175	182

MATERIAL

BUDGET	5	8	12	17	17	17	22	25	29	33	38	41
ACTUAL	0	1	1	2	3	5	5	6	8	11	23	19

MANPOWER

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

A6290

YTD VARIANCE: 22 (12%)

The 82K carryover is consistent with the work scope being carried into FY-1983.

189a A6290

1. Nuclear Plant Reliability Data System (NPRDS) Data Analysis

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

All portions of the draft report that could be completed without the NPRDS data from the second quarter of CY-1982 have been completed.

The project is on budget and the work is proceeding consistent with receipt of Licensee Event Reports (LERs) and NPRDS data.

4. Scheduled Milestones for October 1982

Description	Due Date	Actual Date
Draft Report of NPRDS QC Results	10-29-82	

5. Summary of Work to be Performed in October 1982

Upon receipt of the NPRDS data for the second quarter of CY-1982, they will be analyzed and the draft report will be completed and transmitted to the Nuclear Regulatory Commission.

6. Problems and Potential Problems

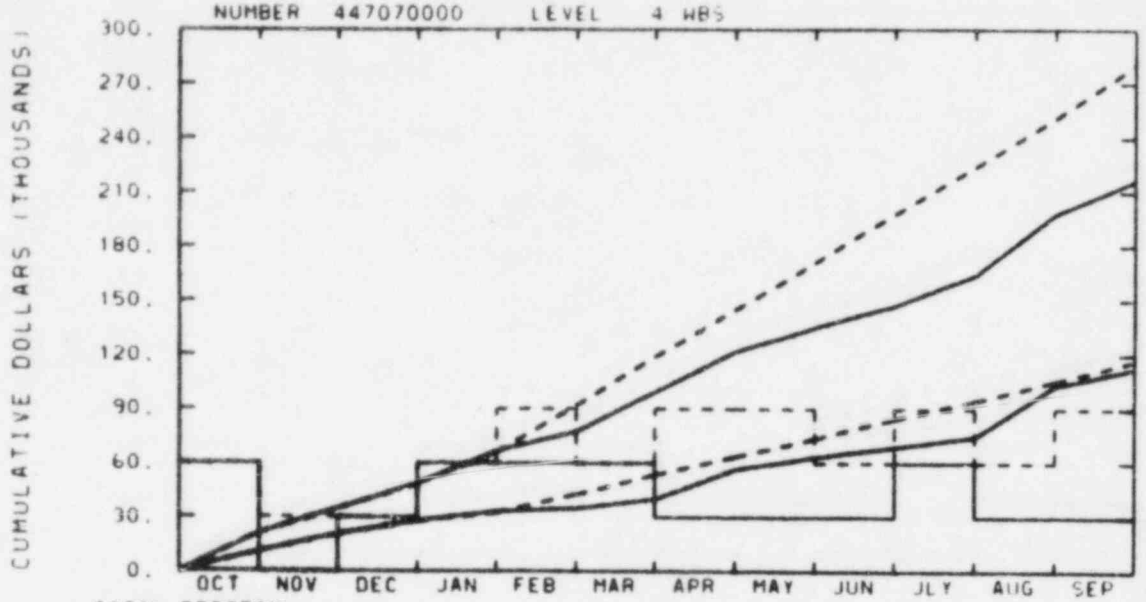
None.

RESPONSIBLE
NAGER
F SAFFELL

EG&G IDAHO INC.

PLANT STATUS MONITORING A62[illegible]

NUMBER 447070000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	21	35	48	66	92	119	145	171	198	224	251	280
ACTUAL	21	35	49	67	77	99	122	135	147	164	198	217

MATERIAL

BUDGET	11	21	28	33	43	54	64	74	85	95	106	117
ACTUAL	11	21	28	33	35	40	57	63	69	75	103	112

MANPOWER

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

BUDGET

ACTUAL

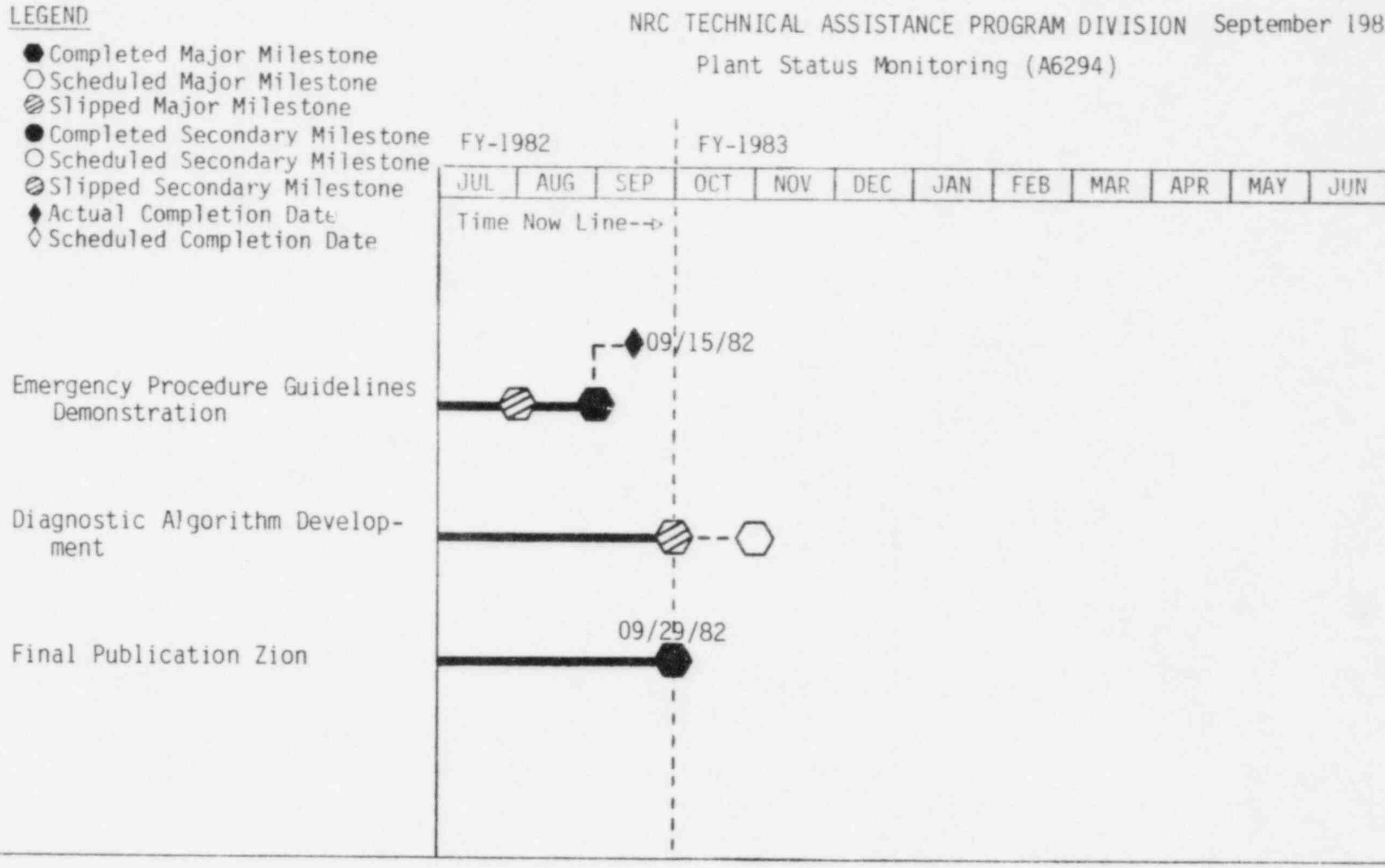
A6294

YTD VARIANCE: 63 (23%)

The $63K carryover will be used to complete the diagnostic algorithm development, complete the emergency procedure guideline work for Westinghouse plants, and to support the emergency procedure guideline work for General Electric Plants (A6331).

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION September 1982

Plant Status Monitoring (A6294)



NOTES:

189a A6294

1. Plant Status Monitoring

2. Scheduled Milestones for September 1982

Description	Due Date	Actual Date
Final Publication Zion OAETs	9-29-82	9-29-82 Saff-404-82

3. Summary of Work Performed in September 1982

A draft report entitled, "Development of Improved Emergency Operating Procedure Guidelines", was transmitted to the Nuclear Regulatory Commission (NRC) for review. The title will be changed to "Development of Methodology for Evaluation of Emergency Procedure Guidelines" prior to final NRC review.

The final report entitled, "Operator Action Event Trees for the Zion 1 Pressurized Water Reactor", was transmitted to NRC.

A preliminary draft of portions of the final diagnostic algorithm report was written. The drafts emphasize the technical approach used to develop the algorithm. The decision table logic structure was improved using the small break loss of coolant accident (LOCA) operator action event tree for Zion. The decision logic for the algorithm was also refined.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

A presentation on the emergency operating procedure validation methodology will be presented at the Water Reactor Safety Research Information Meeting.

The draft report documenting the diagnostic algorithm development will be completed and transmitted to NRC.

6. Problems and Potential Problems

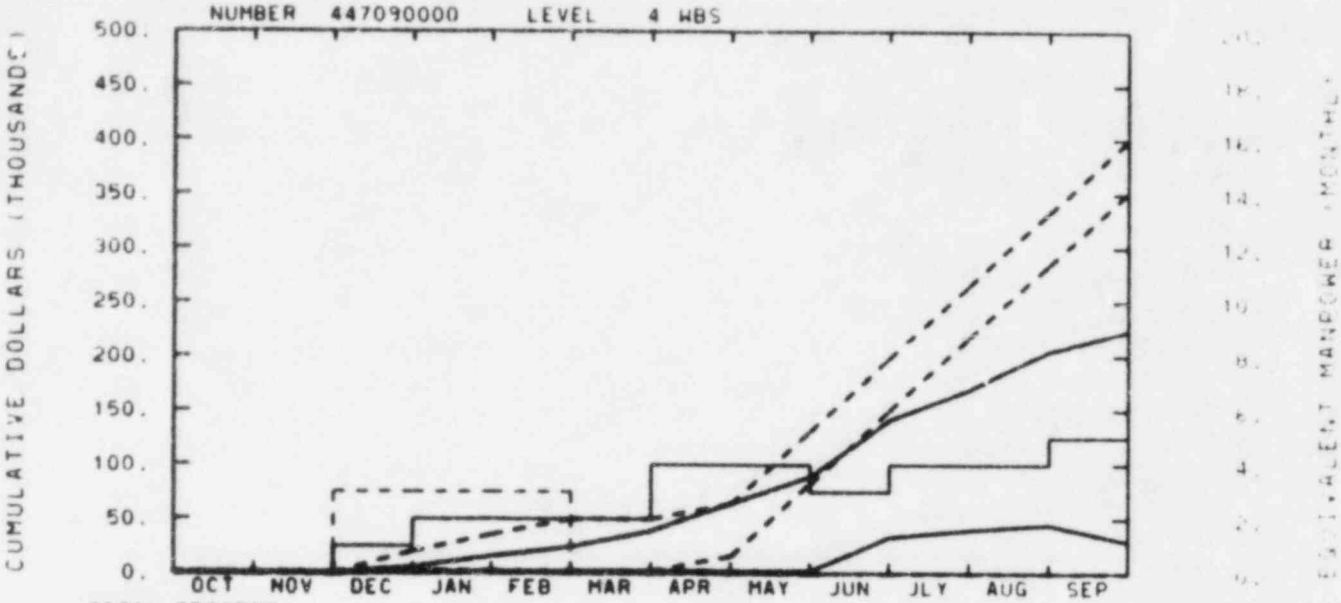
None.

SPONSIBLE
NAGER
B F SAFFELL

EG&G IDAHO INC.

ACCIDENT SEQ EVALUATION AL301

NUMBER 447090000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	20	36	50	50	64	131	198	266	333	400
ACTUAL	0	0	6	15	24	39	65	89	141	170	205	223

MATERIAL

BUDGET	0	0	2	2	2	2	16	83	150	217	285	352
ACTUAL	0	0	1	1	2	2	2	2	33	40	45	29

MANPOWER

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

A6301

YTD VARIANCE: 177 (44%)

The $177K carryover is consistent with the work scope being carried into FY-1983.

189a A6301

1. INEL Accident Sequence Evaluation Program (ASEP)

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

Assisted Sandia in completing and transmitting the Phase II report review package. The package has been reviewed by Idaho National Engineering Laboratory (INEL) personnel in preparation for the October workshop.

In addition, a paper and presentation which give an overview of the ASEP, have been prepared for the 10th Water Reactor Safety Research Information Meeting to be held in Gaithersburg, MD in October.

4. Scheduled Milestones for October 1982

Description	Due Date	Actual Date
ASEP Phase 2 Workshop	10-4-82	9-17-82C

5. Summary of Work to be Performed in October 1982

The ASEP Review workshop will be held in San Diego the first week in October. Immediately following the workshop, the INEL principals will meet with the Sandia principals in Albuquerque to review the results of the workshop. INEL principals will then begin documenting the results of the workshop.

The ASEP overview paper will be given in Gaithersburg.

6. Problems and Potential Problems

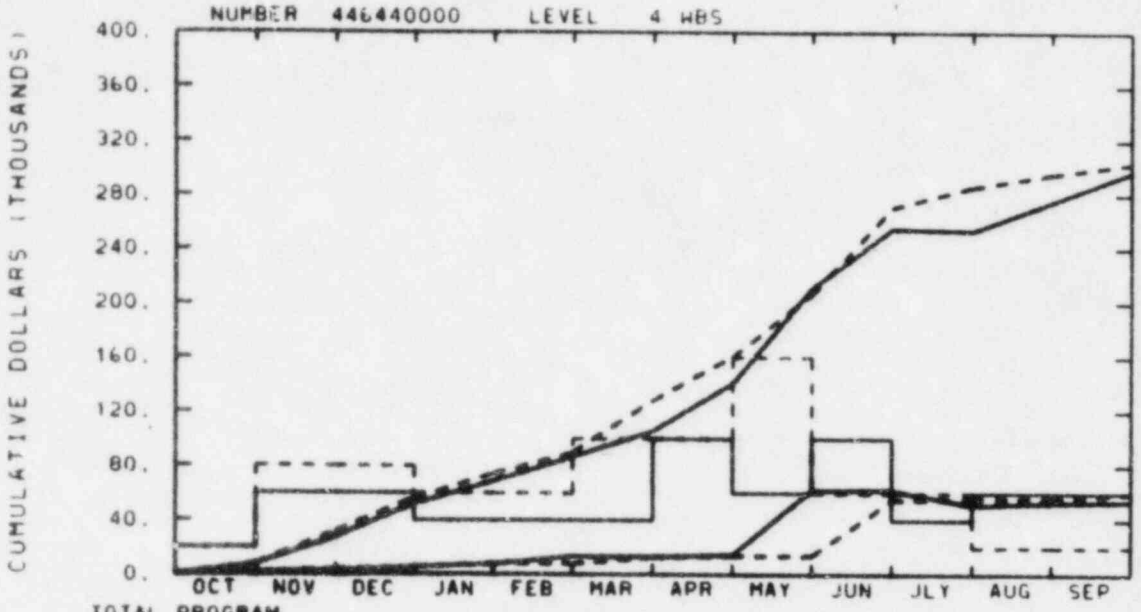
None.

