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POOR ORIGINAL

This document was prepared primarily for preliminary or internal use. It has not received full review and approval. Since there may be substantive changes, this document should not be considered final.

for Kay Roe
H. P. Pearson, Supervisor
Information Processing
EG&G Idaho

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

Various

INTERIM REPORT

NRC Research and Technical
Assistance Report

1009 001

WRRD MONTHLY REPORT FOR
JULY 1979

NRC Research and Technical
Assistance Report

August 1979



EG&G Idaho, Inc.



IDAHO NATIONAL ENGINEERING LABORATORY

DEPARTMENT OF ENERGY

IDAHO OPERATIONS OFFICE UNDER CONTRACT DE-AC07-76IDO1570

1009 002

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WRRD MONTHLY REPORT FOR
JULY 1979

William E. Bostwick

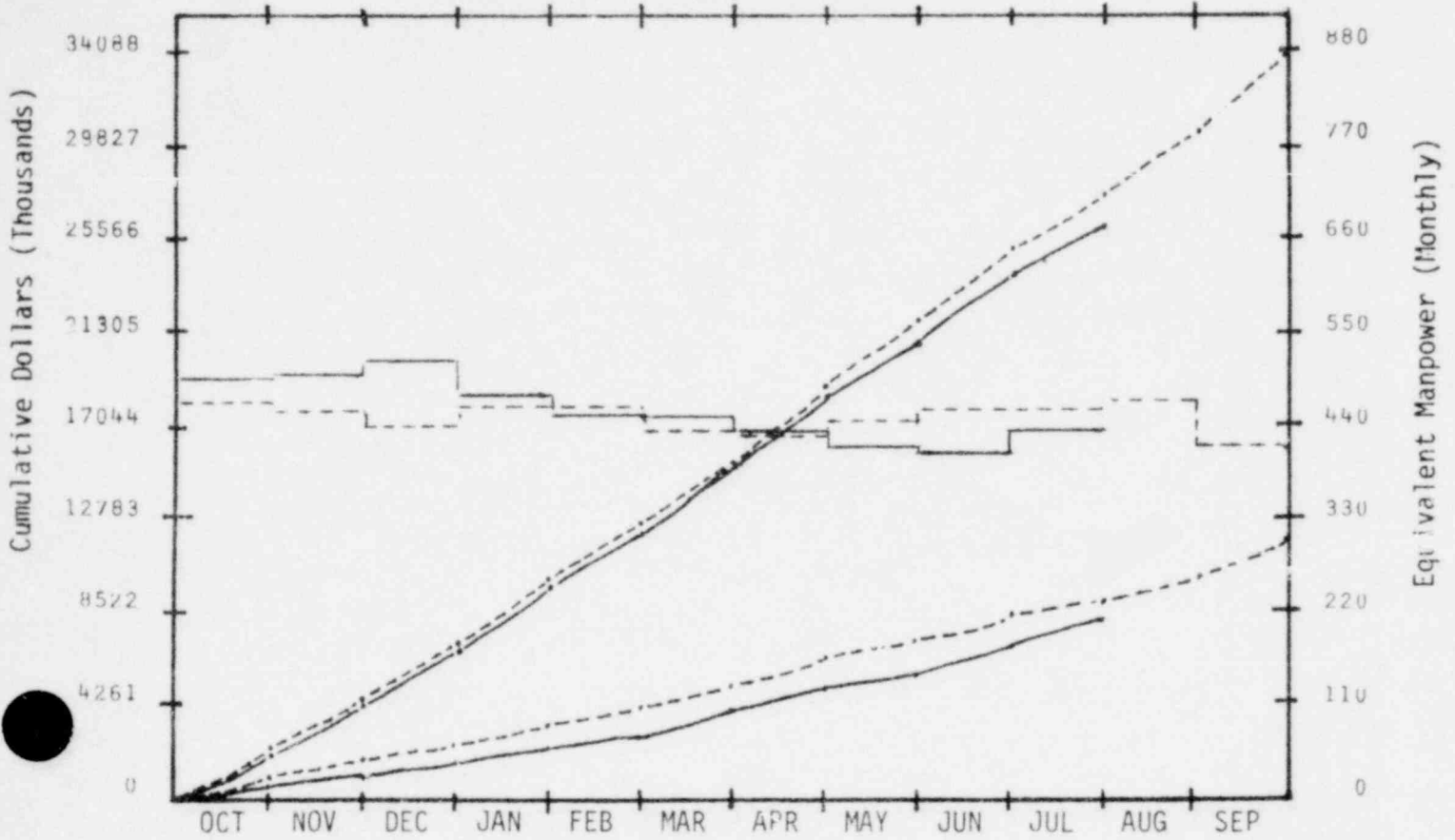
W. E. Bostwick, Officer
Planning and Budgets Branch

L. J. Ybarondo

L. J. Ybarondo, Director

Responsible Manager
 L. J. Ybarrondo
 EG&G Idaho, Inc.

WATER REACTOR RESEARCH DIRECTORATE



TOTAL PROGRAM

BUDGET	2340	4472	6915	8829	12449	15688	18646	21662	24320	27494	30224	34082
ACTUAL	2133	4371	6822	9527	12036	15600	18265	20795	22936	25945		

MATERIAL

BUDGET	609	1202	1972	2919	3762	4870	6024	7202	8133	9221	10212	12179
ACTUAL	305	834	1365	2048	2770	4148	5060	5994	6625	7542		

MANPOWER

BUDGET	464	452	436	463	463	433	429	442	450	451	456	408
ACTUAL	490	495	509	472	458	451	433	412	407	434		

BUDGET

ACTUAL

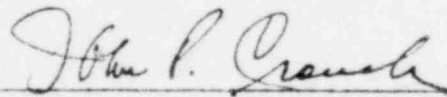
Individual 189a cost graphs will provide explanation of variances when the amount exceeds 10% or 10K.

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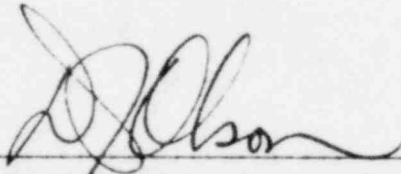


SEMISCALE

WRRD MONTHLY REPORT FOR
JULY 1979
SEMISCALE PROGRAM



J. P. Crouch
Plans & Budget Representative



D. J. Olson, Manager

SEMISCALE
COST SUMMARY & COMMENTS

POOR
ORIGINAL

1009 008

SEMISCALE
CAPITAL EQUIPMENT

POOR
ORIGINAL

1009 010

S10 6001

EG&G IDAHO, INC.
CAPITAL EQUIPMENT PRIORITY LIST

CARRYOVER

Program SEMISCALE

189 Number A6038 (A6059)

Manager D. J. Olson

Item Authorized 0
Money Committed Δ
Equipment Received, Account Closed ■

Priority Number	EA No.	Item Description	Authorized Amount	July YTD Costs & Commit.	Project to Date	<Over>/Under Balance
1	901DA2000	Amplifier & Signal Conditioners for DAS Upgrade	\$ 159,369	\$157,202	\$ 158,639	\$ 730
3	901DA1000	Multiplexing & Analog to Digital Conversion Components				
8	901DA1000	Data Acquisition Equipment for Inst. Devel. Flow Loop	130,000	167,927	167,927	<37,927>
4	901M31000	Acquisition & Interpretation Sys. for Low Energy Densitometers	118,000	42,301	136,241	<8,241>
5	901M22000	Intact Loop Pump	324,000	278,306	411,763	<87,763>
6	901M32000	Spare Broken Loop Pump Control Sys.	91,561	186,211	186,211	<94,650>
7	901AW1000	Variable Speed Pump for Instrument Development & Low Loop	19,000	16,502	17,495	1,505
		Closed EA's & Misc. Items from Prior Years	410,890	1,489	391,491	19,399
			\$1,252,820	\$852,513	\$1,469,767	\$<216,947>

Carryover Budget \$ 635,991
-YTD Costs & Commit. 852,938

BALANCE \$<216,947>

FY 78	Q	N	D	J	F	M	A	M	J	J	A	S
●				▲								
			●							▲		
●				▲								
●										▲		
●										▲		
●										▲		
●										▲	■	

A realignment of funds between FY-1978 and FY-1979 is being made which will increase the budget for FY-1978 by 195K and decrease the FY-1979 budget by the same amount. This will result in a better balance between budget and cost and commitments for both years.

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110 0001

EG&G IDAHO, INC.
CAPITAL EQUIPMENT PRIORITY LIST

FY-1979

Program Semiscale

189 Number A6038 (A6059)

Manager D. J. Gil

Item Authorized 0
 Money Committed Δ
 Equipment Received, Account Closed ■

Priority Number	EA No.	Item Description	Authorized Amount	July YTD Costs & Commitments	<over>/<under> Balance
1.	9D1TP1100	Low Energy Densitometer Support Electronics	\$200,000	\$ 3,441	\$196,559
2.	9D1M21100	Type II Steam Generator	175,000	217,726	<42,726>
3.	9D1AD1100	Data Acquisition & Interpretation System for Optical Scanning	80,000	13,804	66,196
4.	9D1DA2100	DAS Support & Calibration Equipment & Turbine Conditioners	85,000	70,796	14,204
5.	9D1UA1100	DDAPS Equipment, Digital Magnetic Tapes, 475 Scope, Tester, and IO Extender	20,000	28,291	<8,292>
6.	9D1FU1100	Semiscale Facility Power Distribution System Replacement Components	87,000	3,190	83,810
7.	9D1DE1000	Integrated Data Systems Support	148,000	--	148,000
8.	9D1FU1200	Semiscale Operation Monitor Display, Including TV System and Display Board	30,000	21,229	8,771
9.	9D1DA2200	Control System Support Equipment	15,000	16,581	<1,581>
10.	9D1FU1300	Systems Maintenance/Modification Equipment (power tools, gages, handling devices, etc.)	10,000	10,445	<445>
			<u>\$850,000</u>	<u>\$385,503</u>	<u>\$464,497</u>

FY-1979 Budget \$850,000
 YTD Costs & Commit. -385,503

BALANCE \$464,497

	M	A	M	J	J	A	S
1.						○	Δ
2.	●	Δ	Δ				
3.	●	Δ	Δ				
4.	●	Δ	Δ				
5.	●	Δ	Δ				
6.	○	●	Δ	Δ			
7.							
8.	○	●	Δ	Δ			
9.	●	Δ					
10.	●	Δ					

1009 012

POOR
ORIGINAL

SEMISCALE
TECHNICAL REVIEW & SUMMARY

1009 013

PROGRAM MANAGER'S
SUMMARY AND HIGHLIGHTS

A summary report was completed and transmitted to DOE-ID on eight Semiscale simulations of the Three Mile Island Unit 2 nuclear power generating station transient. The eight tests were simulations of the sequence of events during the first few hours of the Three Mile Island Unit 2 (TMI-2) transient as understood by the Semiscale Program. The objectives of the eight simulations were to (a) gain a more fundamental understanding of the thermal-hydraulic phenomena which occurred in the TMI-2 reactor and (b) determine the Semiscale capability and problems associated with conducting extremely slow loss-of-coolant accident (LOCA) transients.

Overall thermal-hydraulic trends observed in the Semiscale simulations were similar to those observed in the TMI-2 data available. For example, the Semiscale pressurizer level behavior indicated trends similar to those exhibited in TMI-2. The Semiscale simulations showed that the pressurizer level was not an appropriate indication of the system mass inventory: core uncovering and core heatup occurred in the Semiscale simulations even though the pressurizer remained liquid full. Superheated steam was observed in the Semiscale system hot legs in the same time frame as was observed during the Three Mile Island transient, indicating the core heatup for TMI-2 and Semiscale occurred at about the same time. An estimation of the TMI-2 core heatup was made using Semiscale heat transfer data. Results indicate that significant core damage could have occurred above the 2.0-m elevation during the first few hours of the TMI-2 transient.

1. 189a A6038 - Semiscale Program
2. Scheduled Milestones for July 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
	Perform Mod-3 upper head drain test (UHD-1)	<u>07-10-79</u>	<u>06-21-79</u>
	Perform Mod-3 upper head drain test (UHD-2)	<u>07-10-79</u>	<u>06-27-79</u>
	Publish a summary report (Report Number SEMI-TR-010) on Semiscale simulations of the Three Mile Island Unit 2 Nuclear Power Generating Station transient	<u>N/A</u>	<u>07-13-79</u>
	Conduct core power computer checkout Test SOTP-03-13	<u>07-18-79</u> through <u>08-10-79</u>	<u>07-18-79</u> through <u>07-31-79</u> <u>and continued</u>

3. Summary of Work Performed in July 1979

- a. 411AW00 Air Water Loop

- (1) 411AW1100 Testing was completed in the Air-Water Loop for the small break drag screen calibration SB4.

Factory performance evaluation tests of the Semiscale Air-Water Loop pump were performed on July 25, 1979, in Indianapolis, Indiana. M. D. McKenzie represented the Air-Water Loop and observed the testing. The tests were satisfactory and all performance specifications were demonstrated. The pump and auxiliary control equipment were shipped from the factory on July 31, 1979.

- (2) 411AW2100 A draft of the specifications for the purchase of a modular, pre-fabricated process control and data room for installation above the Air-Water Loop has been prepared. The specifications are being reviewed for adequacy.

b. 411DA00 Measurement Engineering and Experimental Instrumentation

- (1) 411DA1100 A failure of a power supply in DDAPS-2 resulted in a one day down time while the problem was isolated and repaired. Hardware has been developed for interconnection of DDAPS-1 and DDAPS-2.
- (2) 411DA1200 The annual calibration of DAS amplifiers was completed and several amplifiers showing marginal gain or linearity errors were removed for repair and realignment. Common mode checks were run on all amplifiers used with thermocouples and those displaying any common mode sensitivity were realigned.
- (3) 411DA2100 The scanning densitometer data reduction software has been modified to incorporate automatic run capability. Air-Water Test Series SB4, a rough draft of a summary data report on Air-Water Test Series SB3, and final drafts of air-water analysis reports on Test Series BU and HP were completed. Fabrication of a water cooled three-tube pitot tube rake for break flow measurements during the Small Break Test Series was completed. Work is continuing on evaluation and development of natural circulation measurement techniques.

c. 411LE00 Semiscale Operations

- (1) 411LE1100 Effort was directed primarily toward preparing the Mod-3 test system for core power computer checkout test SOTP-03-13. The intact loop pump was removed, reworked, and reinstalled in the loop. All system relief valves were removed for annual calibration and were subsequently returned and reinstalled. System preparations for the test were completed on July 17, 1979.

Attempts to run Test SOTP-03-13 on July 18 and 19, 1979 were unsuccessful due to excessive system leaks at the lower vessel dowel pins and in the intact loop pump. The intact loop pump was removed and the alternate pump was installed in its place. Checkouts of the core power computer during these two warmups revealed several problems with the software and with output stability. Test SOTP-03-13 was successfully conducted on July 24, 1979. A follow-on test, designated SOTP-03-13A, was run on July 27, 1979. Additional testing is planned through August 10, 1979.

In the time period of July 5-9, 1979, the component checkout procedure was completed on the Panel 140 Alarm-Trip Scaling Chassis.

(2) 411LE1200

Data from the Mod-3 upper head drain tests (Tests UHD-1 and UHD-2) have been evaluated to determine whether the objectives of Test Series 8 (upper head injection series) can be adequately met with the Mod-3 system in its present configuration. The evaluation has identified two areas of system response which differ from the expected behavior of a PWR with UHI during a large break LOCA. These areas are: (1) heating of the upper head fluid following the injection period is due to structural heat transfer rather than to condensation of steam which passes upward through the guide tube, and (2) the initiation of bottom reflooding of the core is considerably delayed (relative to the expected behavior in a large PWR) as a result of the one-dimensional nature of the Mod-3 downcomer. Structural heat transfer in the upper head can be reduced by incorporating a honeycomb insulator (which is currently being planned), while the delay in reflood initiation may be reduced if a two-pipe downcomer is used. A letter report documenting the results of Tests UHD-1 and UHD-2 has been written. A RELAP5 posttest calculation for the upper head drain Test UHD-1 was completed out to 20 s. As in the pretest calculation, too much water drained from the upper head. A review of the model showed that a resistance factor was needed at the inlets to the guide and support tubes. The guide tube was renodalized into 4 volumes, the support tube in 3 volumes, and a resistance factor was added at each junction. The calculation is being rerun with the new model.

An investigation of scaling influences on system response between Semiscale Series 6 tests and LOFT Series L2 tests is continuing. The effects of differences in loop hydraulics and flow resistance distribution is currently being investigated.

Numerous publications on turbine-meter performance have been gathered and are being reviewed. Information gathered will be used in producing an uncertainty analysis of the turbines used in the Mod-2 system.

Uncertainties involved in processing of Semiscale data are being investigated. Documents, statistical methods, and data reduction procedures are being reviewed. Results will be incorporated into an uncertainty statement for use in the uncertainty analysis report.

Studies of system heat losses were continued using the CORAL code. Different modeling approaches have been used and show that although results are quite sensitive to the approach used, the honeycomb insulators should offer a noticeable improvement in reducing heat losses from the system.

The CORAL code was also modified to investigate loop piping and fluid interaction during a temperature transient. Calculations have shown that 600°F fluid entering the cold legs (metal temperature at 540°F) will cool approximately 20°F in the Semiscale pipes (intact loop) and only 2°F in a PWR pipe. These types of considerations will be important when running extremely slow transients (particularly steam generator transients) in Semiscale. Parametric comparisons and analysis of the impact of this difference will continue.

Air-water data analysis was continued. Production analysis runs for all of the available data were completed. The results produced will be used in an air-water data test report.

Data analysis of steam-water tests conducted at Karlsruhe, West Germany, continued. The drag data were reviewed for zero-offsets and a procedure was established for determining the magnitude of the zero offset voltages. Analysis plots will not be made until corrected drag device data is available.

Significant effort was extended in preparing slides for a presentation to vendor and NRC personnel in Washington, D. C. Efforts were concentrated in the scaling areas of small break response - particularly critical flow and flow regime considerations.

Presentations on Semiscale Program overview, budget, procedures, and data handling techniques were prepared and made for an NRC audit team.

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Debugging of the RELAP5 separate effects model of the Semiscale Mod-3 downcomer was completed. A 150-s calculation was made and the results are being analyzed. A letter documenting the downcomer model and the results of the calculation is being written.

The input for the TRAC model of the Semiscale Mod-3 system has been reviewed and a steady-state calculation will be made.

A reflood analysis for Tests S-07-6 was begun using the RELAP4/MOD6 computer code. This analysis will use a model which includes a heat slab to represent the core barrel and heat slabs in the downcomer which represent the grafoil insulator. The calculation will then be run with the honeycomb insulator modeled in the downcomer. These calculations will be used in the pretest analysis for the repeat of Test S-07-6 with the downcomer honeycomb insulator installed.

A reflood model for the Zion I plant is being set up with a downcomer modeling scheme similar to that used in the Test S-07-6 posttest analysis. The Zion I plant model derived from the BE/EM study is being modified for this analysis, which is being done to determine if reflood behavior similar to Test S-07-6 would be calculated.

- (3) 411LE1300 UHD data was converted to IHDP format, 0's removed, flows were calculated, liquid level data converted, and bubble plots made. SMAUG runs on TMI-RELAP data were made and plotted on MAGNUM. MAGNUM plots were made for various Semiscale test series, including TMI, UHD, S-07-6, S-06-4, and S-28 series. Test Series 3 data was converted to INDP format and stored on file for use by analysts.

d. 411M200 Semiscale Mod-2 Conversion

- (1) 411M21100 Procurement effort was initiated to obtain the necessary structural modules and hangers, braces, etc. needed to install the Type 2 steam generator.
- (2) 411M21200 Drawings for the feedwater piping system were completed and released.

e. 411M3000 Semiscale Mod-3 Upgrade

- (1) 411M31100 A series of discussions and review of the beryllium instrument washer design were held. Test samples, one with a high temperature braze and one with a complex end seal weldment, were received. Both samples were thermal-cycled and underwent ECC quench; both samples held. We have temporarily opted for the high-temperature braze and a washer is being made for use in the small berak tests. One hundred cast drag transducer bodies are being ordered. The cost will be shared by the 3-D Project and Semiscale. This amount is economical and should accomodate all needs for many years.

Upgrading of the scanning densitometer is being done to enhance its use and capabilities.

- (2) 411M31200 Design of honeycomb insulation is proceeding for the upper head, upper plenum, and two-pipe downcomer.

The bid package for core insulators was mailed to five potential vendors; response was requested by August 8, 1979.

411M35100 Alarm/Trip/Scaling Chassis Modifications. The last of the chassis and NIM modules were received, checked, and installed in the secondary control system Panels 140 and 150. After installation, the chassis and modules were tested, calibrated and placed in operation. A seventh chassis and associated 12 modules were delivered under this work package, but will not be installed until later. This hardware will be installed as part of the intact loop pump control system.

9D1M22000 Intact Loop Pump Control System. Pump control and display chassis drawings have been released. Procurement action was started on having both chassis fabricated. Procurement action is on hold pending identification of funds.

411FP1100 Facility Power Study and Specification. Work was started in the WRRTF Power Study and Specification. Meetings have been held with safety, operations, and LTSF personnel to determine facility power needs. A preliminary design review meeting will be scheduled for mid-August.

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411LE1500

- (1) Work packages were completed for facility power upgrade and the B&W 2 x 4 loop configuration (Mod-5).
- (2) Design work was begun on facility power for the air-water loop to replace existing power circuits. The design will provide for new control room circuits and for ten circuits to be placed around the loop.
- (3) A new microprocessor based data track system was checked out. The unit will be installed in pump Panel 210 and will become operational early in August.
- (4) Design support was provided for testing of the core power computer system.

f. 411PC00 Program Management Control and Documentation

- (1) 411PC2100 A summary report of the Semiscale simulations of the Three Mile Island Unit 2 Nuclear Power Generating Station Transient was completed and transmitted to DOE-ID. A presentation of the Semiscale TMI-2 simulation results was assembled. The presentation was prepared at the request of NRC licensing personnel and presented in Washington, D. C.

g. 411SB00 Small Break Test Series

- (1) 411SBX100 Work continued in support of the upcoming small break test series. Meetings were held with LOFT and Code Assessment personnel to assure the compatibility of small break projects being performed in each program. Slides were prepared and a presentation was made to NRC licensing and vendor representatives which defined how the Semiscale test would relate to the LOFT testing program and to audit calculations being performed by Code Assessment.

Instrumentation lists were assembled for the small break tests. A meeting was conducted with Semiscale instrumentation and operations personnel to approve this list and to modify it as necessary.

Draft copies of the experiment operating specification (EOS) for the UHI small break test and the EOS for the remaining small break tests have been distributed for internal review.

Work was initiated on defining test requirements for the calibration of Semiscale small break orifices in the LOFT blowdown facility. Personnel from Semiscale Test Engineering have been assigned to aid in developing the detailed test requirements and to help coordinate testing and hardware requirements between LOFT and Semiscale.

A study was conducted to determine the scaled heat losses in the Semiscale Mod-3 system which would correctly simulate those expected in a PWR. The study indicates that the ideal heat losses in Semiscale should be held to between 1.0 and 1.5 kW. Increased external insulation, modification of the water cooled instrumentation ports, and external heaters are being investigated as means for minimizing the current heat leaks in Semiscale.

A scoping calculation for a 0.19% small break was made to 2700 s using RELAP4/MOD7. This calculation shows the steam generator secondary conditions influence the primary system behavior after the pumps have coasted down. Vapor begins to form at the outlet of intact loop steam generator at approximately 2350 s. This increase in the specific volume of the fluid reduces the driving potential for natural circulation in the intact loop and, therefore, decreases the flow through the vessel. Due to the decreased flow the calculation shows the system starts to slowly pressurize. Further analysis is underway to determine if the calculation needs to be continued.

- (2) 4115BX200 New orifice plates were designed to be compatible with LOFT; these are modified bell-mouth with length to diameter ratio of 3:1.

A design concept was generated to enhance ultra small break measurements. This utilizes condensers, turbine meters, and/or differential pressure measurements with tank weighing capabilities. The design was accepted by the Instrumentation & Analysis Groups and preparation of detailed drawings was started.

A special valve was ordered and modified for the broken loop. The valve will be installed downstream of the Mod-3 broken loop pump and will isolate flow in the broken loop for LOFT Counterpart Small Break tests.

- (3) 411SB1100 A RELAP4/MOD7 deck for Test S-SB-1 (10% small break with upper head injection) was set up and a calculation made to 370 s after rupture. The results of this calculation are under analysis.

A RELAP4/MOD7 deck for Test S-SB-2 (2.5% small break with initial conditions similar to Code Assessment audit calculation) was set up in preparation for making the pretest calculation.

- h. 411T700 Test Series 7

Work was reinitiated on the Mod-3 Test Series 7 "comparisons" topical report. INVERT computer code calculations are being made for Mod-1 Test S-02-9 and for Mod-3 Test S-07-1 to investigate core heat transfer phenomena in the two facilities. Error presentation techniques are being reviewed prior to writing of the topical report.

- i. 50912100 Scaling Studies

The final letter report (SEMI-TR-011) documenting the results of the Semiscale Mod-1 versus LOFT scaling study was transmitted to LOFT. This letter report together with the LOFT/PWR scaling report (SEMI-TR-008), which was transmitted to LOFT on May 30 1978, completes the scope of work authorized under this task.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
	Perform Small Break Test S-SB-2	<u>08-31-79</u>	_____

5. Summary of Work to be Performed in August 1979

a. 411AW00 Air Water Loop

411AW00 The air-water loop floor drain installation is scheduled to start on August 1, 1979. Preparation of the floors for the drains will start on August 15 1979, and will coincide with the proposed installation of the new air-water loop pump.

b. 411DA00 Measurement Engineering and Experimental Instrumentation

411DA211 Evaluation of natural circulation measurement techniques will be completed.

c. 411LE00 Semiscale Operations

- (1) 411LE1100 Performance of SOTP-03-13 core power computer tests will be completed. Installation of the new loop insulation in the Mod-3 system will be completed. The Mod-3 downcomer will be removed for rework in support of the installation of the new interior honeycomb insulatic twelve-foot straight section. This insulation will be installed prior to the first Small Break Series Test S-SB-?

Calibration of the Small break Test orifices will be planned and coordinated in conjunction with similar testing of LOFT small break orifices.

- (2) 411LE1200 A letter report documenting the results of the two UHI drain tests (UHD-1 and UHD-2) will be completed and distributed.

Drafts of the turbine-meter and data processing uncertainty sections for the uncertainty analysis report will be prepared.

Major effort will be concentrated in the preparation of presentations for the ACRS ECCS subcommittee group meeting to be held here in late August 1979.

Karlsruhe steam-water data analysis will continue. Results will hopefully be available for use in the turbine meter uncertainty analysis.

Preparation and planning for anticipated transient type tests will continue.

COBRA-CORAL calculations for Test S-07-8D will be reinstigated as time permits.

Analysis of the Semiscale TMI vent tests will be conducted at the request of NRC licensing.

Upper head drain test posttest analysis will be continued.

A comparison of RELAP4/MOD7 calculations for the Zion I plant and the pretest calculation for Test S-SB-2 will be made.

A RELAP4/MOD6 reflood calculation will be made for the Zion I plant using a nodalization similar to that used in the Test S-07-6 posttest analysis.

A RELAP4 model for small break analysis will be modified to model the heat losses from the system to the atmosphere.

Several scaling studies will be made, including (1) Mod-3 system response with a Type 2 steam generator in both loops instead of a Type 1 steam generator in the intact loop and a Type 2 steam generator in the broken loop; (2) comparison of calculations with and without heat transfer to atmosphere from the steam piping.

d. 411SB00 Small Break Test Series

(i) 411SBX100

Two letter experiment operating specifications (EOS's) for the small break test series will be completed. The detailed test requirements for the calibration tests to be run in the LOFT blowdown facility will be defined and test requirements will be submitted for management review.

411SB1100 Pretest calculations for small break Tests S-SB-2 and S-SB-4 will be made.

6. Problems and Potential Problems

Management review of the Mod-3 versus PWR scaling report and the research information letter on alternate ECC injection concepts has been delayed because of higher priority activities related to the small break test series.

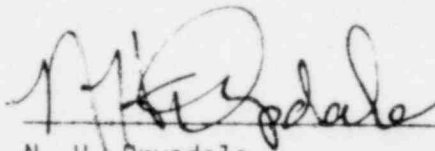
The Series 7 thermal-hydraulics topical report will not be initiated until after analysis of the Karlsruhe steam-water data is completed.



TFBP



WRRD MONTHLY REPORT FOR
JULY 1979
THERMAL FUELS BEHAVIOR PROGRAM



N. H. Drysdale
Plans & Budget Representative



H. J. Zeile, Manager

THERMAL FUELS BEHAVIOR PROGRAM

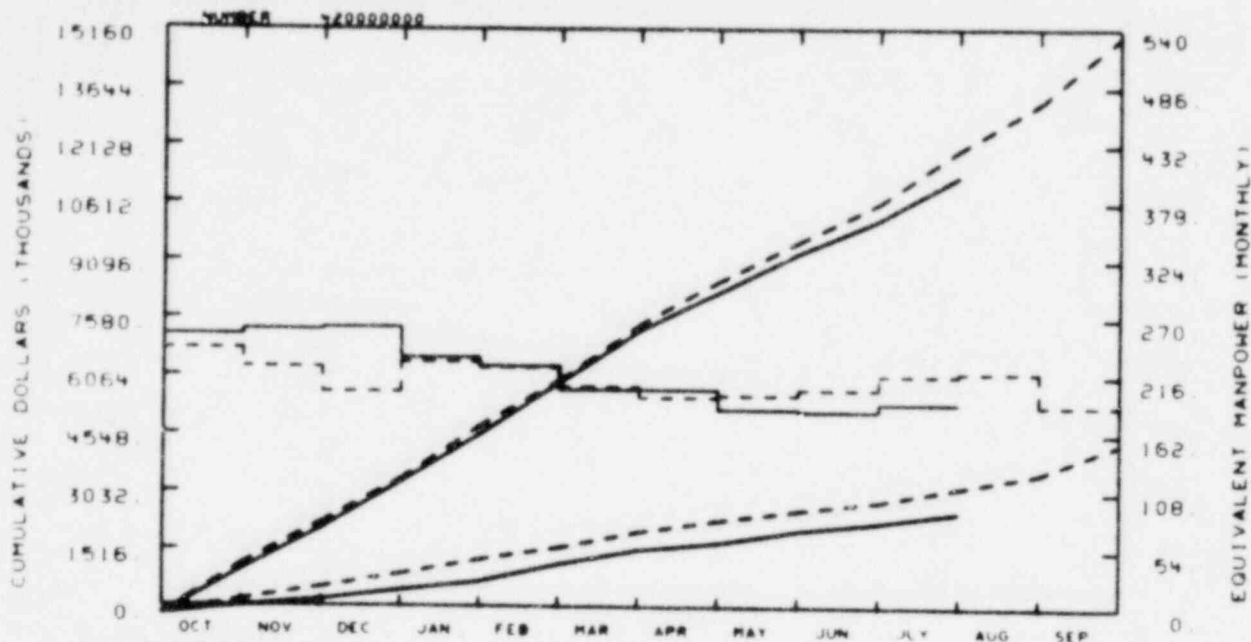
COST SUMMARY & COMMENTS

POOR
ORIGINAL

1009 029

RESPONSIBLE
MANAGER
NO. 28116

EG&G IDAHO INC
THERMAL FUELS BEHAVIOR PROGRAM



TOTAL PROGRAM												
BUDGET	1310	2410	3545	4929	6128	7581	8718	9776	10795	12195	13415	15151
ACTUAL	1154	2247	3460	4709	6067	7421	8430	9477	10360	11499		

MATERIAL												
BUDGET	374	694	1039	1424	1744	2163	2464	2725	2969	3316	3708	4491
ACTUAL	207	373	617	848	1314	1687	1875	2202	2413	2690		

MANPOWER												
BUDGET	248	231	208	236	231	213	203	205	210	217	226	195
ACTUAL	261	266	264	210	232	210	210	192	190	197		

BUDGET

ACTUAL

YTD VARIANCE: 696 (6%)

Individual cost graphs will give individual explanations.

