NRC Research and/or Technical Assistance Rept

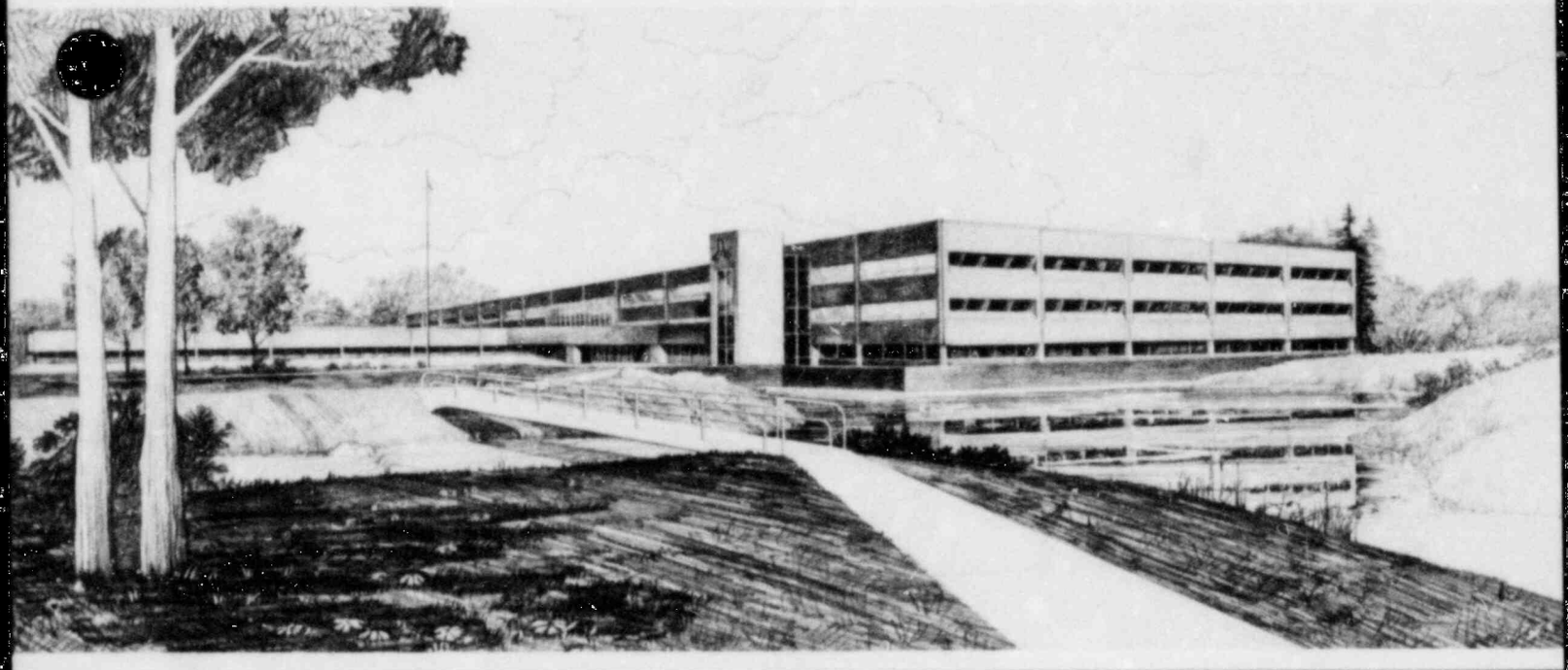
PDR

July 1982
EGG-WRR-5992

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

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

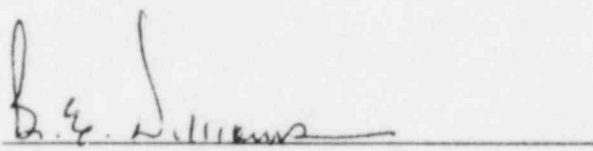
NESC	National Energy Software Center
NPRDS	Nuclear Plant Reliability Data System
NPSH	Net Positive Suction Head
NRL	Naval Radiation Laboratory
NRR	Nuclear Reactor Regulation
NSRDC	Naval Ship Research and Development Center
NSSS	Nuclear Steam Supply System
NTOL	Near-Term Operating License
OPTRAN	Operational 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

JULY 1982

J. A. Dearien, Manager



B. E. Williams
Plans and Budget Branch

MONTHLY REPORT FOR

JULY 1982

WATER REACTOR RESEARCH TEST FACILITIES DIVISION

R V Johnson for P. North

P. North, Manager

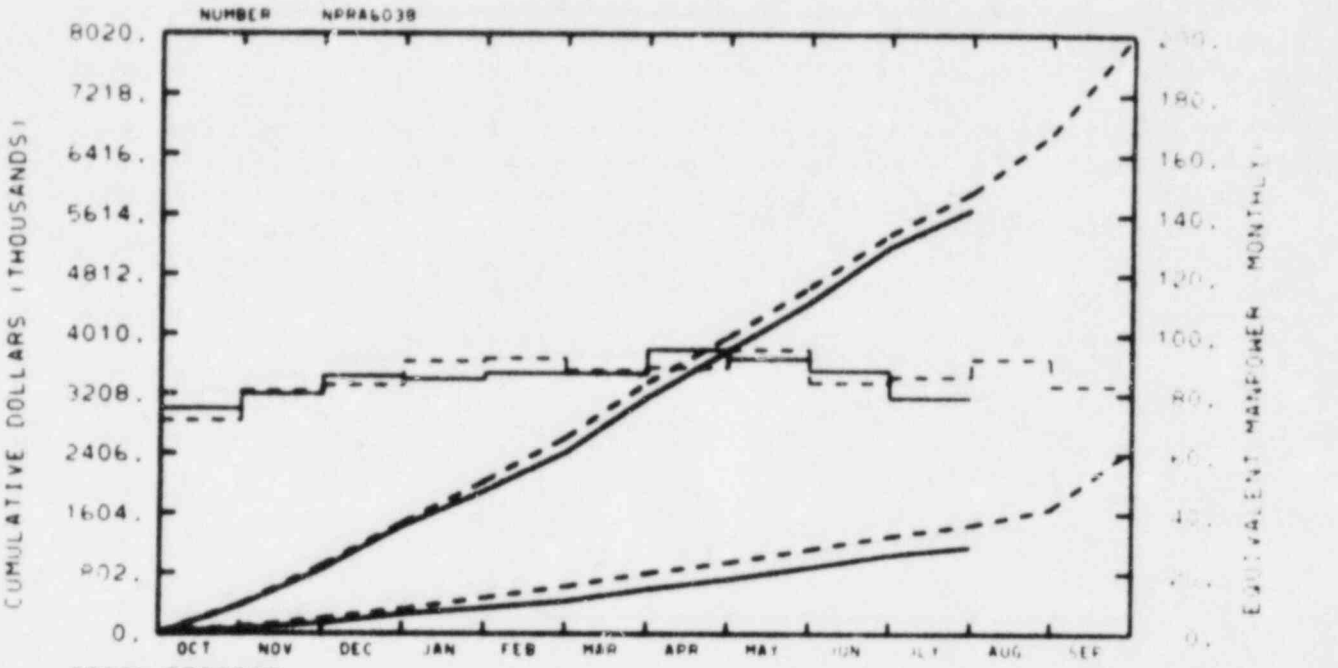
John P. Crouch

J. P. Crouch
Plans and Budget Representative

RESPONSIBLE MANAGER
P. NORTH

EG&G IDAHO INC.

SEMISCALE PROGRAM



TOTAL PROGRAM

BUDGET	385	908	1477	2035	2623	3368	3978	4648	5359	5924	6710	8019
ACTUAL	375	856	1435	1905	2424	3165	3796	4441	5189	5697		

MATERIAL

BUDGET	88	205	332	478	629	806	950	1128	1306	1458	1671	2481
ACTUAL	65	41	264	345	435	593	727	885	1052	1162		

MANPOWER

BUDGET	71	81	83	91	92	88	89	95	84	86	92	81
ACTUAL	75	80	86	85	87	87	95	92	68	79		

BUDGET

ACTUAL

YTD VARIANCE: 227 (4%)

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.

Semiscale: Primary feed and bleed experiments S-SR-1 and S-SR-2 were completed. The quick-look report covering steam generator feedline break experiments S-SF-1, S-SF-2, and S-SF-3 was published.

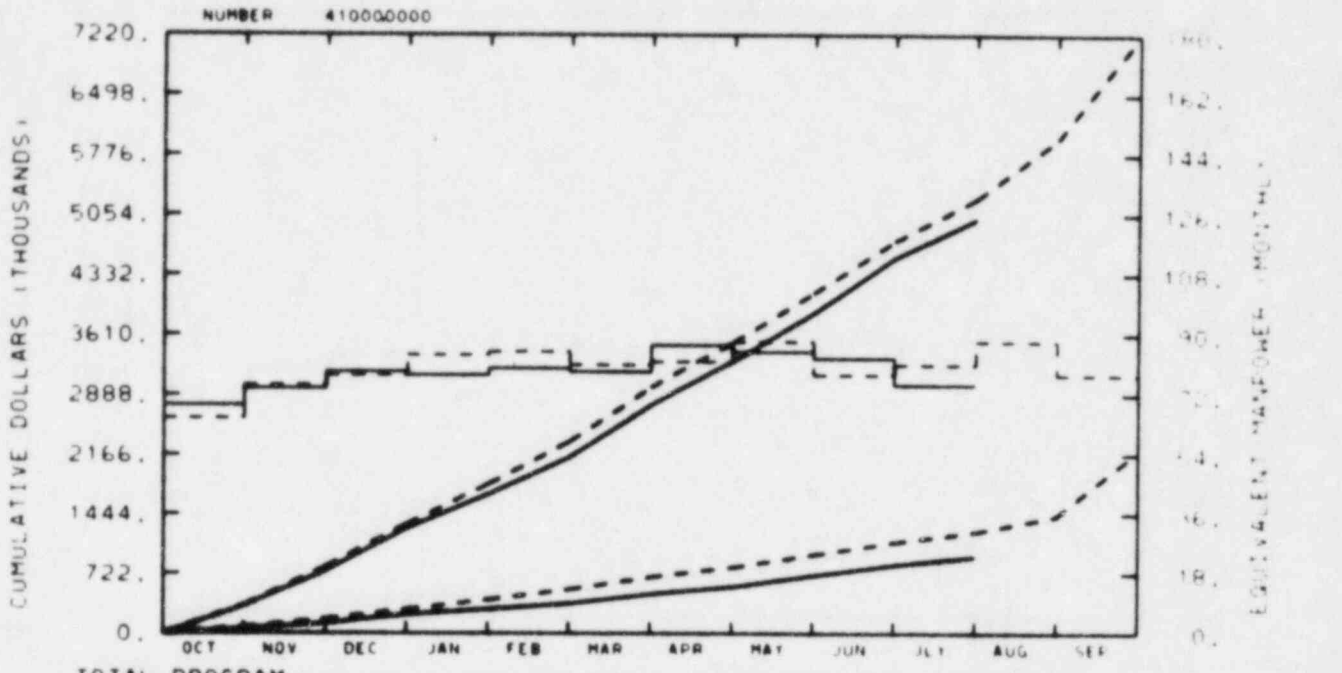
THEF: Modifications were made in both the test plan and test loop for the post-CHF experiments to take account of test experience. The testing was approximately 75% complete by the end of the month. Preparations for the Two-Phase Flow Regimes/Critical flow testing are ahead of schedule.

RESPONSIBLE MANAGER
P. NORTH

EG&G IDAHO INC.

SEMISCALE-WRRTF

NUMBER 410000000



TOTAL PROGRAM

BUDGET	338	808	1324	1811	2327	2983	3520	4116	4743	5252	5972	7216
ACTUAL	333	756	1273	1688	2139	2768	3295	3875	4539	5006		

MATERIAL

BUDGET	75	179	293	412	535	686	803	954	1105	1234	1422	2208
ACTUAL	59	123	233	299	366	479	566	703	833	933		

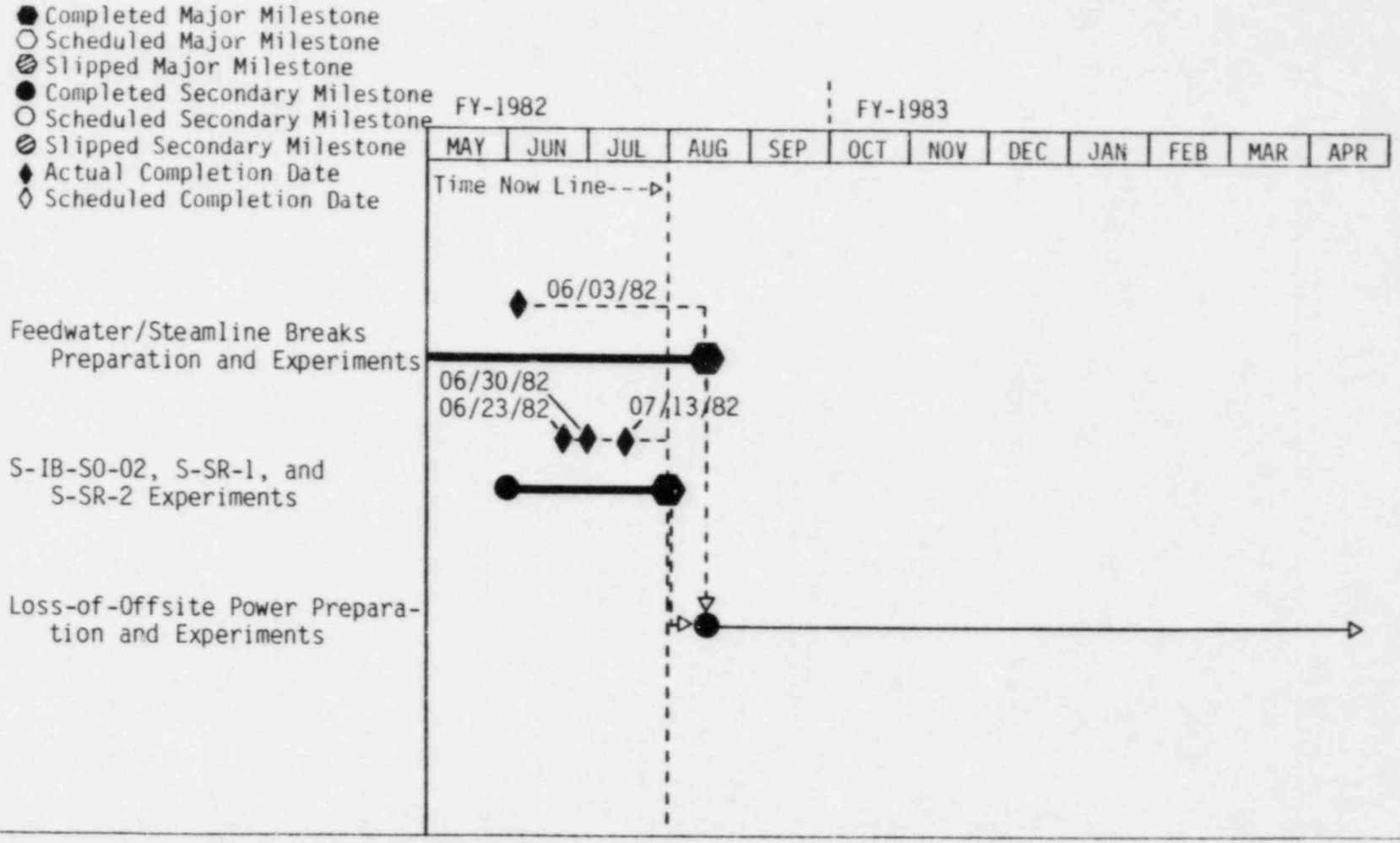
MANPOWER

BUDGET	65	75	78	84	85	81	82	88	78	81	88	78
ACTUAL	69	74	79	78	80	79	87	85	83	75		

A6038

YTD VARIANCE: 246 (5%)

The year-to-date variance is due to underruns in reprographics, travel, and IBM computer usage. These underruns will continue to increase slightly through year-end. Material purchases are also underrun but are expected to increase in the last two months of the fiscal year. An underrun of $930K is currently being projected at year-end consisting of $150K in reprographics, travel and computer usage, $200K carryover scope as a result of schedule changes, and $580 now in Management Reserve.



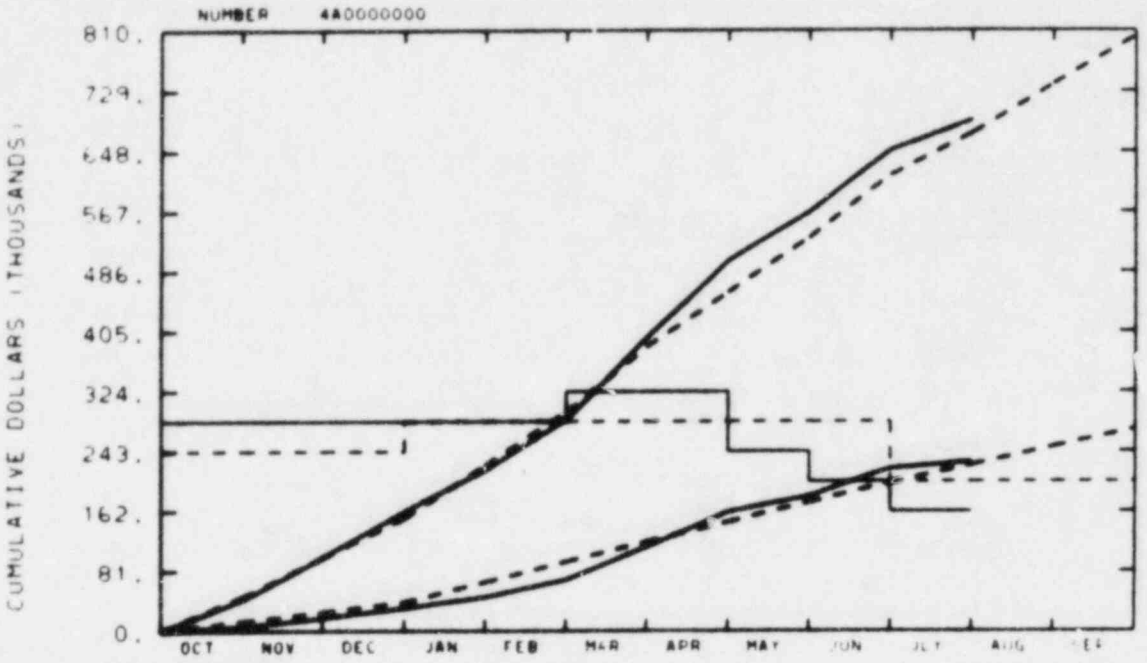
NOTES: The schedule change from last month is due to a schedule slip to accommodate the addition of System Recovery Experiment (S-SR-2) to the Semiscale Baseline. This additional experiment was requested by DOE-ID and NRC and is documented in the approved CCB, SS 82-12.

RESPONSIBLE MANAGER
F. AGUILAR

EG&G IDAHO INC.

RELAPS

NUMBER 4A0000000



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		

MATERIAL

BUDGET	13	26	39	66	93	121	147	174	200	225	249	274
ACTUAL	6	18	31	46	69	114	161	182	220	229		

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		

A6038

YTD VARIANCE: <18> (3%)

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

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

A. 412100000 - Special Projects

1. 412123300 - Special Projects--Engineering

Two drive magnets for the modified auxiliary circulating pump were ground to required inside diameter, after which the pump was assembled and preliminary operational checkout completed.

Revised the broken loop pump shaft balance procedure ANC-70029 to incorporate the new drawing for pump impeller puller. The revised procedure has been submitted for final review and approval signatures prior to release. A revised draft of balance procedure ES-70050 for the intact loop pump has been written.

Completed an EDF to justify use of "on-hand" tubing in ASTM A-213 and ASME SA-213 applications for Semiscale/THEF. The EDF will be issued during the next report period.

A preliminary engineering cost estimate was generated for the cooled thermocouple pitot tube rake. Review comments were received concerning fabrication requirements and cost reduction suggestions.

Continued preliminary design work on a revised vessel densitometer system. This features encapsulated sources, solid state detectors, and is applicable to both Semiscale and FIST (G.E.-San Jose) vessel.

Engineering estimates were completed for low flow measurement tasks in support of Measurements Engineering Branch. Work on design of the HPIS Flip-Flop measurement system will be delayed until early FY-83. Design work on the phase separator and miniature condensing system is scheduled for mid-FY'83. These tasks are being closely coordinated with the Measurement Engineering Branch.

Conceptual design of the interfacial area probe is planned to start in mid-September 1982.

The upper head heat tape as built drawings were issued.

3A. Summary of Work Performed in July 1982 (Continued)

Issued work instructions for changeout of the vessel upper head turbine meters.

2. 412155500 - MOD5 Feasibility Study

The draft 2 x 4 study report was completed and is still undergoing management review. RELAP5 calculations for pump restart at 600 s into a small break loss-of-coolant transient (scaled .01^2 ft. break) were completed.

B. 413100000 - Steamline/Feedline Break Test Series

1. 413111100 - Steamline/Feedline Break Series

Work on the Quick Look Report for the Two Steam Line Breaks (Tests S-SF-4, 5) is continuing. Completion of the report has been preempted by the need for manpower to work on SR series analysis.

The Quick Look for the Three Feedwater Line Breaks (Tests S-SF-1, 2, 3) was completed and distributed.

RELAP5 analyses of Tests S-SF-1, 2, and 3 were completed and a draft of the report documenting these analyses was written. Management review of this report will be started during the first week of August.

2. 413122100 - Steamline/Feedwater Breaks--Hardware

Completed the as-building of steamline break drawings. Feedline break as built drawings will be completed next month.

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

Work continues on EDR text preparation and EDR graphics to report these tests.

4. 413133150 - EDR for SF-4 and 5

Work continues on EDR text preparation and EDR graphics to report these tests.

C. 414100000 - Level of Effort

1. 414119300 - Unscheduled Work

A draft Research Information Letter RIL on the natural circulation test series was completed and transmitted.

3C. Summary of Work Performed in July 1982 (Continued)

An independent review of ROSA-IV instrumentation was performed. Comments were sent to the EG&G representative at JAERI.

Work continues on using Semiscale reflood data to develop and assess film boiling correlations. Present work involves estimating a gas/liquid mass flow rate profile throughout the core to use as input to the correlation work.

The graphics package for the natural circulation topical report was completed.

2. 414123100 - Semiscale Engineering--Level of Effort

Issued a revised assembly drawing for the high speed intact loop pump to incorporate the new bearing (higher rate) pre-load spring to reduce or eliminate bearing skidding. Issued a requisition to procure the new springs.

Issued drawings and an SWR package to fabricate funnel holders for filling the densitometer detectors with liquid nitrogen.

Completed fabrication of four 1 1/2-inch turbine meter housings.

Issued letter JMZ-10-82 defining maximum performance limits for the primary loops which graphically presents pressure vs. temperature information for steady state operating limits.

3. 414136300 - Mechanical Instrumentation

Provided mechanical instrumentation services to accomplish Tests S-SR-1 and S-SR-2. Also supported PL-Series Shutdown.

4. 414148100 - DAS and DDAPS Operation

a. Developed software for Bay Lab amplifier calibration in SAW Loop.

b. Discovered source of problem in Preston Systems' inability to scan at low frequencys. It was due to improperly designed interfacing between frequency synthesizer and the Preston controller. The synthesizer has been returned to the factory for repairs. When it is returned, pulse shaping circuitry will be installed between it and the Preston to correct the low scan rate problem.

3C. Summary of Work Performed in July 1982 (Continued)

c. Installed and interfaced the Ortec multi-channel analyzer in the SAW Loop computer system. This will allow the data taken with the multi-channel analyzer to be stored and analyzed on the SAW Loop system in the future.

D. 415100000 - Intermediate Break Test Series

1. 415119600 - EP&A S-IB Test Support

Completed incorporation of resolution to comments from initial management review of Quick Look Reports for IB-2 and IB-3. Returned the reports and transmittal letters for final approval and signatures.

2. 415119700 - Post S-IB Series Analysis

Completed loading LOBI B-R1M data on the Cyber system and initiated analysis for comparison with IB-3 results. Completed resistance calculations for IB-1, IB-2, and IB-3 tests. Completed identification of phenomena which characterize large and small break PWR system response. Prepared a detailed outline for the TRR.

3. 415119730 - Post S-IB Series Analysis

A RELAP5/MOD1.5 (ZELAP) assessment calculation for Test S-IB-2 was run from steady state until partial completion of accumulator injection. Excessive computer run cost precluded completion of the calculat[illegible]. Possible changes to RELAP5 to reduce running time are [illegible]ng explored by the code developers. No further work will be done on this calculation until this problem is resolved.

Modeling for Test S-IB-3 was completed. Steady state conditions were attained for all components except steam generator secondaries.

E. 416100000 - Loss-of-Offsite Power

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

Completed a K-T prioritization of proposed experiments to use in selecting final experiments for completing experiment planning. Initiated incorporation of resolution of comments to the Research Design Document. Completed review of WASH-1400 in support of experiment selection and planning. Initiated a comprehensive review of operator guidelines during abnormal transients to aid in planning for the recovery portion of propcsed experiments. Reviewed results

3E. Summary of Work Performed in July 1982 (Continued)

of scoping calculations performed to date and recommended future scoping calculations required. Continued preparation of the series Experiment Operating Specification.

RELAP5 scoping calculations for the S-PL test series were performed by an engineer from the Thermal Analysis Branch. The following scoping calculations were completed: S-PL-1, S-PL-2, and S-PL-4. The results of these calculations will be documented in a design file for use in planning the S-PL test series.

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

The checkout procedure for intact loop pump peripheral equipment was incorporated into a SO test procedure which is in final review prior to release.

The SC test procedure for high speed pump R' determination was completed and is in final review prior to release.

Issued a drawing revision and SWR to enlarge the opening in the Semiscale base plate to provide clearance for the new pump suction piping.

Issued a drawing revision to relocate the intact loop pump suction ECC and drain lines. An additional revision is being processed to upgrade tubing specification callouts. The SWR package is on hold awaiting completion of the drawing revision currently in progress.

Completed the P&ID drawing for the hot water makeup system.

Issued the drawing and SWR package to fabricate the upper head vent system.

Issued an SWR package to install the pump suction break system.

Drawings were released and a SWR package issued for the hot water makeup system control chassis modification and control wiring.

Issued drawings and an SWR package for the final hook-up of the intact loop pump and peripherals. The final drawings and SWR to complete the pump control chassis hook-up and control wiring is 80 percent complete.

3E. Summary of Work Performed in July 1982 (Continued)

3. 416136700 - Power Loss Test Series

The PL-Series Shutdown began July 19, 1982. The Intact Loop Pump support structure was removed and work to prepare the vessel and downcomer for removal began July 20, 1982. On July 21, work began on the installation of the Intact Loop Pump water and oil system. The vessel upper plenum, upper head, and downcomer were removed July 22, 1982.

4. 416148600 - Loss of Power Test Series

a. Commenced modifications for Power Loss Test series on July 16, 1982.

b. The change over to the 1000 system for data acquisition was started July 12. At this time the old subsystem II has been removed and subsystem I has been moved for use as a temporary backup for the 1000 system. The racks, power, and grounding for the 1000 system have been installed. Most of the wiring between the DAS and DDAPS has been removed and the new cables are ready to be installed.

F. 419100000 - Natural Circulation Test Series

1. 419519600 - EP&A Post Test Analysis

Returned the WRVLIS report for IB-1 to the author for resolution and incorporation of comments.

2. 419519630 - NC/UT Posttest Analysis

A report entitled, "Vessel Coolant Mass Depletion During a Small Break LOCA," was submitted for management reviews. This report documents the findings of the S-UT-8 posttest analysis of the observed total core voiding prior to loop seal blowout. The analysis concluded that a reduction in the amount of bypass flow through the vessel upper head was the primary cause of the increased depression of the vessel collapsed level in Test S-UT-8, relative to S-UT-6, during pump suction liquid seal formation.

A RELAP5 analysis, performed as part of the S-UT-8 posttest study, determined that a lower threshold of bypass flow exists, below which, extensive core voiding may be expected during liquid seal formation. The threshold is predicted to be somewhat break size dependent. Over a range of break sizes from 2.5 to 10.0% of the cold leg flow area, a threshold bypass flow of approximately 3.0% was predicted.

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

G. 41B118100 - S-IB-SO-2/S-SR-X EP&A Support

1. 41B118100 - EP&A Test Support

EP&A provided analytical support for the preparation and conduct of two primary feed and bleed experiments (Tests S-SR-1 and S-SR-2). Test S-SR-1 encountered excessive primary leakage and could not be used to definitively evaluate the feed and bleed aspects. Test S-SR-2 demonstrated that steady primary feed and bleed in the Mod-2A geometry was not possible. A mass inflow/outflow imbalance existed that caused eventual core uncovery. EP&A personnel are in the process of performing test analysis and will also be conducting closure studies to evaluate the typicality of the results.

2. 41B118101 - S-IB-SO-2 Support

Completed analysis of S-IB-SO-2 data related to effects of downcomer heat addition on core mass depletion during reflood following a 200% noncommunicative cold-leg break. Initiated preparation of a report documenting the results of the experiment.

3. 41B118103 - Tests S-IB-SO-2, S-SR-1, S-SR-2

Test S-SR-1 was performed June 30, 1982. Testing was on only the high head HPIS curve, as during the transition from high to low pressure (about 1800 PSI), the vessel water inventory decreased rapidly with high temperatures causing a plant shutdown per EP&A instructions. The Initial Data Review was held July 1, 1982; a Preliminary Data Tape was made available to EP&A, July 1, 1982; and a Corrected Data Tape was made available to EP&A on July 12, 1982.

Exhaustive Leak Checks were performed on the system to minimize system inventory problems. Test S-SR-2 was performed July 14, 1982, from which Data on the Low Head HPIS curve was obtained. The Initial Data Review was held July 15, 1982; a long term Preliminary Data Tape was made available to EP&A on July 16, 1982; a short term Preliminary Data Tape was made available to EP&A on July 20, 1982; and both long term and short term Corrected Data Tapes were made available to EP&A on July 23, 1982. Work has begun on the EDR to report Data from Tests S-SR-1 and S-SR-2.

4. 41B118104 - IB-SO-2 and S-SR-1 Tests "MEDS" Support

a. Tests S-SR-1, a system recovery test intended to evaluate the adequacy of core cooling using only the

3G. Summary of Work Performed in July 1982 (Continued)

pressurizer PORV and the HPIS pump in a feed and bleed mode, was conducted on June 30, 1982. Data was collected for 8,096 seconds after initiation of test on 265 measurement channels. No significant instrumentation failures occurred. An uncorrected data tape containing 265 channels was delivered to test engineering on July 1, 1982.

b. Corrected data tapes for Test S-IB-SO-2 (conducted June 23, 1982) containing 318 qualified channels on time bases -20 to 72 seconds and -20 to 532 seconds were delivered to test engineering on July 7, 1982.

c. A corrected data tape for Test S-SR-1 containing 259 qualified channels on time base 0 to 7084 seconds was delivered to test engineering on July 12, 1982.

d. Test S-SR-2, a second system recovery test following up on S-SR-1, was conducted on July 14, 1982. Data was collected for 18,216 seconds after initiation of test on 267 measurement channels. No significant instrumentation failures occurred.

e. The following data tapes for Test S-SR-2 were delivered to test engineering: Time base 0 to 18,216 seconds, 334 channels, corrections on densitys and TSATS only, on July 16, 1982. Time base 14,168 to 18,216 seconds, 271 channels, corrections on densities and TSATS only, on July 20, 1982. Two final corrected data tapes containing 268 qualified channels on time bases 0 to 18,216 seconds and 14,168 to 18,216 seconds, on July 23, 1982.

H. 9D0800000 - Semiscale Equipment

1. 9D0810500 - SAW Loop Upgrade

The Hydro Test of existing construction was not accomplished due to lack of available crafts.

2. 9D0820100 - Piping Spool Pieces

The piping spool PC-16 is being modified to incorporate an ECC port connection.

The gages for use in "go-no go" inspection of piping spool instrument ports were completed and are now available for use during future spool fabrication efforts.

3H. Summary of Work Performed in July 1982 (Continued)

3. 9D0820200 - Pressurizer Vessel

Completed fabrication of the surge, spray and relief line orifices.

Fabrication of the prototype thermal liner is progressing well and is scheduled to be completed in mid August. Fabrication of the "production" thermal liner will immediately follow successful leak testing of the prototype.

Honing of the pressurizer body was completed at Commercial Honing Co. The body is now at TAN for repair of minor damage to the sealing surface of a hub during previous fabrication work.

The pressurizer support stand has been fabricated and will be installed during the next report period.

Approximately 100 pieces of molded Min-K 2000 insulation have been received from Johns-Manville. The final shipment of 40 pieces are scheduled to be received by August 6, 1982.

Work was initiated on the preparation of a final draft of SO and CC test plan for the pressurizer assembly and related piping system.

Released drawings for the pressurizer assembly and system installation and issued the SWR package for installation.

Completed the pressurizer control chassis fabrication. The as-built drawings are 50 percent complete.

Fabrication of power panel 381 for the pressurizer internal heaters has been completed.

Completed fabrication of the pressurizer external heater control chassis. Issued the SWR to install the pressurizer external heater control system. The drawings and SWR were issued to install external heaters on the pressurizer vessel.

Received the electrical power supply (Rapid Electric Co.) for the pressurizer external heaters.

4. 9D0820600 - Intact Loop Pump

Provided engineering followup on several tasks for subcontract with Associated Machine (spare high speed intact loop pump). EG&G supplied components were shipped to Associated Machine.

3H. Summary of Work Performed in July 1982 (Continued)

Engineering followup was continued on the subcontract with Welco to fabricate a motor stator for the high speed pump.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

A. 412100000 - Special Projects

1. 412123300 - Special Projects Engineering

Release revised pump shaft balance procedures ANC-70029 and ES-70050.

Issue EDF justifying use of on-hand tubing in ASTM A-213 and ASME SA-213 applications for Semiscale/THEF.

Comments from the producibility review to reduce fabrication and end item costs on the cooled thermocouple pitot tube rake will be incorporated into the design.

Continue preliminary design work on a revised vessel densitometer system, applicable to both Semiscale and FIST.

The feasibility of adapting a different low energy densitometer detector system to replace the present vessel densitometer solid state, liquid N_2 system will be investigated. The technology is proven (has been used on 2D/3D program); however, the system must be modified in order to be used on the Semiscale vessel. A fiber optic link of the scintillator and remote magnetically shielded photo-multiplier tube is required. The potential cost savings is significant; i.e., $15K per measurement station.

2. 412155500 - MOD5 Feasibility Study

Management review will be completed in August and the final report will be published.

B. 413100000 - Steamline/Feedline Break Series

1. 413111130 - Steamline/Feedline Break Series

Management review comments will be incorporated in the "RELAP5 Posttest Analysis Report for Tests S-SF-1, 2, and 3" and the report will be issued. RELAP5 posttest analyses of

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

Tests S-SF-4 and 5 will be started. The results of these calculations will also be documented in a posttest analysis report.

2. 413119300 - Unscheduled Work

The transition boiling study will continue. Boundary conditions will be completely determined for predicting the selected Semiscale data. Work on both verification of code capability and also independent correlation of the data will get underway.

3. 413122100 - Steamline/Feedline Breaks--Hardware Mods

Complete as-building of feedline break drawings to reflect specific test configuration.

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

Continue preparation of the EDR for Tests S-SF-1, 2, and 3C. The text will go into Technical Editing by August 9, 1982.

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

Continue preparation of the EDR for Tests S-SF-4 and 5.

C. 414100000 - Level of Effort

1. 414136500 - Mechanical Instrumentation

Provide mechanical instrumentation services during the PL-Series shutdown.

2. 414148100 - DAS and DJAPS Operation

Bay Lab amplifier calibration will be completed using the SAW Loop computer system.

D. 415100000 - Intermediate Break Test Series

1. 415119600 - EP&A S-IB Test Support

Transmit QLR's for S-IB-2 and S-IB-3.

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

2. 415119700 - Post S-IB Series Analysis

Complete analysis of LOBI data and comparison with S-IB-3 data. Complete analysis of IB data and characterization of system response with respect to phenomena associated with large and small break system response. Continue preparation of the TRR and initiate preparation of associated figures.

3. 415119730 - Post S-IB Series Analysis

The RELAP5/MOD1.5 (ZELAP) assessment calculation for Test S-IB-3 will be completed and documented. A fuel rod sensitivity calculation using the LOBI heater rod geometry will be completed and documented. RELAP5 calculations will be made to assess the effects of imbalanced steam generator operation in Test S-IB-3.

E. 416100000 - Loss-of-Offsite Power

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

Complete and transmit the Research Design Document. Plan to have the Series EOS 90% complete by month end. Complete review of operator guidelines during abnormal transients in support of recovery procedure planning. Initiate preparation of EOS Appendices for S-PL-1 and S-PL-2. Issue final system characterization test requirements. Review measurement response to requirements and planning. Support ongoing shutdown hardware design, installation, and checkout activities with detailed engineering analysis as required.

The remaining scoping calculations needed for the S-PL series will be completed this month. Calculations now planned include S-PL-5, 6, and 7.

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

Issue SO test procedure for intact loop pump peripheral equipment.

Issue SC test procedure for high speed pump R' determination.

Release drawing revision and SWR package to relocate intact loop pump suction ECC and drain lines. Provide engineering support as required.

Prepare SO test procedures for the hot water makeup system.

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

Install the steam generator relief valve system modifications.

Provide engineering support for vessel internal examination and replacement of the head following turbine repairs.

Release SWR package and drawings required for final hook-up of the I.L. pump. Electrical engineering/field follow-up will be provided to support the installation activity. Also, complete the SWR package to relocate and wire the A/T/S chassis in panel 220.

Complete the SWR package to install the redesigned (existing) broken loop pump control chassis in panel 210.

Complete installation of the intact loop pump support stand and sliding base, and start installation of the pump and peripherals.

3. 416136700 - Power Loss Test Series

Work will continue to support the PL-Series Shutdown. Calibration of relief valves and the installation will be worked on. Continued effort will occur on overhauling the make-up pumps. The Hydro of the primary heat exchangers will be completed by August 10, 1982, and refurbishment of the Air Operated Valves will be completed by August 27, 1982. Operations personnel will attend First Aid and CPR classes on August 11th and 13, 1982.

4. 416148600 - Loss of Power Test Series--Measurement Support

The 1000 system will be installed in its new position and the wiring from the Preston mux to the Bay Lab amplifier will be 80% completed.

F. 417100000 - Steam Generator Rupture Test Series

1. 417123100 - Tube Rupture--Hardware Mods

Engineering studies will be started. 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.

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

G. 419100000 - Natural Circulation Test Series

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

Incorporate comments from the first review cycle, and return the report on WRVLIS performance during S-IB-1 for management review.

H. 41B118100 - S-IB-SO-2/S-SR-X EP&A Support

1. 41B118101 - S-IB-SO-2 Support

Complete the report on analysis of results from S-IB-SO-2 and provide to management for review.

Analysis of the primary feed and bleed tests will be completed. EP&A personnel will conduct an extensive investigation into both the test itself and also into the questions regarding typicality of results.

2. 41B118103 - Tests S-IB-SO-2, S-SR-1, S-SR-2

Continue text preparation of EDR to report Data from S-SR-1 and S-SR-2.

I. 9D0800000 - Semiscale Equipment

1. 9D0810500 - SAW Loop Upgrade

Depending on Craft availability, work will continue to Hydro Test the first major portion of upgrade.

2. 9D0820100 - Piping Spool Pieces

Complete the modification and hydrotesting of spool piece PC-16.

Complete the installation of heat tapes on the intact loop pump suction spools and finish the related electrical modification.

3. 9D0820200 - Pressurizer Vessel

Complete fabrication of the vessel for leak testing the pressurizer thermal liner.

Complete the fabrication and leak test of the pressurizer thermal liner mockup.

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

Complete the fabrication and testing of the pressurizer thermal liner.

Complete installation of the pressurizer support stand.

Complete preparation of CC and SO test plan for pressurizer assembly and related piping system.

Complete the design drawings and issue SWR package to fabricate and install pressurizer missile shield.

Initiate CC tests on various pressurizer components.

Provide engineering assistance on SWR's for pressurizer display chassis mods and pressurizer electrical interconnection package.

Provide engineering follow-up and assistance on subcontracts for A/T/S chassis and pressurizer external heater power supply.

Obtain final approval of CC and SO test procedures, and release to the field.

Complete and issue drawings for pressurizer control chassis and pressurizer external heater control chassis.

4. 9D0820600 - Intact Loop Pump

Continue engineering followup on the subcontract with Associated Machine for procurement of a high speed intact loop pump, and with Welco on the fabrication of a motor stator for the pump.

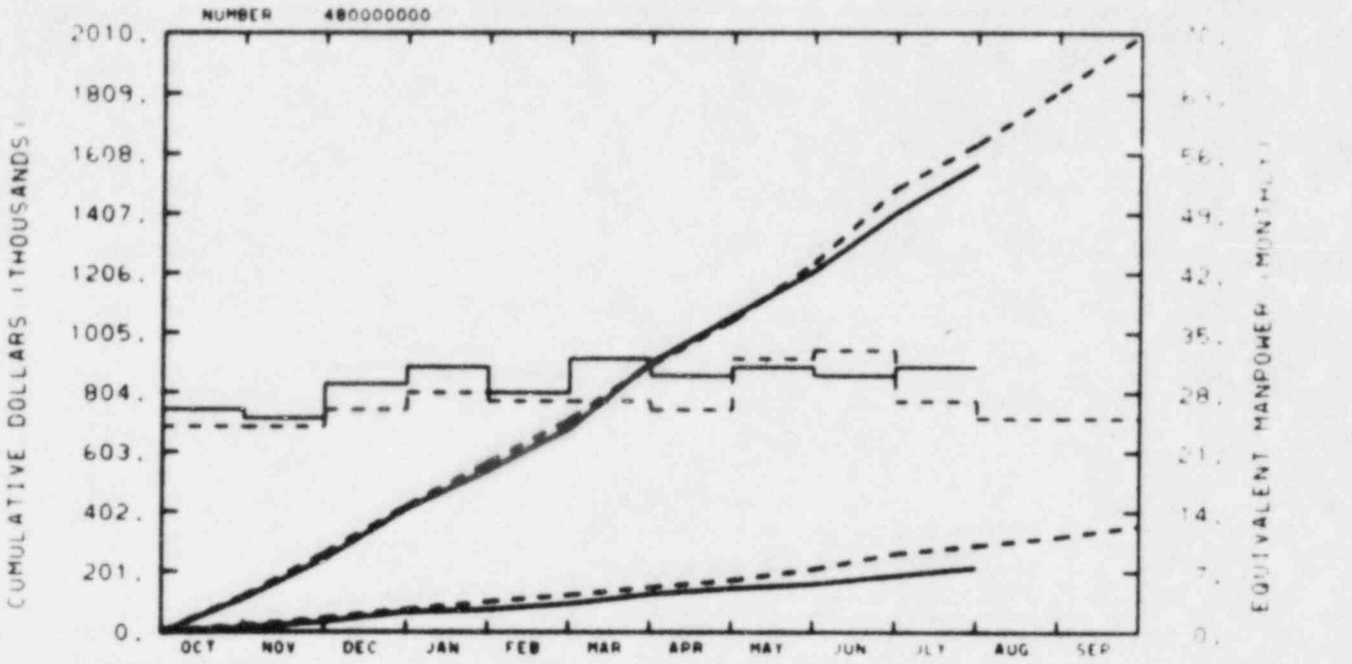
6. Problems and Potential Problems

None.