RESPONSIBLE
MANAGER
F SAFFELL

EG&G IDAHO INC.

HDR EVALUATION A6306

NUMBER 446440000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	8	32	56	74	90	128	161	207	270	286	295	303
ACTUAL	8	28	52	69	87	106	141	211	255	253	275	297

MATERIAL

BUDGET	1	4	6	8	8	13	14	14	55	56	56	60
ACTUAL	2	3	6	8	14	13	15	62	63	51	53	54

MANPOWER

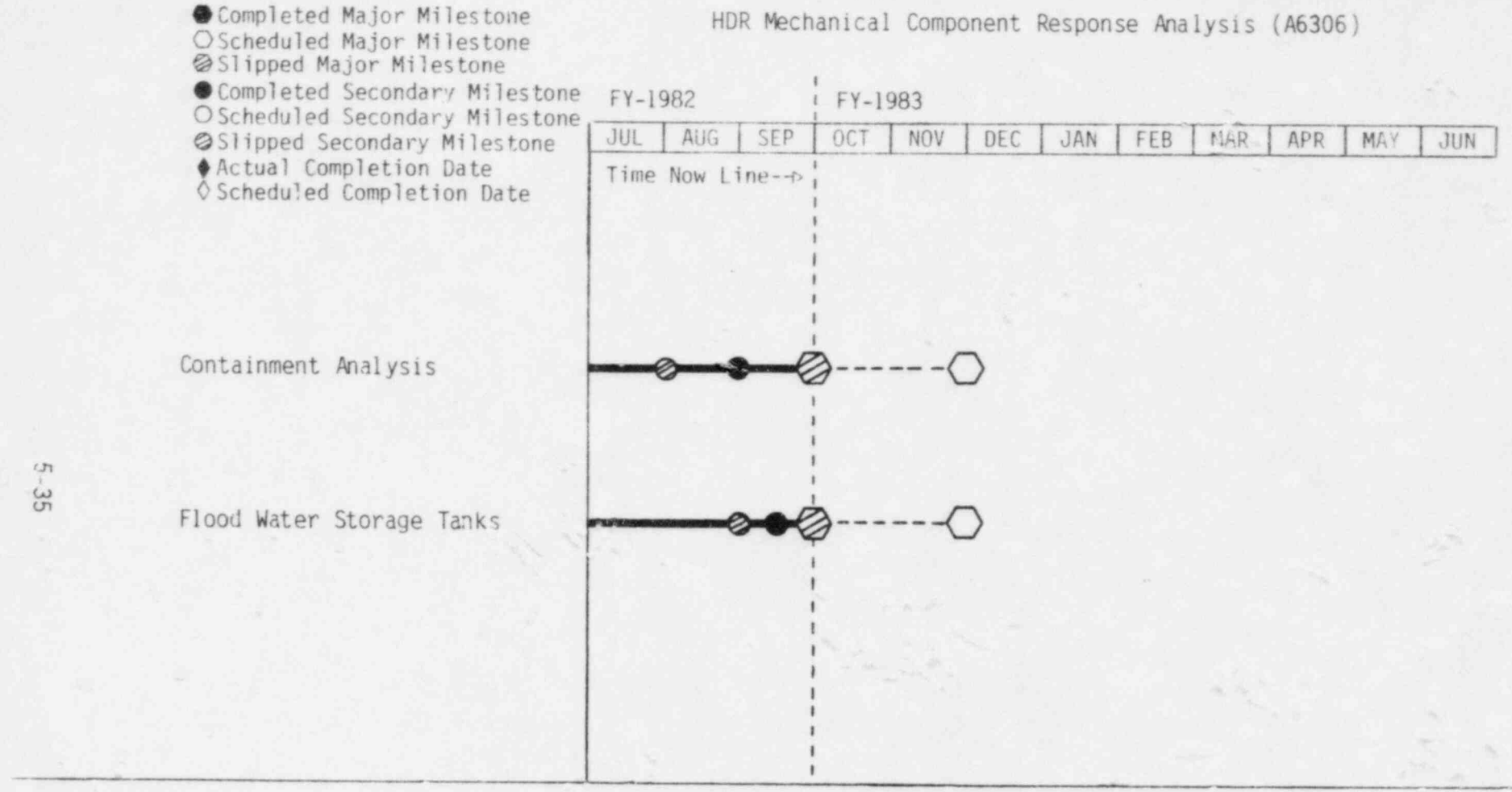
BUDGET	1	4	4	3	3	5	5	8	3	3	1	1
ACTUAL	1	3	3	2	2	2	5	3	5	2	3	3

A6306

YTD VARIANCE: 6 (2%)

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION September 1982

HDR Mechanical Component Response Analysis (A6306)



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

1. Heiss Dampf Reaktor (HDR) Mechanical Component Response Analysis Testing

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

Reduction of modal data obtained at HDR for the containment vessel was completed and is currently being evaluated for completeness of results. Data reduction on the HDR Flood Water Storage Tank (FWST) was started and is still in progress.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

Data reduction on the FWST will continue, along with the draft report preparation of results for both the FWST and the containment vessel.

6. Problems and Potential Problems

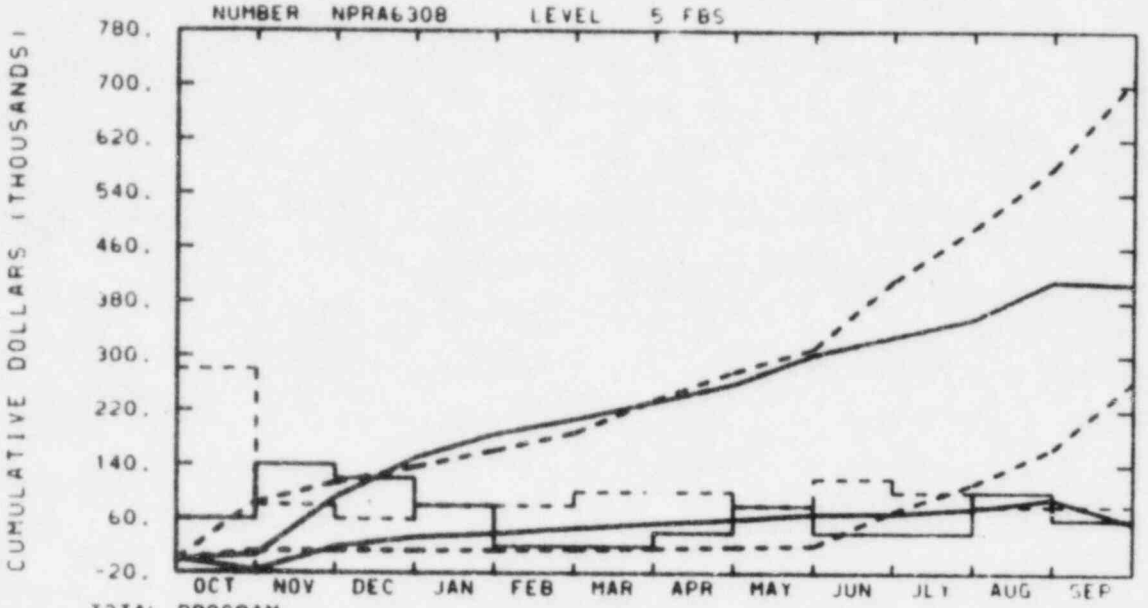
Because the vessels are rich in shell modes over the frequency range of interest, separation and identification of modes has been difficult and is requiring much more data manipulation than originally anticipated. This may result in further delay of task completion.

ESPONSIBLE
NAGER
F POINTER

EG&G IDAHO INC.

DISPLAY DESIGN AND EVAL A6308

NUMBER NPRA6308 LEVEL 5 FBS



TOTAL PROGRAM

BUDGET	84	114	137	161	187	236	277	312	411	489	579	712
ACTUAL	7	91	150	185	207	233	259	303	330	356	411	407

MATERIAL

BUDGET	13	13	13	14	15	17	19	21	72	113	165	264
ACTUAL	-15	19	33	39	47	54	60	68	70	76	91	56

MANPOWER

BUDGET	15	5	4	5	5	6	6	5	7	6	5	5
ACTUAL	4	8	7	5	2	2	3	5	3	3	6	4

A6308

YTD VARIANCE: 305 (43%)

The $305K carryover is consistent with the work scope being carried into FY-1983.

189a A6308

1. Display Design and Evaluation

2. Scheduled Milestones for September 1982

Description	Due Date	Actual Date
Human Engineering Design Considerations for CRT Displays	9-30-82	
Multimethod Display Evaluation	9-30-82	
Multivariate Rating Scale Display Evaluation	9-30-82	
Detection and Recognition Measures of SPDS Formats	9-30-82	

3. Summary of Work Performed in September 1982

The reports listed under Item (2) are complete and either in printing or technical editing.

Pilot test data for simulator-based display evaluation was collected and analyzed.

The literature review of Effects of Control Room Modifications was completed.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

Modification of simulator-based display evaluation experiment based on pilot test results.

Additional pilot test to verify experimental design for simulator-based display evaluation experiment.

Weighting system for individual items of the CRT check list to be developed.

Work will continue on upgrading the display experiment facilities.

The report, "Human Engineering Design Considerations for CRT Displays" will be completed and issued.

6. Problems and Potential Problems

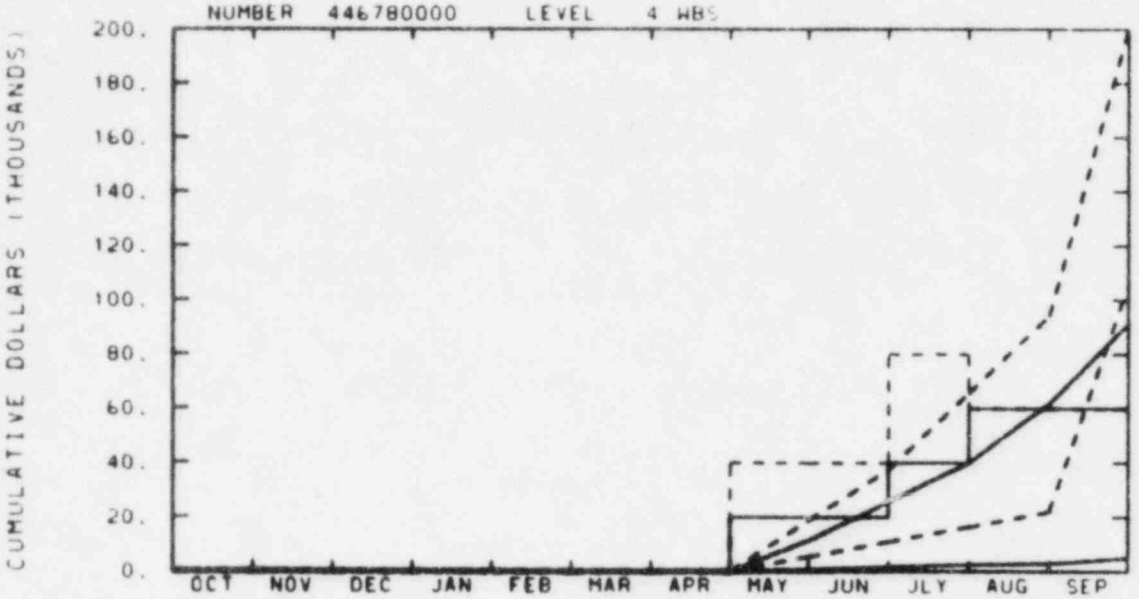
None.

PONSIBLE
AGER
F SAFFELL

EG&G IDAHO INC.

LOW LEVEL WASTE RISK METH A6310

NUMBER 446780000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	0	19	37	66	94	200
ACTUAL	0	0	0	0	0	0	0	11	26	40	62	91

MATERIAL

BUDGET	0	0	0	0	0	0	0	5	11	16	22	105
ACTUAL	0	0	0	0	0	0	0	1	2	3	5	5

MANPOWER

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

BUDGET

ACTUAL

A6310

YTD VARIANCE: 109 (55%)

The $109K carryover is consistent with the work scope being carried into FY-1983.

189a A6310

1. Low Level Waste Risk Methodology Development

2. Scheduled Milestones for September 1982

Description	Due Date	Actual Date
Fiscal year end status report	9-30-82	10-4-82C Saff-410-82

3. Summary of Work Performed in September 1982

General - A report describing work during fiscal year 1982 was written and released during the last week of September.

Exercising the Code - A systematic approach to exercise every computational module in BURYIT is still underway. The UNSAT module still has failed to run and efforts are being made to find the cause. In the meantime, an assignment has been made to assess the time and cost of substituting an operating version of that subroutine.

Model Verification - Verification of ATMOS and of internal data bases used by DOSET are underway, and uncertainty information is being compiled simultaneously. A review of anticipated site requirements to be applied to licensees showed that the consequences and likelihood of the first exposure of the buried waste as a result of water erosion are insignificant. Thus, the examination of a model for water erosion has been terminated. The verification of transfer factors for meat, milk, and soil has been completed.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

All verification activities and uncertainty data collection will continue. It is expected that sensitivity studies aimed at identifying important variables will get underway.

