

NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS PROJECT

MONTHLY REPORT

MAY 1987

Prepared by Nevada Nuclear Waste Storage Investigations (NNWSI) Project participants as part of the Civilian Radioactive Waste Management Program. The NNWSI Project is managed by the Waste Management Project Office of the U.S. Department of Energy (DOE), Nevada Operations Office. NNWSI Project work is sponsored by the DOE Office of Civilian Radioactive Waste Management.

UNITED STATES DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE

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ABSTRACT

1.2.1 SYSTEMS

The Sandia National Laboratories (SNL) report entitled "Cost Estimate of Yucca Mountain Repository Based on the Site Characterization Plan Conceptual Design" was approved by the Waste Management Project Office (WMPO) for publication. The Systems Engineering Integration Group (SEIG) is resolving WMPO comments on the Systems Engineering Management Plan (SEMP). The SNL papers "Measuring and Modeling Water Imbibition into Tuff," and "Radionuclide Transport in an Unsaturated, Fractured Medium," have been sent to the American Geophysical Union (AGU) for inclusion in an AGU monograph. WMPO Milestone M768, WMPO completes review of the Mined Geologic Disposal System (MGDS) Requirements and returns to SNL, has been completed. SNL Milestone M765, SNL submits 1987 version of the Reference Information Base to WMPO for policy review, was completed on May 12, 1987.

1.2.2 WASTE PACKAGE

A controlled water chemistry experiment was completed by Lawrence Livermore National Laboratory (LLNL) staff and samples were sent for chemical analysis. Testing of the prototypical reactions cells was completed. The LLNL Scientific Investigation Planning (SIP) document for the waste package environment task was sent to WMPO for review. The Series 3 Cycle 3 bare fuel tests were terminated at 97 days. Remaining questions involving reference verification, figure captions, citations, and clarification of technical terms in the Site Characterization Plan (SCP) Chapter 7 were resolved. A draft of the LLNL Metal Barrier Selection and Testing Task SIP was completed. LLNL Milestone, M002, testing of West Valley glass, was completed.

1.2.3 SITE INVESTIGATIONS

The stop-work order issued to the U.S. Geological Survey (USGS) in March 1986 remained in effect through May and almost all site characterization technical activities continued to be suspended. The peer review on the opaline silica and calcite deposits found in fault zones at the Yucca Mountain site was held in May. A report which summarizes the planned site characterization activities for the Yucca Mountain site was completed; this report will support negotiations regarding land access and environmental permitting. The USGS manuscript entitled "Introduction to Special Section: Geophysical Investigations of Proposed Radioactive Waste Disposal Sites," was accepted for publication by the Journal of Geophysical Research. The historic catalog of seismicity was submitted to the printer. Calcite sampled from five fractures in USWG-4 was sent to the University of California at Riverside for carbon and oxygen isotope analyses. The Los Alamos paper entitled "Distribution and Chemistry of Diagenetic Minerals at Yucca Mountain, Nye County, Nevada" was published in Clay and Clay Minerals. The Sample Management Facility (SMF) Title II design work on warehouses #1 and #2 was completed. The SAIC report entitled "Population Densities Along Nevada Transportation

Routes" was published and distributed. SAIC Milestone N360, status report of all radiological monitoring activities, was completed and transmitted to WMPO.

1.2.4 REPOSITORY INVESTIGATIONS

The computational work on the analysis of the mechanical testing portion of the G-Tunnel heated block experiment was completed. A contract was placed for Robbins Co. to produce conceptual designs for short-borehole drilling equipment and off-normal core drill retrieval equipment. A field trip to Yucca Mountain was made to verify alluvial thickness at the new exploratory shaft location. An overview of the degradation model which identifies specific sources of permeability change was prepared. The Exploratory Shaft Facility (ESF)/Repository interface drawing has been completed. The SNL reports "NNWSI Unit Evaluation at Yucca Mountain Nevada Test Site: Near Field Thermal and Mechanical Calculations Using the SANDIA-ADINA Code" and "NNWSI Unit Evaluation at Yucca Mountain, Nevada Test Site: Near Field Mechanical Calculations Using a Continuum Jointed Rock Model in the JAC Code" were submitted for printing. The SNL report entitled "Sensitivity Analyses of Underground Drift Temperatures, Stresses, and Safety Factors to Variation in the Rock Mass Properties of Tuff for a Nuclear Waste Repository at Yucca Mountain, Nevada" was published.

1.2.5 REGULATORY AND INSTITUTIONAL INVESTIGATIONS

The fourth revision to the NNWSI Project Regulatory Document Manual (RDM) was prepared and issued. SCP Chapter 7 reference verification was completed by LLNL. Revised text for SCP Chapter 8 was submitted to Department of Energy/Headquarters (DOE/HQ) on May 26, 1987. SAIC staff completed reference verification for SCP Chapters 1 through 7. Draft III of the Environmental Regulatory Compliance Plan (ERCP) was transmitted to DOE/HQ on May 29, 1987. SNL Milestone R963, Nuclear Regulatory Commission (NRC) interaction meeting on exploratory shaft design and construction, was completed.

1.2.6 EXPLORATORY SHAFT INVESTIGATIONS

Exploratory Shaft Facility (ESF) Special Study #2, Environmental Permitting Requirements, was completed and submitted to WMPO for review. Reynolds Electrical and Engineering Company (REECo) compiled data on drill jumbos at the NTS for Los Alamos. The first draft of the ESF/SCP Master Schedule was completed. Revision 1 of Study #1, Surface Site Layout and Revision 1 Study #3, Area 25 A/E Building, were submitted to WMPO. The shaft mapping platform and the telescoping camera pedestal design were completed by the U.S. Bureau of Reclamation (USBR). Draft technical procedures (DTPs) on prototype Intact Fracture Sampling Methods and prototype Blast Effects on Instrumentation were completed.

1.2.7 TEST FACILITIES

The remaining Spent Fuel Test-Climax reports are in various stages of completion for printing.

1.2.8 LAND ACQUISITION

Representatives from SAIC, the Bureau of Land Management (BLM), and the Air Force met to discuss the Nellis Range Management Plan. SAIC Milestone T026, Draft Annotated Outline of the Plan of Development, was delivered to WMPO.