RESPONSIBLE MANAGER
. NORTH

EG&G IDAHO INC.

SEPARATE EFFECTS TEST FAC-WRATF



TOTAL PROGRAM

BUDGET	119	262	421	567	711	898	1049	1240	1492	1642	1820	2003
ACTUAL	112	244	414	542	684	904	1062	1214	1411	1573		

MATERIAL

BUDGET	21	47	76	102	125	150	174	211	263	290	319	357
ACTUAL	15	36	69	77	96	127	148	162	190	216		

MANPOWER

BUDGET	24	24	26	28	27	27	26	32	33	27	25	25
ACTUAL	26	25	29	31	28	32	30	31	30	31		

BUDGET - - - - - -

ACTUAL ———

A6043 (LOFT Test Support Facility Portion)

YTD VARIANCE: 69 (4%)

The year-to-date underrun is due to a modification in Post-CHF testing and underspending in material purchases. It is expected that costs will be within budget at year-end.

1. 189a A6043 - Thermal-Hydraulic Experiments Facility

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

A. 481100000 - THEF Test Projects

1. 481100100 - Planning and Supervision

Reviewed and statused test project budget and schedule. Participated in presentations for and discussions with Shell Development Company representatives concerning EG&G capabilities in two-phase flow and heat transfer experimental and analytical disciplines. Prepared a preliminary program plan for FY-83 for use in discussions with NRC. Provided K-T consultant support to PBF on potential problem analysis associated with operation of new systems during the Severe Fuel Damage test series. Prepared a cost estimate for a test project intended to provide proof-of-principal information concerning acoustic diagnosis of valve degradation prior to failure.

2. 481100300 - Two Phase Flow Loop Characterization

Completed 90% of the analysis of data from the system characterization tests conducted in the Two Phase Flow loop under single phase operating conditions. Prepared a detailed report outline and initiated report preparation.

3. 481101100 - Two Phase Regime and Critical Flow Study

Work continued on the system upgrade tasks. The EOS was issued. The pre-series flow regime evaluation analysis was started. A letter summarizing an extensive literature review into flow regime identification techniques was prepared. Information from this review is being used to select techniques for on-line application during the test series.

4. 481202010 - THEF Engineering

An EDF was prepared addressing operating limits for the Post-CHF Inconel 625 test section with the upper limit considered to be 1700°F.

3A. Summary of Work Performed in July 1982 (Continued)

A revision of a previously issued EDF was issued for Post-CHF operation with the quench front in the test section (tube).

The Post-CHF vessel drawing was revised to eliminate pressure taps, and the vent valve drawing was revised to add extra electrical insulation.

Engineering support was provided on the fabrication and installation of two-phase loop upgrade, and the flow regime test and critical flow test hardware.

The electrical installation of the makeup pump for the two phase loop was completed.

5. 481301009 - Operations Post CHF

Continued two shift operation through month of July. Some test related problems occurred during the month, but resolution was accomplished. Testing has continued at a good rate, with Data runs providing good data.

Work continued to clean up the Blowdown Facility after the heater rod failures. Progress was good and water quality was improving.

6. 481301011 - Two-Phase Flow Regime Testing

The system maintenance task was completed with the water softeners being overhauled and sequencer re-setup.

A new make-up pump and control circuit was installed and is about 90% complete.

The Experiment Operating Specification (EOS) has been reviewed and preliminary work was started on the Test Operating Procedure (TOP).

7. 481401009 - Post CHF Test

Maintained and operated the data acquisition system and maintained the Blowdown Loop control system during Post CHF testing. Added experimental measurements throughout this period as requested by the test engineer.

8. 481401011 - Two Phase Regime Studies

Mounted pressure transducers and plumbed the reference steam and water orifice measurements.

3A. Summary of Work Performed in July 1982 (Continued)

9. 481402010 - DAS Facility Maintenance

a. Continued work on installing software (90% complete) into the Data Reduction System (DRS) computer. When completed this system will have the mirror image capability of data acquisition and reduction as does the DAS system. A second phase of software implementation will then commence which will add more on-line computational capability to the system.

b. Work has been started to add a graphics display system to the Two Phase Loop control system. It includes the initial piping diagram and will display pertinent measurement values around the loop. A multi-tiered measurement display will also be added which will plot eight hour and twenty-four hour trend information on any called measurement as well as display actual measurement values, set points, and measurement limits for all channels. This work will be accomplished on a manpower available basis.

10. 481402011 - Tomographic Densitometer

Work continued on writing an operational manual for this tomographic densitometer. This effort is approximately 30% complete.

B. 48199AA00 - Nine Rod Quench Tests

No work was performed on this task. The final report has been reviewed and comments will be incorporated in August.

C. 5J1241200 - Post CHF

Experiments to be conducted under conditions specified in the original EOS were completed. The range of conditions under which data were successfully obtained were limited due to test section capability. Subsequent revisions to the EOS were made to allow acquisition of data in an alternate operating mode which allowed quench front propagation into the test section. Densitometer mounting brackets were modified and reinstalled and operation in the alternate mode was conducted.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

A. 481100000 - THEF Test Projects

1. 481100100 - Planning and Supervision

Review and status test project budget and schedule. Participate in FY-83 planning. Review the 9-rod bundle experiment NUREG and Two Phase Loop System Characterization report.

2. 481100300 - Two-Phase Loop Characterization

Complete the System Characterization report and submit for review.

3. 481101100 - Two-Phase Regime and Critical Flow Studies

All work will be completed this month. The system will be ready for SO testing by 9/13/82.

4. 481202010 - THEF Engineering Support

Continue engineering support of the critical flow test hardware installation. Support the CC testing of two-phase loop upgrade and critical flow test hardware, including preparation of the CC and SO test procedures.

Order materials and issue SWR to install crowbar circuitry (GFI) for THEF warmup and test heaters, when funding becomes available.

Perform repair work on the diesel generator control system and complete the equipment testing.

Provide engineering support to follow the electrical checkout of the makeup pump for the two phase loop. Document the installation by as-building drawings to show electrical installation.

5. 481301009 - Operations Post CHF

Testing will continue until completion, July 30, 1982.

6. 481301011 - Two-Phase Flow Regime Testing

Commencement of preparation is contingent on Post CHF Testing completion. The tentative start date is August 2, 1982. Work will continue on preparation of the TOP.

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

7. 481401009 - Post CHF Test

Finish support of the Post CHF testing.

8. 481401011 - Two-Phase Regime Studies

Continue transducer installation and DAS system set up for the Two Phase Regime tests.

9. 481402010 - DAS Facility Maintenance

Install one inch turbine equipped with the new tungsten-carbide bearings and obtain as much run time as possible prior to Post CHF test completion.

10. 48199AA00 - Nine-Rod Quench Tests

Complete incorporation of review comments, final graphs, and submit the NUREG for approval and signatures.

11. 48199AD00 - L5-1 Analysis/Report

The EDR for tests conducted on the LOFT L5-1 break spool drag disk rake will be prepared and submitted for first reviews.

B. 5J1241200 - Post CHF

Testing will be completed and analysis of data will be initiated. A presentation on preliminary results will be prepared and delivered to LOFT/WRRTFD personnel.

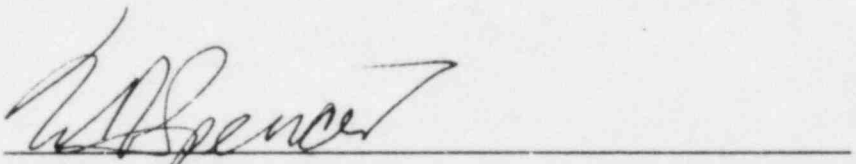
6. Problems and Potential Problems

None.

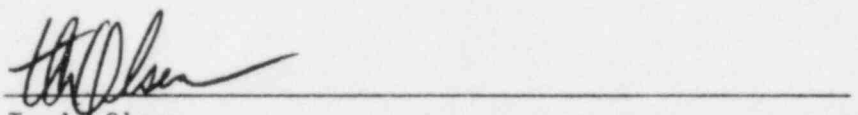
MONTHLY REPORT FOR

JULY 1982

THERMAL FUELS BEHAVIOR PROGRAM



W. A. Spencer, Manager



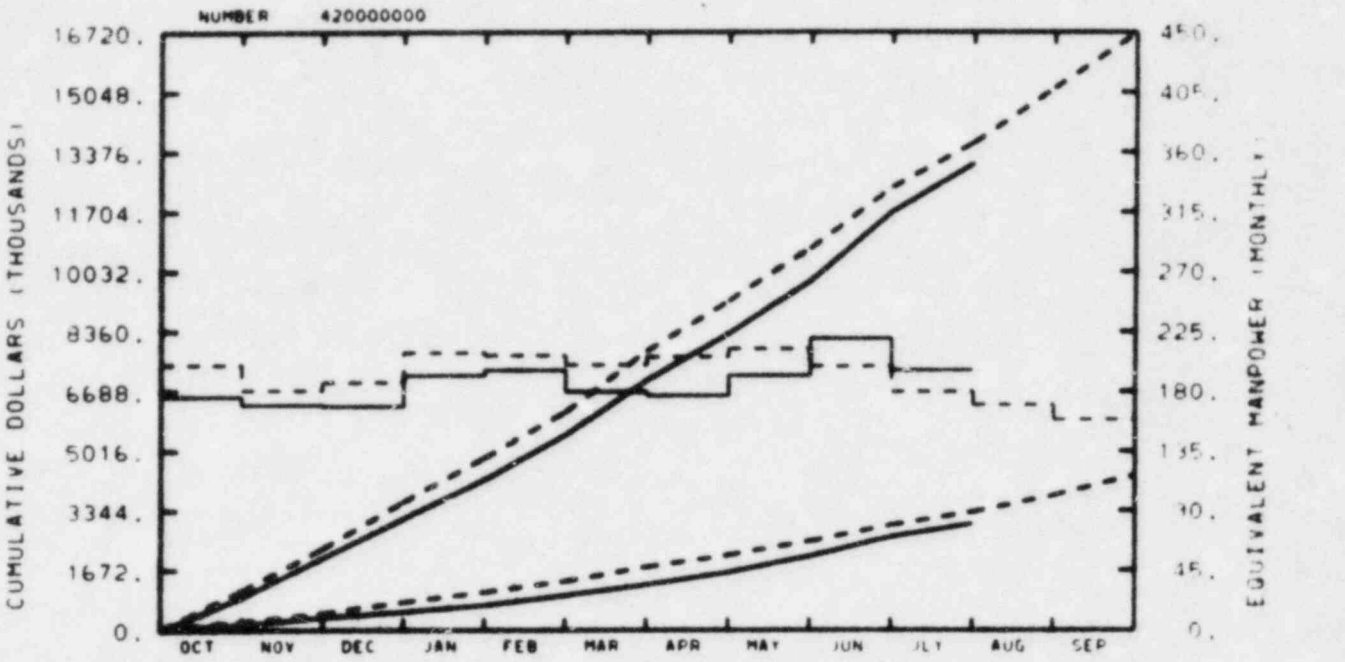
T. A. Olsen
Plans and Budget Representative

RESPONSIBLE MANAGER
W.A. SPENCER

EG&G IDAHO INC.

TFBP PROGRAM

NUMBER 420000000



TOTAL PROGRAM

BUDGET	1102	2280	3598	4829	6119	7814	9213	10695	12393	13637	15173	16713
ACTUAL	918	2012	3120	4220	5470	7003	8301	9779	11712	13056		

MATERIAL

BUDGET	235	481	789	1070	1369	1774	2104	2496	2946	3315	3772	4349
ACTUAL	162	358	518	701	974	1275	1620	2074	2616	2981		

MANPOWER

BUDGET	200	181	187	209	207	200	206	212	199	180	170	159
ACTUAL	176	170	169	192	196	180	177	192	220	196		

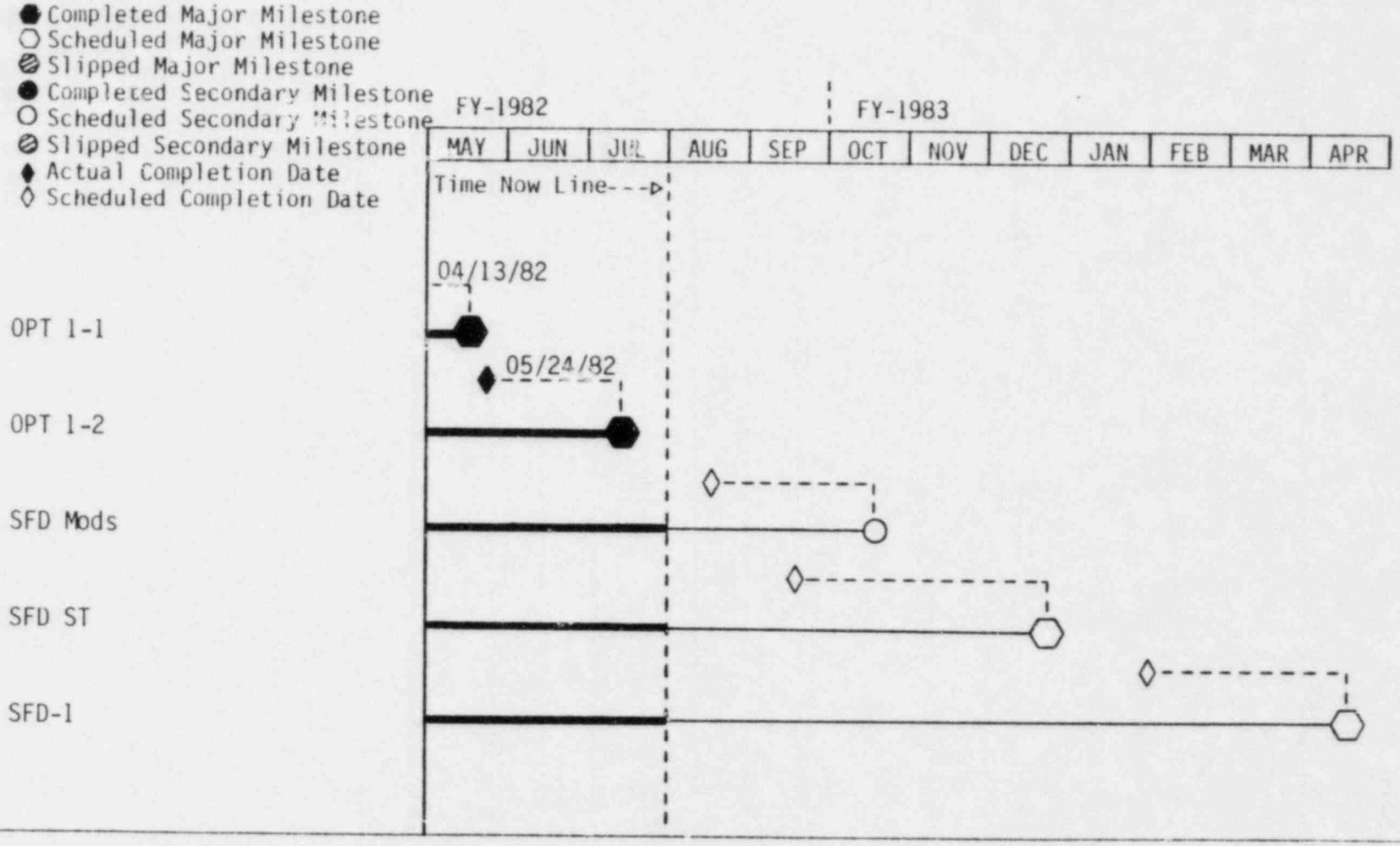
BUDGET

ACTUAL

YTD VARIANCE: 581 (4%)

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.



NOTES: SFD-1 test has been added with a scheduled completion date of January 28, 1982, and scheduled major milestone date of April 1, 1983.

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

The primary efforts during the reporting period have been directed toward preparations for the Severe Fuel Damage (SFD) Test Series. The test train for the SFD Scoping Test (to be conducted in early September) was completed and readied for transport to the Power Burst Facility, and the Experiment Operating Specification for this test was issued.

To overcome a schedular problem, the Fission Product Detection System for the scoping test will use a temporary combination of equipment from the old and new systems. Data obtained will be essentially equivalent to that anticipated with the new system. The collimator, collimator controllers, hydrogen monitor, and gross detector electronics have been installed.

Construction for the basic SFD modifications has been completed, and revisions to the Plant Operating Manuals have been drafted, and the majority approved. Component checking is in progress and system operability tests will follow.

Other activities during the reporting period include completion of the initial metallurgical examination of the Operational Transient Test 1-1 (OPT 1-1) fuel rods, during which no cladding cracks were found. The OPT 1-2 test train was removed from the in-pile tube and placed in the PBF canal for temporary storage.

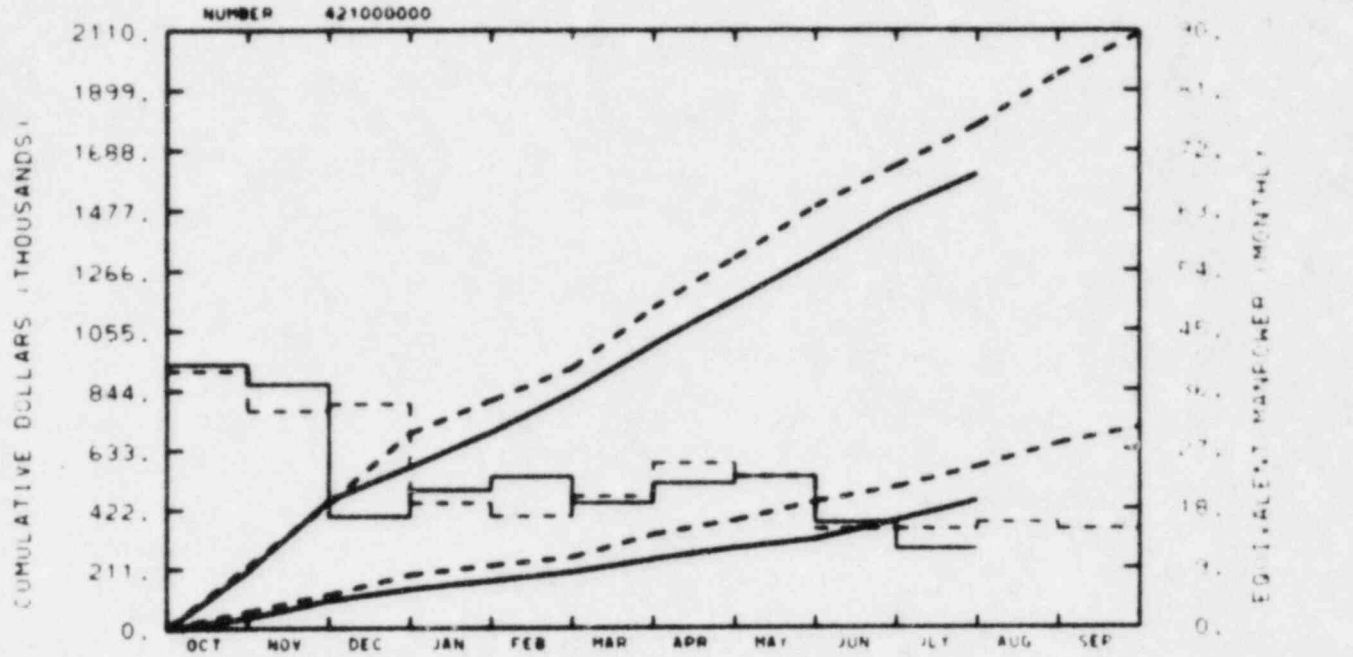
A specification was released for procurement of a replacement rotor and stator cans for repair of the loop pump. The necessary weld qualification specimens were designed and the required material obtained.

RESPONSIBLE
MANAGER
P.E.MACDONALD

EG&G IDAHO INC.

TFBP EXPER DESIGN & ANALYSIS

NUMBER 421000000



TOTAL PROGRAM

BUDGET	220	445	693	809	922	1134	1310	1490	1631	1776	1956	2100
ACTUAL	203	455	575	696	837	1006	1161	1315	1479	1605		

MATERIAL

BUDGET	60	121	191	223	253	312	383	449	500	572	655	712
ACTUAL	38	100	140	169	200	245	285	315	381	452		

MANPOWER

BUDGET	39	34	34	19	17	20	25	23	14	15	16	14
ACTUAL	40	34	17	21	23	19	22	23	16	12		

A6041

YTD VARIANCE: 171 (10%)

Due to programmatic redirection of priorities and delay in the PBF testing schedule, much of the posttest analyses associated with the RIA 1-4, PCM-7, OPTRAN 1-1 and 1-2 tests have slipped causing an underrun of $171K.

1. 189a A6041 - Experiment Design & Analysis

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

a. Power-Cooling-Mismatch Test Series

The Test PCM-7 Fuel Rod Materials Behavior Report was revised on a limited basis as time permitted.

b. Operational Transient (OPTRAN) Test Series

The initial metallurgical examination of the Test OPT 1-1 fuel rods was completed. No cladding cracks were found. The remainder of the Test OPT 1-1 metallurgical examination will resume in FY-1983. The Test OPT 1-2 test train was unloaded from the in-pile tube and will be stored in the PBF canal until mid-August, 1982.

c. Loss-of-Coolant Accident Test Series

The Test LOC-6 Fuel Rod Behavior Report is being reviewed by management.

d. Reactivity Initiated Accident Test Series

First level management review of the Test RIA 1-4 Fuel Behavior Report was completed. 80% of the comments were incorporated.

e. Zircaloy Oxidation Embrittlement Topical Report

The report is in printing. Patent clearance is pending.

f. Fission Product Behavior Research

The Thermal Reactor Safety Meeting paper was submitted to management for review.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

a. Power-Cooling-Mismatch Test Series

The Test PCM-7 Fuel Rod Materials Behavior Report will be revised as time permits. The report will be completed in FY-82.

b. Operational Transient (OPTRAN) Test Series

The OPT 1-2 fuel rods will be received at the hot cells and visually examined.

c. Loss-of-Coolant Accident Test Series

Management review of the Test LOC-6 Fuel Rod Behavior Report will be completed.

d. Reactivity Initiated Accident Test Series

The Test RIA 1-4 Fuel Behavior Report will be retyped and submitted for final management review.

e. Zircaloy Oxidation Embrittlement Topical Report

The report will be printed and issued August 11.

f. Fission Product Behavior Research

The Thermal Reactor Safety Meeting paper will be completed and presented.

6. Problems and Potential Problems

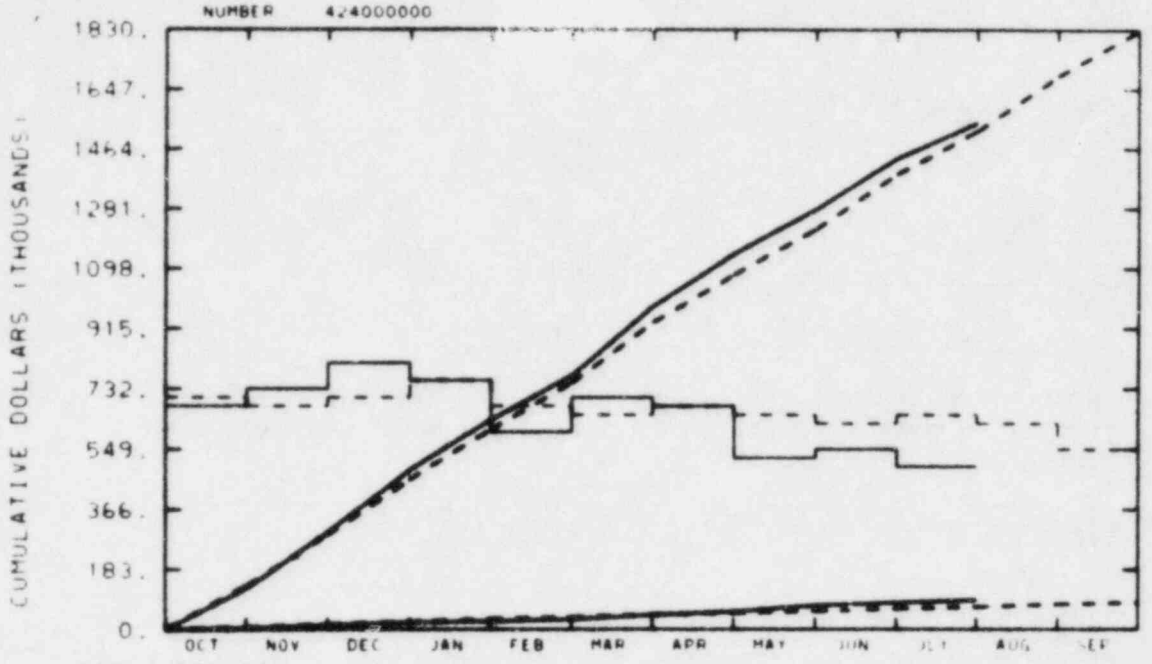
None.

RESPONSIBLE
MANAGER
[illegible] FORESTER

EG&G IDAHO INC.

PBF ENGINEERING

NUMBER 424000000



TOTAL PROGRAM

BUDGET	135	288	456	609	740	933	1079	1218	1486	1520	1688	1827
ACTUAL	125	297	486	638	772	982	1143	1279	1435	1545		

MATERIAL

BUDGET	7	16	25	33	38	47	57	57	64	69	77	82
ACTUAL	4	15	22	26	31	45	55	74	82	90		

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		

Budget ------

Actual ——————

A6044

YTD VARIANCE: <25> (2%)

1. 189a A6044 - PBF Design Engineering

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

a. Severe Fuel Damage (SFD) Modifications

Engineering support continued through the completion of the facility modification installations. Component checkouts were started.

b. Liquid Nitrogen Supply for the Reactor Building

Installation of a system to simplify and improve the safety of liquid nitrogen handling at the Fission Product Detection System detector dewars was completed. Final checkout of the system was deferred to avoid interfering with higher priority activities being performed in that part of the reactor building.

c. Contamination Control for Posttest Handling of SFD Test Trains

General agreement was reached on the design of a containment system to improve contamination control during posttest handling of SFD test trains in the PBF canal. Design activities are continuing.

d. PBF Spare Loop Pump Repair

A specification was released for procurement of the replacement rotor and stator cans. Weld qualification specimens were designed and the required material obtained. Some fixtures for the rotor can assembly operation were fabricated. Machining of the rotor was deferred to allow work on high priority Severe Fuel Damage tooling; there is no impact on the overall pump repair schedule.

e. Technical Specifications

An upgraded neutron fluence limit basis report, revised loop water chemistry requirements, and revised canal fuel handling limits were included in Technical Specifications sent to DOE-ID for approval.

The Power Reactor Advisory Committee review of the Severe Fuel Damage Technical Specifications was completed.

4. Scheduled Milestones for August

None.

5. Summary of Work to be Performed in August 1982

a. Severe Fuel Damage Modifications

Completion of the component checkout and system operational testing of the SFD modifications is expected. Efforts will continue on a three-shift basis until completion.

b. Liquid Nitrogen Supply for the Reactor Building

Final checkout of the new detector filling system is scheduled.

c. PBF Spare Loop Pump Repair

Machining of the rotor to remove the existing can is scheduled to begin. Design of the assembly fixtures will be complete and specimen preparation for welder qualification is expected to start.

d. Technical Specifications

Revised Technical Specifications on loop water chemistry and canal fuel handling will be issued.

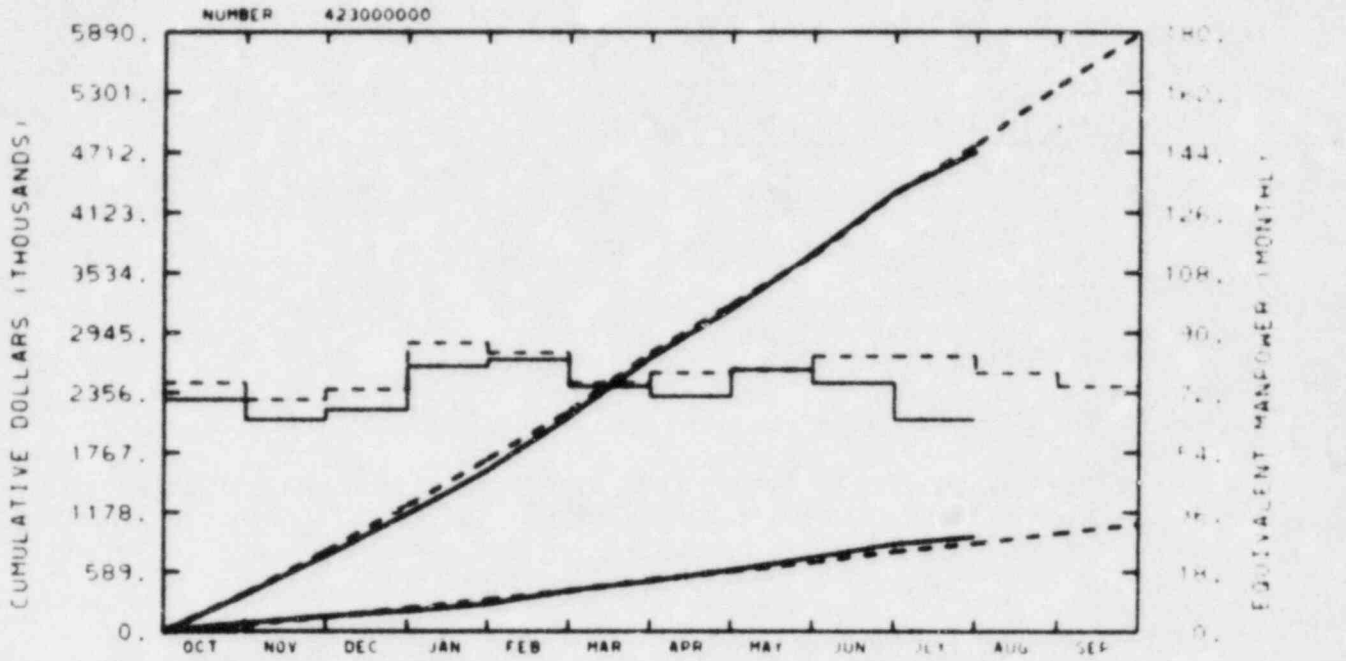
Supporting documents to the Severe Fuel Damage Technical Specifications will be completed.

6. Problems and Potential Problems

None.

RESPONSIBLE MANAGER
C.O.DOUCETTE

EG&G IDAHO INC.
PBF OPERATIONS
NUMBER 423000000



TOTAL PROGRAM

BUDGET	372	789	1250	1705	2172	2745	3224	3708	4316	4767	5363	FAST
ACTUAL	365	746	1161	1595	2122	2705	3186	3727	4326	4722		

MATERIAL

BUDGET	68	144	228	314	401	511	598	686	791	872	972	1065
ACTUAL	85	151	205	272	405	439	607	731	866	940		

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		

BUDGET
ACTUAL

A6057

YTD VARIANCE: 65 (1%)

The $65K underrun is due primarily to $50.7K outstanding requisitions, which have not been costed. It is still projected to come in at fiscal year end with no variance.

1. 189a A6057 - PBF Operations

2. Scheduled Milestones for July 1982

Node	Description	Due Date	Actual Date
N/A	OPT 1-2	07-02-82	05-31-82C

3. Summary of Work Performed in July 1982

a. PBF Plant Operations

The work performed during this reporting period was primarily directed toward support of the plant modifications and the new systems installation in preparation for performance of the upcoming Severe Fuel Damage Scoping Test (SFD-ST).

Installation of the SFD Experiment Sampling System, Experiment Cooling System, and Emergency Quench Injection System were completed. Component checkout and initial operational testing of the newly installed systems is continuing.

The Instrument and Data Section completed the July process instrument calibrations and preventive maintenance items. Initial instrument calibration and checkout of the newly installed SFD instrumentation is continuing.

b. PBF Operations Support

Preventive Maintenance (PM) examinations for June are 98% complete and the July examinations are 50% complete. The August examinations are scheduled to start during the week of July 26, 1982, as available craft manpower is released from support of the SFD Modification work.

Corrective Maintenance efforts include the special handling of radioactive liquid waste, the planning of plant deficiency work packages, and scheduling for the SFD Modifications.

Assembly of the SFD Fission Chamber Instrumentation System was completed and checkout of the hardware is on schedule. Data qualification work for the Operational Transient Tests 1-1 (OPT 1-1) and OPT 1-2 is continuing. An Engineering Design File comparing the predicted and actual measurement uncertainties for thermocouples is being reviewed.

The PBF Emergency Action Plan review comments have been incorporated. Final review and approval will proceed next month.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

a. The PM examinations for June, July, and August 1982 will be completed.

b. The deficiencies which are required to be corrected for the SFD System Operation Test will be completed.

c. The annual Reactor Building Leak Rate Test will be completed.

d. The semiannual Silver Zeolite Efficiency Test will be scheduled.

e. The SFD Modification component checks, flushes, hydrostatic and pneumatic tests, and system operational testing will be completed.

f. Review and approval of the SFD-ST Experiment Operating Procedure will be completed.

6. Problems and Potential Problems

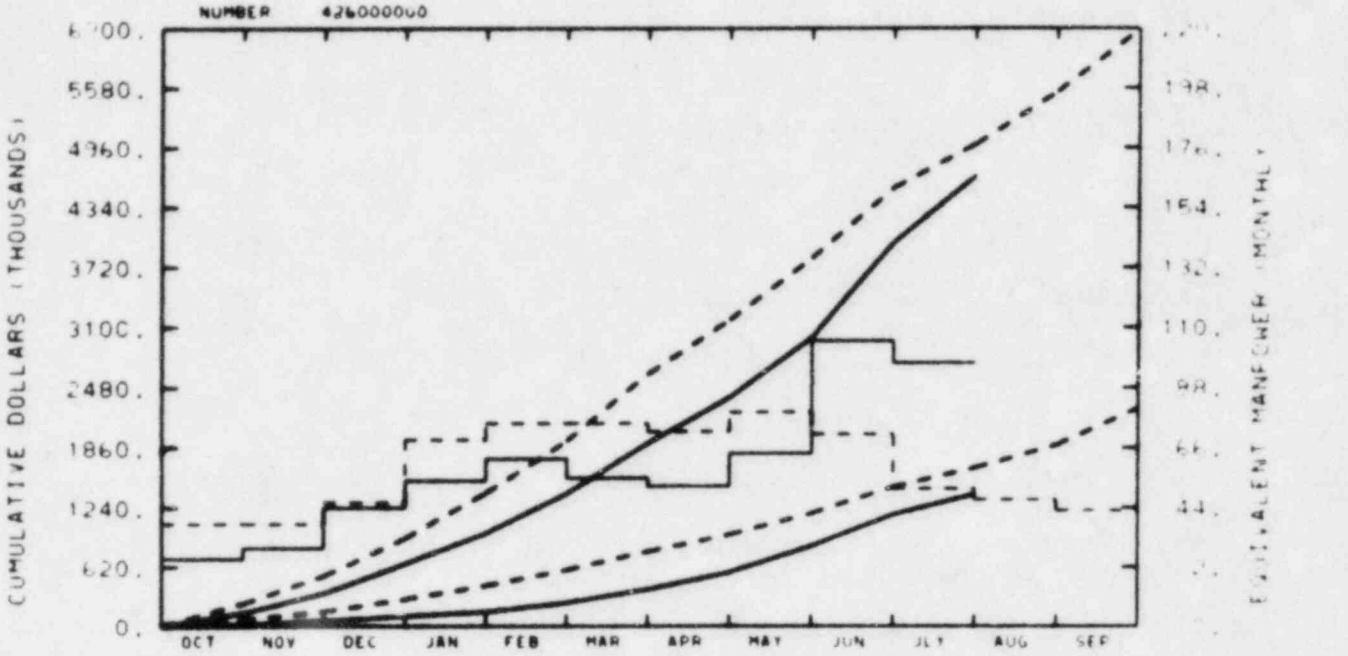
None.

RESPONSIBLE MANAGER
J. BUESCHER

EG&G IDAHO INC.

SEVERE FUEL DAMAGE

NUMBER 426000000



TOTAL PROGRAM

BUDGET	238	527	920	1392	1932	2621	3176	3813	4540	4994	5541	6195
ACTUAL	139	345	656	973	1387	1913	2378	2993	3974	4662		

MATERIAL

BUDGET	68	152	286	428	594	785	960	1181	1454	1654	1891	2269
ACTUAL	20	58	108	155	251	388	567	841	1169	1380		

MANPOWER

BUDGET	38	38	46	69	75	75	72	79	71	51	47	43
ACTUAL	25	29	44	54	62	55	52	64	105	97		

BUDGET

ACTUAL

A6305

YTD VARIANCE: 332 (7%)

When outstanding commitments are added in, A6305 is actually overrun due primarily to the high level of expenditures on the PBF modifications. Thermal Fuels Behavior Program funding constraints necessitate underrunning this 189 considerably, however, outstanding commitments up to $565K are authorized to carry forward from FY-1982 to be costed in FY-1983.

1. 189a A6305 - TFBP Severe Fuel Damage Studies

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

a. Scoping Test Experiment Operating Specification (EOS)

The EOS was issued.

b. Safety Analyses - Severe Fuel Damage Scoping Test (SFD-ST)

The first Power Reactor Advisory Committee (PRAC) review meeting of the SFD-ST Experiment Safety Analysis (ESA) was held July 28 and 29, 1982. PRAC comments and concerns will be addressed in the revised ESA.

c. Power Burst Facility (PBF) Power Measurements

A report has been completed and distributed for review.

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

The analysis with low steam flow was begun. An initial calculation was made with zero inlet flow. Results showed that an inlet flow is required to prevent total dryout.

e. Severe Fuel Damage Test 2 Experiment Prediction Analysis

The analysis has shown that quenching occurs after 60 s at a 4-in./s inlet flow rate, and coolant will flow into the loop through the relief valve.

f. Severe Fuel Damage Test 3 and Test 4 Experiment Specification Document (ESD)

The draft ESD for Tests 3 and 4 was completed. Efforts were begun on the physics analysis to set the fresh rod enrichments.

g. Postirradiation Examination and Hot Cell Support

Fabrication was initiated on the Test Reactor Area (TRA) drying canister, the positioning stage, the TRA transfer port insert, and the in-cell table inserts. Drawings for the transport canister handling tools, drying system, and lifting beam were released.

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

g. Postirradiation Examination and Hot Cell Support (continued)

Fabrication was completed on the PBF-TRA transport canister, the centering insert for the PBF shipping cask, and the in-cell table.

h. Severe Fuel Damage Analysis

The fuel foaming topical report received technical editing; work was then stopped due to lack of funding. Publication will occur in FY-83. The Thermal Reactor Safety Meeting paper was completed by technical editing and printed.

i. Severe Fuel Damage Fission Product Studies

The Fission Product Detection System upgrade was changed in July to a temporary facility change. The change was necessary to better assure readiness for the SFD-ST, because a complete software package could not be finished in time as originally designed. The temporary system will utilize the old system (PDP-15) plus the new system (PDP 11/34) with LOFT Isotope Detection System software. Anticipated data acquisition is unchanged, only the means to acquire data is changed. The temporary system was readied at TRA and shipped to PBF on July 29. The system is being installed at PBF and should be complete by August 15. Collimator, collimator controllers, hydrogen monitor, and gross detector electronics were installed in July.

j. Severe Fuel Damage - Liquefaction-Flow-Solidification Model

Calculations and plots are complete for the 3-ft and 12-ft rods, and efforts are underway on writing an internal report documenting these results and comparison with another analytical model. The report will be submitted for management review on August 13.

k. Instrument Development and Fission Chamber

The data from the University of Washington's reactor core simulator test were processed and transmitted to the University.

l. Test Train Assembly Facility (TTAF)

The SFD-ST test train was completed and made ready for transport to PBF. The transport plan was approved. Hardware procurement and fabrication for SFD-2 continued. Long lead requisitions for instrumentation associated with SFD-3 and -4 test trains were processed.

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

m. Phase II Program Development

Preparation of 189s was completed. The 189s were based on Phase II, consisting of four tests in Series 2. The Series 2 test train design concept is a significant departure from the Series 1 design, incorporating a ceramic crucible and additional insulation.

In order to plan development of the Series 2 design, a meeting was held with designers and others involved in test operation. A cost and schedule was produced for the Series 2 design, which indicated that the design effort must begin promptly on October 1, 1982 in order to meet expected test schedules.

To enable design to begin, an Experiment Specification Document (ESD) must be produced prior to October 1. Efforts have therefore been concentrated toward producing this document. Physics calculations were executed to estimate BR-3 fuel isotope concentrations (axial) needed for axial power shapes. Also, a number of TRAC thermal calculations have been made to prove that the thermal and power capabilities of the conceptual test train design are adequate.

The contract enabling Los Alamos National Laboratory (LANL) to develop information on thoria properties and feasibility of a thoria crucible was finally released and sent to DOE, Sandia. At the end of the month, LANL had not received it.

n. Modifications

Construction for the basic Severe Fuel Damage modifications has been completed. Revisions to the Plant Operating Manuals have been drafted and the majority approved.

o. Fission Product Signature Analysis

The report on the RFKM computer model was reviewed by management. The paper for the Chicago ANS meeting was drafted and reviewed. Changes are being made to include more isotopic ratio examples.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August

a. Safety Analyses - Severe Fuel Damage Scoping Test (SFD-ST)

The SFD-ST safety analysis will be issued by the August 13, 1982 schedule. Safety analysis for the SFD-1 ESA will be started if a draft of the SFD-1 Experiment Operating Specification is available.

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

The analysis will continue using low inlet steam flows.

c. Severe Fuel Damage Test 2 Experiment Prediction Analysis

Efforts will continue on the TRAC predictions for the fast quench test termination and the TMI-2 transient analysis.

d. Severe Fuel Damage Test 3 and Test 4 Experiment Specification Document

Efforts will continue on the physics analysis to set the enrichment of the instrumented rods.

e. Postirradiation Examination and Hot Cell Support

Fabrication will be completed on the TRA drying canister, the TRA transfer port insert, the in-cell table insert, and the skid frame. Fabrication will be initiated on the lifting beam, the PRDC-2 cask adaptor, and the extraction assembly. Fabrication will continue on the positioning stage.

f. Severe Fuel Damage Fission Product Studies

The temporary FPDS will be completed and tested. The hydrogen monitor will be calibrated and tested.

g. Severe Fuel Damage - Liquefaction-Flow-Solidification Model

An internal report documenting and comparing results for the 3-ft and 12-ft rods using LIQSOL and Moore's analytical model will be published by the end of this month.

h. Test Train Assembly Facility (TTAF)

The preparation of the final assembly planning for SFD-1 will be initiated. The procurement and fabrication for SFD-2, -3, and -4 test trains will continue.

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

i. Phase II Program Development

Almost exclusively, effort in August will go toward the Series 2 Experiment Specification Document. LANL is expected to produce first samples of thoria tiles and perform tests. Work packages for FY-83 will be developed.

j. Modifications

Component checkout and system operational testing for basic modifications are expected to be completed. All Plant Operating Manuals will be completed.

k. Fission Product Signature Analysis

The report on RFKM will be finished and sent to editing. The Chicago ANS paper will be finished and the poster session paper presented.