6. Problems and Potential Problems

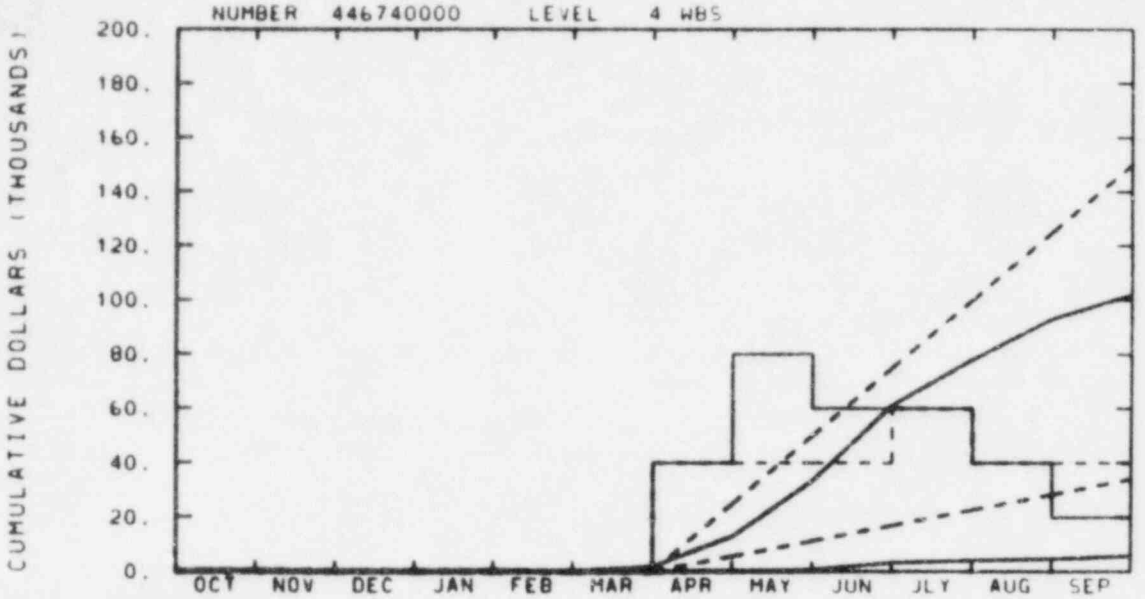
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

INITIATING EVENT DATA EVAL A6313

NUMBER 446740000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	25	50	75	100	125	150
ACTUAL	0	0	0	0	0	2	13	33	61	78	93	102

MATERIAL

BUDGET	0	0	0	0	0	0	6	11	17	23	28	34
ACTUAL	0	0	0	0	0	0	0	1	3	4	5	6

MANPOWER

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

A6313

YTD VARIANCE: 48 (32%)

The $48K carryover is consistent with the work scope being carried into FY-1983.

189a A6313

1. Initiating Event Data Evaluation

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

Review of the Electric Power Research Institute (EPRI) report on transient events (EPRI-NP-2230) proceeded slowly during September as major staff efforts focused on a related project, data for NREP (A6317).

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

Work will continue on the EPRI transient event report.

6. Problems and Potential Problems

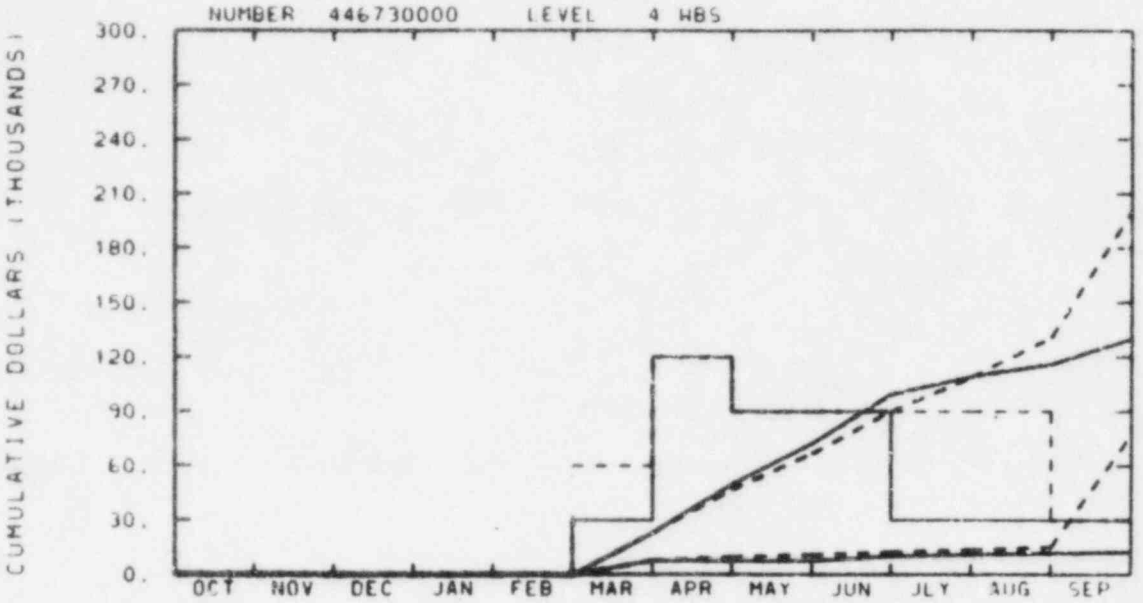
None.

SPONSIBLE
NAGER
F SAFFELL

EG&G IDAHO INC.

PRELIM HTGR SITING EVAL A6315

NUMBER 446730000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	0	0	0	23	47	67	90	109	131	200
ACTUAL	0	0	0	0	0	23	50	72	99	109	116	130

MATERIAL

BUDGET	0	0	0	0	0	8	10	11	13	14	15	77
ACTUAL	0	0	0	0	0	8	8	8	10	11	12	12

MANPOWER

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

BUDGET

ACTUAL

A6315

YTD VARIANCE: 70 (35%)

The $70K carryover is consistent with the work scope being carried into FY-1983.

189a A6315

1. Preliminary HTGR Siting Evaluation

2. Scheduled Milestones for September 1982

Description	Due Date	Actual Date
Develop Sequences	9-30-82	10-4-82C No Documentation
Evaluate Susceptibilities	9-30-82	10-6-82C No Documentation

Delay in completion of the milestones was due to the extensive revision of the draft report to incorporate comments from EG&G Idaho internal review.

3. Summary of Work Performed in September 1982

A letter was prepared for transmittal to the Nuclear Regulatory Commission (NRC) containing the results of the EG&G Idaho work to date (Item 2 above, plus a partial draft of the final report). The cost estimate to perform the Containment Atmosphere Response analysis was deferred for discussion at a mid-October progress meeting. An EG&G Idaho employee traveled to General Atomic (GA) at La Jolla, California, on September 13, to discuss the CARCAS code.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

Review draft writeups from other laboratories.

Revise draft EG&G Idaho report sections to incorporate latest information received from GA.

Conduct a total project progress meeting, probably about the week of October 18 at Denver, Colorado.

6. Problems and Potential Problems

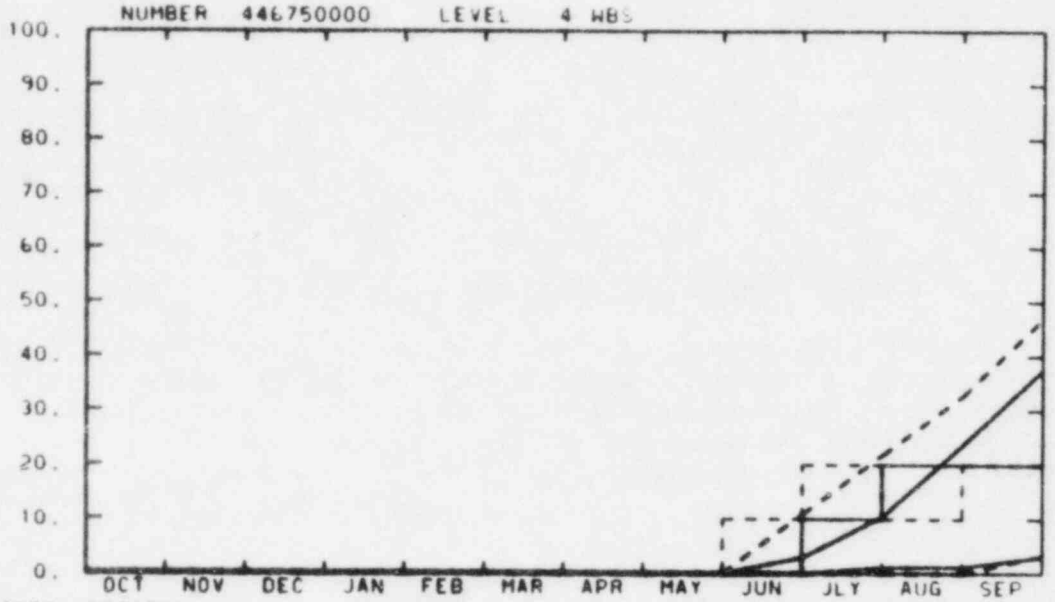
None.

RESPONSIBLE
MANAGER
B F SAFFELL

EG&G IDAHO INC.

PARAMETERS INFL DAMP PIPNG A6316

NUMBER 446750000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	0	0	11	22	33	47
ACTUAL	0	0	0	0	0	0	0	0	3	10	24	38

MATERIAL

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

MANPOWER

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

A6316

YTD VARIANCE: 9 (19%)

189a A6316

1. Parameters Influencing Damping in Piping Systems

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

A report summarizing FY-1982 work was completed. Contacts with ANCO Engineers were initiated to perform cooperative testing during FY-1983. A meeting was held with ANCO in Los Angeles to go over the proposed test plan. The FY-1982 work scope is 100% complete.

4. Scheduled Milestones for October 1982

Description	Due Date	Actual Date
Issue Ltr. Report on FY-1983 Progress	10-1-82	10-7-82C Saff-417-82

5. Summary of Work Performed in October 1982

Planning and procurement for FY-1983 tests will be continued. Progress on a detailed test plan for the ANCO/EG&G Idaho tests will be continued.

6. Problems and Potential Problems

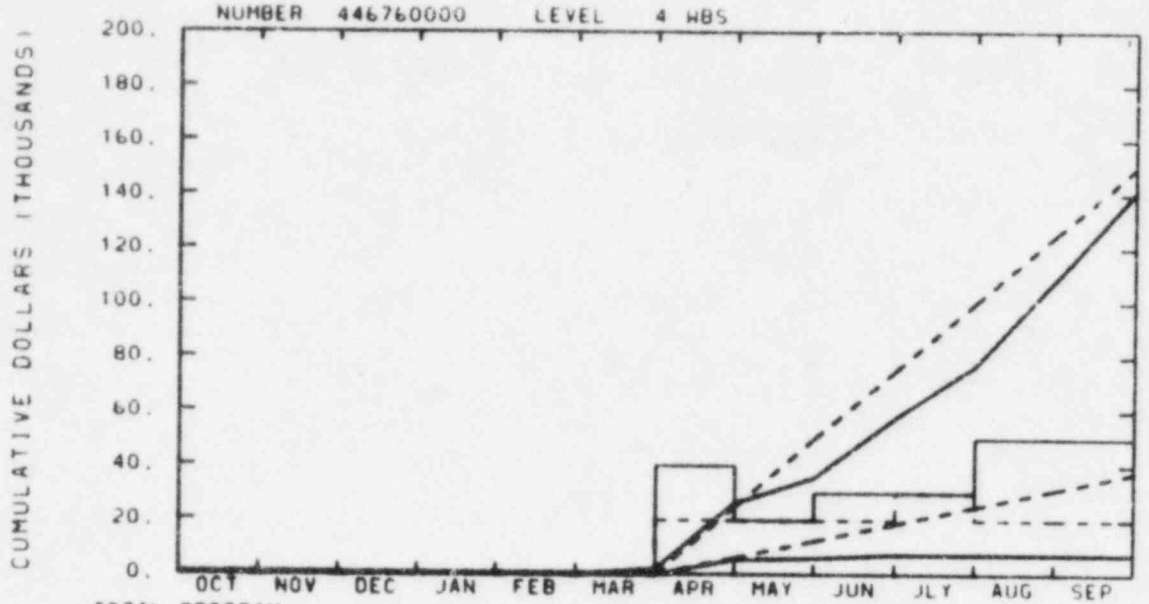
None.

SPONSIBLE
AGER
F SAFFELL

EG&G IDAHO INC.

DATA FOR NPEP A6317

NUMBER 446760000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	25	50	75	100	125	150
ACTUAL	0	0	0	0	0	2	26	36	58	77	109	141

MATERIAL

BUDGET	0	0	0	0	0	0	6	12	19	25	31	37
ACTUAL	0	0	0	0	0	0	5	6	7	7	7	7

MANPOWER

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

A6317

YTD VARIANCE: 9 (6%)

189a A6317

1. Data for NREP

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

A telephone survey of data bases having possible application to reliability studies was virtually completed; contact was made for all data bases under consideration except for a data base in France. Information was exchanged with Science Applications, Inc. Approximately 90% of the results were incorporated into a draft report.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

The draft report on data bases will be completed and internal review will start.

6. Problems and Potential Problems

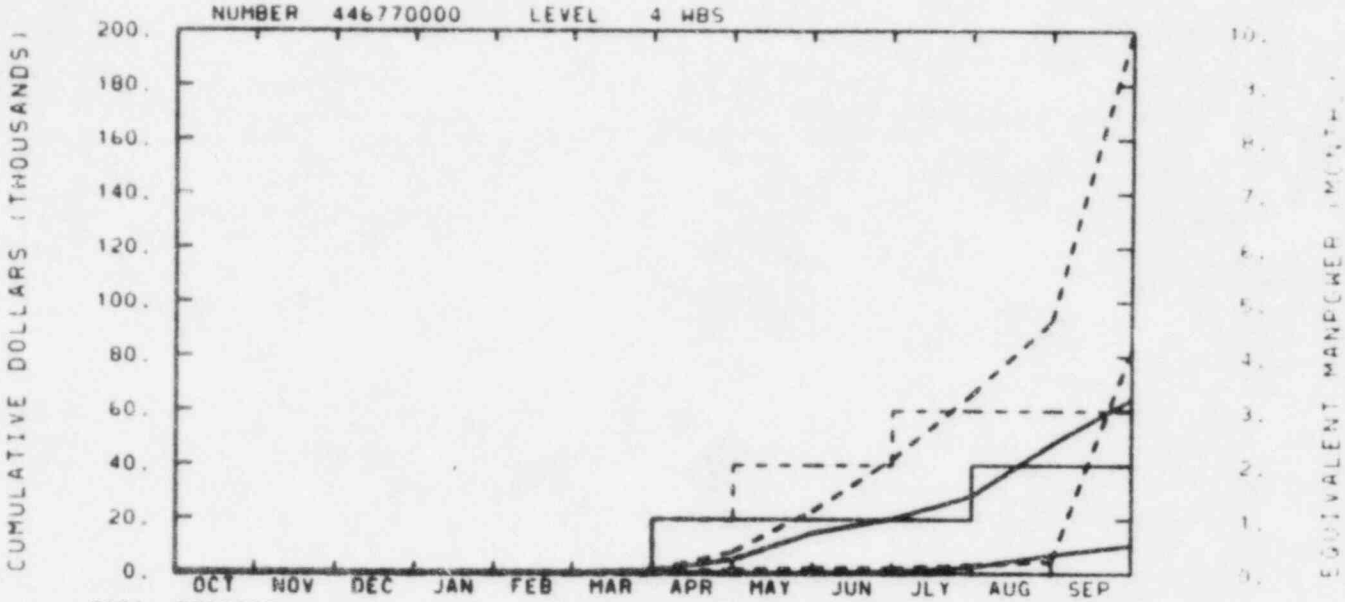
None.

