

Sandia Laboratories

August 29, 1980

Mr. R. M. Bernero, Director  
Probabilistic Analysis Staff  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555



Dear Mr. Bernero:

The attached summaries describe activities during July on programs being performed for the Probabilistic Analysis Staff by Sandia National Laboratories. These programs include:

Risk Assessment Methodology Development for Waste Isolation in Geologic Media (A1192)

Reactor Safety Study Methodology Applications Program (A1047)

Handbook of Human Reliability Analysis for Nuclear Power Plant Operations (A1188)

Value Impact Assessment of Regulatory Review Units (A1217)

Transport Hazards to Nuclear Power Plants (A1214)

DC Power System Study (A1112)

Site Specific Consequence Modeling for Nuclear Reactor Accidents (A1042)

Assessment of Alternate LWR Shutdown Heat Removal Concepts (A1226)

Development and Analysis of Vent-Filtered Containment Conceptual Designs (A1220)

Risk Methodology for Spent Fuel Isolation Alternatives (A1225)

Crystal River Study (IREP) (A1241)

Integrated Reliability Evaluation Program (A1241)

Sincerely,

*David J. McCloskey*  
David J. McCloskey, Manager  
Nuclear Fuel Cycle Safety  
Research Department 4410

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Copy to:

1220 J. M. Wiesen

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4400 A. W. Snyder

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4412 A. M. Kolaczowski

4412 G. J. Kolb

4413 N. R. Ortiz

4413 D. C. Aldrich

4413 R. M. Cranwell

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4413 L. T. Ritchie

4414 G. B. Varnado

4414 A. S. Benjamin

4414 D. E. Bennett

4414 D. L. Berry

4414 S. J. Niemczyk

4416 L. D. Chapman

4443 D. A. Dahlgren

4410 D. J. McCloskey

PROGRAM: Risk Assessment Methodology Development FIN#: A1192  
for Waste Isolation in Geologic Media

CONTRACTOR: Sandia National Laboratories BUDGET PERIOD: 10/79-9/80

PAS PROGRAM MANAGER: M. Cullingford BUDGET AMOUNT: 804K

CONTRACTOR PROGRAM MANAGER: N. R. Ortiz FTS PHONE: 844-5644

PRINCIPAL INVESTIGATOR: R. M. Cranwell FTS PHONE: 844-8368

PROGRAM OBJECTIVES:

To develop methods for safety assessment of deep geologic disposal of radioactive waste, and to determine the extent to which risk analysis is possible.

ACTIVITIES DURING JULY 1980:

Several sample calculations were performed on the DNET model for use in a report on this model. The final draft of this report should be completed in August. The sample calculations were performed to demonstrate the effects of several input parameters on model output - in this case, the time required for salt dissolution to reach the waste drifts given that some disruption of the protective shale layers has occurred. Ranges and distributions were assigned to the input variables to DNET in preparation for our risk calculations.

To more accurately model scenarios involving discharge to the surface via withdrawal wells, modifications were made to the transport model NWFT. Recall that this model simulates radionuclide transport in one dimension. This one-dimensional approximation is adequate for scenarios where radionuclide discharge occurs at the river in the reference site. In such scenarios, lateral spreading of the containment plume is of little concern as the river effectively integrates discharge over this dimension. However, in the case of well discharge, lateral spreading may be significant. The lateral concentration profile, together with the well position, determines the contaminant concentration in well water. Thus, to determine the contaminant concentration in well water, one would need to know the contaminant concentration as a function of the distance down-dip from the depository.

Additional modifications were made in the area of transport modeling to account for depository resaturation times. The time required for depository resaturation following closure is of interest as this time period may add a significant additional delay before onset of radionuclide migration. Following depository closure, salt creep will result in compaction of the backfill material and will, therefore, reduce the pore volume in the depository. While the depository pore

volume is decreasing from salt creep, water will migrate into the depository through the surrounding salt and shale. The effect of creep closure is, therefore, to reduce the time required to resaturate the depository.

Review comments were received in regard to the rough draft of the scenario report. The final draft of this report was started the latter part of July and should be completed in August.

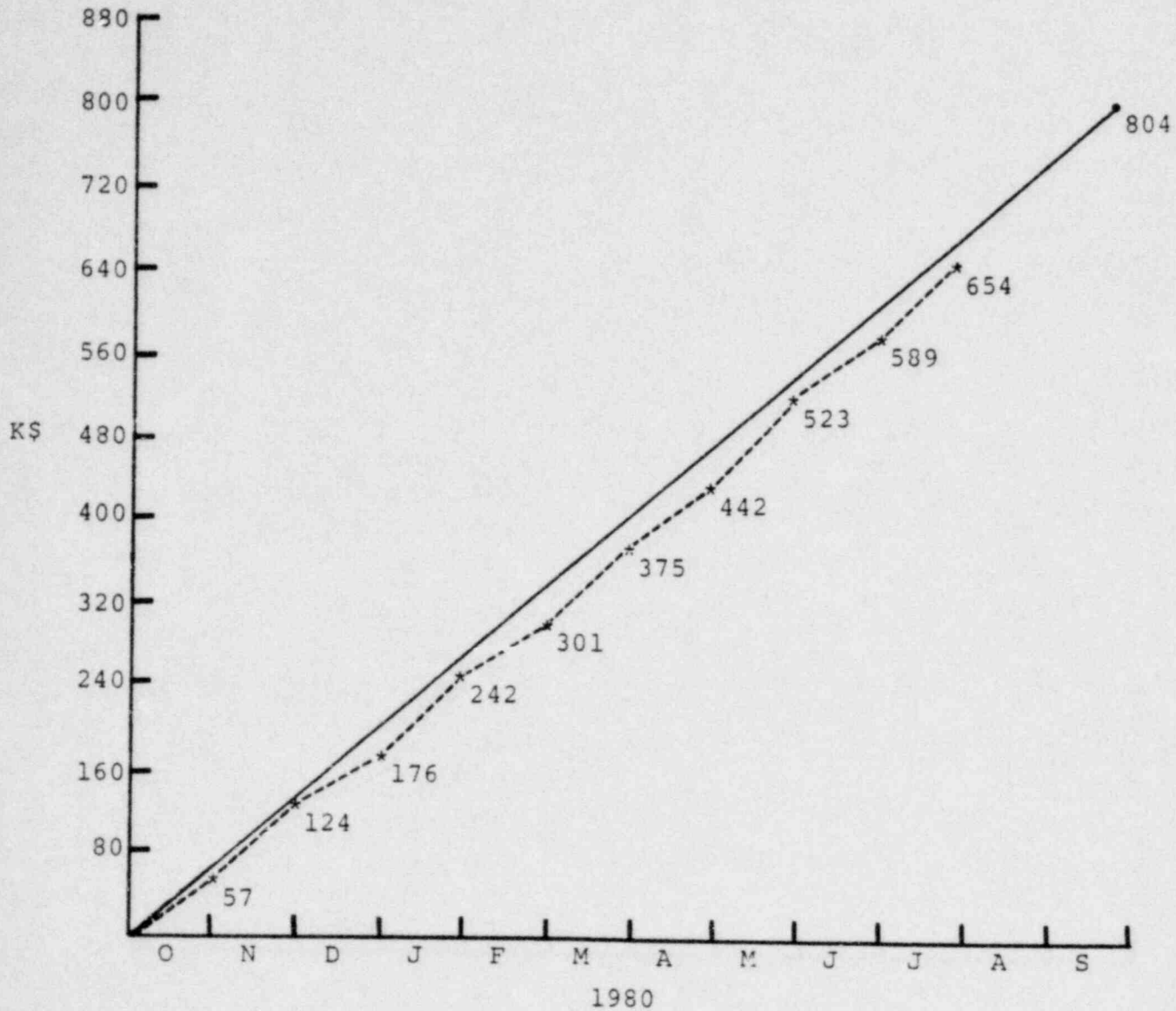
MAJOR MILESTONES:

MILESTONE DESCRIPTION	SCHEDULED/ACTUAL START	SCHEDULED COMPLETION	ACTUAL/PROJECTED COMPLETION
Transport Model Sensitivity Analysis	10/78	12/79	Completed
Pathways Model Sensitivity Analysis	10/78	11/79	Completed
Pathways Model User Manual	10/78	10/79	Completed
Identify Data Deficiencies	10/78	6/78	Completed
Importance Ranking of Data Deficiencies	10/78	6/79	Completed
Identify Additional Research Needs	10/78	6/79	Completed
Develop Risk Analysis Design	10/78	7/79	Completed
Risk Estimates with Uncertainties for Reference Site	10/78	9/80	9/80

MANAGEMENT AND TECHNICAL ISSUES/POTENTIAL SCHEDULE OR FUNDING PROBLEMS:

None

PROGRAM: Risk Assessment Methodology Development  
for Waste Isolation in Geologic Media



RESOURCES EXPENDED:

	JULY 1980	CUMULATIVE
DOLLARS (K)	65	654 (81%)
MAN MONTHS	11	109

PROGRAM: Reactor Safety Study Methodology  
Applications Program

FIN#: A1047

CONTRACTOR: Sandia National Laboratories BUDGET PERIOD: 10/79-9/80

PAS PROGRAM MANAGER: J. Curry BUDGET AMOUNT: 82K

CONTRACTOR PROGRAM MANAGER: J. W. Hickman FTS PHONE: 844-3874

PRINCIPAL INVESTIGATORS: S. W. Hatch FTS PHONE: 844-9554  
G. J. Kolb 844-8624

PROGRAM OBJECTIVES:

To determine the accident sequences dominating risk for four LWR plants which are representative of the current nuclear industry.