6. Problems and Potential Problems

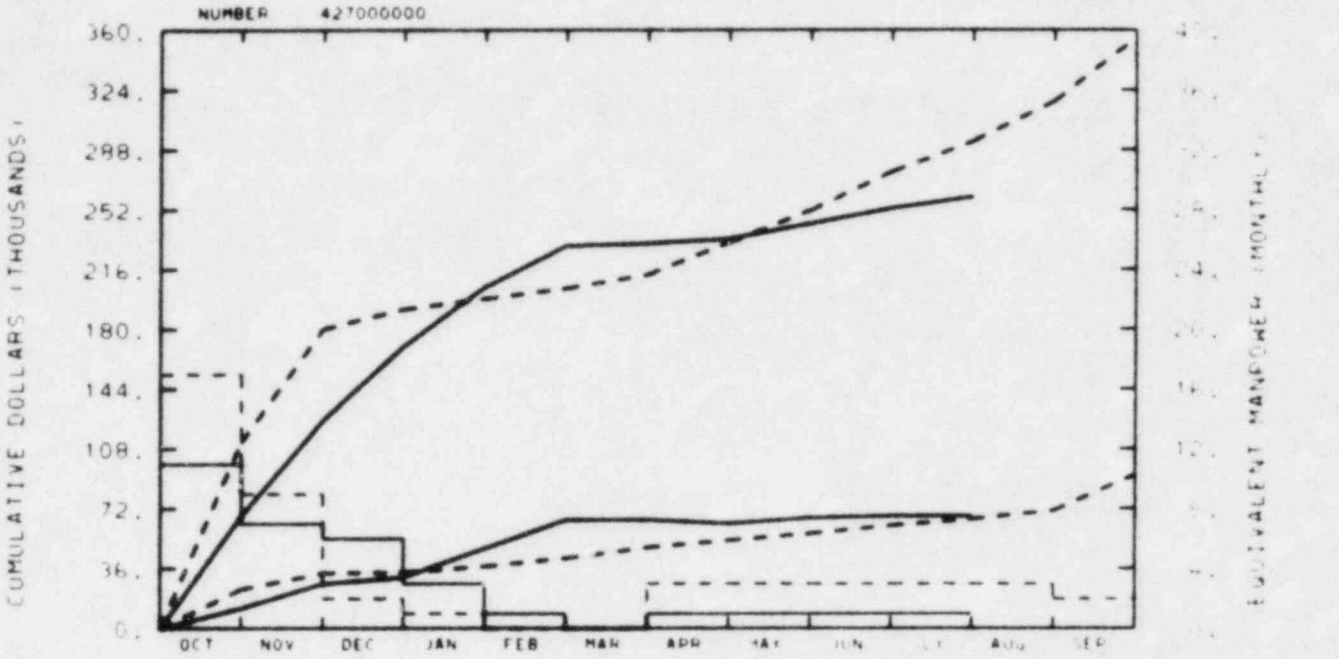
None.

RESPONSIBLE MANAGER
M. J. REILLY

EG&G IDAHO INC.

CORE MELT MITIGATION SYSTEM

NUMBER 427000000



TOTAL PROGRAM

BUDGET	112	180	142	198	205	213	232	252	275	293	317	456
ACTUAL	68	125	170	206	230	232	238	244	252	260		

MATERIAL

BUDGET	24	33	34	37	42	49	58	57	62	66	71	93
ACTUAL	12	27	31	48	65	65	63	67	68	68		

MANPOWER

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

A6351

YTD VARIANCE: 33 (11%)

During July, approval was received from NRC to transfer $50K from this 189 to the Thermal Fuels Behavior Program baseline program (A6044). Therefore, the revised budget should now be $306K. When the $50K is taken out in August, the variance year-to-date should also be reduced.

189 A6351

1. 189 A6351 - Core Melt Mitigation

2. Scheduled Milestones for July 1982

   None.

3. Summary of Work Performed in July 1982

   Completed design work on V-sequence.

   Started writing of final report.

4. Scheduled Milestones for August 1982

   None.

5. Summary of Work to be Performed in August 1982

   Complete writing of final report.

6. Problems and Potential Problems

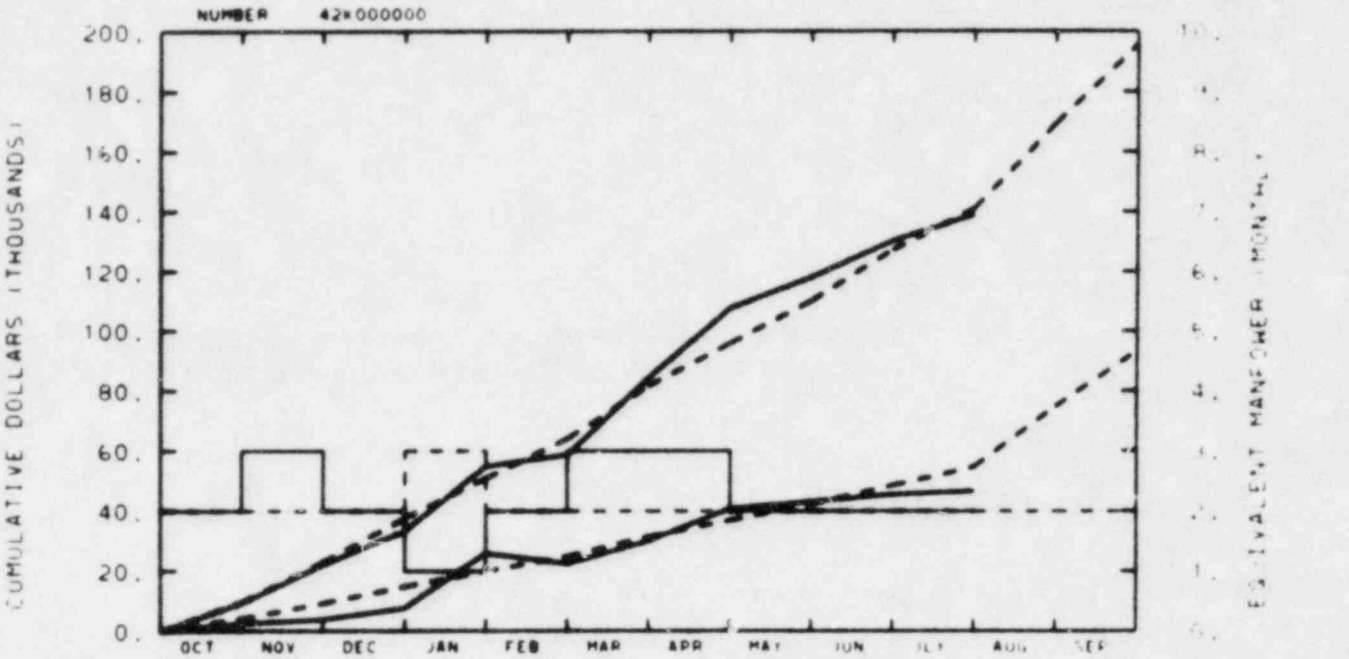
   None.

RESPONSIBLE MANAGER
R.HOBBINS

EG&G IDAHO INC.

NRC REP TO ▸F▸

NUMBER 42×000000



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		

MATERIAL

BUDGET	4	9	15	20	25	32	37	42	49	55	78	93
ACTUAL	3	4	8	26	23	30	41	43	46	47		

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		

A6352

YTD VARIANCE: 2 (1%)

1. 189a A6352 - NRC Representative to KfK

2. Scheduled Milestones for July 1982

   None.

3. Summary of Work Performed in July 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 August 1982

5. Summary of Work to be Performed in August 1982

6. Problems and Potential Problems

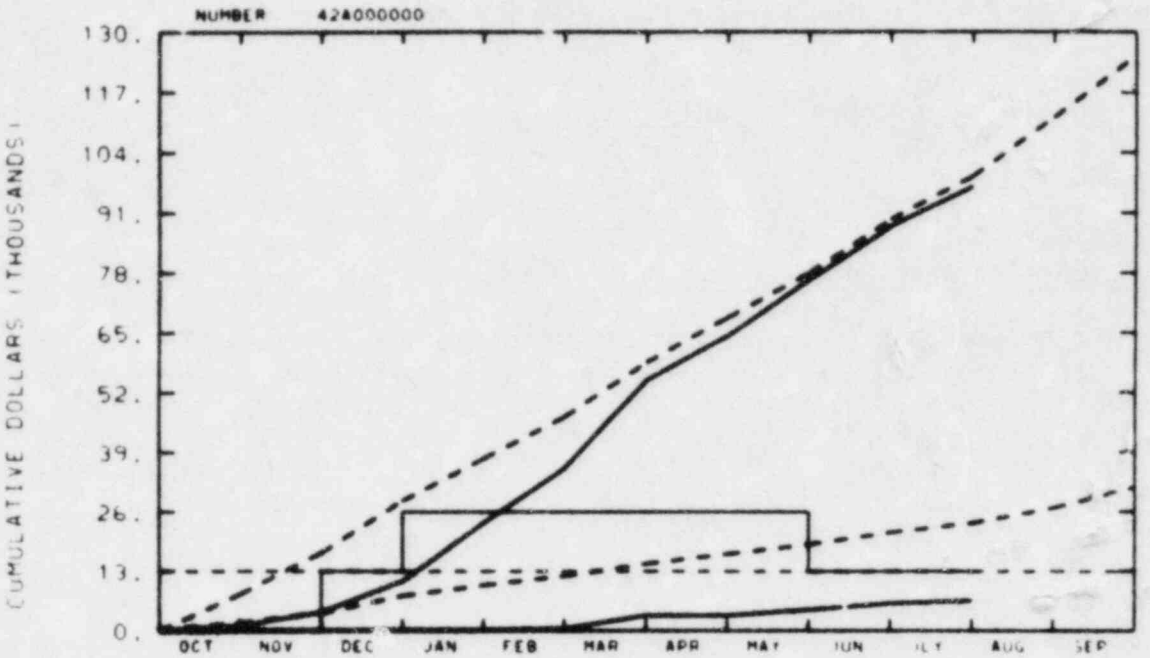
   None.

RESPONSIBLE MANAGER
D.W.CROUCHER

EG&G IDAHO INC.

FIS PROD BEHAV - PAST ACCIDENTS

NUMBER 424000000



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		

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		

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		

A6372

YTD VARIANCE: 2 (2%)

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

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

A rough draft of the report of past accidents and destructive tests is being reviewed by management. Potential routes of fission product transport in TMI-2 have been identified. Sensitivity studies on the effect of particle size on the output of the CORRAL-2 code have been done. Predictions of fission product behavior during the Plutonium Recycle Test Reactor accident by the CORRAL-2 code have been obtained and compared to actual results.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

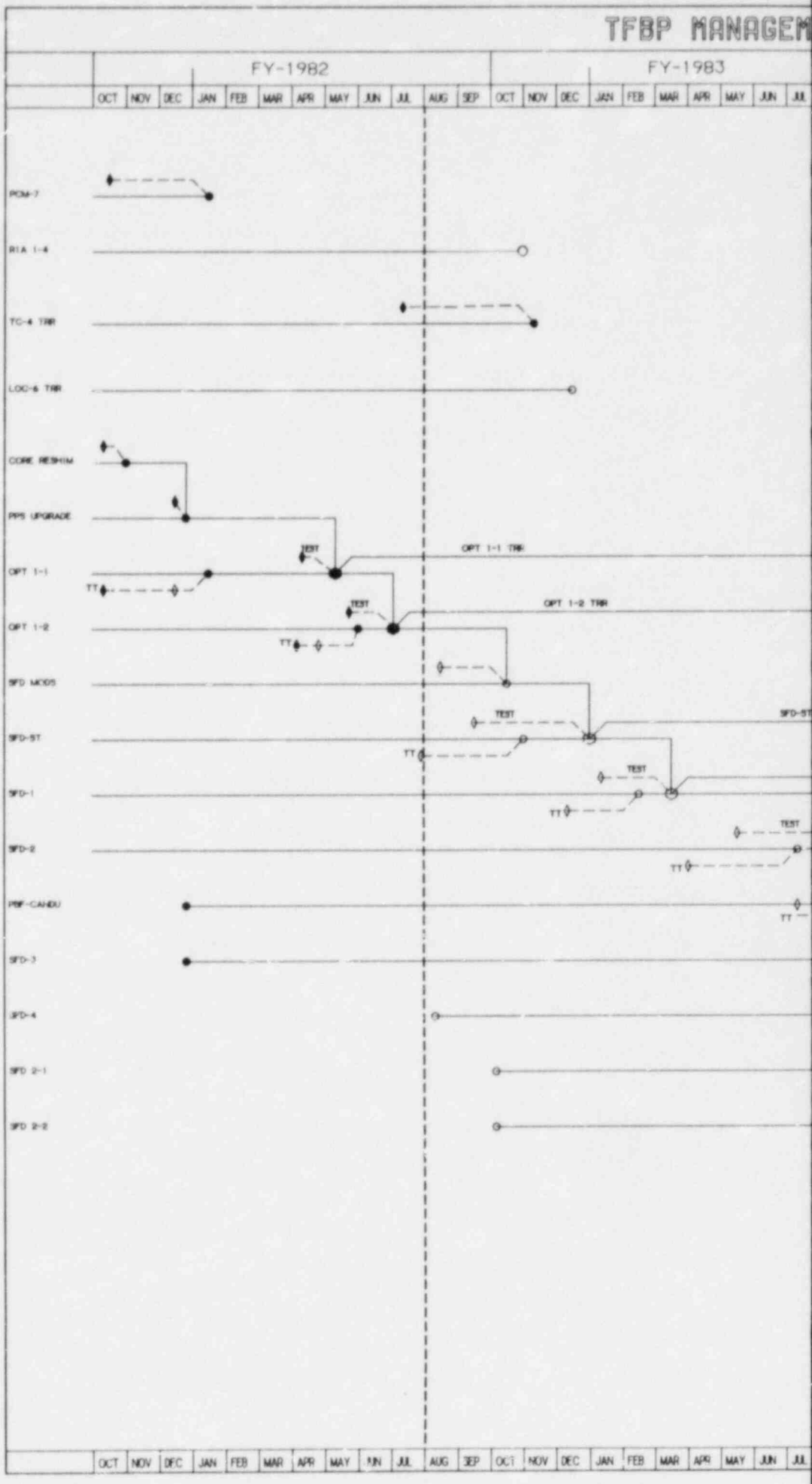
Review of the Past Accidents report will be completed. Important time events during the TMI-2 accident will be identified for CORRAL-2 calculations.

6. Problems and Potential Problems

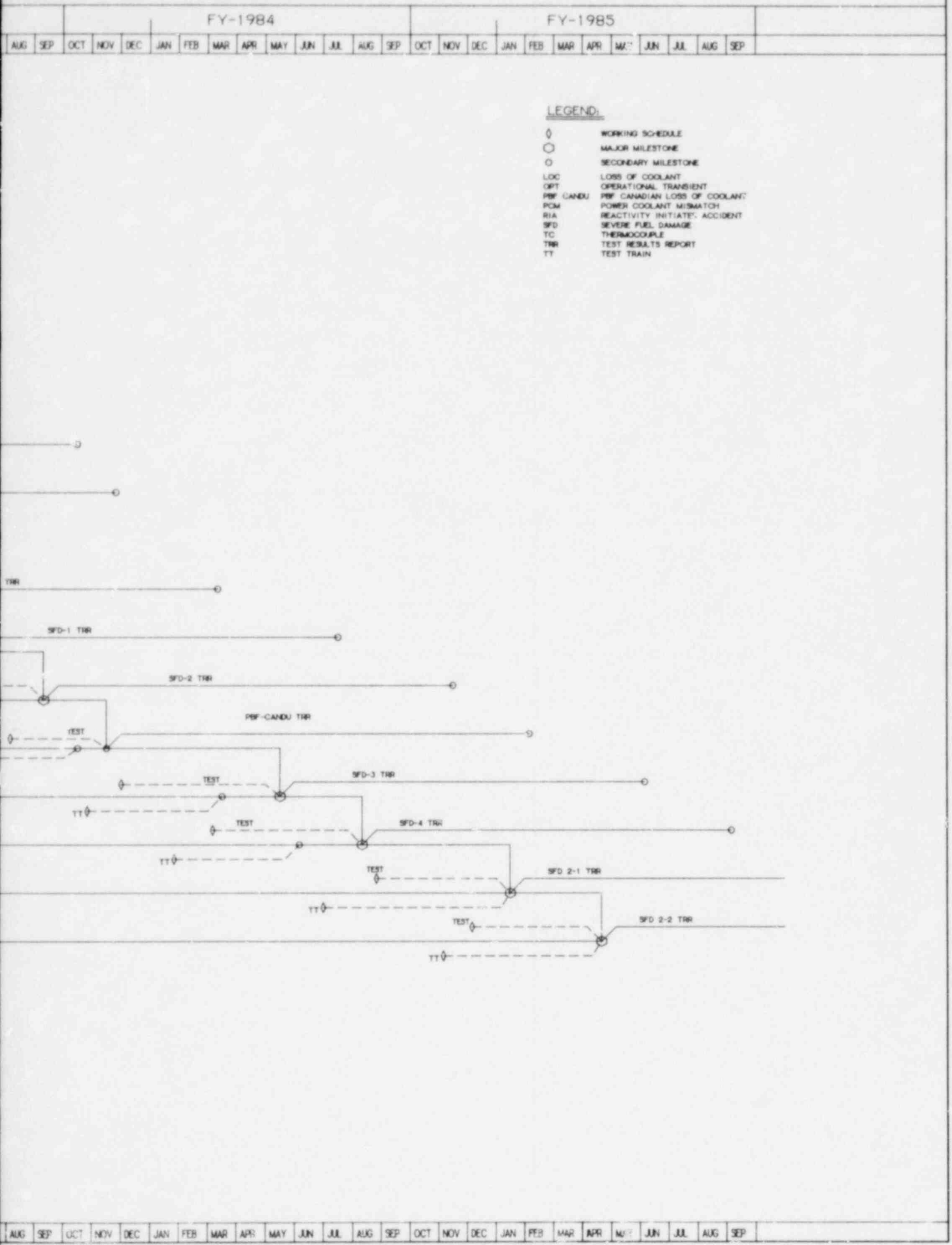
None.

THERMAL FUELS BEHAVIOR PROGRAM

MANAGEMENT SUMMARY SCHEDULE


TFBP MANAGEM
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
OPT 1-2
OPT 1-2 TRR
SFD MODS
SFD-ST
SFD-1
SFD-2
PSF-CANDU
SFD-3
SFD-4
SFD 2-1
SFD 2-2
TEST
TT

ENT SUMMARY SCHEDULE



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 IPT 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 A6355	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

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

< > Return to Management Reserve

THERMAL FUELS BEHAVIOR PROGRAM

STATUS BY 189

($000)

189 Number	New 189 Total
A6041	$ 2,100.8
A6044	1,827.0
A6057	5,887.2
A6305	6,122.0
A6351	355.5
A6352	195.7
A6355	26.3
A6372	125.0
A6454*	0.8
Subtotal	$16,640.3
Management Reserve	73.0
Discretionary Reserve	4.8
TOTAL	$16,718.1

* NRR Funding.

MONTHLY REPORT FOR

JULY 1982

2D/3D PROGRAM

P. North / gw Johnson

P. North, Manager

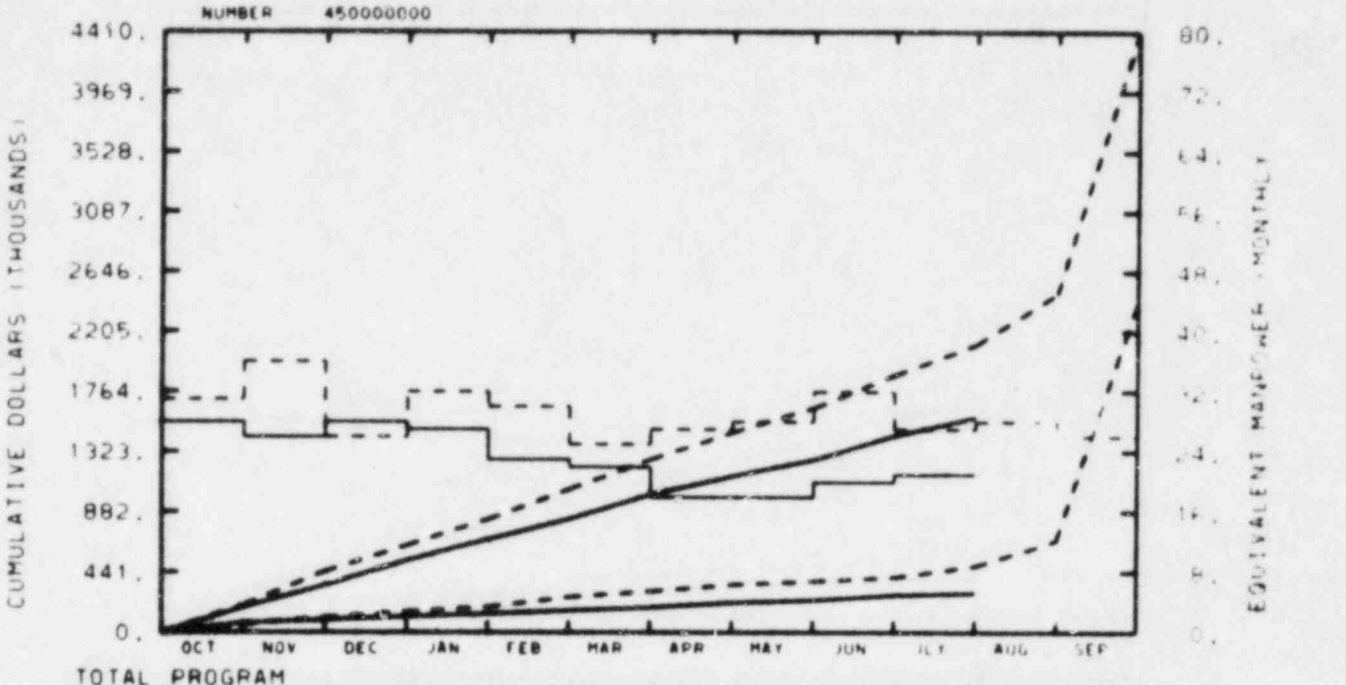
Paul Keele

P. B. Keele
Plans and Budget Representative

RESPONSIBLE MANAGER
JB COLSON

EG&G IDAHO INC.

2D-3D PROGRAM



TOTAL PROGRAM

BUDGET	203	449	640	828	1050	1267	1465	1644	1887	2109	2487	4400
ACTUAL	187	348	530	684	832	1012	1147	1267	1444	1575		

MATERIAL

BUDGET	61	113	156	190	261	305	352	377	406	488	674	2423
ACTUAL	71	94	119	140	163	188	222	239	275	291		

MANPOWER

BUDGET	11	16	26	32	30	25	27	28	32	27	28	26
ACTUAL	28	26	28	27	23	22	18	18	20	21		

YTD VARIANCE: 534 (25%)

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

Installation support at the PKL facility in Germany was completed.

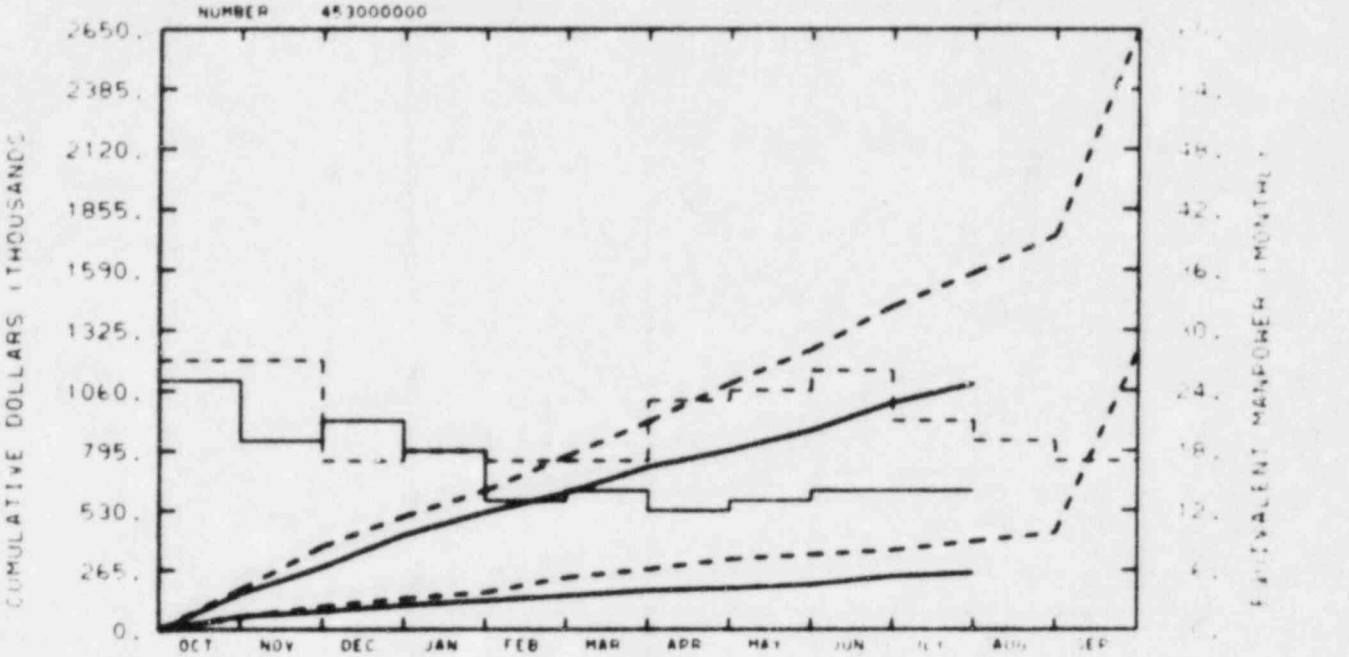
Interface meeting was held in Germany to resolve open intems on UPTF instruments, scheduling, and Data Acquisition System.

RESPONSIBLE MANAGER
JB COLSON

EG&G IDAHO INC.

A6100 TECH SUPPORT & INSTRUMENT

NUMBER 453000000



TOTAL PROGRAM

BUDGET	179	369	504	619	770	923	1089	1239	1430	1577	1742	2649
ACTUAL	161	280	421	523	609	723	797	884	1006	1090		

MATERIAL

BUDGET	57	104	140	168	233	269	314	334	353	394	430	1232
ACTUAL	60	83	110	130	153	176	186	202	238	253		

MANPOWER

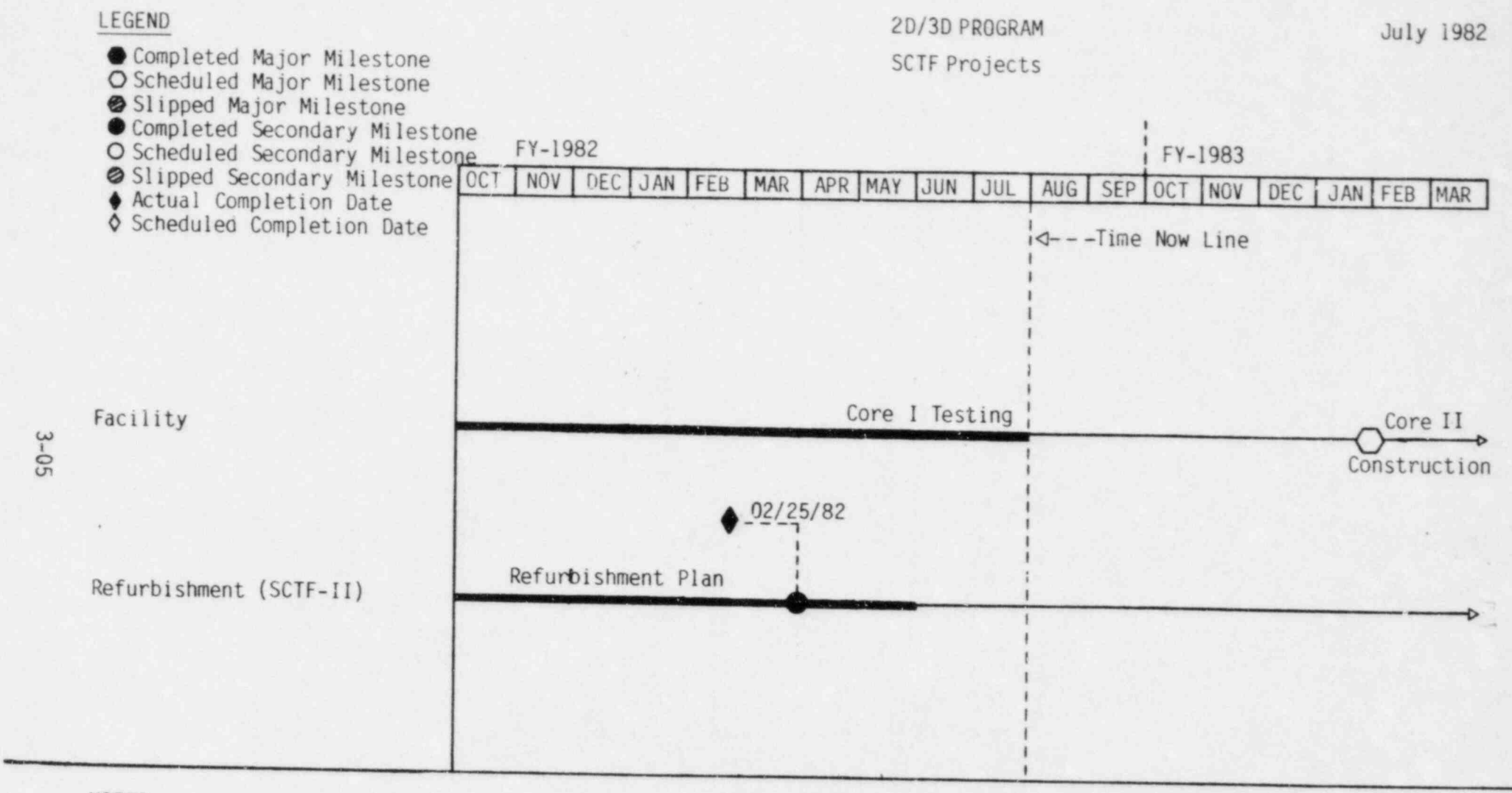
BUDGET	27	27	17	18	17	17	23	24	26	21	19	17
ACTUAL	25	19	21	18	13	14	12	13	14	14		

A6100

YTD VARIANCE: 487 (31%)

The year-to-date variance is the result of the continuing situation with UPTF instrumentation. Work scope associated with UPTF instrumentation was initially delayed because of a lack of specifications, this schedule slip continues to cause an underrun situation. Fiscal Year 1982 UPTF work scope will be carried over into FY-1983, the budget associated with this work scope is approximately $750K. Even with the present schedule slip and the resultant carryover work scope, we expect to be able to meet required UPTF delivery dates.

CCB 3D 82-05 was submitted and approved by DOE-ID.


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
July 1982
FY-1982
FY-1983
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Time Now Line
Facility
Core I Testing
Core II
Construction
02/25/82
Refurbishment (SCTF-II)
Refurbishment Plan

3-05

NOTES:

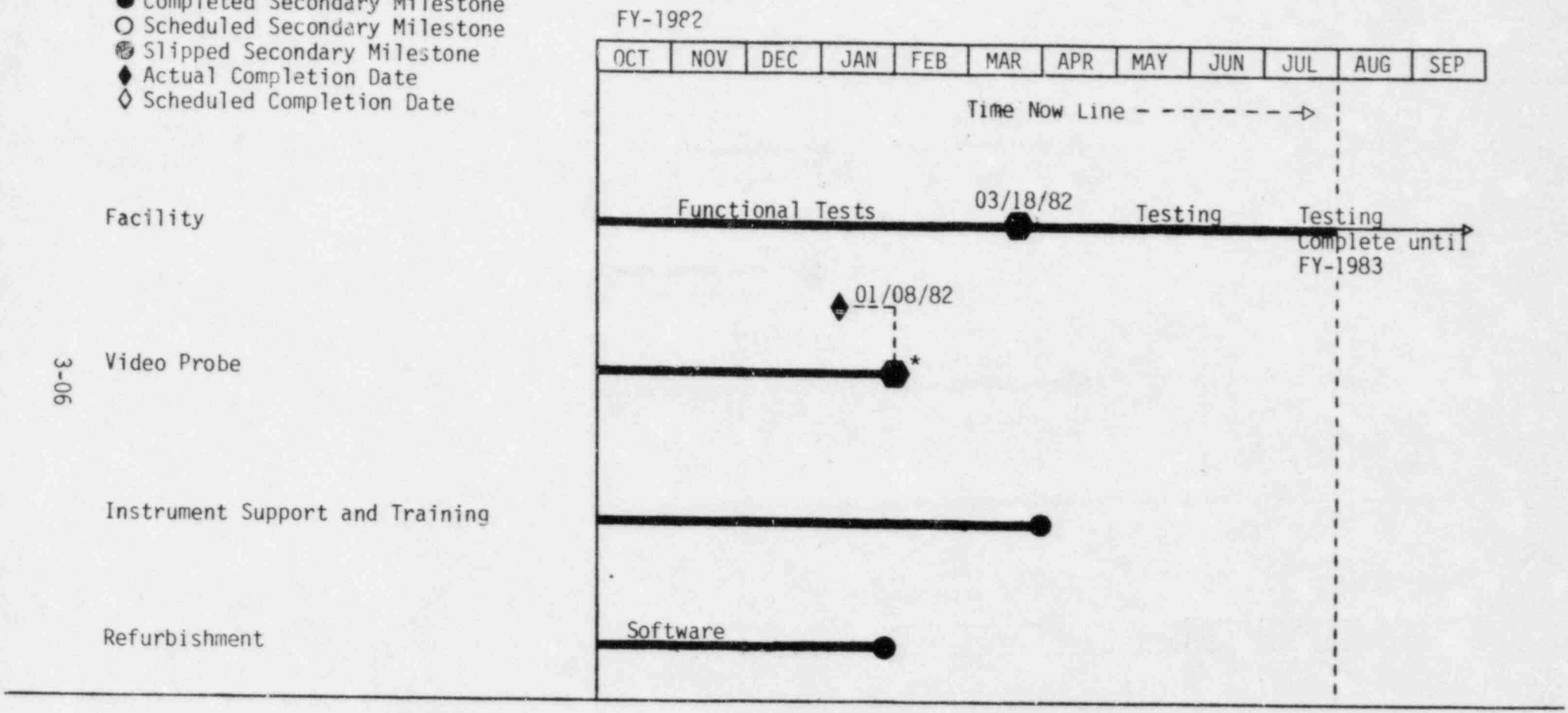
LEGEND

- ● 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

July 1982



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

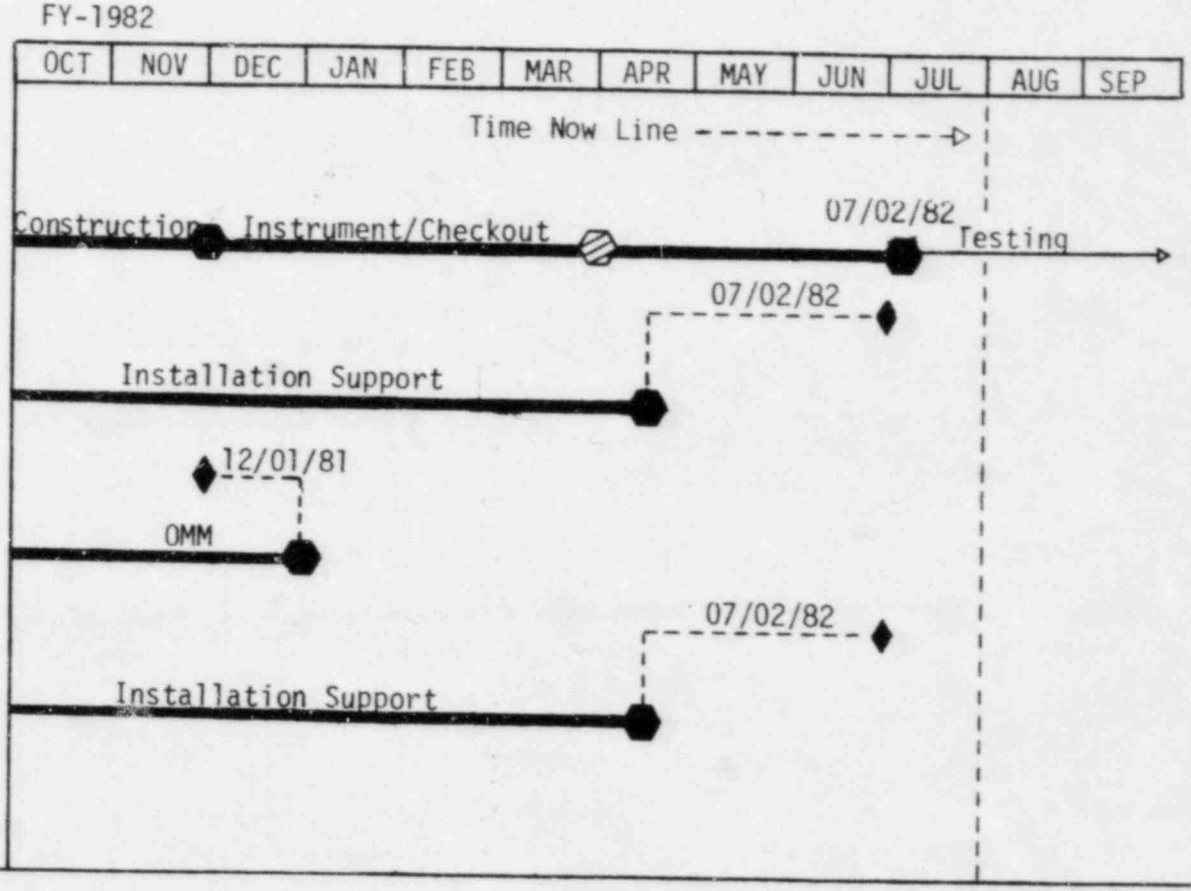
LEGEND

- 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

July 1982



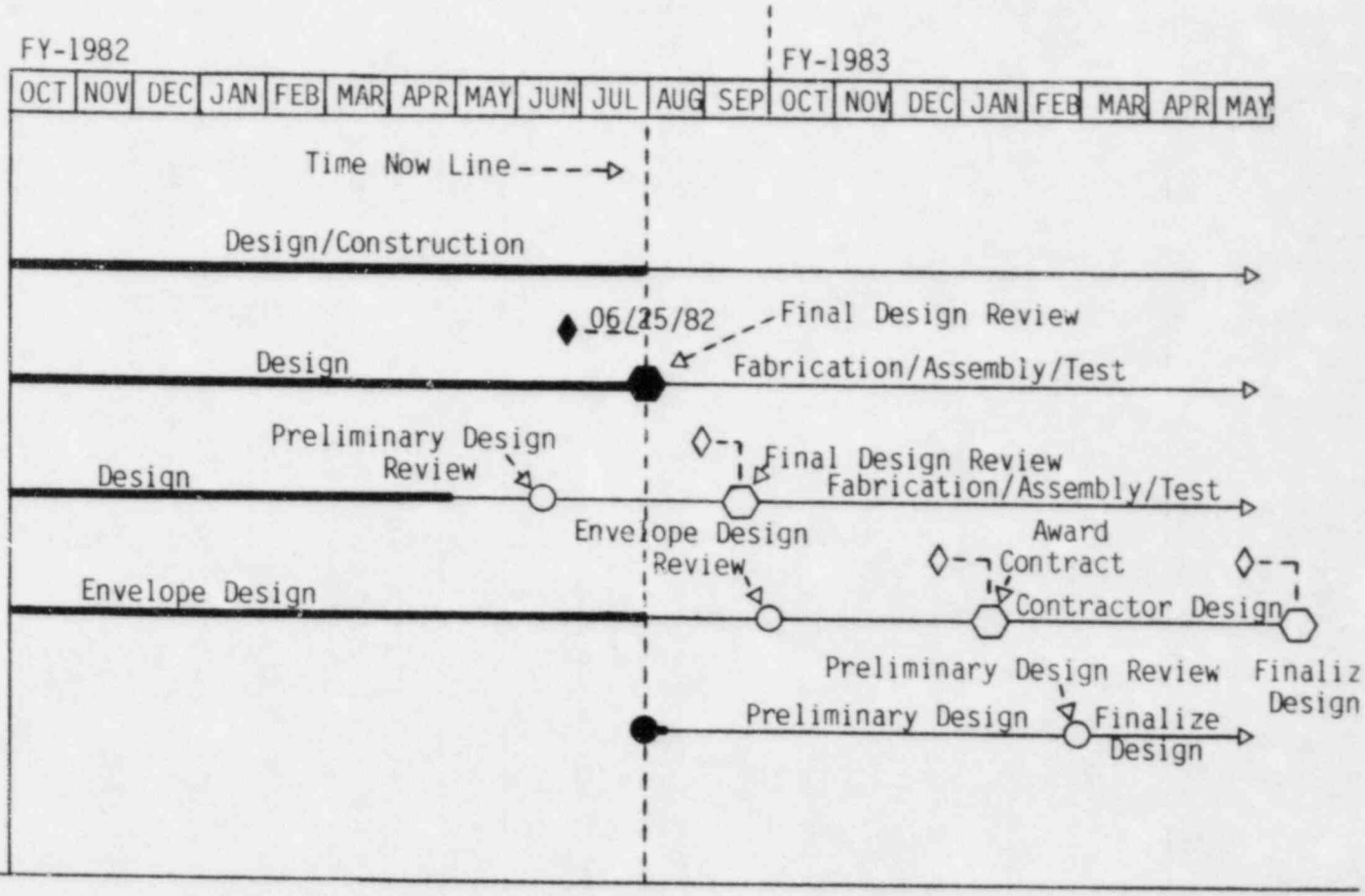
NOTES: Instrument installation support and checkout is complete except resolution of problems encountered in checkout testing.

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

July 1982



NOTES:

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

2. Scheduled Milestones for July 1982

Node	Description	Due Date	Actual Date
	Installation support (support at PKL Facility for installation of the CLLMS)	3-1-82	7-2-82*

* Delayed completion date is due to facility schedule slippage.

	Complete installation and checkout support for the PKL spool pieces (San Ramon Office)	3-1-82	7-2-82*

* Delayed completion date is due to facility schedule slippage.

3. Summary of Work Performed in July 1982

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

1. 453051000 - Conductivity Liquid Level Measurement System

Installation support was completed at the PKL facility by EG&G San Ramon personnel. This completes work on this project under the current work scope.

2. 453052000 - Spool Pieces

Installation support at the PKL facility was completed. Repair of components from two densitometers that malfunctioned during intial PKL-II checkout test was initiated.

B. FRG Upper Plenum Test Facility

1. 453071000 - Drag Disks

The final design review report has been drafted and is currently being reviewed by cognizant personnel. Action items from the design review are being incorporated into the drawings. Th drag-disk electronic fabrication has progressed to 65% completion. Machining parts for the drag-disk coil assemblies has progressed to 50% completion.

3B. Summary of Work Performed in July 1982 (Continued)

2. 453072000 - Gamma Densitometers

Interface/schedule meetings were attended in Germany to discuss open items. Fabrication of the test fixture was completed. Fabrication of the test vessel is 90% completed. The electronics for the optimization tests were checked and aligned.