1.2.9 PROJECT MANAGEMENT

The NNWSI Project Hole History Publication was distributed. Comments on the Project Management Plan received from Project participants and WMPO are being resolved and incorporated. A LLNL paper entitled "Organizing for Quality: A Structural Perspective" was presented at the American Society for Quality Control (ASQC) Annual Quality Conference. The second audit for FY 87 was conducted in May. Of the five audits conducted in FY 86 four remain open. Of the 15 audits conducted in FY 85 four remain open. One surveillance was conducted during May 1987 and two items or activities monitored. To date, 19 surveillances have been conducted in FY 87 and 60 items or activities monitored and nine Standard Deficiency Reports (SDRs) recorded. The Information Management System (IMS) Plan, Revision 0, was completed and distributed. Indexing of the Environmental Assessment (EA) Administrative Records in the IMS was completed. An inspection and documentation operation is being planned to qualify the ES-2 hoist being purchased by WMPO for Level II quality requirements.

MAY 1987

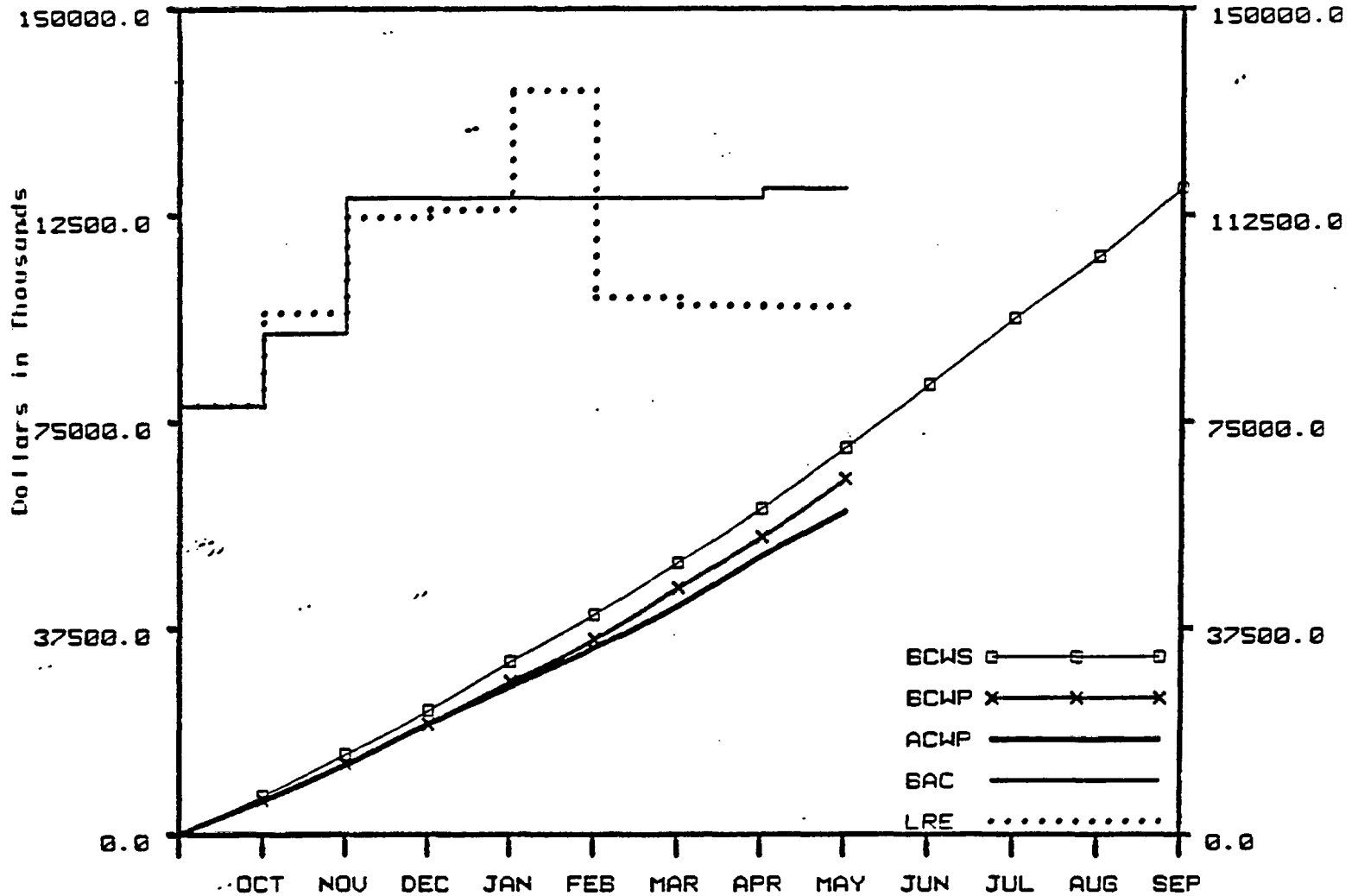
Funding Overview

The month-end estimated costs were \$8,162,547 against a plan of \$10,963,540 resulting in a cost underrun of \$2,800,993.

The following are the year-to-date plans, costs, and variances:

	<u>Plan</u> <u>(\$000)</u>	<u>Cost</u> <u>(\$000)</u>	<u>Variance</u>	<u>%</u> <u>Variance</u>
WBS 1.2.1 Systems	\$ 4,449	\$ 4,072	\$ 377	8
WBS 1.2.2 Waste Package	5,490	4,903	587	11
WBS 1.2.3 Site	19,485	13,515	5,970	31
WBS 1.2.4 Repository Investigations	6,413	5,664	749	11
WBS 1.2.5 Regulatory and Institutional Investigations	4,958	5,289	(331)	(7)
WBS 1.2.6 Exploratory Shaft Investigations	9,988	7,123	2,865	29
WBS 1.2.7 Test Facilities	352	242	110	31
WBS 1.2.8 Land Acquisition	85	64	21	25
WBS 1.2.9 Project Management	15,299	13,481	1,818	12
WBS 1.2.10 Financial and Technical Assistance	3,700	4,351	(651)	(18)
WBS 1.2 NNWSI Project	<u>\$ 70,219</u>	<u>\$ 58,704</u>	<u>\$ 11,515</u>	<u>16</u>