ACTIVITIES DURING JULY 1980:

During the month of July, work continued on the final writeup and review of the BWR and PWR #2 system appendices and the PWR #2 main report chapters.

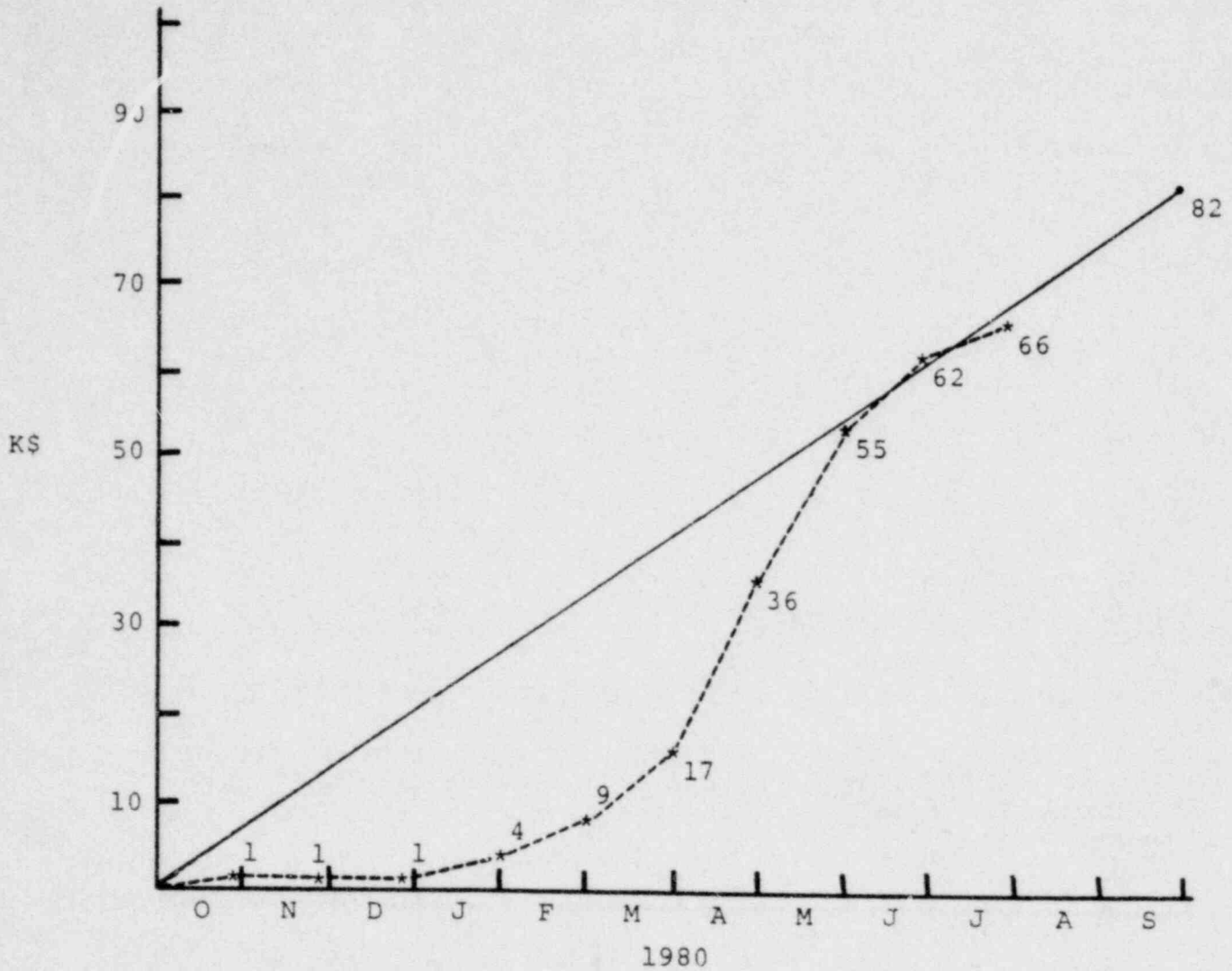
MAJOR MILESTONES:

MILESTONE DESCRIPTION	SCHEDULED/ACTUAL START	SCHEDULED COMPLETION	ACTUAL/PROJECTED COMPLETION
PWR #2 Report	-	9/80	-
PWR #3 Report	-	9/80	-
BWR Report	-	9/80	-

MANAGEMENT AND TECHNICAL ISSUES/POTENTIAL SCHEDULE OR FUNDING PROBLEMS:

Interim completion dates for PWR #2 and BWR report drafts are 8/25/80 and 10/25/80, respectively. The interim dates are contingent on final information inputs from Battelle.

PROGRAM: Reactor Safety Study Methodology Applications



RESOURCES EXPENDED:

	JULY 1980	CUMULATIVE
DOLLARS (K)	4	66 (80%)
MAN MONTHS	1	11

PROGRAM: Handbook of Human Reliability Analysis      FIN#: A1188  
for Nuclear Power Plant Operations

CONTRACTOR: Sandia National Laboratories      BUDGET PERIOD: 12/79-9/80

PAS PROGRAM MANAGER: W. E. Vesely      BUDGET AMOUNT: 125K

CONTRACTOR PROGRAM MANAGER: J. M. Wiesen      FTS PHONE: 844-6246

PRINCIPAL INVESTIGATORS: A. D. Swain      FTS PHONE: 844-3675  
H. E. Guttman      844-6247

PROGRAM OBJECTIVES:

To prepare a Human Factors Handbook which can be used for the evaluation of engineered safety systems in nuclear power plants.

ACTIVITIES DURING JULY 1980:

The Glossary and artwork for the Handbook were completed. All of the printed matter (except the Glossary, List of Abbreviations, and tables of contents) were typed on word processors and all of this material was proofed. At the end of the month, corrections resulting from the proof reading were being made on the word-processor discs.

MAJOR MILESTONES:

Completion (above) of the July draft for public review of the Handbook of Human Reliability Analysis with Emphasis on Nuclear Power Plant Applications.

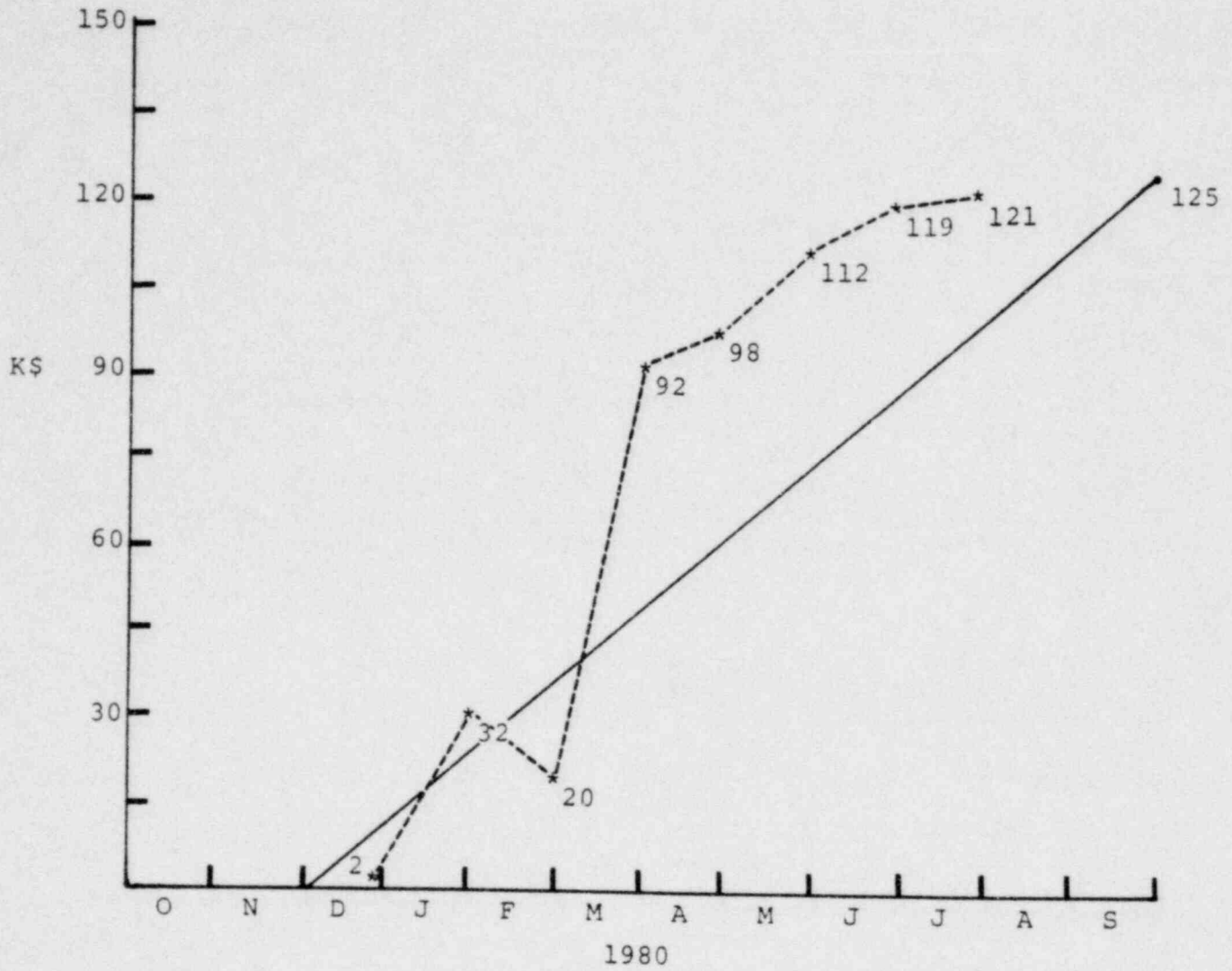
MANAGEMENT AND TECHNICAL ISSUES/POTENTIAL SCHEDULE OR FUNDING PROBLEMS:

The use of the word processor and the necessity to work on other NRC projects has caused some further delay in the preparation of a camera-ready copy of the Handbook. We now estimate delivery to NRC sometime in September.