3. 453073000 - Turbine Meters

A subcontract for testing prototype turbine capsules with a graphite bearing was established with Measurements Incorporated of Idaho Falls. A subcontract was also given to Ryerson of Seattle, Washington to fabricate slotted guide tubes for the UPTF turbine stalks. Fabrication of stalk support pins for the UPTF turbine was completed and delivery was made to Germany. A meeting to discuss interfaces was attended in Erlangen, Germany.

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

1. 453082000 - Spool Piece and Drag Disk Refurbishment

Minor corrections to SCTF/CCTF-II software users manual were made. A revision to the manual was distributed.

D. JAERI Slab Core Test Facility

1. 453091000 - Core-II Refurbishment

Conax seals were ordered for turbine meters.

2. 453092000 - Core-III Refurbishment

No activity.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

A. FRG Primary Coolant Loop Instruments

1. 453051000 - Conductivity Liquid Level Measurement System

No activity planned.

2. 45302000 - Spool Pieces

Repair of the densitometer detector components which failed during initial PKL-II checkout tests will be completed and the components will be returned to the PKL facility.

B. FRG Upper Plenum Test Facility

1. 453071000 - Drag Disks

The final design review report and a report on the resolution of the action items will be issued. Procurement of parts for fabrication of the drag-disk transducers will be initiated. The electronic fabrication will progress to approximately 80% completion. Fabrication of parts for the coil assemblies will progress to 70% completion.

2. 453072000 - Gamma Densitometers

The optimization tests will be completed. Design drawings of the racks and design of the electronics will be approximately 50% completed.

3. 453073000 - Turbine Meters

Fabrication of the prototype turbine capsule with a graphite bearing will be completed. Fabrication of the UPTF turbine stalk, slotted guide tubes will also be completed. Testing of the prototype bearing capsule will be initiated. Resolution of action items from the German interface meeting will be initiated. The envelope design for the UPTF turbines will be 90% complete.

C. JAERI Cylindrical Core Test Facility Core II Instruments

1. 453082000 - Spool Piece and Drag Disk Refurbishment

No activity planned.

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

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 will be initiated. Refurbishment of the conductivity probes will continue. There is a possibility some new conductivity probes can be obtained from another project. The MgO cable and conax seals will be received.

2. 453092000 - Core-III Refurbishment

No activity planned.

6. Problems and Potential Problems

A. FRG UPTF Turbine Meters

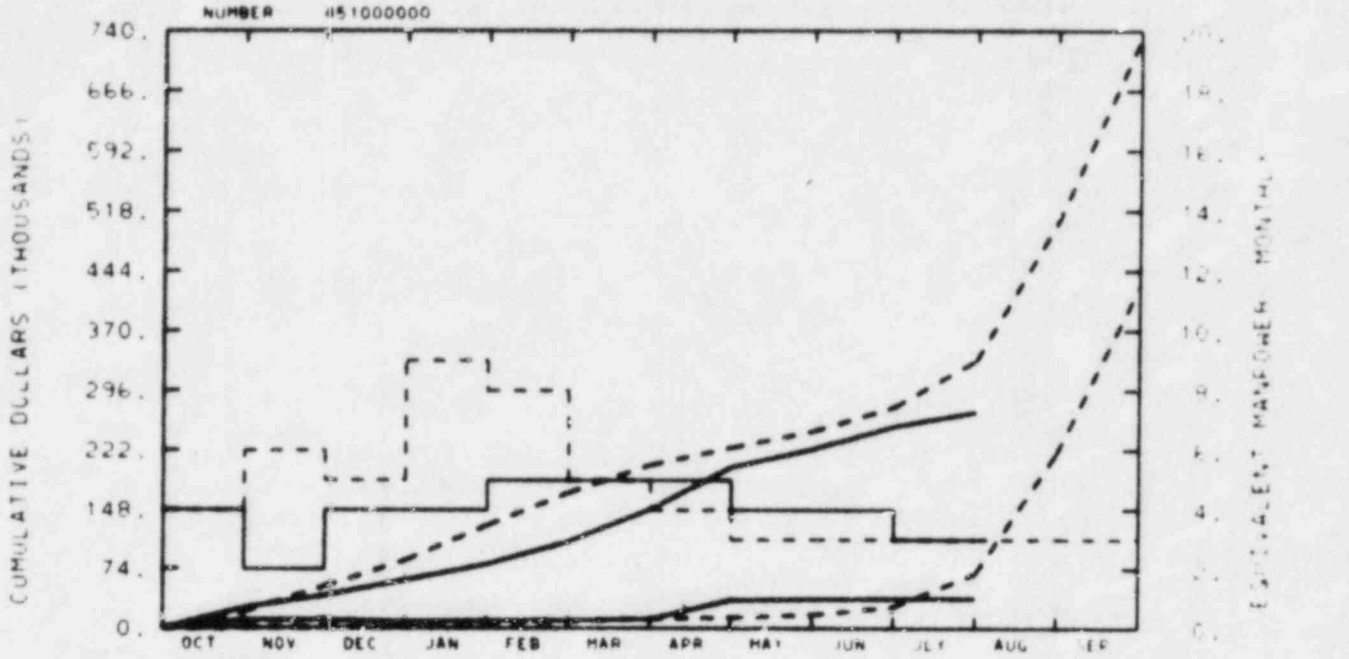
Slippage of the delivery date for prototype turbine capsule components could delay testing and subsequently affect the scheduled date for the UPTF turbine envelope design review.

RESPONSIBLE MANAGER
JB COLSON

EG&G IDAHO INC.

A6282 FLUID DISTRIBUTION GRIDS

NUMBER 451000000



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		

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		

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		

A6282

YTD VARIANCE: 64 (19%)

As reported in previous months, work scope for UPTF FDG continues to run behind schedule. This work scope is expected to underrun at year-end, however, the majority of this underrun ($250K) is associated with purchase orders for optical probe material, which will be committed but not costed.

CCB 3D 82-06 was submitted and approved by DOE-ID.

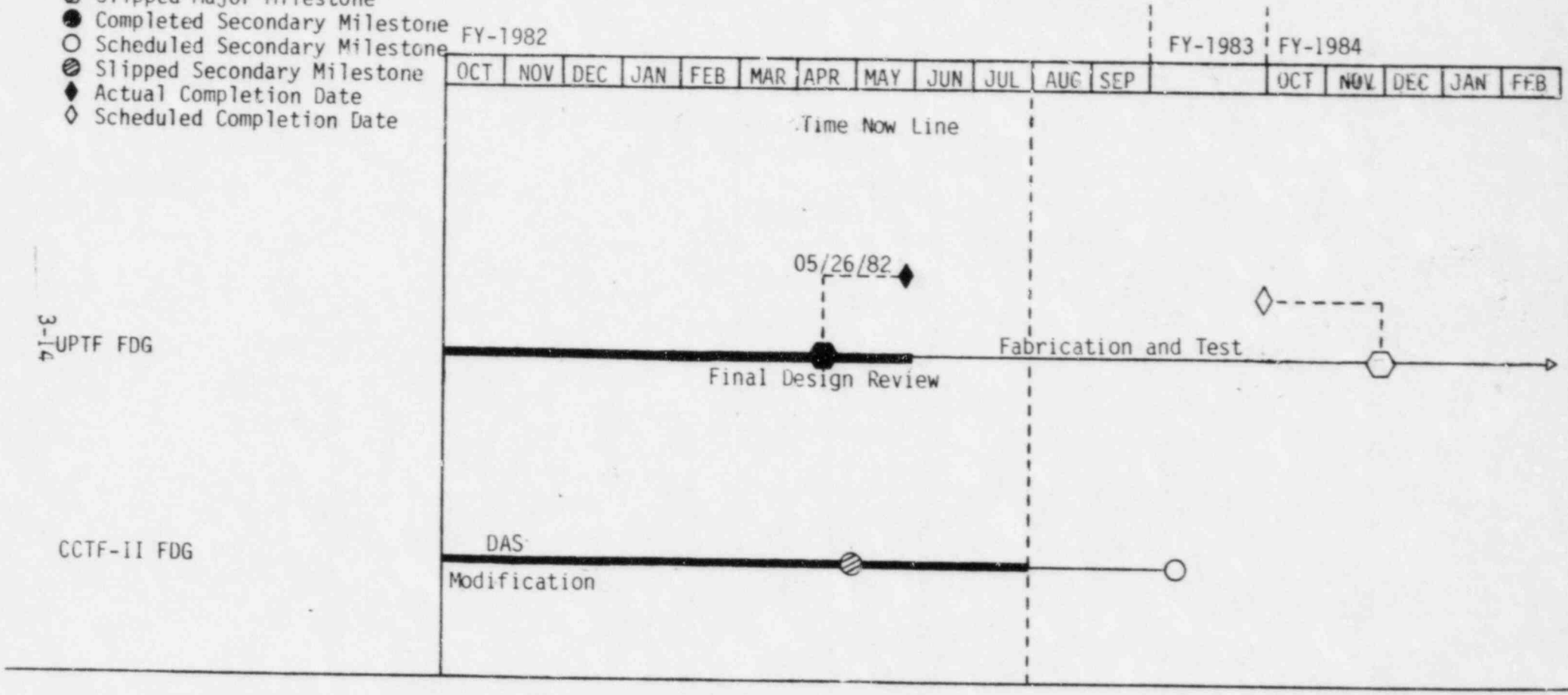
LEGEND

- 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

July 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 July 1982

None.

3. Summary of Work Performed in July 1982

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

The functional and design specifications for the CCTF-II FDG software were revised and brought up to date to include the changes requested by JAERI. These specifications are now in the approval cycle. Final corrections were made to the bubble plot and dry-fraction plot programs, and coding continued on the FDG color display program.

The CCB to increase the hours to complete the software design was submitted.

B. 451013000 - FRG Upper Plenum Test Facility

Information was prepared for the interface meeting in Germany. The bid package for optical tips, optical fibers, and stainless steel sheath tubing have been sent out. Drawings for the liquid level detector stalk support and dummy rods were completed. A SWR was issued to fabricate the stalk support.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

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

The off-line and on-line FDG color display programs in the movie camera control will be completed.

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

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

The stalk support for the three upper plenum liquid level detectors will be fabricated. Formal quotes will be received on the optical tips, optical fiber and stainless steel tubing. Open items from the design review will be resolved.

6. Problems and Potential Problems

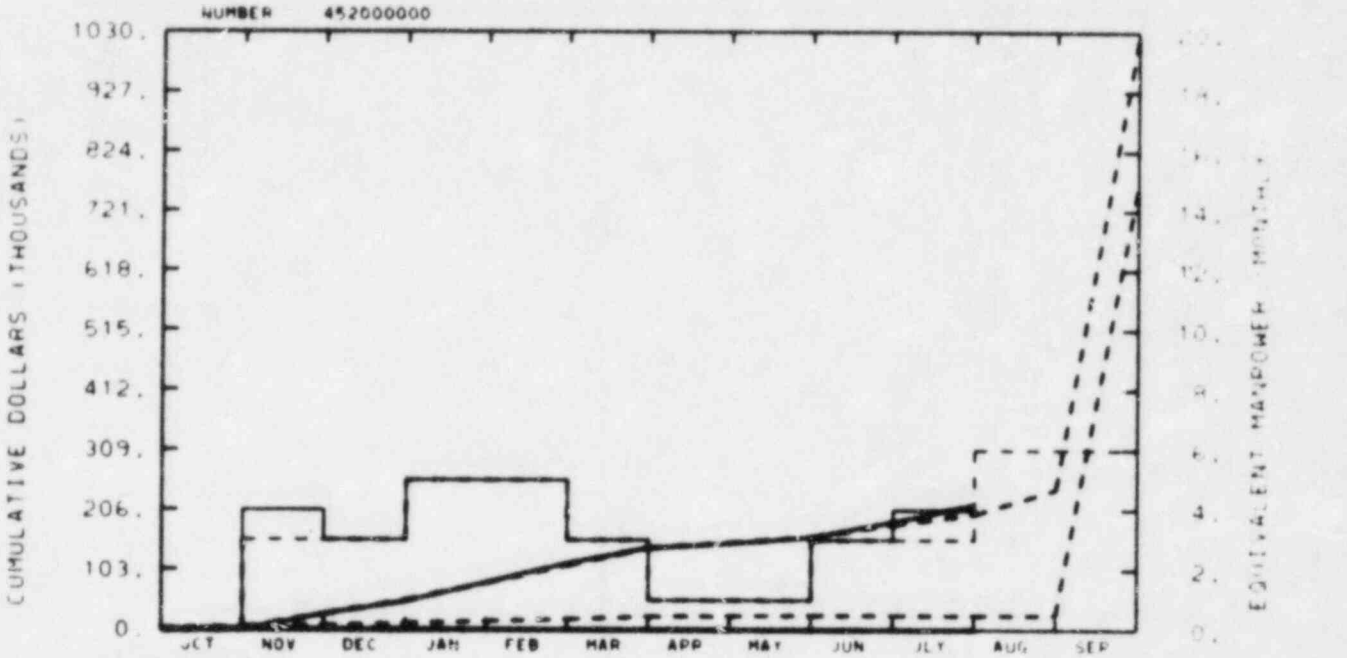
None.

RESPONSIBLE MANAGER
B OLSON

EG&G IDAHO INC.

A6283 UPTF DAS

NUMBER 452000000



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		

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		

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		

A6289

YTD VARIANCE: <17> (9%)

CCB 3D 82-07 was submitted and approved by DOE-ID

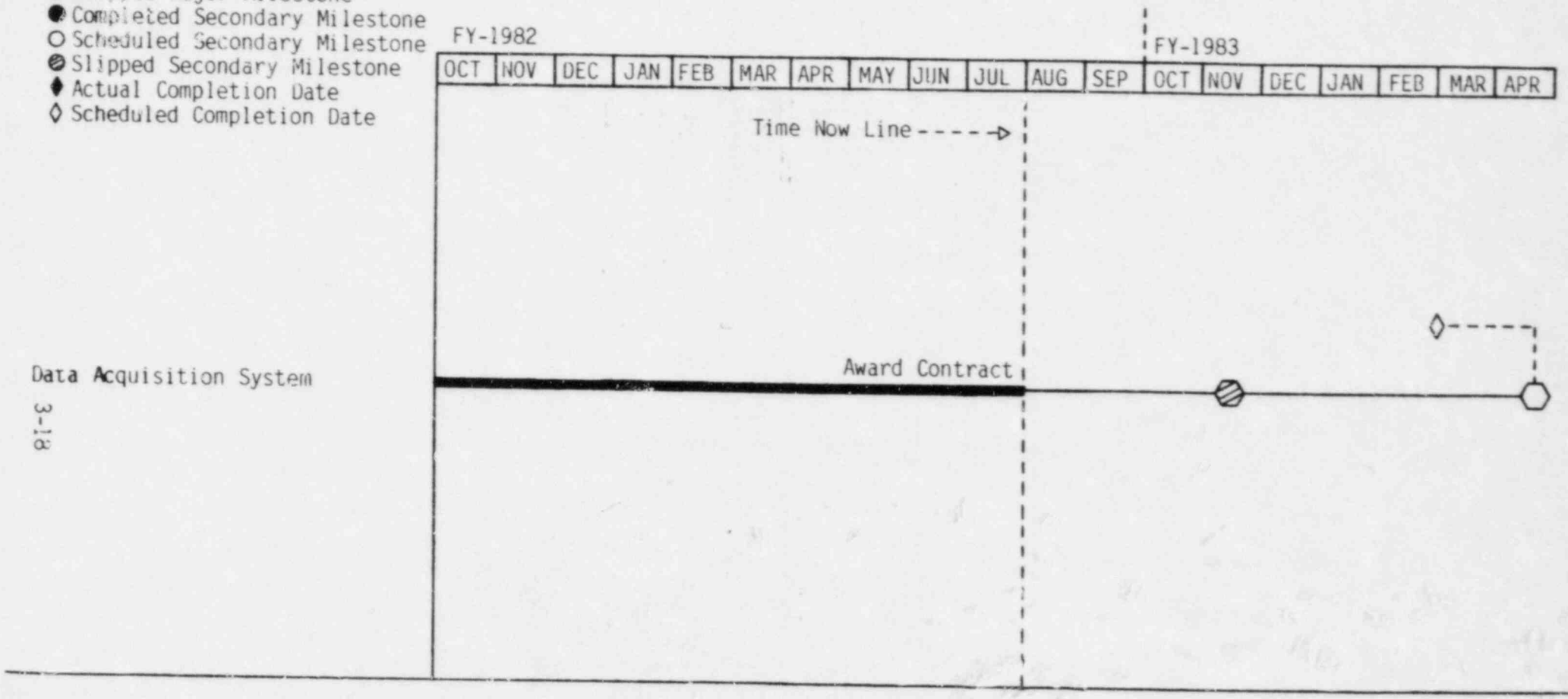
LEGEND

- ● 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

July 1982



NOTES: CCB 3D 82-07 was approved to establish a new baseline schedule.

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

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

The work package, cost estimate, and project plan for the UPTF Data Acquisition System were completed. The LOFT Option Study was essentially completed in time for results to be presented in an NRC review meeting but final preparation of a report and typing will be completed in August. A system study to determine the best way to implement the UPTF Fluid Distribution Grid DAS was started.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

Vendor response to the RFI will be completed and FRG comments on the MPR specification should be available allowing completion of the main DAS hardware specification. Work will continue on the Implementation Plan and Procurement Package for the Main DAS. The FDG System Study will be completed.

6. Problems and Potential Problems

None.

MONTHLY REPORT FOR

JULY 1982

CODE DEVELOPMENT DIVISION

F. Aguilar, Manager

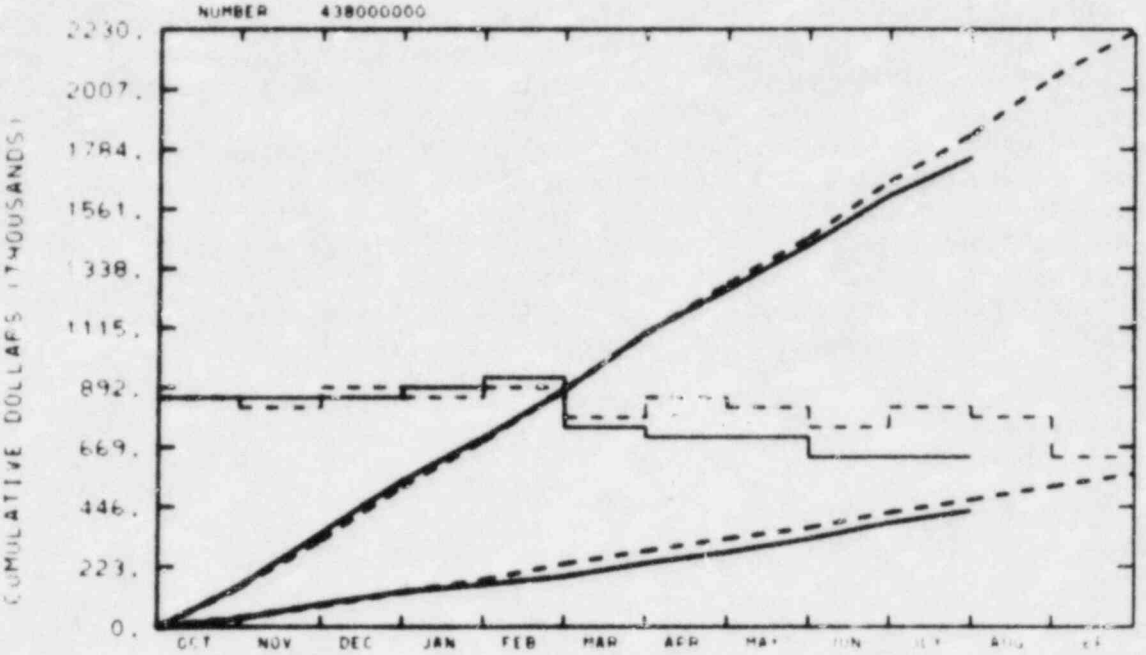
L. Morgan
Plans and Budget Representative

RESPONSIBLE MANAGER
AGUILAR

EG&G IDAHO INC.

RES - Code Development

NUMBER 438000000



TOTAL PROGRAM

BUDGET	147	321	522	693	885	1093	1279	1454	1661	1840	[illegible]	[illegible]
ACTUAL	150	347	541	705	882	1097	1259	1427	1611	1754		

MATERIAL

BUDGET	15	79	129	175	214	282	329	368	424	472	[illegible]	[illegible]
ACTUAL	32	85	131	156	187	237	277	327	386	431		

MANPOWER

BUDGET	23	22	24	24	24	21	23	22	20	22	21	[illegible]
ACTUAL	23	23	24	24	25	20	19	19	[illegible]	[illegible]		

PLAN

ACTUAL

YTD VARIANCE: 86 (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 SCDAP/MOD0 checkout continues according to schedule although a larger number of errors have been discovered than anticipated. This potential problem is receiving appropriate management attention.

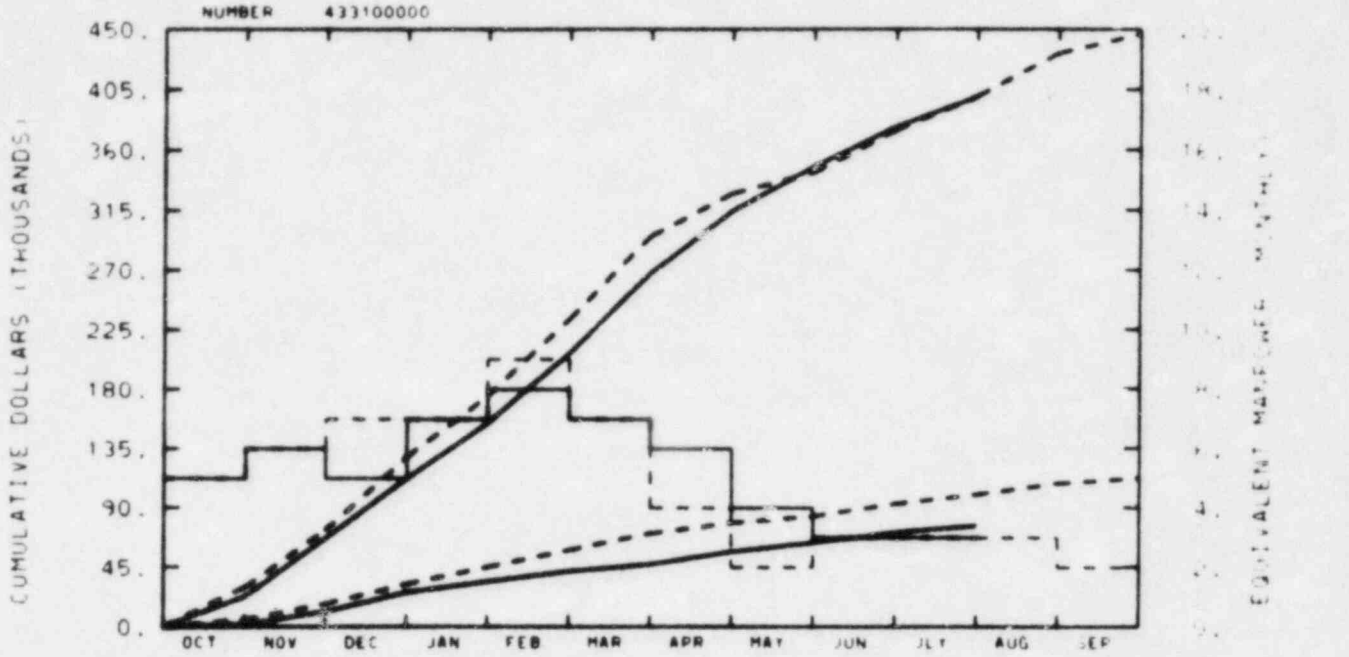
Committed model development for TRAC-BD1/MOD1 is progressing on schedule. The Advanced Code Review Group met at INEL on July 27 to discuss the interfacial shear problem discovered during the course of the transient sensitivity study of the TRAC-BWR heat transfer task. ACRG recommendations are being implemented into TRAC-BWR and a revised schedule for completion of the transient sensitivity study will be proposed after the ACRG suggestions are tested.

RESPONSIBLE MANAGER
AQUILAR

EG&G IDAHO INC.

FUEL BEH MDL DEVEL(A6050)

NUMBER 433100000



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		

MATERIAL

BUDGET	5	17	32	45	58	71	79	84	93	100	109	114
ACTUAL	2	12	26	34	42	57	57	64	71	77		

MANPOWER

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

BUDGET

ACTUAL

A6050

YTD VARIANCE: 0

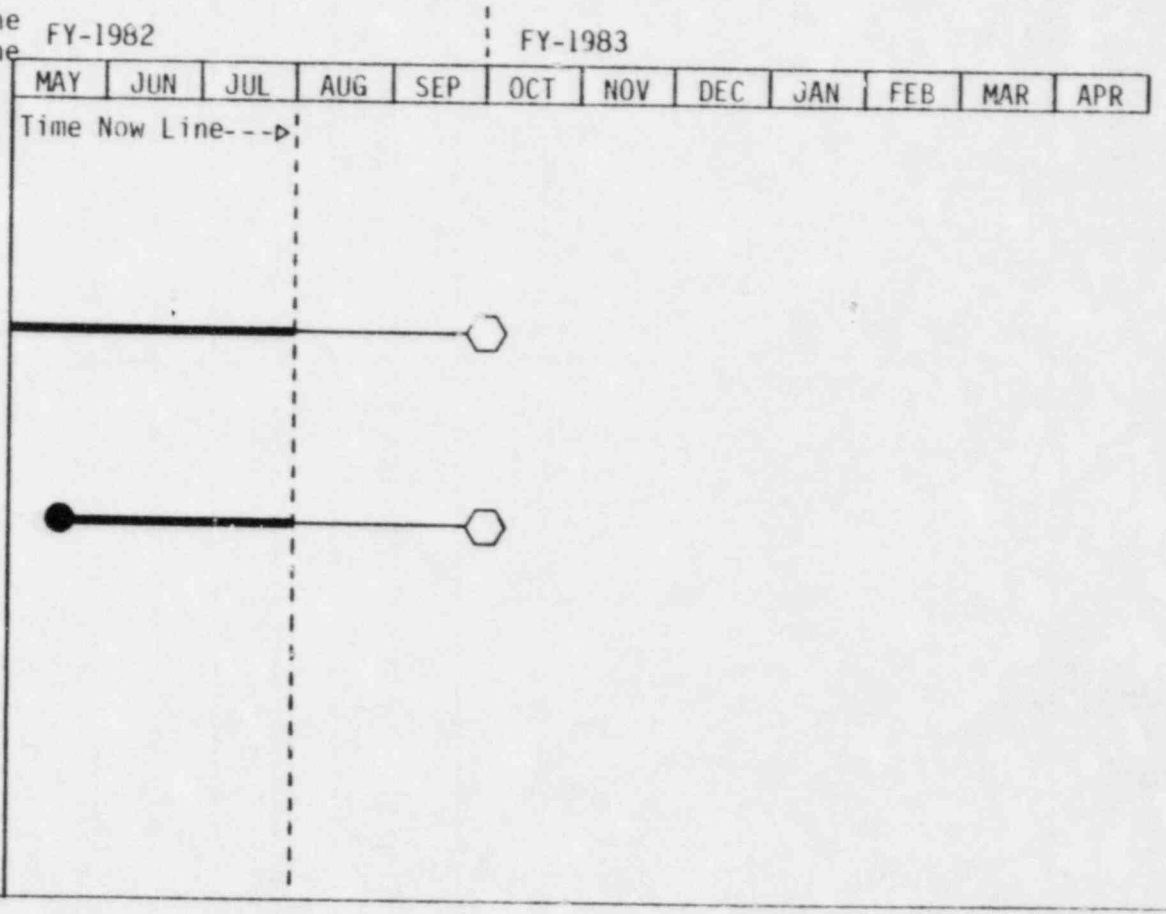
LEGEND

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

CODE DEVELOPMENT DIVISION

July 1982

Fuel Behavior Model Development (A6050)



NOTES:

1. 189a A6050 - Fuel Behavior Model Development

2. Scheduled Milestones for July 1982

None

3. Summary of Work Performed in July 1982

a. MATPRO

A review by TFBP of the position paper describing materials properties data needs for severe damage code development and experimental analysis resulted in additional changes to the report. The comments are presently being incorporated into the report, and it is expected that the report will be issued to DOE and NRC during August.

b. FRACAS-II

Coding of the trapped-fuel stack model was completed during July. Due to the need to develop a new iteration scheme for the trapped-stack model, testing of this model and the axial-radial pellet-cladding mechanical interaction (PCMI) model will not be completed during early August as planned. However, the testing will be completed by early September. This is not expected to delay completion of the FRACAS-II updates by the September 30, 1982 milestone date.

c. FRAP-T6

FRAP-T6 was updated to reflect the default inputs recommended by the independent assessment of the code and the changes resulting from code maintenance. The critical heat flux logic of FRAP-T6 was modified to agree with the modeling in RELAP4/MOD7. The irradiation annealing modeling problem identified during the FRAP-T6 independent assessment was corrected by modifying the annealing assumption used when going through a phase change from a face-centered-cubic to body-centered-cubic lattice. An informal report describing this modeling change was prepared and is presently in review. The problem in the cladding stress corrosion cracking model identified during the independent assessment was isolated during July. A new model is being incorporated into FRAP-T6 to correct the problem. Also, the stability problem related to gas release which was identified during the independent assessment was isolated and a correction was coded. Testing of both of the above modeling changes is underway and will be completed during August. Incorpora-

3.c Summary of Work Performed in July 1982 (Contd.)

tion of the new FASTGRASS model has been postponed until at least the end of August. PNL has verbally stated that the model will be ready for incorporation at that time. This update may not be made prior to the milestone date of September 30, 1982 if FASTGRASS is not received by the end of August. After written confirmation of a release date for FASTGRASS is received, a decision will be made on when incorporation can be completed. A new version of FRAP-T6 including the recommended default inputs was not sent to the National Energy Software Center (NESC) during July as planned. Instead, a version including all of the above modeling changes plus the new FRACAS-II models will be sent to NESC in September.

d. Transient Fuel Behavior Models

A revised PARAGRASS model was received from ANL during July. A review of this model indicated that it can only be incorporated into SCDAP/MODO if its structure is modified extensively. In order to provide a framework to ANL for restructuring PARAGRASS and to provide a preliminary fission gas release model for SCDAP/MODO, a variation of the MacDonald-Weisman gas release model is being incorporated into SCDAP. This work will be completed during August. A listing of the subroutines accessing the gas release models will then be provided to ANL so that PARAGRASS can be restructured for use in the SCDAP code. Given this information, it is anticipated ANL can complete this task in a minimal time and then the PARAGRASS models can be inserted in place of the interim models. Schedule details will be firmed with ANL after they review the structure requirements.

4. Scheduled Milestones for August 1982

None

5. Summary of Work to be Performed in August 1982

a. MATPRO

Incorporation of comments from TFBP on the position paper will be completed and the report will be issued to DOE and NRC.

b. FRACAS-II

Testing of the trapped-stack model and axial-radial PCMI model will continue during August and be completed by early September. Documentation of these models will begin during August. Coding of the new fuel relocation model will be completed during August. This model will be tested during early September and completed by the end of September.

5. Summary of Work to be Performed in August 1982 (Contd.)

c. FRAP-T6

The report describing the modified irradiation annealing model will be issued during August. Testing of the new stress-corrosion cracking model and the change to prevent instabilities when using FASTGRASS will be completed. Depending on availability of the new FASTGRASS model, incorporation of the model will begin during August.

d. Transient Fuel Behavior Models

The MacDonald-Weisman gas release model will be incorporated into SCDAP/MODO and a design report describing the model and model implementation will be issued during August. A listing of the gas release subroutines and calling subroutines will be provided to ANL to be used as a guide for restructuring PARAGRASS.

6. Problems and Potential Problems

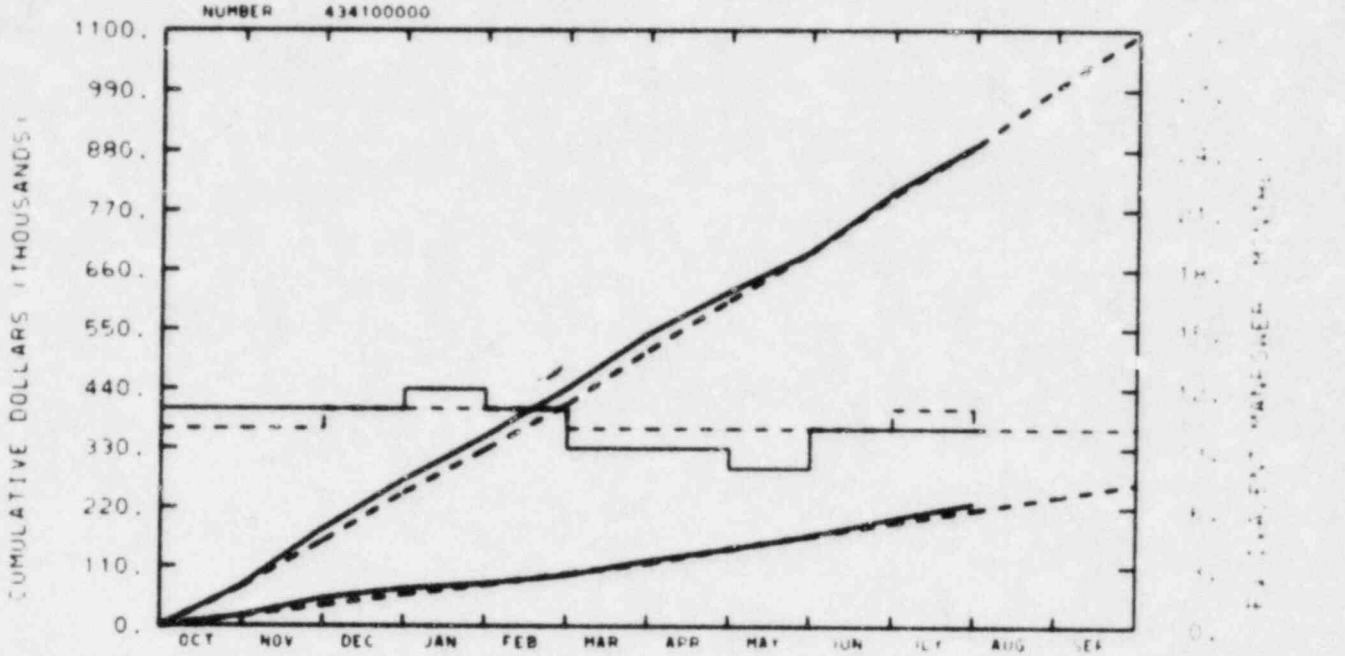
None

RESPONSIBLE MANAGER
F. AQUILAR

EG&G IDAHO INC.

LOSS-OF-COLNT ACC (A6052)

NUMBER 434100000



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		

MATERIAL

BUDGET	19	39	58	78	97	117	144	168	192	217	241	265
ACTUAL	20	42	70	79	95	122	144	168	201	229		

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		

A6052

YTD VARIANCE: <1>

This 189 will be underrun by $40K at year-end, which will be used to implement the FRAP fuel model into TRAC/BD1 MOD1 in FY-1983.

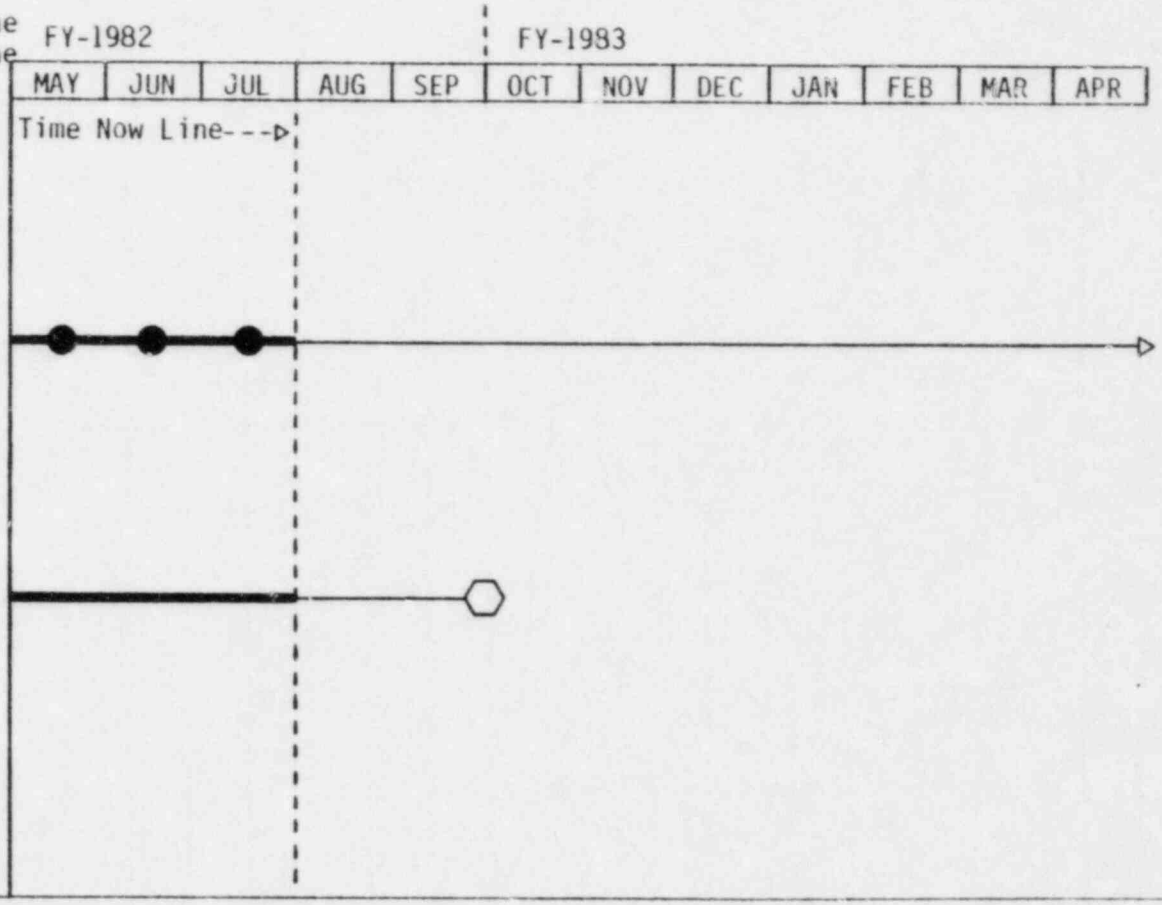
LEGEND

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

CODE DEVELOPMENT DIVISION

TRAC-B Development (A6052)

July 1982



NOTES:

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

2. Scheduled Milestones for July 1982

None

3. Summary of Work Performed in July 1982

a. Boiling Water Reactor (BWR) TRAC Development

The meeting notes for the Balance-of-Plant Workshop were issued to all participants. The completion report for the multiple CHAN option was received. The completion report for the Brown's Ferry developmental assessment calculation is being prepared, having been delayed by the preparation and presentation of a paper based on this work at the 1982 Summer Computer Simulation Conference, Denver, Colorado, July 19-21, 1982. The paper was issued as an EGG informal report, EGG-EE-5945 (July 1982). The BWR initialization task was completed and the completion report is being typed. The testing of the turbine model was completed and the completion report is being prepared. The feedwater heater model has been coded and is being tested. Testing and code assessment of the containment model continued. Official Version 14 was created containing the multiple CHAN and generalized heat transfer models.

Making TRAC-PD2 reflood model compatible with TRAC-BD1 had been on hold waiting for the generalized heat transfer completion. After the updates for BD1 are ready, a cost benefit study will be done to decide if they should be put in an official version. The study will be complete by January 1, 1983. Preliminary comparisons performed using TRAC-BD1 Version 12 did not show significant improvements in the results.

An ACRG meeting was held at INEL on July 27-28, 1982 concerning post-CHF experiments and computer models. Recommendations regarding the interfacial shear problem at low pressure were received. A proposal for the incorporation of a three-dimensional neutron kinetics model into TRAC-BWR was prepared and a draft copy of the proposal was discussed with cognizant NRC personnel attending the ACRG meeting. This proposal recommended the modification of the QUANDRY multidimensional neutron kinetics code for inclusion into TRAC-BWR.

GE is behind schedule on delivery of models for TRAC-BD1/MOD1. Their latest goal was August 1, 1982, but INEL Code Assessment has been performing calculations with GE updates and having problems. A new delivery date will be determined at the August GE-INEL coordination meeting.

3. Summary of Work Performed in July 1982 (Contd.)

b. RELAP4/MOD5 and MOD7 Maintenance

"Level 1" maintenance was provided.

4. Scheduled Milestones for August 1982

None

5. Summary of Work to be Performed in August 1982

a. Boiling Water Reactor (BWR) TRAC Development

The completion reports for the BWR initialization, turbine model, and Brown's Ferry developmental assessment calculations will be issued. Work will continue on the feedwater heater and containment models. A candidate Version 15 containing the non-condensible gas model will be created and testing will begin.

The recommendations received at the ACRG meeting on July 27 regarding the low pressure shear problem will be implemented and tested.

b. RELAP4/MOD5 and MOD7 Maintenance

"Level 1" maintenance will be provided.

6. Problems and Potential Problems

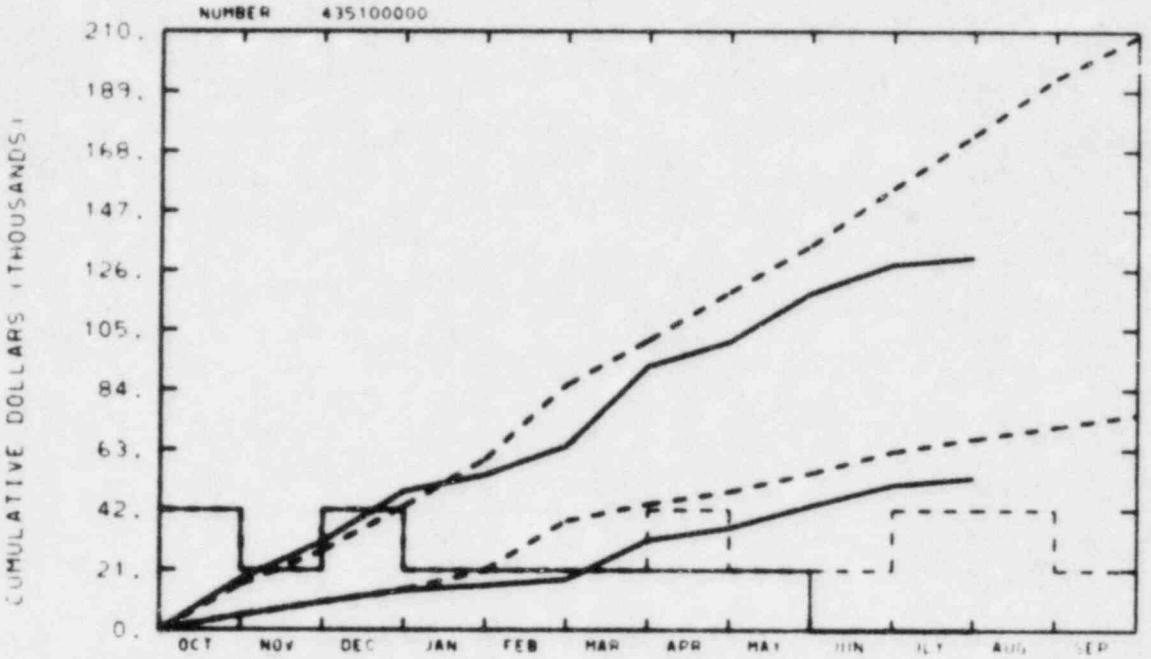
None

RESPONSIBLE MANAGER
F. AGUILAR

EG&G IDAHO INC.