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2



NNWSI - TOTAL

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	10963.5	70219.1
B. BUDGETED COST OF WORK PERFORMED (BCWP)	10678.9	64584.7
C. ACTUAL COST OF WORK PERFORMED (ACWP)	8162.5	58704.2
D. BUDGET AT COMPLETION (BAC)		117279.0
E. LATEST REVISED ESTIMATE (LRE)		95783.0

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-5634.3	-8.02
G. COST VARIANCE (B-C)	5880.6	9.11
H. AT COMPLETION VARIANCE (D-E)	21496.0	18.33

Remarks:

NNWSI PROJECT BUDGET BASELINE

MAY 1987

<u>Contractors</u>	(\$000) Original FY 87 Funding	(\$000) Current Baselined Budget	(\$000) Change
SNL	\$ 16,148	\$ 23,289	\$ 7,141
LLNL	9,311	13,654	4,343
Los Alamos	10,003	13,128	3,125
USGS	13,333	20,629	7,296
SAIC	12,138	21,896	9,758
REEC _o	3,889	7,415	3,526
H&N	2,182	3,371	1,189
F&S	5,472	5,324	(148)
WSI	230	230	0
Pan Am	5	72	67
State Grant	3,765	6,486	2,721
DRI	100	125	25
EG&G	60	97	37
LBL	267	450	183
OSTI/TC	0	17	17
HEDL	0	117	117
CSC	0	43	43
NTS Allocation	980	936	(44)
Undistributed Budget	1,398	199	(1199)
 SUBTOTAL	 \$ 79,281	 \$ 117,478	 \$ 38,197
CAPITAL EQUIPMENT	\$ 5,081	\$ 11,045	\$ (5,964)
TOTAL	\$ 84,362	\$ 128,523	\$ 44,161

U.S. DEPARTMENT OF ENERGY

**DO
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Nevada
Nuclear
Waste
Storage
Investigations
PROJECT

**YUCCA
MOUNTAIN**

PROJECT STATUS

1.2.1 SYSTEMS

OBJECTIVE

The objective of this task is to apply the concept of systems to the development and design of the repository, both the surface and subsurface facilities, and to the evaluation of the effectiveness of the geologic and hydrologic environment in isolating radionuclides.

ACTIVITIES

WBS 1.2.1.2.3 Cost Schedule

The Waste Management Project Office (WMPO) approved the Sandia National Laboratories (SNL) report entitled "Cost Estimate of the Yucca Mountain Repository Based on the Site Characterization Plan Conceptual Design" (SAND85-1964) for publication. This report, a Site Characterization Plan (SCP) reference, will be included in the 1988 Total System Life Cycle Cost (TSLCC) estimate which Department of Energy/Headquarters (DOE/HQ) uses to prepare the annual TSLCC in support of the Fee Adequacy analysis.

WBS 1.2.1.2.4 Systems Engineering Integration

During May, the SAIC Systems Engineering staff reviewed the SRPO and BWIP SEMP in relationship to the NNWSI Project SEMP and provided support to the SCP effort in the verification of references for the geology chapter (Section 1.7) of the SCP.

The Systems Engineering Management Plan (SEMP) has been reviewed at WMPO, and 328 numbered comments have been received by SNL. The Systems Engineering Integration Group (SEIG) is resolving these comments.

Over 300 comments on the SEMP were received at Los Alamos from the WMPO. A plan to resolve the comments, complete any required revisions, and obtain approval by the WMPO was developed. Two separate workshops at Science Applications International Corporation (SAIC) offices in Las Vegas were held to resolve the comments. In addition, the Systems Engineering Coordinator worked with SNL staff for approximately two days to compile the resolutions and revise the SEMP text.

The SAIC Configuration Management Branch (CMB) submitted 48 Cost/Schedule Change Requests (C/SCRs) to the Change Control Board (CCB), approved 26 C/SCRs, deferred 16 C/SCRs, disapproved two C/SCRs, and withdrew four C/SCRs during May.

WBS 1.2.1.3.1 Site and Engineering Properties Data Base

All SNL personnel normally assigned to the site and engineering properties data base (SEPBD) task, other than the task leader, have been working in Work Breakdown Structure (WBS) 1.2.1.3.4 (Computer Support) for the preparation of the parameter list supporting the SCP. Accordingly, all work related to the parameter lists in the SCP henceforth will be reported solely by WBS

1.2.1.3.4. The parameter lists from the SCP are to form the basis of the organizational structure of the SEPDB; therefore, implementation of the SEPBD cannot proceed until the compilation and resolution of the two parameter lists is completed.

WBS 1.2.1.3.2 Computer Graphics

An SNL paper entitled "Application of Geostatistical Techniques to Modeling of Spatial Variability at the Proposed Yucca Mountain Repository Site, Nevada" was presented at the Spring meeting of the American Geophysical Union (AGU) in Baltimore, MD.

The SNL report entitled "Geostatistical Evaluation of Alternative Drilling Programs" (SAND87-0932) was revised and is in line review.

1.2.1.3.4 Data Base Computer Support

Initial modules for the library of FORTRAN subroutines and functions to support hydrogeologic models that use Interactive Graphics Information System (IGIS) graphical data have been developed by SNL staff members and are available for use. Continuing work in WBS 1.2.1.4.1, Flow and Radionuclide Transport, may identify other modules needed for the library.

SNL personnel have extended and refined the SCP parameter specifications in the SCPPARM data base. SCPPARM parameter specifications related to Issues 1.12, 2.1, 2.2, and 2.3 have been updated.

WBS 1.2.1.4.2 Radionuclide Source Term

Steady-state results for the COVE3 heat-pipe problem were received by SNL staff members from two participants. A cursory comparison of the results has indicated some minor differences, and the causes of these differences are being investigated. A meeting to discuss results from all COVE3 participants is planned for the second week of June 1987.

WBS 1.2.1.4.4 Radionuclide Releases from Total System

The SNL papers "Measuring and Modeling Water Imbibition into Tuff," and "Radionuclide Transport in an Unsaturated, Fractured Medium," have been sent to the AGU to be included in an AGU monograph entitled Flow and Transport Through Unsaturated Fractured Rock.