SPONSIBLE
NAGER
B F SAFFELL

EG&G IDAHO INC.

SYS REQ/STND DEV ANNEAL RPVA6318

NUMBER 446770000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	0	0	0	1	8	23	42	66	93	200
ACTUAL	0	0	0	0	0	1	5	15	20	29	48	64

MATERIAL

BUDGET	0	0	0	0	0	0	1	2	2	3	5	82
ACTUAL	0	0	0	0	0	0	0	0	1	3	7	11

MANPOWER

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

A6318

YTD VARIANCE: 136 (68%)

Work scope and corresponding funding of $136K will be carried into FY-1983.

1. System Requirements and Standards Development for Annealing of Reactor Pressure Vessels

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

Trips were taken by EG&G Idaho personnel to visit the Electric Power Research Institute (EPRI), Bechtel, Pyromet Industries, Cooperheat, and NUS Corporation. Other contacts were continued with Chicago Bridge and Iron Company, Energy Incorporated, and Stone and Webster Engineering Corporation. The results from these trips are being integrated into an interim report which is in draft form. A preliminary copy for information purposes only was sent to the Nuclear Regulatory Commission (NRC) Technical Monitor.

After the meeting with EPRI, a preliminary copy of the EPRI/Westinghouse final report was received. A copy is being made and forwarded to the NRC Technical Monitor. Review of this report has just been initiated.

The reference toughness curve approach for estimating fracture toughness results from Charpy V-notch data does not appear to work satisfactorily for the Naval Research Laboratory test results on heat V-86. A comparison of predictions and data for heat V-84 is in progress after receipt of NUREG/CR-1128 which contains heat V-84 fracture toughness data. Since EPRI has also supplied a full copy of Appendix G of this EPRI/Westinghouse final report (over 2200 pages), a review of the referencing approach for the EPRI heats is being initiated (although only upper shelf toughness data are available).

The ASME Section XI Subgroup on Repairs and Replacements meeting at Mystic, Connecticut was attended this month. This subgroup did not discuss anything positive about the annealing issue; it appears that this group will not move unless some extreme pressure is exerted. Discussions at EPRI indicated that a whole new subgroup on requalification may be started soon; within this subgroup, the annealing issue would be included. EG&G personnel have expressed interest in this new subgroup activity.

The response to the ASTM Task Group on annealing has increased, primarily due to personal contacts. Further recruiting is in progress.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

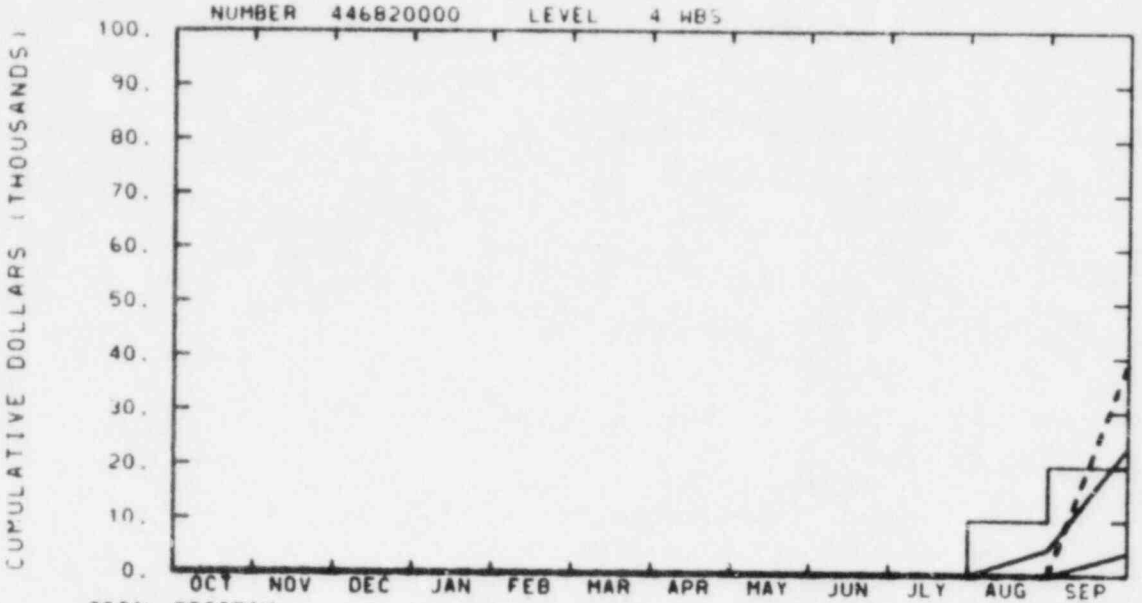
The interim report on annealing feasibility and a potential demonstration will be finalized and officially submitted. Work on an annual NUREG report will also be initiated. A letter to ASTM Task Group members will be drafted to start people thinking about the issues to be addressed.

6. Problems and Potential Problems

None.

RESPONSIBLE MANAGER
B.F. SAFFELL

FS&G IDAHO INC.
INTEGRITY OF CPUSALC A6326
NUMBER 446820000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	0	0	0	0	0	39
ACTUAL	0	0	0	0	0	0	0	0	0	0	5	23

MATERIAL

BUDGET	0	0	0	0	0	0	0	0	0	0	0	39
ACTUAL	0	0	0	0	0	0	0	0	0	0	0	4

MANPOWER

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

BUDGET
ACTUAL

A6326

YTD VARIANCE: 16K (41%)

The $16K carryover is consistent with the work scope being carried into FY-1983.

1. Integrity of Containment Penetrations Under Severe Accident Load Conditions

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

Detailed data on penetrations in the form of engineering drawings and existing analytical reports on predictions of failure limits have been obtained from various architect engineering firms and utilities. During the course of gathering this information, EG&G Idaho technical personnel had an opportunity to gain additional firsthand knowledge of containment penetrations based upon tours of the Watts Bar and Limerick plants.

The EG&G Idaho proposal is currently being prepared; the relaxation of the due date for this proposal until October 30, 1982 will be of some help. An additional 2 to 3 weeks would further increase the quality of the proposal. EG&G Idaho's proposal will emphasize making a high quality selection of penetrations to be included in the physical testing program. Penetrations selected to be tested first will be collectively:

a. Those most subject to individual failure
b. Those having the greatest consequence given a failure
c. Those most statistically prevalent in U.S. commercial reactors.

4. Scheduled Milestones for October 1982

Description	Due Date	Actual Date
Completion of proposal/report	10-30-82	

5. Summary of Work to be Performed in October 1982

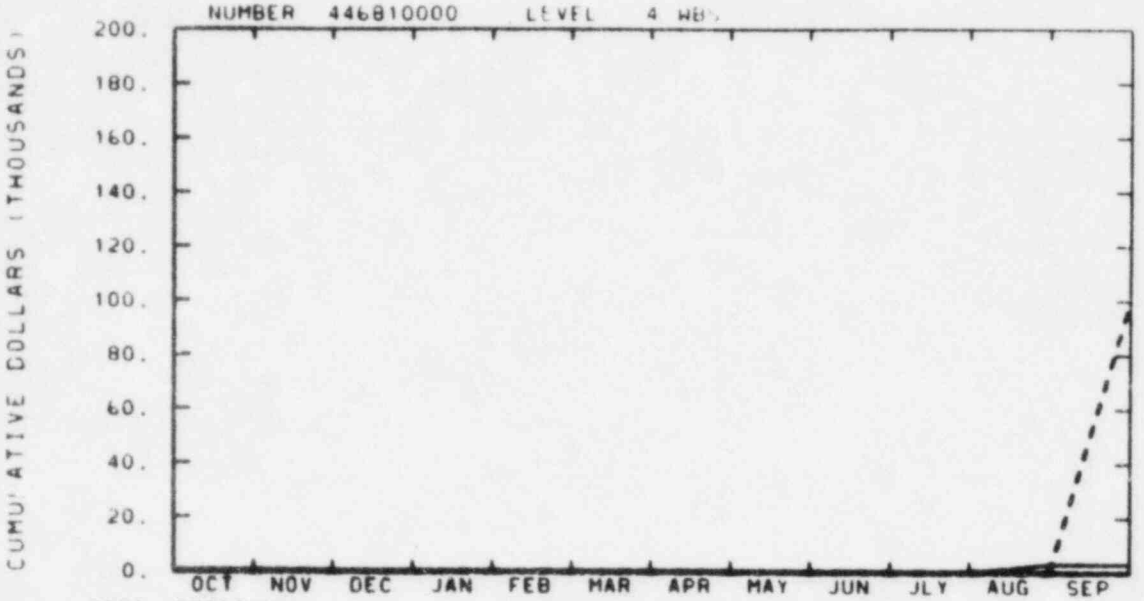
The proposal will be completed and will contain a sample demonstration of EG&G Idaho's proposed methodology based upon a limited number of sample penetrations selected from five different containment types.

6. Problems and Potential Problems

None.

SPONSIBLE
NAGER
B.F. SAFFELL

EG&G IDAHO INC.
ENRGY OP PROCD GUIDELINES A6331
NUMBER 446810000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	0	0	0	0	0	100
ACTUAL	0	0	0	0	0	0	0	0	0	0	3	3

MATERIAL

BUDGET	0	0	0	0	0	0	0	0	0	0	0	100
ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0

MANPOWER

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

BUDGET
ACTUAL

A6331

YTD VARIANCE: 97K (97%)

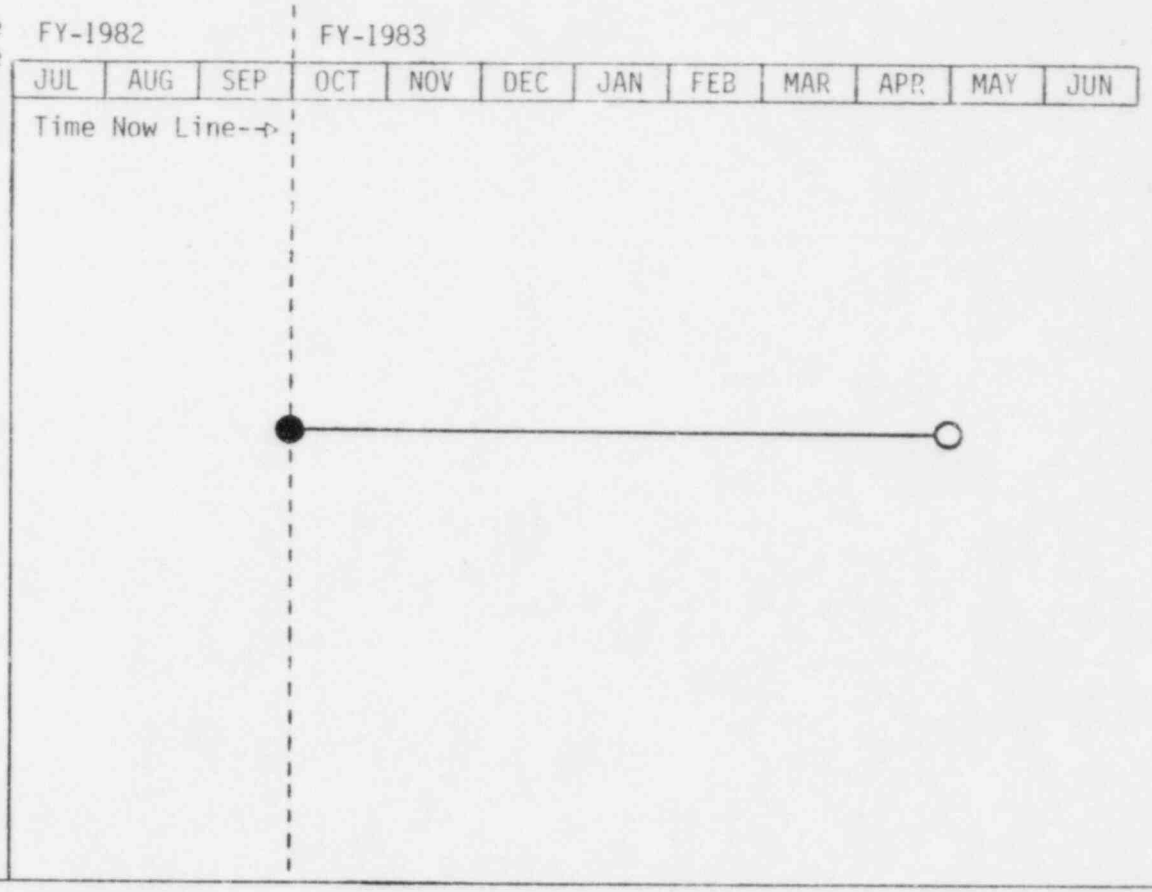
The $97K carryover is consistent with the work scope to be completed in FY-1983.

LEGEND

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

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION September 1982

Emergency Operating Procedure Guidelines (A6331)



NOTES:

189a A6331

1. Emergency Operating Procedure Guidelines

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

A draft Form 189 was completed and transmitted to the Nuclear Regulatory Commission (NRC) for review.

A subcontract to utilize the operator action event tree methodology to evaluate and validate the General Electric (GE) boiling water reactor (BWR) emergency operating procedure guidelines was approved.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

The Form 189 will be finalized.

The BWR subcontract will be placed and work will be initiated.