Another 4-day seminar (see above) is planned for Headquarters DOE, Germantown, on August 11-14, 1980. It is being organized by Charles Trauth, Organization 1418, Sandia (FTS 844-5679).



PROGRAM: Handbook of Human Reliability Analysis  
for Nuclear Power Plant Operations



RESOURCES EXPENDED:

	JULY 1980	CUMULATIVE
DOLLARS (K)	2	121 (97%)
MAN MONTHS	0	20

PROGRAM: Value Impact Assessment of  
Regulatory Review Units

FIN#: A1217

CONTRACTOR: Sandia National Laboratories

BUDGET PERIOD: 10/79-9/80

PAS PROGRAM MANAGER: M. A. Taylor

BUDGET AMOUNT: 169K

CONTRACTOR PROGRAM MANAGER: J. W. Hickman

FTS PHONE: 844-3874

PRINCIPAL INVESTIGATORS: A. M. Kolaczowski

FTS PHONE: 844-8624

PROGRAM OBJECTIVES:

To assess the Standard Review Plan (SRP) and Generic Standard Technical Specifications to determine their relative value from a risk standpoint and their resource impacts.

ACTIVITIES DURING JULY 1980:

The second interim report summarizing the results for the PWR has been completed and issued to the Division of Systems and Reliability Research. Work on this program is essentially complete considering the present limited scope as redefined during the post-TMI assessment of priorities. Sandia is awaiting NRC comments so that a final published report can be issued containing information from the two interim reports.

MAJOR MILESTONES:

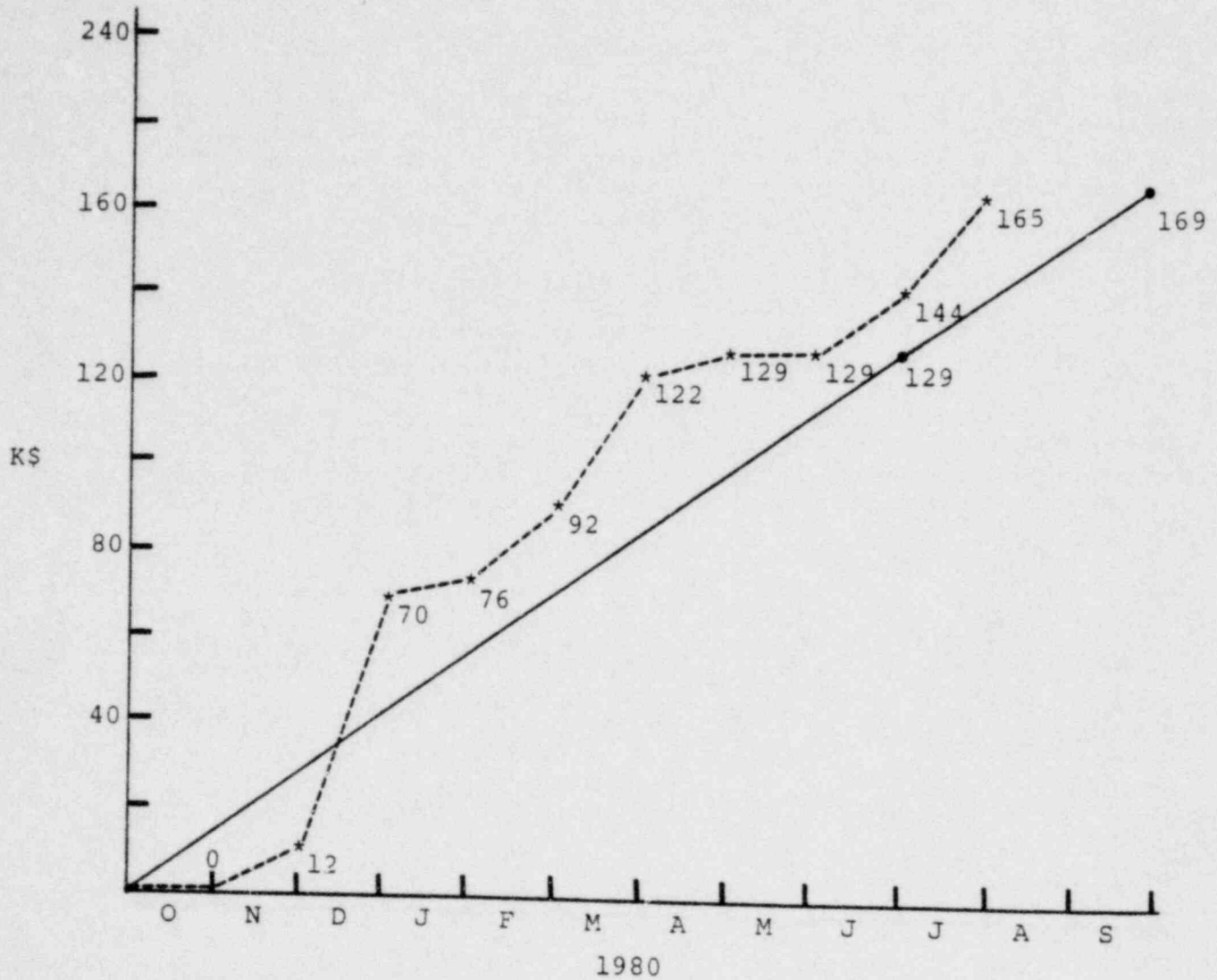
MILESTONE DESCRIPTION	SCHEDULED/ACTUAL START	SCHEDULED COMPLETION	ACTUAL/PROJECTED COMPLETION
<sup>1</sup> SRP Tasks 1,3,6 (Preliminary)	9/78	6/79	Completed
SRP Tasks 4,5,7 (Preliminary)	3/79	1/80	Completed
SRP Tasks 8,9,11 (Preliminary)	6/79	8/79	Completed-BWR
<sup>2</sup> SRP Preliminary Report #1	8/79	11/79	Completed-PWR
<sup>3</sup> SRP Preliminary Report #2	6/79	8/79	Completed
	10/79	5/80	Completed

MANAGEMENT AND TECHNICAL ISSUES/POTENTIAL SCHEDULE OR FUNDING PROBLEMS:

None

Notes: <sup>1</sup>Task 6 has been expanded to include High Consequence Accident Value Assessment Methods  
<sup>2</sup>Will include major system SRPs for BWR  
<sup>3</sup>Will include major system SRPs for PWR

PROGRAM: Value Impact Assessment of Regulatory Review Units



RESOURCES EXPENDED:

	JULY 1980	CUMULATIVE
DOLLARS (K)	21	165 (98%)
MAN MONTHS	4	28

PROGRAM: Transport Hazards to Nuclear  
Power Plants

FIN#: A1214

CONTRACTOR: Sandia National Laboratories

BUDGET PERIOD: 10/79-9/80

PAS PROGRAM MANAGER: K. G. Murphy

BUDGET AMOUNT: 100K

CONTRACTOR PROGRAM MANAGER: G. B. Varnado

FTS PHONE: 844-1136

PRINCIPAL INVESTIGATORS: D. E. Bennett  
J. M. Taylor  
N. C. Finley

FTS PHONE: 844-3119  
844-1023  
844-6059

PROGRAM OBJECTIVES:

To develop a methodology for evaluating the hazards to nuclear power plants from offsite transportation accidents involving hazardous materials.

ACTIVITIES DURING JULY 1980:

The analyses to define reactor vulnerabilities for thermal and overpressure environments are continuing. For the thermal case, a capacity curve for a typical control building wall has been estimated, based on criteria for erosion of the front surface, temperature at the first rebar, and temperature of the inside surface. Above 400 KW/m<sup>2</sup> incident flux, wall erosion dominates, while below this flux the maximum allowable temperature of 177C at the first rebar is the controlling criteria.

These results will be combined with the work from Argonne on LNG fires and fireballs to define a capacity in terms of distance to the fire, fuel source rate (heat flux), and fire duration.

Sandia participated in a meeting of the Siting Criteria Working Group in Washington during which the contributions from this program were reviewed and discussed.