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

POOR
ORIGINAL

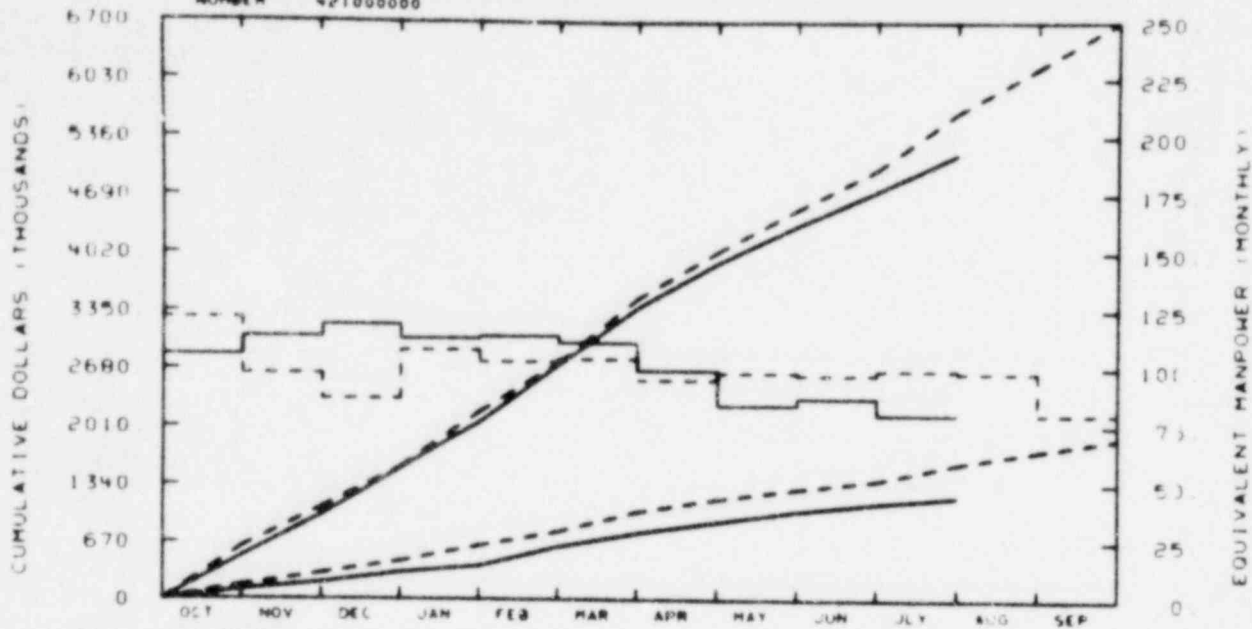
1009 031

1009 030

1. FINANCIAL
 ANALYSIS
 2. MATERIALS

ES&G IDAHO INC
 TFBP EXPERIMENT DESIGN & ANAL

NUMBER 421000000



TOT PROGRAM		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		808	1068	1536	2177	2744	3483	4025	4521	4982	5641	6163	6696
ACTUAL		498	981	1520	2055	2718	3376	3894	4332	4751	5157		

MATERIAL		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		180	297	436	619	784	1016	1165	1281	1383	1578	1726	1863
ACTUAL		104	193	306	382	605	768	898	1023	1116	1192		

MANPOWER		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		122	98	87	108	103	104	95	98	87	99	98	80
ACTUAL		106	114	119	113	114	111	99	94	87	80		

BUDGET
 - - - - -
 ACTUAL

A6041

YTD VARIANCE: 484K (8%)

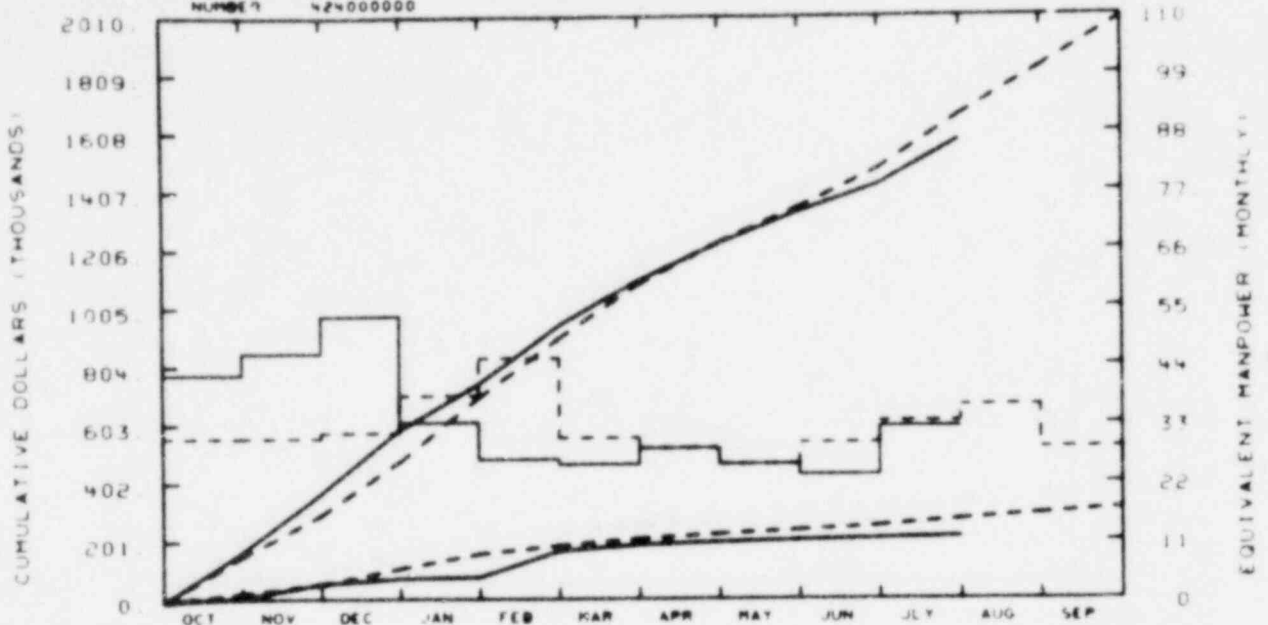
Due to considerable slack in the work q plan, LOC-6, RIA 1-3, and RIA 1-4 Test Train Fabrication and Lead Procurement, and the RIA 1-1 and RIA 1-2 Fuel Behavior Reports are behind Baseline Schedule. Presently no test schedule delay is anticipated.

POOR ORIGINAL

RESPONSIBLE
MANAGER
J. KESTER

EG&G IDAHO INC.
PBF ENGINEERING

NUMBER 424000000



TOTAL PROGRAM

BUDGET	157	300	484	704	907	1092	1238	1357	1489	1674	1838	2007
ACTUAL	174	377	594	751	951	1108	1232	1343	1458	1589		

MATERIAL

BUDGET	30	60	115	165	193	218	232	245	260	282	302	320
ACTUAL	18	62	80	88	175	196	204	212	217	223		

MANPOWER

BUDGET	31	31	32	33	46	31	29	26	30	34	37	29
ACTUAL	43	47	54	34	27	28	29	28	24	33		

BUDGET
- - -
ACTUAL

A6044

YTD VARIANCE: 90K (5%)

As noted last month, the transfer of the Data Support Services task actuals and budget has been reconciled this month as Baseline 3 was finalized. The net variance has increased from last month of 4.6% to 5.4% this month due primarily to the continued attrition type manpower reductions noted last month. The restaffing effort is still in progress although its results will probably not be evident for two to three report periods. Expected August charges will reflect modifications performed to complete the facility work window.

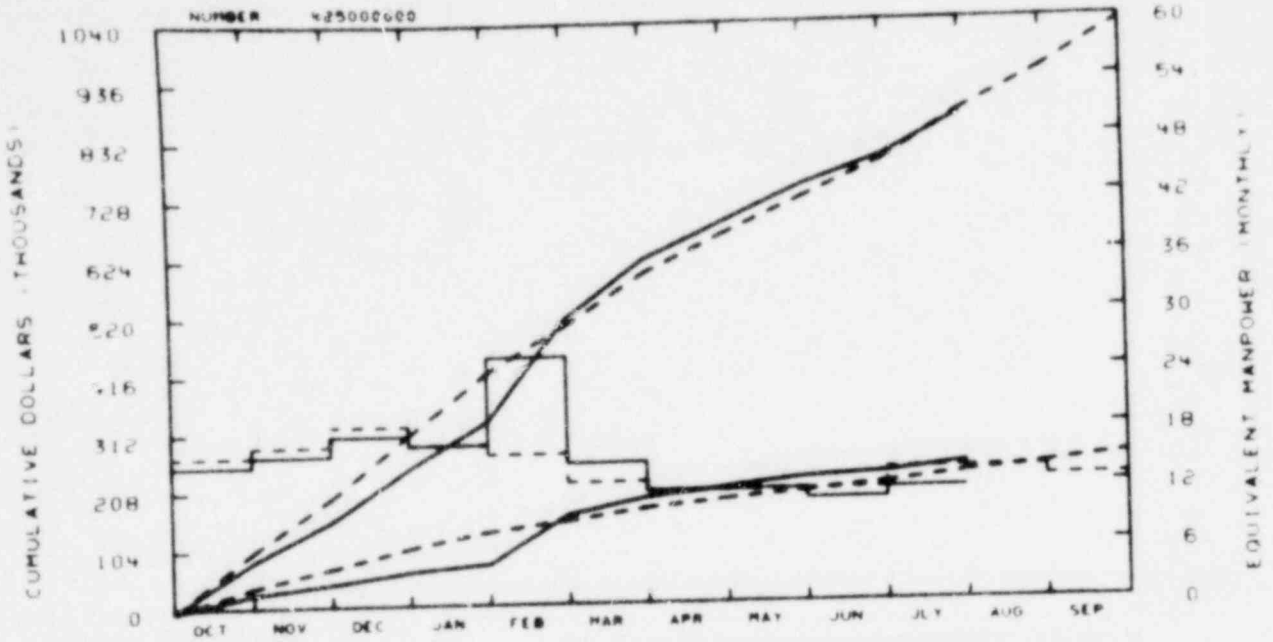
POOR
ORIGINAL

1009 032

1009 032

RESPONSIBLE
MANAGER
E. W. DONALD

EG&G IDAHO INC.
FUEL BEHAVIOR ANALYSIS VERIF



TOTAL PROGRAM												
BUDGET	107	200	312	422	505	597	685	729	793	881	953	1037
ACTUAL	89	159	27	778	518	622	687	752	801	875		

MATERIAL												
BUDGET	42	75	109	137	155	176	190	203	216	233	246	263
ACTUAL	30	46	66	79	100	195	217	228	235	251		

MANPOWER												
BUDGET	16	17	19	17	16	13	12	12	12	14	14	14
ACTUAL	15	16	16	17	26	15	12	7	11	12		

BUDGET

ACTUAL

A6046

YTD VARIANCE: 6K

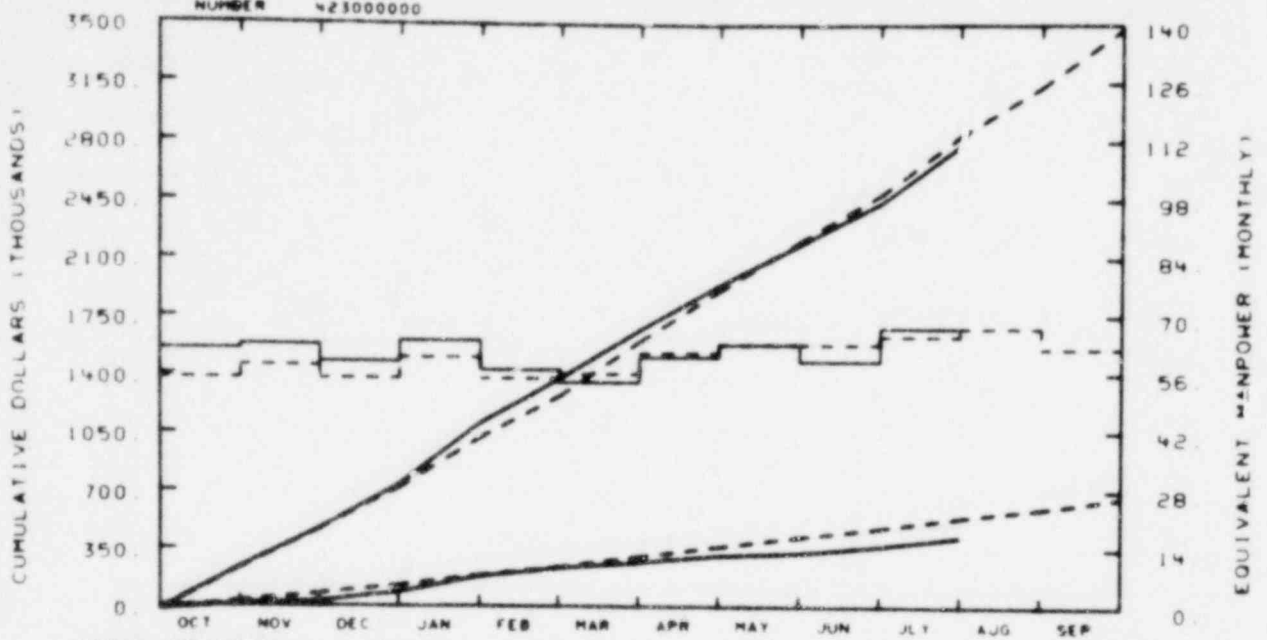
POOR ORIGINAL

1009 033

1009 035

RESPONSIBLE
MANAGER
D. DAUCETTE

EG&G IDAHO INC.
PBF OPERATIONS
NUMBER 423000000



TOTAL PROGRAM

BUDGET	249	486	738	1038	1288	1617	1922	2219	2502	2853	3145	3497
ACTUAL	257	488	757	1127	1394	1688	1956	2202	2453	2797		

MATERIAL

BUDGET	50	97	148	206	256	321	380	438	493	558	612	677
ACTUAL	34	50	104	201	252	286	327	344	388	441		

MANPOWER

BUDGET	56	59	58	61	56	57	62	64	64	66	68	63
ACTUAL	61	64	60	65	58	55	61	64	60	68		

BUDGET

ACTUAL

A6057

YTD VARIANCE: 56 (2%)

Although the net underrun for A6057 increased the past month by approximately 4K to 56K, it is expected that actual costs will be the same as budget at the end of the fiscal year. The Plant Operations Branch overrun has been reduced from 39K last month to 17K this month. This trend is expected to continue. The Operations Support Branch underrun has been reduced from 92K to 74K. As most of the month of August will be devoted to completing corrective and preventive maintenance work, it is expected that there will be a further reduction in this underrun.

POOR
ORIGINAL

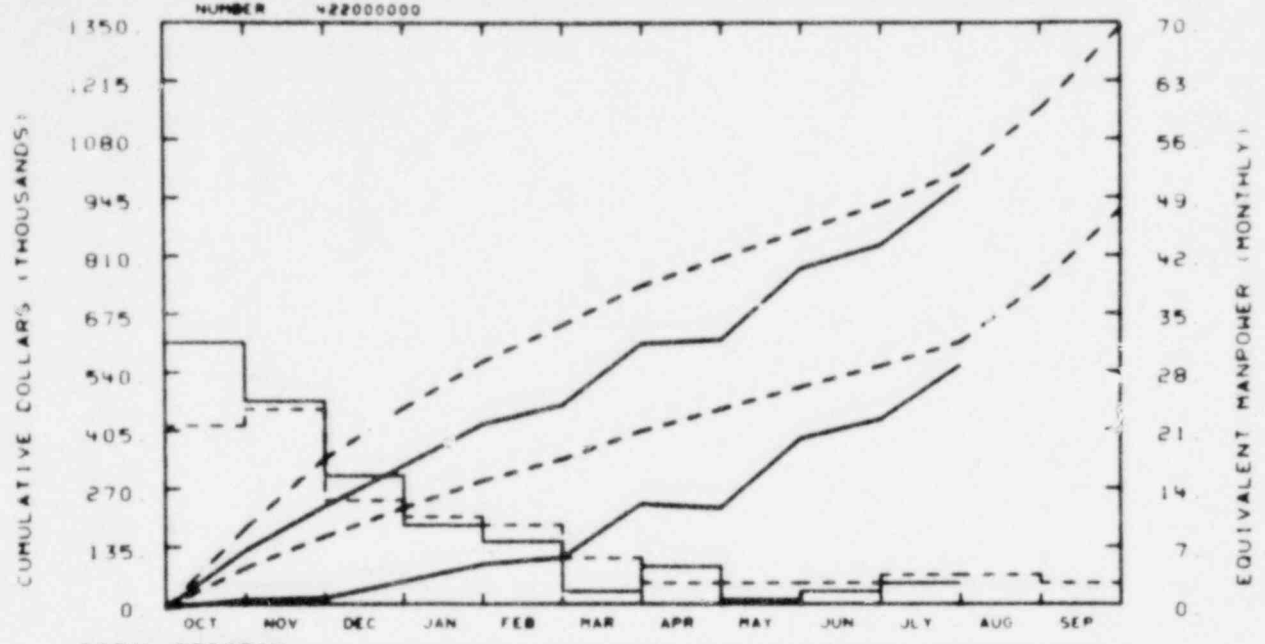
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1009 034

RESPONSIBLE
MANAGER
P. HESTER

EG&G IDAHO INC
PBF MODIFICATIONS

NUMBER 422000000



TOTAL PROGRAM

BUDGET	185	347	484	572	655	748	810	874	935	1009	1158	1348
ACTUAL	134	237	330	427	471	612	622	787	841	980		

MATERIAL

BUDGET	93	188	232	295	345	410	460	511	560	615	749	923
ACTUAL	18	23	60	100	115	241	232	393	437	561		

MANPOWER

BUDGET	22	24	13	11	10	6	3	3	3	4	4	3
ACTUAL	32	25	16	10	8	2	5	1	2	3		

BUDGET

ACTUAL

A6095

YTD VARIANCE: 29K (3%)

The major tasks in this account are the procurement of a new IPT and a Test Train shipping container (Transport System). In addition, completion of the MG set installation as part of the Loop Performance Modification is in progress. The actual combined progress payments, as requested by both vendors, results in a \$3K underrun on payments compared to the amount budgeted through July. (Separate invoices on the shipping container were combined in July for a total accrued "payment" of \$123.3K). Installation of the MG set has been completed and the final 50 Test remains which accounts for the \$13K underrun in that account. Delivery of the IPT will be approximately two months beyond the FY and a CCB is being finalized to extend the excess funds into FY-80 for engineering support and contract closeout.

POOR ORIGINAL

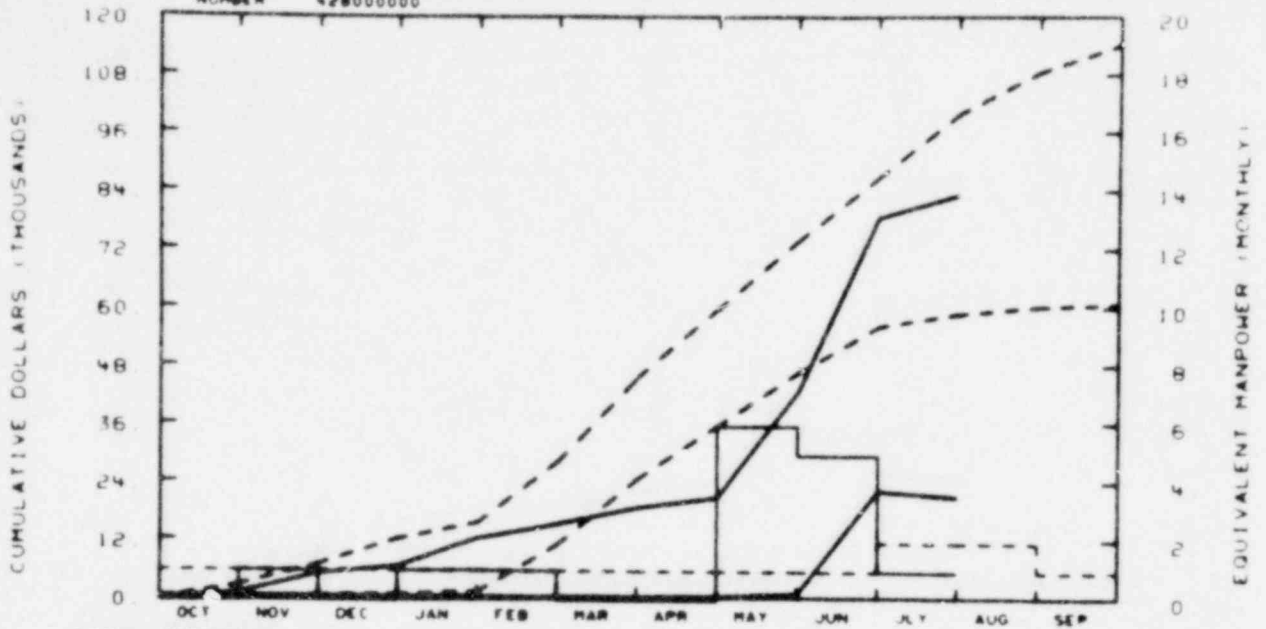
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RESPONSIBLE
MANAGER
PE. NATIONAL D.

EG&G IDAHO INC
PBF COOPERATIVE RESEARCH-AUSTRIA

NUMBER 428000000



TOTAL PROGRAM

BUDGET	3	7	12	18	29	46	60	74	87	100	108	115
ACTUAL	1	5	7	13	18	19	21	43	78	84		

MATERIAL

BUDGET	0	1	1	2	11	25	36	47	57	59	61	61
ACTUAL	0	0	0	0	0	1	1	1	23	22		

MANPOWER

BUDGET	1	1	1	1	1	1	1	1	1	2	2	1
ACTUAL	0	1	0	1	1	0	0	8	5	1		

BUDGET

ACTUAL

A6274

YTD VARIANCE: 16K (16%)

A new work package has been submitted to better reflect the work being performed on Instrument Development.

POOR
ORIGINAL

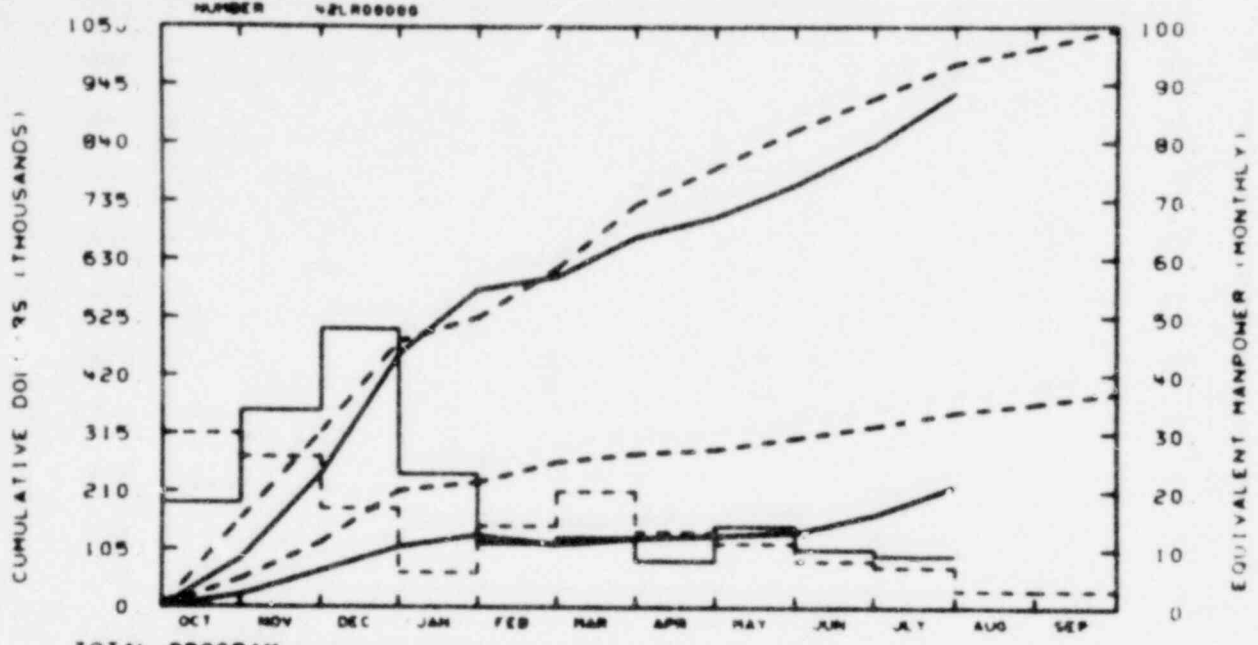
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RESPONSIBLE
MANAGER
R. W. GARNER

F & G IDAHO INC.
PWF LOFT LEAD ROD PROGRAM

NUMBER 42LR00000



TOTAL PROGRAM		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET		180	318	481	524	613	728	794	862	929	983	1011	1044
ACTUAL		87	242	457	574	597	669	708	784	824	930		

MATERIAL		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET		51	117	211	226	253	278	298	317	328	353	360	397
ACTUAL		22	66	109	130	113	124	129	135	160	228		

MANPOWER		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET		10	26	17	8	14	28	13	11	9	7	1	1
ACTUAL		18	34	48	23	11	12	8	14	19	9		

BUDGET

ACTUAL

LLR

YTD VARIANCE: 53K (5%)

Program schedule changes to include Test LLR-4A delayed efforts on TRR. August and September activity should bring costs into line.