PLANNED WORK

Staff members at SNL will correlate data requirements supporting design and performance-assessment activities with site characterization data. Generation of additional parameter tables is also planned. Consistently formatted parameter tables will be generated to support production of the SCP. The requirements analysis for the Technical Data Base will continue, with emphasis on user definition, views, and interfaces.

SNL staff members will continue working on the revised fuel rod consolidation report.

Changes to the Reference Information Base (RIB) are being submitted and developed through the SNL change control process for incorporation into the first revision set. Additional management procedures are being developed and tested for controlling of internal information processing for the RIB

SNL Staff will continue comparison of methods for generating the moments of ground-water travel time. They will also investigate effects of the correlation structure of the independent variables in current flow models on stochastic predictions of ground-water travel times.

PROBLEM AREAS

The SNL task leader and certain key SNL staff normally assigned to the radionuclide releases from total system task will continue to be heavily involved with the production of the SCP, probably throughout the summer months. This work includes the almost-continuous revision of Chapter 8 sections associated with or indirectly affecting Issue 1.1. As a consequence, some of the FY 87 milestones for this task may not be completed and reviewed in time to meet the baselined schedule.

MILESTONE PROGRESS

SNL milestone M764, WMPO completes review and comment on 1987 annual version of RIB and returns to SNL, has been delayed.

The new estimated date of completion for SNL Milestone M108, WMPO sends Systems Engineering Management Plan (SEMP) to OGR for review, is July 7, 1987.

The new estimated date of completion for SNL Milestone M772, incorporate WMPO and TPO comments into performance-allocation studies report and resubmit to WMPO, is June 2, 1987.

SNL Milestone R108, report on performance-allocation studies included in SCP, has been delayed and the new date of completion is June 15, 1987.

The new estimated date of completion for SNL Milestone M120, Yucca Mountain MGDS System Requirements submitted to DOE/HQ, is August 1, 1987.

SNL Milestone M261, Yucca Mountain MGDS System Description submitted to OGR, will be delayed.

SNL Milestone M297, technical data base plan for the SEPDB, has been delayed and the new estimated date of completion is July 30, 1987

The new estimated date of completion for SNL Milestone R080, status report on NNWSI Project data base capabilities, is June 30, 1987.

The new estimated date of completion for SNL Milestone R076, summary report on data base interaction among NNWSI Project participants, is June 30, 1987.

WMPO Milestone M768, WMPO completes review of Mined Geologic Disposal System (MGDS) System Requirements and returns to SNL, has been completed.

WMPO Milestone M770, WMPO completes review and comments on MGDS System Description and returns to SNL, will be delayed.

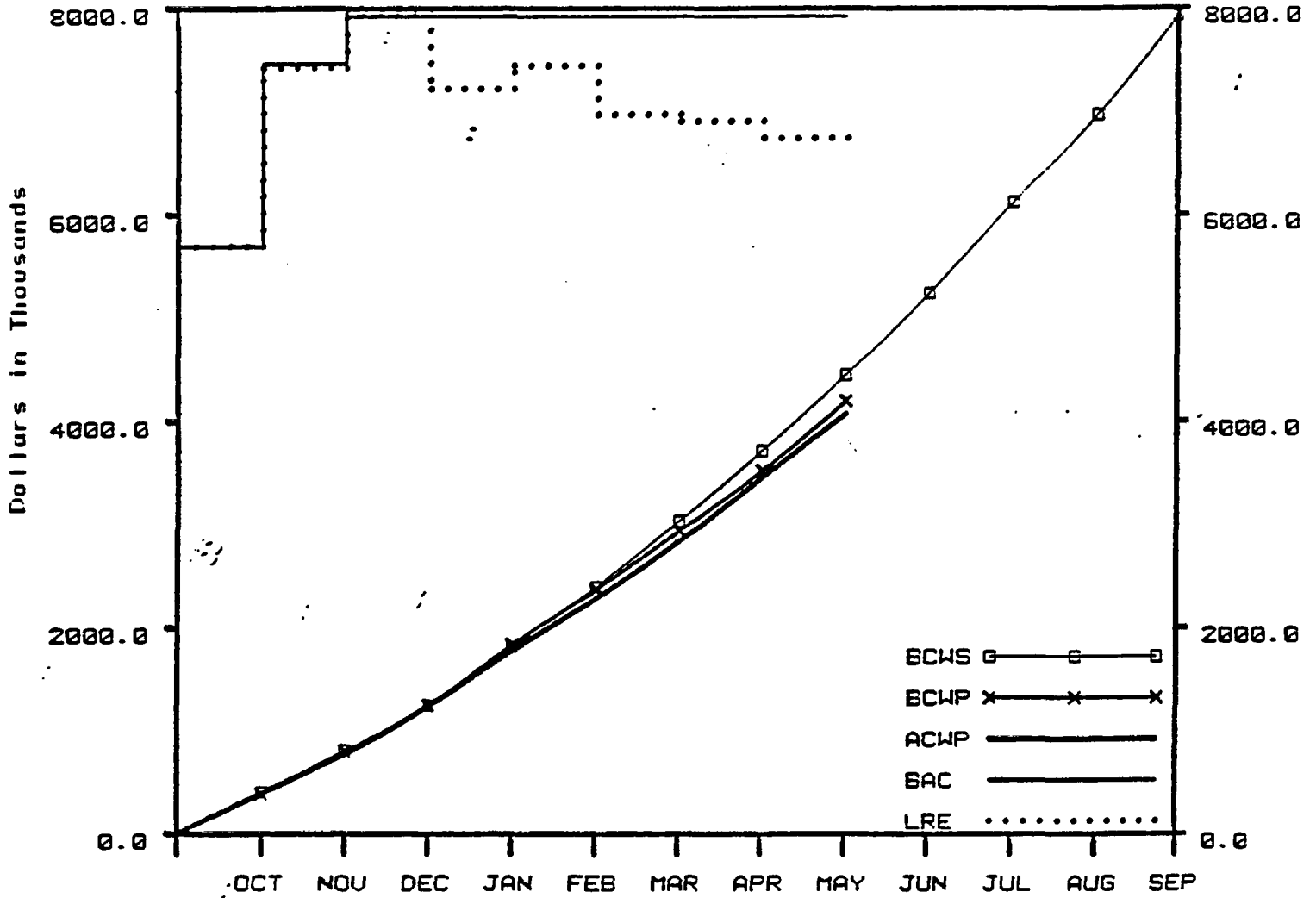
SNL Milestone M765, SNL submits 1987 version of the Reference Information Base to WMPO for policy review, was completed on May 12, 1987.