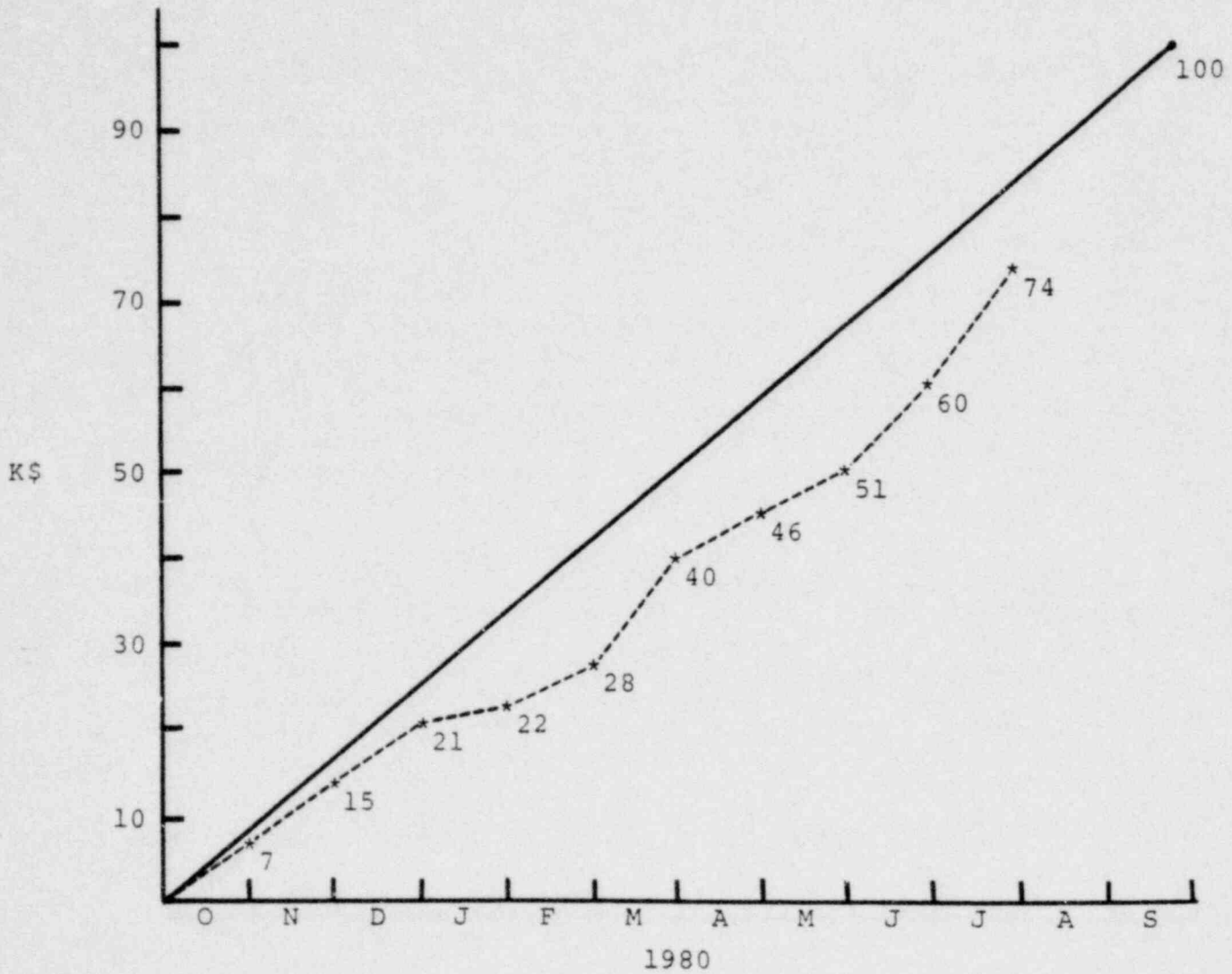
MAJOR MILESTONES:

MILESTONE DESCRIPTION	SCHEDULED/ACTUAL START	SCHEDULED COMPLETION	ACTUAL/PROJECTED COMPLETION
Scoping Study	8/78	9/79	Completed
Characterization of Hazardous Materials	12/78	1/80	Completed
Analysis of Reactor Vulnerabilities to Hazardous Environments	12/78	3/80	9/80
Hazardous Environments Modeling	12/78	9/80	9/80
Transportation Accident Modeling	8/79	12/80	12/80

MANAGEMENT AND TECHNICAL ISSUES/POTENTIAL SCHEDULE OR FUNDING PROBLEMS:

None

PROGRAM: Transport Hazards to Nuclear Power Plants



RESOURCES EXPENDED:

	JULY 1980	CUMULATIVE
DOLLARS (K)	14	74 (74%)
MAN MONTHS	2	12

PROGRAM: DC Power System Study

FIN#: A1112

CONTRACTOR: Sandia National Laboratories

BUDGET PERIOD: 12/79-9/80

PAS PROGRAM MANAGER: P. W. Baranowsky

BUDGET AMOUNT: 50K

CONTRACTOR PROGRAM MANAGER: J. W. Hickman

FTS PHONE: 844-3874

PRINCIPAL INVESTIGATORS: A. M. Kolaczowski

FTS PHONE: 844-8624

PROGRAM OBJECTIVES:

Survey LER's and perform reliability analyses to determine the contribution of DC Power system failures to decay heat removal system failure.

ACTIVITIES DURING JULY 1980:

Rewriting of the final draft of the report is still in progress. A tentative date of August 31 has been set for completion of this final draft. The upcoming ACRS presentation is expected in late September.

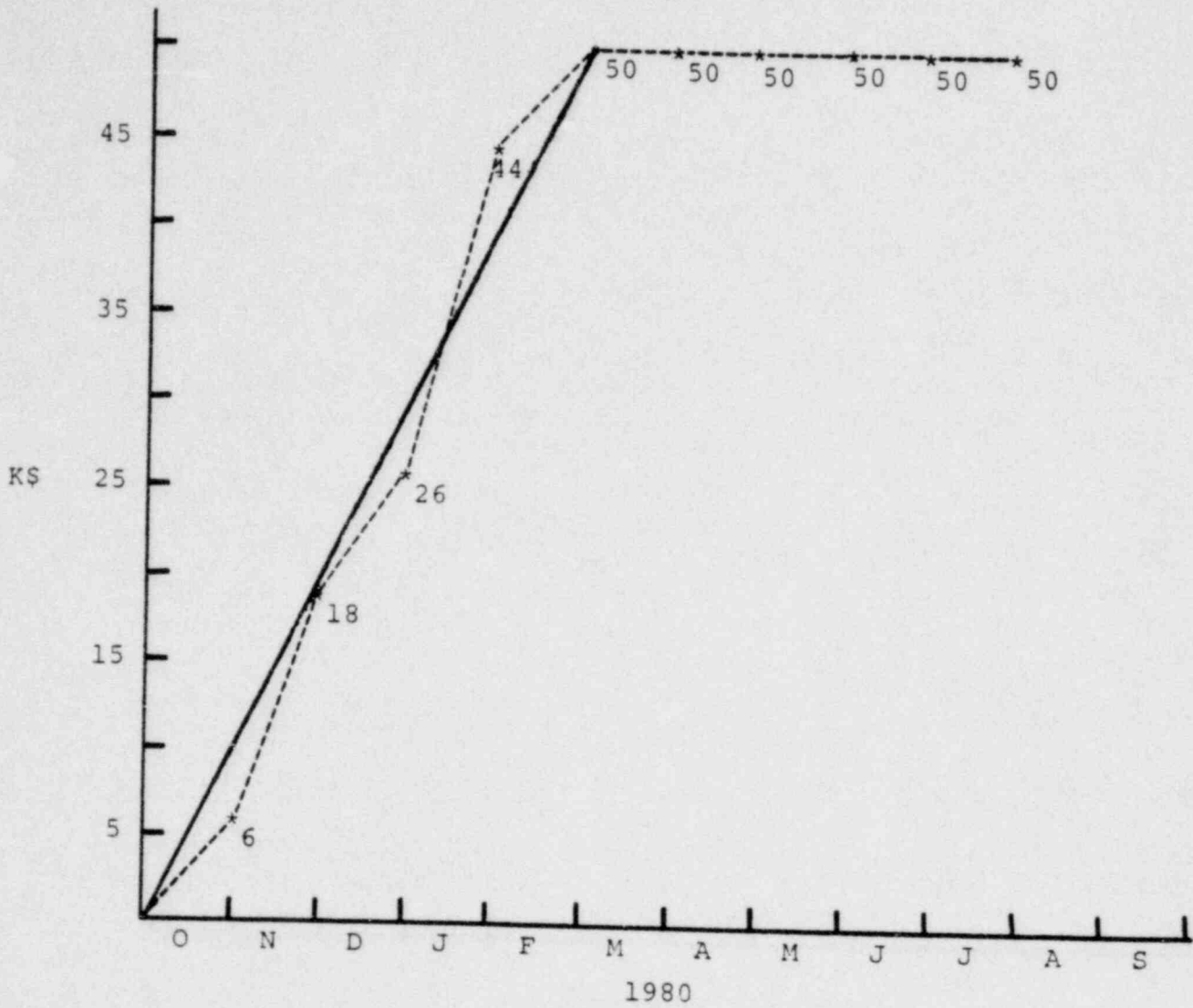
MAJOR MILESTONES:

MILESTONE DESCRIPTION	SCHEDULED/ACTUAL START	SCHEDULED COMPLETION	ACTUAL/PROJECTED COMPLETION
CCF Analysis	9/79	5/79	Completed
Uncertainty Analysis	1/80	6/79	Completed
Final Report	2/80	7/79	8/80

MANAGEMENT AND TECHNICAL ISSUES/POTENTIAL SCHEDULE OR FUNDING PROBLEMS:

Funds for this program are exhausted. A small additional funding increment is necessary to complete the final stages of the program which include at least one ACRS presentation. This is primarily due to a small increment of additional analysis which is being performed for the final report.