POOR ORIGINAL

1009 037

1009 037

THERMAL FUELS BEHAVIOR PROGRAM
CAPITAL EQUIPMENT

POOR
ORIGINAL

1009 038

1009 001

EG&G IDAHO, INC.
 CAPITAL EQUIPMENT PRIORITY LIST
 FY-1979

Program THERMAL FUELS BEHAVIOR PROGRAM

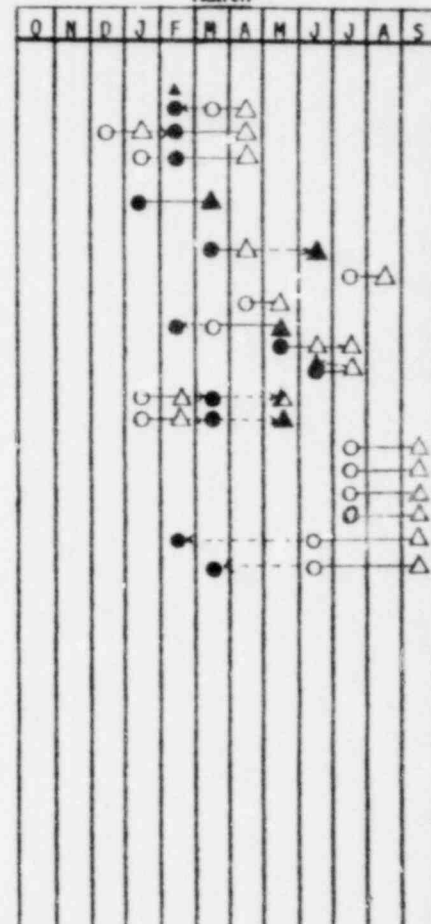
189 Number A6041 (A6087)

Manager H. J. Zeile

Priority Number	EA No.	Item Description	Authorized Amount	July YTD Costs & Commitments	<Over>/Under balance
1.	98872	MTR Canal Test Train & Associated Support Equipment Structure	\$ 30,000	\$ 30,000	\$ -0-
2.	98873	MTR Canal Miscellaneous Tools	12,000	5,609	6,391
3.	98874	Instrumentation Test Equipment	20,000	11,860	8,140
4.	98960	Germanium Gamma Detector	13,000	31,205	795
5.		Multichannel Analyzer	13,000		
6.		Data Storage System	6,000		
7,10,11	98919	TRA Fuel Scanner	145,000	147,765	< 2,765 >
8.	98968	Remote SEM with X-Ray Dispersive Analysis	90,000	0	90,000
9.		CCTV System for ARA-I	15,000	0	15,000
12.	98886	In-cell Light System	5,000	4,872	128
13.	98943	Remote Manipulator Modification	58,000	22	57,978
14.	98916	Hot Cell Transfer Cask	20,000	20,000	0
15.	98899	Blower and Isokinetic Stack Probe	10,000	5,563	4,437
16.	98900	Analytical Balance	8,000	8,308	< 308 >
17.		Tektronix 4027 Color Graphics Terminal	10,500	0	10,500
18.		Color Hard Copy	10,500	0	10,500
19.		Tektronix 4025 with Graphics Options	6,300	0	6,300
20.		Tektronix 4025 without Graphics	4,200	0	4,200
21.	98887	Tektronix 4014 Intelligent upgrade	4,200	0	4,200
22.	98908	CSC Support: Cyber 76 Upgrade/Cyber 173 Upgrade	69,300	0	69,300
			<u>\$550,000</u>	<u>\$265,204</u>	<u>\$284,796</u>

FY-79 Budget \$ 550,000
 June YTD Costs & Commit. 265,204
 BALANCE \$ 284,796

Equipment Order Issued o
 Equipment Received Δ
 Month



1009 040

440 0001

EG&G IDAHO, INC.
CAPITAL EQUIPMENT PRIORITY LIST

CARRYOVER

Program THERMAL FUELS BEHAVIOR PROGRAM

189 Number A6046 (A6093)

Manager H. J. Zeile

Priority Number	EA No.	Item Description	Authorized Amount	July YTD Costs & Commit.	Project to Date	<Over>/Under Balance
98346		Laser System	\$37,500	\$ 4,274	\$35,220	\$ 2,280
98762		IFA-430 Gamma Spectrometer	10,000	6,421	10,238	< 238 >
		Closed EA's	12,000	10,000	13,099	<1,099>
			\$59,500	\$20,695	\$58,557	\$ 943

Item Authorized o
 Money Committed Δ
 Equipment Received, Account Closed ■

FY	O	N	D	J	F	M	A	M	J	J	A	S
71	●▲											
	●▲											
	●▲								■			

Carryover Budget \$22,794
 -YTD Costs & Commit. 20,695
 -Bal. of Auth. EA's 943
 \$ 1,156

1009 043

1000 0001

EG&G IDAHO, INC.
CAPITAL EQUIPMENT PRIORITY LIST
FY-1979

Program THERMAL FUELS BEHAVIOR PROGRAM

189 Number A6046 (A6093)

Manager H. J. Zeile

Item Authorized O
Money Committed Δ
Equipment Received, Account Closed ■

Priority Number	EA No.	Item Description	Authorized Amount	July YTD Costs & Commitments	<Over>/Under Balance
1.	98964	Calibration & Check Source	\$ 3 K	\$ 9,214	\$ -1,214
2.		Detector Enclosure & Collimator	5 K		
3.	98926	Miscellaneous Equipment	12 K	4,565	7,435
			\$ 20 K	\$ 13,779	\$ 6,221

O	N	D	J	F	M	A	M	J	J	A	S
							●	▲			
							●	▲			
							●	○	Δ		

FY-79 Budget \$20,000
 June YTD Costs & Comm. -13,779
 BALANCE \$ 6,221

1009 044

THERMAL FUELS BEHAVIOR PROGRAM
TEST SUMMARY SCHEDULE

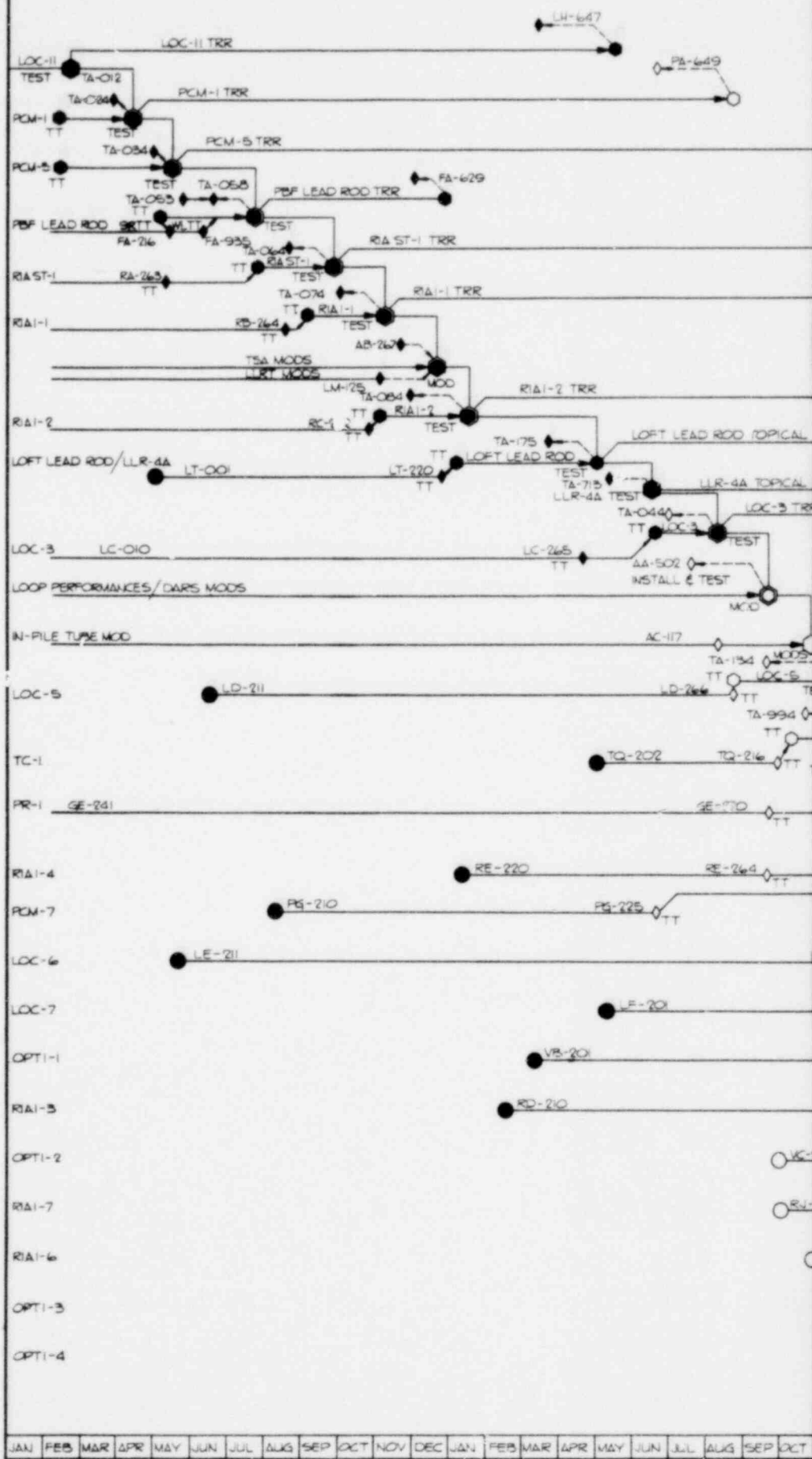
POOR
ORIGINAL

1009 045

FY-1978

FY-1979

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



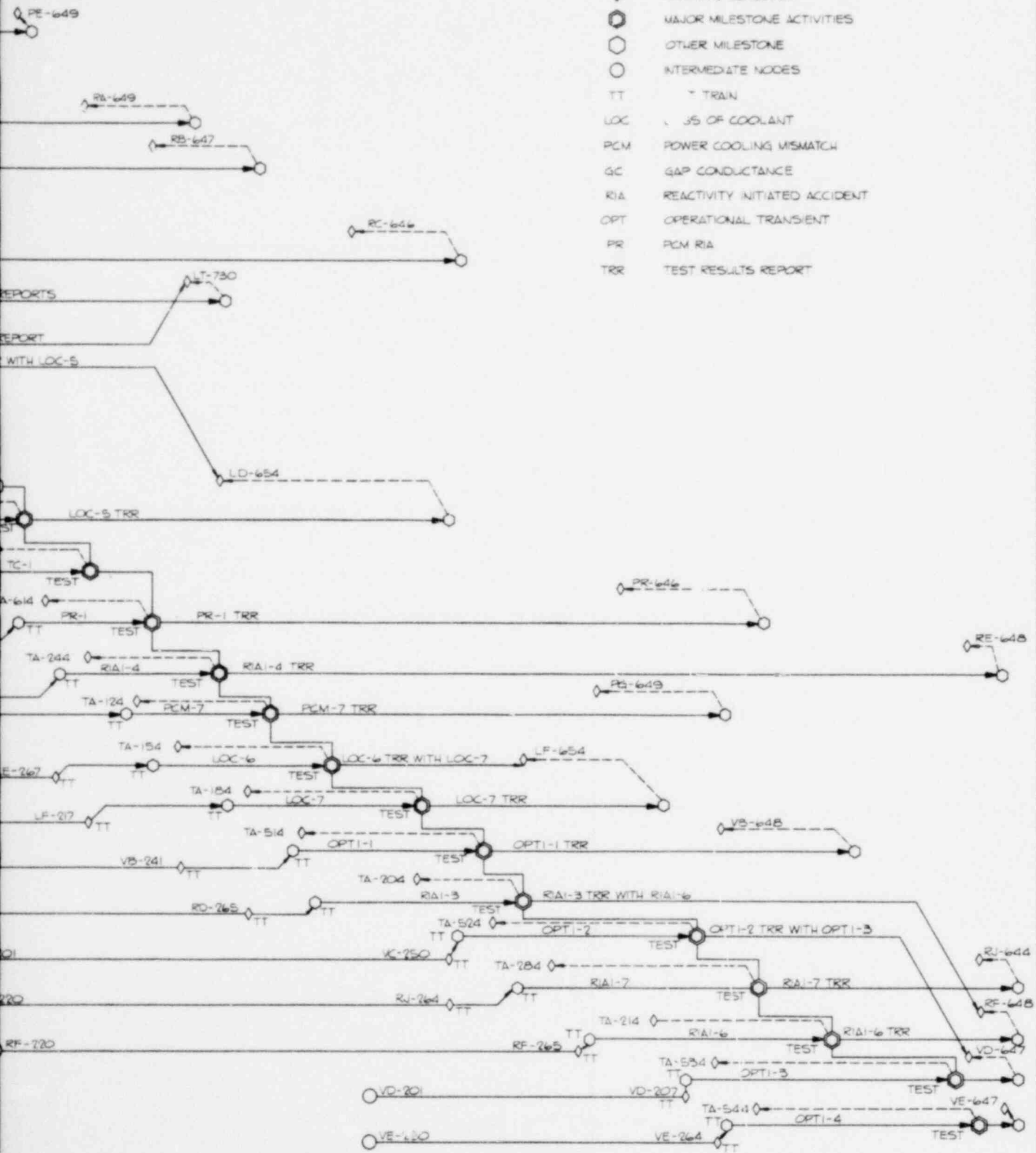
1009 046

MANAGEMENT SUMMARY SCHEDULE

FY-1980										FY-1981										FY-1982									
NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	BEYOND

LEGEND

- ◇ WORKING SCHEDULE
- ⊙ MAJOR MILESTONE ACTIVITIES
- OTHER MILESTONE
- INTERMEDIATE NODES
- TT TRAIN
- LOC LOSS OF COOLANT
- PCM POWER COOLING MISMATCH
- GC GAP CONDUCTANCE
- RIA REACTIVITY INITIATED ACCIDENT
- OPT OPERATIONAL TRANSIENT
- PR PCM RIA
- TRR TEST RESULTS REPORT



1009 047

NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	BEYOND
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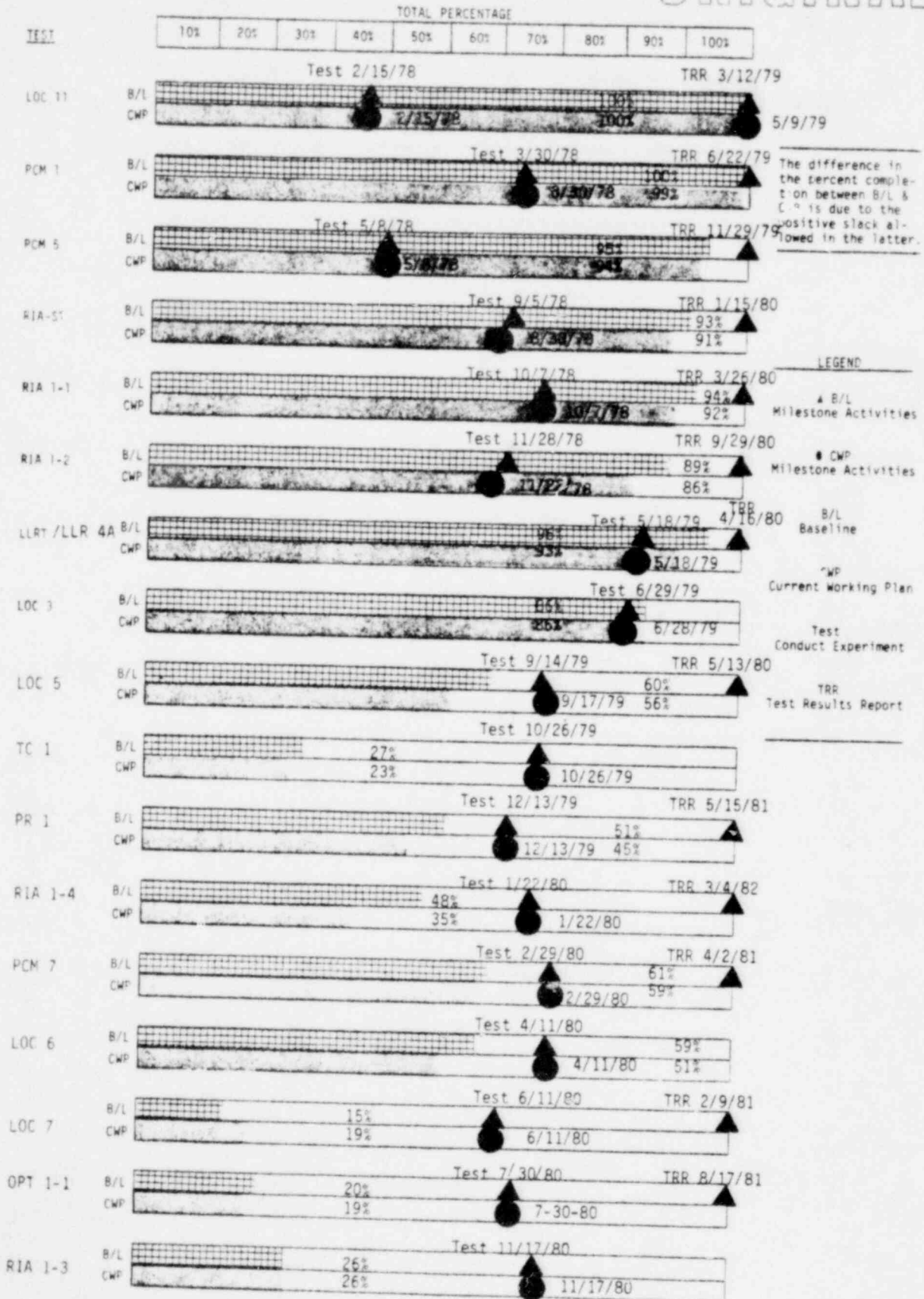
THERMAL FUELS BEHAVIOR PROGRAM
SCHEDULE PERFORMANCE STATUS

POOR
ORIGINAL

1009 048

SCHEDULE PERFORMANCE STATUS
AS OF 30 JULY 1979

POOR
ORIGINAL



THERMAL FUELS BEHAVIOR PROGRAM

TECHNICAL REVIEW & SUMMARY

POOR
ORIGINAL

1009 050

PROGRAM MANAGER'S
SUMMARY AND HIGHLIGHTS

Loss-of-coolant (LOC) Test LOC-5, to be performed in September 1979, is intended to investigate the behavior of pressurized water reactor fuel rods during postulated conditions for a double-ended cold leg break loss-of-coolant accident, with cladding peak temperatures stabilizing above 1245 K. Drafts of the Experiment Operating Procedure and the Isothermal Detailed Operating Procedure for Test LOC-5 were completed, as well as assessment of the test train support structure and the assembly of one previously irradiated fuel rod.

The Quick Look Report for Test LOC-3 was issued and the experimental fuel rods from this test were received in the hot cells for postirradiation examination. Various types of ballooning occurred at different axial locations on the four rods. Also issued during this reporting period was a description of the updated model for fuel restructuring in the MATPRO-12 code.

Removal and shipment of six driver core fuel rods to the hot cells for core surveillance examination was completed. The design of the new flux wire holders was also completed, and the parts which replace the driver core fuel rods were fabricated and installed in the fuel canisters.

1. 189a A6041 - TFBP Experiment Design and Analysis
2. Scheduled Milestones for July 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
Line 4, Node 3	RIA 1-2 EDR	07-12-79	06-05-79C

3. Summary of Work Performed in July 1979

- a. PCM Test Series

A draft of the Test PCM-5 Fuel Rod Behavior Report was completed, as well as the technical editing of the Tests PCM-1, PCM-3, and PCM-4 Fuel Rod Behavior Reports. Various plots and data processing were completed for Test PCM-5 Fuel Rod Behavior Report analysis and presentation; preparation of the Test PCM-5 Fuel Rod Material Behavior Report is continuing. Assembly of the PCM-7 test train continued.

- b. Operational Transient (OPTRAN) Test Series

Efforts continued on the OPTRAN 1-1 Experiment Operating Specification (EOS) and the design of the OPTRAN 1-1 test train assembly. Efforts on the OPTRAN 1-1 and 1-3 Experiment Prediction (EP) report continued. Fuel characterization began in the hot cells. The OPTRAN 1-1 hardware design was placed on hold status pending resolution to design requirements changes.

- c. LOCA Test Series

The Test LOC-3 Quick Look Report data processing and plotting was completed and the report was issued. The LOC-3 rods were received in the hot cell and visual examination was completed. Pretest predictions and revisions to the Experiment Operating Specification for Test LOC-5 were initiated. The part fabrication for Test LOC-6 and assembly of the Test LOC-5 test train continued.

- d. RIA Test Series

Preparation of the RIA-ST Fuel Rod Behavior Report continued, and an analysis of the power burst fuel rod energy with new power corrections was included. Postirradiation examination of the Test RIA 1-2 fuel rods continued, as well as the reactor

physics calculations for Test RIA 1-3. The design review of the RIA 1-3 test assembly was completed. FRAP-T calculations for Test RIA 1-4 Experiment Prediction report continued and assembly of the test train was initiated. A preliminary draft of the Test RIA 1-7 Experiment Specification Document (ESD) was prepared. Evaluation and cost estimates of the recommendations proposed by the RIA Energy Review Committee were initiated.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
Line 2, Node 5	LOC-3 Test	08-07-79	06-27-79C
Line 3, Node 5	LOC-3 QLR	08-28-79	07-10-79C
Line 7, Node 3	PCM-1 TRR	08-22-79	08-22-79E

5. Summary of Work to be Performed in August 1979

a. PCM Test Series

The Tests PCM-1, PCM-3, and PCM-4 Fuel Rod Behavior Reports will be issued, a revised draft of the Test PCM-5 Fuel Rod Behavior Report will be completed and reviewed (analysis and plotting will be done as required), and preparation of the Test PCM-5 Fuel Rod Material Behavior Report will continue. Assembly of the PCM-7 test train will be completed and data processing support provided as required.

b. OPTRAN Test Series

Revised OPTRAN 1-1 and OPTRAN 1-2 ESDs will be issued. Efforts will continue on the OPTRAN 1-1 EOS, the OPTRAN 1-1 and 1-3 EP will continue. OPTRAN fuel rod characterization will continue.

c. LOCA Test Series

A preliminary data appendix and plots with qualified data for the Test LOC-3 Test Results Report (TRR) will be submitted for review, further analysis support will be provided as required, and the Test LOC-3 postirradiation examination (PIE) will continue. Analysis for Test TC-1 will be initiated, as well as pretest preparation for Test LOC-5, and posttest data evaluation for the TRR. The pretest predictions, the revised EOS, and the test assembly for Test LOC-5 will be completed. The components for the LOC-6 test assembly will be completed.

d. RIA Test Series

Preparation of the Test RIA 1-1 Fuel Behavior Report will begin. Preparation of the RIA-ST Fuel Rod Behavior Report, the PIE for Test RIA 1-2, and the Test RIA 1-3 reactor physics calculations will continue. A draft of the Test RIA 1-4 Experiment Prediction report will be completed. The assembly of the RIA 1-4 test train will continue. A draft of the Test RIA 1-7 ESD will be transmitted to Battelle PNL for review and comment. Evaluation and cost estimates of the RIA Energy Review Committee recommendations will be completed and analysis will be performed as required.

e. Problems and Potential Problems

The thermal-hydraulic analysis of Test RIA 1-3 is being delayed due to unavailability of thermal analysis personnel.

The CDC 7600 will be removed and replaced by a CDC 176 starting August 29. The installation is expected to require 10 to 19 days. Other computing facilities will be provided, but job turnaround and processing is expected to be slower.

1. 189a A6044 - PBF Design Engineering

2. Scheduled Milestones for July 1979

None.

3. Summary of Work Performed in July 1979

a. Red Mike/Evacuation System Modification

The design of the Red Mike System Expansion was completed. The Evacuation System Modification design and installation has been taken over by Special Systems Engineering, and that design was completed.

b. In-pile Tube Support Column Modification

Installation of this modification was completed.

c. Additional Flux Wire Holders

The design of the new flux wire holders was completed, and the parts which replace the driver core fuel rods were fabricated and installed in the fuel canisters.

d. Core Hold-down Hardware Modification

Replacement couplings for the core hold-down grid and corner beams were made to accept new threaded inserts. They will be used if any of the existing couplings are found to be defective.

e. Diesel-Generator Lube Oil Keep-Warm System

The keep-warm system for the diesel lube oil was modified, tested, and turned over to Operations.

f. Fission Product Detection System (FPDS) Thermocouple Installation

Installation and checkout of the FPDS thermocouple was completed.

g. Demineralized Water Tank Valve Controller Modification

The controller on the valve between the demineralized water supply tank and the storage tank was modified to prevent opening of the valve following a loss of power.

h. Diesel Generator Voltage Regulator

Additional testing was performed on the new diesel generator voltage regulator. Defective components were found in the regulator and replacement parts ordered.

i. Reactor Annulus Lighting

The permanent lighting system was installed in the annulus and checked out.

j. Reactor Building Air Sampling System

A system to allow remote sampling of the air in various parts of the reactor building was installed.

k. Backup Neutron Monitoring System (NMS) Chamber

Fabrication and assembly of the backup NMS chamber was completed and it is now ready for trial installation into the core.

4. Scheduled Milestones for August 1979

None

5. Summary of Work to be Performed in August 1979

a. In-pile Tube Support Column Modification

Testing of this modification will be performed and any discrepancies cleared by August 10, 1979.

b. Additional Flux Wire Holders

The removable parts of the new holders will be fabricated and assembled into the core by August 31, 1979.

c. Demineralized Water Tank Valve Controller Modification

The valve controller modification will be tested and any discrepancies cleared.

d. Diesel Generator Voltage Regulator

Replacement parts will be installed in the faulty regulator and testing will continue.

e. Reactor Building Air Sampling System

The new remote sampling system will be tested and turned over to Safety personnel by August 17, 1979.

f. Backup Neutron Monitoring System (NMS) Chamber

The backup NMS chamber will be test fit into the core to ensure that it can be used as a readily available backup if the need arises.

6. Problems and Potential Problems

None.

1009 056

1. 189a A6046 - Fuel Behavior Analysis Assessment
2. Scheduled Milestones for July 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
37535	Develop MATPRO-12 Draft	07-01-79	06-28-79C
37975	Model Fuel-Cladding Chemical Reaction	07-01-79	06-29-79C

3. Summary of Work Performed in July 1979

- a. Halden Program

The detector calibration system was completed and the detector efficiency measured. Spectra analysis routines were checked out.

- b. Update Fuel Properties for MATPRO-12

A description of the updated model for fuel restructuring was issued.

- c. PCM and IE Topical Reports

Analysis of fission gas behavior and cladding swelling in the IE tests continued.

- d. Program Development

FRAP-T4 models are being reviewed and data are being gathered for the performance review of the code.

- e. Model Assessment

The commercial rod study was performed to checkout steady state model consistency between FRAP-T5 and FRAPCON-1. An error was found in the FRAPCON-1/FRAP-T5 tape link. A corrected version of FRAP-T5 is expected soon.

New input decks for the PBF LOC, LLR, and RIA test series have been assembled and checked out. Conversion of FRAP-T4 decks to FRAP-T5 format is continuing.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
Line 3 Node 7 Page 2-12	Install IFA-430 FPDS	08-31-79	08-31-79E

5. Summary of Work to be Performed in August 1979

a. Halden Program

The Fission Product Detection System will be installed at Halden. He/Xe gas mixture tests will be conducted in the two IFA-430 gas flow rods.

b. Update Fuel Properties for MATPRO-12

No work scheduled in August.

c. PCM and IE Topical Reports

Additional metallography for the fission gas topical will be completed, and analysis of the fuel and cladding behavior will continue.

d. Program Development

The first draft of the FRAP-T Performance Review will be completed. The IE/PCM ERD update will be completed.

e. Model Assessment

The commercial rod studies will be repeated with the corrected version of FRAP-T5. The FRAPCON-1 support decks for the FRAP-T5 assessment effort will be run for the overpower failure and burn-out onset cases.

6. Problems and Potential Problems

None.

1. 189a A6057 - PBF Operations
2. Scheduled Milestones for July 1979

None

3. Summary of Work Performed in July 1979

- a. Construction work was completed on Phase II of the reactor building extension. Minor deficiencies are being corrected prior to complete transfer of the new extension to the facility.

The work performed during this reporting period was primarily associated with plant modifications and testing in preparation for performance of the Loss-of-Coolant Test LOC-5.

LOC-3 posttest cleanup of the reactor building was completed. Following plant and equipment shutdown and experimental test train removal, the experimental fuel rods for Tests LLR-4 and LOC-3 tests were shipped to the hot cells for posttest examination. Removal of the hot and cold leg gamma densitometer spool pieces, replacement of the flow turbines, and spool piece instrument calibrations were completed.

Removal and shipment of six driver core fuel rods to the hot cells for core surveillance examination was completed. During this core configuration, two chambers were reworked and readied for installation into the core. Loop performance modifications were completed and initial operational testing of the loop coolant system motor-generator was completed.

The Instrument and Data Section of PBF Operations completed the Test LOC-3 data reduction and started the PBF DARS Reactor Room sub-systems modification (front end mod). The equipment relocation and interconnection wiring was completed and preparations for the PBF System Operability (SO) checkout was started.

The gamma densitometer repair was completed and is ready for reassembly. All spool piece resistive temperature detectors (RTD) and drag disks were recalibrated by the calibration lab.

- b. PBF Operations Support

The July and August preventive maintenance (PM) inspections have been worked concurrently during the shutdown period and are scheduled to be completed on or before August 17, 1979.

In-service inspection examinations of the primary coolant system piping for this quarter have been planned and are scheduled to be worked during this shutdown period.

Some of the corrective maintenance and modification support tasks that have been worked and completed include the reactor building and loop decontamination after Test LOC-3, the thermal swell accumulator (TSA) rupture disk changeout, the loop pump electrical tie-in for the loop performance mod, the removal of the Loss-of-Coolant Accident (LOCA) gamma densitometers, the diesel engine keep-warm modification, the building air sampling modification, and the completion of the in-pile tube modification. In addition, the installation of a stainless steel pan under the demineralizer vessels and mixing tanks and the application of the first coat of Ammercoat paint on the annulus walls was completed. Cleanup of Building 625 was conducted throughout this month to provide operations with an efficient supply storage area.

Efforts continued on the LOFT Lead Rod test Experiment Data Report (EDR) draft and data qualification.

Drafts of the Test LOC-5 Experimental Operating Procedure (EOP) and Isothermal Detailed Operating Procedure (DOP) were completed, and Chapter 10 of the Plant Operating Manual (POM), Radiation Monitoring System, was issued.

Handwritten data qualification drafts for Tests LLR-3, LLR-5, LLR-4, and LLR-4A have been completed. LLR-S0 data qualification has begun on Test LOC-3; LOC-3 data qualification is being processed in town and at the site to check site procedures. Selected RIA Scoping Test data were reworked for all bursts and all useful power calibrations. Effort was begun to set up the data acquisition specification log sheets for Test LOC-5.

4. Scheduled Milestones for August 1979

None.

5. Summary of Work to be Performed in August 1979

- a. Complete July and August preventive maintenance (PM) inspections.
- b. Complete in-service inspections of the loop pressurizer and primary coolant system piping.
- c. Complete Building 625 cleanup.
- d. Install the LOCA instrumented spools.
- e. Complete installation of the flux wire holders into the driver core.
- f. Continue with loop coolant system motor-generator checkout.
- g. Complete a branch-approved draft of the LLR EDR and distribute for review.

- h. Set up DARS log sheets for Test LOC-5.
- i. Continue LOC-3 data qualification.
- j. Complete LLR series data qualification.
- k. Checkout the calibration system modification.
- l. Continue efforts on test-independent uncertainty analysis reports.

6. Problems and Potential Problems

None.

1. 189a A6095 - Major Modifications

2. Scheduled Milestones for July 1979

None.

3. Summary of Work Performed in July 1979

a. Loop Performance Modification

The coupler was realigned and the final electrical hookups made to the motor-generator set. Operational tests have been performed and the proper functioning of the various controls and subsystems verified.

b. In-pile Tube Spare

Welding of the guide strut was completed, the boring of the nozzles was performed as far as possible and the heat treat fixture was readied for assembly to the in-pile tube. The misaligned nozzle has been straightened and induction heating of the welds is complete.

c. Transport Cask

General Atomics has completed fabrication of the transport assembly. The acceptance tests were initiated and completed. Minor problems are being resolved.

4. Scheduled Milestones for August 1979

None.

5. Summary of Work to be Performed in August 1979

a. Loop Performance Modification

Additional testing will be performed to define loop pump characteristics at various speeds.

b. In-pile Tube Spare

The in-pile tube will be returned to Votaw following induction heating, and the nozzle boring will be completed. Heat treating should be completed.

c. Transport Cask

The transport system will be delivered and transport plan will continue.

6. Problems and Potential Problems

Minor problems have continued to occur and to cause delays in the spare in-pile tube fabrication; it is virtually certain that the scheduled completion date of September 15, 1979, will be missed. EG&G Idaho, Inc., maintains daily contact with Votaw to assist in the solution of these problems and thereby minimize the delays. A revised schedule will be prepared.

189a A6274

Page 13

1. 189a A6274 - PBF Cooperative Research - Austria

2. Scheduled Milestones for July 1979

None

3. Summary of Work Performed in July 1979

a. Instrument Development

The results of the centerline thermocouple gradient tests were evaluated and comments were submitted to Hanford Engineering and Development Laboratory for the final report.

The performance of the LVDT temperature-compensated signal conditioner was recorded during Test LOC-3 and the results are being evaluated.

b. Combinatorial Geometry

Corrections were made to the preliminary version and two cases were successfully run. The preliminary version is ready for release to users on a limited basis. An input description was prepared for the users' manual.

4. Scheduled Milestones for August 1979

None.