6. Problems and Potential Problems

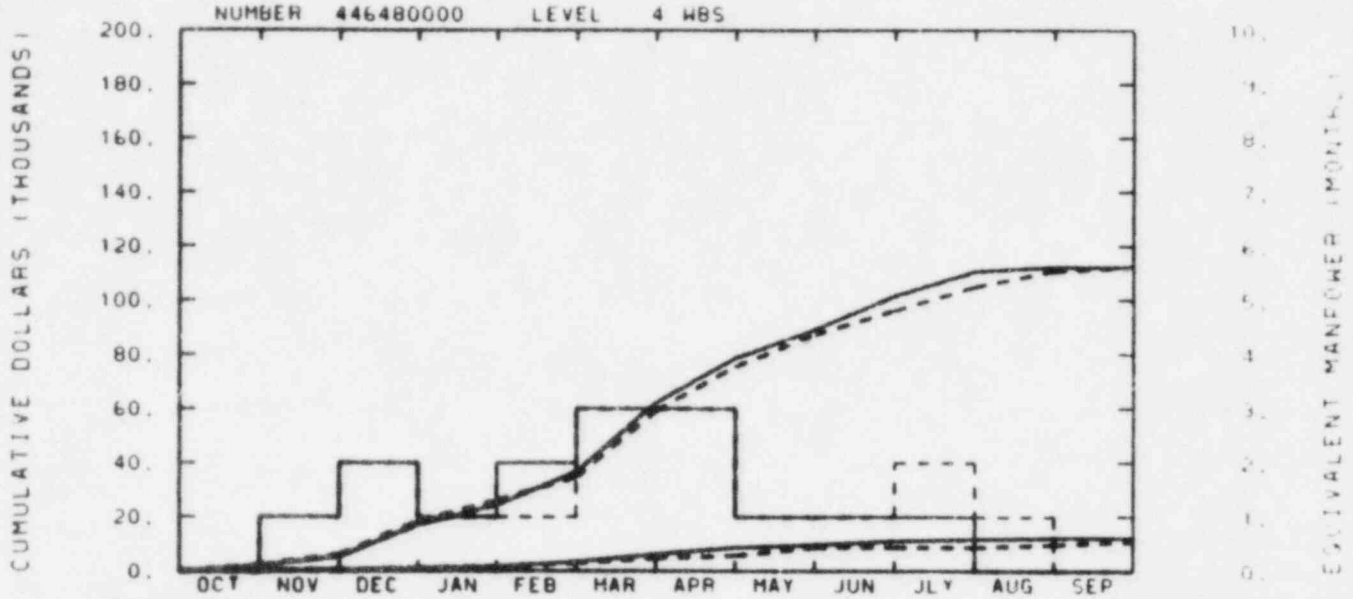
None.

RESPONSIBLE
NAGER
F SAFFELL

EG&G IDAHO INC.

KUOSHENG SRV DISCHARGE A6353

NUMBER 446480000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	2	6	19	26	35	59	76	87	96	105	111	112
ACTUAL	2	5	17	24	37	62	79	89	102	111	112	112

MATERIAL

BUDGET	0	0	1	2	3	5	6	9	9	9	10	11
ACTUAL	0	0	1	2	4	6	9	10	11	12	12	12

MANPOWER

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

BUDGET

ACTUAL

A6353

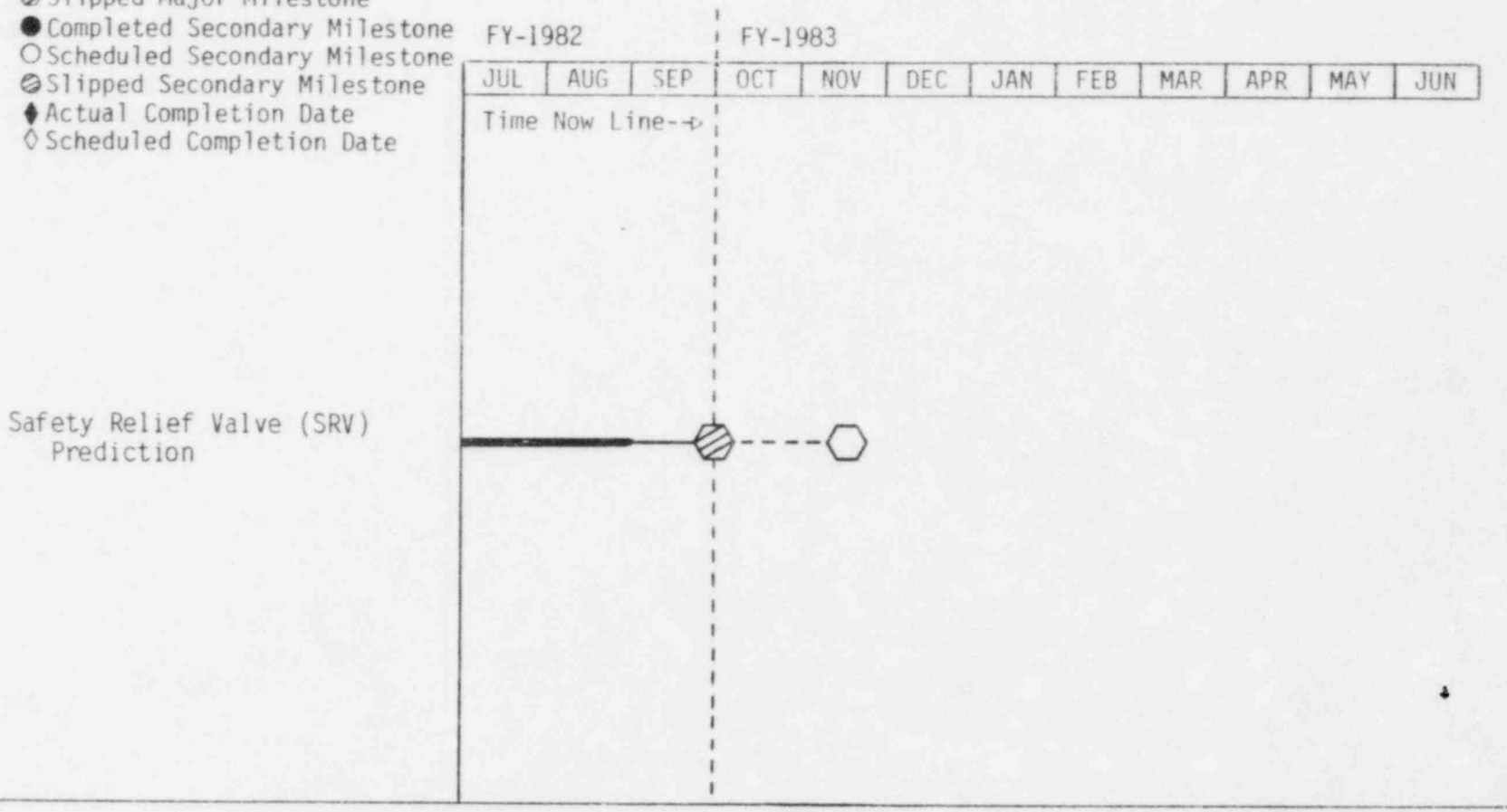
YTD VARIANCE: 0

LEGEND

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

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION September 1982

Kuo-Sheng (A6353)



NOTES:

189a A6353

1. Kuosheng Safety Relief Valve (SRV) Discharge and Piping Vibrational Tests

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

The body of the report on the SRV discharge analysis was completed and the appendices to this report were brought close to completion. The report on characterization of hydrodynamic loading was written and is currently under review. The report presenting Nutech's experimental data for the containment area was completed and is ready for internal review.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

All portions of the report on SRV discharge analysis will be completed and reviewed. The reports on hydrodynamic loading and containment area experimental data will be reviewed and printed.

6. Problems and Potential Problems

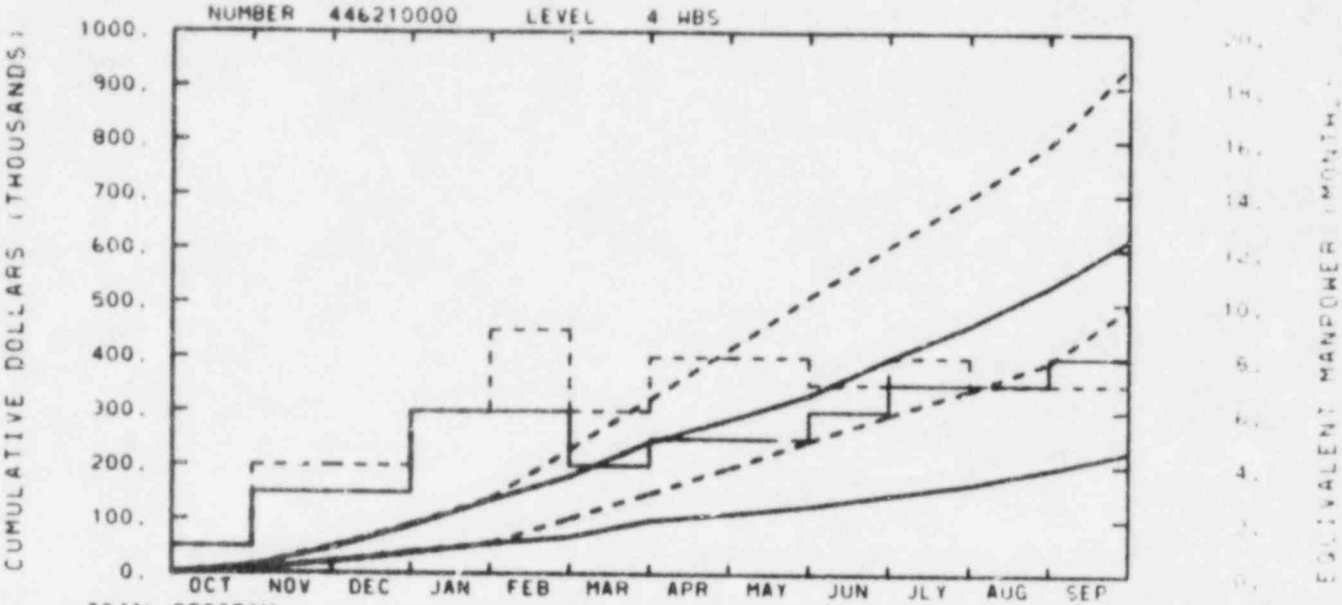
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

SEVERE ACCIDENT SEQ ANAL A6354

NUMBER 446210000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	14	50	92	138	230	322	415	512	604	697	794	941
ACTUAL	13	48	89	136	180	244	286	331	398	460	532	619

MATERIAL

BUDGET	7	22	41	56	103	149	196	247	294	341	392	495
ACTUAL	7	22	39	56	69	99	112	126	147	167	195	227

MANPOWER

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

A6354

YTD VARIANCE: 322 (34%)

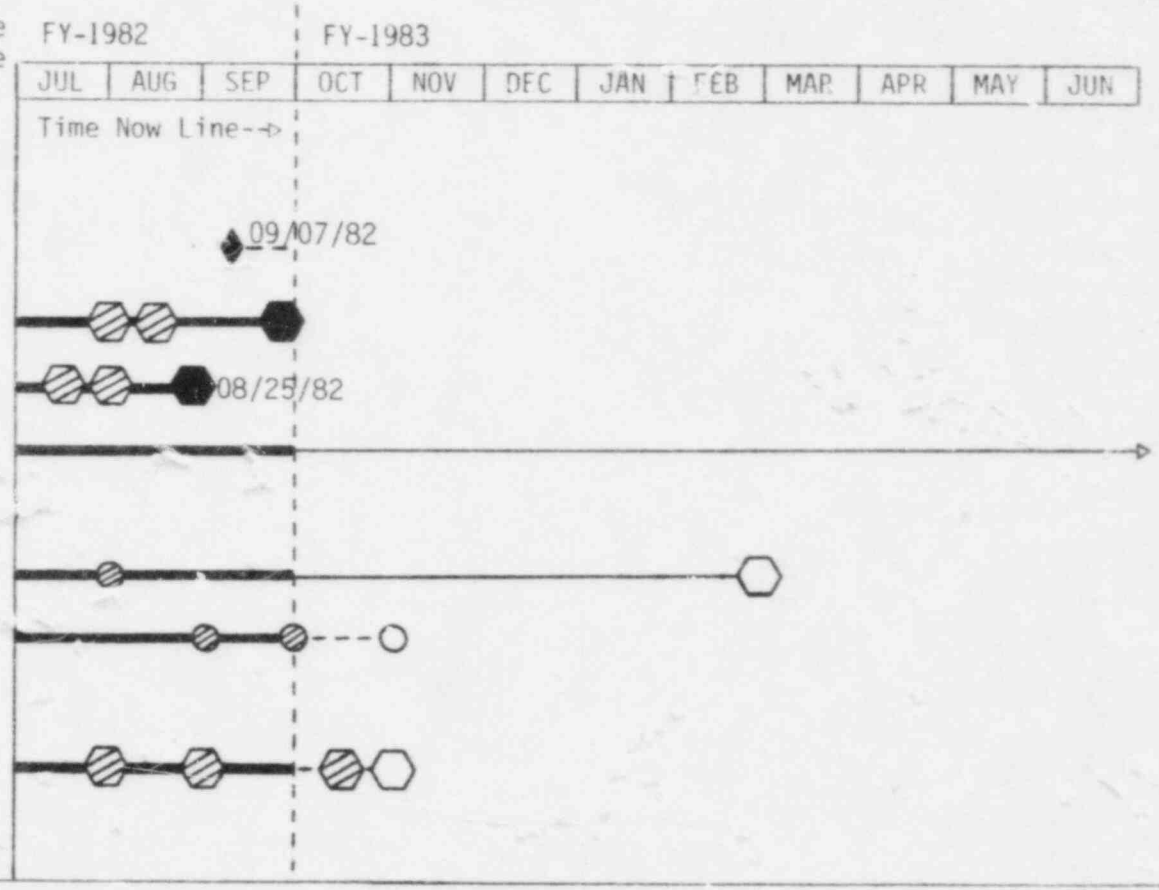
The $322K carryover is consistent with the work scope being carried into FY-1983.