PROGRAM: DC Power System Study



RESOURCES EXPENDED:

	JULY 1980	CUMULATIVE
DOLLARS (K)	0	50 (100%)
MAN MONTHS	0	8

PROGRAM: Site Specific Consequence Modeling  
for Nuclear Reactor Accidents

FIN#: A1042

CONTRACTOR: Sandia National Laboratories

BUDGET PERIOD: 10/79-9/80

PAS PROGRAM MANAGER: R. M. Blond

BUDGET AMOUNT: 263K

CONTRACTOR PROGRAM MANAGER: D. C. Aldrich

FTS PHONE: 844-9164

PRINCIPAL INVESTIGATORS: D. C. Aldrich  
L. T. Ritchie

FTS PHONE: 844-9164  
844-6100

PROGRAM OBJECTIVES:

To investigate the feasibility of developing a site specific reactor accident consequence model that could be applied in the reactor licensing process.

ACTIVITIES DURING JULY 1980:

Work continued to evaluate the new weather sequence categorization and sampling technique. The impacts on predicted consequences of four alternative deposition treatments proposed by G. Slinn were evaluated.

Results for Problems 2, 3, and 4 of the International Benchmark Study have been received from approximately 50 percent of the participants thus far. A workshop to discuss and evaluate the results of the first four problems has been scheduled for October 13-15 in Paris, France. All portions of the study still appear to be approximately on schedule.

At the request of NRC's Office of Nuclear Reactor Regulation (NRR), a new program was initiated at Sandia to provide a technical basis for (1) establishing numerical criteria for population density and distribution around future nuclear power plant sites and (2) establishing standoff distances to certain offsite hazards. The new program is closely related to, and will rely heavily on, the PAS-sponsored work on reactor accident consequence modeling.

A paper entitled "Radiation Protection: An Analysis of Thyroid Blocking" by D. C. Aldrich and R. M. Blond was accepted for presentation at the upcoming (October 20-24) IAEA conference on Current Nuclear Reactor Safety Issues in Stockholm, Sweden. Preparation of that paper was initiated.



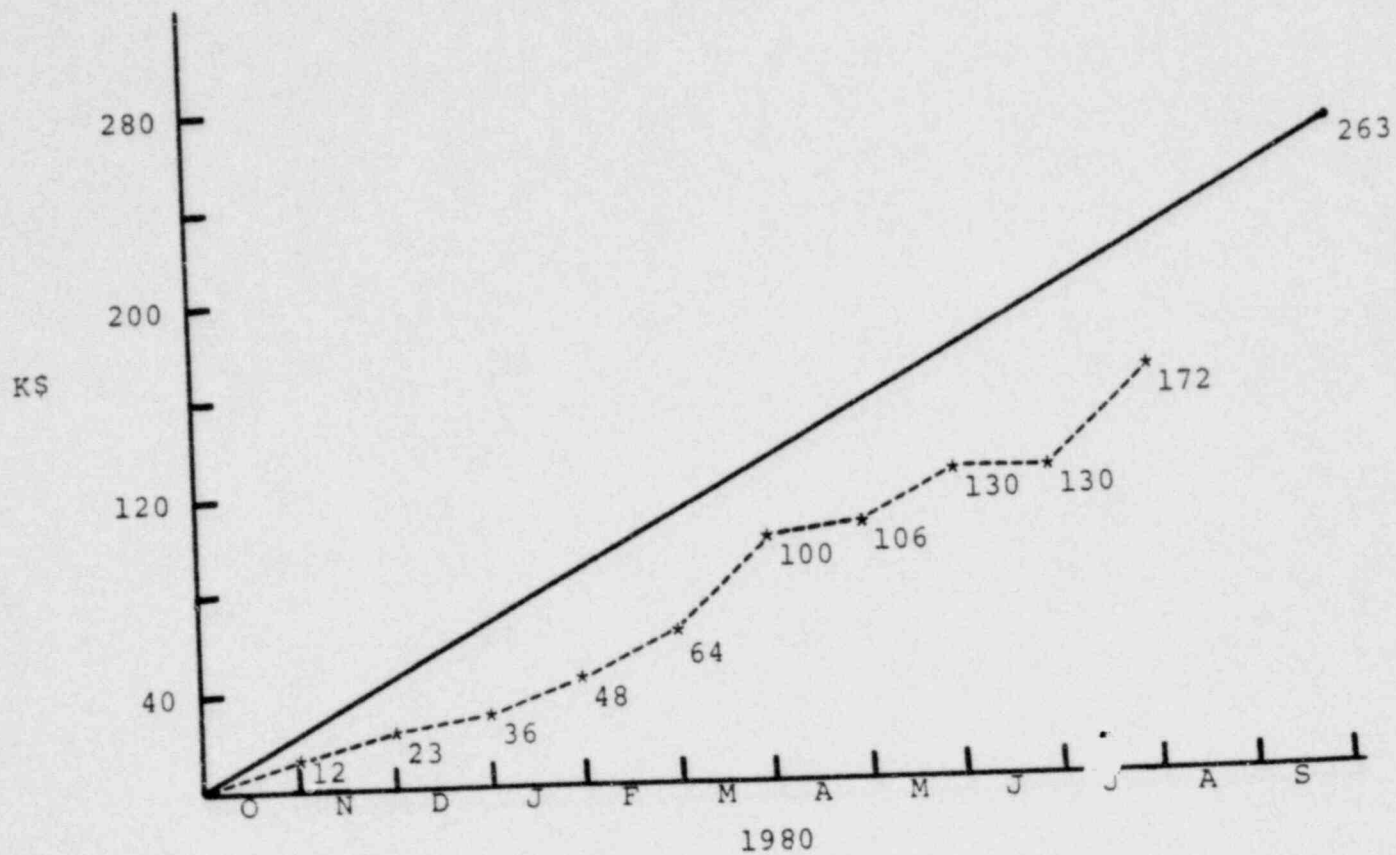
MAJOR MILESTONES:

MILESTONE DESCRIPTION	SCHEDULED/ACTUAL START	SCHEDULED COMPLETION	ACTUAL/PROJECTED COMPLETION
Selection of Preliminary Dispersion Model	3/79	6/79	Completed
Benchmark and Comparison Tests	6/79	10/80	10/80
Report	-	1/81	1/81

MANAGEMENT AND TECHNICAL ISSUES/POTENTIAL SCHEDULE OF FUNDING PROBLEMS:

None

PROGRAM: Site Specific Consequence Modeling  
for Nuclear Reactor Accidents



RESOURCES EXPENDED:

	JULY 1980	CUMULATIVE
DOLLARS (K)	42	172 (65%)
MAN MONTHS	7	29

PROGRAM: Assessment of Alternate LWR  
Shutdown Heat Removal Concepts

FIN#: A1226

CONTRACTOR: Sandia National Laboratories

BUDGET PERIOD: 10/79-9/80

PAS PROGRAM MANAGER: M. A. Taylor

BUDGET AMOUNT: 325K

CONTRACTOR PROGRAM MANAGER: G. B. Varnadac

FTS PHONE: 844-1136

PRINCIPAL INVESTIGATOR: D. L. Berry

FTS PHONE: 844-0234

PROGRAM OBJECTIVES:

To perform a value impact assessment of alternate LWR shutdown heat removal (SHR) concepts to provide an integrated technical base for use in future regulatory actions relating to improvements in LWR safety.

ACTIVITIES DURING JULY 1980:

We have continued to work on the expansion of an earlier draft report which addresses design criteria and alternatives to current decay heat removal system concepts. The report has been revised to include a condensed reliability assessment of both US and foreign systems, as they respond to frequent events which can challenge or jeopardize system operation. Criteria are being proposed to cope with identified system vulnerabilities to the frequent events. It has been found that, on the basis of system reliability alone, some power plants offer little room for improvement because they already have highly reliable decay heat removal systems. On this basis, emphasis is being placed on alternative concepts which can best improve the reliability of those plants having marginally reliable systems.