5. Summary of Work to be Performed in August 1979

a. Instrument Development

The results of the temperature-compensated LVDT signal conditioner performance during Test LOC-3 will be published.

The evaluation will be completed to determine if plating stainless steel thermocouples with chromium increases the temperature at which a eutectic forms with a zircaloy interface.

b. Combinatorial Geometry

Preparation of the users' manual will continue; however, most of the effort will be delayed until September when it is anticipated that more time will be available.

6. Problems and Potential Problems

Delivery of the RAFFLE code containing the combinatorial geometry to users will be delayed due to the installation of the new EG&G computing system; conversion and checkout efforts will be required.

200 9001

1009 064

1. 189a A6275 - Electric Heater Rod Evaluation Studies
2. Scheduled Milestones for July 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
Line 1, Node 2	Final Report - Heater Rod Thermal Performance Review	07-30-79	08-10-79E
Line 2, Node 3	Complete Heater Rod Fabrication	07-15-79	08-15-79E

3. Summary of Work Performed in July 1979

- a. Electrical Heater Rod Performance Review

Review and editing of the Electrical Rod Simulation Report continued.

- b. Instrumented Fuel Assembly (IFA) 511 Nuclear and Electric Heater Rod Experiments

Fabrication of heater rods at RAMA Corporation continued. Post-test analysis of the IFA-511-I experiments was initiated, and pretest analysis for one set of IFA-511-II test parameters was completed.

- c. COSIMA Testing

A response to the KfK counterproposal, a test matrix for separate effects tests in COSIMA, was transmitted to KfK. A sensitivity study for COSIMA Test V44 using RELAP4/MOD6 was completed.

- d. Swiss Reflood Test Support

An investigation into the acceptability of the Inconel thermocouple cable for electron beam welding was started. This welding technique is used by the Swiss for thermocouple attachment to heater rods. The fabrication of the thermocouple junctions has also been delayed pending the results of the investigation. Also, the Swiss NEPTUN project has incurred large slippages. Testing of heater rods with LOFT thermocouples is not expected to begin before February 1980. Thus, funds allocated for evaluation of data have been deferred to FY-80. Unused funds for materials, resulting from obtaining materials at less than expected costs, were returned to reserve.

The Inconel spacer grid material required for completion of the Swiss NEPTUN grids has been sent to the Swiss.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
Line 2 Node 4 Page 1-54	Attach LOFT TC's to Heater Rod	08-15-79	09-30-79E

5. Summary of Work to be Performed in August 1979a. Electrical Heater Rod Performance Review

Issue Electric Rod Simulation Report.

b. IFA-511 Nuclear and Electric Heater Rod Experiments

LOFT thermocouples will be attached to one electric heater rod and the rod shipped to Halden. Pretest analyses for IFA-511-II experiments will be completed, and posttest analysis for IFA-511-I data will continue.

c. COSIMA Testing

LOFT thermocouples will be attached to two COSIMA heater rods.

d. Swiss Reflood Test Support

The thermocouple junctions and dummy thermocouples will be fabricated pending completion of the investigation into the acceptability of the thermocouple cable that was procured for this project. All other work is considered at this time to be deferred to FY-80 as a result of the NEPTUN project schedule slippage.

6. Problems and Potential Problems

The fabrication of the electric heater rods by RAMA Corporation has fallen two months behind schedule due to fabrication problems. Attachment of LOFT thermocouples to one of these rods may require priority in order to meet the Halden Project Schedule.

POOR
ORIGINAL

THERMAL FUELS BEHAVIOR PROGRAM
CHANGE CONTROL BOARD ACTIONS
AND 189A STATUS

1009 067

CHANGE CONTROL BOARD STATUS

<u>COST ACCOUNT</u>	<u>CCB #</u>	<u>DESCRIPTION</u>	<u>STATUS</u>	<u>DATE</u>
4212G00	79-59	Standard Practice for Data Qualification	Pending	7-31-79
4218D00	79-67	RIA 1-2 Fuel Behavior Report	Pending	7-31-79
4218G00	79-68	RIA 1-6 Test Train	Pending	7-31-79
4218J00	79-70	RIA 1-7 ECS	Pending	7-31-79
4219D00	79-71	OPT 1-3 ECS	Pending	7-31-79
421CA00	79-72	Small Break LOCA Test	Pending	7-31-79
4216G00	79-73	LOC-7 Test Train	Pending	7-31-79
4215F00	79-74	PR-1 Test Train	Pending	7-31-79

1009 068

1009 068

CHANGE CONTROL BOARD ACTIONS

(Dollars in Thousands)

CCB NUMBER	DESCRIPTION	FY-79	FY-80	FY-81/Beyond	TOTAL APPROVED ACTION
79-47	Remote Loop Cleanup	<21.1>	<65.2>	----	<86.3>
79-48	FY-79 Baseline - 3	75.9	----	----	75.9
79-50	PR-1 Test Train	<47.6>	----	----	<47.6>
79-51	Transfer Cost between Cost Accounts	----	----	----	Cost Account Adjustment
79-52	Transport Casks	<18.5>	----	----	<18.5>
79-53	Experiment Support	<27.0>	----	----	<27.0>
79-54	Core Flux Wire Holders	<17.1>	----	----	<17.1>
79-55	RIA-ST Data Proc.	----	----	----	Cost Account Adjustment
79-56	Silver Zeolite	<10.9>	<48.6>	----	<59.5>
79-57	Cost Account Adjustments	----	----	----	Cost Account Adjustment
79-58	CM Perf/LOC-3 Decon.	< 5.2>	----	----	< 5.2>
79-60	RIA Plan. & Coordination	<13.5>	----	----	<13.5>
79-61	Three Mile Island	<10.5>	----	----	<10.5>
79-62	LOC-11 TRR	----	----	----	CCB Withdrawn
79-63	Cost Adjust. between Cost Accounts	0.1	0.3	----	0.4
79-64	Cost Adjust. between Cost Accounts	3.9	----	----	3.9
79-65	OPT 1-3 ESD & EOS	< 8.8>	10.2	<0.9>	0.5
79-66	TFBP Administration	40.0	----	----	40.0

(< > Allocation from Management Reserve)

880 0007

1009 069

FY-79 BUDGET STATUS REPORT

(Dollars in Thousands)

<u>189a NUMBER</u>	<u>PREVIOUS 189a TOTAL</u>	<u>APPROVED CCB's</u>	<u>APPROVED DISCRETIONARY RESERVE ACTION</u>	<u>NEW 189a TOTAL</u>
A6041	6696.1	11.2	<5.6>	6690.5
A6044	2007.2	---	---	2007.2
A6046	1036.6	---	---	1036.6
A6057	3496.5	<16.1>	---	3512.6
A6095	1347.6	---	---	1347.6
A6274	114.7	---	---	114.7
A6281	<u>83.2</u>	---	---	<u>83.2</u>
TOTAL	<u>14781.9</u>	<u><4.9></u>	<u><5.6></u>	<u>14792.4</u>

Management Reserve 333.7

Discretionary Reserve 25.7

15151.8

1009 070

3-D PROGRAM

WRRD MONTHLY REPORT FOR
JULY 1979
3-D PROGRAM

R. A. DaBell

R. A. DaBell
Plans & Budget Representative

R. D. Wesley

for R. D. Wesley, Manager
Engineering Support Projects

3-D

COST SUMMARY & COMMENTS

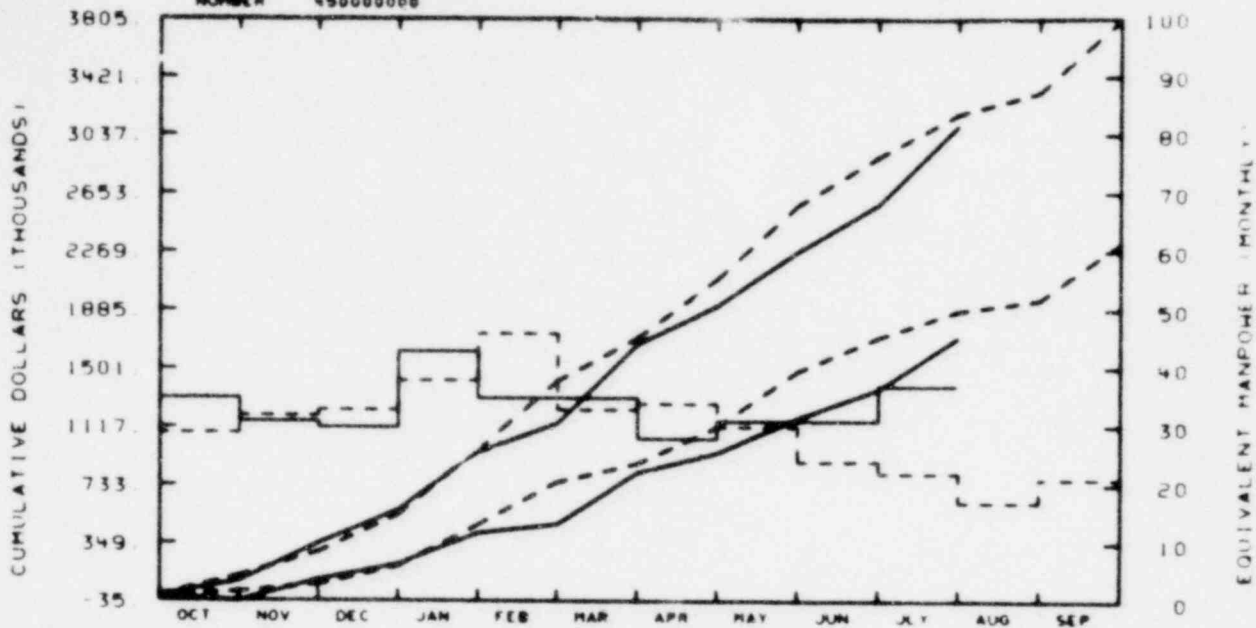
POOR
ORIGINAL

1009 073

RESPONSIBLE
MANAGER
R E RICE

EG&G IDAHO INC
3-D EXPERIMENT PROJECT

NUMBER 450000000



TOTAL PROGRAM												
BUDGET	132	298	535	964	1419	1703	2100	2577	2994	3177	3319	3790
ACTUAL	95	345	568	947	1140	1661	1912	2269	2581	3100		

MATERIAL												
BUDGET	24	72	194	489	752	873	1117	1483	1706	1900	1952	2323
ACTUAL	-34	106	208	413	471	613	944	1174	1364	1706		

MANPOWER												
BUDGET	29	32	33	38	46	53	74	80	24	22	17	21
ACTUAL	35	31	30	43	35	35	28	31	31	37		

BUDGET

ACTUAL

YTD VARIANCE: 77 (2%)

The primary reasons for this month's underrun are the JAERI Drag Disk and the JAERI Spool Piece tasks. The delivery dates for both activities has been delayed, causing the YTD variance. An increase in activity in August and September, and foreign travel for installation will bring these items in line with their annual budgets.

The JAERI Slab Core Gamma Densitometer and the PKL Turbine Flowmeter tasks are also primary reasons for the underrun, due to the late start on the slab core activities, and a lack of available manpower for both these activities.

These combined tasks account for approximately \$197K underrun. There is an overrun of \$103K on the PKL Spool Price activity and \$17K overrun in miscellaneous tasks for the net underrun of \$77K.

POOR
ORIGINAL

3-D

TECHNICAL REVIEW & SUMMARY

POOR
ORIGINAL

1009 075

PROGRAM MANAGER'S
SUMMARY AND HIGHLIGHTS

JAERI CCTF spool pieces assembly and acceptance testing are 90% complete. JAERI CCTF CLLMS DAS final system functional and acceptance tests were completed. The system software package has been 90% completed. The system was shipped to Japan on July 18, 1979, over one month ahead of schedule. JAERI CCTF drag disks acceptance tests were completed.

FRG PKL spool pieces were received at FRG Facility and acceptance completed by July 5, 1979. All tests and handling procedures were finished and personnel from EG&G San Ramon turned the equipment over to KWU-PKL on July 6, 1979. Fabrication of the PKL CLLMS synchronization daughter boards and the installation of the boards in the CLLD electronics was completed. Fabrication of PKL turbine meters prototype units was completed and testing initiated.

Fluid grid time response tests were completed. JAERI SCTF densitometers work package was completed and pending final review is ready for release. Conceptual design of the detector cooling flange, the adjustment flange and the detector interface flange was completed. Gadolinium 153 was tentatively selected as the radiation source.

A task initiation meeting for the UPTF/DAS was held with representatives of USNRC, FRG, KWU, EG&G San Ramon and EG&G Idaho in Offenbach, West Germany.

1. A6100 - 3D Technical Support and Instrumentation
2. Scheduled Milestones for July 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
Page 1-88	Ship JAERI CCTF Spool Pieces	7-10-79T	3DP-24-79 ⁽¹⁾ 8-10-79C
Page 1-88	Assemble and Test JAERI CCTF Spool Pieces	7-02-79T-1	3DP-24-79 8-3-79C
Page 1-88	Complete Final Documentation for JAERI CCTF Spool Pieces	7-02-79T	3DP-24-79 7-25-79E
Page 1-87	Package and Ship JAERI Downcomer Drag Disks	7-10-79E	NCR Pending 3DP-25-79 ⁽¹⁾ 8-10-79C
Page 1-87	PKL Turbine Meter Prototype Procurement	7-31-79E	NCR pending
Page 1-87	Package and Ship PKL LLDs	7-02-79E	3DP-26-79 ⁽²⁾
Page 1-87	Package and Ship PKL Electronics (CLLMS)	7-02-79E	3DP-26-79 ⁽²⁾

3. Summary of Work Performed in July 1979

- a. JAERI CCTF Instruments

1. Spool Pieces - The assembly and acceptance testing of the spool pieces are 90% complete. The operational maintenance technical manual is being prepared.
2. CLLMS/DAS - The final system functional and acceptance tests were completed. The system software package has been 90% completed. The entire data system was shipped to Japan on July 18, 1979, over one month ahead of schedule.
3. Drag Disks - The acceptance tests were completed on the drag transducers including the spare.

(1) Shipping delayed per JAERI request.

(2) Shipment waiting for KWU instructions.

850 4001

1009 077

4. CLLMS - The LOFT Data Systems Branch has continued to set up their data reduction system for processing of the JAERI CLLD analog data tapes. The work was temporarily interrupted because LOFT has decided to utilize the recently developed and improved method of data interpretation (automatic threshold setting of wet/dry detector environments). Efforts to set up the LOFT data system for the JAERI tapes will resume as soon as the new software package has been incorporated in the system. Tapes are late in arriving from Japan.

b. FRG PKL Instruments

1. Spool Pieces - The PKL instrumented spool pieces were received at the FRG Facility and acceptance tested. All possible acceptance testing was completed by July 5, 1979, well ahead of schedule.

The spools performed as expected with several minor exceptions. Spool SGI, the vertical unit, had a detector resolution problem and will require a new detector at a future date. The defective detector was returned to Ortec for repair. Spool RV-2 had detector amplifier gain problems due to wrong feedback resistors. Two detector/amplifier combinations with this factory defect will be returned to Ortec for repair also.

All tests and handling procedures were finished and personnel from EG&G San Ramon turned the equipment over to KWU-PKL on July 6, 1979.

2. CLLMS - The fabrication of the synchronization daughter boards and the installation of the boards in the CLLD electronics was completed. Work on the technical manual was continued.
3. Turbine Meters - Fabrication of prototype units was completed and testing initiated at the vendor. Early results indicate a potential signal problem in the magnetic field environment.

c. JAERI SCTF Instruments

1. CLLMS - Sketches were converted to engineering drawings and final configuration details were firmed up between JAERI, MPR and EG&G. Revision 2 of the Functional Specification was received July 18, reflecting the new probe locations and configuration agreed upon in the June 14 meetings with JAERI/IHI in Japan.
2. Fluid Grid - Time response tests were completed. Design sketches were prepared showing the upper plenum and downcomer fluid distribution grid assembly. A conceptual design review was held on July 13, 1979. The scope of design was agreed upon and final preparation of a work package commenced.

1. A6100 - 3D Technical Support and Instrumentation2. Scheduled Milestones for July 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
Page 1-88	Ship JAERI CCTF Spool Pieces	7-10-79T	3DP-24-79(1) 8-10-79C
Page 1-88	Assemble and Test JAERI CCTF Spool Pieces	7-02-79T-1	3DP-24-79 8-3-79C
Page 1-88	Complete Final Documentation for JAERI CCTF Spool Pieces	7-02-79T	3DP-24-79 7-25-79E
Page 1-87	Package and Ship JAERI Downcomer Drag Disks	7-10-79E	NCR Pending 3DP-25-79(1) 8-10-79C
Page 1-87	PKL Turbine Meter Prototype Procurement	7-31-79E	NCR pending
Page 1-87	Package and Ship PKL LLDs	7-02-79E	3DP-26-79(2)
Page 1-87	Package and Ship PKL Electronics (CLLMS)	7-02-79E	3DP-26-79(2)

3. Summary of Work Performed in July 1979a. JAERI CCTF Instruments

1. Spool Pieces - The assembly and acceptance testing of the spool pieces are 90% complete. The operational maintenance technical manual is being prepared.
2. CLLMS/DAS - The final system functional and acceptance tests were completed. The system software package has been 90% completed. The entire data system was shipped to Japan on July 18, 1979, over one month ahead of schedule.
3. Drag Disks - The acceptance tests were completed on the drag transducers including the spare.

(1) Shipping delayed per JAERI request.

(2) Shipment waiting for KWU instructions.

4. CLLMS - The LOFT Data Systems Branch has continued to set up their data reduction system for processing of the JAERI CLLD analog data tapes. The work was temporarily interrupted because LOFT has decided to utilize the recently developed and improved method of data interpretation (automatic threshold setting of wet/dry detector environments). Efforts to set up the LOFT data system for the JAERI tapes will resume as soon as the new software package has been incorporated in the system. Tapes are late in arriving from Japan.

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All tests and handling procedures were finished and personnel from EG&G San Ramon turned the equipment over to KWU-PKL on July 6, 1979.

2. CLLMS - The fabrication of the synchronization daughter boards and the installation of the boards in the CLLD electronics was completed. Work on the technical manual was continued.
3. Turbine Meters - Fabrication of prototype units was completed and testing initiated at the vendor. Early results indicate a potential signal problem in the magnetic field environment.

c. JAERI SCTF Instruments

1. CLLMS - Sketches were converted to engineering drawings and final configuration details were firmed up between JAERI, MPR and EG&G. Revision 2 of the Functional Specification was received July 18, reflecting the new probe locations and configuration agreed upon in the June 14 meetings with JAERI/IHI in Japan.

2. Fluid Grid - Time response tests were completed. Design sketches were prepared showing the upper plenum and downcomer fluid distribution grid assembly. A conceptual design review was held on July 13, 1979. The scope of design was agreed upon and final preparation of a work package commenced.

2. Fluid Grid - Final design review will be completed and outstanding comments resolved. QD program planning and design planning tabulation will be completed. Design drawings will be released. Guide tube and end pieces will be received and machining and fabrication will commence.
3. Densitometers - The test plan for prototype testing is scheduled for completion. Work will continue on the conceptual design of the source flange, source cask, source lateral adjustment method and test section pending availability of design engineer. Subcontractor proposals for the detector system, due August 6, will be reviewed. A decision will be made regarding the type of detector, i.e., pure germanium or sodium iodide.

d. UPTF Instruments

Initial planning and conceptual designs for the UPTF instruments will continue.

e. UPTF/DAS

EG&G San Ramon will initiate a review of FRG's draft system specification.

6. Problems and Potential Problems

FRG PKL Turbine Meters - The turbine meters are experiencing susceptibility to high magnetic fields. Evaluation of the problem will continue and the problem quantified. A solution will be proposed as soon as the problem is fully understood.

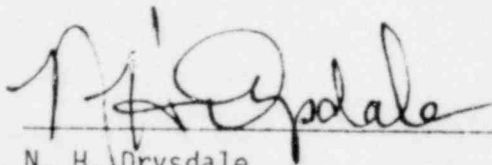
JAERI SCTF Densitometers - Transfer of mechanical design supervisor is causing a delay in the conceptual and preliminary design efforts. This delay will impact the preliminary design review scheduled for mid-September and could impact the prototype testing as presently scheduled. A new designer has been transferred to the project to help alleviate the problem in the future.

FRG PKL Spool Pieces - Several equipment failures occurred during the installation support phase which will require corrective action. Problems were experienced with the densitometer detectors and amplifiers and the turbine meter amplifiers. These items are being returned to the suppliers for diagnostics, consultation and problem resolution. Intensive follow up is being planned. No impact on the testing is expected due to a one-year delay in the PKL schedule.

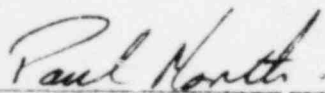
CD&AP

1009 082

WRRD MONTHLY REPORT FOR
JULY 1979
CODE DEVELOPMENT AND ANALYSIS PROGRAM



N. H. Drysdale
Plans & Budget Representative



P. North, Manager

POOR
ORIGINAL

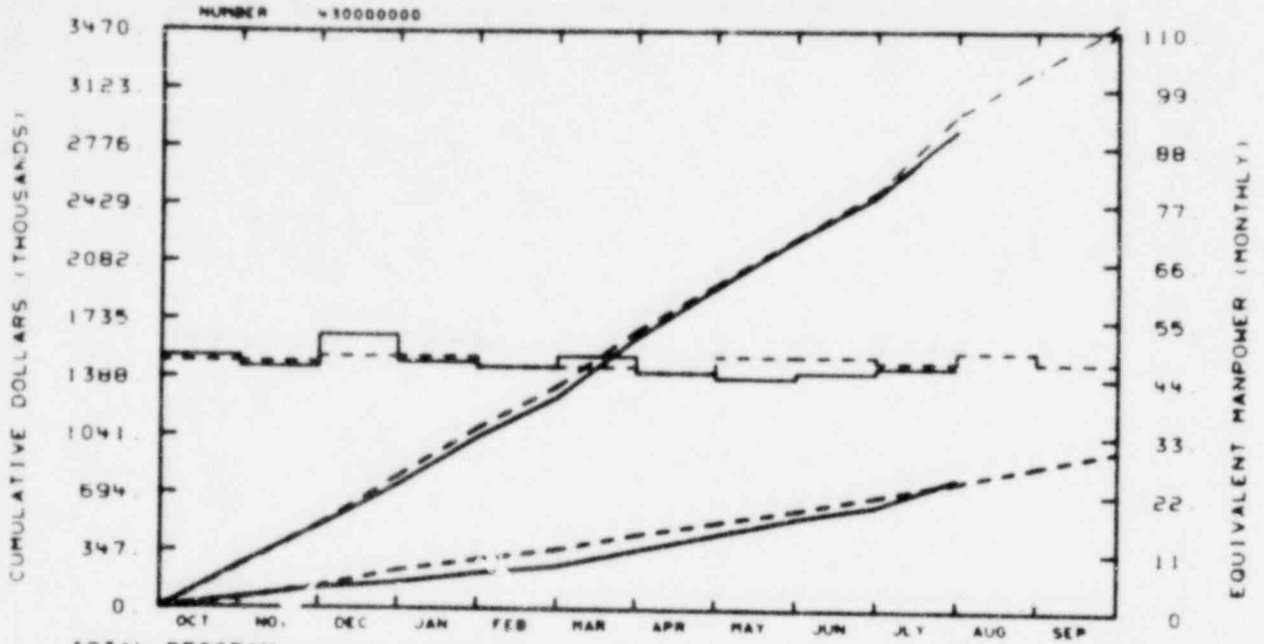
CODE DEVELOPMENT & ANALYSIS PROGRAM

COST SUMMARY & COMMENTS

1009 084

RESPONSIBLE
MANAGER
P. NORTH

EG&G IDAHO INC.
CODE DEVELOPMENT & ANALYSIS PROG



TOTAL PROGRAM

BUDGET	248	496	793	1082	1334	1667	1945	2228	2507	2931	3223	3564
ACTUAL	258	490	741	1027	1268	1624	1925	2220	2481	2879		

MATERIAL

BUDGET	56	131	228	294	357	448	520	587	682	770	866	960
ACTUAL	61	122	155	213	256	352	448	548	625	790		

MANPOWER

BUDGET	47	47	48	48	48	48	45	48	48	47	48	47
ACTUAL	48	48	52	47	48	48	45	44	45	46		

BUDGET

ACTUAL

YTD VARIANCE: 53 (2%)

Individual cost graphs will give individual explanations.

The MATPRO part of A6046, Task 42551, is not reflected in the Code Development Program total as the major portion of A6046 is part of the TFBP.

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

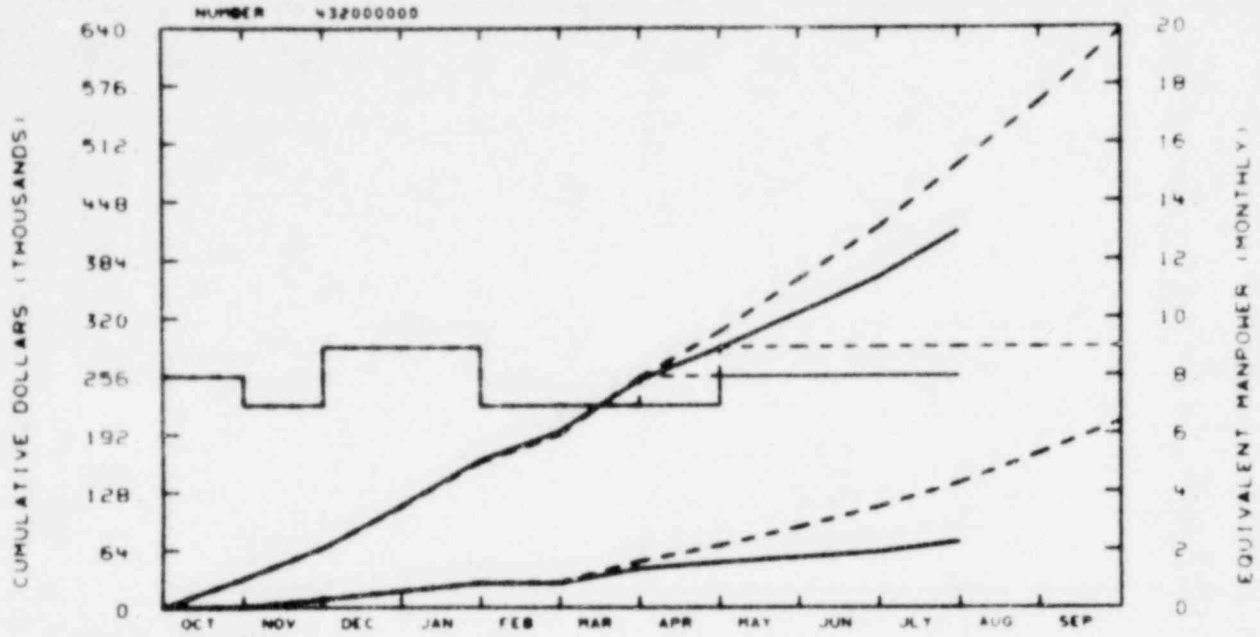
POOR
ORIGINAL

880 9001

1009 085

RESPONSIBLE
MANAGER
P. NURTH

EG&G IDAHO INC.
CONTAINMENT ANALYSIS DEVELOPMENT



TOTAL PROGRAM

BUDGET	31	88	112	161	192	254	304	362	419	489	557	636
ACTUAL	32	88	113	163	195	252	287	325	365	416		

MATERIAL

BUDGET	0	9	18	27	27	51	68	88	111	138	170	205
ACTUAL	0	9	18	26	27	43	50	55	61	72		

MANPOWER

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

BUDGET

ACTUAL

A6042

YTD VARIANCE: 73 (15%)

Approximately \$58K of the \$73K variance is due to under use of the computer. Computer usage increased during July as checkout began on BEACON/MOD 3, but is still not running as high as planned. Efforts are in progress to subcontract approximately \$25K of checkout calculations and further increased code running is expected in August. The remaining \$15K of the variance is due to manpower losses. Recruiting is underway but is not expected to provide manpower by the end of FY-79. A final carryover of approximately \$50K is expected.