HET TRAN CORRLATN (A6278)

NUMBER 435100000



TOTAL PROGRAM

BUDGET	16	28	43	60	86	101	118	148	166	174	194	219
ACTUAL	18	31	48	54	64	92	107	118	128	141		

MATERIAL

BUDGET	5	10	14	21	38	44	49	58	62	67	77	78
ACTUAL	5	10	14	16	18	31	45	44	51	53		

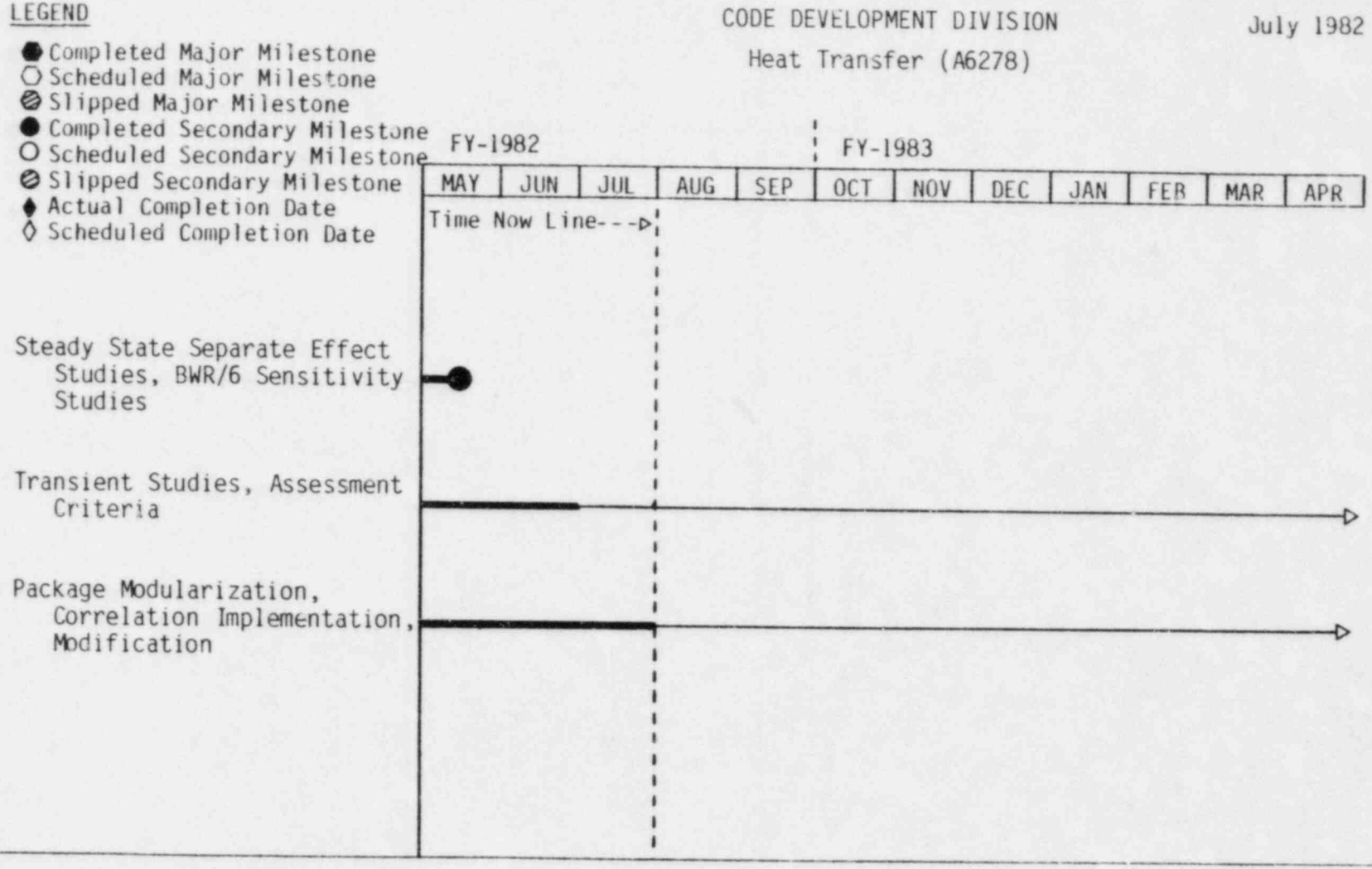
MANPOWER

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

A6278

YTD VARIANCE: 43 (25%)

The $43K underrun consists of $3K unused NRC technical assistance, $6.5K HTFS subcontract for subscriptions, and $33.5K of labor and computer that has not been costed due to the problem with the interfacial shear package. It is anticipated that this 189 will close out at $47K under budget in FY-1982, which will be carried over into FY-1983 to complete the transient sensitivity study.



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

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

2. Scheduled Milestones for July 1982

None

3. Summary of Work Performed in July 1982

An Advanced Code Review Group was held at INEL on July 27-28, 1982. The subject of the meeting was post-CHF heat transfer experiments and modeling. Recommendations for the resolution of the low pressure interfacial shear problem were received. The high pressure transient sensitivity study continued and a revised schedule for the transient sensitivity study was prepared and is currently being reviewed.

4. Scheduled Milestones for August 1982

None

5. Summary of Work to be Performed in August 1982

The high pressure transient sensitivity study will continue. The recommendations for the resolution of the low pressure interfacial shear problem, as well as recommendations regarding the post-CHF heat transfer will be implemented and tested. The revised schedule for the transient sensitivity study will be issued after the interfacial shear recommendations are tested to see if the problems are resolved.

6. Problems and Potential Problems

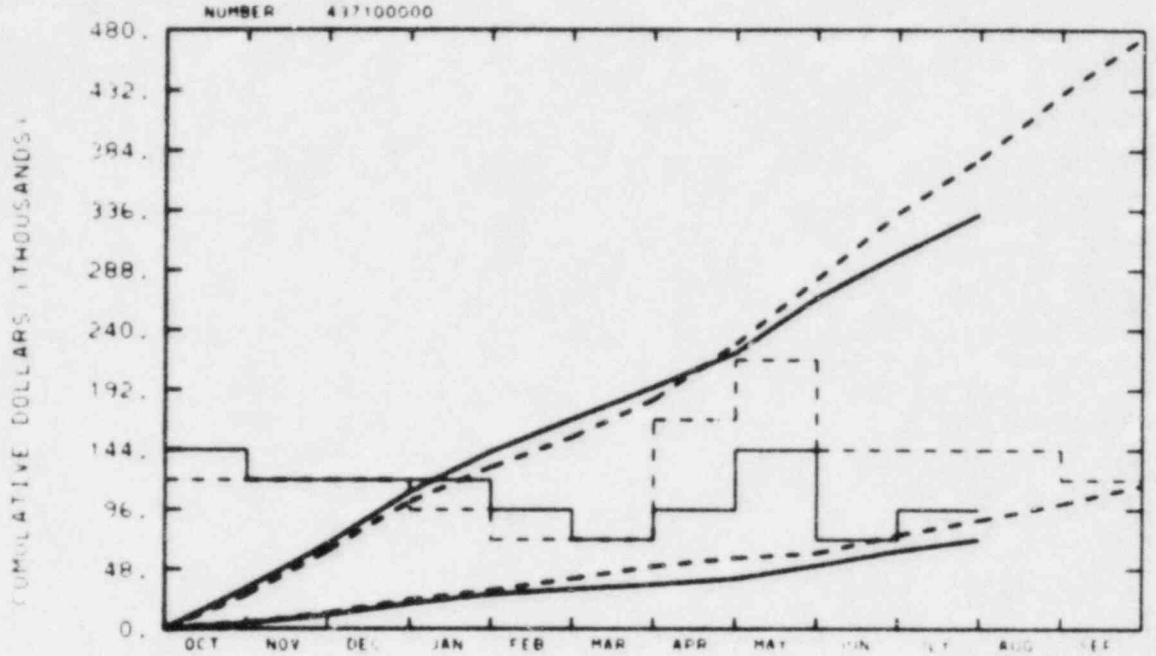
The interfacial shear problem revealed by the Lehigh data analysis has impacted the completion of the transient sensitivity study. As a result, we have divided the transient sensitivity study into two separate tasks - a high pressure transient sensitivity study and a low pressure transient sensitivity study. The high pressure study is proceeding according to a revised schedule, but the low pressure study has been postponed pending the resolution of the interfacial shear problem. The recommendations received at the July 27 ACRG meeting will be tested to see if the interfacial shear problem has been resolved. The revised schedule for the transient study will be issued after the recommendations have been tested. Testing will be completed by September 1, 1982.

RESPONSIBLE MANAGER
F. AQUILAR

EG&G IDAHO INC.

MDL SEV FUEL DAM (A6360)

NUMBER 437100000



TOTAL PROGRAM

BUDGET	28	63	102	130	154	174	229	281	314	377	430	472
ACTUAL	33	69	110	143	169	194	222	266	301	333		

MATERIAL

BUDGET	5	13	24	31	41	51	58	61	76	88	101	116
ACTUAL	5	12	21	28	32	36	41	51	63	72		

MANPOWER

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

BUDGET

ACTUAL

A6360

YTD VARIANCE: 44 (12%)

The $44K underrun consists of a $28K underrun in labor and a $16K underrun in material most of which is computer and travel. Additional staffing during July and planned for August will reduce the labor underrun to about $15K by fiscal year-end. The material underrun is expected to decrease to about $5K by year-end due to planned increases in computer usage during August and September. The task is projected to close about $20K underrun. This funding will be carried into FY-1983.

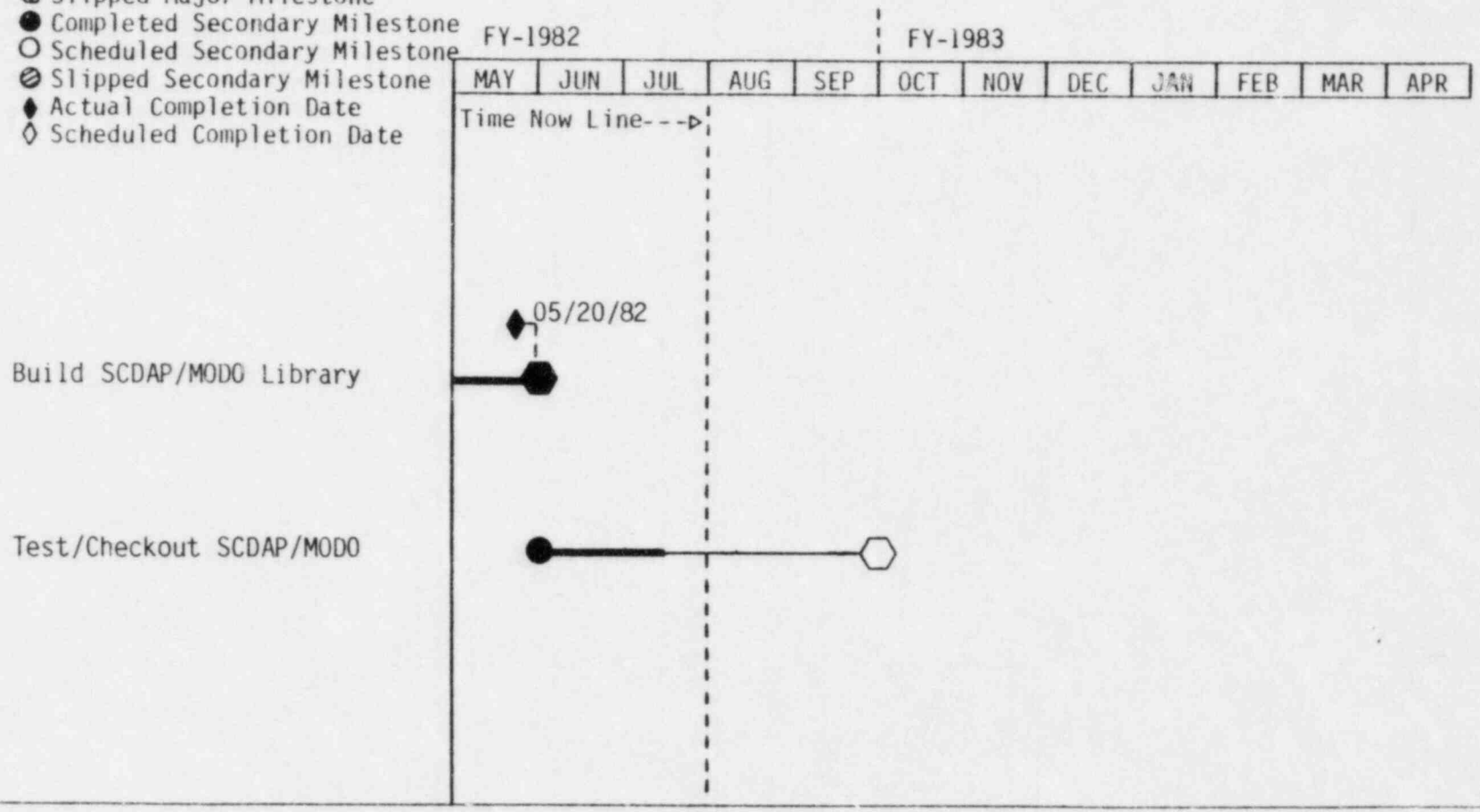
LEGEND

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

CODE DEVELOPMENT DIVISION

Modeling Severe Fuel Damage (A6360)

July 1982



NOTES:

1. 189a A6360 - Modeling Severe Fuel Damage

2. Scheduled Milestones for July 1982

None

3. Summary of Work Performed in July 1982

a. Debris Transition Model

Due to the problems encountered in the fission gas release modeling for SCDAP/MODO, (See A6050) no progress was made on the debris transition model description report during July. Work on this report will begin after the gas release modeling is completed in August. The report will be completed during September.

b. SCDCOMP Checkout and Testing

Due to extensive problems encountered in debugging SCDCOMP, checkout was not completed during July as planned. These problems were resolved during July and checkout of the ballooning, control rod, axial fuel relocation and fragmented debris formation models is proceeding. Checkout of these models will be completed during August. Input decks for the MARCH code simulation, the PBF SFD-ST simulation, and the adiabatic core heatup simulation were assembled during July. Calculations were made for the first and third cases. The remaining case and a TMI-2 simulation will be run with SCDCOMP during August.

c. SCDBUND Checkout and Testing

Problems encountered in initializing the SCDBUND routines prevented completion of SCDBUND checkout during July. Work is proceeding on correcting these problems, and SCDBUND is expected to be made fully functional by the end of August.

d. SCDAP/MODO Checkout and Testing

SCDAP/MODO/Version 2 was created during July. Checkout of SCDAP/MODO proceeded at a planned low level of effort during July and will be performed in conjunction with the SCDBUND checkout during August. It is planned to have SCDAP/MODO fully functional by the end of August. A series of calculations will be made during September using SCDAP/MODO. These calculations will include several of the PBF SFD experiments and TMI-2.

4. Scheduled Milestones for August 1982

None

5. Summary of Work to be Performed in August 1982

a. Debris Transition Model

Writing of the final sections of the report describing the debris transition models will begin during late August. The report will be completed and issued prior to the end of September.

b. SCDCOMP Checkout and Testing

Checkout of the remaining SCDCOMP models will be completed during August. Analysis of the PBF-SFD-ST experiment and TMI-2 accident will be performed. A paper for the October WRSR Information Meeting will be prepared describing the results of the TMI-2 calculations. Preparation of the SCDCOMP user's manual will begin during August. This manual will be incorporated into the SCDAP/MODO user's manual during September.

c. SCDBUND Checkout and Testing

Checkout of SCDBUND will continue during August. Checkout using the SFD-ST simulation will be completed during August. The SCDBUND routines are expected to be fully functional by the end of August.

d. SCDAP/MODO Checkout and Testing

Input decks for the first three PBF SFD experiments and TMI-2 will be assembled and used to checkout SCDAP/MODO during August. The code will be fully functional by the end of August. Preparation of the SCDAP/MODO user's manual will begin during August and be completed during September.

6. Problems and Potential Problems

More problems have been experienced than expected during the SCDAP/MODO checkout activity. If this situation persists, SCDAP/MODO checkout will not be completed by the September 30, 1982 milestone date. The code must be functional by late August or early September to be completed by the milestone date. Management actions have been taken and will continue to be taken to meet the milestone. Adequate and full resources are being applied to meet this goal.

MONTHLY REPORT FOR

JULY 1982

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION

B. F. Saffell, Jr., Manager

E. L. Pierson
Plans and Budget Representative

PROGRAM MANAGER'S

SUMMARY AND HIGHLIGHTS

A6039: Two annubars from the FIST facility were calibrated in an INEL single phase loop.

A6047: The primary system and steam generator model of Oconee 1 were completed in preparation for PTS analyses.

A6369: A program status review was held at INEL. Problems facing industry's implementation of Regulatory Guide 1.97 were discussed. It was agreed that these items would be addressed in the final assessment report.

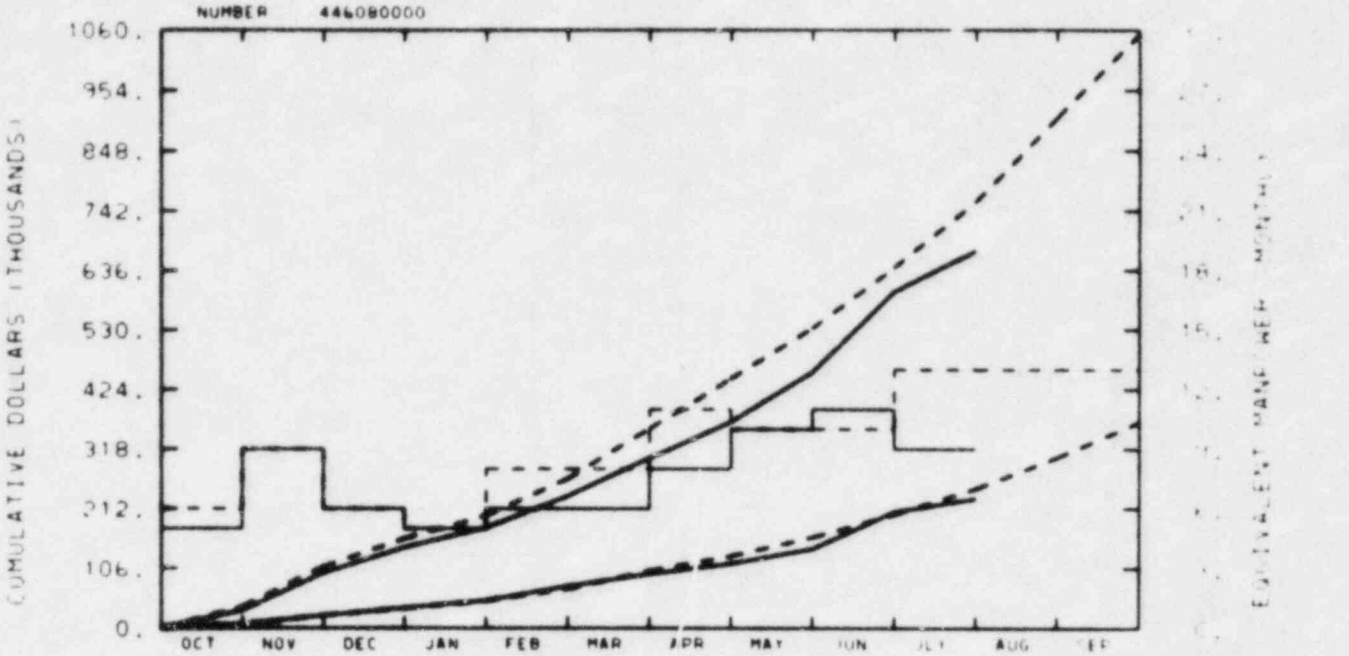
A6370: The report "Interim Safety-Related Criteria For Signal Isolation Devices Used In Commercial Nuclear Power Plants" was revised to incorporate NRC comments and issued.

RESPONSIBLE MANAGER
F SAFFELL

EG&G IDAHO INC.

TECHNICAL SURVEILLANCE A6039

NUMBER 446080000



TOTAL PROGRAM

BUDGET	38	110	159	200	265	355	443	533	641	758	906	1054
ACTUAL	32	98	143	178	234	302	367	455	598	671		

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		

MANPOWER

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

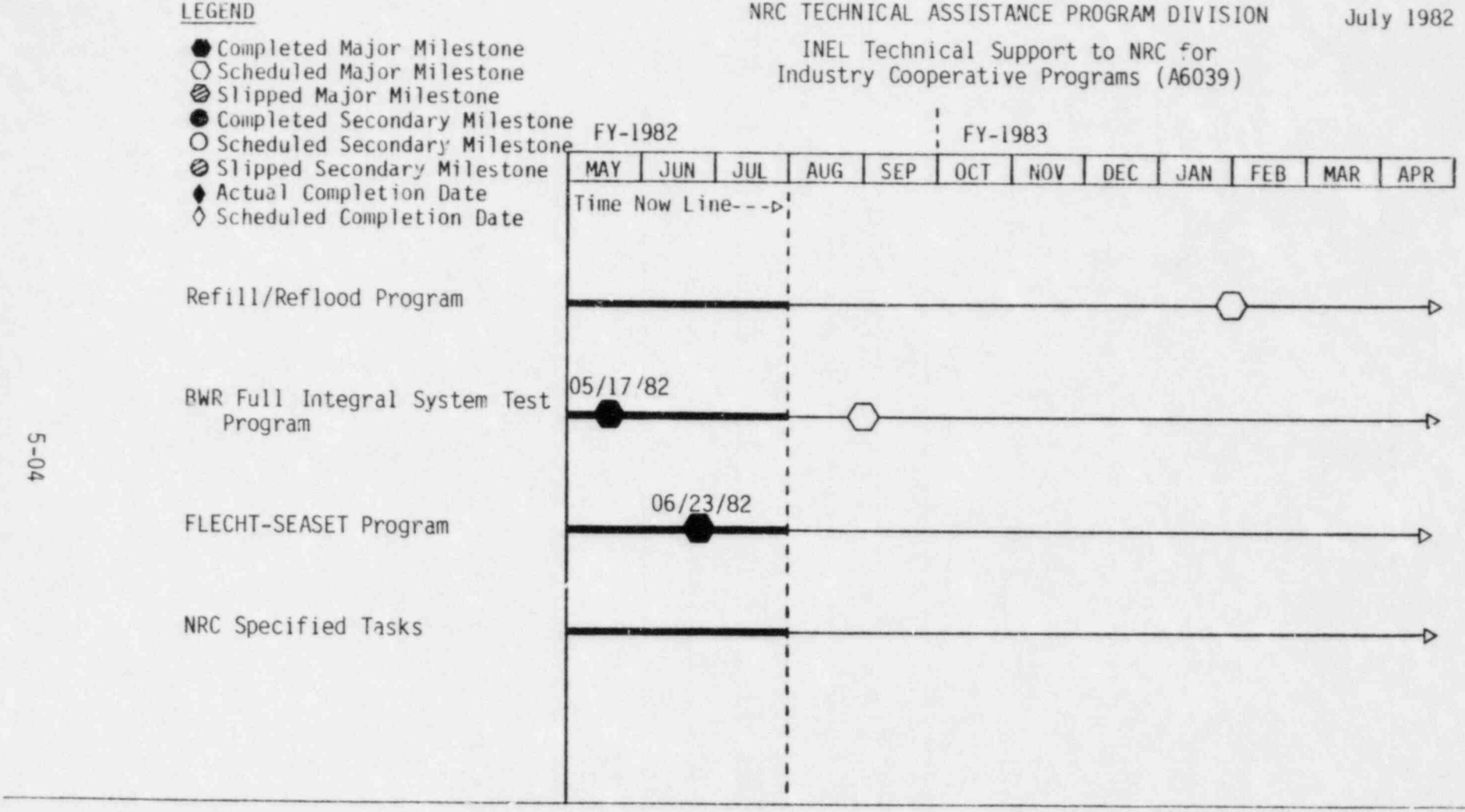
BUDGET

ACTUAL

A6039

YTD VARIANCE: 87 (11%)

Because of delays in experimentally furnished information, three tasks have been delayed or postponed such that the planned carryover to FY-1983 is now approximately $160K. The spending rate is considered commensurate with these conditions.


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
July 1982
INEL Technical Support to NRC for
Industry Cooperative Programs (A6039)
FY-1982
FY-1983
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
Time Now Line---▷
Refill/Reflood Program
BWR Full Integral System Test Program
05/17/82
FLECHT-SEASET Program
06/23/82
NRC Specified Tasks

NOTES:

189a A6039

1. INEL Technical Support to NRC for Industry Cooperative Programs

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

Boiling Water Reactor (BWR) Full Integral Simulation Test (FIST) Program: Work continued on the Automated Data Qualification (ADQ) software and the design of the vessel gamma densitometers. The initial FIST facility, scaling calculations were completed by General Electric. These results are being reviewed and compared with the BWR/6 calculations completed by the Idaho National Engineering Laboratory (INEL) last month (see Section 6). Two annubars (flow measurement instrumentation) from the FIST system were calibrated in an INEL single phase flow loop. These two units will be used for in-situ calibration of other FIST instrumentation and will provide traceability to the National Bureau of Standards.

BWR Refill/Reflood (R/R) Program: The effort to obtain and insert Single Heated Bundle (SHB) and 30 degree Steam Sector Test Facility (SSTF) data in the NRC/DAE Data Bank continued.

Full length Emergency Cooling Heat Transfer-System Effects and Separate Effects (FLECHT-SEASET) Program: The blockage data evaluation task was initiated with a review of the Flooding Experiment with Blocked Arrays (FEBA) data now contained in the NRC/DAE Data Bank. In addition, development of a COBRA-IV-I model of the FEBA facility and review of the INVERT code was initiated. These efforts will support a draft Research Information Letter (RIL) on blockage, to be issued late in FY-1983.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

BWR FIST Program: The BWR/6-FIST scaling study is expected to be completed (see Section 6). The data reduction software completed earlier will be exercised with simulation data to proof the package.

BWR-R/R Program: INEL will continue to process SHB and SSTF data as it becomes available.

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

6. Problems and Potential Problems

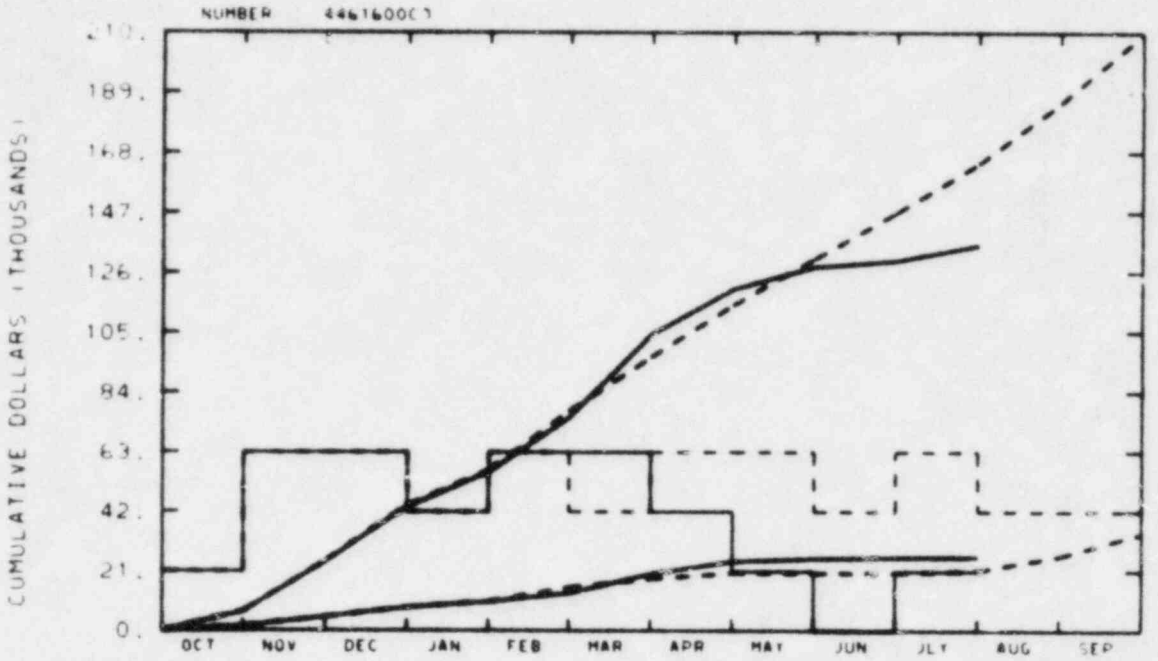
There is a concern that some of the BWR/6-FIST calculated results may not be prototypical. Current efforts are directed toward understanding each calculation and their differences. Should significant reruns and sensitivity studies be required, it is unlikely an Interim Report can be issued by August 30 1982 as scheduled. Recommendations relative to any schedule delay will be made early in August 1982.

RESPONSIBLE MANAGER
OF SAFETY

EG&G IDAHO INC.

FUEL BEHAVIOR ANALYSIS A6046

NUMBER 446160003



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		

MATERIAL

BUDGET	2	5	8	10	15	18	20	20	20	22	26	34
ACTUAL	2	5	8	10	13	20	24	25	26	28		

MANPOWER

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

A6046

YTD VARIANCE: 28 (17%)

Reduced effort on one task of this program has resulted in a $28K underrun. A projected carryover of approximately $45K is anticipated.

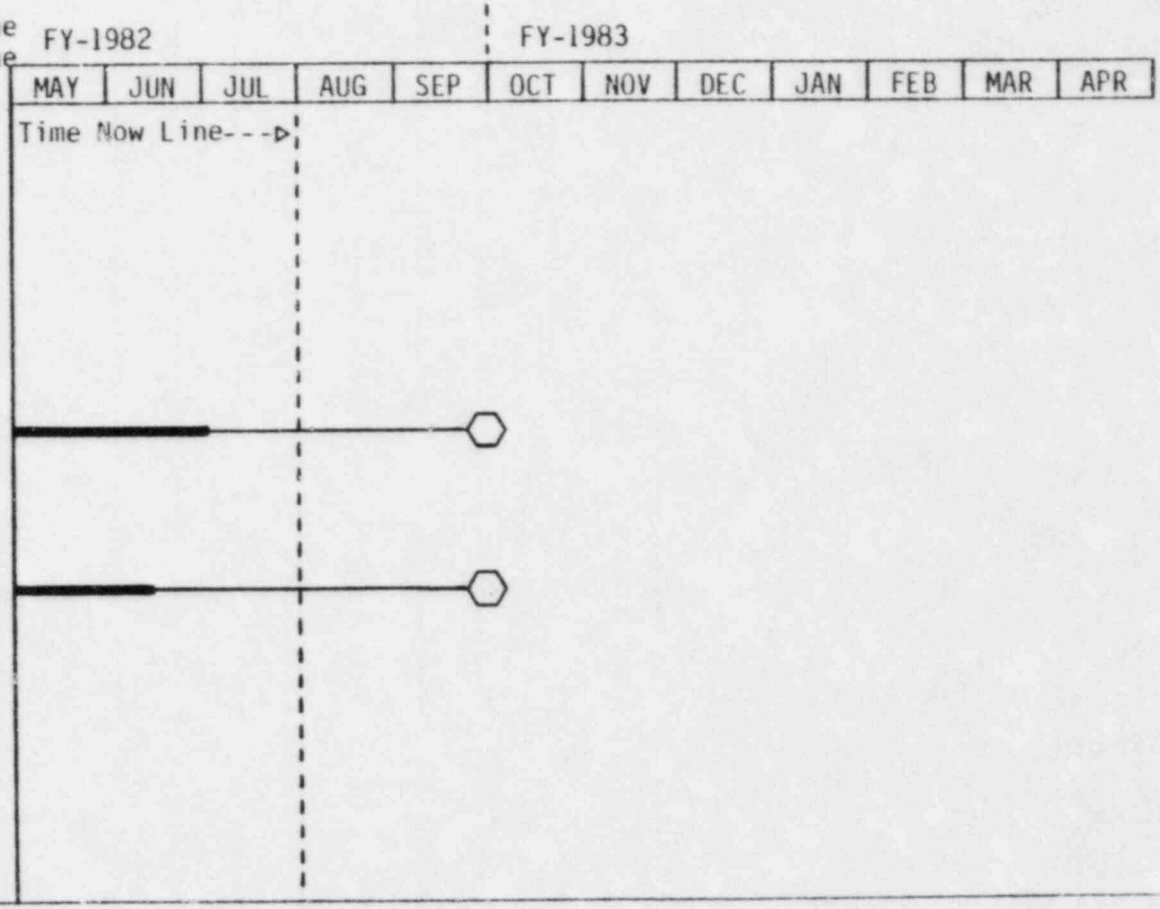
LEGEND

- 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

July 1982

Fuel Code Assessment (A6046)



NOTES:

189a A6046

1. Fuel Behavior Analysis Assessment

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

SCDAP/MOD 0 Assessment: A Severe Core Damage Analysis Package (SCDAP) input deck to model the Power Burst Facility (PBF) Severe Fuel Damage Scoping Test was assembled and is being debugged.

Miscellaneous: A review of this program was presented to Nuclear Regulatory Commission (NRC) Management; D. F. Ross and O. E. Bassett.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

Work will continue on the SCDAP/MOD 0 Assessment. Input decks will be debugged and new decks for commercial PWR and Boiling Water Reactor (BWR) plants will be created.

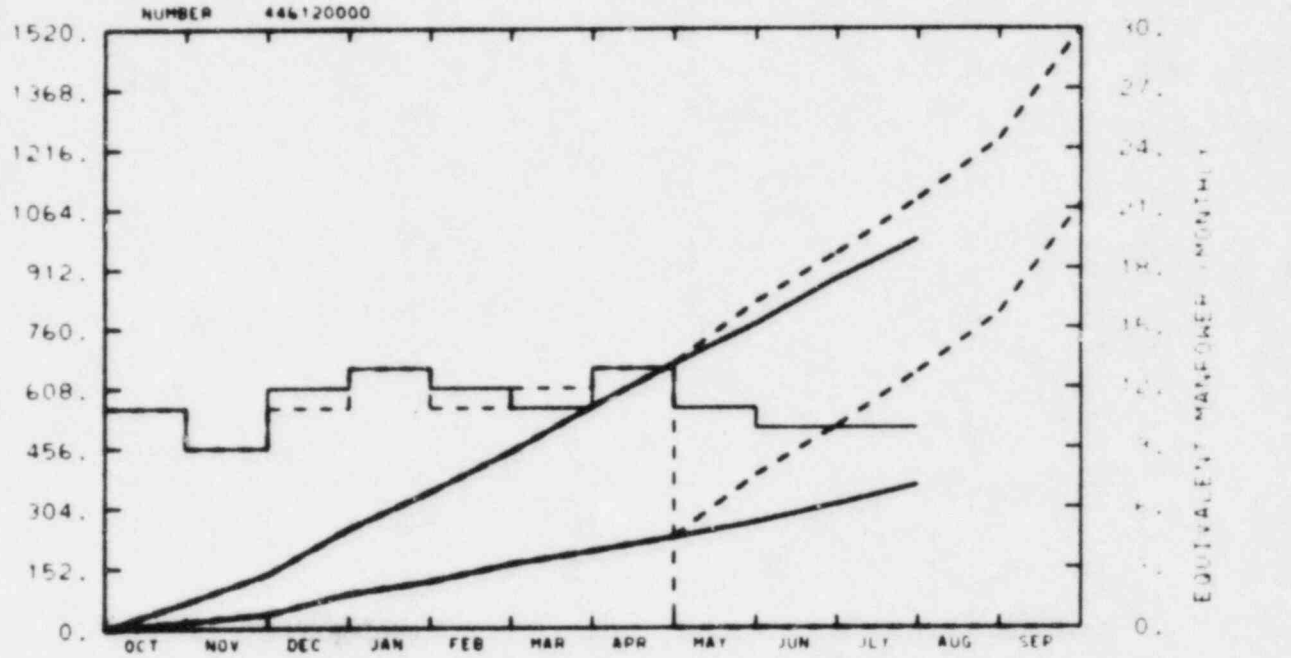
6. Problems and Potential Problems

None.

RESPONSIBLE MANAGER
F SAFFELL

EG&G IDAHO INC.

LOCA ANALYSIS ASSESSMENT A6047



TOTAL PROGRAM

BUDGET	66	137	252	345	446	561	670	827	951	1089	1240	1519
ACTUAL	67	138	252	345	446	561	669	771	887	987		

MATERIAL

BUDGET	18	37	88	119	163	195	230	287	411	649	798	1077
ACTUAL	18	38	88	119	163	195	229	267	413	462		

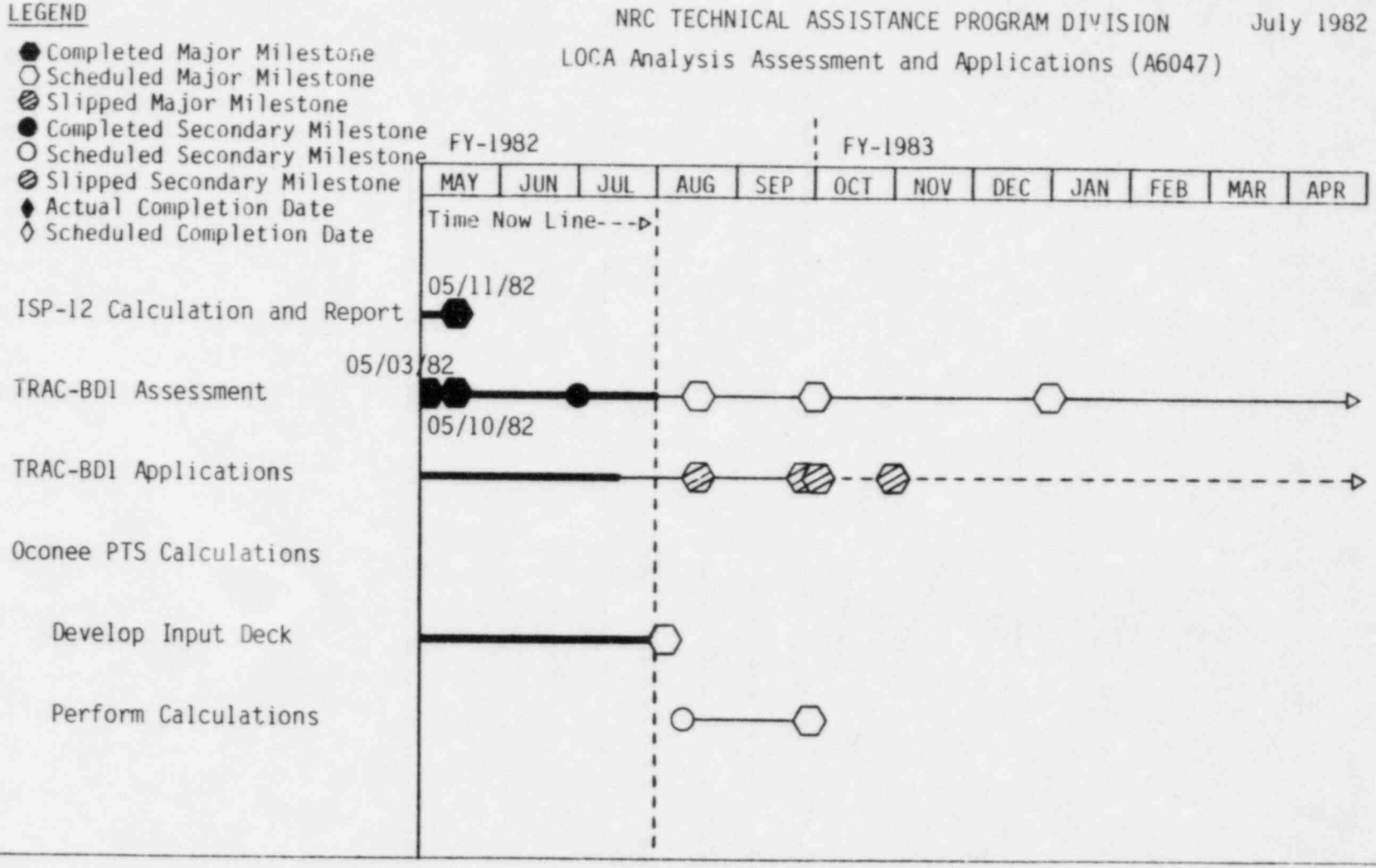
MANPOWER

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

A6047

YTD VARIANCE: 102 (9%)

Several tasks have been dropped from the work scope reflected in this budget, resulting in an underrun. Carryover will be more accurately defined in the August report.


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
July 1982
LOCA Analysis Assessment and Applications (A6047)
FY-1982
FY-1983
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
Time Now Line--->
05/11/82
ISP-12 Calculation and Report
05/03/82
TRAC-BD1 Assessment
05/10/82
TRAC-BD1 Applications
Oconee PTS Calculations
Develop Input Deck
Perform Calculations

NOTES:

1. LOCA Analysis Assessment and Applications

2. Scheduled Milestones for July 1982

Description	Due Date	Actual Date
Develop RELAP5 Oconee-1 Deck	7-30-82T	7-30-82C

3. Summary of Work Performed in July 1982

Documentation of the Two Loop Test Apparatus (TLTA) Design Basis Accident (DBA) and Small Break assessment calculations continued as did the FRIGG assessment calculations. Personnel from the Boiling Water Reactor (BWR) Code Assessment Section participated in an Idaho National Engineering Laboratory (INEL)-General Electric code assessment interchange meeting.

The thermal-hydraulic model of the primary system and the steam generators for Oconee 1 were completed for the PTS analyses. The preliminary Scientific Applications Incorporated (SAI) model of the feed train was reviewed, put on the INEL computer, and an initial steady state calculation performed. The SAI model of the Integrated Control System (ICS) was received on July 26, 1982. A meeting with the Nuclear Regulatory Commission (NRC), Oak Ridge National Laboratory (ORNL), Scientific Applications Incorporated (SAI), Los Alamos National Laboratory (LANL) and Brookhaven National Laboratory (BNL) was attended in Washington DC on July 30 to discuss modeling of the feed train and the ICS.

Three of the four large break audit calculations were completed and the fourth was begun using the Dresden 3 detailed TRAC-BD1 model. The three calculations conducted to date (assuming the break C_D = 0.4, 0.6 and 1.0) have shown the Exxon reload analysis to be conservative.

Additional information has been received from the Mississippi Power and Light describing the Grand Gulf BWR/6 plant. However, a substantial amount of information, needed to complete the detailed TRAC-BD1 model is still missing. A substantial quantity of the needed information is proprietary and only available from the plant vendor, i.e. General Electric.