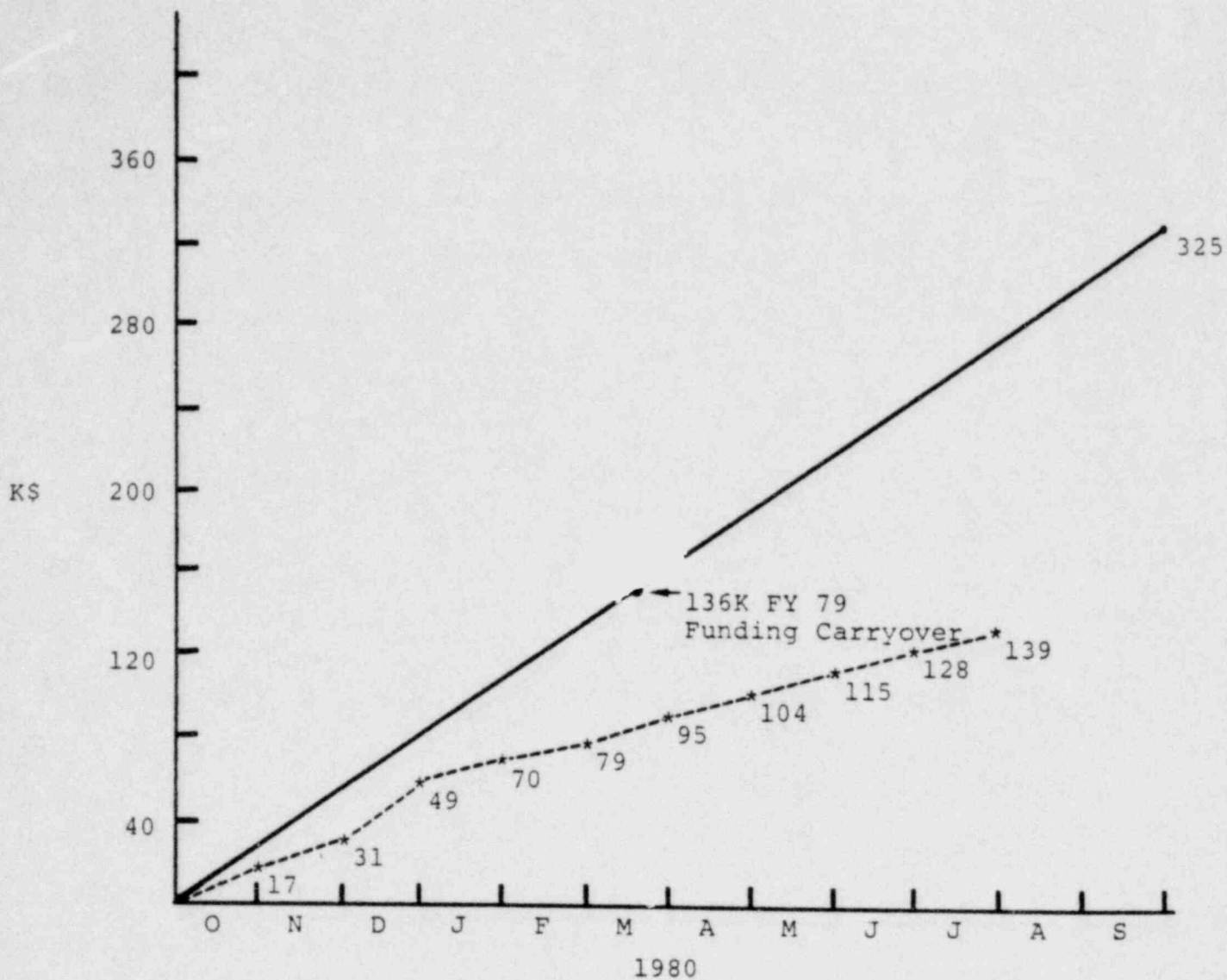
MAJOR MILESTONES:

MILESTONE DESCRIPTION	SCHEDULED/ACTUAL START	SCHEDULED COMPLETION	ACTUAL/PROJECTED COMPLETION
Identify Current SHR Design Criteria and Design Practice	4/79	2/80	2/80
Identify Events Requiring or Threatening SHR Operation	11/79	4/80	4/80
Develop SHR Logic Models	2/80	8/80	11/80
Select Value Measures for SHR Options	4/80	2/81	2/81
Select Candidate SHR Options	8/80	4/81	4/81
Select Impact Measures and Perform Impact Analysis	11/80	8/81	8/81
Document Overall Results	8/81	10/81	10/81

MANAGEMENT AND TECHNICAL ISSUES/POTENTIAL SCHEDULE OR FUNDING PROBLEMS:

None

PROGRAM: Assessment of Alternate LWR  
 Shutdown Heat Removal Concepts



RESOURCES EXPENDED:

	JULY 1980	CUMULATIVE
DOLLARS (K)	11	139 (43%)
MAN MONTHS	2	23

PROGRAM: Development and Analysis of Vent-Filtered  
Containment Conceptual Designs

FIN#: A1220

CONTRACTOR: Sandia National Laboratories

BUDGET PERIOD: 10/79-9/80

PAS PROGRAM MANAGER: R. DiSalvo

BUDGET AMOUNT: 550K

CONTRACTOR PROGRAM MANAGER: A. S. Benjamin

FTS PHONE: 844-5258

PRINCIPAL INVESTIGATORS: A. S. Benjamin  
H. C. Walling

FTS PHONE: 844-5258  
844-8764

PROGRAM OBJECTIVES:

To perform engineering investigations of vent-filtered containment concepts, resulting in the definition of system design requirements and the risk reduction value and cost impact associated with these requirements.

ACTIVITIES DURING JULY 1980:

Development and analysis of FVCS strategies and concepts were begun for the Peach Bottom reactor, a Mark I BWR. Pertinent plant characteristics, layouts, and systems were studied. MARCH code calculations were performed to define the environment and source term. A methodology for risk assessment of the Peach Bottom reactor with containment venting was formulated.

The most challenging aspects of containment venting for Peach Bottom emanate from the relatively high probability of ATWS sequences and the possible sensitivity of the ECCS pumps to cavitation caused by venting. Further information on these subjects is being obtained and postulated strategies for these situations are being explored.

MAJOR MILESTONES:

MILESTONE DESCRIPTION	SCHEDULED/ACTUAL START	SCHEDULED COMPLETION	ACTUAL/PROJECTED COMPLETION
Literature Review	5/79	6/79	Completed
Program Plan	7/79	10/79	Completed
Development of General Design Concepts	7/79	12/80	12/80
Preliminary Engineering Analyses	9/79	3/81	3/81
Interim Report	3/81	6/81	6/81
Development of System Designs and Reliability Assessment	4/81	12/81	12/81
Vent-Filter Thermal- Hydraulic Modeling and Consequence Calculation	3/80	12/81	12/81
Value-Impact Assessment	7/81	3/82	3/82

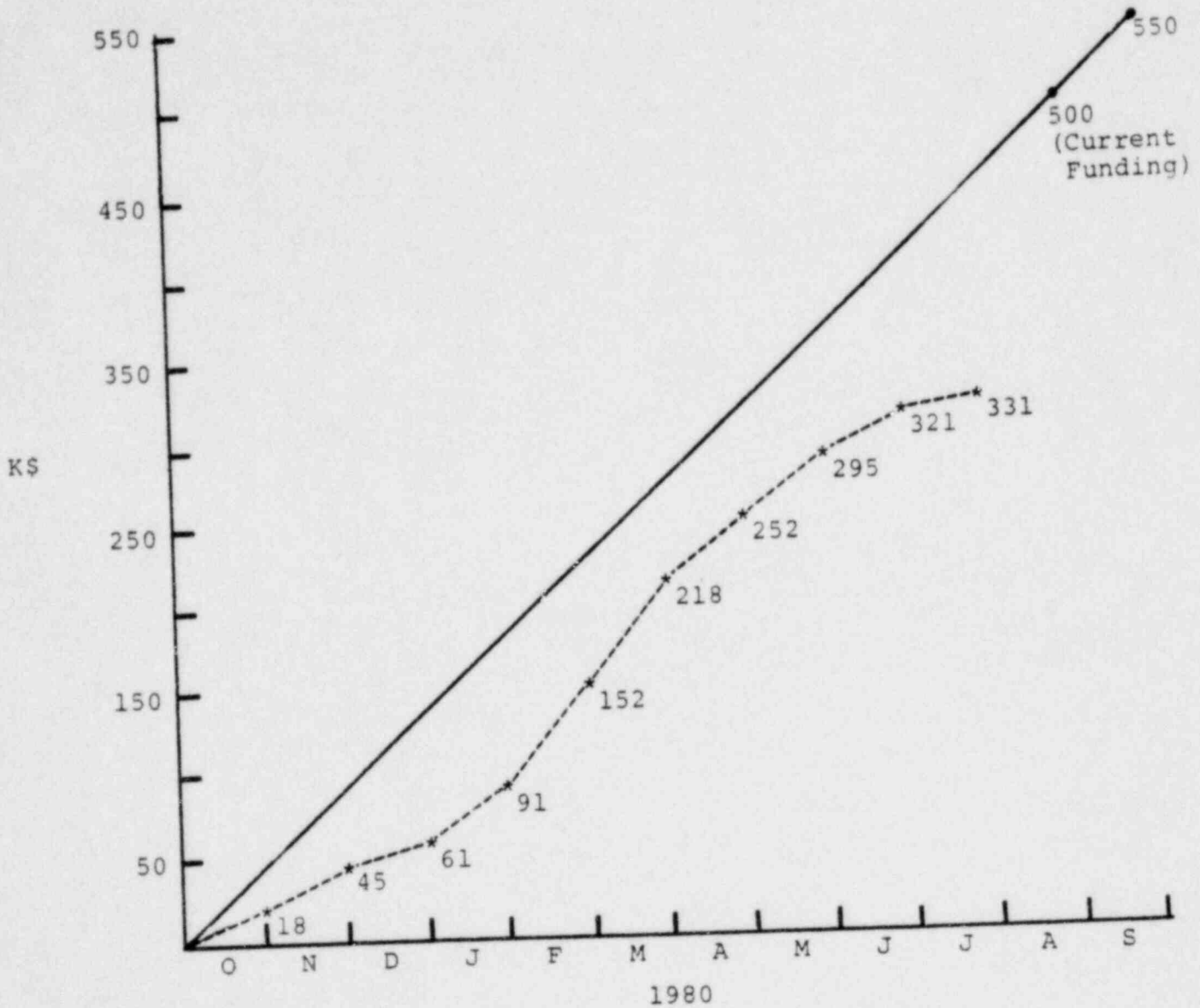
Definition of Design Requirements and Recommendations	11/81	3/82	3/82
Final Report	3/82	6/82	6/82

MANAGEMENT AND TECHNICAL ISSUES/POTENTIAL SCHEDULE OR FUNDING PROBLEMS:

The schedule of starts and completions has been adjusted to reflect a six-month slippage of the final completion date resulting from (1) the diversion of the program to the Zion/Indian Point study during January through June 1980, (2) the initiation of a more extensive analysis of competing risks than originally planned, and (3) the fact that \$50,000 of the budgeted funding has been held back.