POOR ORIGINAL

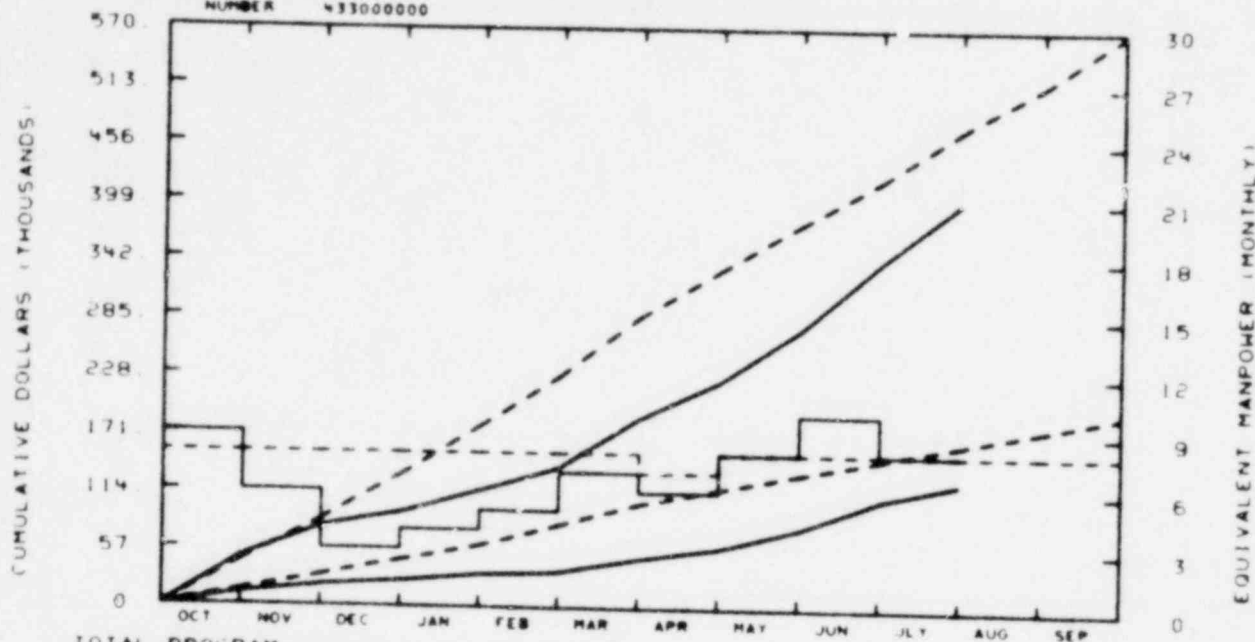
1009 086

1009 086

RESPONSIBLE
MANAGER
P. NORTH

EG&G IDAHO INC.
FUEL BEHAVIOR MODEL DEVELOPMENT

NUMBER 433000000



TOTAL PROGRAM		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET	44	85	130	178	227	286	332	378	421	472	516	567	
ACTUAL	48	78	92	114	138	188	223	274	341	400			

MATERIAL		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET	15	30	45	60	81	102	117	132	147	162	177	192	
ACTUAL	12	20	25	32	35	48	59	78	107	125			

MANPOWER		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET	0	0	0	0	0	0	7	0	0	0	0	0	0
ACTUAL	0	0	1	4	5	7	8	8	10	8			

BUDGET

ACTUAL

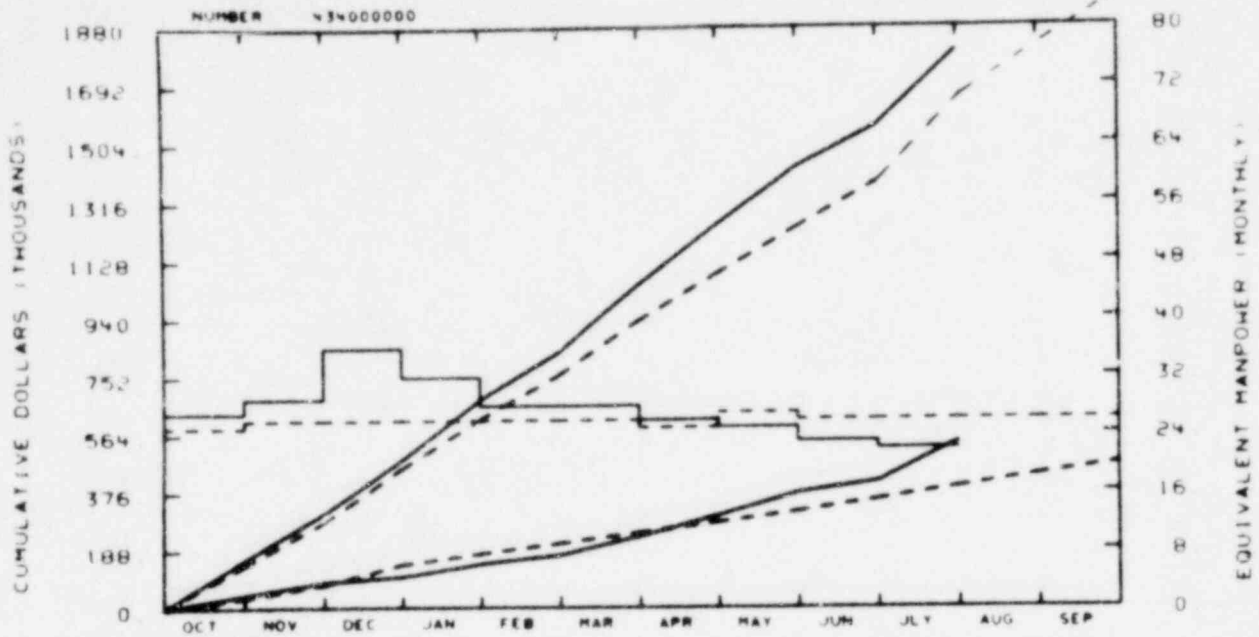
A6050

YTD VARIANCE: 72 (15%)

Out of the total underrun of \$72K, \$70K was due to use of manpower on tasks charged to other 189a's (primarily WRAP and TMI). A recovery plan involving the use of additional personnel has been in operation for two months with a projected final underrun of \$40K. This is reflected in a slip of the FRAP-T5 schedules and the FRAPCON-2 schedule partially into FY-80.

POOR
ORIGINAL

EG&G IDAHO INC
 LOSS OF COOLANT ACCIDENT ANALY



TOTAL PROGRAM												
BUDGET	130	270	455	614	757	932	1083	1233	1379	1649	1797	1972
ACTUAL	150	308	482	678	831	1048	1242	1428	1559	1802		

MATERIAL												
BUDGET	33	75	139	174	208	242	276	310	349	424	424	552
ACTUAL	43	83	101	141	170	230	298	371	407	538		

MANPOWER												
BUDGET	25	28	26	26	26	26	25	27	26	26	26	26
ACTUAL	27	28	36	32	28	28	26	25	23	22		

BUDGET
 - - - - -
 ACTUAL

A6052

YTD VARIANCE: <153> (9%)

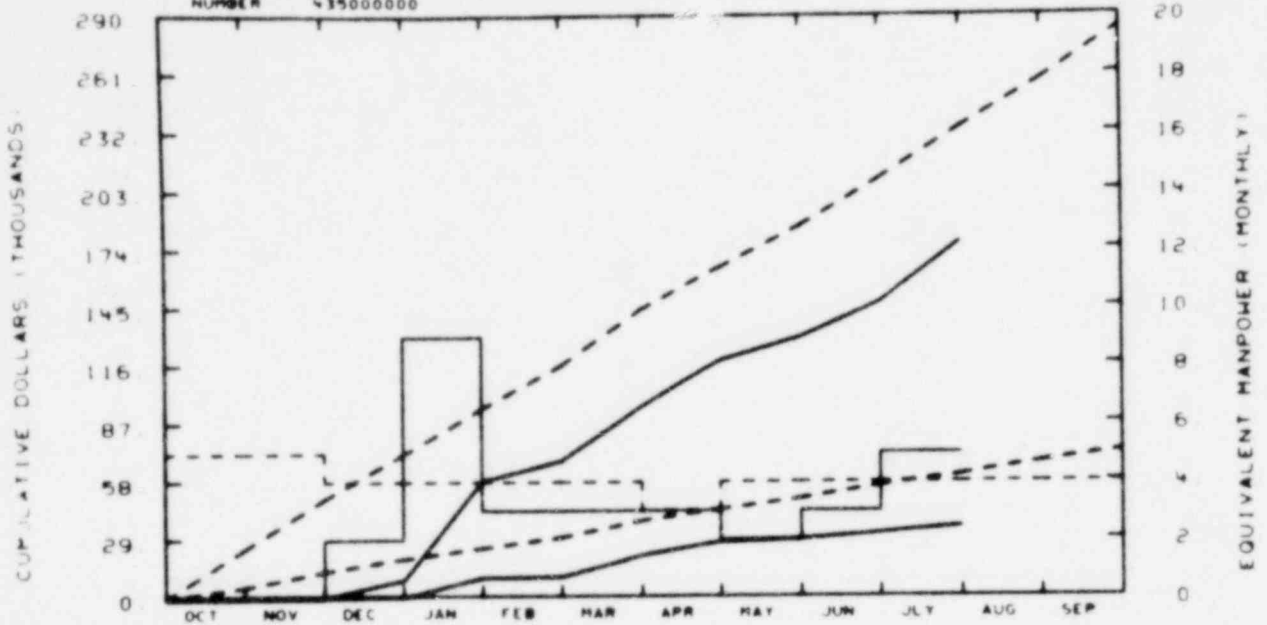
Of the \$153K overrun, \$115K is due to increased computer usage. This is associated with continued TMI analysis and related audit calculations. Transfer of an additional \$250K into this 189 is required. Possible sources are A6042 (\$30K), A6050 (\$40K), and A6278 (\$45K). The remaining \$38K of the current overrun will be recovered due to manpower reductions.

POOR ORIGINAL

RESPONSIBLE
MANAGER
P. NORTH

EG&G IDAHO INC.
CORRELATION VERIFICATION

NUMBER 435000000



TOTAL PROGRAM

BUDGET	25	49	72	95	118	144	165	186	209	235	258	284
ACTUAL	0	0	9	58	68	96	118	130	147	178		

MATERIAL

BUDGET	5	13	19	25	30	38	44	49	56	61	68	73
ACTUAL	0	0	0	10	10	21	28	29	32	35		

MANPOWER

BUDGET	5	5	4	4	4	4	3	4	4	4	4	
ACTUAL	0	0	2	9	3	3	3	2	3	5		

BUDGET

ACTUAL

A6278

YTD VARIANCE: 57 (24%)

The \$57K underrun is due to lack of manpower in the first part of FY-79. Personnel from Engineering are currently working on this task through a work order. It is anticipated that the variance will be reduced to about \$45K by the end of FY-79.

POOR
ORIGINAL

1009 089

CODE DEVELOPMENT & ANALYSIS PROGRAM
CAPITAL EQUIPMENT

POOR
ORIGINAL

1009 090

EG&G IDAHO, INC.
CAPITAL EQUIPMENT PRIORITY LIST

CARRYOVER

Program CODE DEVELOPMENT

189 Number A6052 (A6109)

Manager P. North

Priority Number	EA No.	Item Description	Authorized Amount	July YTD Costs & Commit.	Project to Date	<Over>/<Under Balance
	98923	Tektronix Graphic Tablet	\$ 2,863	\$ 4,722	--	\$ <1,859>

Item Authorized o
 Money Committed Δ
 Equipment Received, Account Closed ■

FY	O	N	D	J	F	M	A	M	J	J	A	S
								●	▲	▲		

Carryover Budget \$ 2,863
 YTD Costs & Commit. 4,722
 BALANCE \$ <1,859>

1009 091

CODE DEVELOPMENT & ANALYSIS PROGRAM
TECHNICAL REVIEW & SUMMARY

POOR
ORIGINAL

1009 092

PROGRAM MANAGER'S
SUMMARY AND HIGHLIGHTS

In the RELAP4/MOD7 development, work has been completed on the RELAP4/FRAP renodalization using heat slab stacks.

Refill and reflood checkout of WRAP has been initiated.

Work on the FRAP-TRAC link has begun.

1. 189a A6052 - Loss of Coolant Accident Analysis2. Scheduled Milestones for July 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
New	HPI and Natural Circulation Documentation	7-18-79	7-18-79 (Letter Report to follow)
New	TMI Transient Analysis Documentation	7-23-79	7-23-79 (Letter Report to follow)
L8, N1 Page 3-19	Begin Developmental Checkout of MOD7 - No Documentation	7-25-79	8-1-79C
L9, N1 Page 3-19	Begin Documentation of MOD7 Manual and Developmental Checkout (TREE)	7-30-79	8-1-79C

3. Summary of Work Performed in July 1979a. Blowdown Code Development

All items in this work package have been completed.

b. Reflood Model Development

FLECHT Test 4831 was performed on a base core using the MOD6 reflood model in the MOD7 structure. Comparison of the MOD6 and new MOD7 showed results were similar. Differences in the two calculations have been attributed to modeling differences between MOD6 and MOD7. Improvements in the MOD7 reflood model have been initiated.

c. Integral Code Development

Work has been completed on the RELAP4/FRAP renodalization using heat slab stacks. Work on the assembly of MOD 7 has continued.

d. WRAP Code Development

Work on the WRAP code checkout has continued. Checkout of the blowdown refill and reflood have been initiated.

3. Summary of Work Performed in July 1979 (contd..)e. TMI Associated Analysis Work

TMI transient analysis was run out to 6000 sec. These results were documented and sent to NRC-RSR and NRR.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
L1, N3 Page 3-18	L2-5 WRAP EM Analysis	8-24-79	
New	Alternate MOD7 Reflood Model	8-30-79	
New	SI Unit Modifications	8-30-79	
L6, N5 Page 3-19	Refill Model Checkout - Issue Letter	8-30-79	
L3, N2 Page 3-19	Reflood Hydraulic Model Development - Issue PAR	8-30-79	
L7, N2 Page 3-19	Renodalization Development	8-30-79	
L3, N1 Page 3-18	BWR Analysis	8-30-79	

5. Summary of Work to be Performed in August 1979a. Reflood Model Development

The MOD7 reflood model will be completed by the end of August.

b. Integral Code Development

Work will be initiated on a large problem renodalization using the RELAP4/FRAP link. This run will be to check out the MOD7 integral code.

5. Summary of Work to be Performed in August 1979 (contd..)

c. WRAP Code Development

Checkout of the WRAP blowdown and reflood code will continue. A meeting with SRL/NRC/EG&G is planned to discuss WRAP progress at both laboratories.

d. TMI Associated Analysis Work

A rerun of the TMI transient until the peak cladding temperature is 2300°F is expected to be completed by mid August. This analysis will use new boundary conditions obtained from a meeting with EPRI/NRC/EG&G.

6. Problems and Potential Problems

EG&G is planning a CDC computer upgrade which will cause our current system to be down for approximately three weeks. Current efforts are to provide computer service at other institutions. Personnel are currently being used to prepare codes for use at the other institutions.

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

2. Scheduled Milestones for July 1979

No scheduled milestones for July.

3. Summary of Work Performed in July 1979

a. RNB Thermal Resistance Criteria Study

Several runs were made and analysis of the results is now underway to determine the adequacy of the overall matrix of runs.

b. Hsu Logic into RELAP

The Hsu low flow film boiling heat transfer logic was included in the RELAP4/MOD7 heat transfer surface HTS2.

c. REFLUX II Numerics

The task to revise the numerics in the REFLUX II code was initiated during July but only a limited amount of scoping of the task was completed.

d. 3-D Blockage Studies

The pressure drop analysis for the 3-D blockage studies was initiated during July. Geometry details were received from NRC so modeling can begin. Westinghouse is to provide rod configurations for specific runs but no information has yet been received from them. Direct efforts are being made to obtain the required information.

4. Scheduled Milestones for August 1979

No scheduled milestones for August.

5. Summary of Work to be Performed in August 1979

a. RNB Thermal Resistance Criteria Study

Analysis should be completed and documentation will get underway during August.

b. Hsu Logic into RELAP

The Hsu low flow logic which was included in RELAP will be checked out using Semiscale Test S-02-9.

c. REFLUX II Numerics

A detailed evaluation of the present numerics and associated problems will be completed and recommendation for a new approach will be formulated.

d. 3-D Blockage Studies

A COBRA model will be developed for the 3-D core.

6. Problems and Potential Problems

None

1. 189a A6042 - Containment Analysis Development

2. Scheduled Milestones for July 1979

No scheduled milestones for July.

3. Summary of Work Performed in July 1979

a. Code Development

The debug task of the best-estimate correlations package continued. The B-E package contains models for low void fractions and high void fractions. The initial models did not provide for a smooth transition from high to low which caused numerical instabilities. A method of smoothing the transition is being devised.

b. Developmental Assessment

The assessment of BEACON was being held up by bugs in the B-E correlations package. The problem setup is continuing. An effort was started to aid LASL in bringing BEACON up on their system. NRC-DSS is having LASL perform an independent assessment of BEACON. However, the LASL computer system is non-standard CDC and is therefore creating some problems in areas such as dynamic storage.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
L2, N3 Page 3-9	Issue PAR on Model Improvements	8-30-79	8-30-79E

5. Summary of Work to be Performed in August 1979

a. Code Development

The debug effort on the B-E package will be completed and use of the correlations will be checked out.

b. Developmental Assessment

With the completion of the B-E package, the assessment problems which have been set up will be run and analyzed per the BEACON Developmental Assessment Plan.

6. Problems and Potential Problems

None

1. 189a A6050 Fuel Behavior Model Development

2. Scheduled Milestones for July 1979

No scheduled milestones for July.

3. Summary of Work Performed in July 1979

a. FRAP-T

Work on FRAP-TRAC link was begun. Initial effort is to replace subroutine argument lists with common blocks.

b. FRAPCON-2

Continued dynamic dimensioning. Work on linking in MATPRO-11 continued. Changes to permit variable axial node length and geometry 90% complete. Work to permit arbitrary radial nodalization initiated. Prepared for trip to PNL for final coordination of PNL models in FRAPCON-2.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
36178 Page 2-15	Optimize Anisotropic Models - Issue Letter Report	8-23-79	To be slipped to FY-80

5. Summary of Work to be Performed in August 1979

a. FRAP-T

The short core FLECHT correlation will be incorporated and checked out.

Major effort will be in preparing FRAP-T for linking with the TRAC code. This includes removing all subroutine argument lists, replacing with common blocks and fully dynamic dimensioning.

b. FRAPCON-2

Continue dynamic dimensioning. Complete work on variable axial and radial nodalization. Complete dynamic dimensioning of AXISYM. Complete link with MATPRO-11.

Work on the FRACAS-2 fuel creep will continue in order to resolve excessive computation time difficulties as explained in PN-137-79. This work will be done in lieu of Node 36178 which will be slipped to FY 80.

6. Problems and Potential Problems

FRAP-T6 must be rescheduled to reflect WRAP support and TRAC link tasks.

101 908

1. 189a A6046 - Fuel Behavior Analysis Assessment (MATPRO)
2. Scheduled Milestones for July 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
37075 Page 2-13	Model Fuel Cladding Chemical Reaction	7-2-79	6-29-79C
37535 Page 2-13	Develop MATPRO-12	7-2-79	6-28-79C
N/S	Update Fuel Restructuring Model	N/S	7-6-79C

3. Summary of Work Performed in July 1979

- a. Update Fuel Properties for MATPRO-12

A description of the updated model for fuel restructuring was issued.

- b. Publish MATPRO-12 TREE Update

A detailed publication schedule was prepared with the Documentation Office. Review of the new and updated material was initiated.

- c. Update Cladding Models for MATPRO-13

A review of plastic deformation models was completed. No satisfactory models were found. We will have to go back to available "raw" data and revise the current MATPRO model.

4. Scheduled Milestones for August 1979

No scheduled milestones for August.

5. Summary of Work to be Performed in August 1979

- a. Publish MATPRO-12 TREE Update

A first draft of the document's introduction, description and the fuels section will be submitted to Management and then to the Documentation Office for technical review and scoping analysis.

b. Update Cladding Models to Include New Data Available July 1979 - June 1980

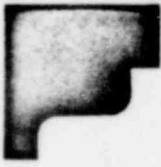
New "raw data" will be solicited from the University of Florida and PNL and an effort made to "back out" a stress-strain law with a new mechanical deformation code.

c. Update Gap Gas Models to Include New Data Available July 1979 - June 1980

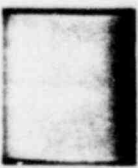
High temperature, low pressure data not previously considered in MATPRO will be analyzed for Knudsen Domain effects and incorporated into the GTHCON subcode.

6. Problems and Potential Problems

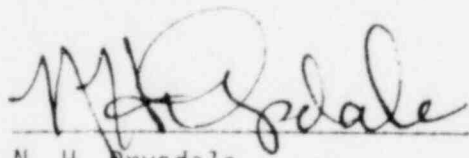
None



CA&AP



WRRD MONTHLY REPORT FOR
JULY 1979
CODE ASSESSMENT AND APPLICATIONS PROGRAM



N. H. Brysdale
Plans & Budget Representative

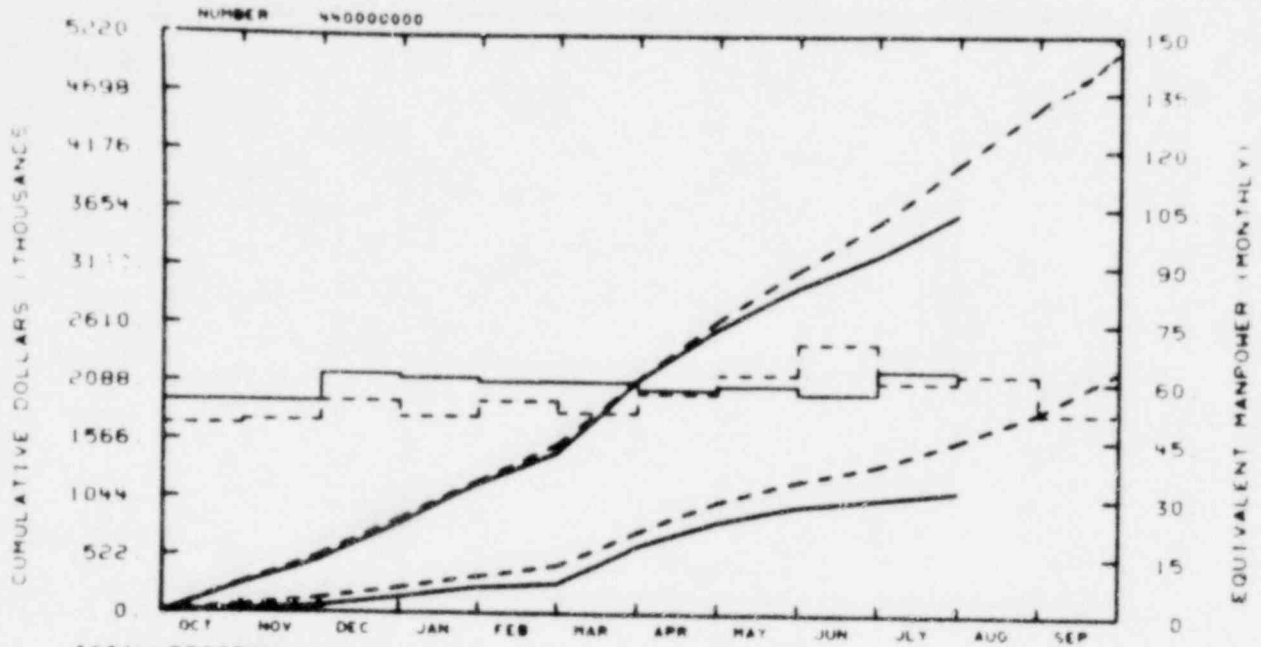


J. A. Dearien, Manager

CODE ASSESSMENT & APPLICATIONS PROGRAM
COST SUMMARY & COMMENTS

POOR
ORIGINAL

EG&G IDAHO INC.
 CODE ASSESSMENT & APPLICATIONS



TOTAL PROGRAM												
BUDGET	287	521	850	1191	1523	2108	2643	3173	3622	4008	4503	5045
ACTUAL	253	478	810	1188	1448	2100	2568	2945	3228	3609		

MATERIAL												
BUDGET	64	132	229	333	431	735	1012	1200	1340	1583	1823	2201
ACTUAL	32	61	148	234	289	611	831	973	1037	1101		

MANPOWER												
BUDGET	48	50	55	51	55	52	57	62	70	80	82	52
ACTUAL	55	55	62	61	60	60	58	59	57	63		

BUDGET
 - - - -
 ACTUAL

YTD VARIANCE: 399 (10%)

Individual cost graphs will give individual explanations.

The Fuel Code portion of A6046, Task 42571, is not reflected in the Code Assessment total as the major portion of A6046 is part of the TFBP.

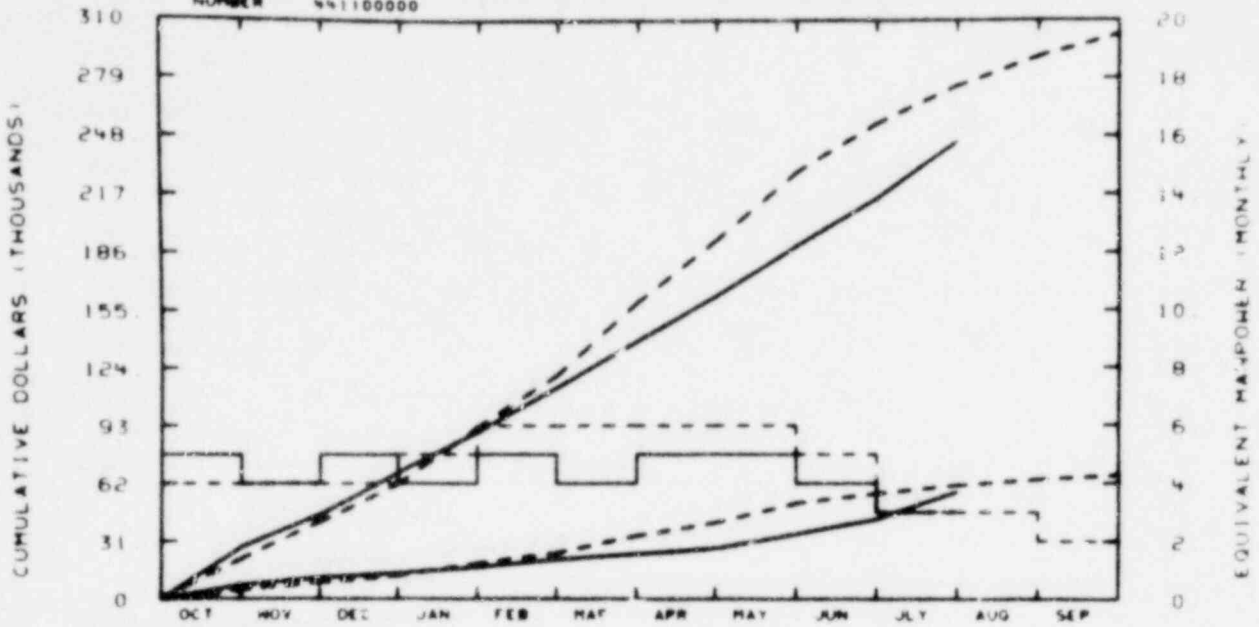
Explanations for major 189a's will be made if the variance exceeds \$25K. Minor 189a graphs will explain a variance of over \$10K.

POOR
 ORIGINAL

RESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC.
TECH SUR FOR NRC/INDUST COOP PRO

NUMBER 941100000



TOTAL PROGRAM

BUDGET	22	41	61	92	120	159	192	229	255	275	290	302
ACTUAL	28	45	68	89	113	138	182	189	215	245		

MATERIAL

BUDGET	5	9	12	18	24	34	41	51	56	61	64	66
ACTUAL	7	11	14	17	21	24	27	35	43	57		

MANPOWER

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

BUDGET

ACTUAL

A6039

YTD VARIANCE: 30 (11%)

There were continued delays in the Experimental Programs during the last quarter. These delays are now being compensated for where possible, thus the year end budget may not show an underrun.

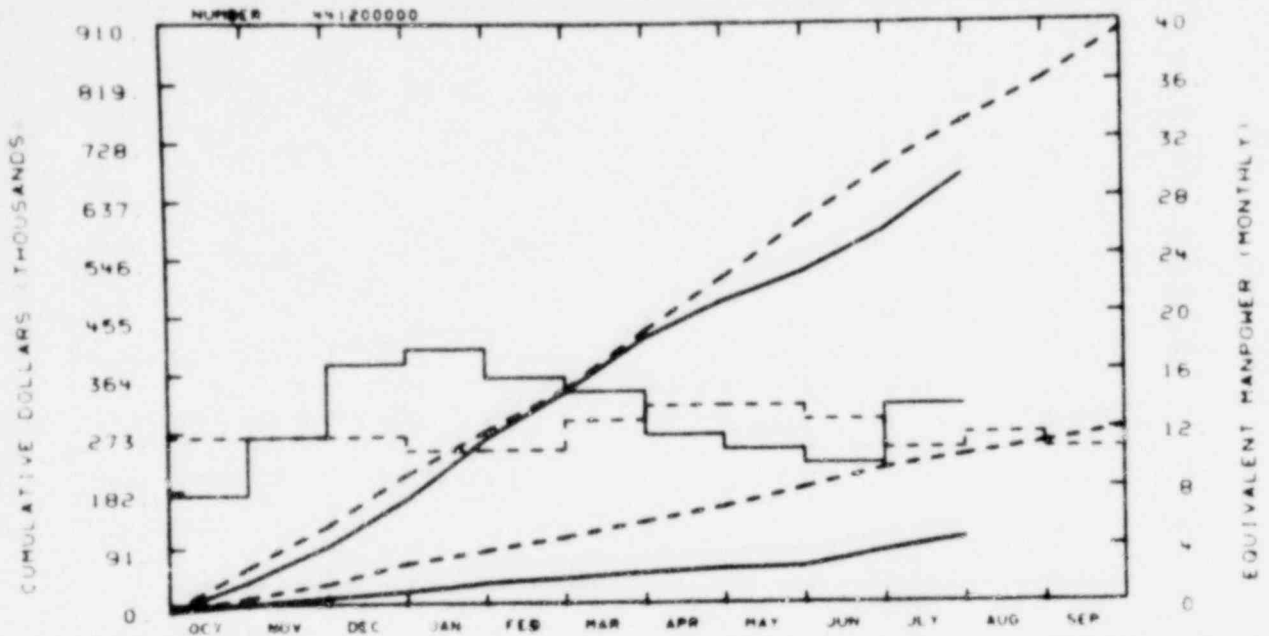
POOR
ORIGINAL

1009 107

1009 107

RESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC.
THERMAL HYDRAULIC CODE ASSESS



TOTAL PROGRAM												
BUDGET	68	133	212	280	343	435	518	608	691	782	827	904
ACTUAL	48	101	173	287	340	424	481	529	592	680		

MATERIAL												
BUDGET	20	41	72	92	112	137	159	189	219	238	257	278
ACTUAL	10	20	28	41	48	56	62	66	90	110		

MANPOWER												
BUDGET	12	16	12		11	13	14	14	11	11	12	11
ACTUAL	8	12	17	18	16	15	12	11	10	14		

BUDGET

ACTUAL

A6047

YTD VARIANCE: 82 (11%)

At NRC's request we have diverted three people to perform vendor audit calculation. This will result in a continued funding underrun and require a carryover of approximately 100K into FY-80.