4. Scheduled Milestones for August 1982

Description	Due Date	Actual Date
Document TLTA Assessment	8-9-82T	
BWR/3 Applications	8-9-82T	N/S

5. Summary of Work to be Performed in August 1982

The TLTA DBA and Small Break Assessment interim report will be issued. The FRIGG assessment calculations will continue.

A main steam line break for the Oconee-1 plant will be calculated with RELAP5. A small break LOCA calculation for Oconee-1 will also be initiated.

A information gathering trip will be taken to Middle South Energy Inc. to examine available information for the Grand Gulf plant.

6. Problems and Potential Problems

To complete the Oconee 1 transient as scheduled, the scenario for this transient must be received by August 15 1982.

The Dresden 3 reload calculation is being postponed due to a need to conduct a calculation to investigate the feed/bleed procedure used in PWRs

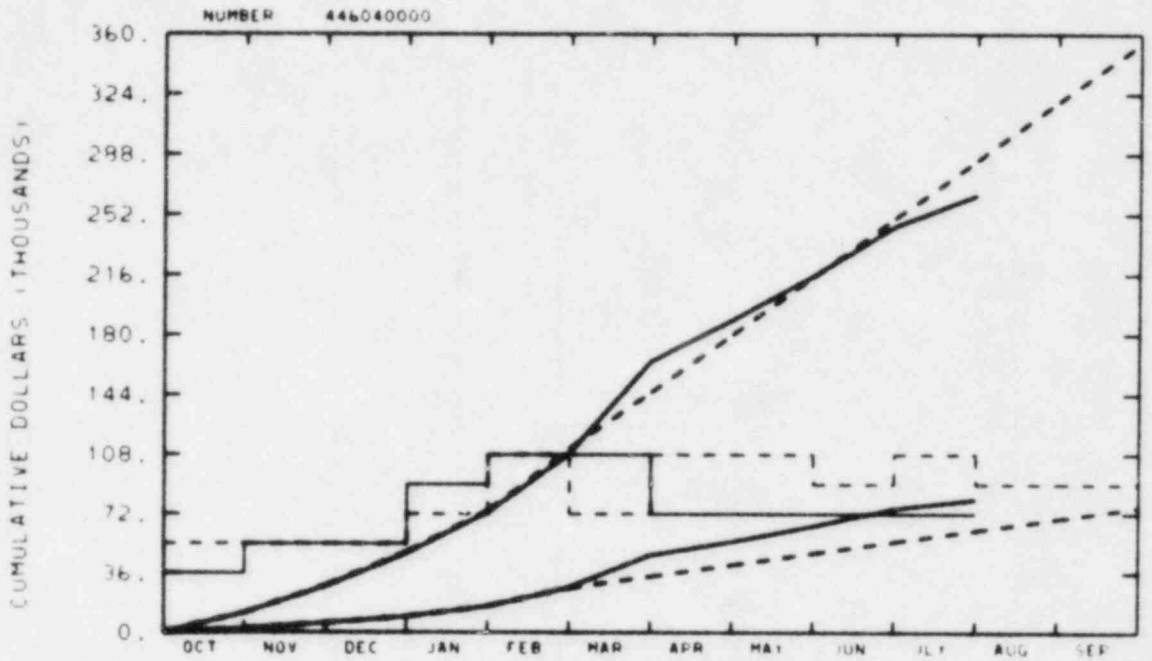
The final integrated control system model for Oconee 1 was received from SAI on July 26, 1982; the delay in the receipt of this model has delayed the start of the transient calculations and may impact the scheduled completion of the calculations.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

DATA BANK A6102

NUMBER 446040000



TOTAL PROGRAM

BUDGET	12	29	49	74	112	145	180	215	250	285	319	354
ACTUAL	12	28	48	73	10	164	189	216	245	264		

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		

MANPOWER

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

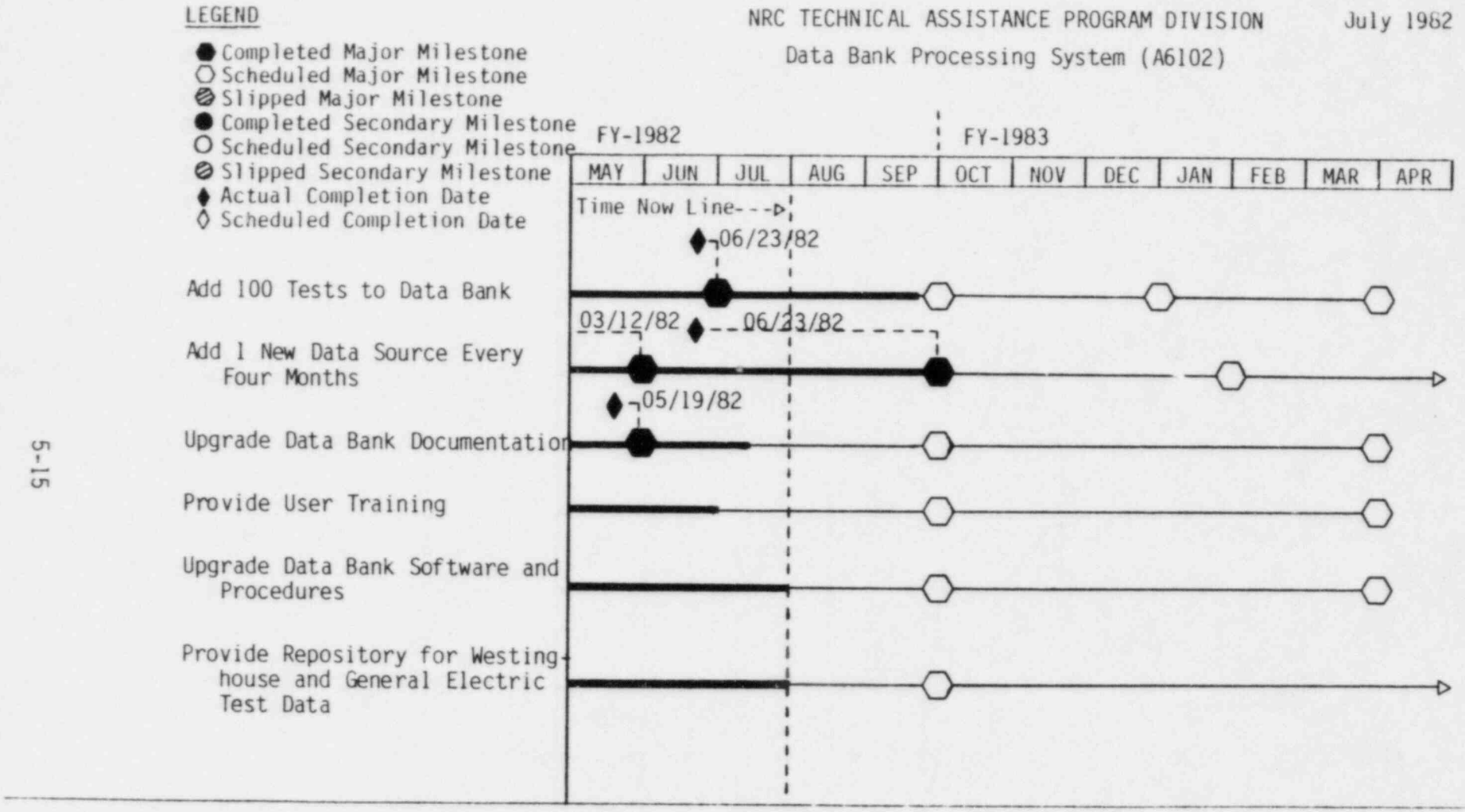
BUDGET

ACTUAL

A6102

YTD VARIANCE: 21 (7%)

Personnel have temporarily been diverted to other tasks. The spending rate will fall back in line in August and September, however, a small amount of carryover is anticipated at fiscal year end.


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
July 1982
Data Bank Processing System (A6102)
FY-1982
FY-1983
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
Time Now Line---
06/23/82
Add 100 Tests to Data Bank
03/12/82
06/23/82
Add 1 New Data Source Every Four Months
05/19/82
Upgrade Data Bank Documentation
Provide User Training
Upgrade Data Bank Software and Procedures
Provide Repository for Westinghouse and General Electric Test Data

NOTES:

189a A6102

1. NRC/DAE Data Bank

2. Scheduled Milestones for July 1982

Description	Due Date	Actual Date
Add 25 Tests to Data Bank	7/10/82T	6/23/82C Saff-254-82

3. Summary of Work Performed in July 1982

Data from two test facilities were added this month: Data from the Westinghouse G-2 Facility and the Semiscale Facility. The G-2 tests represent the "700" test series. Semiscale tests S-IB-2 and -3 were added. Also, data in the Data Bank from Single Heated Bundle Facility (SHBF) tests 1901, 2202, 2600, and 2901 were corrected to overcome prior data tape formatting and configuration problems.

A review of this program was presented to the NRC Technical Monitor (M. W. Young), as well as D. F. Ross, E. O. Basset, and H. Sullivan.

Efforts to obtain startup data from the Kuosheng reactor in Taiwan have begun.

A computerized directory of Data Bank data sources and potential users is being developed.

The NRC form 189a for FY-1983 was completed and issued.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

Data entry activities will continue.

Identification of data desired from commercial nuclear power plants will be identified and a letter requesting these data will be issued.

Updating of on-line Data Bank documentation will continue.

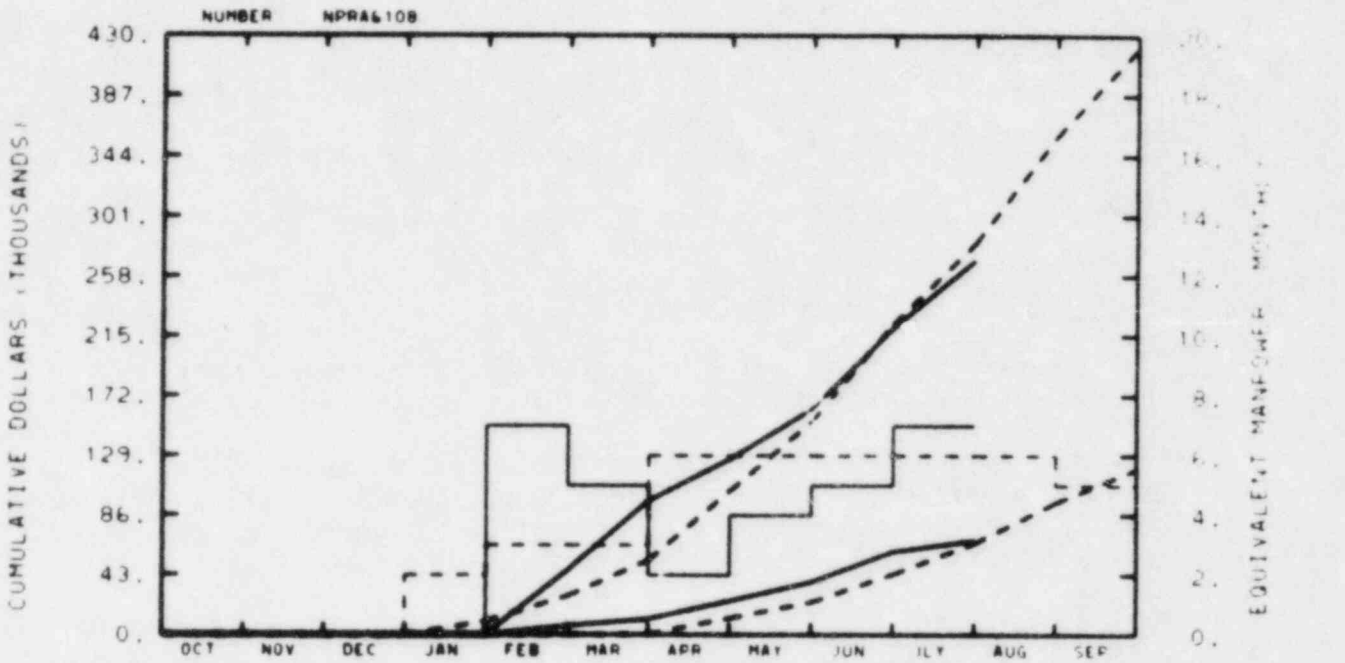
6. Problems and Potential Problems

None.

RESPONSIBLE
MANAGER
POINTER

EG&G IDAHO INC.

DIAGNOSTIC GRAPHICS RES A6108



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		

MATERIAL

BUDGET	0	0	0	0	0	1	12	24	44	66	95	119
ACTUAL	0	0	0	0	7	12	25	38	60	68		

MANPOWER

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

A6108

YTD VARIANCE: 12 (4%)

189a A6108

1. Diagnostic Graphics Research

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

Task 1 - Effects of Control Room Modifications: Comments were incorporated in this report and it was then edited.

Task 2 - Advanced Display Concepts: Response Tree and Prediction Display report preparation has proceeded on schedule. Safety Parameter Display System (SPDS) review data collection continued. It was decided that a letter report on the SPDS review would conclude the task.

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

Task 4 - Upgrade Experimental Capability: An experimental console preliminary design was produced and a design review was held. Construction work proceeded during July to provide an experiment room for computer-driven simulation experiments.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

Task 1 - Effects of Control Room Modifications: This report will be published.

Task 2 - Advanced Display Concepts: Response Tree, Predictor Display and SPDS Review Report preparation will continue.

Task 3 - Graphics Display Research Facility: No work required.

Task 4: Upgrade Experimental Capability: Construction of experimental rooms will be continued. A final experimental console design will be completed.

6. Problems and Potential Problems

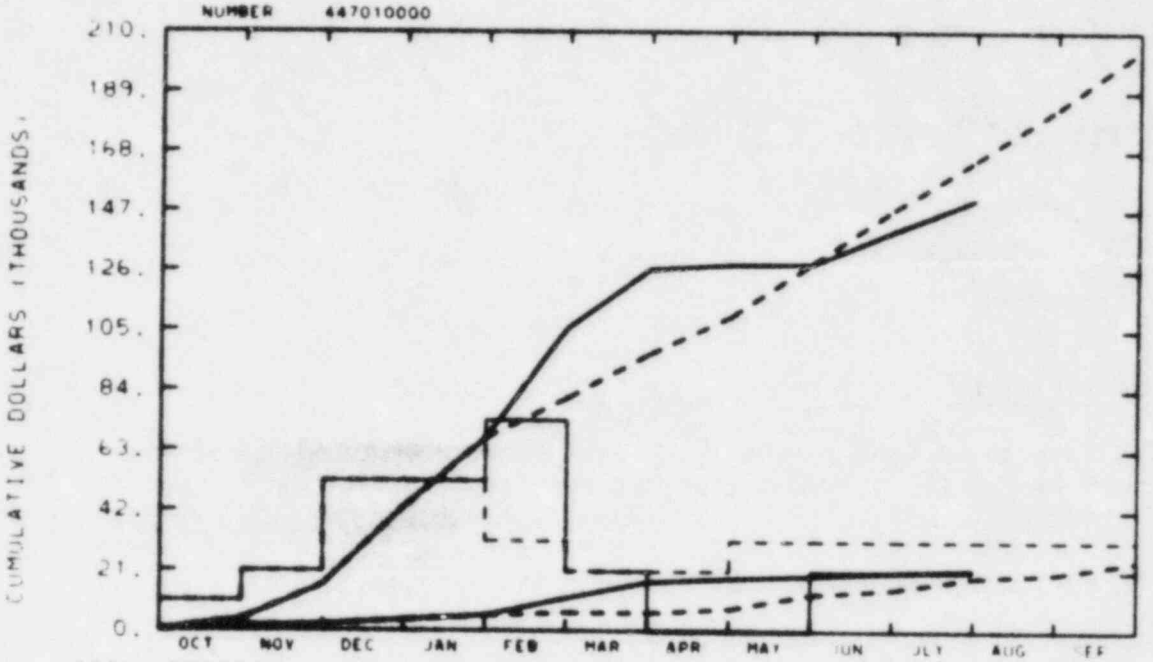
None.

RESPONSIBLE MANAGER
B. F. SAFFELL

EG&G IDAHO INC.

LER FAILURE RATE A6276

NUMBER 447010000



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	141		

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		

MANPOWER

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

BUDGET

ACTUAL

A6276

YTD VARIANCE: 14 (8%)

Project costs and projected expenditures are consistent with work scope and will result in a projected carryover of $10K.

1. Licensee Event Report (LER) Failure Rate Analysis

2. Scheduled Milestones for July 1982

Description	Due Date	Actual Date
Draft of Battery and Charger Interim Letter Report	7-30-82E	6-2-82C

3. Summary of Work Performed in July 1982

Instrumentation and control (I&C) component coding based on Licensee Event Report (LER) information was completed and review of the coding was started.

The FY-1982 scope and budget are both at approximately the 75% level.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

Review of the I&C coding will continue and updating the I&C descriptions from the first I&C LER summary (NUREG/CR-1740) will begin.

Revisions of the letter report mentioned in (2.) above will begin based on Nuclear Regulatory Commission (NRC) comments so the report can be formally issued.

6. Problems and Potential Problems

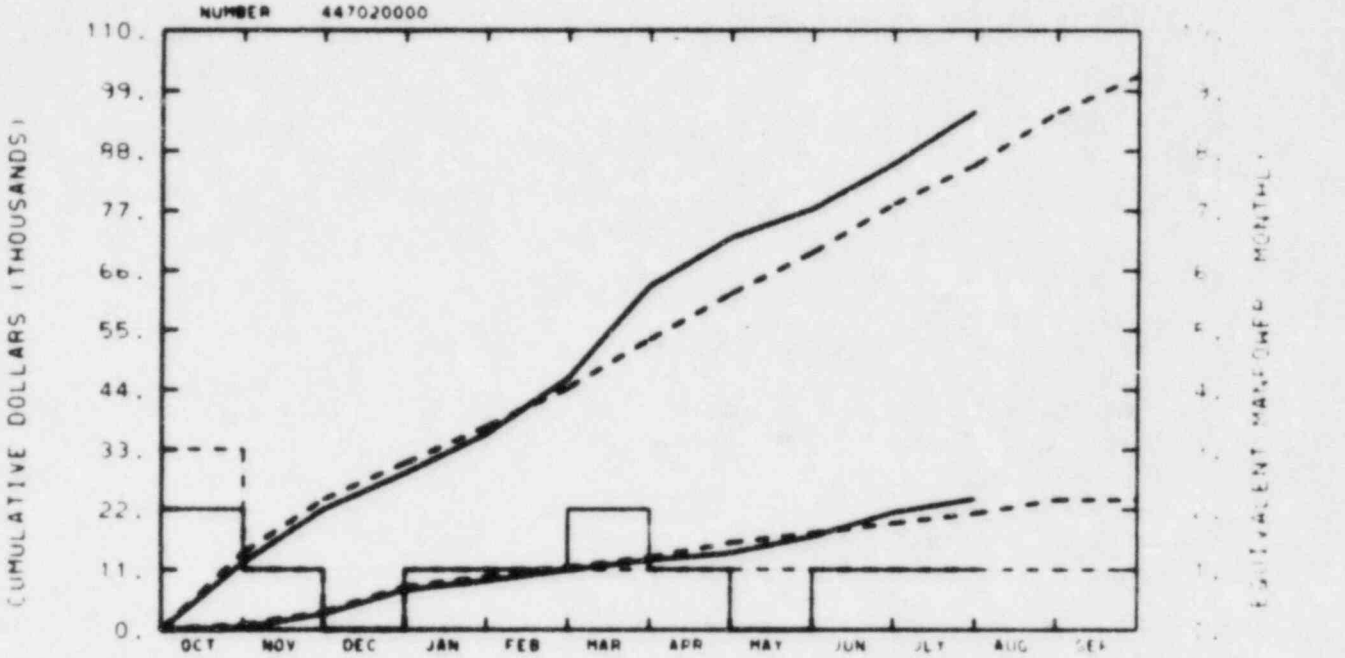
None.

RESPONSIBLE MANAGER
R F SAFFELL

EG&G IDAHO INC.

COMMON CAUSE STAT MODELING A6283

NUMBER 447020000



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		

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		

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		

A6283

YTD VARIANCE: <10> (12%)

Project is ahead of schedule. Spending rate will decrease for the remainder of FY-1982 to bring costs in line with budget.

189a A6283

1. Common Cause Data Analysis

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

The writing of the valve report is nearly complete.

The analysis of the Instrumentation and Controls (I&C) data and the revisions of the I&C report are 50% complete.

4. Scheduled Milestones for August 1982

Description	Due Date	Actual Date
Pumps Common Cause technical report	8-31-82E	

5. Summary of Work to be Performed in August 1982

The User's Guide to BFR will be printed, meeting the milestone about two months early.

The common cause analysis of pump data will be printed.

The valve report will be in the editing/typing process.

The I&C data analysis will be completed, and the report will be in the editing/typing process.

6. Problems and Potential Problems

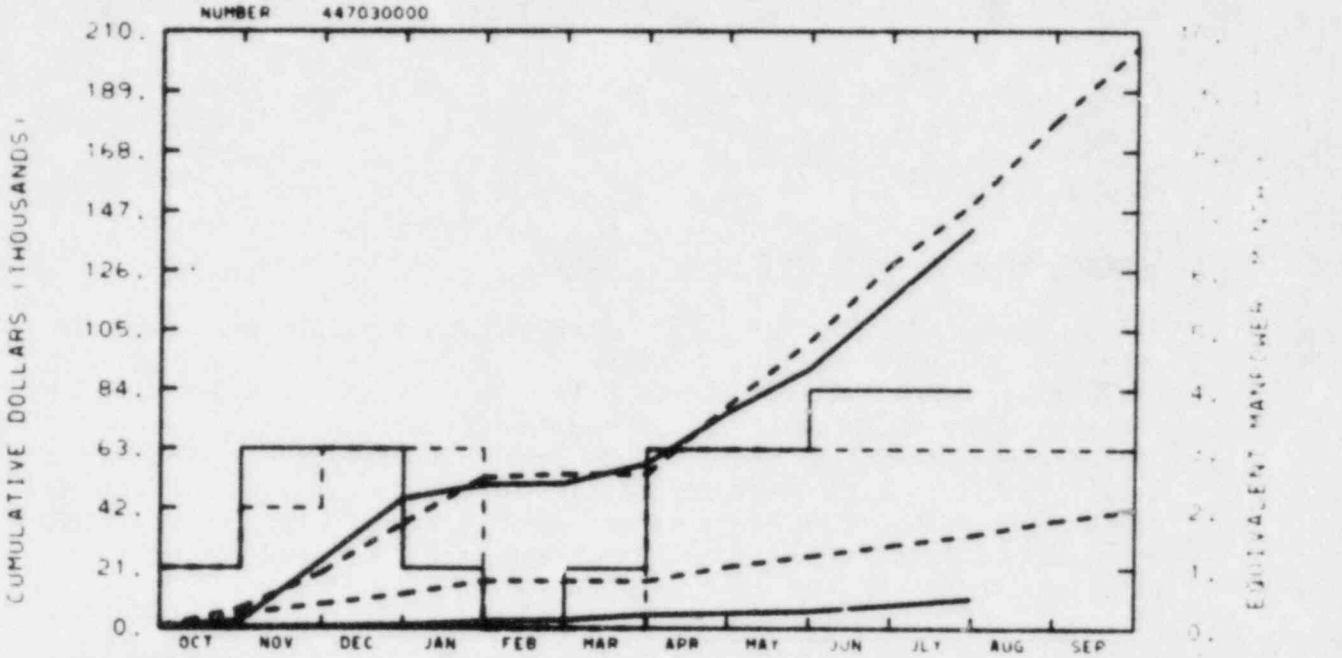
None.

RESPONSIBLE MANAGER
F SAFFELL

EG&G IDAHO INC.

NPRDS DATA ANALYSIS A6290

NUMBER 447030000



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		

MATERIAL

BUDGET	5	8	12	17	17	17	22	25	29	33	38	4.
ACTUAL	0	1	1	2	3	5	[illegible]	6	8	11		

MANPOWER

BUDGET	1	2	3	3	0	0	1	3	3	3	3	[illegible]
ACTUAL	1	3	3	1	0	1	3	3	4	4		

A6290

YTD VARIANCE: 9 (6%)

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

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

All Licensee Event Reports (LERs) for the second sample have been received and analyzed. The NPRDS data tape for the first quarter of FY-1982 has been received. NPRDS 2-form verification for the High Pressure Coolant Injection System and the Containment Spray System engineering data is complete. NPRDS 2-form verification for the Auxiliary Feed system is approximately two-thirds complete. Preparation of the second-sample analysis report is underway. Late receipt of the NPRDS data tape delayed the analysis discussed above and caused the milestone to be rescheduled.

A technical editor is being used to help finalize the Users Manual for LER One-liners. Work on this report was reinitiated in the latter part of the month.

The project tasks are approximately 70% complete which is consistent with the costs to date.

4. Scheduled Milestones for August 1982

Description	Due Date	Actual Date
Interim letter report on second-sample analysis	8-20-82E	
Users Manual for LER One-liners	8-31-82E	

5. Summary of Work to be Performed in August 1982

The second-sample analysis report will be completed. Pending receipt of the third-sample LERs and a second-quarter NPRDS data tape, the analysis for the third-sample data will be undertaken. As time permits, the 2-form verification for the Auxiliary Feed System will be completed.

The Users Manual for LER One-liners will be completed and sent to the NRC for review and comment.

6. Problems and Potential Problems

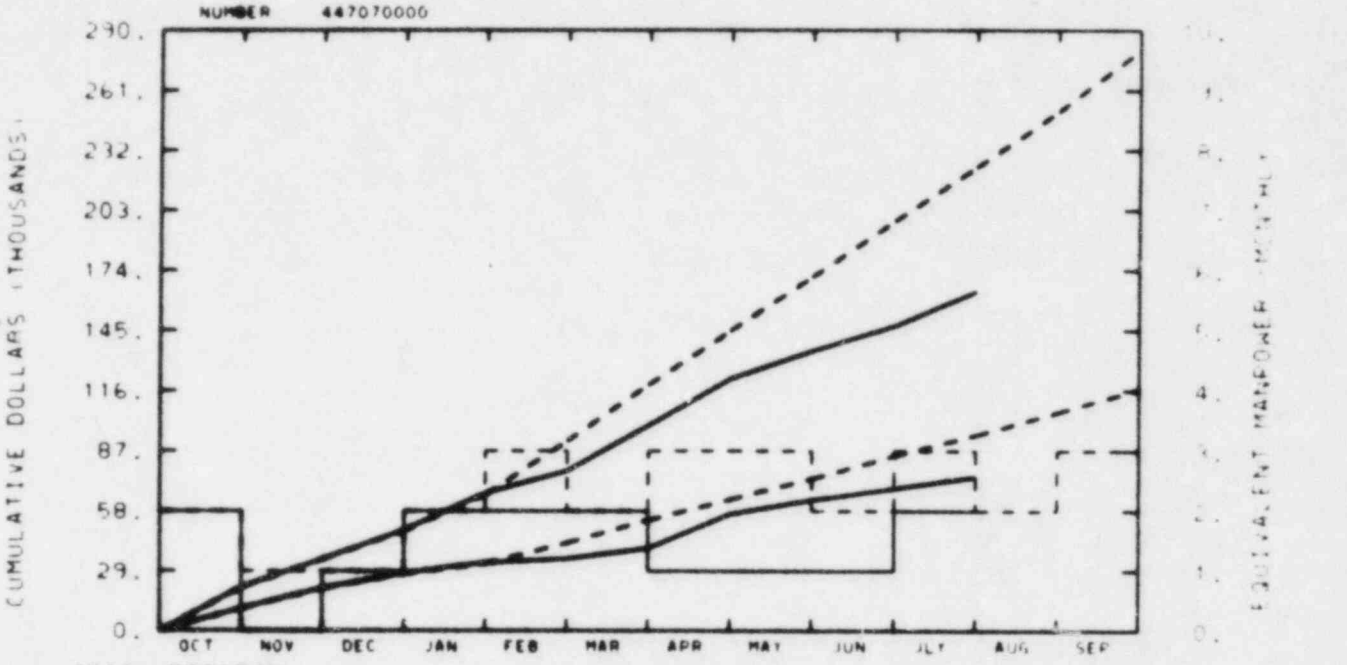
None.

RESPONSIBLE MANAGER
B. J. SAFFELL

EG&G IDAHO INC.

PLANT STATUS MONITORING A6294

NUMBER 447070000



TOTAL PROGRAM

BUDGET	21	35	48	66	92	119	145	171	198	224	25	280
ACTUAL	21	35	49	67	77	99	122	135	147	164		

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		

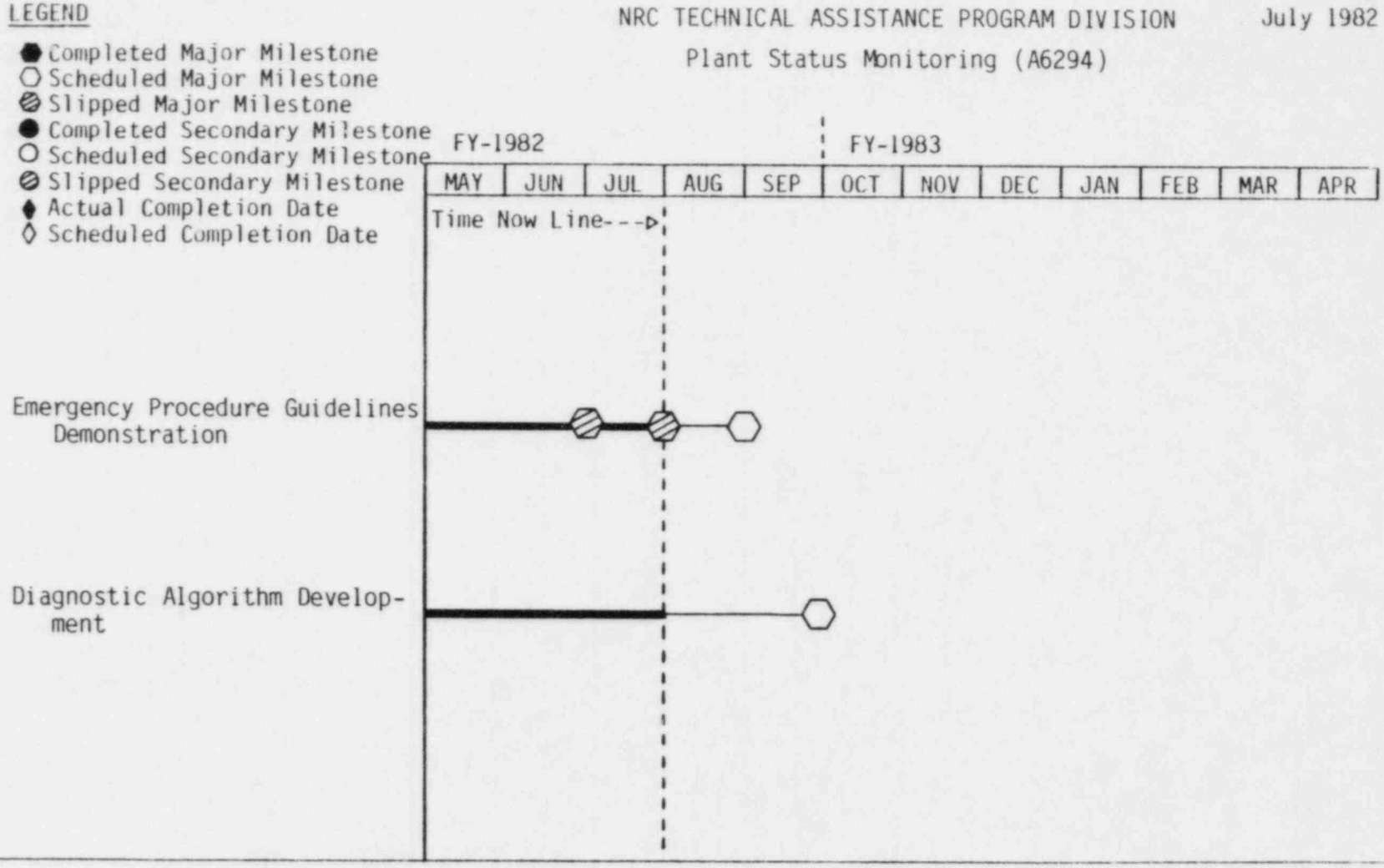
MANPOWER

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

A6294

YTD VARIANCE: 60 (27%)

The underrun is mainly due to the delayed initiation of the development of diagnostic algorithms and the late initiation of the subcontract work to demonstrate the usefulness of operator action event trees in the development of emergency procedure guidelines. The final decision to proceed with the diagnostic algorithm development was made in the program midyear review held in March. Work on both tasks is in progress.



NOTES: This schedule will be revised in the near future to reflect additional tasks congruent with work scope agreements between NRC and EG&G Idaho.

189a A6294

1. Plant Status Monitoring

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

The major elements of the diagnostic algorithm were organized and integrated in preparation for the generation of an interim report. Specifically, work was executed to develop the decision tree methodology using the Zion 1 small break Loss-of-Coolant Accident (LOCA) operator action event tree.

The basis for developing emergency procedure guidelines (EPG) based on operator action event trees (OAET) was developed. The report draft was completed.

4. Scheduled Milestones for August 1982

Description	Due Date	Actual Date
EPG Demonstration	8-31-82	

5. Summary of Work to be Performed in August 1982

The diagnostic algorithm task activities will be completed in preparation for writing the draft interim report.

The final report documenting the use of OAET's in the development of emergency procedure guidelines will be complete.

6. Problems and Potential Problems

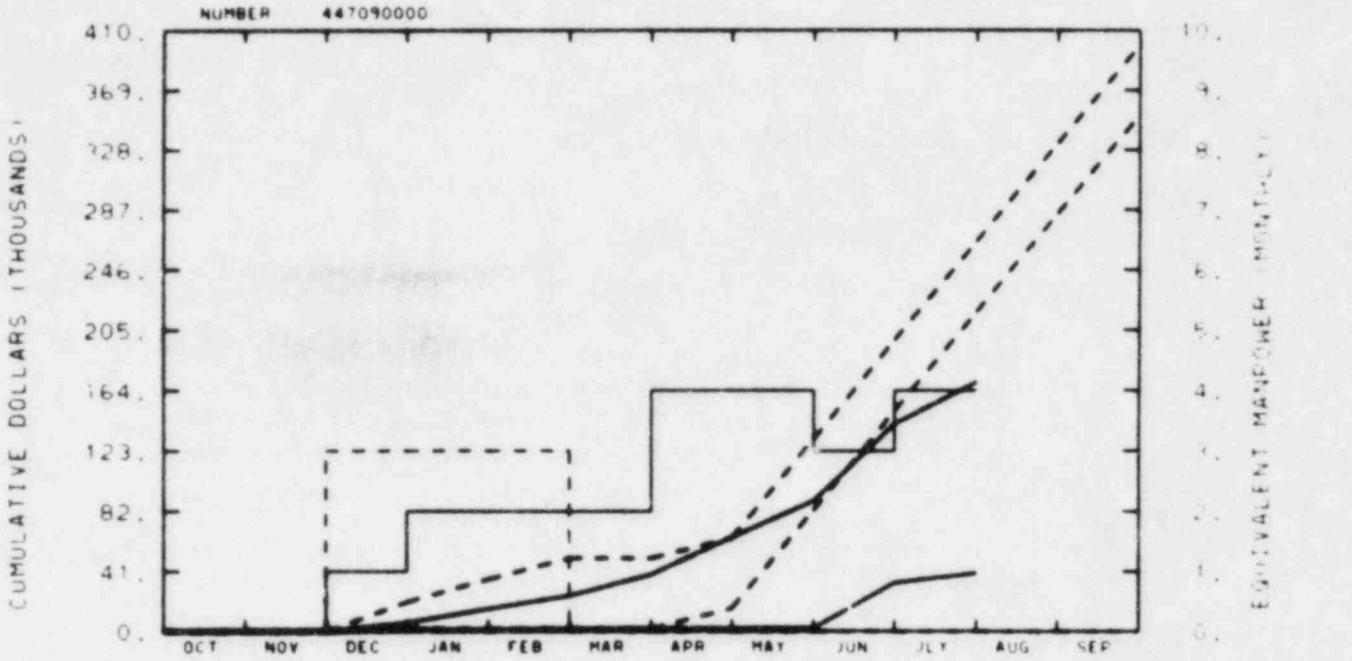
None.

RESPONSIBLE MANAGER
F SAFFELL

EG&G IDAHO INC.

ACCIDENT SEQ EVALUATION A6301

NUMBER 447090000



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		

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		

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		

BUDGET

ACTUAL

A6301

YTD VARIANCE: 96 (36%)

Expenditures are proceeding consistently with the work scope and schedule as redefined in June. Projected carryover to FY-1983 is $140K.

1. INEL Accident Sequence Evaluation Program (ASEP)

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

Technical representatives from INEL assisted Sandia National Laboratory (SNL) in preparing the Phase I combined report and developed with SNL a method to perform sequence sensitivity analysis. Upon return to Idaho, sensitivity analysis application work was initiated and continued for the remainder of the month.

Notification of workshop participants began and initial preparations for contract negotiations with these participants were made.

The program is proceeding as scheduled in the June planning meeting.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

The sensitivity analysis will be completed and sent to SNL for inclusion in the expert review package. This review package will be completed in mid August and reviewed by Sandia and EG&G Idaho technical personnel before final transmittal to the workshop participants the last week in August. All workshop participants will be identified and associated contracts will be completed by the end of August. ASEP technical personnel will participate in an Industry Degraded Core Rulemaking (IDCOR) technical exchange meeting in late August.

6. Problems and Potential Problems

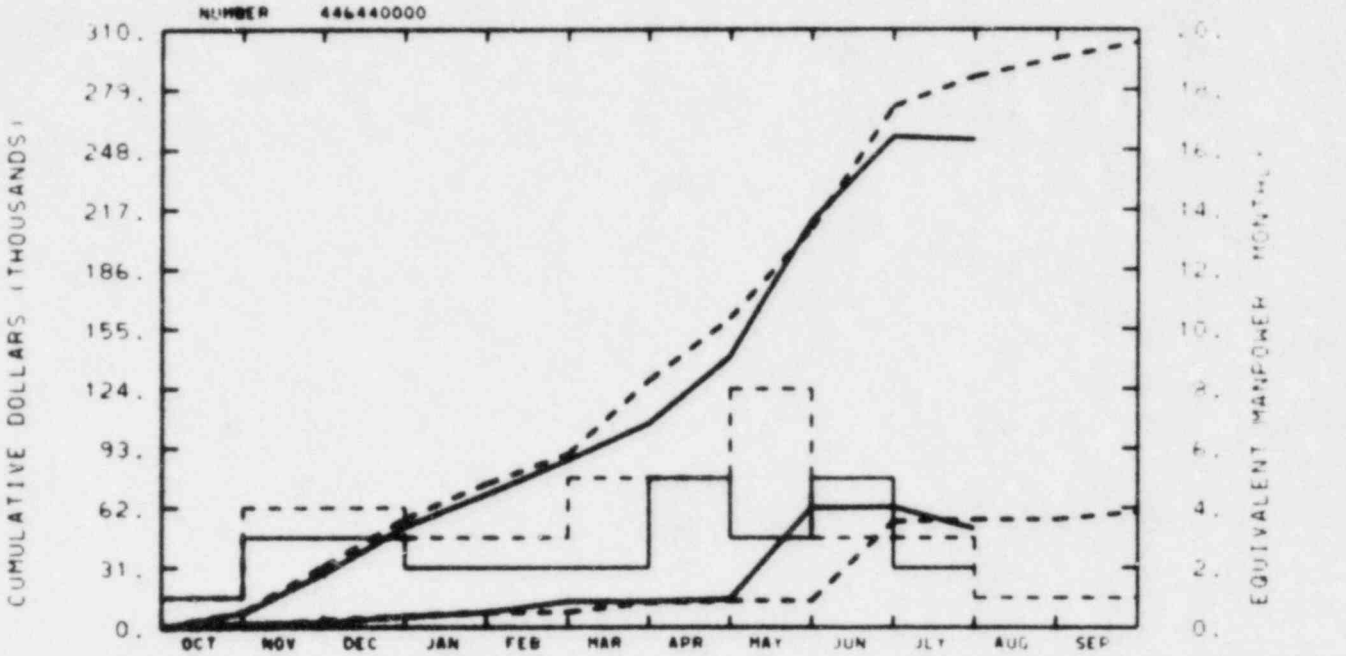
None.

RESPONSIBLE
MANAGER
B F SAFFELL

EG&G IDAHO INC.

HDR EVALUATION A6306

NUMBER 446440000



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		

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		

BUDGET - - - - - -

ACTUAL ———

MANPOWER

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

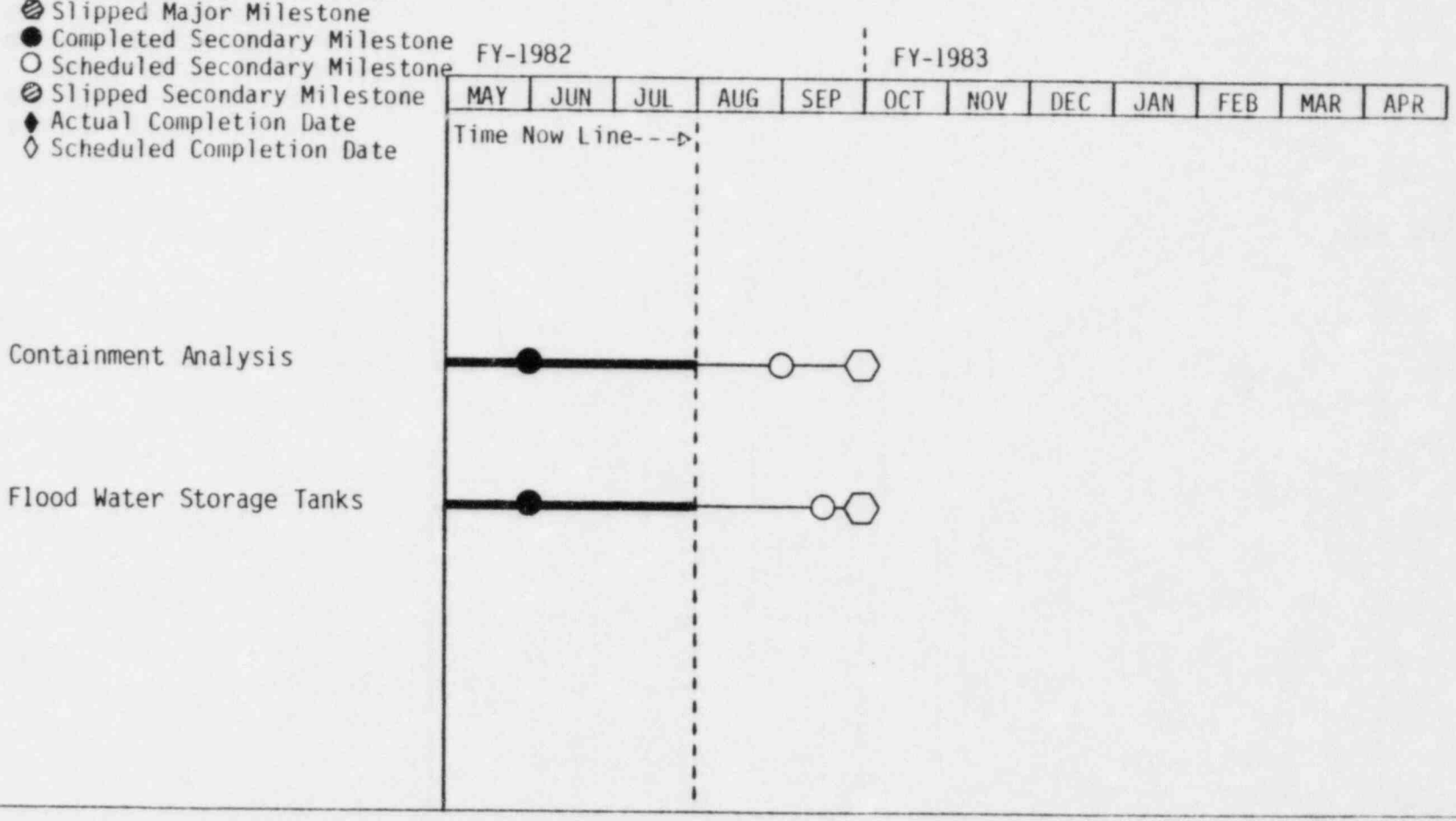
A6306

YTD VARIANCE: 33 (12%)

Lower than anticipated travel and shipping costs coupled with decreased costs for the HDR testing have resulted in a $33K underrun. An accelerated effort will bring costs and budget more in line, however, a carryover is now anticipated.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION July 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 July 1982

None.