The program diversion during the first half of CY 1980 resulted in a considerable amount of extra time being spent in the development and evaluation of plant-specific designs, the support of technical exchange meetings, and the writing of the Zion/Indian Point report. Milestone slippages resulting from this diversion and from the funding reduction were forecast in the December 1979 and March 1980 status reports. In addition, one of the findings of the Zion/Indian Point study was the importance of performing a comprehensive evaluation of competing risks as soon as possible. This task, which was initiated recently, will require more time than the original task of preliminary engineering analysis.

PROGRAM: Development and Analysis of Vent-Filtered Containment Conceptual Designs



RESOURCES EXPENDED:

	JULY 1980	CUMULATIVE
DOLLARS (K)	10	331 (60%)
MAN MONTHS	2	55

PPROGRAM: Risk Methodology for Spent Fuel  
Isolation Alternatives

FIN#: A1225

CONTRACTOR: Sandia National Laboratories

BUDGET PERIOD: 10/79-9/80

PAS PROGRAM MANAGER: M. C. Cullingford

BUDGET AMOUNT: 265K

CONTRACTOR PROGRAM MANAGER: N. R. Ortiz

FTS PHONE: 844-5644

PRINCIPAL INVESTIGATORS: R. E. Pepping

FTS PHONE: 844-5303

PROGRAM OBJECTIVES:

1. Modification of the existing methodology for high level waste to assess the risk (with uncertainties) from isolation of spent fuel in deep geologic media.
2. Derivation of insights which will assist in formulating regulatory criteria for site selection and for repository design.
3. Depending upon an assessment of the potential need, investigation of use of risk methodology for site specific licensing tools.

ACTIVITIES DURING JULY 1980:

In preparing to calculate risk estimates for a few candidate scenarios, a screening of fission and activation products has been done to determine those waste inventory constituents which may be important contributors to risk. This screening is based on consideration of radiotoxicity of a given radionuclide. The list thus determined contains 16 radionuclides and represents those most hazardous in both the Spent Fuel and High Level Waste inventories. This work will be thoroughly discussed in a forthcoming milestone.

The collection of geophysical and geochemical data is continuing in conjunction with the High Level Waste Study. The study of the thermomechanical response of the host medium is also continuing. In computing this response, we are using the COYOTE and MARC codes. These allow a relatively inexpensive thermoelastic response to be estimated and approximate the results of a creep-response calculation.

Work has begun on the analysis of the Reference Repository Specification to develop the methodology for analyzing the preclosure waste handling risks. Comments are being received on the repository design report regarding clarity and completeness. These comments will be addressed in the final report.



MAJOR MILESTONES:

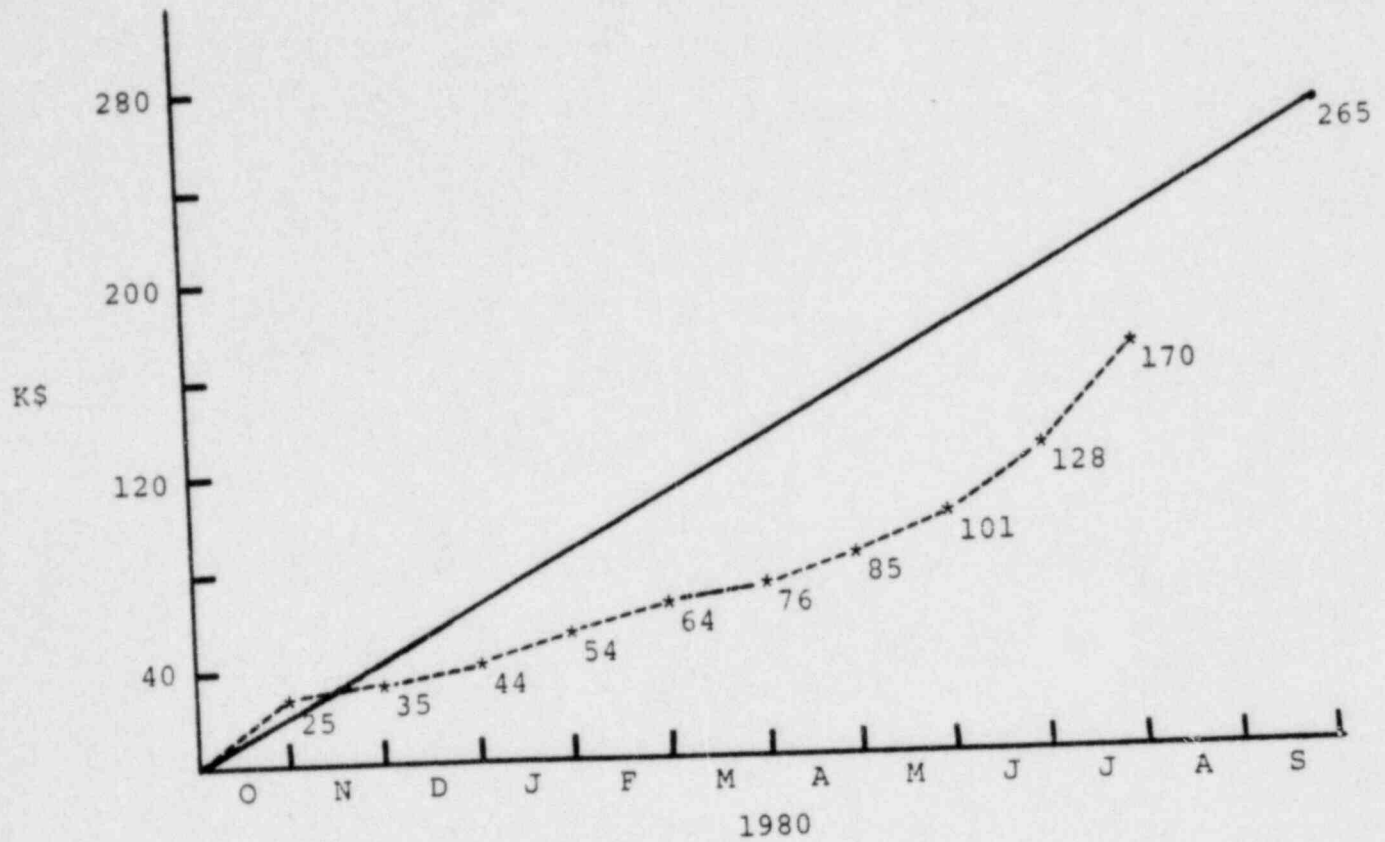
MILESTONE* DESCRIPTION	SCHEDULED/ACTUAL START	SCHEDULED COMPLETION	ACTUAL/PROJECTED COMPLETION
1	10/79	2/80	Completed
2	12/79	9/80	9/80
3	12/79	9/80	9/80
4	3/80	9/80	9/80

MANAGEMENT AND TECHNICAL ISSUES/POTENTIAL SCHEDULE OR FUNDING PROBLEMS:

None

- 
- \*1 - Identification of differences between physical and chemical properties of spent fuel and high-level wastes.
  - 2 - Specification of reference repository.
  - 3 - Modification of risk models for high-level waste depositories to describe spent fuel. Identification of new modeling needs.
  - 4 - Specification of data, models, and procedures to be used in risk assessment.

PROGRAM: Risk Methodology for Spent Fuel Isolation Alternatives



RESOURCES EXPENDED:

	JULY 1980	CUMULATIVE
DOLLARS (K)	42	170 (648)
MAN MONTHS	7	28

PROGRAM: Crystal River Study (IREP) FIN#: A1241  
 CONTRACTOR: Sandia National Laboratories BUDGET PERIOD: 12/79-9/80  
 PAS PROGRAM MANAGER: J. A. Murphy BUDGET AMOUNT: 650K  
 CONTRACTOR PROGRAM MANAGER: J. W. Hickman FTS PHONE: 844-3874  
 PRINCIPAL INVESTIGATOR: J. W. Hickman FTS PHONE: 844-3874

PROGRAM OBJECTIVES:

To identify in a preliminary way whether the Crystal River Unit 3 facility appears to have a higher level of public risk due to potential accidents than that indicated in WASH-1400.

ACTIVITIES DURING JULY 1980:

A \$150,000 contract was placed to continue work on the Crystal River Study. Science Applications, Inc. (SAI), began reviewing comments on the study for incorporation into the report.