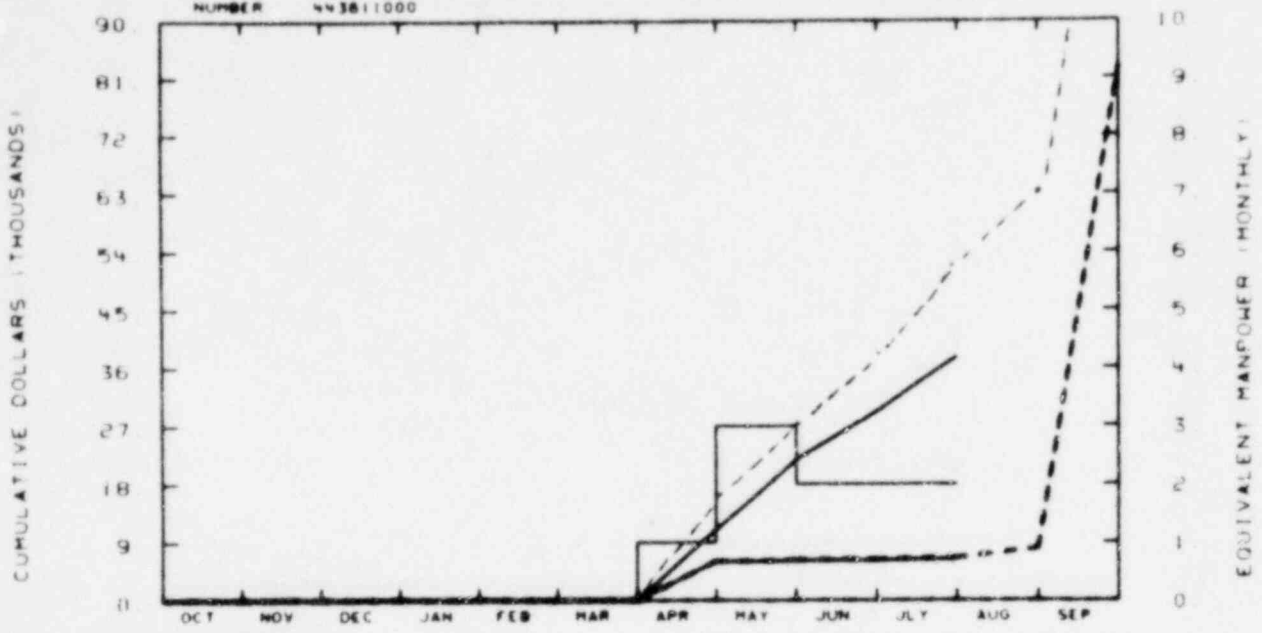
POOR
ORIGINAL

FDJ. (100)

RESPONSIBLE
MANAGER
J. A. DEAMTEN

EG&G IDAHO INC
STANDARD PROBLEM ANALY & HEAT TR

NUMBER 443811000



TOTAL PROGRAM												
BUDGET	0	0	0	0	0	0	17	28	39	51	64	150
ACTUAL	0	0	0	0	0	0	11	22	29	38		

MATERIAL												
BUDGET	0	0	0	0	0	0	6	6	6	7	8	83
ACTUAL	0	0	0	0	0	0	6	6	6	6		

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

BUDGET

ACTUAL

A6048B

YTD VARIANCE: 13 (25%)

This account has been underspent due to diversion of personnel to TMI-related work. It is expected that approximately \$90K will be carried into FY-80.

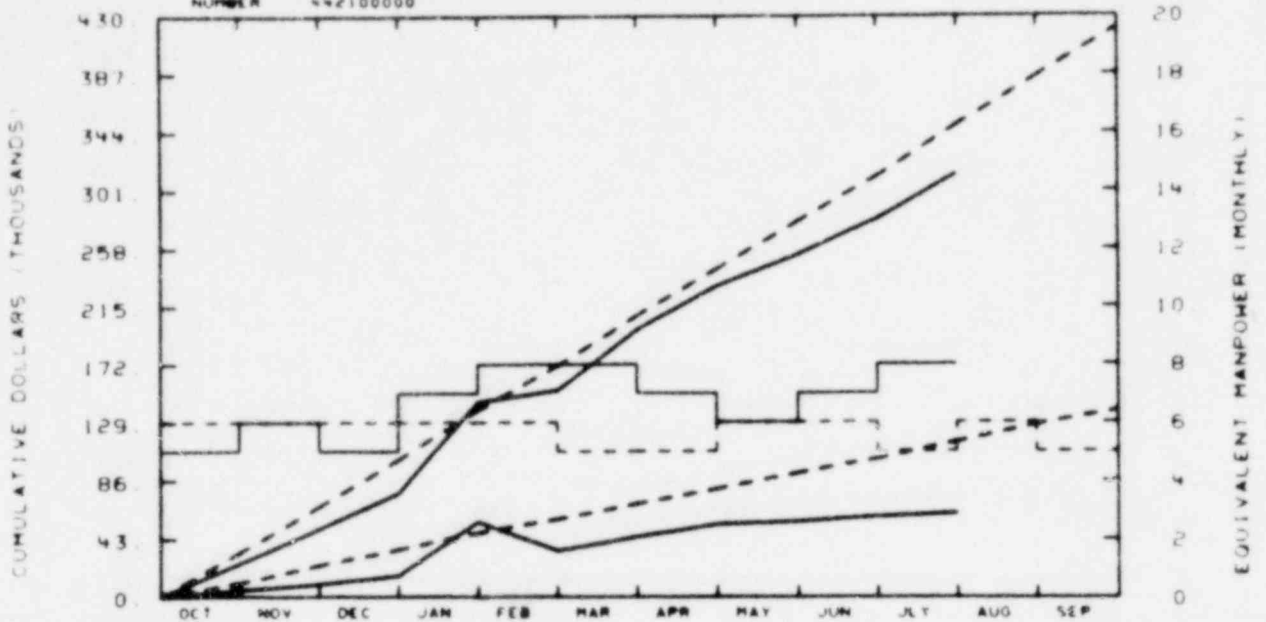
POOR ORIGINAL

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RESPONSIBLE
MANAGER
J. A. DEARIEH

EG&G IDAHO INC.
NRC/RSR DATA BANK & HEAT TRANS
NUMBER 442100000



TOTAL PROGRAM												
BUDGET	32	66	101	138	171	208	242	278	311	349	385	421
ACTUAL	24	50	78	144	152	187	230	253	280	313		

MATERIAL												
BUDGET	10	23	35	47	57	68	79	91	102	114	127	137
ACTUAL	5	9	15	55	34	44	53	55	59	61		

MANPOWER												
BUDGET	9	8	8	8	8	5	5	8	8	5	6	5
ACTUAL	5	8	5	7	8	8	7	8	7	8		

BUDGET

ACTUAL

A6102

YTD VARIANCE: 36 (10%)

Currently DBPS is being incorporated into ISDMS. Because of this reformation, there is an overall decrease in expenditures (\approx 36% or 40K). The target date for ISDMS completion is October 1. When ISDMS is available, integration of DBPS into ISDMS can be finalized. The current allotted funds will then be used.

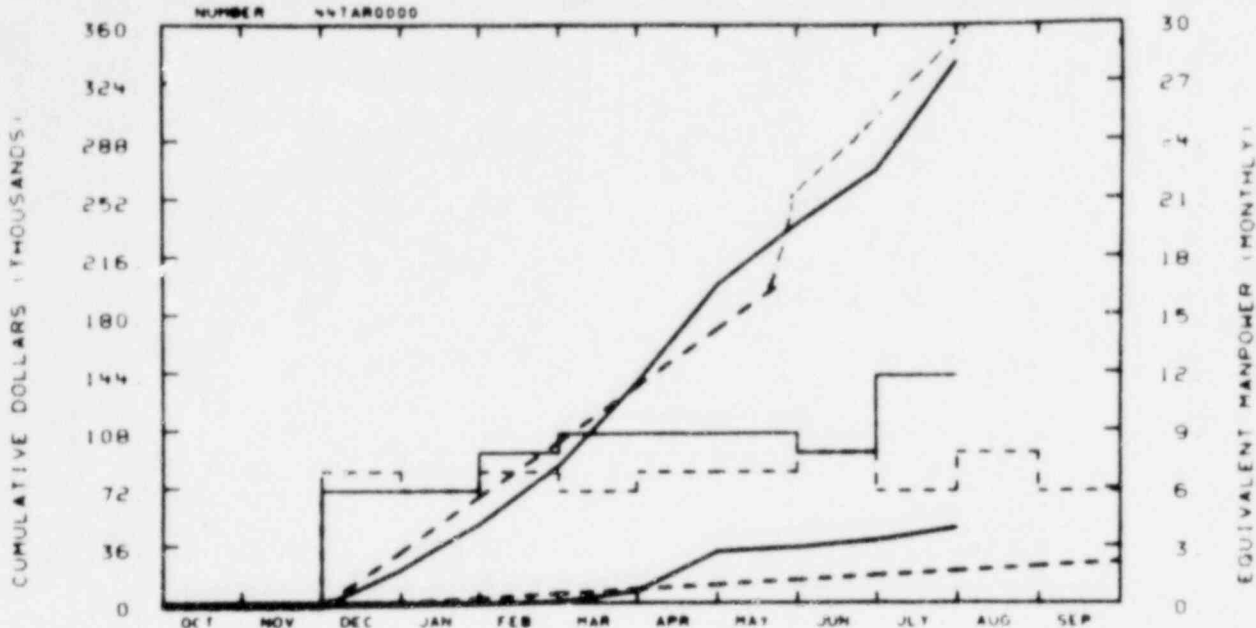
POOR
ORIGINAL

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1009 110

RESPONSIBLE
MANAGER
A. DEARIEN

EG&G IDAHO INC
LER EVALUATION PROGRAM



TOTAL PROGRAM

BUDGET	0	0	34	88	103	137	173	262	307	352	397	472
ACTUAL	0	0	22	51	88	140	200	239	272	339		

MATERIAL

BUDGET	0	0	2	5	8	11	13	16	19	22	25	28
ACTUAL	0	0	0	1	3	8	34	37	41	49		

MANPOWER

BUDGET	0	0	7	6	7	8	7	7	8	6	8	6
ACTUAL	0	0	6	6	8	9	9	9	8	12		

BUDGET

ACTUAL

A6276
A6285

YTD VARIANCE: 13 (4%)

This task has been somewhat understaffed, but the present spending rate should bring us close to budget by year's end.

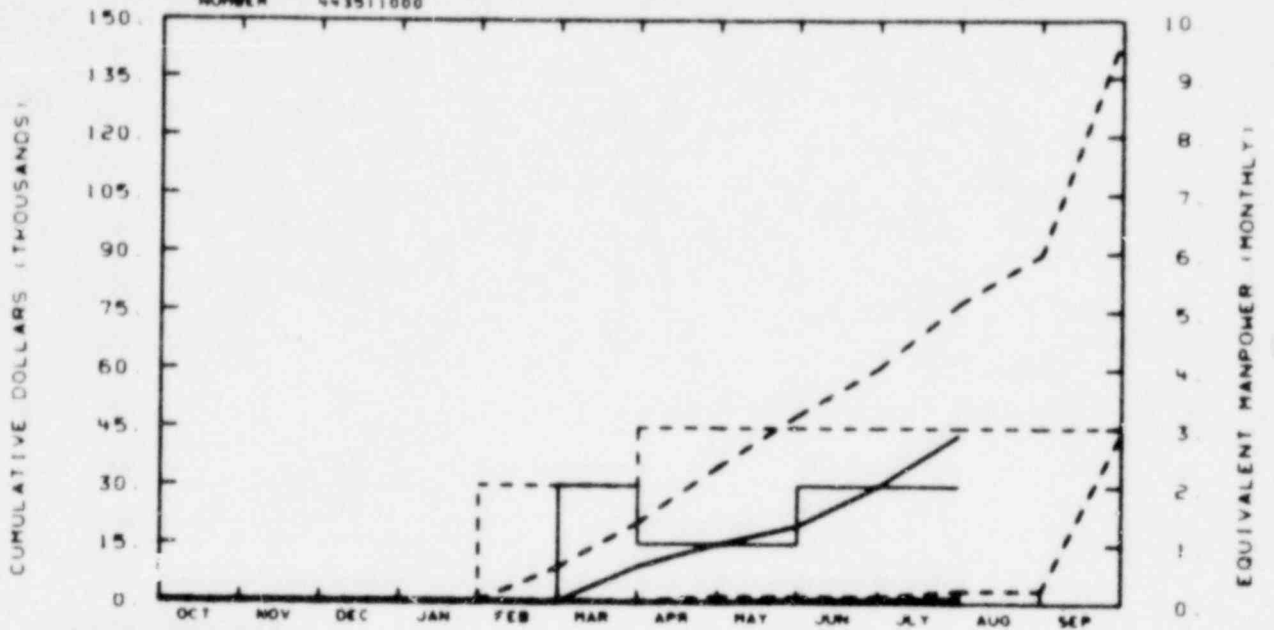
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ORIGINAL

1009 111

011 9001

RESPONSIBLE
MANAGER
J. A. DEARREN

EG&G IDAHO INC
PREP OF DOCUMENT FOR TAP-A1
NUMBER 443511000



TOTAL PROGRAM		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET		0	0	0	0	9	20	35	48	60	77	90	148
ACTUAL		0	0	0	0	0	9	15	20	30	43		

MATERIAL		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET		0	0	0	0	0	0	1	1	1	3	3	44
ACTUAL		0	0	0	0	0	0	0	1	1	1		

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

BUDGET

ACTUAL

A6279

YTD VARIANCE: 34 (44%)

This underspending is due largely to loss of personnel from March through May, and to the fact that \$50K is planned carryover. This task is now temporarily in limbo, pending redefinition by NRC. Also the principal contributor has been diverted to priority licensing work. Therefore, this account will carry over an estimated \$80-\$90K.

POOR
ORIGINAL

1009 112

CODE ASSESSMENT & APPLICATIONS PROGRAM
CAPITAL EQUIPMENT

POOR
ORIGINAL

1009 113

211 0001

EG&G IDAHO, INC.
CAPITAL EQUIPMENT PRIORITY LIST

CARRYOVER

Program CODE ASSESSMENT

189 Number A6102 (A6117)

Manager J. A. Dearien

Item Authorized
Money Committed
Equipment Received, Account Closed

Priority Number	EA No.	Item Description	Authorized Amount	July YTD Costs & Commit.	Project to Date	<Over>/<Under> Balance
	98500	ADPE Equipment	\$13,532	\$ 6,473	\$13,257	\$ 275

FY-78	O	N	D	J	F	M	A	M	J	J	A	S
●▲												

Carryover Budget	\$ 5,216
Adjustment	+1,532
YTD Costs & Commit.	<u>6,473</u>
BALANCE	<u>\$ 275</u>

1009 114

411 9001

EG&G IDAHO, INC.
CAPITAL EQUIPMENT PRIORITY LIST

FY-1979

Program CODE ASSESSMENT

189 Number A6102 (A6117)

Manager J. A. Dearien

Item Authorized
Money Committed
Equipment Received, Account Closed

Priority Number	EA No.	Item Description	Authorized Amount	July YTD Costs & Commitments	Over/Under Balance
	98924	Tektronix Graphic Tablet	\$ 8,468	--	\$ 8,468

	N	D	M	M	J	J	A	S

FY-79 Budget	\$ 10,000
Adjustment	- 1,532
YTD Costs & Commit.	- 0
BALANCE	\$ 8,468

1009 115

POOR
ORIGINAL

CODE ASSESSMENT & APPLICATIONS PROGRAM

TECHNICAL REVIEW & SUMMARY

1009 116

PROGRAM MANAGER'S
SUMMARY AND HIGHLIGHTS

The assessment effort has been reduced during the past month because of additional audit calculations requested by NRC. Audit calculations for Westinghouse and CE plants have been completed and several sensitivity calculations have been completed. Continuation of the audit calculations and support for TMI-2 analyses will further impact the assessment and Technical Support to NRC for Industry Cooperative Programs.

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

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Continued data comparisons for FLECHT-SEASET steam generator and TLTA Test 6406.

Continued study to compare predictive quality of RELAP4/MOD6 and RELAP4/MOD7 as applied to BWR Small Break Analysis.

Initiated study to determine the predictive quality of RELAP5 in modeling BWR Jet Pumps.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
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None scheduled (TLTA Tests 6006 and 6007 data comparison is being rescheduled from 8/17/79 to 11/4/79 in order to support BWR small break audit calculations).

5. Summary of Work to be Performed in August 1979

Continue effort defined in 3, above.

6. Problems and Potential Problems

None

1. A6047 - LOCA Analysis Assessment and Applications2. Scheduled Milestones for July 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
Page 3-15 Line 7, Node 5	2 Marviken Blind Test Predictions	7-15-79T	7-17-79C JAD-152-79
	CE Audit Calculations	7-23-79T	7-23-79C
	Westinghouse Audit Calculations	7-3-79T	7-3-79C

3. Summary of Work Performed in July 1979

Preparation of RELAP4/MOD6 assessment report addendum continued.

Calculations for Marviken test code-data comparisons were completed. Preparation of plots was initiated.

Test predictions for Marviken Tests 22 and 24 were prepared and issued, using RELAP4/MOD6 and RELAP5.

Three audit calculations for a CE plant were completed: 0.1 ft² cold leg break with auxiliary feed, and 0.02 ft² cold leg break with and without auxiliary feed.

A TRAC model for LOFT was renodalized and a calculation of a steady state for Test L2-3 was initiated.

A TRAC calculation of Semiscale Mod-1 Test S-03-A was initiated.

A TRAC model of a PWR was modified to decrease the total number of fluid cells to decrease the running time.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
	Run 5 - Additional Marviken Critical Flow Tests (Ltr Rpt)	8-21-79T	
	Issue Westinghouse PAR	8-14-79T	

5. Summary of Work to be Performed in August 1979

Work on Marviken report will be completed.

Preparation of graphics for topical addendum will be completed.

Complete report on Marviken Critical Flow tests.

Complete TRAC calculation of Semiscale Mod-1 Test S-03-A.

TRAC PWR calculations will be continued.

TRAC calculations of LOFT Test L2-3 will be completed.

Three additional Westinghouse audit calculations will be completed.

6. Problems and Potential Problems

The conversion of the CYBER system will restrict the available computer time during the last week in August and first half of the month of September.

151 0001

1009 120

1. A6102 - Data Bank Processing System

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Work continued in early July on debugging DBPS Mod-5 to execute under Operating System 481. Review of the ISDMS software was made, and the decision reached to implement ISDMS instead of DBPS. An NCR was written and Buff Book nodes changed to reflect this decision.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
Page 1-27 Line 6, Node 5 Procedure	Issue Final	8-1-79T	

5. Summary of Work to be Performed in August 1979

Work will continue on development of ISDMS and Data Bank data reformatting to be compatible with the ISDMS format. The procedures will be reviewed to update them to reflect the switch to ISDMS software.

6. Problems and Potential Problems

None

OSI 0001

1009 121

I-661 LER EVALUATION PROGRAM

1. A6276 - LER Evaluations Program and A6283 - Common Cause Statistical Modeling

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Completed preliminary report on diesel generator.

Completed a second update to the preliminary valve report.

Commenced working on a final pump report.

Commenced working on a final control rod report.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

Continue modifications to the following reports preparatory to their issue as NUREG documents:

Pump report

Control rod drive report

Diesel generator report

Valve report

6. Problems and Potential Problems

None

1. I-689 Task A6048B - Standard Problem Analysis & Heat Transfer Assistance

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Prepared material for CSNI workshop presentations (Standard Problems).

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
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DA34	ISP8 Preliminary Comparison Report	8-1-79T	6-28-79C JAD-132-79
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5. Summary of Work to be Performed in August 1979

Continue preparation for CSNI workshop.

6. Problems and Potential Problems

None

1. Task A6279 - Preparation of Documents for TAP A-12. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Completed draft of summary report on water hammer. Discontinued SRP effort pending instructions from NRC. Initiated revisions to CAAP-TR-042, "Review and Evaluation of Actual and Potential Water Hammer Events in Nuclear Plants" to include NRC comments. Whereas the original work and documentation were done under A6251, all modifications to the report are being charged to A6279.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
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KA2	Task 1-2 Water Hammer Summary Report	8-1-79T	8-1-79C JAD-159-79
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KA3	Prepare TREE Report Management Review	8-31-79	
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5. Summary of Work to be Performed in August 1979

The SRP modification task will be resumed when NRC clarifies their needs.

The revisions to CAAP-TR-042 will be completed.

6. Problems and Potential Problems

In the event that O. M. Hanner is temporarily assigned to work on an NRC licensing task force, schedule slippages may result.

1. Task A6285 - HDR Mechanical Component Response Analysis Testing2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Current models (by ANCO and LLL) were reviewed. Significant non-linear aspects of the reactor system and non-linear modeling techniques were identified.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

Non-linear aspects will be incorporated into ANSYS model.

The ADINA model will be developed.

6. Problems and Potential Problems

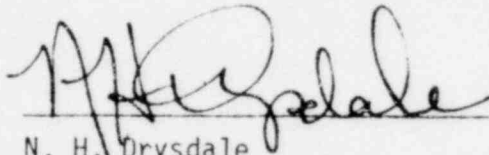
ANSYS will be run on CYBERNET. This is new to us and thus a possible problem.

Arrangements for running ADINA are not firm after September 1 due to planned CDC change which is a possible problem.

CD&AP/CA&AP (NRR)

1009 126

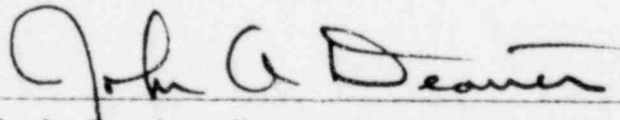
WRRD MONTHLY REPORT FOR
JULY 1979
CODE DEVELOPMENT AND ANALYSIS PROGRAM
CODE ASSESMENT AND APPLICATIONS PROGRAM
(NRR)



N. H. Drysdale
Plans & Budget Representative



P. North, Manager
Code Development and Analysis Program



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

POOR
ORIGINAL

POOR
ORIGINAL

CODE DEVELOPMENT & ANALYSIS PROGRAM

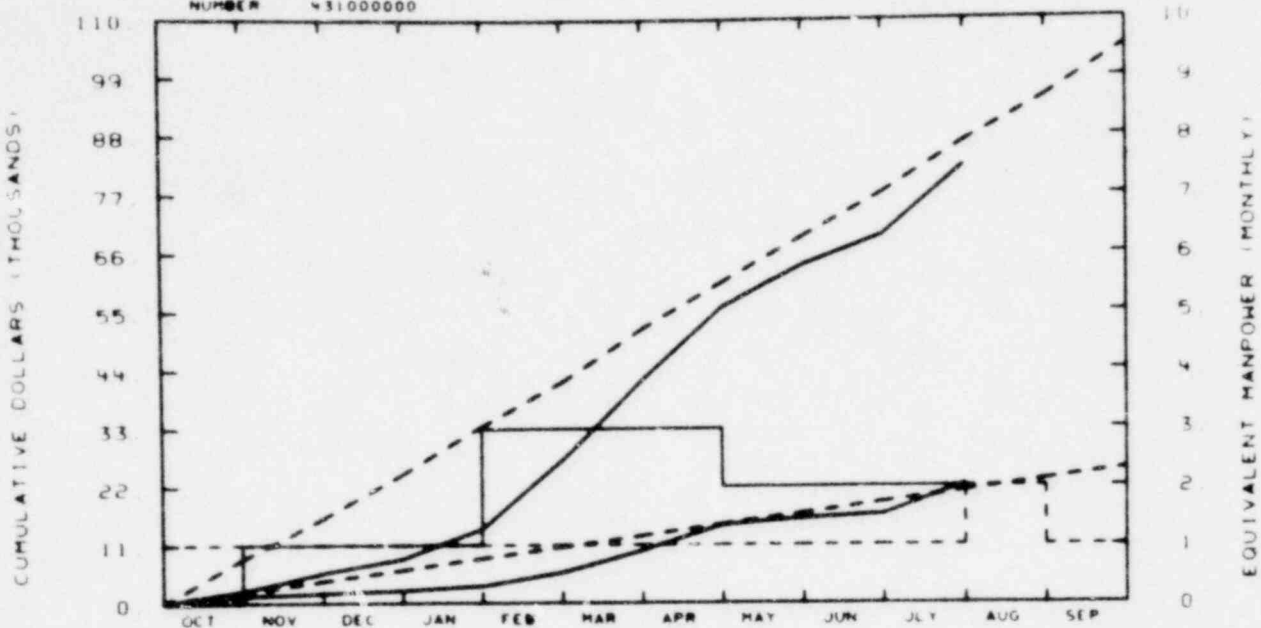
NRR

COST SUMMARY & COMMENTS

1009 128

EC&G IDAHO INC.
 CONTAINMENT ANALYSIS

NUMBER 431000000



TOTAL PROGRAM

BUDGET	8	16	24	33	42	52	60	69	77	87	95	105
ACTUAL	2	6	8	14	27	42	56	64	69	82		

MATERIAL

BUDGET	2	4	6	8	11	13	15	17	19	21	23	25
ACTUAL	1	2	2	3	6	10	15	16	17	22		

MANPOWER

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

BUDGET
 - - - -
 ACTUAL

A6009

YTD VARIANCE: 4 (5%)

POOR
 ORIGINAL

POOR
ORIGINAL

CODE DEVELOPMENT & ANALYSIS PROGRAM
NRR
TECHNICAL REVIEW & SUMMARY

1009 130

PROGRAM MANAGER'S
SUMMARY AND HIGHLIGHTS

Modifications to CONTEMPT4/MOD2A were started to allow performance of an ice condenser study.

1. 189a A6009 - Containment Analysis

2. Scheduled Milestones for July 1979

No scheduled milestones for July.

3. Summary of Work Performed in July 1979

An effort was started and completed to aid the NRC in debugging CONTEMPT-LT/028.

Modifications to CONTEMPT4/MOD2A were started to perform the NRC requested ice condenser study.

The CONTEMPT4/MOD2A tape was transmitted to the NRC.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
BG11	Develop, Add, and Check Out Restart Capability	8-1-79	8-15-79E
BG40	Begin MOD3 Formal Users Manual Preparation	8-1-79	8-1-79E
BG21	Ice Condenser Study	8-15-79	8-15-79E
BG61	Ice Condenser Analysis	8-15-79	8-15-79E

5. Summary of Work to be Performed in August 1979

The restart model will be implemented and the ice condenser study and analysis will be completed. Work will also begin on the MOD3 users manual.

6. Problems and Potential Problems

None

POOR
ORIGINAL

CODE ASSESSMENT & APPLICATIONS PROGRAM

NRR

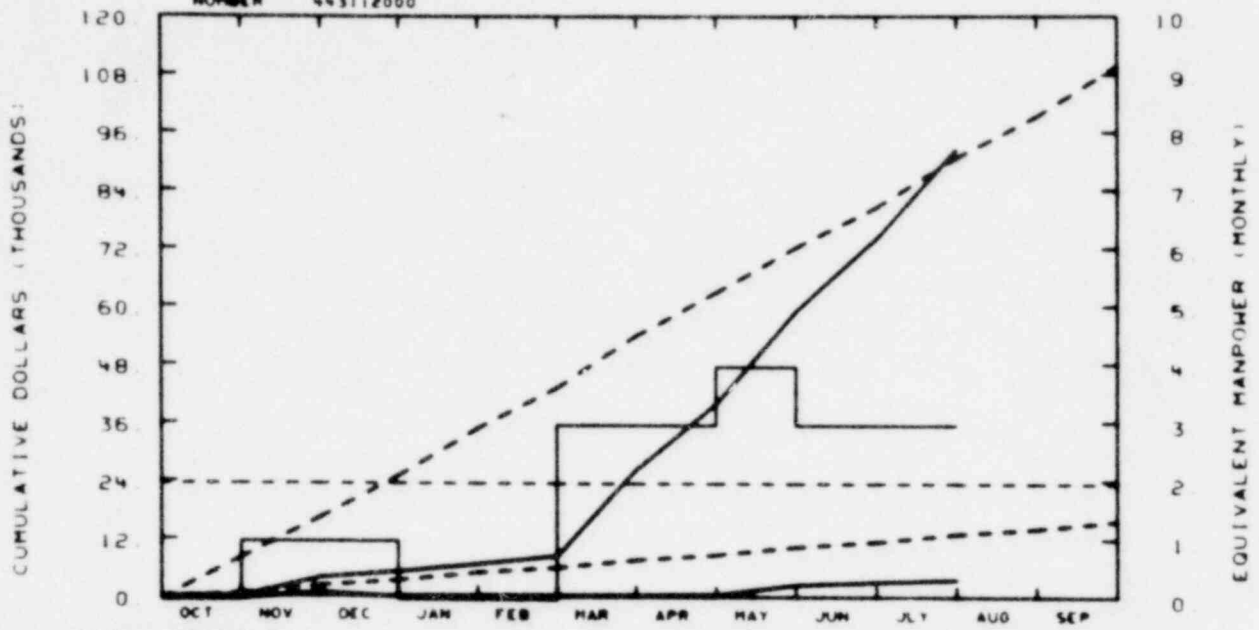
COST SUMMARY & COMMENTS

1009 133

RESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC.
FAILURE MODES ANALYSIS

NUMBER 443112000



TOTAL PROGRAM

BUDGET	0	17	25	35	44	54	63	73	81	91	100	110
ACTUAL	1	4	8	7	9	27	40	59	75	93		

MATERIAL

BUDGET	1	3	4	5	7	8	9	11	12	14	15	16
ACTUAL	0	1	0	1	1	1	1	3	4	4		

MANPOWER

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

BUDGET

ACTUAL

A6025

YTD VARIANCE: <2> (3%)