3. Summary of Work Performed in July 1982

The test equipment and analyzer arrived from Germany. The analyzer, although its case was damaged in shipment, was checked out and seems to be working well. Reduction of data obtained at HDR is proceeding. Two summary papers were prepared for submittal to the 7th SMIRT conference on test work performed at HDR. One paper concerns the flood water storage tank and the other concerns the steel containment vessel. The project is approximately 87% complete and is now 83% expended based on a FY-1982 work scope budget of $303K. The June Monthly report was in error showing 90% complete.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

Data obtained at HDR will continue to be reduced such that modal properties (frequencies, modeshapes and dampings) are determined for each vessel and comparisons made for different excitations.

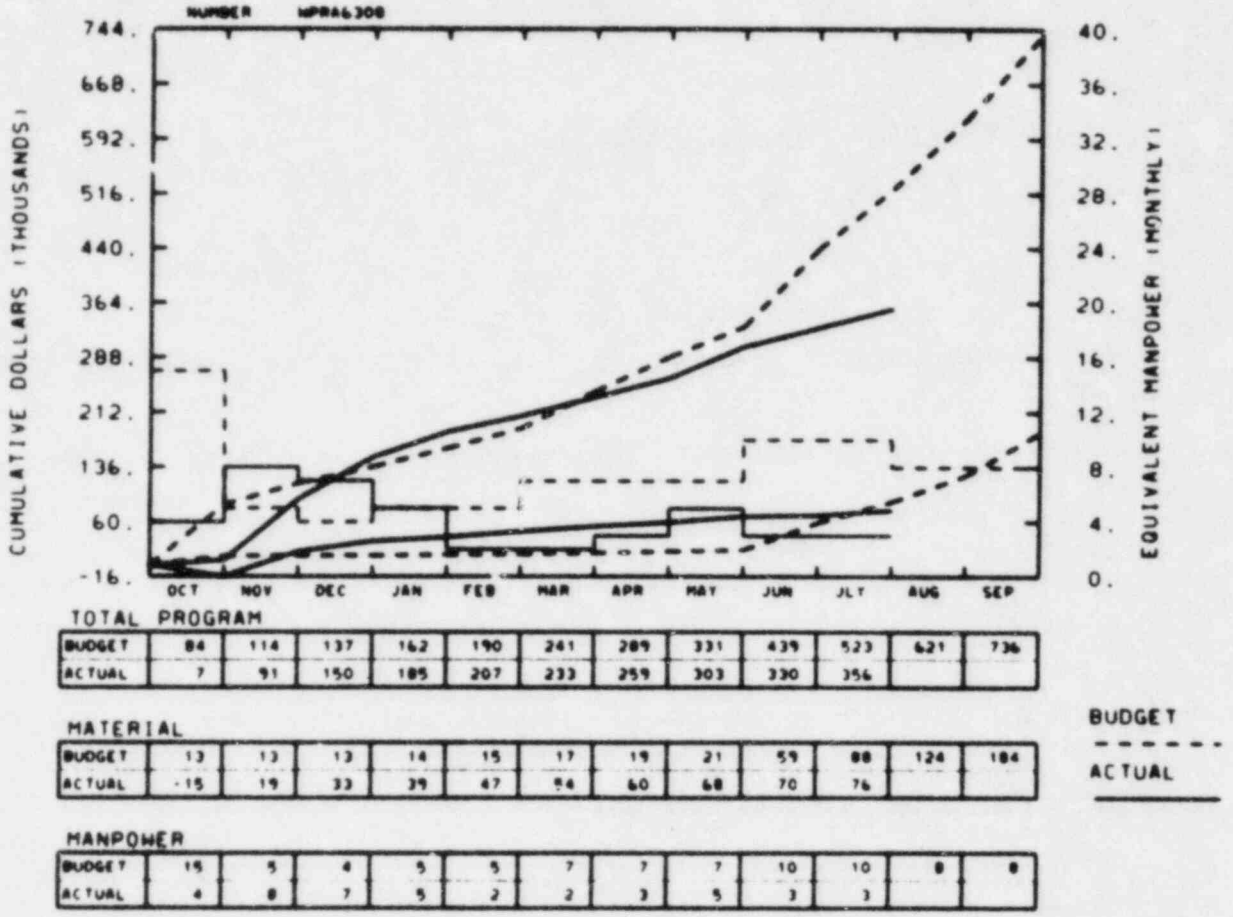
6. Problems and Potential Problems

None.

RESPONSIBLE MANAGER POINTER

EG&G IDAHO INC.

DISPLAY DESIGN AND EVALUATION



TOTAL PROGRAM

BUDGET	84	114	137	162	190	241	289	331	439	523	621	736
ACTUAL	7	91	150	185	207	233	259	303	330	356		

MATERIAL

BUDGET	13	13	13	14	15	17	19	21	59	88	124	184
ACTUAL	-15	19	33	39	47	54	60	68	70	76		

MANPOWER

BUDGET	15	5	4	5	5	7	7	7	10	10	8	8
ACTUAL	4	8	7	5	2	2	3	5	3	3		

A6308

YTD VARIANCE: 167 (32%)

Work is proceeding as scheduled. It is expected and desired that funds from this task will be carried over into FY-1983.

189a A6308

1. Display Design and Evaluation

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

Work has continued during July on application of the new Lexidata system to graphics display research.

The questionnaire to be used in simulator based pilot testing has been developed.

A specification for a pressure-temperature map has been started.

A touch panel has been installed which can be used to call displays and control the reactor simulation.

Work on various year-end reports has been proceeding on schedule.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

The simulator-based pilot test display evaluation experiment will be started during this month.

The Lexidata graphics system will be made ready to support simulation experiments.

The pressure-temperature map specification will be completed.

6. Problems and Potential Problems

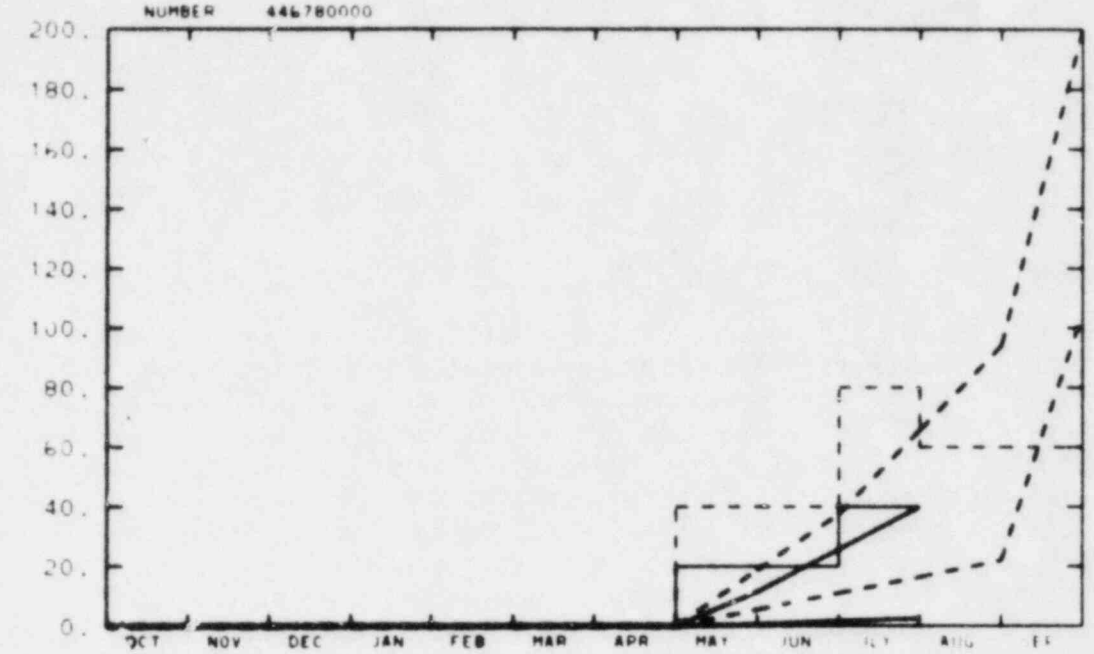
None.

RESPONSIBLE MANAGER
F. SAFFELL

EG&G IDAHO INC.

LOW LEVEL WASTE RISK METH A6310

NUMBER 446780000



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	0	19	37	66	94	
ACTUAL	0	0	0	0	0	0	0	11	26	40		

MATERIAL

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

MANPOWER

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

BUDGET
ACTUAL

A6310

YTD VARIANCE: 26 (39%)

Costs to date and projected expenditures for the remainder of FY-1982 are consistent with the planned carryover to FY-1983.

189a A6310

1. Low Level Waste Risk Methodology Development

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

The collection of uncertainty information from literature sources continued. Several team members have located such information, and compilation will begin next month. A preliminary list of needed uncertainty information has been prepared. The search for information concerning the probabilities or release scenarios also continued; however, this subtask is far from complete. An evaluation of release scenarios suggested by High Level Waste Methodology was started. These scenarios include, for example, volcanism, aircraft crashes, and earthquakes. Intensified efforts to understand the internal parts of the Shallow Land Burial code were started. This work was hampered by the absence of key personnel due to vacation and travel status on another project. An additional person, E. B. Henry, has been assigned to this area in order to make up for the lost time. Henry will also be involved in converting the code to probabilistic risk assessment.

During the period June 21 to July 16, personnel time expenditures were 223 hours while cost expenditure was $11,225. Cumulative expenditures for FY-1982 are 578 hours and $31,100. Expenditures are expected to increase in August and September, to $20,000 per month. This will give a total expenditure in FY-1982 of approximately $70K and the completion of Task 2 will be slipped one month to around November 1, 1982. The completion of Task 3, however, is still projected for the end of December 1982. There are no uncosted obligations.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

The search for uncertainty information and scenario probabilities will continue. The information gathered thus far will be compiled in order to identify missing information and to sharpen our search procedures. The preparation of a technical report covering Tasks 1 and 2 will be initiated. Validation of the computational modules within the Shallow Land Burial code will continue. The review of release scenarios suggested by the High Level Waste Methodology will be completed.

6. Problems and Potential Problems

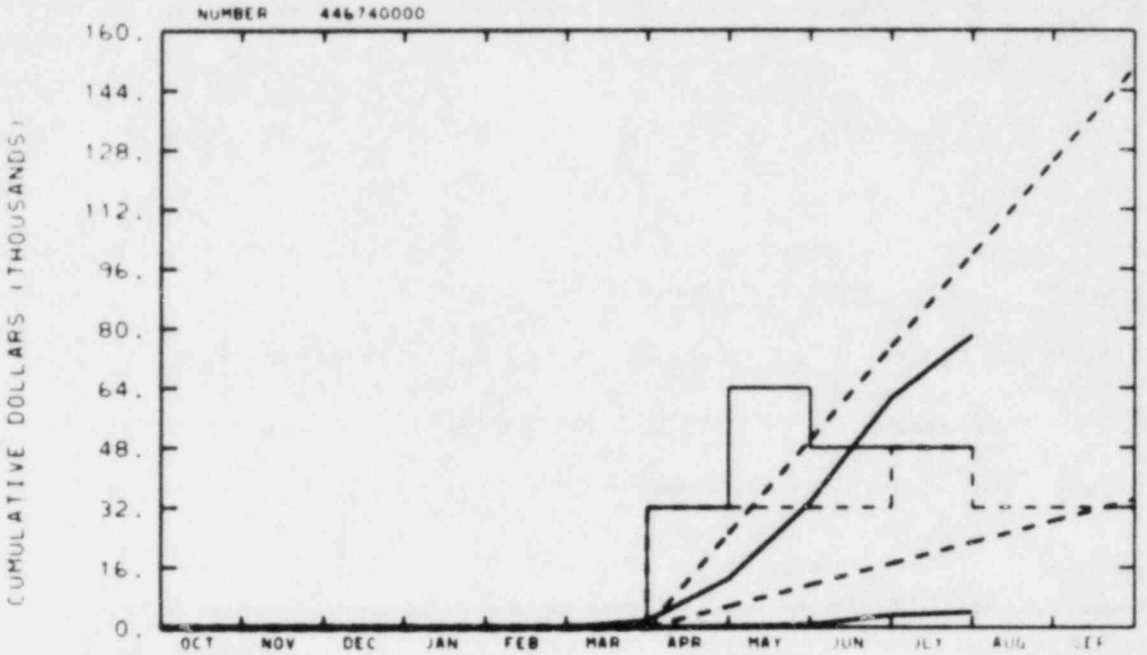
Problems in exercising the Shallow Land Burial code will be given intensive efforts in August. Options for replacing this code will be reviewed at the end of August if the problems remain unresolved.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

INITIATING EVENT DATA EVAL A6313

NUMBER 446740000



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		

MATERIAL

BUDGET	0	0	0	0	0	0	6	11	17	24	28	34
ACTUAL	0	0	0	0	0	0	0	1	1	4		

MANPOWER

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

A6313

YTD VARIANCE: 22 (22%)

Current milestones are being met. Some subsequent work scope and associated budget, $50K, will be carried over into FY-1983.

189a A6313

1. Initiating Event Data Evaluation

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

Tables describing loss-of-coolant events were further refined and the information in the tables was summarized. The first draft of a NUREG report on the Loss of Coolant Accident (LOCA) data base was written.

The FY-1982 scope and budget are both approximately at the 55% level.

4. Scheduled Milestones for August 1982

Description	Due Date	Actual Date
Draft NUREG on LOCA Data Base	8-13-82E	

5. Summary of Work to be Performed in August 1982

The draft NUREG will be reviewed and transmitted to the NRC for review. Work will continue on the transient event report (EPRI-NP-2230).

6. Problems and Potential Problems

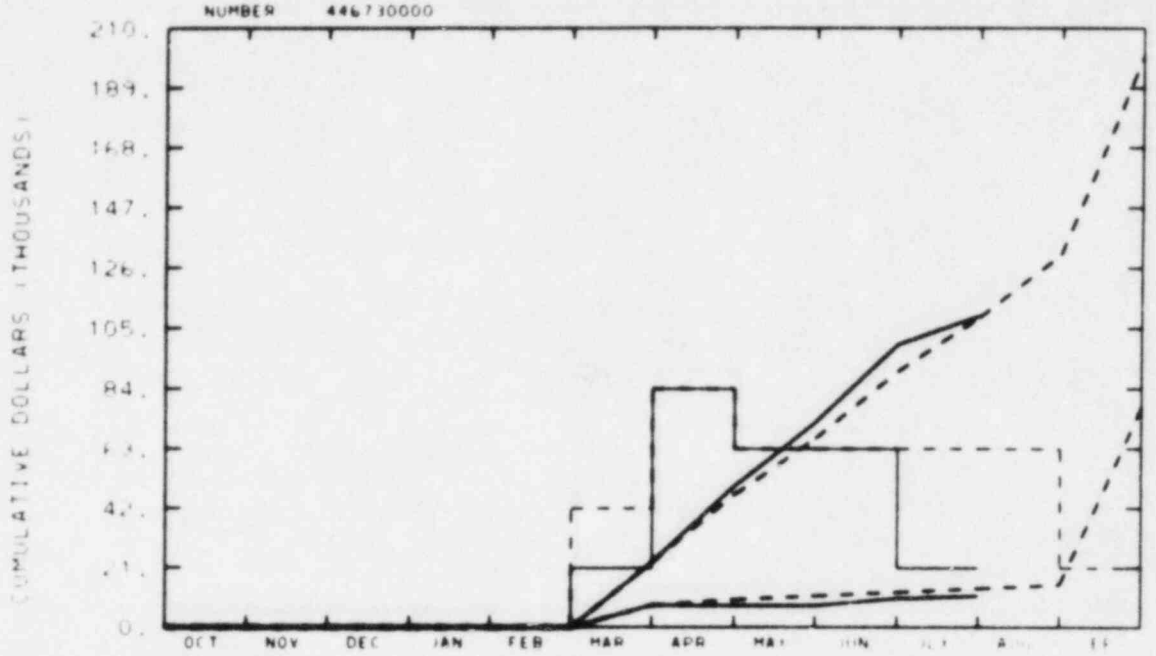
None.

RESPONSIBLE MANAGER

EG&G IDAHO INC.

PRELIM HTGR SITING EVAL

NUMBER 446730000



TOTAL PROGRAM

BUDGET	0	0	0	0	0	23	47	67	90	109	141	200
ACTUAL	0	0	0	0	0	23	50	72	99	109		

MATERIAL

BUDGET	0	0	0	0	0	8	10	11	13	14	15	17
ACTUAL	0	0	0	0	0	8	8	8	10	11		

MANPOWER

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

BUDGET

ACTUAL

A6315

YTD VARIANCE: 0

1. Preliminary HTGR Siting Evaluation

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

EG&G Idaho personnel (H. Reilly) traveled to Brookhaven National Laboratory (BNL) on July 1 to discuss details of source term analysis with BNL and NRC.

Review of the General Atomic (GA) containment atmosphere calculations using the CARCAS code was deferred to the end of July because the material had not arrived from GA at the time of this writing.

Drafts of the following report sections were prepared: "Potential Accidents", "Reactor Susceptibility to Fire", and "Reactor Susceptibility to Windstorms and Floods". The section on "Description of Plant" was deferred to August because the GA material (Design Package) was delayed until after July 23, 1982.

Event tree development was continued.

A meeting scheduled for July 22 at Los Alamos National Laboratory (LANL) to discuss the Anticipated Transient Without Scram (ATWS) calculations was deferred to August 5 at the request of LANL.

The project schedule was revised and reissued.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

Prepare a draft of the final report section titled "Plant Description".

Revise the existing draft on "Reactor Susceptibility to Windstorms and Floods" to incorporate most recent data on balance-of-plant design.

Review the GA information on CARCAS and estimate cost for EG&G Idaho to do the containment atmosphere response analysis.

Prepare draft of the event tree work by EG&G Idaho.

Meet at LANL on August 5 to discuss details of ATWS analysis with LANL.

6. Problems and Potential Problems

At the May 5 meeting, it was identified that the core heatup work by BNL was the critical path for the project and that report inputs from BNL could not be sent to EG&G Idaho until at least two months beyond EG&G Idaho's estimated need date for a January 2, 1983, publication. Plans were made to accommodate this late arrival with minimal impact on publicaton date. However, schedule now shows February 1, 1983, for publication date, one month later than in the draft schedule. This stretchout of one month has an adverse impact on the project cost. Manloading was adjusted to compensate; however, further slippage by any of the participants could potentially create an overrun of the total funding available to EG&G Idaho for the project.

Finally, GA reports on the Baseline 0 design, which are identified as prerequisite to some work, have been delayed at GA until July 23, 1982 (originally June 30, 1982). This has probably caused some indeterminate delay in the overall project.

At the end of June, approximately half the EG&G Idaho FY-1982 funds for this project had been spent. But it now appears the project may go on longer than first planned. Major inputs for the final report are likely to appear after FY-1982. To accommodate this, EG&G Idaho has stopped work on "Design Options". Other funding is being identified for project personnel so that the spending rate on this project can be greatly reduced.

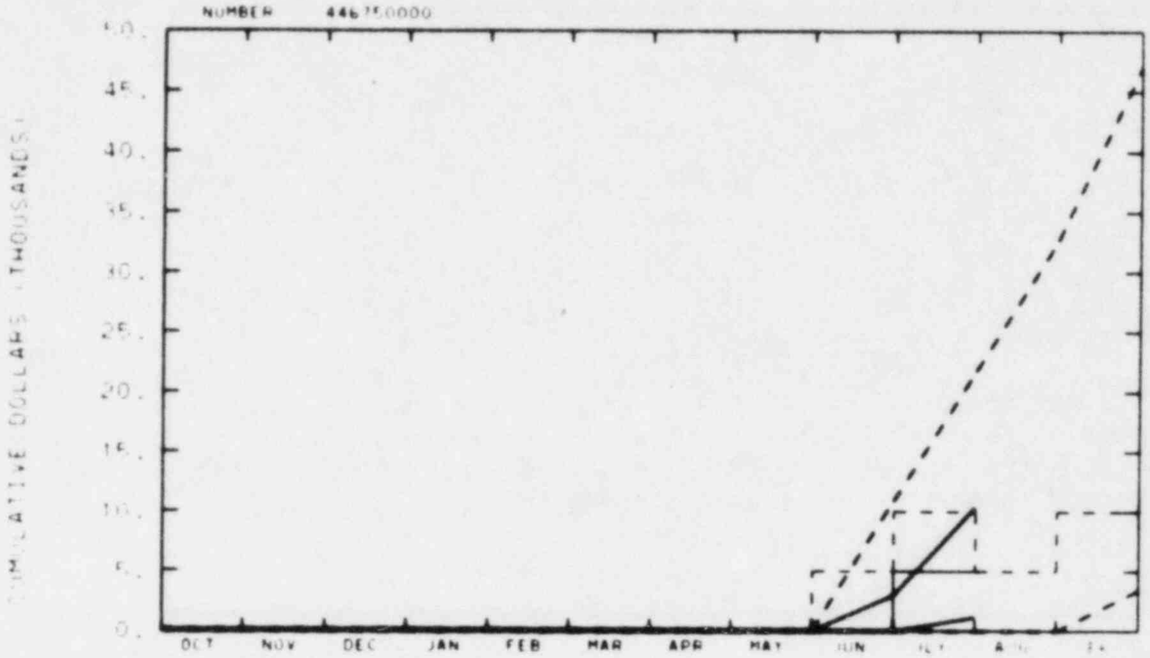
A determination of how to perform the containment atmosphere response calculations has not yet been made. It is not known whether these calculations can be performed within the project funding. The calculations need not be performed until after October 5, 1982--therefore, there is still time to consider options for this potential problem.

RESPONSIBLE
MANAGER
[illegible] AFFELL

EG&G IDAHO INC.

PARAMETERS INFL DAMF [illegible]

NUMBER 446750000



TOTAL PROGRAM

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET	0	0	0	0	0	0	0	0	11	[illegible]	[illegible]	[illegible]
ACTUAL	0	0	0	0	0	0	0	0	[illegible]	[illegible]		

MATERIAL

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

MANPOWER

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

A6316

YTD VARIANCE: 12 (55%)

Late initiation of this task has resulted in a $12K underrun. Work is proceeding and a carryover into FY-1983 is anticipated.

189a A6316

1. Parameters Influencing Damping in Piping Systems

None.

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

EG&G Idaho personnel attended a meeting at the Nuclear Regulatory Commission (NRC) with Dr. Shibata of Japan to discuss acquiring damping data from the Japanese. Literature searches and telephone contacts were conducted to investigate recent damping information.

4. Scheduled Milestones for August 1982

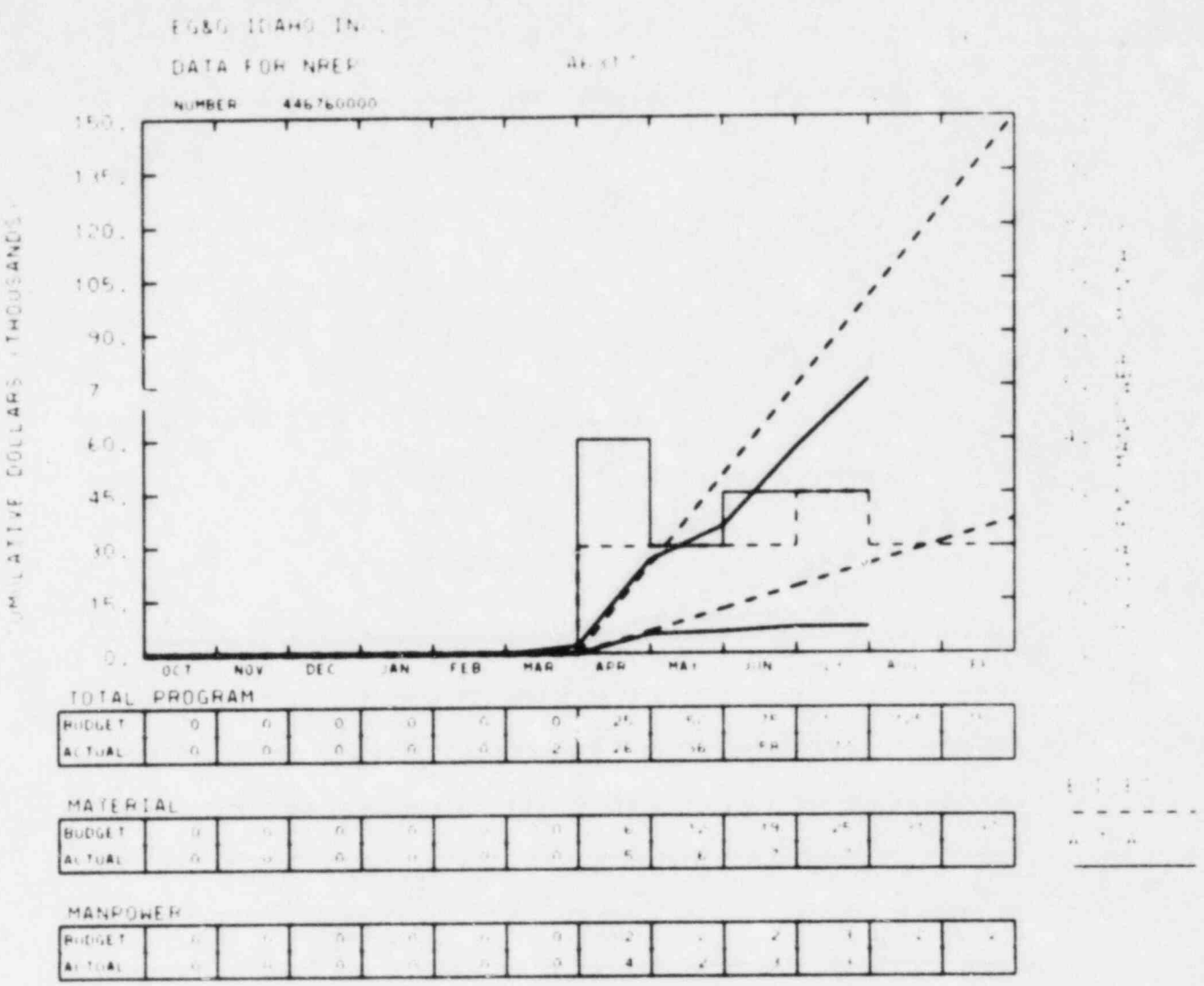
None.

5. Summary of Work to be Performed in August 1982

Additional damping studies will be reviewed by literature searches and telephone contacts. Planning for generating and gathering damping data will continue.

6. Problems and Potential Problems

None.



A6317

YTD VARIANCE: 23 (23%)

The underrun is due principally to material costs. Anticipated expenditure between now and the end of the fiscal year should bring costs in line with budget.

189a A6317

1. Data for NR_

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

Three recent Probabilistic Risk Assessment (PRAs) were acquired from external sources, and other information has been solicited by mail to gather sources for an annotated bibliography. Defining the scope of the review of each data source began.

51% of the FY-1982 budget for FIN A6317 has been expended. An increased rate of spending is expected for the remaining two months of the fiscal year. This is in line with the scope of the project expected to be completed by the end of FY-1982.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

The direction of emphasis in constructing a bibliography of data bases for PRAs will shift from an evaluation of data in existing PRAs and the sources of that data to a direct evaluation of more formal "data bases" such as the Government Industry Data Exchange Program (GIDEP) and the Department of Interior's Failure and Inventory Reporting System. A questionnaire will be developed and contact personnel for 19 such data bases will be surveyed to determine the applicability of these sources for PRAs.

6. Problems and Potential Problems

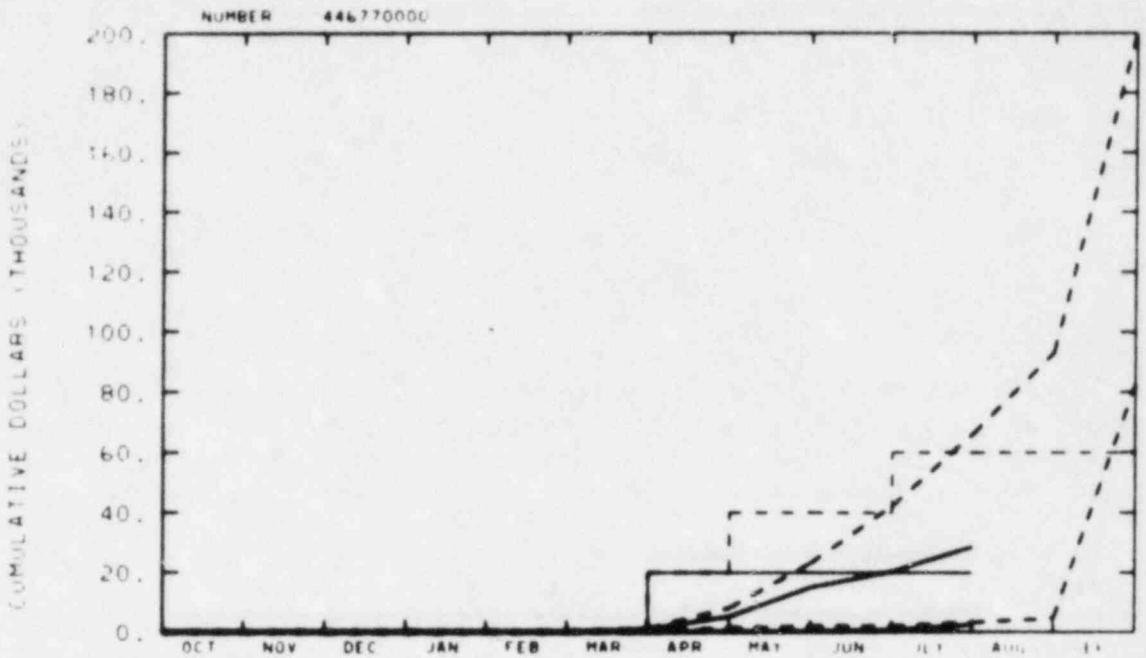
None.

RESPONSIBLE MANAGER
R. F. GAFFELL

EG&G IDAHO INC.

SYS REQ/STND DEV ANNEAL REVAB (1)

NUMBER 446770000



TOTAL PROGRAM

BUDGET	0	0	0	0	0		8	23	42	66	91	
ACTUAL	0	0	0	0	0	1	5	15	20	29		

MATERIAL

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

MANPOWER

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

BUDGET

ACTUAL

A6318

YTD VARIANCE: 37 (56%)

Receipt of input data is running behind schedule on this task. Work scope and corresponding funding will be carried to FY-1983.

189a A6318

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

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

EG&G Idaho personnel attended the Nuclear Regulatory Commission (NRC) pressurized thermal shock review meeting in Bethesda early this month. The meeting was very informative and provided an opportunity to meet with foreign attendees with regard to thermal annealing work in Europe.

The Electric Power Research Institute (EPRI) report on annealing is still not available; hopefully at the end of this month a preliminary copy of the report will be sent to EG&G Idaho. Study of the parametric annealing data generated by the Naval Research Laboratory was begun by digitizing the original Charpy V-Notch data for statistical analysis and curve-fitting. Work in establishing an American Society for Testing and Materials (ASTM) task group on annealing was started.

The NRC Technical Monitor has requested an industry survey of vendor and engineering companies with regard to the annealing issue. This survey is to be completed within this fiscal year. Due to the delay in receiving the EPRI report, this program is currently behind schedule; the NRC survey request also fits within the original work scope, except for possible additional travel expenses. Thus, this request is being carried forward, and initial work in setting up travel plans has begun. The overall program for FY-1982 is 20% complete and 23% of the funds have been expended.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

Travel plans and scheduling will be formulated and trips taken to survey the pertinent nuclear industry companies which could provide input on the annealing issue. Further work with regard to ASTM and code committees will continue. If the EPRI report is received, detailed review will begin.

6. Problems and Potential Problems

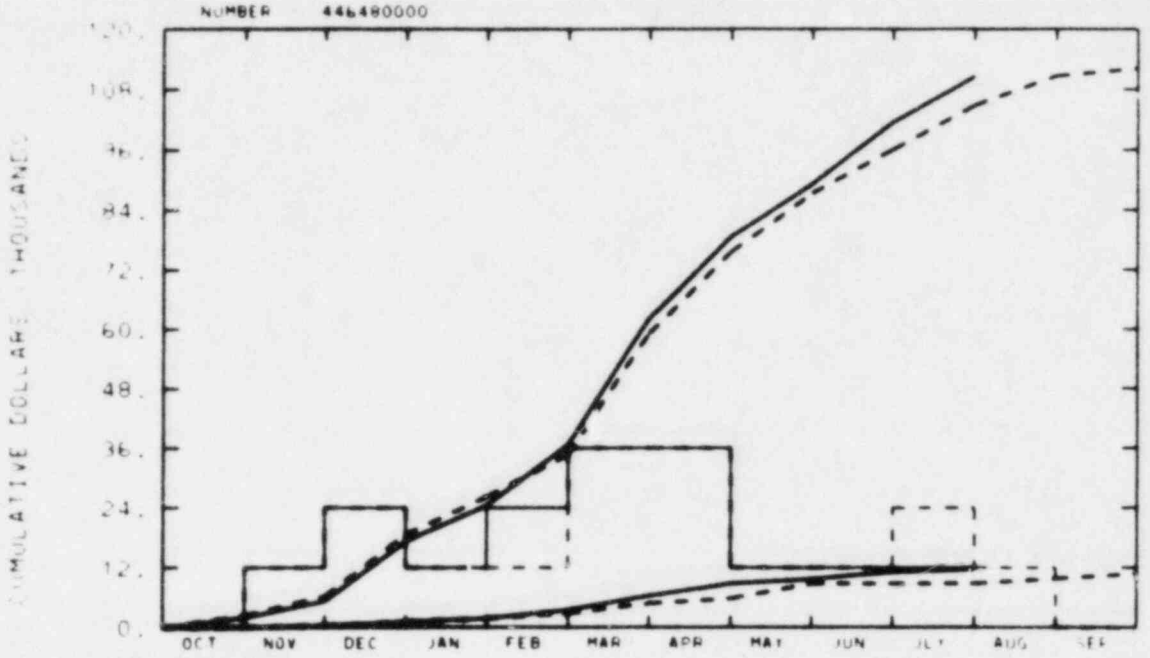
Delay in receiving the EPRI report has significantly impacted original schedules. It was originally planned to evaluate this delay this month. However, due to the recent request for a survey by the NRC Technical Monitor, the evaluation will be completed next month to include this planned survey. Discussions with the NRC Technical Monitor will also be conducted as a part of the evaluation.

RESPONSIBLE MANAGER

EG&G IDAHO INC.

HOOSHENG SRV DISCHARGE

NUMBER 446480000



TOTAL PROGRAM

BUDGET	2	6	19	26	35	49	76	87	96	105	111	114
ACTUAL	2	5	17	24	37	62	79	89	102	111		

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		

MANPOWER

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

A6353

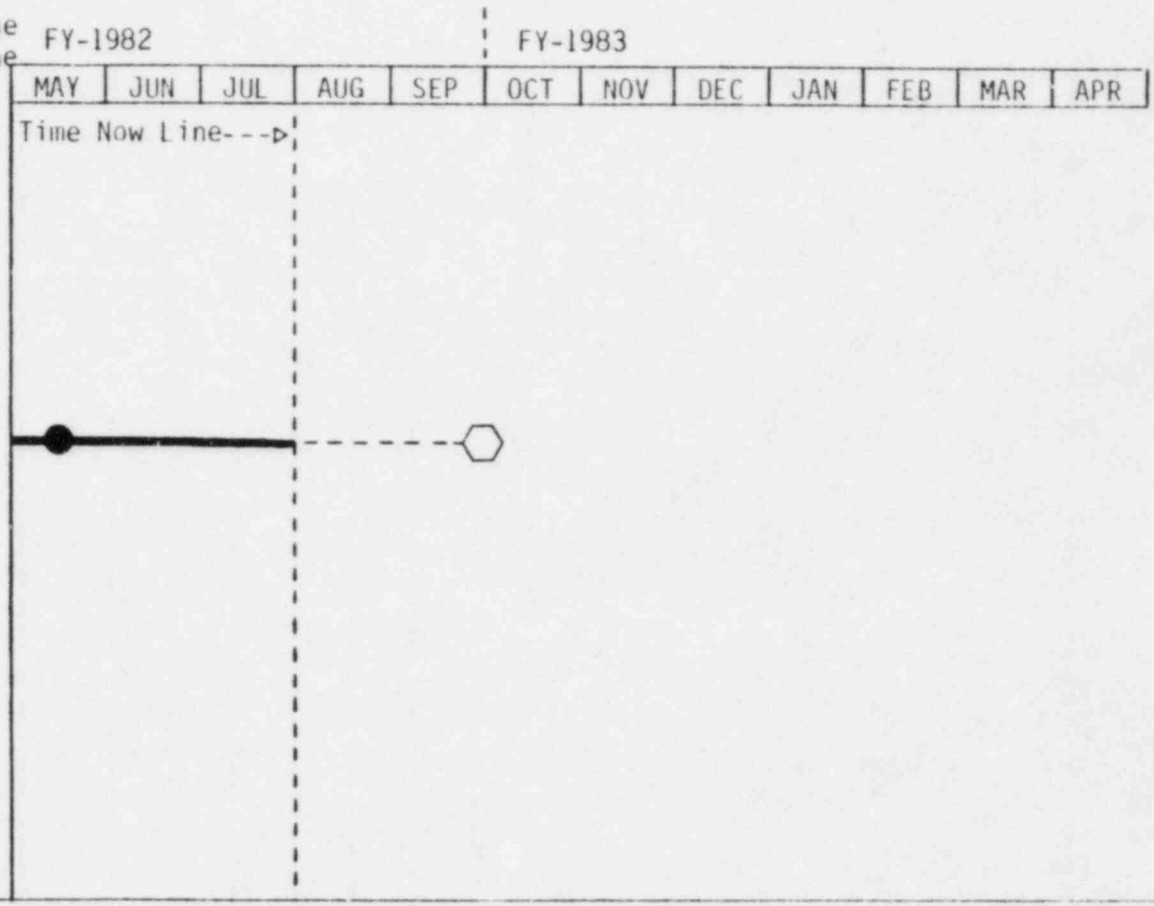
YTD VARIANCE: <6> (6%)

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 July 1982

Kuo-Sheng (A6353)



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

189a A6353

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

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

Comparisons between experimental and analytical results for the response of the SRV piping system were completed.

The results were informally presented to the Nuclear Regulatory Commission (NRC) Technical Monitor. Because the experimental program yielded very low loads resulting in low accuracy strain gage results, the Technical Monitor recommended that the conclusions reached from this study be redirected from evaluation of the accuracy of hydraulic and structural codes toward safety of the SRV piping system design for discharge loading. The report will be revised as needed to meet this request.

A report presenting accelerometer data from locations in the containment and for NRC selected items was drafted.

This task is approximately 96% complete and 99% expended.

5. Summary of Work to be Performed Next Month

The report preparation on the analysis of the SRV discharge piping will be continued and nearly completed. In addition, the report on Nutech's experimental data will be completed.

6. Problems and Potential Problems

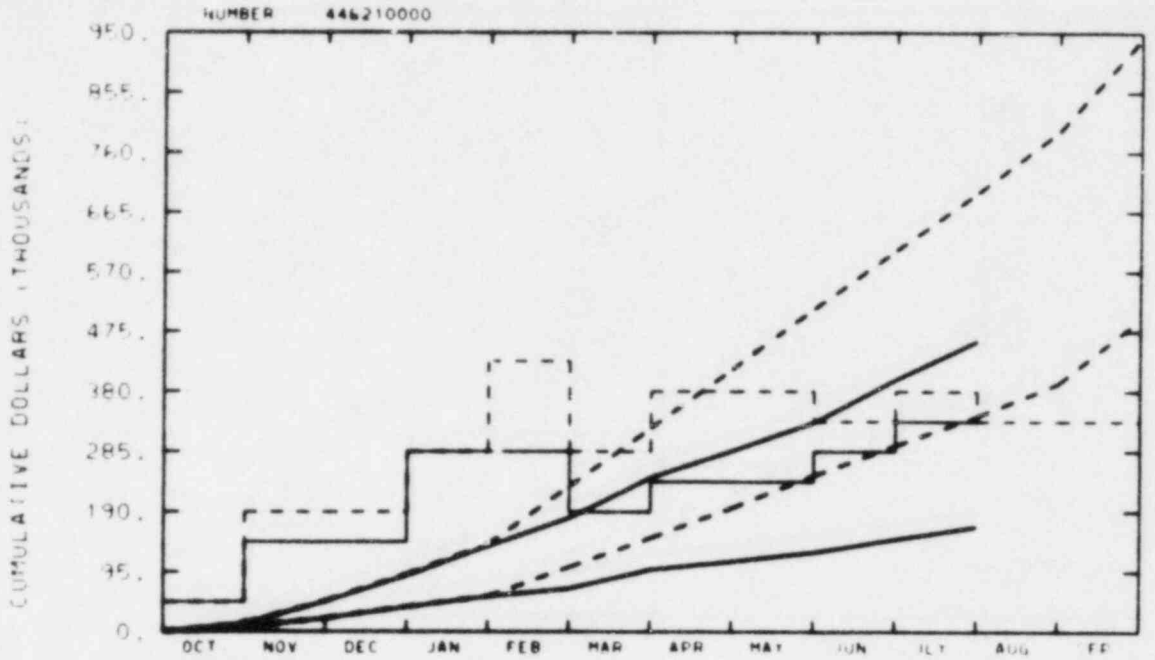
None.

RESPONSIBLE MANAGER

EG&G IDAHO INC.