SNL Milestone M294, completion of technical procedures for Quality Assurance Level 1 Technical Data Base, has been delayed and the new estimated date of completion is June 30, 1987.

The new estimated date of completion for SNL Milestone R089, installation of the SEPDB, is June 18, 1987.

SNL Milestones M102, prepare and submit "Documentation of the Total Systems Performance-Assessment Code (TOSPAC) Volume 1: Physical and Mathematical Basis," SAND85-0002; and M126, SNL report on issues and data needs for NNWSI Project postclosure performance assessment, have been delayed because of commitments to revising the SCP and the new estimated date of completion for these milestones is September 30, 1987.

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.1



SYSTEMS

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	735.4	4449.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	674.4	4195.9
C. ACTUAL COST OF WORK PERFORMED (ACWP)	616.8	4071.8
D. BUDGET AT COMPLETION (BAC)		7923.0
E. LATEST REVISED ESTIMATE (LRE)		6740.0

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-253.1	-5.69
G. COST VARIANCE (B-C)	124.0	2.96
H. AT COMPLETION VARIANCE (D-E)	1183.0	14.93

Remarks:

COST PERFORMANCE REPORT
WBS LEVEL 4
U.S. DEPARTMENT OF ENERGY
NNWSI PROJECT

For: MAY 1987

Date: June 22, 1987

WBS NUMBER AND DESCRIPTION	YEAR TO DATE				
	BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES	
				SCHEDULE	COST
1211 Systems Management and Integration	266.900	266.900	141.017	.000	125.884
1212 Systems Engineering	1,553.100	1,536.989	1,375.817	-16.111	161.172
1213 Technical Data Base Management	819.000	581.985	573.000	-237.015	8.985
1214 Total Systems Performance Assessment	1,810.000	1,809.996	1,982.000	-.004	-172.004
121 SYSTEMS	4,449.000	4,195.870	4,071.834	-253.130	124.036

MILE- STONE	RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
P132	WMPO/ SNL	1.2.1.1	WMPO submits Annual PASS Program Interaction Letter Report for FY 87 to OGR												△
R108	WMPO/ SNL	1.2.1.1	WMPO submits Letter Report on Studies of Performance Allocation Included in SCP to OGR					△					◇		
R109	WMPO	1.2.1.1	WMPO submits Letter Report on Studies of Coupled Processes Included in the SCP to OGR for Information			△				◆					
M120	WMPO/ SNL	1.2.1.2	Yucca Mountain Mined Geologic Disposal System (MGDS) Requirements						△						◇
M261	WMPO/ SNL	1.2.1.2	Draft Yucca Mountain Site-Specific Mined Geologic Disposal System (MGDS) Description									△			
M108	WMPO/ SNL	1.2.1.2	System Engineering Management Plan (SEMP)					△						◇	
R074	WMPO/ SNL	1.2.1.2	OGR Systems Engineering Review of the NNWSI Project						△					◇	
R092	WMPO/ SNL	1.2.1.3	WMPO Submits Hard Copy (1987 Annual) Version of the Reference Information Base to OGR								△			◇	

△ PLANNED MILESTONE COMPLETION DATE

◇ REVISED MILESTONE COMPLETION DATE

▲ COMPLETED AS SCHEDULED

◆ COMPLETED AS REVISED

1-4b

◇
1/88

1.2.2 WASTE PACKAGE

OBJECTIVE

The primary objective of this task is to develop a technical basis and engineering capability to design, test, and fabricate a waste package that is compatible with the hydrological conditions and geochemical environment in the unsaturated zone beneath Yucca Mountain.

ACTIVITIES

WBS 1.2.2.1 MANAGEMENT AND INTEGRATION

During May, the SAIC Engineering staff completed a summary report on the status of investigations of the Well J-13 water sample usage in LLNL activities, converted the requirements for the Waste Package Design Requirements (WPDR) document defined in the ACD Plan into a draft outline for discussion with LLNL, prepared two waste package issue summaries for SCP Section 8.2, and reviewed SCP Section 8.3.2.4, non-radiological and safety as part of SCP Chapter 8 integration.

WBS 1.2.2.2 Package Environment

During the month of May 1987 a controlled water chemistry experiment was completed by Lawrence Livermore National Laboratory (LLNL) staff. The collected water samples have been sent out for chemical analysis.

LLNL personnel completed testing of the prototypical reactions cells. The cells appear to perform as required and are expected to be trouble-free during the duration of the experiment.

The LLNL Scientific Investigation Planning (SIP) document for the waste package environment task has been sent to WMPO for review. Response to review comments will be completed when the review is completed.

WBS 1.2.2.3.1 Waste Form Testing

The Series 3 Cycle 3 bare fuel tests were terminated at 97 days and will not be restarted for additional cycles. The decision not to restart was, in part, based on the impending transfer of work from Westinghouse Corporation-Hanford Engineering Development Laboratory (WEC-HEDL) to Pacific Northwest Laboratories (PNL) as part of the contractor consolidation effort at the Hanford site. The total testing time (Cycles 1 through 3) of the Series 3 bare fuel samples was 27 months.

WBS 1.2.2.3.2 Metals Barriers Testing

Some remaining questions on SCP Chapter 7 (Section 7.4.2 and 7.3 dealing with the metal barrier and candidate materials) were resolved in meetings and telecommunications with the SAIC staff. These questions involved reference

verifications, figure captions, citations, and clarification of some technical terms.

The LLNL draft of the Metal Barrier Selection and Testing Task SIP was completed. The SIP has undergone internal review for technical content and has been the subject of two oral seminar presentations and discussions. Completion of the formal review and assignment of quality assurance levels is expected in June.

WBS 1.2.2.3.4 Integrated Testing

The LLNL SIP for the non-EQ3/6 data base portions of the integrated testing task was written. Transmittal of the SIP to WMPO is planned for early June.