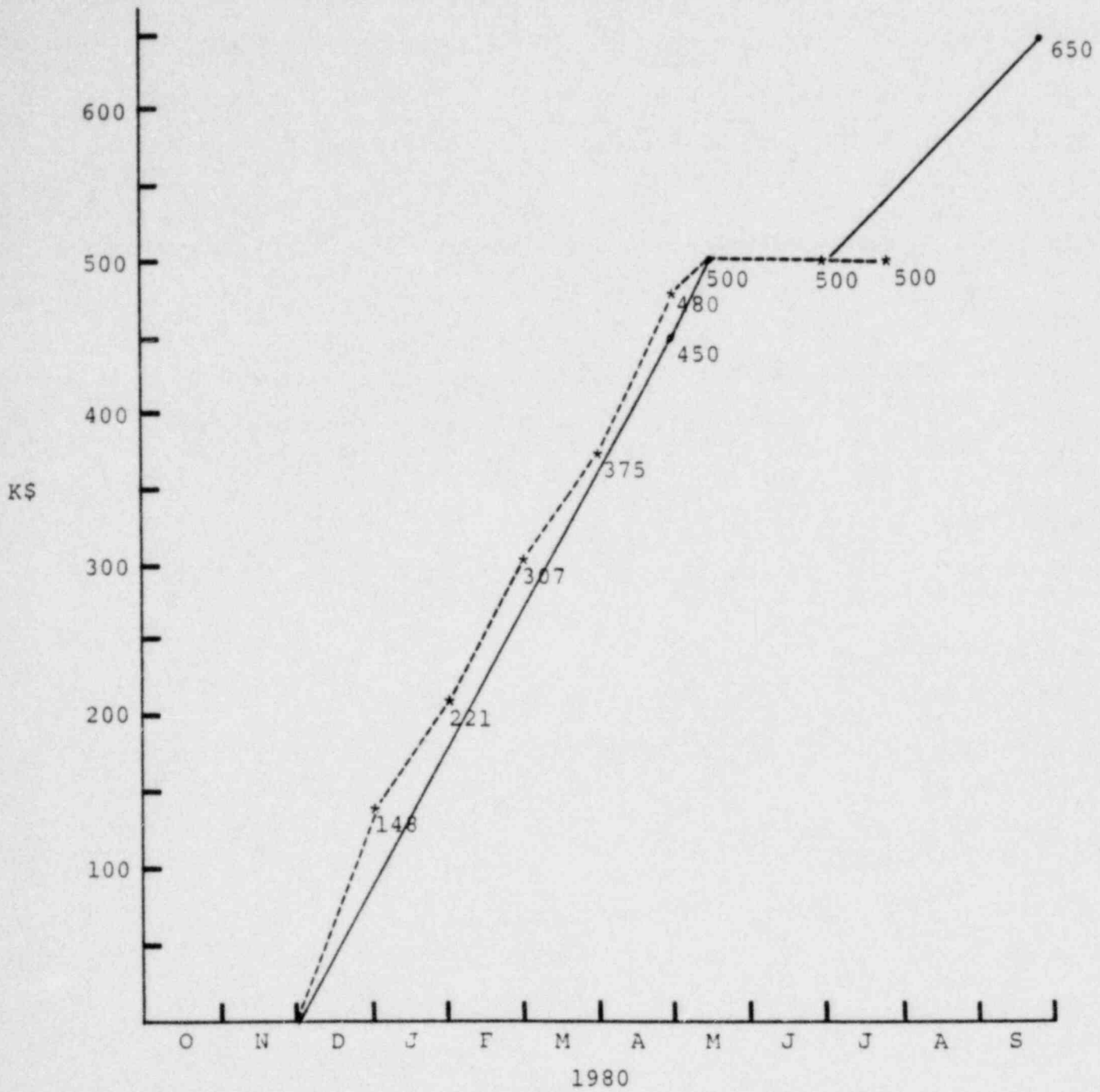
MAJOR MILESTONES:

MILESTONE DESCRIPTION	SCHEDULED/ACTUAL START	SCHEDULED COMPLETION	ACTUAL/PROJECTED COMPLETION
Preliminary Report	11/5/79	12/31/79	Completed
Final Report	1/1/80	3/1/80	Completed
Revise Final Report	7/21/80	9/30/80	

MANAGEMENT AND TECHNICAL ISSUES/POTENTIAL SCHEDULE OR FUNDING PROBLEMS:

None

PROGRAM: Crystal River Study (IREP)



RESOURCES EXPENDED:

	JULY 1980	CUMULATIVE
DOLLARS (K)	0	500 (77%)
MAN MONTHS	0	83

PROGRAM: Integrated Reliability Evaluation  
Program (IREP)

FIN#: A1241

CONTRACTOR: Sandia National Laboratories

BUDGET PERIOD: 2/80-9/80

PAS PROGRAM MANAGER: J. A. Murphy

BUDGET AMOUNT: 1029K

CONTRACTOR PROGRAM MANAGER: D. J. McCloskey

FTS PHONE: 844-8870

PRINCIPAL INVESTIGATORS: G. B. Varnado  
Methods Development

FTS PHONE: 844-1136

J. W. Hickman  
Risk Assessment

844-3874

L. D. Chapman  
Plant Information Library

844-9158

#### PROGRAM OBJECTIVES:

The objectives of this program are to: (1) identify--in a preliminary way--those accident sequences that dominate the contribution to the public health and safety risks originating in nuclear power plant accidents; (2) develop a foundation for subsequent, more intensive, applications of probabilistic safety analysis or risk assessment on the subject plants; (3) expand the cadre of experienced practitioners of risk assessment methods with NRC and the nuclear power industry; and (4) evolve procedures codifying the competent use of these techniques for use in the extension of IREP to all domestic light water reactor plants.

#### ACTIVITIES DURING JULY 1980:

Discussions continued with PAS personnel during July. PAS forwarded a draft of the IREP Procedure and Schedule Guide, comments on the Event Tree Guide, and utility correspondence. Review of the Procedure Guide and revision of the Event Tree Guide began. Proposals were received for subcontractors to support Sandia's analysis. A contract with INEL was placed. Methods development work continued.

#### MAJOR MILESTONES:

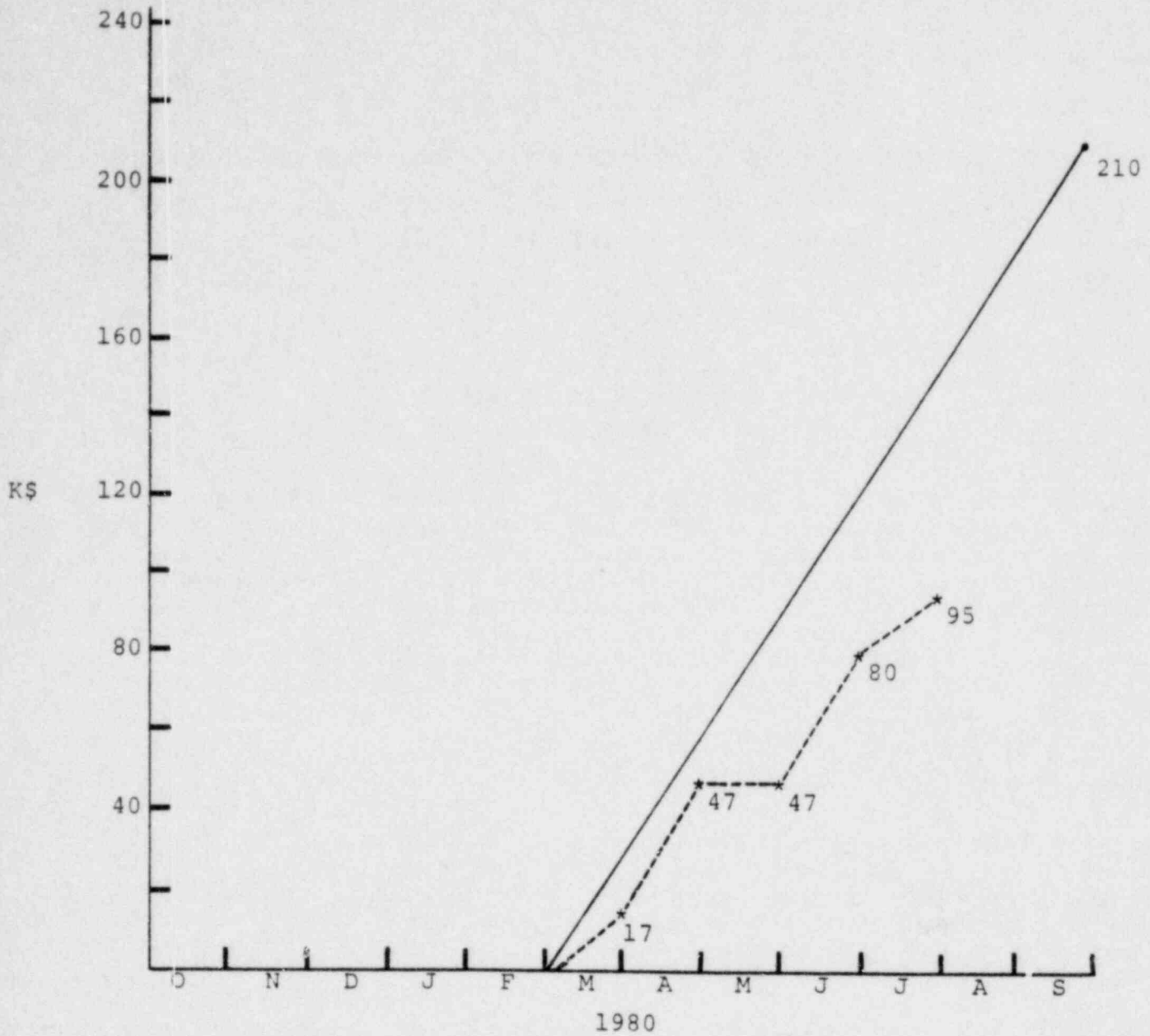
MILESTONE DESCRIPTION	SCHEDULED/ACTUAL START	SCHEDULED COMPLETION	ACTUAL/PROJECTED COMPLETION
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Not yet set

#### MANAGEMENT AND TECHNICAL ISSUES/POTENTIAL SCHEDULE OR FUNDING PROBLEMS:

The IREP Procedure Guide received contains task descriptions for only the first 19 tasks. Comments have not yet been received from NRC regarding the fault tree guide. Some plant information from ANO has not yet been received. The expected start date for the risk assessment function now appears to be September 4, 1980.

PROGRAM: Integrated Reliability Evaluation Program (IREP)



RESOURCES EXPENDED:

	JULY 1980	CUMULATIVE
DOLLARS (K)	15	95 (45%)
MAN MONTHS	3	16