LEGEND

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

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION September 1982

Severe Accident Sequence Analysis (A6354)



NOTES:

189a A6354

1. Severe Accident Sequence Analysis Program (SASA)

2. Scheduled Milestones for September 1982

Description	Due Date	Actual Date
Station Blackout Boiling Water Reactor (BWR) Report	9-1-82	9-7-82C Saff-368-82

3. Summary of Work Performed in September 1982

The RELAP5 CESSAR-80 model received from Argonne National Laboratory (ANL) was initialized for one transient. The code did operate properly. The model details are being examined to identify potential model modifications necessary to perform the calculations to be congruent with EG&G Idaho model guidelines.

Arkansas Nuclear One-2 (ANO-2) RELAP5 calculations for the loss of feedwater, loss of offsite power event were completed to investigate the depressurization capabilities using the auxiliary pressurizer spray system for Combustion Engineering (CE) plants without Power Operated Relief Valves (PORVs).

EG&G Idaho personnel met with Sandia National Laboratory (SNL) and Tennessee Valley Authority (TVA) personnel to discuss the Bellefonte Babcock and Wilcox (B&W) 205 analyses plan, to transfer model information needs, and to obtain initial plant engineering data to support model development.

Several tasks were conducted in support of the Browns Ferry Interim Reliability Evaluation Program (IREP) analyses. A preliminary small break analysis was conducted using RELAP5 to provide boundary conditions for the containment model. The boundary conditions are currently being input to the CONTEMPT-LT model of the Browns Ferry (BF) Unit 1 drywell and torus. The primary objective of this effort is to characterize the thermal-hydraulic behavior of the BF Mark 1 containment to provide accurate accident signature for the BF plant as a whole.

Further work has been accomplished to ready the BF model for use with the RELAP5/MOD1.5 code version. Presently the model cannot be run at steady-state conditions. Excessive power oscillations prevent accurate operational transients from being conducted. Efforts to resolve this problem are underway.

The final station blackout transient report was released.

Also a paper was accepted for the 2nd International Topical Meeting at Santa Barbara, California in January 1983.

3. Summary of Work Performed in September 1982 (Continued)

The SCDAP/MOD0 hydrogen source term calculations continued. Four MARCH calculations were rerun to improve the correlation between the Battelle Columbus MARCH runs and the EG&G Idaho MARCH runs. It was necessary to rerun several MARCH runs to establish the boundary conditions for SCDAP. Phenomena investigations were completed to explain hydrogen generation prediction differences between SCDAP and MARCH.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

The RELAP5 CESSAR-80 model will be modified to make it consistent with EG&G Idaho model guidelines using CE supplied model input. EG&G Idaho will request copies of ANL's model development work sheets. This information will assist in any required model modifications.

The ANO-2 RELAP5 analysis that evaluates depressurization strategies using the auxiliary pressurizer spray system for CE plants without PORVs will be documented and published in letter report form.

Contingent upon receiving design information data from TVA, the Bellefonte B&W 205 RELAP5 model will begin to be developed.

Work will continue on the Browns Ferry IREP analyses. A steady state calculation using RELAP5/MOD1.5 will be conducted with a no power oscillation. The controller models will be partially inserted into the plant model. A preliminary CONTEMPT-LT small break calculation will be conducted.

Two presentations will be made at the Water Reactor Safety Research Information Meeting.

A draft letter report documenting the SCDAP hydrogen generation work will be completed. Publication will occur after the draft is reviewed with NRC.

6. Problems and Potential Problems

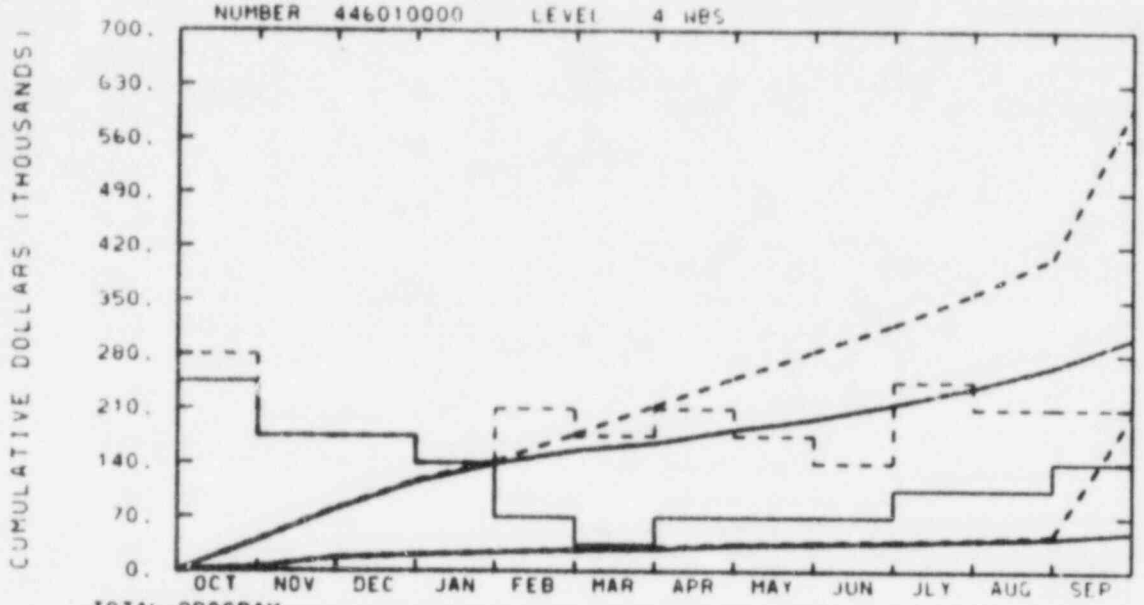
None.

RESPONSIBLE
MANAGER
B F SAFFELL

EG&G IDAHO INC.

SAFETY & RELIEF VAL A6356

NUMBER 446010000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	40	81	117	142	177	214	250	285	319	360	406	601
ACTUAL	40	80	11[illegible]	139	156	166	184	198	216	238	265	302

MATERIAL

BUDGET	5	18	22	25	28	32	36	38	40	42	47	203
ACTUAL	5	18	22	25	28	29	35	36	38	41	44	51

MANPOWER

BUDGET	8	5	5	4	6	[illegible]	6	5	[illegible]	[illegible]	6	6
ACTUAL	7	5	5	4	2	1	2	2	[illegible]	[illegible]	3	4

BUDGET

ACTUAL

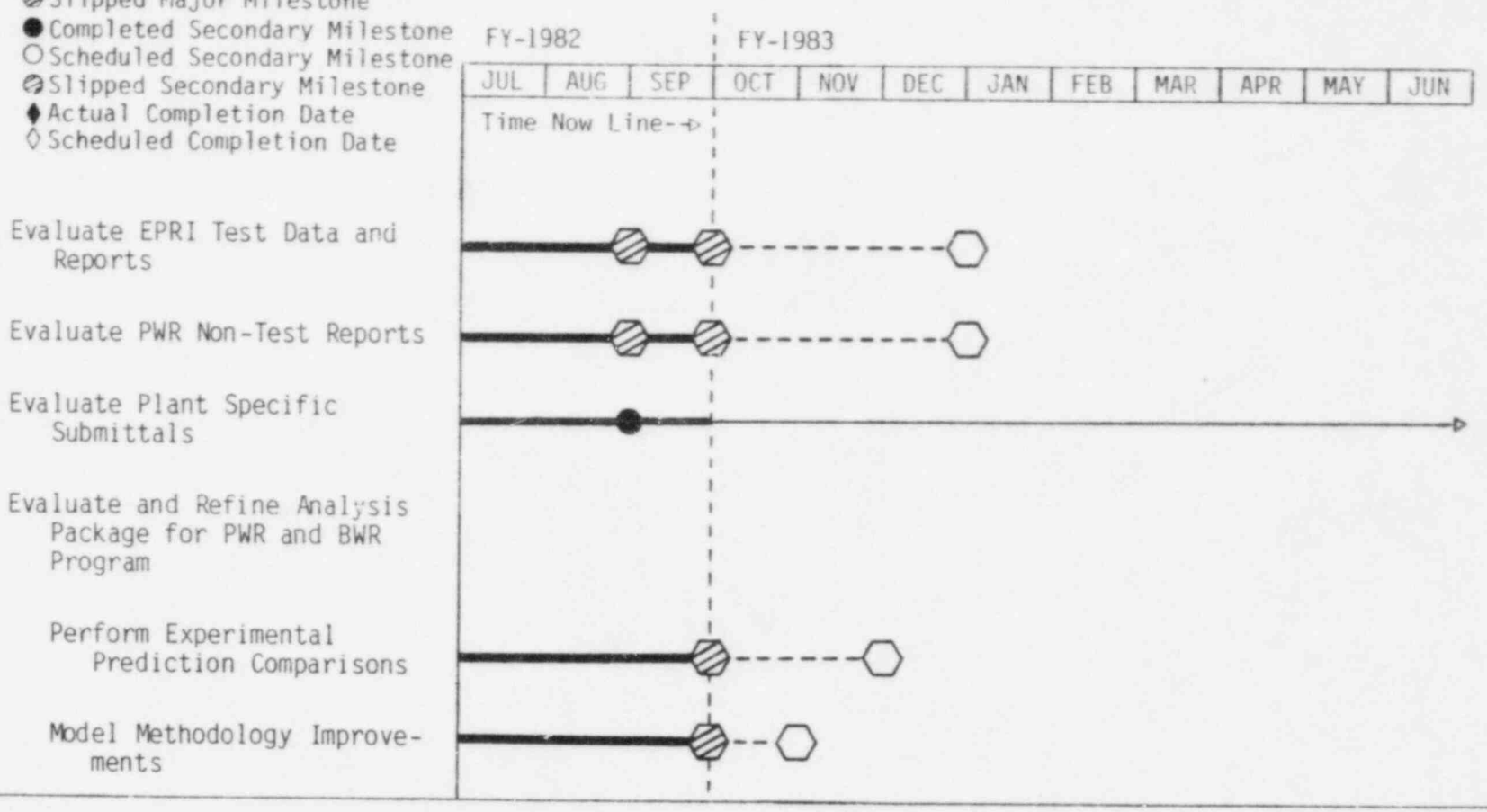
A6356

YTD VARIANCE: 299 (50%)

The $299K carryover is consistent with the work scope being carried into FY-1983.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION September 1982

NRC Relief Valve Program (A6356)



NOTES:

189a A6356

1. NRC Safety/Relief Valve Program

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

Work continued on a report describing an improved method for calculating hydraulic forces from RELAP5 output. The improved method will result in a more accurate safety/relief valve system force calculations. The draft report has been written. One relatively minor checkout calculation remains to be completed. The method has been applied to several program tasks to date.

Evaluation of seven Pressurized Water Reactor/Electric Power Research Institute (PWR/EPRI) tes data and test justification reports continued. A letter reporting the evaluation of the EPRI/Intermountain Technology Incorporated (ITI) report entitled, "Application of RELAP5/MOD1 for Calculation of Safety and Relief Valve Discharge Piping Hydrodynamic Loads" was completed. A letter report documenting this evaluation was transmitted to NRC.

Review plans were developed to evaluate the interim EPRI/PWR test report and the four EPRI test justification reports. Preliminary review of these reports was initiated.

Review plans were developed to evaluate the San Onofre 2 and 3 PWR submittal. Preliminary review of this submittal has identified several questions that require resolution.

A comparison between the measured flow rate of subcooled liquid through the safety valves tested in the EPRI/Combustion Engineering (CE) valve tests with RELAP5 calculated flow was completed. A comparison was also made for selected Dresser Power Operated Relief Valve (PORV) test data. A presentation of these comparison results was made to an NRC Anticipated Transient Without Scram (ATWS) working group.

Work was completed to activate the direct integration version of NUPIPE-II on the Idaho National Engineering Laboratory (INEL) computer system. This expanded structural modeling capability will allow the high frequency response of a valve blowdown system to be modeled. This will enhance the plant specific confirmatory analysis capability.

Several tasks were started or completed to further evaluate recommendations made by EPRI/ITI for modeling plant systems with RELAP5. Effort was completed to determine the effect of eliminating the code choking option at junctions other than the valve and pipe exit. The purpose of this task is to verify if the elimination of junction choking

3. Summary of Work Performed in September 1982 (Continued)

results in higher loads on a piping system. A simplified calculation was also completed to determine an upper bound on hydraulic loads possible in a pipe system. A study to reevaluate the noding length required in RELAP5 to optimize the resulting hydraulic load on a piping segment was started.

A study to determine a bounding assumption for the initial distribution of the liquid contained in a loop seal began. The study will be done with RELAP5. This study will further evaluate EPRI/ITI assumptions used to analyze the EPRI/CE safety valve test results. A task to generate a consistent set of guidelines for application of RELAP5 to plant system analysis was also started.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

The report describing an improved method for calculating hydraulic forces from RELAP5 output will be completed.

A study evaluating the EPRI/ITI recommendation as to the number of volume nodes necessary to represent a piping leg in RELAP5 to obtain appropriate values of the hydraulic loads will be completed.

A study to determine a boundary assumption for the initial distribution of liquid contained in a loop seal will be completed. A consistent set of guidelines for applying RELAP5 to plant systems will be completed. A study applying the guidelines to a plant system will be initiated.

The final evaluation of the EPRI PWR block report will be published.

The evaluations of the interim EPRI PWR test report and the four EPRI test justification reports will continue.

The review of the Shoreham and San Onofre 2 and 3 submittals will continue. The completion of the San Onofre draft SER is scheduled for mid November. Pending negotiation with NRC, this completion could possibly be moved up to late October.

A presentation will be made at the Water Reactor Safety Research Information Meeting.