WBS 1.2.2.5.2 Near-Field Flow and Transport

LLNL staff members continue work on the application of the TOUGH code to the near-field hydrologic environment. The application includes participation in the COVE-3 verification effort. An effort to identify the most appropriate method for modeling flow and transport for the near-field waste package environment continues.

MILESTONE PROGRESS

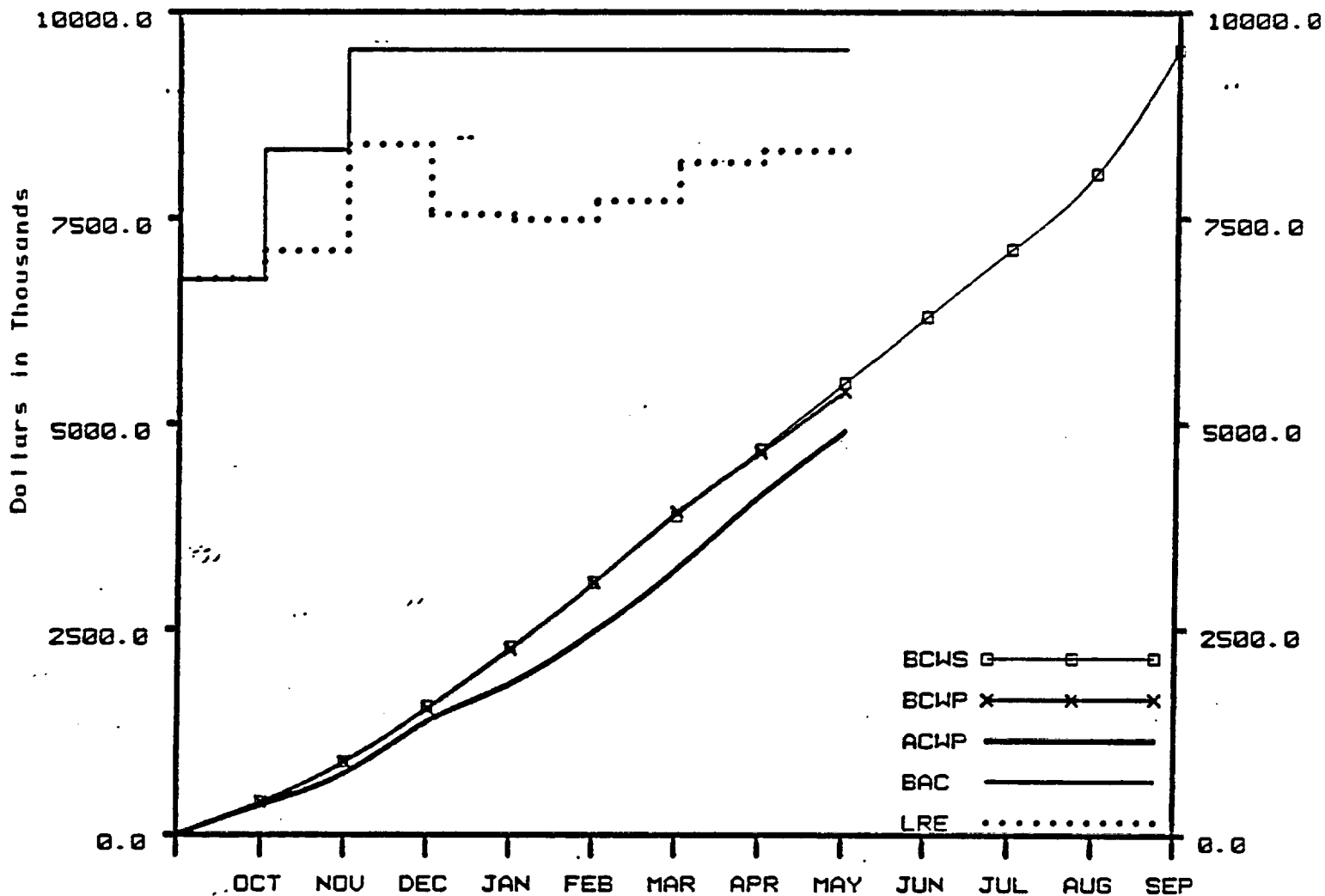
LLNL Milestone W213, "Report on the Dehydration/Rehydration of Tpt in a Temperature Gradient" was delayed due to technical problems with the scanning electron microscope and the revised completion date is July 31, 1987.

LLNL Milestone M002, testing of West Valley glass, was completed.

The new estimated date of completion for LLNL Milestone M236, "Results of Testing Advanced Conceptual Metal Barrier Material Under Repository Environment," is July 31, 1987.

SCP activities and preparation of the SIP have impacted the completion of LLNL Milestone W224. This milestone will receive priority attention during July and August.

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.2



WASTE PACKAGE

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	807.3	5489.5
B. BUDGETED COST OF WORK PERFORMED (BCWP)	742.1	5390.4
C. ACTUAL COST OF WORK PERFORMED (ACWP)	779.3	4902.7
D. BUDGET AT COMPLETION (BAC)		9535.0
E. LATEST REVISED ESTIMATE (LRE)		8306.5

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-99.1	-1.81
G. COST VARIANCE (B-C)	487.7	9.05
H. AT COMPLETION VARIANCE (D-E)	1228.5	12.88

Remarks:

COST PERFORMANCE REPORT
WBS LEVEL 4
U.S. DEPARTMENT OF ENERGY
NNWSI PROJECT

For: MAY 1987

Date: June 22, 1987

WBS NUMBER AND DESCRIPTION	YEAR TO DATE				
	BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES	
				SCHEDULE	COST
1221 Management and Integration	480.500	420.500	383.524	-60.000	36.977
1222 Package Environment	670.000	544.100	674.800	-125.900	-130.700
1223 Waste Form & Materials Testing	3,127.000	3,280.804	3,034.600	153.804	246.204
1224 Design, Fabricate, and Prototype Testing	647.000	647.000	268.800	-.000	388.200
1225 Performance Assessment	565.000	498.000	543.000	-67.000	-45.000
122 WASTE PACKAGE	5,489.500	5,390.404	4,902.724	-99.096	487.681