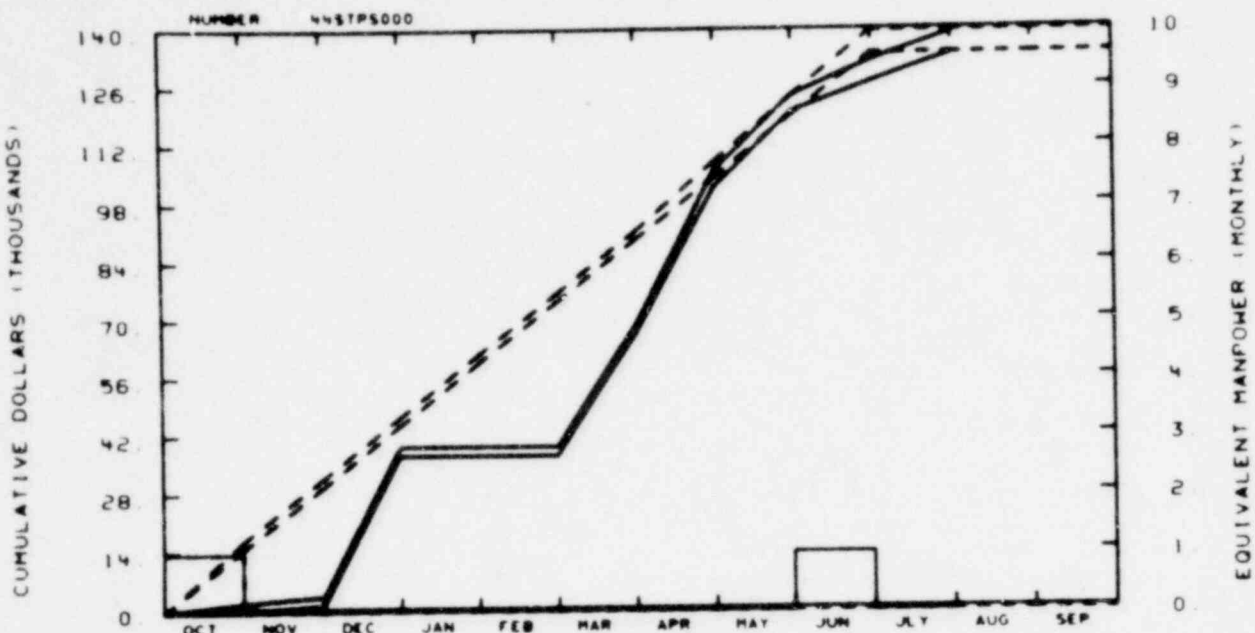
POOR
ORIGINAL

1009 134

1009 134

RESPONSIBLE
MANAGER
A. DEARIEN

EG&G IDAHO INC
ULTRA TESTING CLASS 1&II PIPING



TOTAL PROGRAM

BUDGET	17	32	47	62	77	92	108	124	140	140	140	140
ACTUAL	2	4	40	40	40	69	106	124	133	139		

MATERIAL

BUDGET	15	30	45	60	75	90	105	120	134	134	134	134
ACTUAL	0	2	38	58	58	67	102	120	128	134		

MANPOWER

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

BUDGET

ACTUAL

A6135

YTD VARIANCE: 1

POOR ORIGINAL

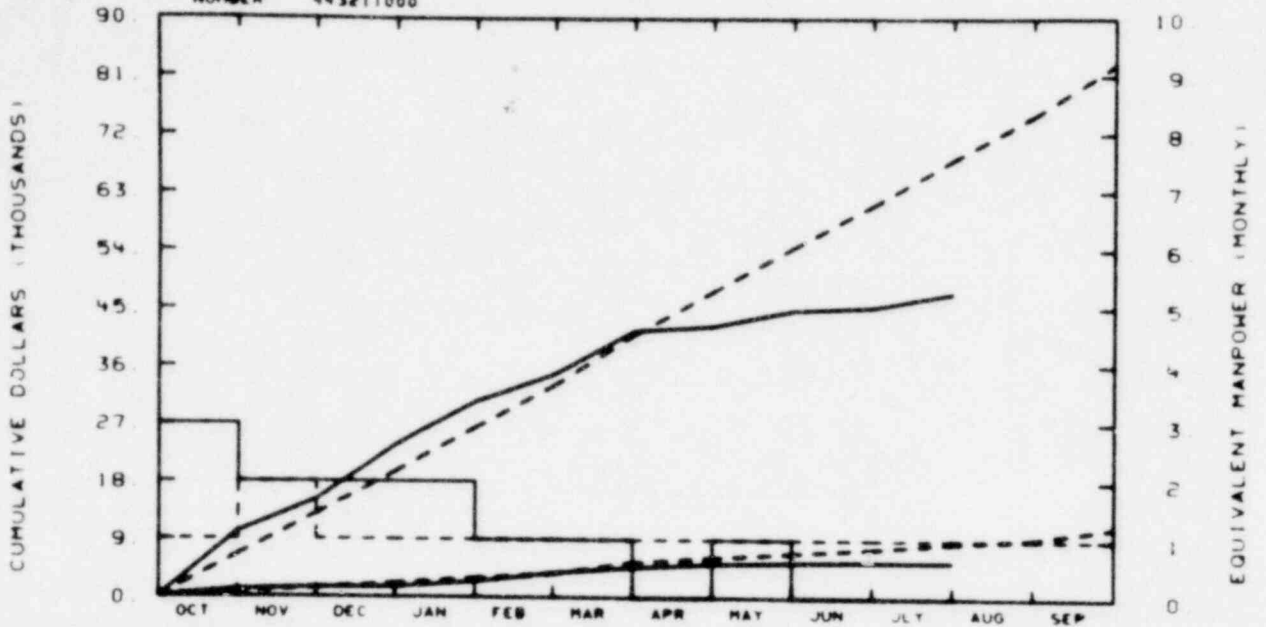
1009 135

A61 001

RESPONSIBLE
MANAGER
J A DEARIEN

EG&G IDAHO INC.
PWR/BWR PRIM SYS RESP ANAL-LOCA

NUMBER 443211000



TOTAL PROGRAM												
BUDGET	7	13	19	26	33	41	48	54	61	68	75	83
ACTUAL	10	15	24	30	35	41	42	45	45	47		

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

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

BUDGET
- - - -
ACTUAL

A6152

YTD VARIANCE: 21 (30%)

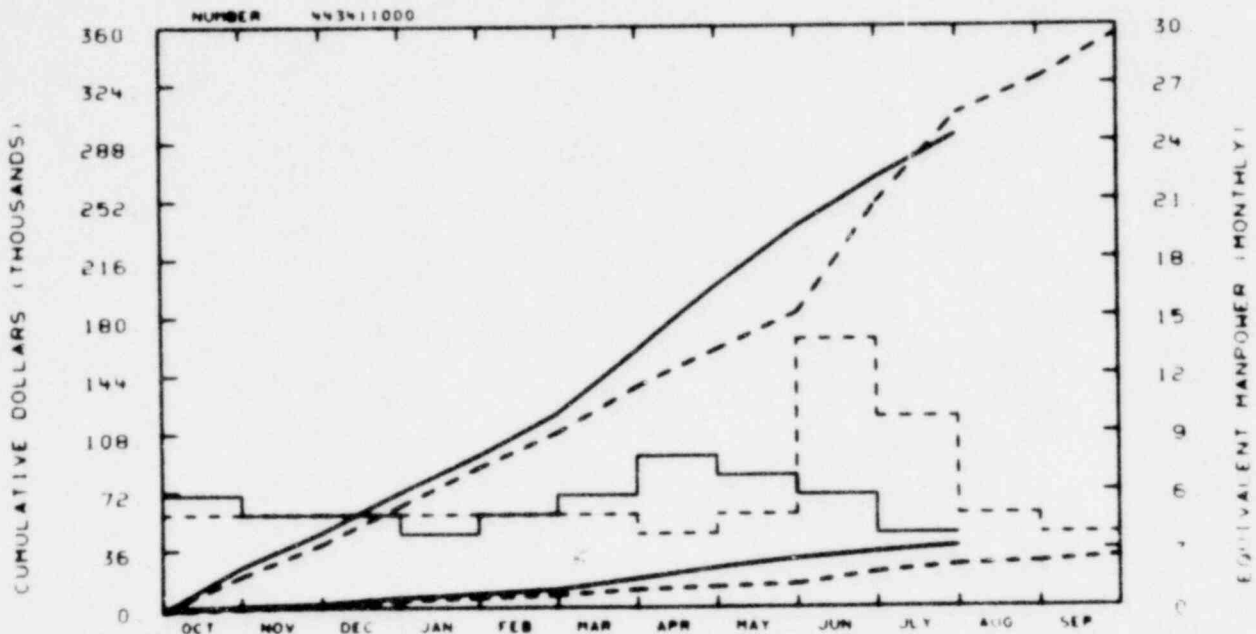
The reason for this under expenditure is diversion of personnel to the Closed Plant Analysis. This account will be underspent approximately \$25K at year's end.

POOR ORIGINAL

1009 136

RESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC.
TECH ASST ON ASYMMETRIC LOCA LOA



TOTAL PROGRAM

BUDGET	22	41	65	89	110	138	161	184	252	307	329	356
ACTUAL	28	48	73	96	122	161	201	237	287	294		

MATERIAL

BUDGET	2	3	7	8	10	13	15	18	24	28	30	33
ACTUAL	1	5	8	11	13	20	27	32	38	40		

MANPOWER

BUDGET	2	3	7	8	10	13	15	18	24	28	30	33
ACTUAL	2	3	7	8	10	13	15	18	24	28	30	33

A6156

YTD VARIANCE: 13 (4%)

This under expenditure is due to diverting personnel to the Closed Plant Analysis. It is expected that \$10K will be carried over into FY-80.

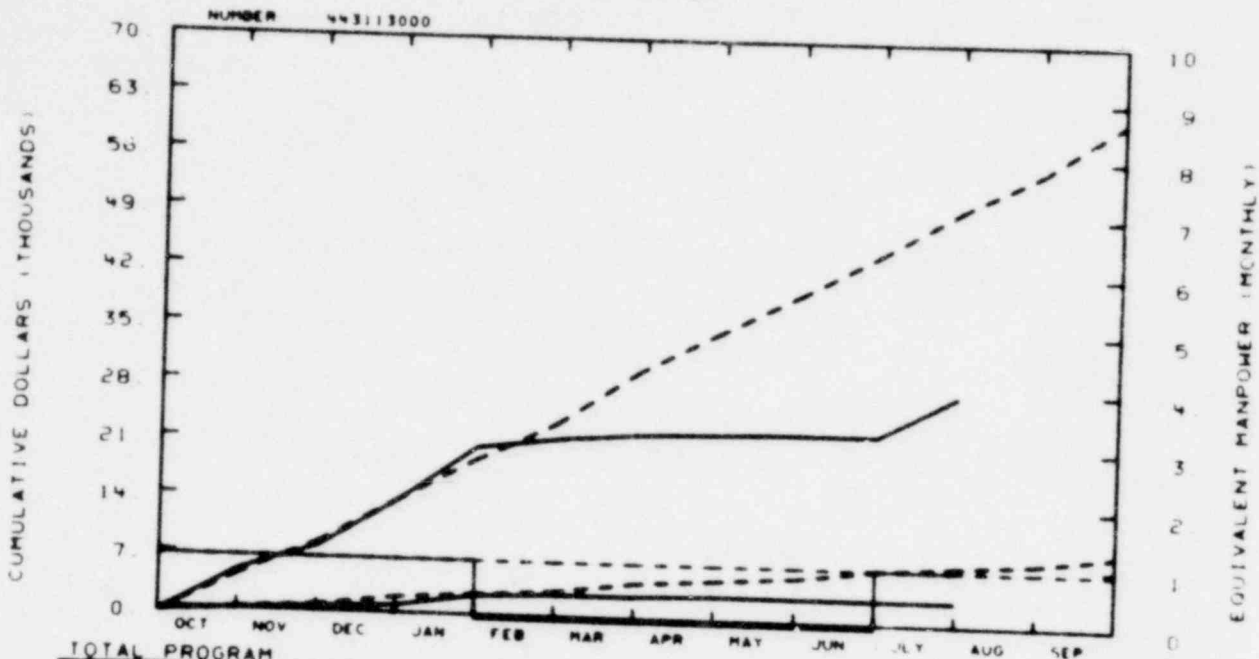
POOR ORIGINAL

1009 137

1009 137

RESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC
FUEL ASSEM SEISMIC & LOCA RESPON



TOTAL PROGRAM												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET	5	8	14	19	24	30	35	40	45	50	55	61
ACTUAL	5	8	14	21	22	23	23	23	23	28		

MATERIAL												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET	1	1	2	3	3	5	5	6	7	7	8	9
ACTUAL	1	1	1	1	1	1	1	1	1	1		

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

A6157

YTD VARIANCE: 22 (44%)

There was little activity on this task during February through June due to assignment of personnel to the Closed Plant Analysis and due to late receipt (7/79) of the CE and B&W topicals to be reviewed. It is expected that this account will be underspent by about \$25K at year's end.

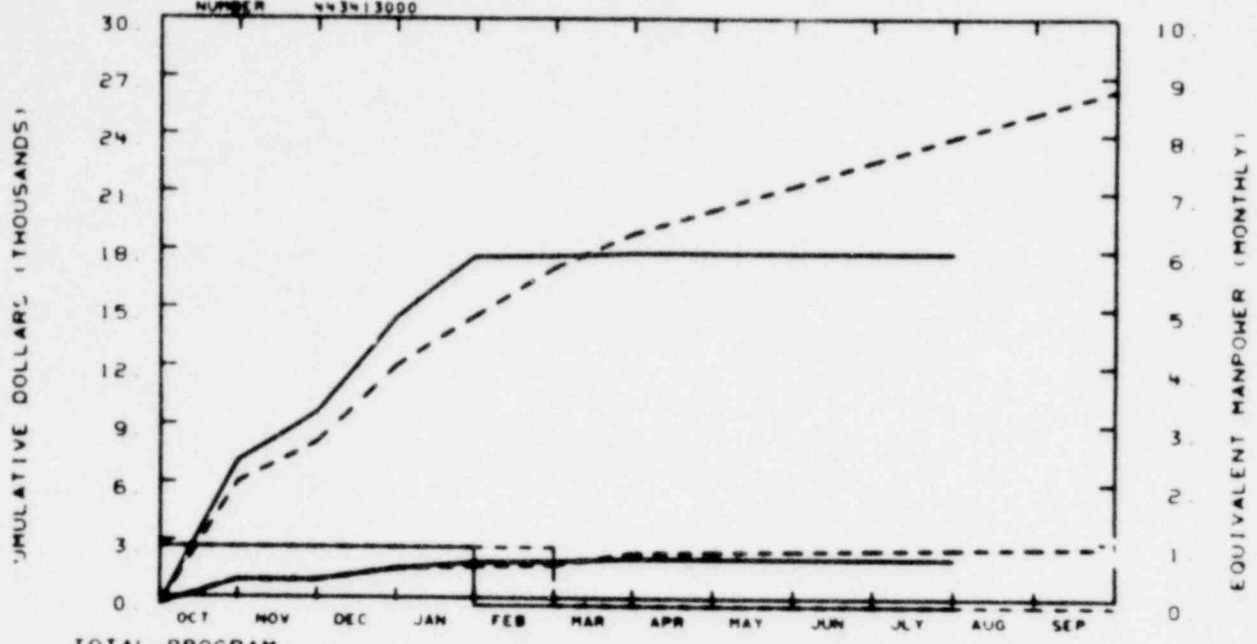
POOR ORIGINAL

1009-138

RESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC.
ONCALL ASST AT OPERATING LWRS

NUMBER 443413000



TOTAL PROGRAM

BUDGET	0	0	12	15	17	19	20	22	23	24	25	27
ACTUAL	7	10	15	19	19	19	19	19	19	19		

MATERIAL

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

MANPOWER

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

BUDGET

ACTUAL

A6159

YTD VARIANCE: 6 (25%)

All remaining funds are allocated to On-Call Assistance, as requested by NRC.

POOR
ORIGINAL

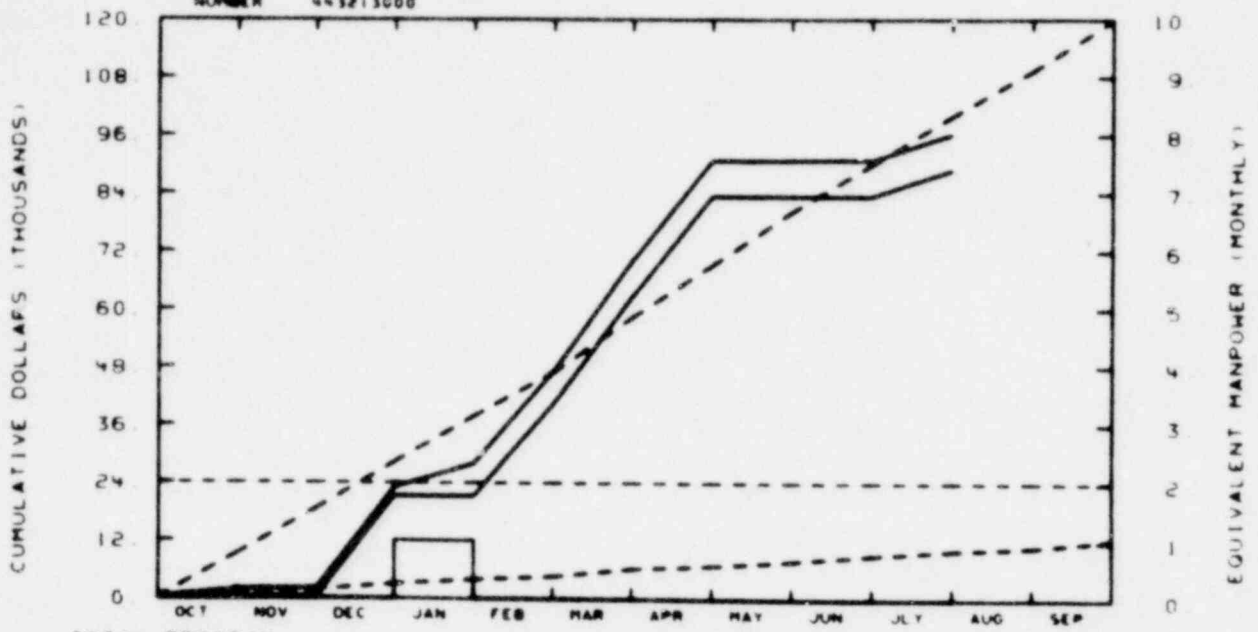
1009 139

1009 138

RESPONSIBLE
MANAGER
J. A. DE/RIEN

EG&G IDAHO INC.
IN-SERVICE INSPECTION

NUMBER 443213000



TOTAL PROGRAM		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		0	18	28	38	47	58	69	80	90	100	108	120
ACTUAL		2	2	23	28	47	70	91	91	91	96		

MATERIAL		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		1	2	3	4	5	6	7	8	9	10	11	12
ACTUAL		0	0	21	21	40	63	83	83	83	89		

MANPOWER		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP
BUDGET		2	2	2	2	2	2	2	2	2	2	2	2
ACTUAL		0	0	0	1	0	8	0	0	0	0		

BUDGET

ACTUAL

A6162

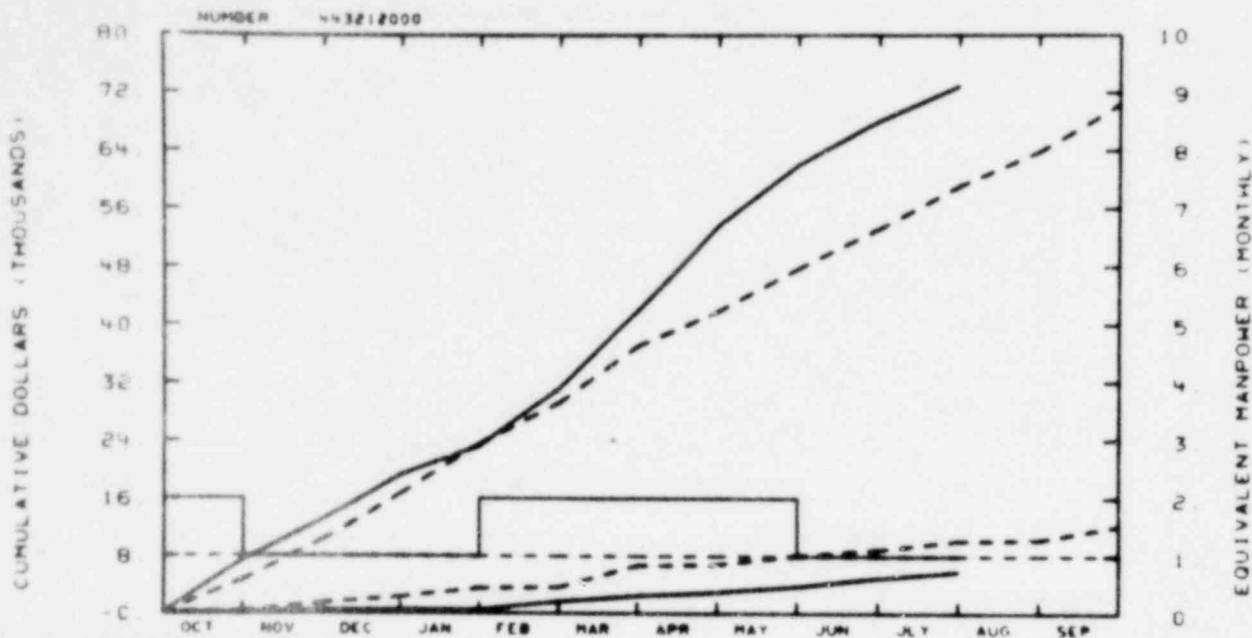
YTD VARIANCE: 4 (4%)

POOR
ORIGINAL

TAI 2001

RESPONSIBLE
MANAGER
J. A. DEARREN

EG&G IDAHO INC.
FRACTURE TOUGHNESS CRITERIA



TOTAL PROGRAM

BUDGET	5	10	17	23	29	37	42	48	53	59	64	70
ACTUAL	7	13	19	23	31	42	54	62	69	73		

MATERIAL

BUDGET	0	1	2	3	4	7	7	9	9	10	10	12
ACTUAL	0	0	0	0	2	2	3	4	5	6		

MANPOWER

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

BUDGET

ACTUAL

A6166

YTD VARIANCE: <14> (24%)

All work on this task has been completed. An accounting transfer is in progress to bring this account back on budget.

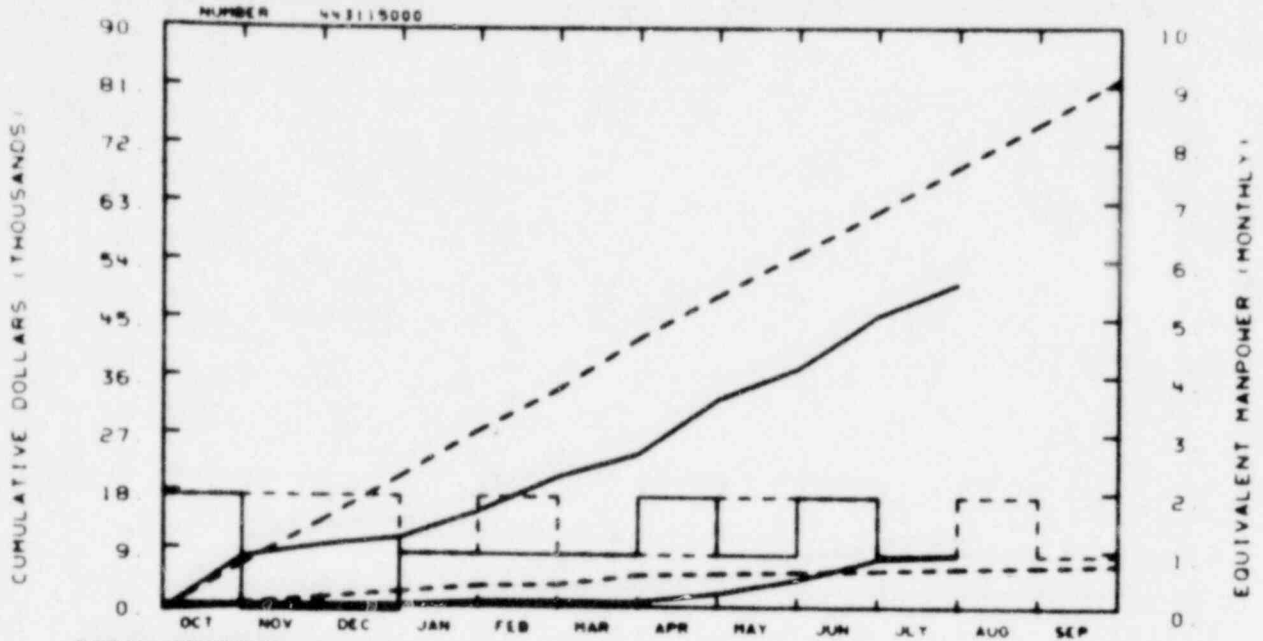
POOR ORIGINAL

1009 141

041 9001

EG&G IDAHO INC
FUEL PERFORMANCE CODE APPLICA

NUMBER 443115000



TOTAL PROGRAM

BUDGET	7	14	21	28	35	43	49	56	62	69	76	83
ACTUAL	8	10	11	18	21	25	33	39	46	51		

MATERIAL

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

MANPOWER

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

BUDGET

ACTUAL

A6167

YTD VARIANCE: 18 (26%)

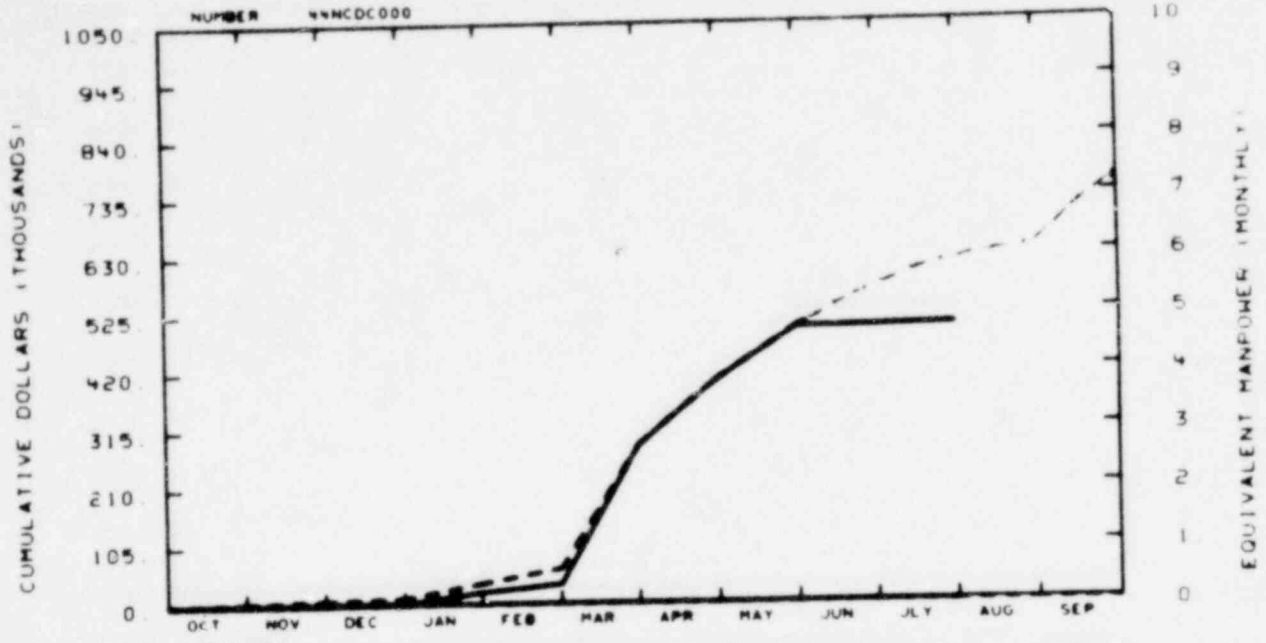
This program was underspent while waiting for NRC's recommendations on FRAPCON models and information from the vendors for sensitivity studies. It is expected that approximately \$20K will be carried over into FY-80.

POOR ORIGINAL

EAI POOI

RESPONSIBLE
MANAGER
J. GUTTMAN (NRC)

EG&G IDAHO INC.
NRC USE OF INEL CDC



TOTAL PROGRAM

BUDGET	4	8	11	37	63	286	404	500	560	565	632	745
ACTUAL	1	1	2	21	36	286	405	499	500	503		

MATERIAL

BUDGET	4	8	11	37	63	286	404	500	560	723	885	1045
ACTUAL	1	1	2	21	36	285	404	497	498	502		

MANPOWER

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

BUDGET

ACTUAL

A6209

YTD VARIANCE: 62 (11%)

This 189a is for NRC computer usage. The variance is controlled by NRC.

POOR ORIGINAL

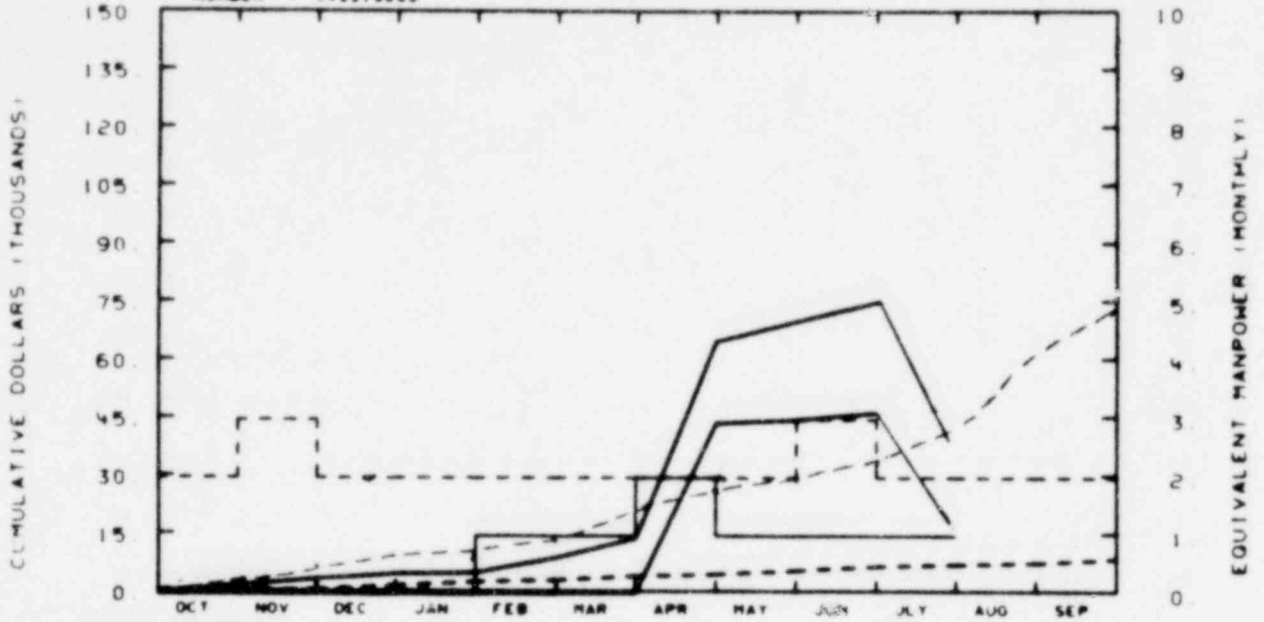
1009 143

541 9001

RESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC.
ENG SUPPORT FOR PIPE BK INSI CON

NUMBER N43313000



TOTAL PROGRAM		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET		3	5	7	7	10	20	25	30	37	42	63	71
ACTUAL		2	4	5	5	8	14	65	70	75	39		

MATERIAL		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET		0	1	2	3	3	5	5	6	7	8	8	8
ACTUAL		0	0	0	0	0	0	44	45	47	15		

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

BUDGET

ACTUAL

A6250

YTD VARIANCE: 3 (7%)

POOR
ORIGINAL

241 9001

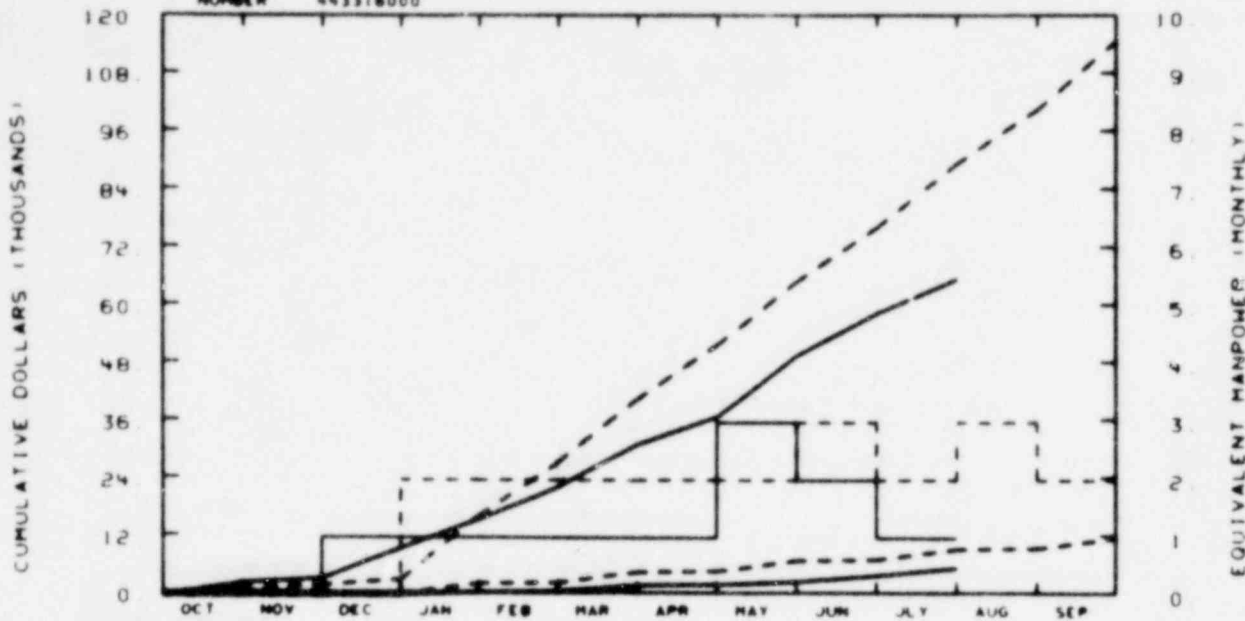
1009 144

RESPONSIBLE
MANAGER
J A DEARIEN

EO&G IDAHO INC

EICS SUPPORT

NUMBER 443318000



TOTAL PROGRAM												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET	1	2	3	16	28	41	52	65	78	90	101	115
ACTUAL	2	3	10	16	22	31	37	50	59	66		

MATERIAL												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BUDGET	0	0	0	2	3	5	5	7	7	10	10	12
ACTUAL	0	0	0	1	1	2	2	3	4	6		

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

BUDGET

ACTUAL

A6256

YTD VARIANCE: 24 (25%)

This account was understaffed until May, when a second full-time person was added. We expect to be approximately \$30K underspent at year's end.