6. Problems and Potential Problems

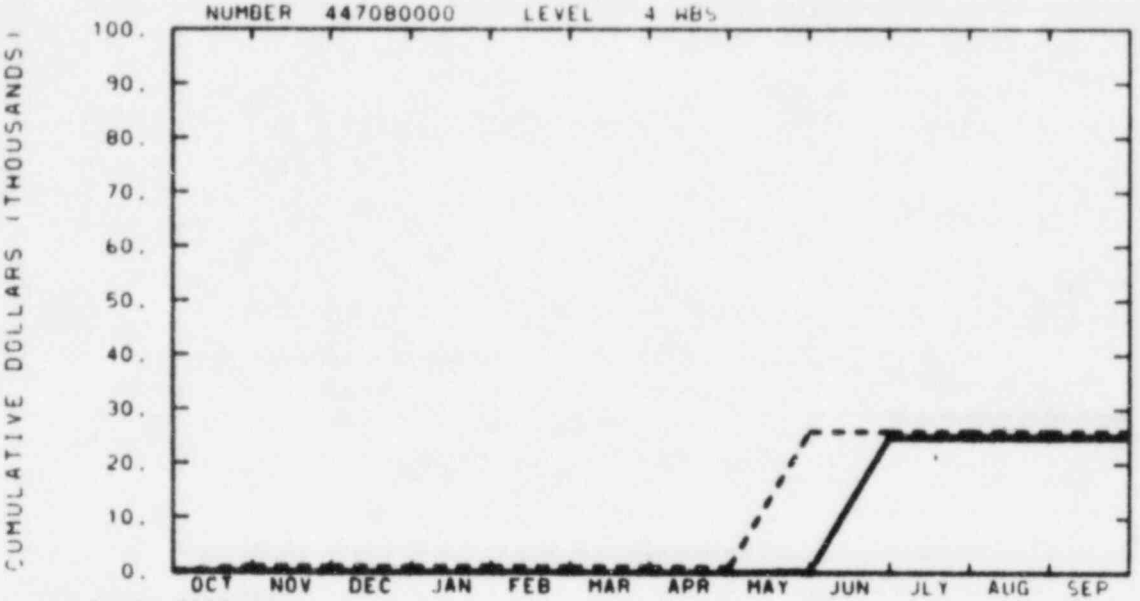
None.

PONSIBLE
AGER
B F SAFFELL

EG&G IDAHO INC.

APPLIED JAMES/STEIN A6358

NUMBER 447080000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	1	1	1	1	1	1	1	26	26	26	26	26
ACTUAL	0	0	0	0	0	0	0	1	25	25	25	25

MATERIAL

BUDGET	1	1	1	1	1	1	1	26	26	26	26	26
ACTUAL	0	0	0	0	0	0	0	0	25	25	25	25

MANPOWER

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

Budget

Actual

A6358

YTD VARIANCE: $1K (4%)

189a A6358

1. Applied James-Stein Estimators

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

Theoretical development by the subcontractor continued for determining tolerance intervals using James-Stein analysis. The report received from the subcontractor was lost while in the process of being printed as a NUREG/CR report. A replacement copy has been requested.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

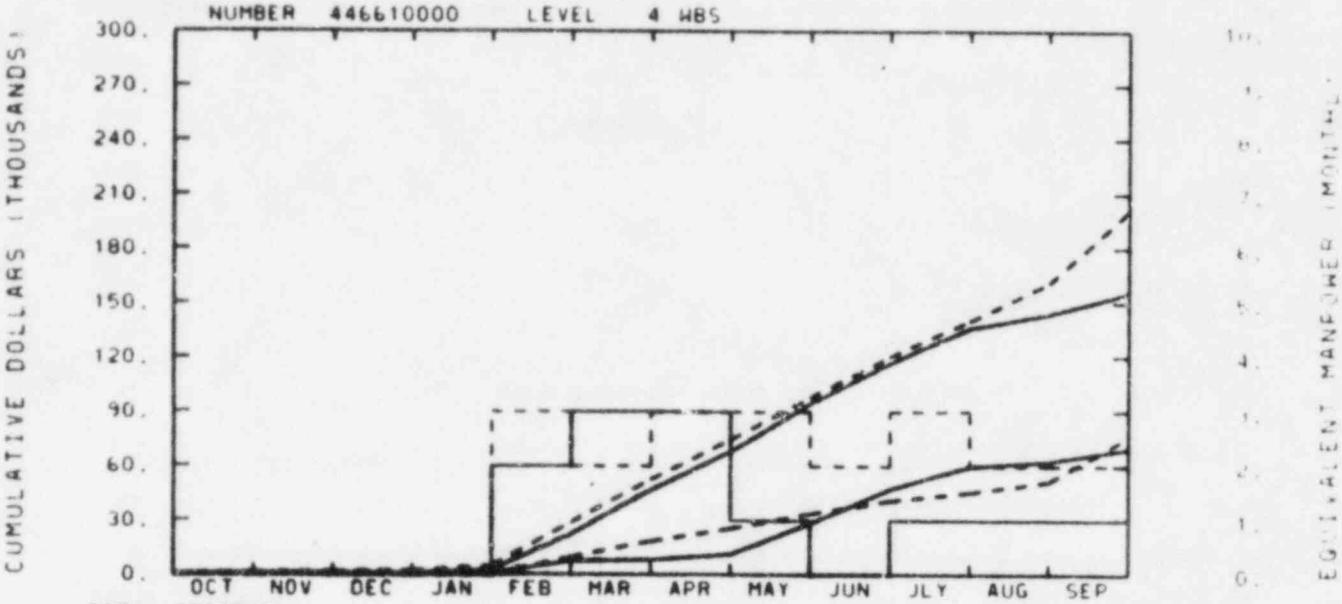
Continuation of theoretical development by the subcontractor is expected. Publication of a NUREG/CR report is anticipated.

6. Problems and Potential Problems

None.

PONSIBLE
AGER
SAFFELL

EG&G IDAHO INC.
SECTION XI SUPPORT A6367
NUMBER 446610000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	1	2	2	5	29	53	75	98	120	140	161	201
ACTUAL	0	0	0	3	22	47	68	95	117	136	144	155

MATERIAL

BUDGET	0	0	0	0	10	19	26	34	41	46	52	76
ACTUAL	0	0	0	0	8	8	12	29	47	60	63	70

MANPOWER

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

A6367

YTD VARIANCE: 46K (23%)

The $46K carryover is consistent with the work scope being carried into FY-1983.

1. Support of NRC on ASME Code Section XI Activities

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

Task 4: A revised final draft report was transmitted to the Nuclear Regulatory Commission (NRC) Technical Monitor. This task is 99% complete.

Task 6. The preliminary report is being revised based on comments from the NRC.

Task 7: There was no activity on this task during September.

Task 9 The necessary thermal stress information can be generated by the Thermal Analysis and Mechanics Branches at EG&G Idaho for the Zion 1 hot leg safe end weld. The sample problem for a propagating surface flaw can now be developed, and a detailed proposal will be written. Details on the Electric Power Research Institute computer program on influence function stress intensity solutions were requested. This task is 85% complete overall.

Task 10: Comments from the NRC Technical Monitor were incorporated into the draft final report. The report was then distributed to the American Society of Mechanical Engineers Working Group on Component Supports (WGCS). The report was presented to and discussed with the WGCS at their September meeting in Mystic, Conneticut. FY-1982 work planned for this task is 100% complete.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

Task 4: Pending receipt of NRC review comments on the draft report, EG&G Idaho will publish this report in final form.

Task 6 Revision of the draft report will continue.

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

Task 9: A detailed proposal report defining the crack growth approach to be used will be written. This proposal will address component geometry, flaw shape, environment, loadings, and the level of complexity to be used in the analyses. Additionally, preliminary estimates of time and costs will be made. Once approval of the proposal is obtained, the thermal and mechanics analyses can begin to generate the through-wall stress distributions.

Task 10: Pending receipt of all comments, the report will be issued in final form.

6. Problems and Potential Problems

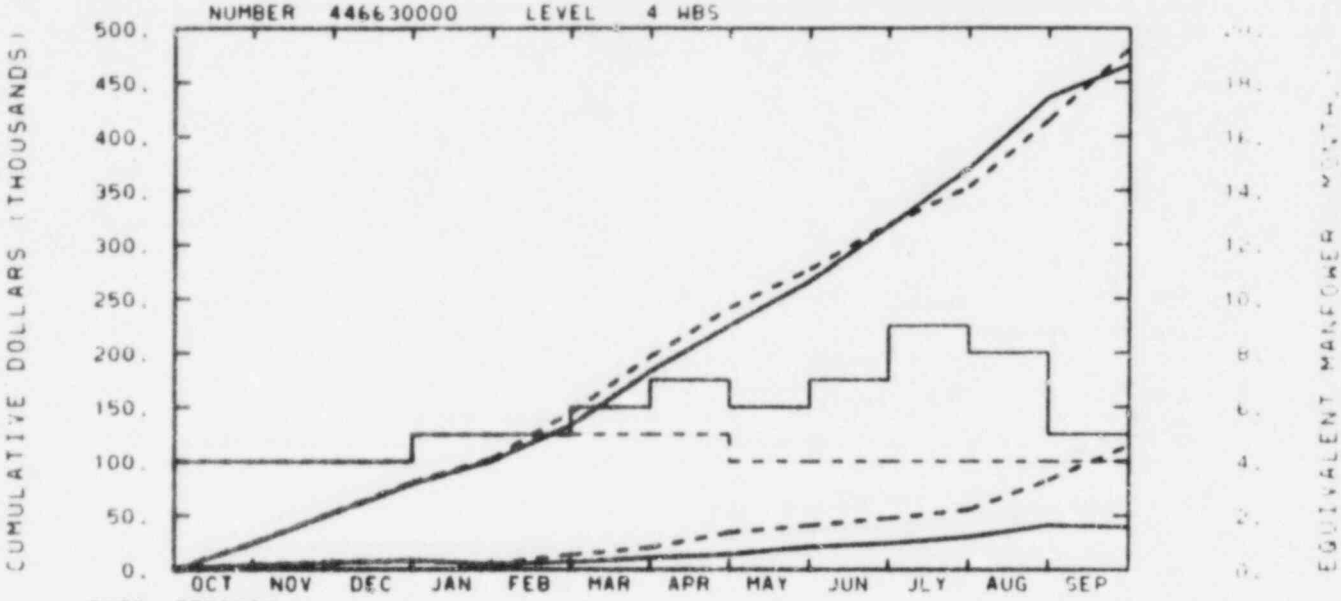
None.

SPONSIBLE
AGER
SAFFELL

EG&G IDAHO INC.

NUCLEAR POWER PLANT INST A6369

NUMBER 446630000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	25	53	81	103	145	196	242	277	318	353	415	481
ACTUAL	24	53	79	100	133	183	225	266	317	371	436	467

MATERIAL

BUDGET	4	7	9	5	14	21	35	41	48	55	83	114
ACTUAL	4	7	9	5	7	11	15	21	25	30	41	40

MANPOWER

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

A6369

YTD VARIANCE: 14 (3%)

The $14K carryover is consistent with the work scope being carried into FY-1983.

189a A6369

1. Nuclear Power Plant Instrumentation Evaluation

2. Scheduled Milestones for September 1982

Description	Due Date	Actual Date
Interpretation of RG 1.97 Requirements with Respect to Remote Accuracy Response Time and Qualification	9-30-82	9-30-82C Saff-392-82
Preliminary Recommendations for Changes to RG 1.97	9-24-82	9-30-82C Saff-390-82
NPPIE Data Base Management System Final Report Including Users Guide	9-30-82	9-30-82C Saff-395-82

3. Summary of Work Performed in September 1982

The three reports specified in Item 2 above were published. Input of additional plant data into the data system continued.

Program personnel attended a meeting in Rockville, MD to assist the Nuclear Regulatory Commission (NRC) Office of Nuclear Regulatory Research (RES) prepare a draft of Revision 3 of Regulatory Guide (RG) 1.97. Most of the recommendations made by EG&G Idaho were accepted. The draft revision is currently being reviewed by the NRC staff.

A trip was made to General Electric (GE) to collect data relative to plant system design and the methods to be used by GE to implement RG 1.97.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

A trip will be taken to Combustion Engineering (CE) to gather plant system design data and to determine the methods to be used by CE to implement RG 1.97.

Computer input of additional plant data, including that from GE and CE, will continue.

Work will continue to supply NRC-RES data and/or analyses in a presentable form to support the recommended changes to RG 1.97.

6. Problems and Potential Problems

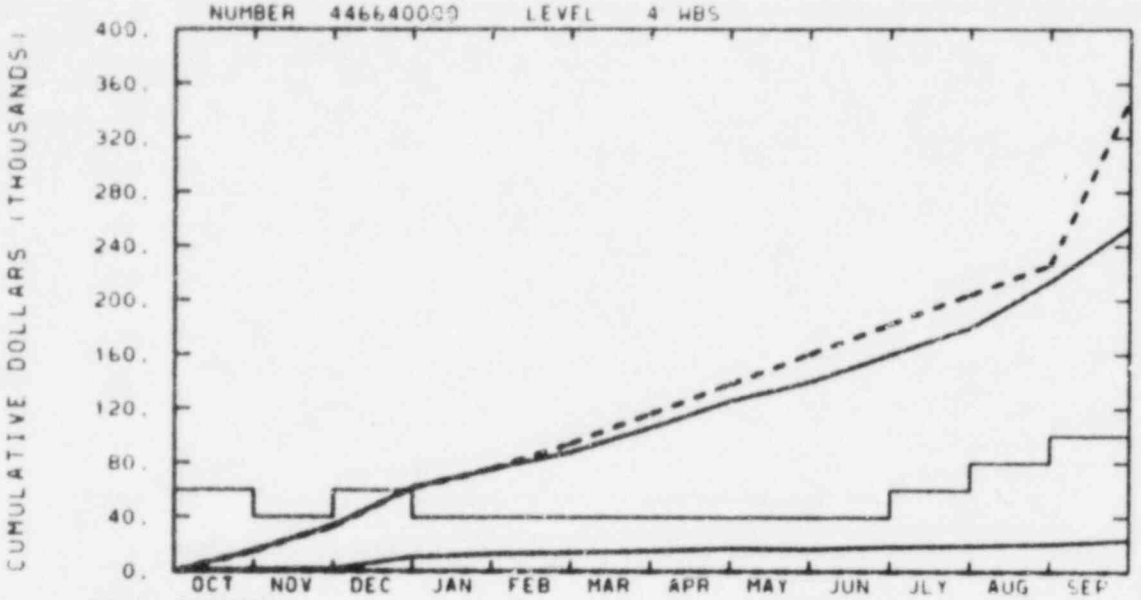
None.

RESPONSIBLE
MANAGER
SAFFELL

EG&G IDAHO INC.

RES ASSESS-CON AUTO A6370

NUMBER 446640000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	15	33	62	75	94	116	138	160	182	204	226	348
ACTUAL	15	34	62	76	88	106	126	140	160	180	214	254

MATERIAL

BUDGET	15	33	62	75	94	116	138	160	182	204	226	348
ACTUAL	1	2	11	13	14	15	17	17	18	19	21	24

MANPOWER

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

A6370

YTD VARIANCE: 94 (27%)

The $94K carryover is consistent with the work scope being carried into FY-1983.