MILE- STONE	RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
R003	WMPO/ LLNL	1.2.2.1	Waste Package Postclosure Compliance Strategy Document				△							◇	
M236	WMPO/ LLNL	1.2.2.3	Progress Report on the Results of Testing Advanced Conceptual Design Metal Barrier Materials Under Relevant Environ. Conditions for a Tuff Repository				△						◇		
M257	WMPO/ LLNL	1.2.2.3	Decision Made on Using Packing Material in the Waste Package to Assist in Controlling Radionuclides Release Rate				△								◇
M013	WMPO/ LLNL	1.2.2.4	Revised Draft Waste Package Subsystem Conceptual Design Requirements to DOE/HQ for Review							△				◇	
M233	WMPO/ LLNL	1.2.2.4	Initiate Waste Package Advanced Conceptual Design												△
M260	WMPO/ LLNL	1.2.2.5	Report on Long-Term Performance Analysis of the Conceptual Waste Package Design							△					◇
M276	WMPO/ LLNL	1.2.2.5	Report on the System Model for Waste Package Performance Analysis	△			◆								

△ PLANNED MILESTONE COMPLETION DATE

◇ REVISED MILESTONE COMPLETION DATE

▲ COMPLETED AS SCHEDULED

◆ COMPLETED AS REVISED

1.2.3 SITE INVESTIGATIONS

OBJECTIVE

The objective of this task is to determine whether Yucca Mountain is a suitable location for a high-level waste repository. The effort is divided into two areas of study. The first is understanding the characteristics of the rock mass that lies below the surface of Yucca Mountain. This encompasses the geology (structure and stratigraphy), hydrology (both saturated and unsaturated zone), geochemistry (chemical reactions that can be expected when waste is emplaced), and mineralogy and petrology (the study of the materials that will control the isolation and engineering characteristics of the rock). The second is understanding the processes and events that could occur in the area surrounding Yucca Mountain that could serve as potential disruptive forces. These efforts include the study of tectonics, seismicity, and volcanism, and the regional hydrologic, paleohydrologic, and paleoclimatologic systems.

ACTIVITIES

WBS 1.2.3.1 MANAGEMENT AND INTEGRATION

Holmes & Narver (H&N) Title I drawings for modifications to the Tech Services Building are being reviewed by Project participants.

The stop-work order issued to the U.S. Geological Survey (USGS) in March 1986 remained in effect through May and almost all site characterization technical activities continued to be suspended. Most USGS Project personnel continued working on the preparation of Scientific Investigation Plans (SIPs) with their corresponding Quality Assurance Level Assignment Sheets (QALAS) -- a necessary step for resumption of work.

The task of assigning costs to the studies and activities in Section 8.3 of the SCP was assigned to a representative at SAIC. DOE/HQ had asked that these costs be supplied with the SCP when it is issued in August, however, it may be difficult to provide the entire cost breakdown within that time frame, since many of the SCP activities are not directly trackable into the WBS, which provides the structure for the budget. A DOE/HQ Cost and Schedule Working Group has been formed which will meet in Washington, DC, to review the budget material being prepared by SAIC.

The Peer review on the opaline silica and calcite deposits found in fault zones at the site was held on May 27, 28, and 29 at SAIC. A field trip to the NTS was conducted the first day to examine the deposits and for the peer review committee to develop an overview understanding of the geology at Yucca Mountain and vicinity.

SAIC staff completed a report which summarizes the planned site characterization activities for the Yucca Mountain site. The information was extracted from the current version of the SCP, and includes ESF as well as surface activities. The report is intended to support negotiations regarding land

access and environmental permitting. When revised to be compatible with the final SCP, the report will be a useful summary of the SCP planned activities.

Staff members at SAIC coordinated the technical reviews of SIPs and QALAs submitted by the Project participants in May 1987.

WBS 1.2.3.2.2 Geophysical Investigations

USGS staff prepared a 1:24,000 scale color aeromagnetic map of the Southern Yucca Mountain area for use in a Geological Society of America (GSA) poster session. This was a first attempt to use Remapp processing to produce a color contour map on the color Veersatec. The results were quite acceptable for a poster.

The USGS manuscript entitled "Introduction to Special Section: Geophysical Investigations of Proposed Radioactive Waste Disposal Sites," was accepted for publication by the Journal of Geophysical Research.

Los Alamos National Laboratory (Los Alamos) staff revised the volcanism sections of Chapter 8.3 of the SCP. Several sections were expanded and new sections were written to include newly proposed work on the chronology of the Lathrop Wells scoria cone and investigations of the possibility of polycyclic volcanic events at some basalt centers. Sections describing cooperative work with the USGS (geochronology studies, petrology, and geochemistry studies) were revised and written into Chapter 8.3. These volcanism sections were reviewed with SAIC and Weston at a meeting in Las Vegas in late May. The volcanism SIP was revised. The newly proposed work was incorporated into the SIP, and the cooperative work with the USGS was included in the Los Alamos SIP. The SIP will be reviewed internally and submitted to the WMPO.

WBS 1.2.3.2.3.3 Seismicity and Strain

USGS staff members submitted the historic catalog of seismicity to the printer.

WBS 1.2.3.3.1 Stream Flow

The USGS surface-water SIP was reviewed by SAIC and WMPO and these comments and suggestions were resolved and the SIP is being revised for final approval by WMPO.

WBS 1.2.3.3.3 Unsaturated Zone Hydrology

A draft of the USGS abstract entitled "Geologic Factors that Affect the Physical and Hydrologic Properties of Unsaturated-Zone, Volcanic Tuffs," was sent to WMPO for review and approval for presentation at the Geological Society of America Annual Meeting, October 26-29, 1987, in Phoenix, Arizona.

A draft of the USGS report entitled "Monitoring the Vadose Zone in Fractured Tuffs," was sent to WMPO for review and approval for release.

WBS 1.2.3.4.1.3 Hydrothermal Geochemistry

Efforts by Los Alamos staff this month have been directed to editing the sealing materials reports written by staff at Pennsylvania State University. The ancient concrete report has been through technical and Program Office review. The report "Radioactivity of Tuff-Bearing Concrete: CL-40 CON-14" has completed technical review; the report "Preliminary Survey of the Stability of Silica-Rich Cementitious Mortars (88-22 and 84-12) with Tuff" requires only minor comment from Penn State before technical review can be started. Remaining effort this month was directed toward preparation of the study plan for hydrothermal geochemistry.