POOR ORIGINAL

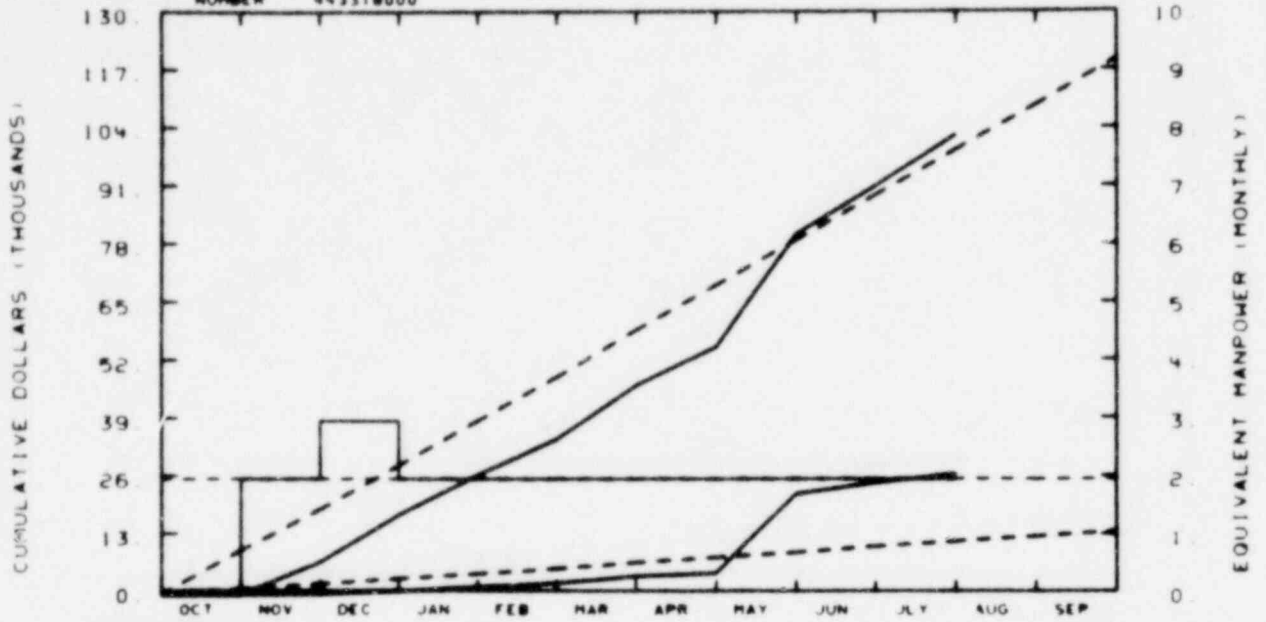
AAI 4001

1009 145

RESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC.
SYSTEMS ENGR SUPPORT

NUMBER 443318000



TOTAL PROGRAM												
BUDGET	10	18	28	39	49	59	69	79	89	100	110	120
ACTUAL	0	7	18	27	35	47	55	81	92	103		

MATERIAL												
BUDGET	1	2	3	5	6	7	8	9	11	12	13	14
ACTUAL	0	0	1	2	2	4	5	23	25	27		

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

BUDGET

ACTUAL

A6258

YTD VARIANCE: <3> (3%)

POOR
ORIGINAL

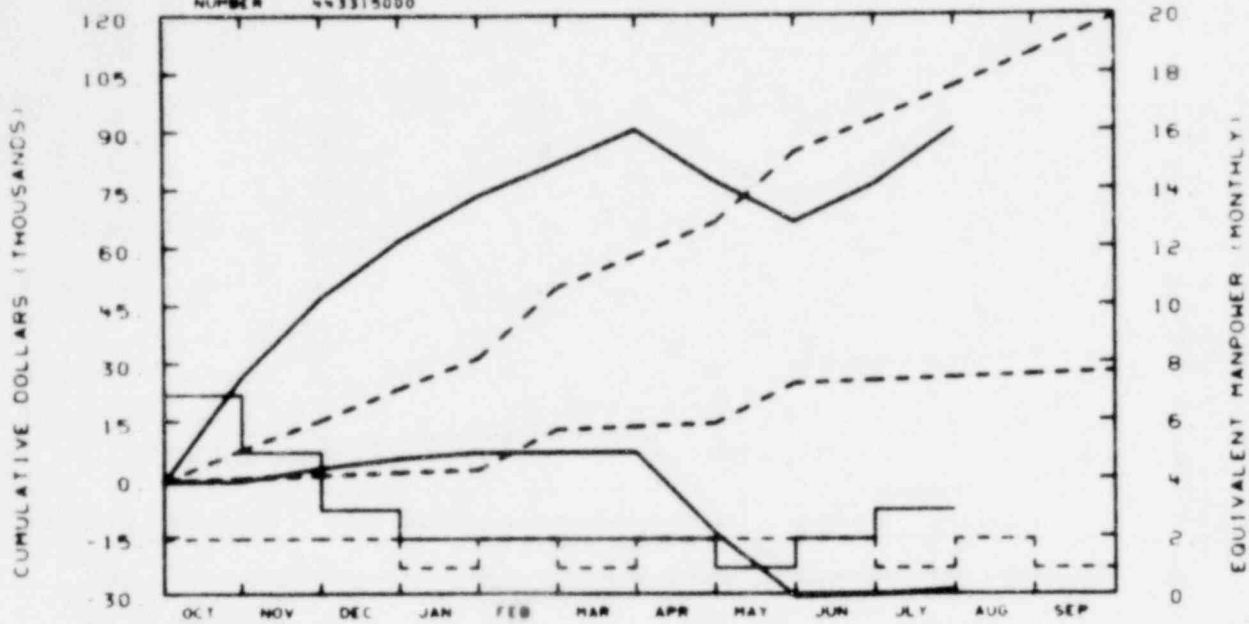
741 9001

1009 146

RESPONSIBLE
MANAGER
A. DEARLEN

EO&G IDAHO INC.
EICS SUPPORT FOR SEP

NUMBER 443315000



TOTAL PROGRAM

BUDGET	0	18	24	32	50	59	67	85	94	102	111	120
ACTUAL	27	48	63	74	83	91	78	67	77	91		

MATERIAL

BUDGET	1	2	2	3	13	14	15	25	26	27	28	28
ACTUAL	0	3	6	9	9	9	-12	-29	-28	-27		

MANPOWER

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

BUDGET

ACTUAL

A6260

YTD VARIANCE: 11 (11%)

This work was understaffed early in the fiscal year. We expect to underspend this account by approximately \$10K.

POOR ORIGINAL

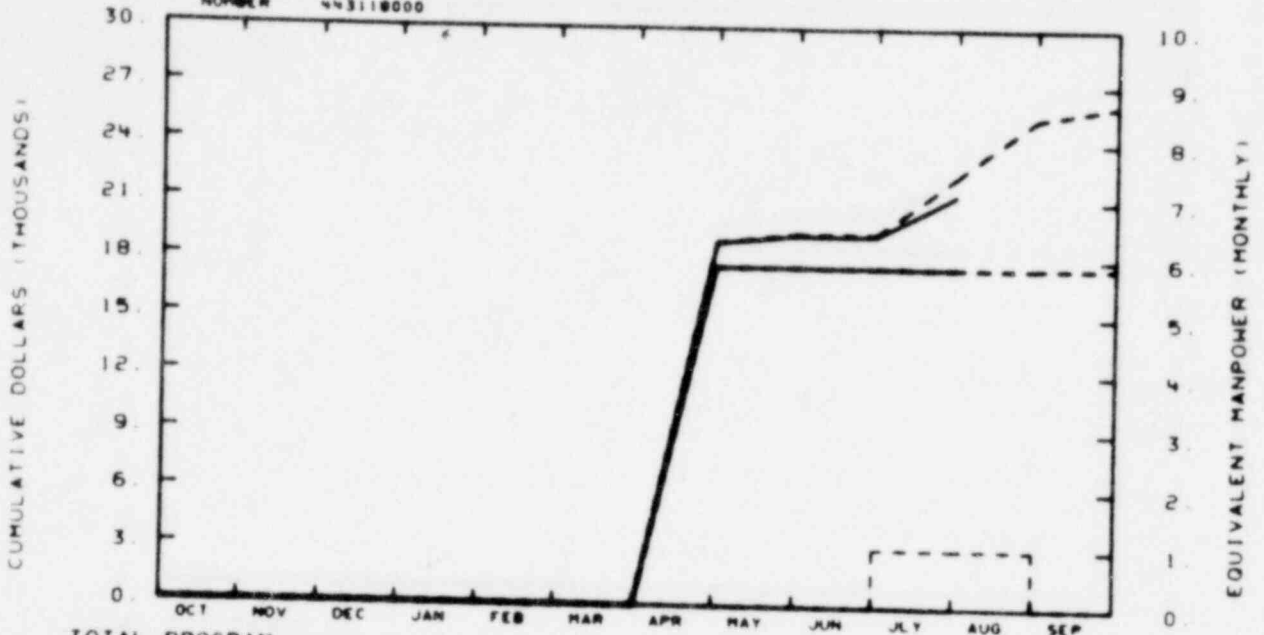
041 9001

1009 147

RESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC.
REACTOR SYS CASE REVIEW (11)

NUMBER 443118000



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	18	18	18	22	25	28
ACTUAL	0	0	0	0	0	0	18	18	18	21		

MATERIAL

BUDGET	0	0	0	0	0	0	18	18	18	18	18	18
ACTUAL	0	0	0	0	0	0	18	18	18	18		

MANPOWER

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

BUDGET

ACTUAL

A6263

YTD VARIANCE: 1 (4%)

POOR
ORIGINAL

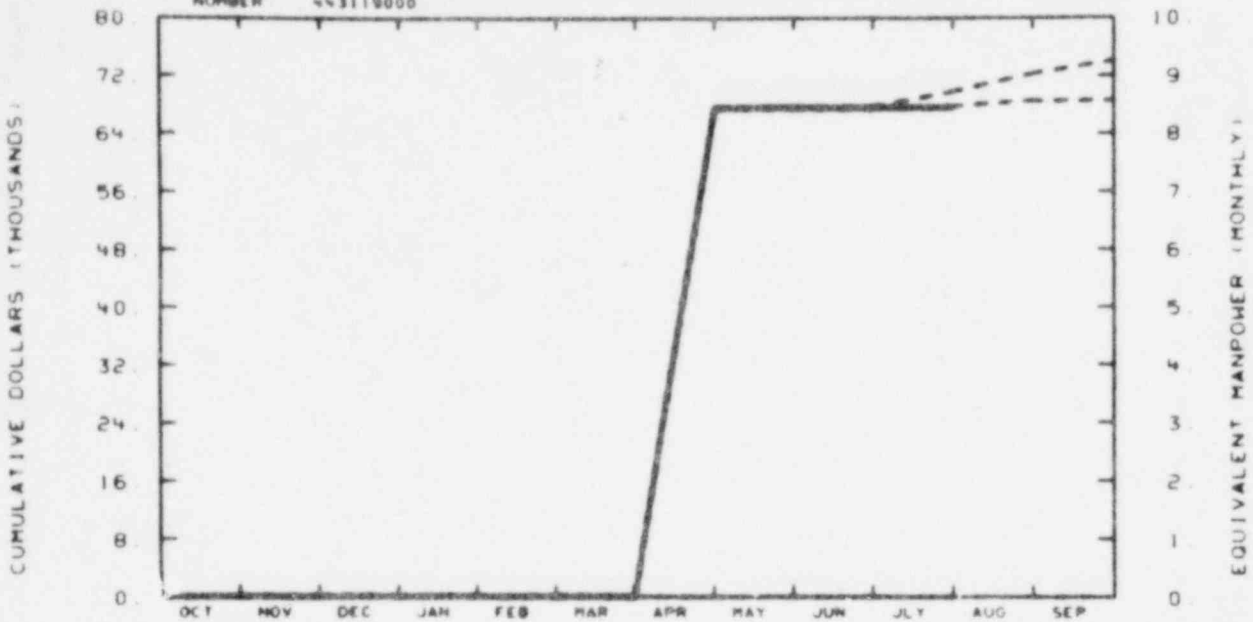
APR 1961

1009 148

RESPONSIBLE
MANAGER
J. A. DEARIEN

EG&G IDAHO INC.
ECC UNAVAILABILITY STUDIES

NUMBER 443119000



TOTAL PROGRAM

BUDGET	0	0	0	0	0	0	68	68	68	70	72	74
ACTUAL	0	0	0	0	0	0	68	68	68	64		

MATERIAL

BUDGET	0	0	0	0	0	0	67	67	67	68	69	69
ACTUAL	0	0	0	0	0	0	67	67	67	67		

MANPOWER

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

BUDGET

ACTUAL

A6264

YTD VARIANCE: 0

POOR ORIGINAL

841 9001

1009 149

CODE ASSESSMENT & APPLICATIONS PROGRAM

NRR

TECHNICAL REVIEW & SUMMARY

POOR
ORIGINAL

1009 150

PROGRAM MANAGER'S
SUMMARY AND HIGHLIGHTS

1. In the Piping Seismic Preevaluation of Five Shutdown Plants, letter reports on the Maine Yankee and Beaver Valley plants were completed and transmitted to NRC-DOR.
2. A review of the Combustion Engineering report CENPD-173 was completed and a letter report documenting the review was issued.
3. The final SER for the Oconee Units 1, 2 and 3 IST program was transmitted to DOE-ID.
4. In the EICS area, a prototype technical evaluation of the James A. Fitzpatrick nuclear station "Degraded Grid Protection" was completed and transmitted to NRC. The Three Mile Island Unit 1 nuclear station "Degraded Grid Protection" was also reviewed and questions transmitted to NRC.

I-651 A6025

Page 1

I-651 TECHNICAL ASSISTANCE TO REACTOR SAFETY - DSS

1. I-651 Task A6025 - Failure Mode Analysis

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Work continued on the following tasks

Non safety grade equipment.

Internally generated missiles inside containment.

Low temperature overpressure protection system unavailability.

Operator response to transients and accidents.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

No work on this task is anticipated during August. Available manpower is to be assigned to the licensing task force (see A6263).

6. Problems and Potential Problems

None

1009 152

1009 152

1. I-651 Task A6157 - Fuel Assembly Seismic and LOCA Response

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Completed the initial review of Combustion Engineering topical report CENPD-178 and issued a letter report documenting the review.

Initiated review of Babcock and Wilcox report BAW-10133, Rev. 1.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
BE14	Issue ltr report Documenting CE Question Set #1	8-3-79E	7-20-79C JAD-153-79
BE21	Issue ltr report Documenting B&W Question Set #1	8-17-79	

5. Summary of Work to be Performed in August 1979

Complete review of B&W report BAW-10133, Rev. 1 and issue letter report. Audit calculations on CE or B&W designs will be initiated when required data is received.

6. Problems and Potential Problems

None

1009 153

1009 153

1. I-651 Task A6167 - Fuel Performance Code Applications

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Comments concerning the approved FRAPCON-1 evaluation models were transmitted to the NRC.

The Sandia Laboratory report NUREG/CR-0549 was reviewed at the NRC's request.

The FRAP-T4 sensitivity study calculations are nearly complete and writing of the report is in progress.

4. Scheduled Milestones for August 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
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DE12	Transient Fuel Performance Analysis, Behavior Sensitivity Study Issue Formal Report	8-28-79T	
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5. Summary of Work to be Performed in August 1979

Work will begin on inserting the approved evaluation models into FRAPCON-1. Exact details are being discussed with Code Development.

The FRAP-T4 sensitivity study report will be completed and issued.

6. Problems and Potential Problems

None

1. I-651 Task A6263 - Reactor Systems Case Review (II)

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Work was begun on a review of proposed low temperature overpressure protection systems for the North Anna, Diablo Canyon and Sequoyah plants. This work is a substitution for the Catawba FSAR review originally scheduled for later in the year, and is a lead in to the work to be done by the licensing task force currently being organized.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

Work will continue on the low temperature overpressure protection systems. Organization of the licensing task force should be completed and additional review items, to be supplied by NRC, will be initiated.

6. Problems and Potential Problems

None

1009 155

421 2001

1. I-651 Task A6264 - ECCS Unavailability Studies

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

No effort was expended on this task during the month.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

No work on this task is anticipated during August. Available manpower is to be assigned to the licensing task force (see A6263).

6. Problems and Potential Problems

None

121 8001

I-652 TECHNICAL ASSISTANCE TO ENGINEERING - DSS

1. Task A6152 - PWR/BWR Primary System Response Analysis to LOCA Excitation

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

WHAM loads for the Erie asymmetric LOCA loads verification were prepared for inclusion in the dynamic structural analysis.

Commanche Peak drawings were received and inventoried.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

The Erie verification analysis will be completed.

6. Problems and Potential Problems

Work on A6152 may be impacted if any further Fitzpatrick shutdown verification analyses are requested by NRC.

1. I-652 A6162 - In-Service Inspection

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

For Task 1, data from ultrasonic tests of IGSCC samples at Battelle Columbus was analyzed in preparation for drafting the final report.

For Task 2, an additional section of the report was completed.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

For Task 1, preparation of the final report will continue.

For Task 2, a draft of the final report will be completed for internal review.

6. Problems and Potential Problems

None

1. I-652 Task A6166 - Fracture Toughness Criteria

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

A report prepared by Sandia Laboratory on the fracture toughness of PWR component supports (NUREG/CR-0779) was reviewed. Documentation of this review was initiated.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

Review of the NUREG/CR-0779 will be documented and transmitted to NRC-DSS.

6. Problems and Potential Problems

None

I-653 TECHNICAL ASSISTANCE TO PROJECTS AND SYSTEMS - DOR

1. I-653 Task A6250 - Engineering Support for Pipe Break Inside Containment

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Reviews of five La Crosse BWR reports were completed and comments informally provided NRC for their review prior to formal transmittals.

The Dresden 2 and Quad Cities test problem seismic analysis calculations were completed and results informally provided NRC-DOR, J. D. Stevenson and Woodward Clyde. An informal report documenting this effort is nearing completion.

The La Crosse audit calculations were initiated by modeling the HPCS discharge line.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

The informal Dresden report will be issued and a final report documenting all work will be initiated.

The La Crosse audit calculations will be completed for the HPCS discharge line and preliminary results transmitted to NRC.

The Oyster Creek data will be reviewed to check completeness for use in performing audit calculations.

6. Problems and Potential Problems

None

1. I-653 Task A6256 - EICS Support

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

To date, nine technical evaluations have been completed for the NRC at an average cost of \$3343. Work is in progress on 23 other TACS.

A prototype technical evaluation of the James A. Fitzpatrick nuclear station "Degraded Grid Protection" was completed and transmitted to the NRC. This is to be reviewed by the NRC plant Systems Branch to confirm that it is in agreement with the staff requirements.

A draft technical evaluation of the Edwin I. Hatch Nuclear Station "RPS Abnormal Condition Protection" was completed.

The Three Mile Island, Unit 1 Nuclear Station "Degraded Grid Protection" was reviewed and questions transmitted to the NRC.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

Work will continue on the review of "Degraded Grid Protection" and "RPS Abnormal Condition Protection" for the EG&G assigned plants.

EG&G personnel will meet with Paul Shemanski to discuss work in progress.

6. Problems and Potential Problems

None

1. I-653 Task A6258 - Systems Engineering Support2. Scheduled Milestones for July 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
	Oconee, Units 1, 2, & 3 Draft SER to NRC Issue Final Report		7-6-79C JAD-138-79

3. Summary of Work Performed in July 1979

A draft SER for the Big Rock Point IST program was transmitted to NRC for their review (7-5-79).

The final SER for the Oconee, Units 1, 2, & 3 IST program was transmitted to DOE-ID.

Review of the Vermont Yankee IST program was completed. A meeting was held with NRC and the utility to discuss questions resulting from the review.

Work was completed on the St. Lucie check valve study and a draft report is in typing.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

Final SER's will be completed for the Zion, Units 1 & 2, and Dresden, Units 2 & 3, IST programs.

A draft SER for the Millstone, Unit 2, IST program will be informally transmitted to NRC for review.

Preparation of a draft SER for the Vermont Yankee IST program will be started.

Work will begin on the review of the Farley IST program.

6. Problems and Potential Problems

None

1009 162

1009 162

1. I-553 Task A6260 - EICS Support for SEP

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Draft reports on "Electrical Penetrations of Reactor Compartment" (SEP Topic VIII-4) were completed for the R. E. Ginna and Yankee Rowe nuclear stations.

A draft report on "Independence of Redundant Onsite Power Systems" (SEP Topic VI-7.C.1) was completed for the Palisades Nuclear Station.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

EG&G personnel will meet with Jim Shapaber and John Knox, NRC SEP Branch, to discuss technical details of the SEP program.

Work will continue on assigned SEP topics.

6. Problems and Potential Problems

None

1. I-653 Task A6257 - Water Hammer Case Reviews

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

The San Onofre and Trojan water hammer evaluations were continued.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

Will continue San Onofre and Trojan water hammer evaluations. The first draft of the Trojan SER will be completed and transmitted to NRC.

6. Problems and Potential Problems

None

1009 164

1. I-653 Task A6267 - (N-1) Loop Operation of Beaver Valley and Zion 1/2

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

Review of the Beaver Valley transient analyses for N-1 loop operation was completed. Questions are being prepared for transmittal to the utility, via NRC.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

Review of the Beaver Valley LOCA analysis for N-1 loop operation will be completed and a draft SER, covering both the LOCA and transient analyses will be prepared.

6. Problems and Potential Problems

None

1009 165

I-654 TECHNICAL ASSISTANCE TO PROJECTS AND ENGINEERING - DOR

1. I-654 Task A6156 - Technical Assistance on Asymmetric LOCA Loads
2. Scheduled Milestones for July 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
GB62	Pipe Break Area & Opening Time Study Review Vendor Analysis & Issue Report	7-20-79T	7-17-79C JAD-151-79

3. Summary of Work Performed in July 1979

The Arkansas fuel analysis was completed using LOCA core plate motions assuming a row of 15 fuel assemblies. A draft of the letter report documenting this effort was completed and is currently being reviewed. The break area-time study was completed and a technical report issued to NRC-DOR.

The earthquake acceleration histories for St. Lucie 1 were integrated to obtain displacements. The St. Lucie model revision was completed and the first five seconds of the earthquake were run to define the system response.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

Analysis of Arkansas fuel for a row of five assemblies will be completed. The report on the fifteen row fuel analysis will be issued. The St. Lucie fuel analysis will be completed for the row of maximum number of fuel assemblies. The earthquake time history response will be completed for St. Lucie. From this information, the time to postulated LOCA will be determined. The combined seismic and LOCA response will then be completed.

6. Problems and Potential Problems

None

781 9001

1. I-654 Piping Seismic Evaluation of Five Shutdown Plants (A6156 Continued)2. Scheduled Milestones for July 1979

<u>Node</u>	<u>Description</u>	<u>Due Date</u>	<u>Actual Date</u>
PA44	Miss. Asst. Trans Ltr. on Support Sensitivity		7-9-79C
PA5	Maine Yankee Power Plant		7-13-79C JAD-147-79
PA16	Beaver Valley Power Plant		7-9-79C JAD-146-79

3. Summary of Work Performed in July 1979

Two problems were completed for the J. A. Fitzpatrick plant and the results informally provided to NRC.

Letter reports on Maine Yankee and Beaver Valley were completed and transmitted to NRC-DOR.

A draft of the Surrey report was completed and informally provided to NRC for review. The funding for this task has almost been spent. It is understood that additional funding is being provided by NRC.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

The Surrey report will be issued and a third Fitzpatrick audit calculation performed upon receipt of the data from the utility.

6. Problems and Potential Problems

None

1. Task A6159 - On-Call Assistance at Operating LWR's

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

The first draft of the Regulatory Guide and Value Impact Statement was written.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

The Regulatory Guide/VIS draft will be submitted and discussed with NRC/OSD personnel.

6. Problems and Potential Problems

None

I-660 A6135

Page 18

189a I-660 ULTRASONIC TESTING ASME CODE-CLASS I AND II PIPING SYSTEM (OSD)

1. Task A6135 - Ultrasonic Testing ASME Code-Class I and II Piping System (OSD)

2. Scheduled Milestones for July 1979

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

3. Summary of Work Performed in July 1979

No work was scheduled on this task.

4. Scheduled Milestones for August 1979

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

5. Summary of Work to be Performed in August 1979

No work is scheduled at this time. All remaining funds for this task are dedicated to On-Call Technical Assistance.

6. Problems and Potential Problems

None

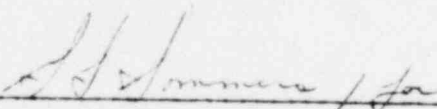
801 9001

1009 169

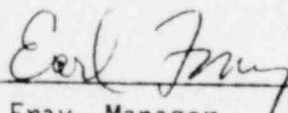
CONST/GPP & L. I.

1009 170

WRRD MONTHLY REPORT FOR
JULY 1979
GPP AND LINE ITEMS



M. L. Rucker, Sr. Financial Analyst
Plans & Budgets Division



E. N. Fray, Manager
Project Management Division

POOR
ORIGINAL

SEMISCALE

1009 172

THERMAL FUELS BEHAVIOR PROGRAM

POOR
ORIGINAL

1009 175

EG&G IDAHO, INC.

GPP ITEMS

PROGRAM THERMAL FUELS BEHAVIOR PROGRAM

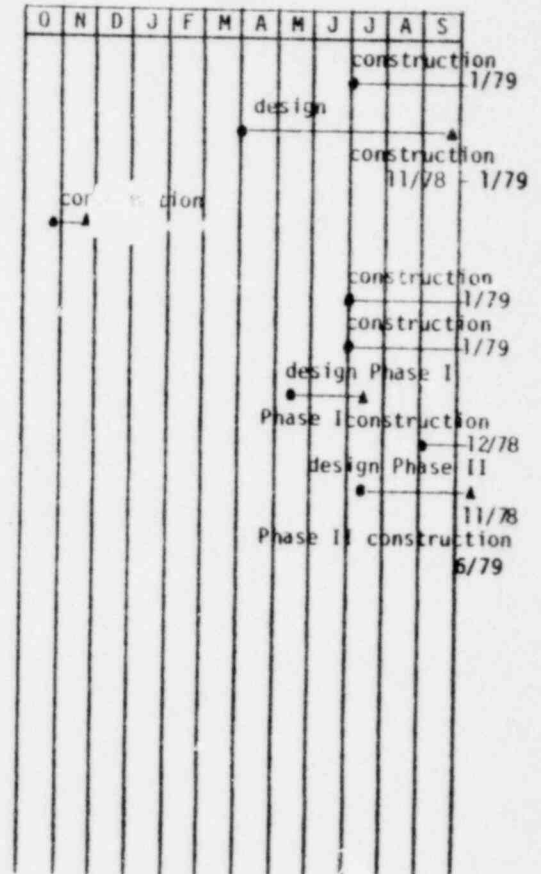
(FY-76, 77 & 78 Carryover)

MANAGER J. P. Kester

189a No. A6044

EA No.	Item Description	Original PA Amount	(\$000) Current Est. Cost	Project To Date Costs
922600000	Reactor Bldg. Partial Fire Spr. System ¹	35	30	end of July \$28,055
923600000	PBF Nitrogen System Mod ¹	165	140	end of July \$83,503
923900000	PBF Loop Fission Product Detection Sys. ¹	123	123	Final cost \$116,712
924800000	PBF Hot Waste Storage Capacity Increase ¹	181	242	end of July \$242,170
924900000	PBF Corrosive Waste Disposal Mods ¹	155	200	end of July \$181,696
929800000	PBF Reactor Building Extension	250	258	end of July EG&G \$116,824 M-K \$106,223 ²

Task Initiated o
Task Completed Δ
Month



¹These projects are complete.

²Includes M-K subcontract commitment.

TFL 6001

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