189a A6370

1. Microprocessor Based Design and Plant Control Automation

2. Scheduled Milestones for September 1982

Description	Due Date	Actual Date
Task 6 Pre. Retrofitting Criteria	9-30-82	9-30-82C Saff-413-82
Signal Isolation Devices and Digital Computer Problems	9-30-82	9-30-82C Saff-395-82

3. Summary of Work Performed in September 1982

EG&G Idaho concluded preparation of a paper for the 10th Water Reactor Safety Information Meeting in October.

EG&G Idaho prepared a short feasibility report on criteria for backfitting with digital computers. This report identifies the issues relating to backfitting and will be used by the Nuclear Regulatory Commission (NRC) to develop the scope of this task.

The report concerning signal isolation devices and digital computer problems experienced in nuclear power plants was completed.

EG&G Idaho is currently analyzing data gathered on isolation devices to determine if there is enough data to develop a Phase I test plan. If possible, Phase I will provide details of tests, equipment specifications, isolator specifications, and costs so that procurement can start while the remaining data is solicited. A phased test plan will allow for step-by-step (phase-by-phase) evaluation of results and hopefully minimize the problem of doing all the testing at one time and after analysis of the results (and expenditure of funds) determine that other tests should have been conducted.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

EG&G Idaho will complete the Phase I test plan, present a paper at the 10th Water Reactor Safety Information Meeting in October and continue work on safety issues.

EG&G Idaho will also work on the final report "Preliminary Assessment of Design Issues", when the NRC provides their comments.

6. Problems and Potential Problems

This program is losing two of its staff. The impact of this loss in cost and schedule is unknown until replacements are identified.

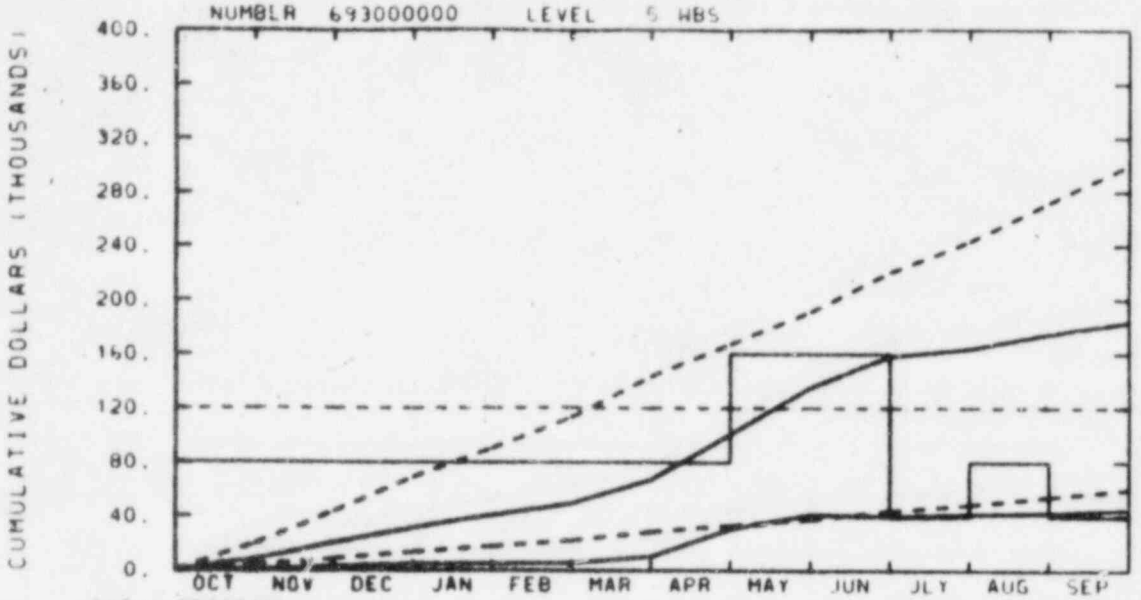
At NRC's direction, no work has been initiated on the "Safety Parameter Display System" milestone. The scope and schedule of this milestone will be reevaluated.

RESPONSIBLE
AGER
RICH

EG&G IDAHO INC.

RADIOLOGICAL AIR SAMPLING A6371

NUMBER 693000000 LEVEL 5 WBS



TOTAL PROGRAM

BUDGET	20	44	69	90	113	143	167	191	220	243	27[illegible]	300
ACTUAL	8	21	32	41	50	67	101	135	158	164	175	184

MATERIAL

BUDGET	4	9	14	18	23	29	34	38	44	49	55	60
ACTUAL	0	3	5	5	6	11	31	42	40	42	43	4[illegible]

MANPOWER

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

BUDGET

ACTUAL

A6371

YTD VARIANCE: 116 (39%)

The $116K carryover will be used to complete aerosol experiments and test sampling techniques, evaluate current methods of obtaining samples, recommend improved test sampling procedures in NRC licensing procedures, and test and evaluate air sampling/monitoring equipment.

189a A6371

1. Technical Assistance Contract for Evaluation of and Guidance for Radiological Air Sampling

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

Prepared a presentation for the Water Reactor Safety meeting.

Characterization of the aerosol testing chamber for concentration distribution.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

Begin work with the fluidized bed aerosol generator. This can be used for resuspending aerosols and dusts collected at Nuclear Regulatory Commission (NRC) work sites.

Plan for testing of collection efficiency as a function of particle size.

Plan trips to nuclear power generating stations.

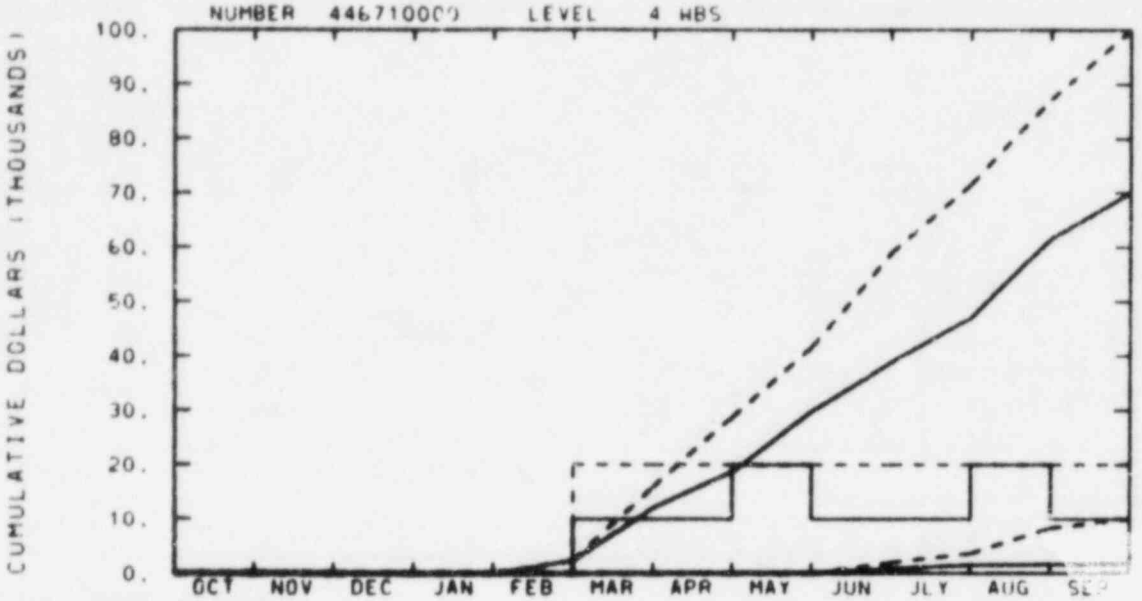
Prepare the Probabilistic Analysis Staff (PAS) evaluation for publication as a NUREG.

6. Problems and Potential Problems

None.

PONSIBLE
NAGER
B F SAFFELL

EG&G IDAHO INC.
TWO-PHASE INSTRUMENT EVAL A6376
NUMBER 4467100[illegible] LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	0	0	2	16	29	42	59	72	87	100
ACTUAL	0	0	0	0	2	12	19	30	39	47	62	70

MATERIAL

BUDGET	0	0	0	0	0	0	0	0	2	4	8	10
ACTUAL	0	0	0	0	0	0	0	0	1	2	3	3

MANPOWER

BUDGET	0	0	0	0	0	2	2	2	2	2	2	2
ACTUAL	0	0	0	0	0	1	1	2	1	[illegible]	2	1

A6376

YTD VARIANCE: 30 (30%)

The $30K carryover is consistent with the work scope being carried into FY-1983.

189a A6376

1. Two Phase Instrumentation Evaluation

2. Scheduled Milestones for September 1982

None.

3 Summary of Work Performed in September 1982

The year end status report was reviewed by Nuclear Regulatory Commission (NRC) personnel and revised to include requested changes. EG&G Idaho is continuing to receive information relative to this program and cataloging it for use in equipment lists. An interim NRC report was issued.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

Discuss instrument selection list with NRC personnel and attempt to obtain concurrence on the selected instruments/systems.

6. Problems and Potential Problems

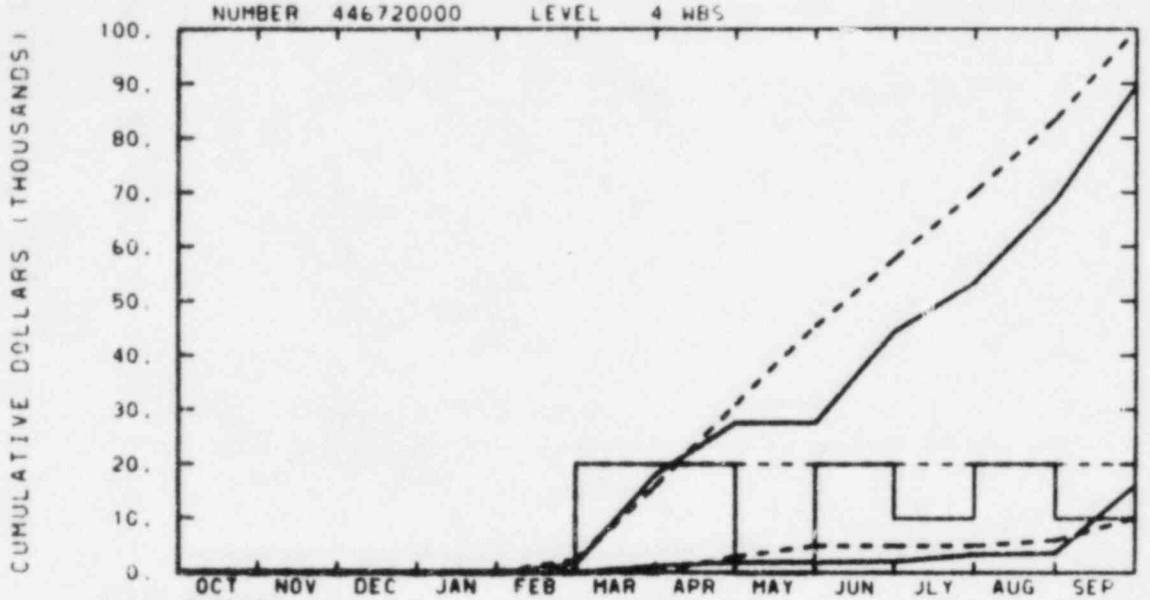
None.

RESPONSIBLE
AGER
SAFFELL

EG&G IDAHO INC.

DIAGNOSTIC INSTRUMENT EVAL A6380

NUMBER 446720000 LEVEL 4 WBS



TOTAL PROGRAM

BUDGET	0	0	0	0	2	16	31	45	58	70	84	100
ACTUAL	0	0	0	0	1	18	28	28	44	52	69	[illegible]

MATERIAL

BUDGET	0	0	0	0	0	0	3	5	5	5	6	10
ACTUAL	0	0	0	0	0	1	2	2	2	3	4	16

MANPOWER

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

BUDGET

ACTUAL

A6380

YTD VARIANCE: 10 (10%)

The $10K carryover is consistent with the work scope being carried into FY-1983.

189a A6380

1. Diagnostic Instrumentation Evaluation

2. Scheduled Milestones for September 1982

None.

3. Summary of Work Performed in September 1982

EG&G Idaho prepared a draft year-end report which was reviewed by Nuclear Regulatory Commission (NRC) personnel. Revisions were made, and the final report sent to the NRC.

4. Scheduled Milestones for October 1982

None.

5. Summary of Work to be Performed in October 1982

Improved assessment of required anticipatory measurements will begin.

6. Problems and Potential Problems

None.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

CAPITAL EQUIPMENT

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6093)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete.
Pre FY-1982														
UNASSIGNED		9E5810100	N/A	N/A	5,000	N/A	-	0	0	0	0	5,000	0	5,000

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6117)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete.
Pre FY-1982														
UNASSIGNED		9KA820000	N/A	N/A	3,139	N/A	-	0	0	0	0	3,139	0	3,139

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

CAPITAL EQUIPMENT COST REPORT
(A6366)

(1) Priority Number	(2) Description	(3) EA/WBS Number	(4) Planned Requisition Date	(5) Actual Requisition Date	(6) DOE Authorized Amount	(7) Requisition Value (+ 6%)	(8) P/O Award Date	(9) Outstanding Commitment (+ 6%)	(10) Prior Year Costs	(11) Current Year Costs	(12) Total Costs and Outstanding Commitments	(13) Variance	(14) Status	(15) Estimate At Complete.
Pre FY-1982														
1/81	Impedence Analyzer	9KH810100	04/81	04/81	132,387	137,800	09/81	0	130,811	1,576	132,387	0	0	132,387
2/81	Vibrator	9KH810200	09/81	09/81	19,217	21,359	02/82	0	0	19,217	19,217	0	0	19,217
	UNASSIGNED	9KH820000	N/A	N/A	3,396	N/A	-	0	0	0	0	3,396	0	3,396
	TOTAL Pre FY-1982				155,000	159,159		0	130,811	20,793	151,604	3,396		

MONTHLY REPORT FOR

SEPTEMBER 1982

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-1982

189 No. A6038

($000)

MANAGER P. North

EA No.	Item Description	Original PA Amount	Current Estimated Cost	Project To Date Costs
93520	WRRTF Water Well Upgrade	$ 125	$ 80	EG&G $ 30.3 M-K $ 44.0

Task Initiated o
Task Completed Δ

Month

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

Construction