SEVERE ACCIDENT SEQ ANAL A6354

NUMBER 446210000



TOTAL PROGRAM

BUDGET	14	50	92	138	230	322	5	512	604	697	794	941
ACTUAL	13	48	89	136	180	244	286	331	398	460		

MATERIAL

BUDGET	7	22	41	56	103	149	196	247	294	341	49	499
ACTUAL	7	22	39	56	69	99	11	126	147	167		

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		

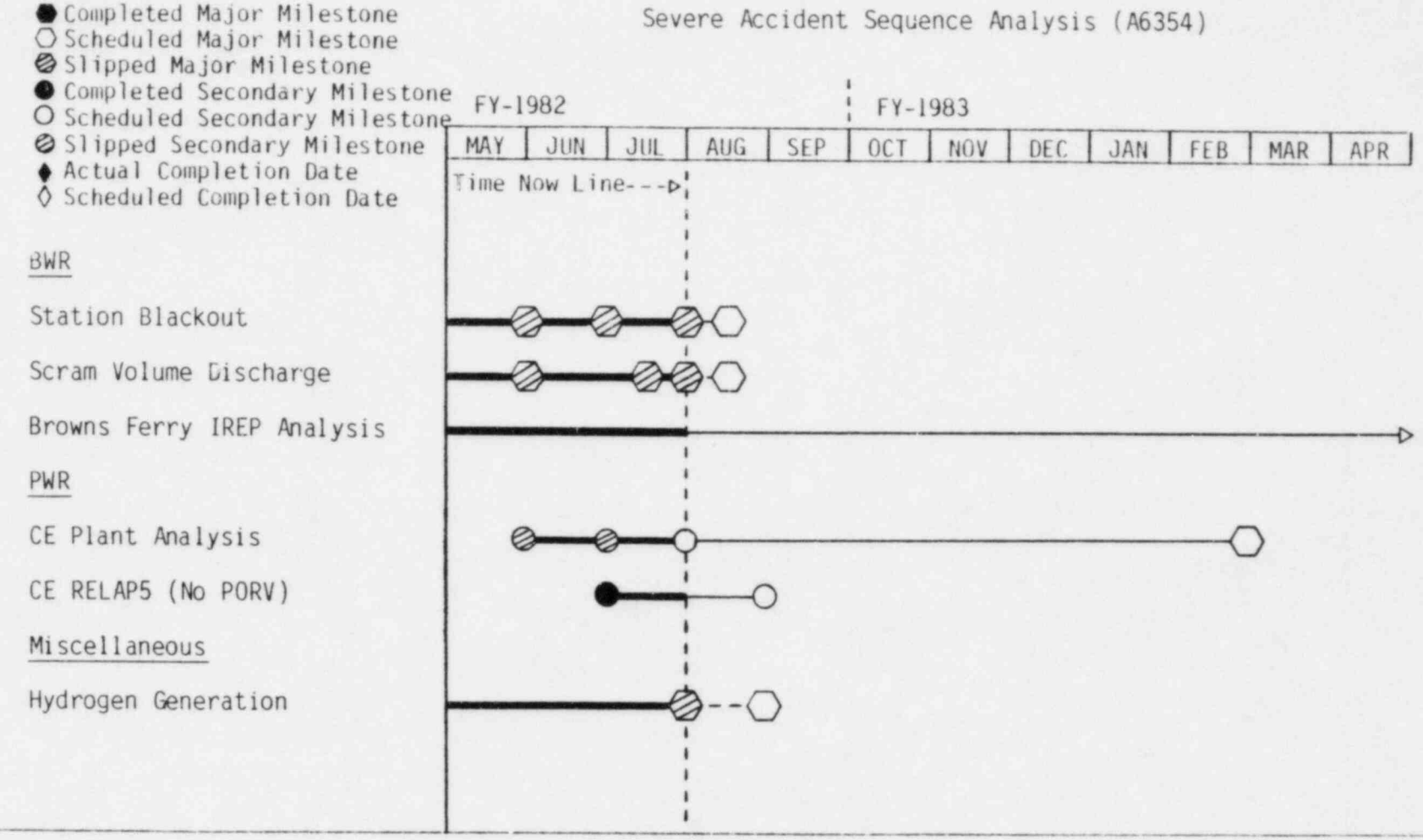
A6354

YTD VARIANCE: 237 (34%)

The $237K underrun is due to the delay in the initiation of the in-depth analysis of CE plants and the delay in ATWS evaluation. The anticipated FY-1982 carryover is $307K.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION July 1982

Severe Accident Sequence Analysis (A6354)



NOTES:

189a A6354

1. Severe Accident Sequence Analysis Program (SASA)

2. Scheduled Milestones for July 1982

Description	Due Date	Actual Date
Station Blackout BWR	7-30-82 (New date)	8-16-82 (New date)
Scram Volume Discharge	7-30-82 (New date)	8-16-82 (New date)

3. Summary of Work Performed in July 1982

Work continued to analyze the behavior of Combustion Engineering (CE) plants without power operated relief valves using RELAP5.

Work continued to replicate the MARCH hydrogen source term calcuations using SCDAP/MOD 0. Preliminary hydrogen generation values have been obtained for all sixteen sequences considered.

The Browns Ferry Scram Discharge Volume Analysis was concluded. A report detailing the results was drafted; it is now in the review cycle. A copy of the draft report was transmitted to Oak Ridge National Laboratory (ORNL) for inclusion in their scram discharge volume analysis report.

The Station Blackout Analyses draft report was completed; it is in the review cycle. The station blackout analysis, for part of the case of a stuck open relief valve with Reactor Core Isolation Cooling (RCIC) available was rerun using an improved mass error correlation, improved decay heat curve, and corrected heat slab models. These items improved or corrected previously identified deficiencies in the plant model.

Model development to analyze the Browns Ferry Interim Reliability Evaluation Program (IREP) operational sequences continued. The jet pump model was modified by adding the proper form loss coefficients.

A meeting between Idaho National Engineering Laboratory (INEL) and Sandia National Laboratory (SNL) was held to finalize the plan for containment management strategy developments. INEL will provide front end thermal analysis support.

4. Scheduled Milestones for August 1982

Description	Due Date	Actual Date
Hydrogen Generation	8-31-82	

5. Summary of Work to be Performed in August 1982

Work will continue to analyze the behavior of CE plants without power operated relief valves using RELAP5. The analysis will be completed.

The SCDAP/MODO hydrogen source term analysis that replicated previous MARCH hydrogen source term analysis will be completed.

The Browns Ferry scram discharge volume and station blackout reports will be published.

Reactor cooling control system models will be incorporated into the Browns Ferry RELAP5 model. These models are required to model the IREP operational transients. Browns Ferry containment models for the CONTEMPT code will be developed to model rapidly changing containment environments for the IREP operational transients.

Work will be initiated on the analysis of CE Standard Safety Analysis Report (CESSAR)-80 plants.

A presentation to be made at the Water Reactor Safety Research Information Meeting will be prepared. INEL will participate in a meeting with the IDCOR (Industry Degraded Core) Program.

6. Problems and Potential Problems

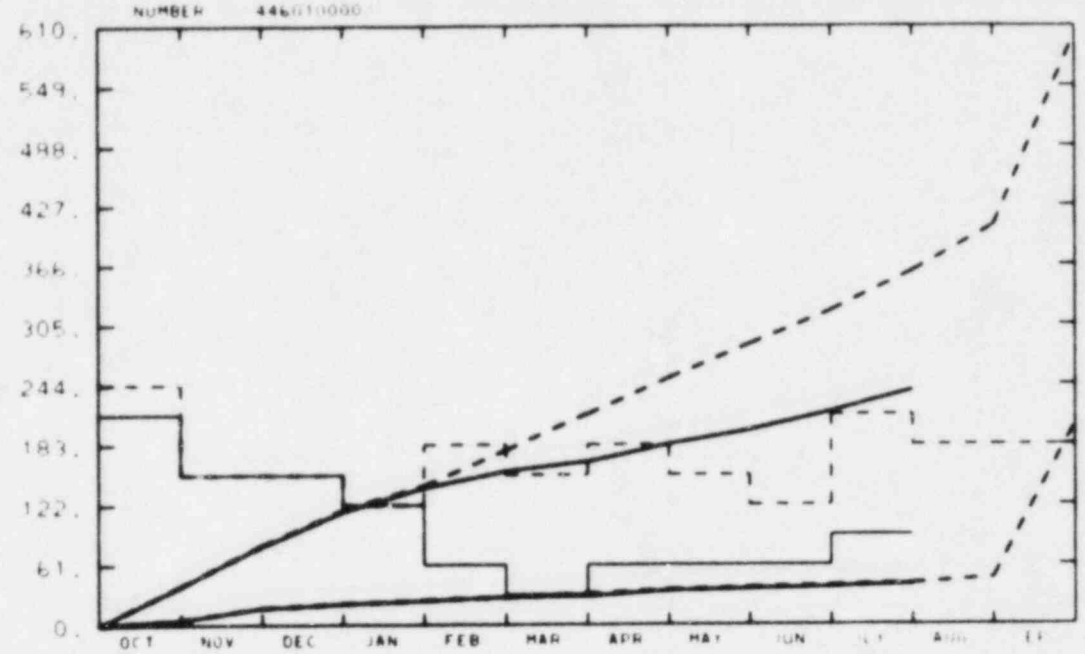
None.

RESPONSIBLE MANAGER

EG&G IDAHO INC.

SAFETY & RELIEF VAL

NUMBER 446010000



CUMULATIVE DOLLARS (THOUSANDS)

TOTAL PROGRAM

BUDGET	40	81	117	142	177	214	250	285	319	360	406	
ACTUAL	40	80	115	139	156	166	184	198	216	238		

MATERIAL

BUDGET	5	18	22	25	28	32	36	38	41	43	47	
ACTUAL	5	18	22	25	28	29	35	36	38	41		

MANPOWER

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

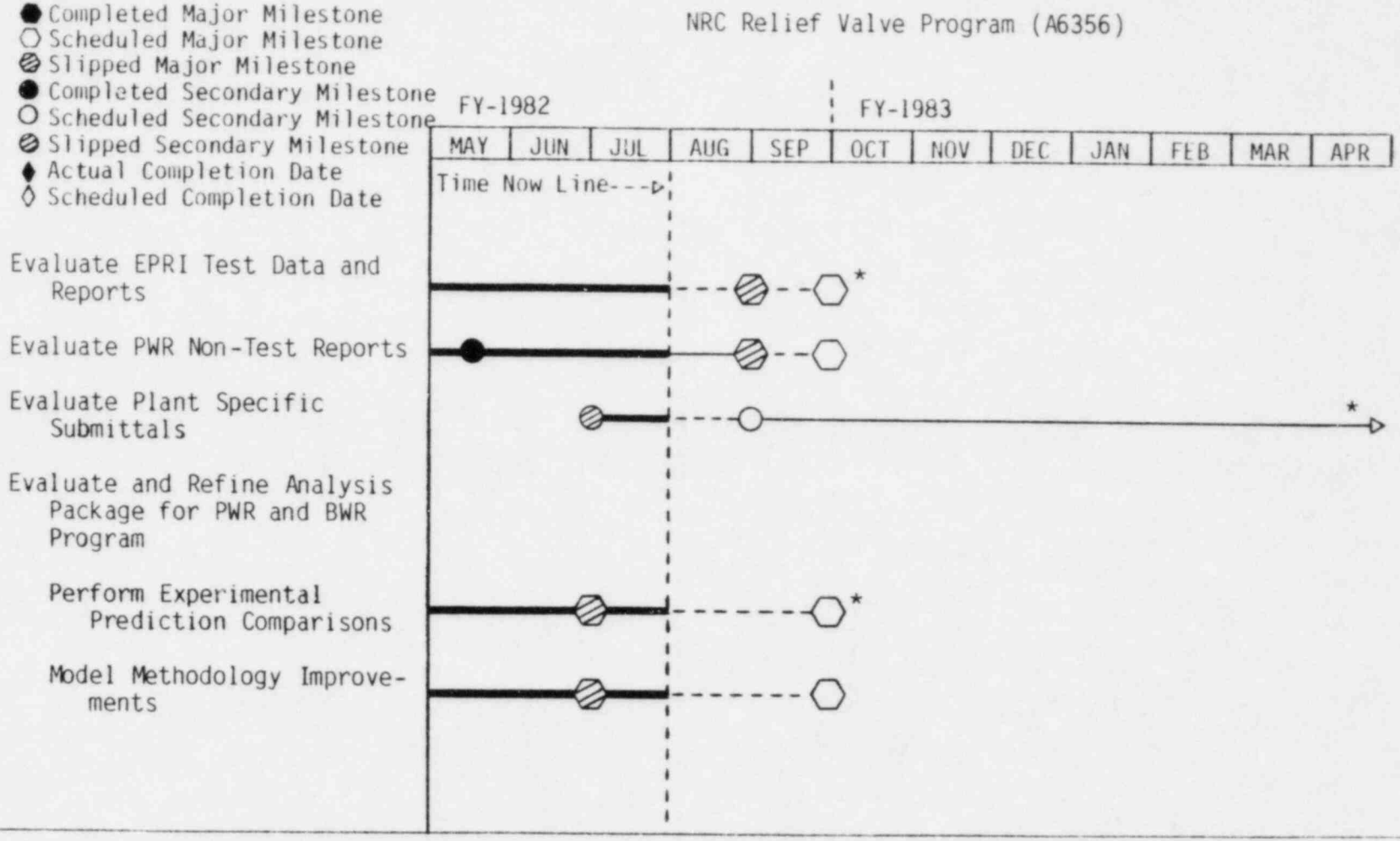
A6356

YTD VARIANCE: 122 (34%)

The underrun is due in part to the delay in receiving PWR/EPRI reports for evaluation and the lack of detail for evaluation in the BWR plant specific submittals. This lack of detail reduced the anticipated scope of the initial evaluation. The anticipated FY-1982 carryover is $170K.

NRC TECHNICAL ASSISTANCE PROGRAM DIVISION July 1982

NRC Relief Valve Program (A6356)



NOTES: * Completion depends on the date that data, reports, and plant specific submittals are made available to NRC and EG&G Idaho by EPRI and the PWR and BWR Owners.

189a A6356

1. NRC Safety/Relief Valve Program

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

A draft report describing an improved method for calculating hydraulic forces from RELAP5 output was revised for a final review. The improved method will result in more accurate force calculations in safety/relief valve systems.

Evaluation of seven Pressurized Water Reactor/Electric Power Research Institute (PWR/EPRI) test data and test justification reports continued. An evaluation and review of the EPRI/I report entitled "Application of RELAP5/MOD1 for Calculation of Safety and Relief Valve Discharge Piping Hydrodynamic Loads" was completed. The review of the PWR block valve report was initiated.

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

Several PWR plant specific submittals were received from the Nuclear Regulatory Commission (NRC). Plans are under development to evaluate the submittals using a multidiscipline team approach.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

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

The review and evaluation of the EPRI evaluation of RELAP5 will be documented and transmitted to NRC.

The review and evaluation of the PWR block valve report will be completed.

Work will continue to activate the direct integration version of NUPIPE-II on the INEL computer system.

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

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

Evaluation of the PWR plant specific submittlas will continue. First priority will be assigned to the San Onofre submittal.

6. Problems and Potential Problems

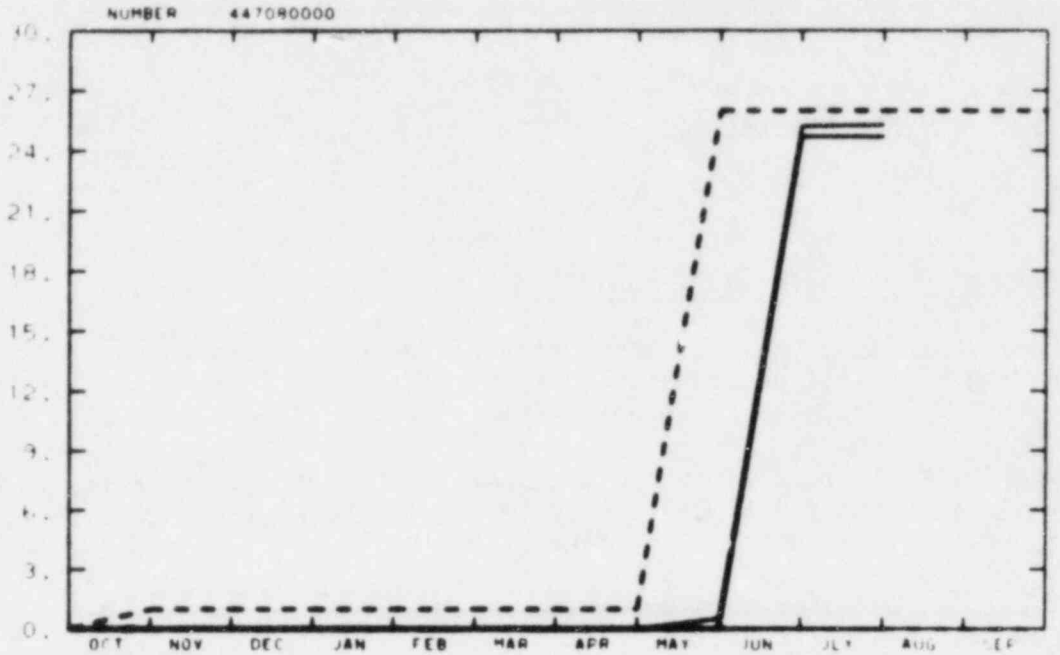
None.

RESPONSIBLE MANAGER
[illegible] AFFELL

EG&G IDAHO INC.

APPLIED JAMES STEIN A6358

NUMBER 447080000



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		

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		

MANPOWER

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

A6358

YTD VARIANCE: 1 (4%)

1. Applied James-Stein Estimators

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

A thesis by Mr. Joe Hill on the theory of the estimators has been completed. It will be transmitted to us within the next month, at which time the publication of a technical report will be considered.

A paper by Mr. Hill will be presented at the Department of Energy (DOE) Statistical Symposium at Idaho Falls, in October, at which time he will also detail his work for EG&G Idaho.

The starting date for developing the necessary theory for tolerance bounds has been postponed until the September-October time frame.

The completion data for a thesis by Mr. Shariff has been slipped to the first quarter of FY-1983. The reason for this is that Mr. Shariff has been consulting with the Institute for Nuclear Plant Operations (INPO) in Atlanta.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

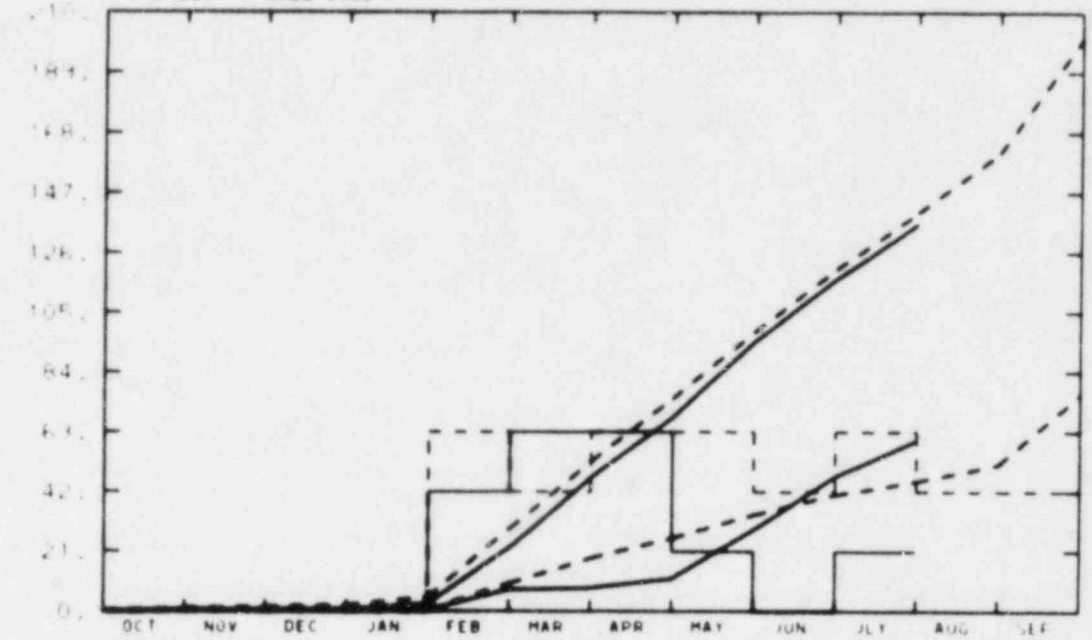
Little effort is scheduled because of vacation schedules. Mr. Hill will be preparing the paper described in Item 3. The process of selecting another participant for the work to come in FY-1983 will begin.

6. Problems and Potential Problems

None.

EG&G IDAHO INC.

NUMBER 44661000[illegible]



TOTAL PROGRAM

BUDGET	1	2	2	5	25	53	75	98	120	140	161	201
ACTUAL	0	0	0	3	22	47	68	95	117	136		

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		

MANPOWER

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

BUDGET

ACTUAL

A6367

YTD VARIANCE: 4 (3%)

1. Support of NRC on ASME Code Section XI Activities

2. Scheduled Milestones for July 1982

Description	Due Date	Actual Date
Task 7, Component Supports	7-9-82T	7-9-82C Saff-230-82
Task 6, Valve Testing Standards	7-16-82T	6-16-82C Saff-288-82

3. Summary of Work Performed in July 1982

Task 4: The Draft report prepared earlier for this task was reviewed by the author and Nuclear Regulatory Commission (NRC) personnel during a July 21, meeting in Rockville, Maryland. As a result of this meeting, the original work scope has been revised; current plans call for inclusion of these revisions in a final report to be completed in August of 1982.

Task 6: The preliminary report for this task was formally transmitted to the NRC for their review and comment. This task is 98% complete.

Task 7: There was no activity on this task during July. This task is 98% complete.

Task 9 Efforts to get the pertinent information from Lawrence Livermore Laboratory have been delayed due to busy schedule of the personnel there. Therefore, there has been very little activity this month. This task is 56% complete.

Task 10: The missing pressurized water reactor (PWR) class 1 support data was received and entered in the computer. The boiling water reactor (BWR) data was corrected and analysis for the final report is in progress. The final report is complete in draft form. The FY-1982 work scope for this task is about 90% complete (36% of the 40% remaining after completion of A6368).

General: Overall, this project is 89% expended based upon $153K as the total FY-1982 budget.

4. Scheduled Milestones for August 1982

Description	Due Date	Actual Date
Task 10, Draft Final Report	8/31/82T	

5. Summary of Work to be Performed in August 1982

Task 4: Revision to the final report, including the recently amended work scope, is anticipated to be completed during August.

Task 6 or 7: No work is planned for these tasks until NRC comments are received on the preliminary reports.

Task 9: The stress information from LLL will hopefully be received. Final definition of the sample problem should then be made, and an extension of the task will begin.

Task 10: The BWR data and corrected PWR data will be processed for completion of the draft final report. The draft report will be submitted to the NRC Technical Monitor for review.

6. Problems and Potential Problems

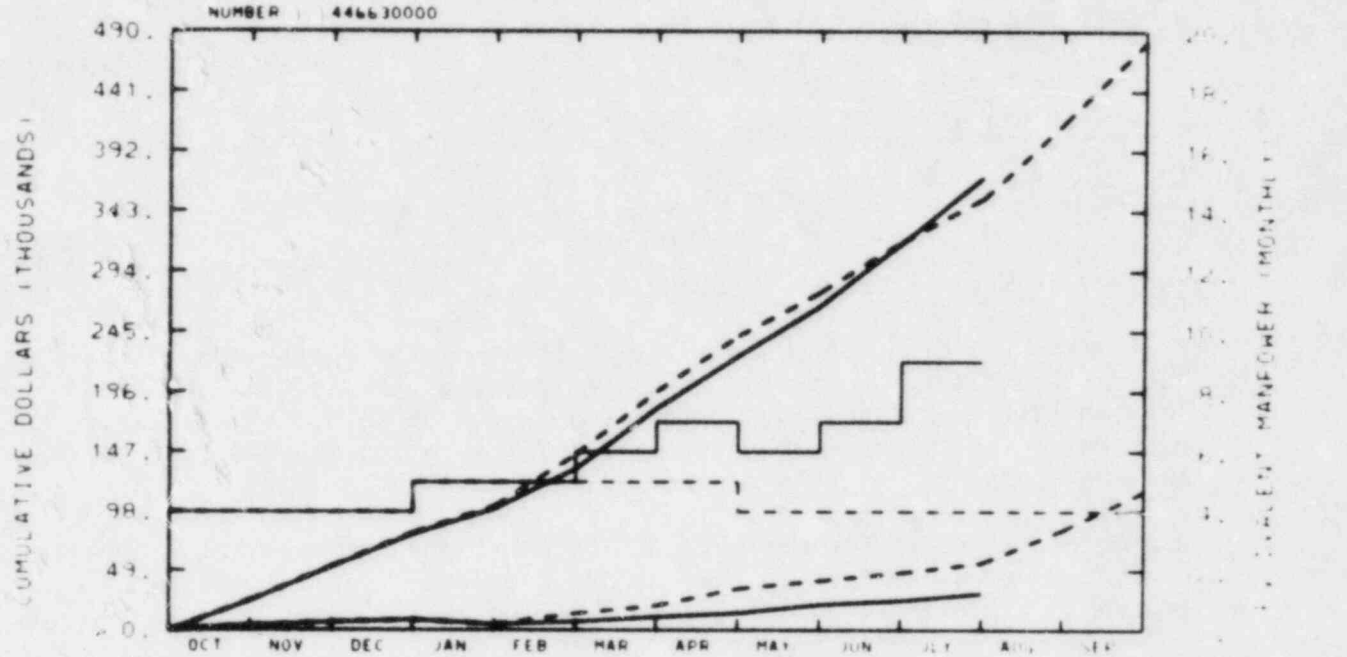
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

NUCLEAR POWER PLANT INST A6369

NUMBER : 446630000



TOTAL PROGRAM

BUDGET	25	53	81	103	145	196	242	277	318	359	415	481
ACTUAL	24	53	79	100	133	183	225	266	317	371		

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		

MANPOWER

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

A6369

YTD VARIANCE: <18> (5%)

Acceleration of this task has resulted in an $18K overrun. A decrease in activity in the next two months will bring costs and budget into line. A carryover of approximately $40K is projected at fiscal year-end.

1. Nuclear Power Plant Instrumentation Evaluation

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

A briefing was given for Department of Energy-Idaho Operations Office and Nuclear Regulatory Commission (NRC) personnel on the industry problems in implementation of Regulatory Guide (RG) 1.97 that have been identified to date and on the content and capability of the data base management system currently employed by this program.

A program status review was held at Idaho National Engineering Laboratory (INEL). During the meeting some of the problems facing the industry with regard to implementation of RG 1.97. Including those concerns considered to be of highest priority were discussed in detail. It was agreed that all of these items would be addressed in the final assessment report to be published in FY-1983.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

Work will continue to incorporate comments from review of the draft of the RG 1.97 clarification document. A final draft is being prepared for publication in September.

A report giving preliminary recommendations for changes to RG 1.97 is being prepared for publication in September.

The NPPIE data base management system final report is being written. The report will include a users guide for the system.

Validation and input of plant data into the data system will continue.

6. Problems and Potential Problems

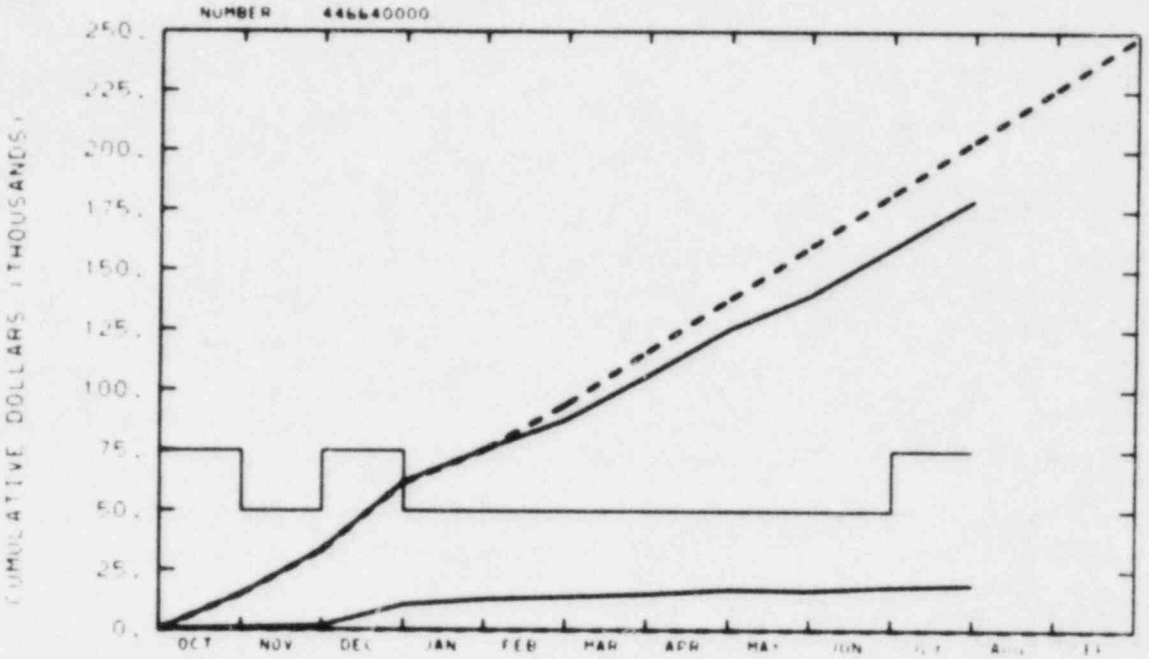
None.

RESPONSIBLE MANAGER
B F SAFFELL

EG&G IDAHO INC.

RES ASSESS-CON AUTO A6370

NUMBER 446640000



TOTAL PROGRAM

BUDGET	15	33	62	75	94	116	138	160	182	204	226	248
ACTUAL	15	34	62	76	88	106	126	140	160	180		

MATERIAL

BUDGET	15	33	62	75	94	116	138	160	182	204	226	248
ACTUAL	1	2	11	11	14	15	17	17	18	19		

MANPOWER

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

A6370

YTD VARIANCE: 24 (12%)

Negotiations are still underway to determine task funding and requirements. When they are established, the budget will be realigned.

1. Microprocessor Based Design and Plant Control Automation

2. Scheduled Milestones for July 1982

Description	Due Date	Actual Date
"Preliminary Assessment of Design Issues Related to the Use of Programmable Digital Devices for Safety and Control Systems"	7-30-82T	7-23-82C Saff-309-82

3. Summary of Work Performed in July 1982

The majority of the work performed in July was on the preparation of the design issues report. This activity required about two man months.

In addition to the above work, the report, "Interim Safety Related Criteria for Signal Isolation Devices Used in Commercial Nuclear Power Plants", was revised to incorporate comments received from the Nuclear Regulatory Commission (NRC) and Nuclear Steam Supply system (NSSS) vendors. The report was submitted to Department of Energy (DOE) in accordance with informal commitments made to the NRC.

EG&G Idaho prepared and presented an informal program review for E. C. Wenzinger Chief, Instrument and Control Branch, Office of Nuclear Regulatory Research (RES). The contents of the milestone report were reviewed. Mr. Wenzinger expressed an interest in receiving the report as soon as possible. Also presented was the status of the interim criteria on isolation devices. There is still a need for additional data. EG&G Idaho has prepared a "form" letter for a survey of vendor isolator data. The contents of the letter were examined and comments made by Mr. Wenzinger. It was resolved that EG&G Idaho will work closely with NRC in purchasing isolators, preparation of test plans and performing the tests. A number of ideas were discussed dealing with the procurement of isolators. EG&G Idaho will contact DOE Hanford to purchase Westinghouse isolation devices used in FFTF.

Mr. Wenzinger commented that the interim isolation criteria will allow NRC to write a Regulatory Guide and distribute it for public comment.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

EG&G Idaho will continue to review the LER data on isolation devices. A letter report will be written in September.

Isolation data analysis will continue in preparation for recommendations for purchasing and testing.

EG&G Idaho will attend the RRG meeting in Washington, DC to review the report.

EG&G Idaho will also discuss software quality assurance with Westinghouse Hanford and make plans for the development of recommendations for software quality assurance.

6. Problems and Potential Problems

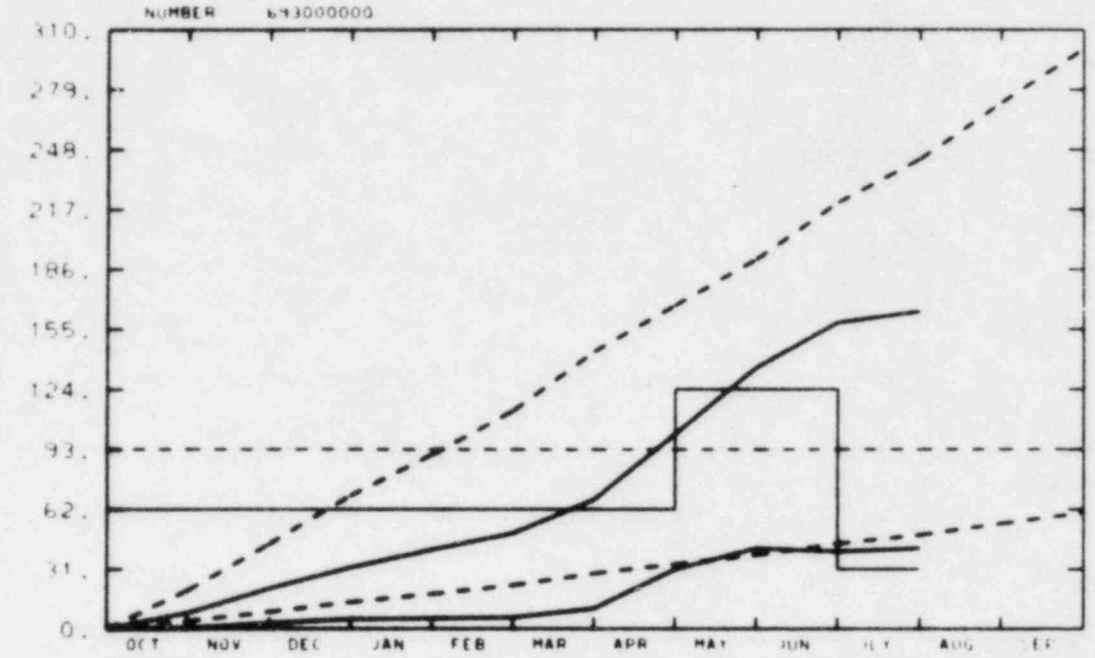
EG&G Idaho has not started work on "Safety Parameter Display Requirements" pending a review decision by the NRC. The initial efforts to obtain data from the industry were not successful.

RESPONSIBLE MANAGER

EG&G IDAHO INC.

RADIOLOGICAL AIR SAMPLING A6371

NUMBER 693000000



TOTAL PROGRAM

BUDGET	20	44	69	90	113	143	167	191	223	243	272	
ACTUAL	8	21	32	41	50	67	101	135	158	164		

MATERIAL

BUDGET	4											
ACTUAL	0											

MANPOWER

BUDGET												
ACTUAL												

A6371

YTD VARIANCE: 79 (33%)

The $300K budget was originally planned to cover a two-year period. In FY-1982, $200K will be costed and in FY-1983, $100K will be costed on the following: 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 July 1982

None.

3. Summary of Work Performed in July 1982

Review of the Personal Air Sampler evaluation continued.

Continued laboratory setup for controlled testing of air sampling equipment.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

Complete a mid-project report for the NRC.

Begin tests of aerosol generation equipment.

6. Problems and Potential Problems

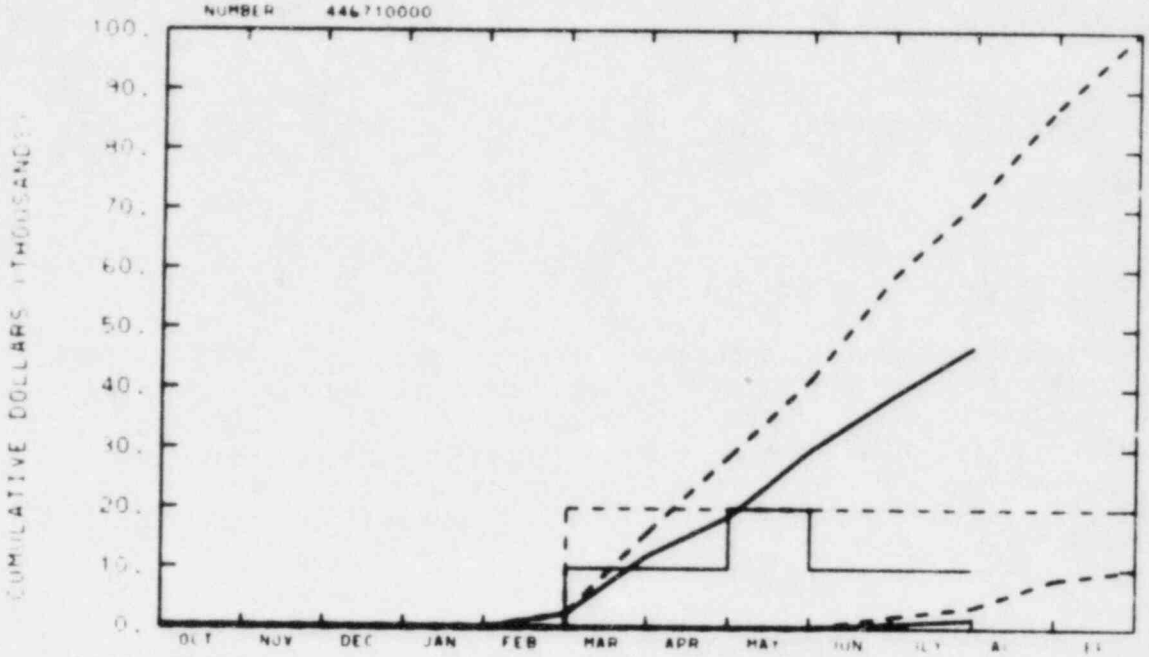
None.

RESPONSIBLE MANAGER

EG&G IDAHO INC.

TWO PHASE INSTRUMENT EVAL

NUMBER 4467?10000



TOTAL PROGRAM

BUDGET	0	0	0	0	2	16	29	42				
ACTUAL	0	0	0	0	2	12	19	10				

MATERIAL

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

MANPOWER

BUDGET												
ACTUAL												

A6376

YTD VARIANCE: 25 (35%)

Negotiations redefining the task are still underway. As soon as work scope is defined, a reevaluation will be reflected in the budget.

189a A6376

1. Two Phase Instrumentation Evaluation

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

The literature search is ongoing. The first draft of FY-1983 Form 189 was completed. Contact with other government and industry supported research and development programs is continuing. Response from utilities improved during July and more information is being added to the list being compiled. The draft interim report was not completed in July but will be completed in August with the added information received from the utilities in July.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

EG&G Idaho will continue the literature search and finish the draft interim report. The summary report work will begin with information updated as it is received.

6. Problems and Potential Problems

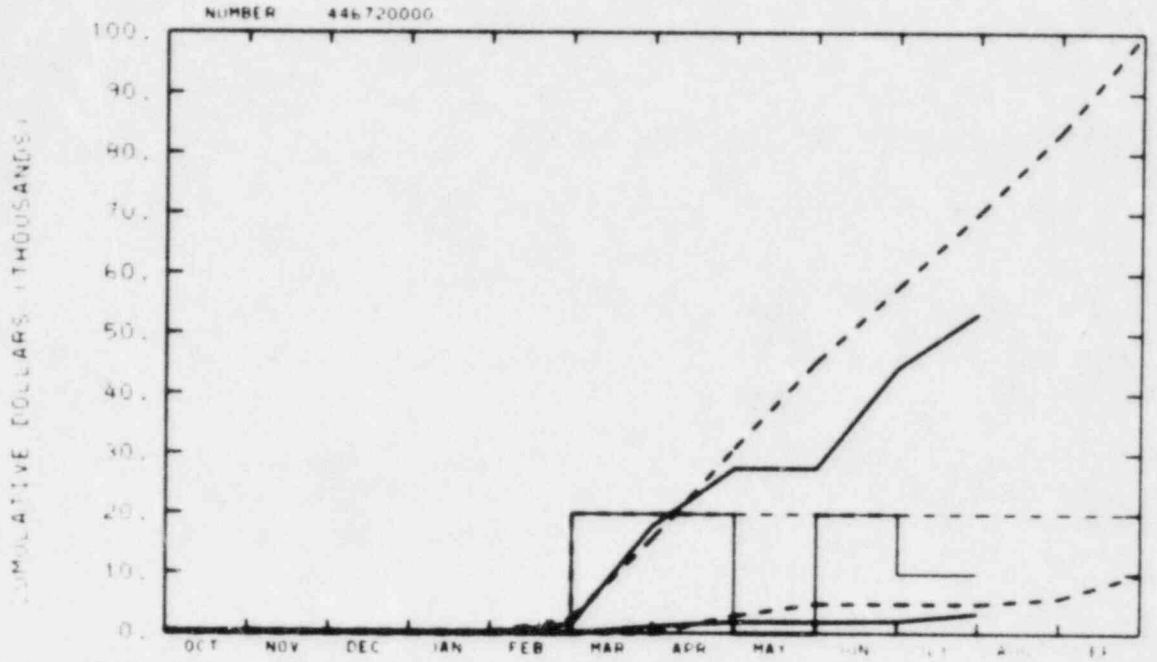
Receipt of information from utilities has improved but vendor response has been poor.

RESPONSIBLE MANAGER
B. F. APPELL

EG&G IDAHO INC.

DIAGNOSTIC INSTRUMENT EVAL AR. (HQ)

NUMBER 446720000



TOTAL PROGRAM

BUDGET	0	0	0	0	2	16	41	45	45		-4	
ACTUAL	0	0	0	0	1	18	28	28	44	1		

MATERIAL

BUDGET	0	0	0	0	0	0	4	5	7	5	4	1
ACTUAL	0	0	0	0	0	1	2	2	2	1		

MANPOWER

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

A6380

YTD VARIANCE: 17 (24%)

Negotiations redefining the task are still underway. As soon as work scope is defined, a reevaluation will be reflected in the budget.

1. Diagnostic Instrumentation Evaluation

2. Scheduled Milestones for July 1982

None.

3. Summary of Work Performed in July 1982

A preliminary list of needed diagnostic instrumentation based on fault tree analysis has been compiled.

Design and qualification criteria as delineated in Regulatory Guide 1.97 were reviewed with respect to application to diagnostic instrumentation. It appears that these criteria are directly applicable to diagnostic instrumentation.

Work is continuing on a survey of methods to anticipate valve and pump failure.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

The draft report describing FY-1982 accomplishments will be completed.

6. Problems and Potential Problems

None.

1. Sandia Purchase Order - Interim Reliability Evaluation Program (IREP)

2. Scheduled Milestones for July 1982

Description	Due Date	Actual Date
Final IREP Report as NUREG	7-31-82	8-3-82C Saff-321-82

3. Summary of Work Performed in July 1982

Completed editing, drafting, and publishing of IREP report.

4. Scheduled Milestones for August 1982

None.

5. Summary of Work to be Performed in August 1982

None. Task complete.

6. Problems and Potential Problems

None.

MONTHLY REPORT FOR

JULY 1982

GPP AND LINE ITEMS

for K. G. Koller

R. E. Rice, Manager
Facilities Management Division

R. L. D. Hess

R. L. D. Hess
Planning and Budgets Division

EC&G IDAHO, INC.

GPP ITEM

PROGRAM WATER REACTOR RESEARCH TEST FACILITIES DIVISION

FY-1982

MANAGER P. North

189 No. A6038

($000)

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											