WBS 1.2.3.4.1.4 Solubility Determination

Los Alamos staff members began preliminary experimental work in preparation for the solubility studies in J-13 well water at 90°C. This work included the purification of fresh stock solutions of neptunium and americium and the design and fabrication of new solubility cells that will minimize evaporative losses at the higher solution temperatures.

A Los Alamos paper entitled "Determination of Plutonium Oxidation States at Trace Levels Pertinent to Nuclear Waste Disposal" was presented at the International Conference on Methods and Applications of Radioanalytical Chemistry in Kona, Hawaii, on April 5-10, 1987. The Los Alamos papers, "Indirect Determination of Plutonium at Trace Levels by Use of Gamma and L X-Ray Spectroscopy" and "Separation of Soluble Transuranium Species from Particulates in Groundwater by Ultrafiltration" were presented at the 193rd ACS National Meeting in Denver, Colorado, on April 5-10, 1987.

WBS 1.2.3.4.1.7 Retardation Sensitivity Analysis

A Los Alamos representative completed the 12 Cove2A benchmarking calculations using TRACR3D. The final plots, output files, and output tapes for these runs were sent to SNL to be included in the final Cove2A report. A short report is being written that explains the changes made to TRACR3D to run the Cove2A problems.

Los Alamos staff members submitted an abstract for policy review entitled "Simulations of Long-Term Stress Behavior for the Candidate Waste Repository at Yucca Mountain, Nevada," this abstract will be presented at the Materials Research Society meeting on Scientific Basis for Nuclear Waste Management, November 1987, in Boston.

WBS 1.2.3.4.1.8 Reactive Tracer Testing

Los Alamos personnel prepared tuff samples to determine an optimum concentration of tuff particles for particle size evaluation with the Microtrac analyzer. These samples will also be used to evaluate the effect of mixing on abrasion of tuff materials.

WBS 1.2.3.4.2.1 Fracture Mineralogy

Calcite sampled from five fractures in USW G-4 was sent by Los Alamos to the University of California at Riverside for carbon and oxygen isotope analyses.

Because calcite is the last mineral deposited in fractures in which it occurs, it is important to discover as much as possible about its depositional environment.

The Los Alamos report "Minerals in Fractures of the Saturated Zone from Drill Core USW G-4, Yucca Mountain, Nye County, Nevada" (Milestone R345) was issued and has been distributed.

WBS 1.2.3.4.2.3 Mineralogy of Transport Pathways

A Los Alamos paper entitled "Distribution and Chemistry of Diagenetic Minerals at Yucca Mountain, Nye County, Nevada" was published this month in Clays and Clay Minerals. This paper describes factors controlling the distribution and chemistry of zeolites and other authigenic minerals at Yucca Mountain. This paper also notes the similarity of the Yucca Mountain zeolite deposits to other occurrences of diagenetically altered tuffs in the western United States.

WBS 1.2.3.5.1 Core Library

Viable internal REECO review comments were incorporated into the Title II drawings for Warehouse I, and the resulting package, including a Title II preliminary estimate, was transmitted to WMPO for review on May 11, 1987. Internal REECO review comments were incorporated into the Warehouse II Title II drawings, and the package, including a Title II preliminary estimate, was submitted to WMPO for review and approval on May 29, 1987.

The Sample Management Facility (SMF) Title II design work on warehouse #1 and #2 was completed this month and demolition in warehouse #2 is scheduled to begin in mid-June.

WBS 1.2.3.5.2 Drilling, Construction, Engineering

USGS test hole USW U-28 remained at a temporary depth of 58 feet, as all drilling continued to be suspended under the stop-work order.

H&N staff members completed the Title I design for USGS modifications to Building 4215. Drawing packages were submitted to the Nevada Test Site Office (NTSO) on May 22, 1987, as scheduled. H&N is currently preparing the Title I estimate for presentation at the Title I review meeting scheduled for June 16, 1987.

H&N received authorization from WMPO to begin work on compiling documentation for site activities and preparation of an Atlas of NNWSI Project field activities.

WBS 1.2.3.6.1.1 Environmental Survey

Operation of the meteorological monitoring program continues to function well with very high data recovery.

The SAIC report entitled "Population Densities Along Nevada Transportation Routes" was published and distributed. The topical report documents the methodology utilized by the Nevada Nuclear Waste Storage Investigations

Project in the final Environmental Assessment to estimate population density along Nevada transportation routes and the fraction of each Nevada route in urban, suburban, and rural population zones.

WBS 1.2.3.7 SOCIOECONOMIC

Topical Tracking System reports were delayed at SAIC due to SCP priorities. Revision of the Socioeconomic Monitoring and Mitigation Plan (SMMP) and responses to comments on it were initiated at SAIC.

PLANNED WORK

REECo staff members will commence construction of an Area 25 landfill facility.

USGS staff members will collect samples from spring deposits in Crater Flat, Amargosa Desert to develop necessary procedures. Development of procedures for operation of Geonics EM34-3 equipment in the Amargosa Desert.

Los Alamos staff members will start field mapping at the Lathrop wells volcanic center as soon as color aerial photography at a scale of 1:2000 is obtained.

Staff members at Los Alamos will continue studies of silicic acid and silica gel columns and they will begin ground-water studies with americium.

Los Alamos personnel will run colloid transport experiments on fractured tuff columns other than the fracture network.

The Nuclear Regulatory Commission audit of the mineralogy-petrology activity at Los Alamos is planned for June 8-12.

PROBLEM AREAS

Los Alamos staff members have encountered difficulties in modeling and verifying codes for programming isotherm models. Some problems have also been encountered in modeling strontium solubilities; the results are not consistent with the apparently good results of previously tested conditions.

The current USGS drilling schedule will not enable saturated zone hydro-chemistry characterization within currently defined milestone timeframes.

Guidelines for conducting exploratory activity prior to submission of study plans need to be certified.

MILESTONE PROGRESS

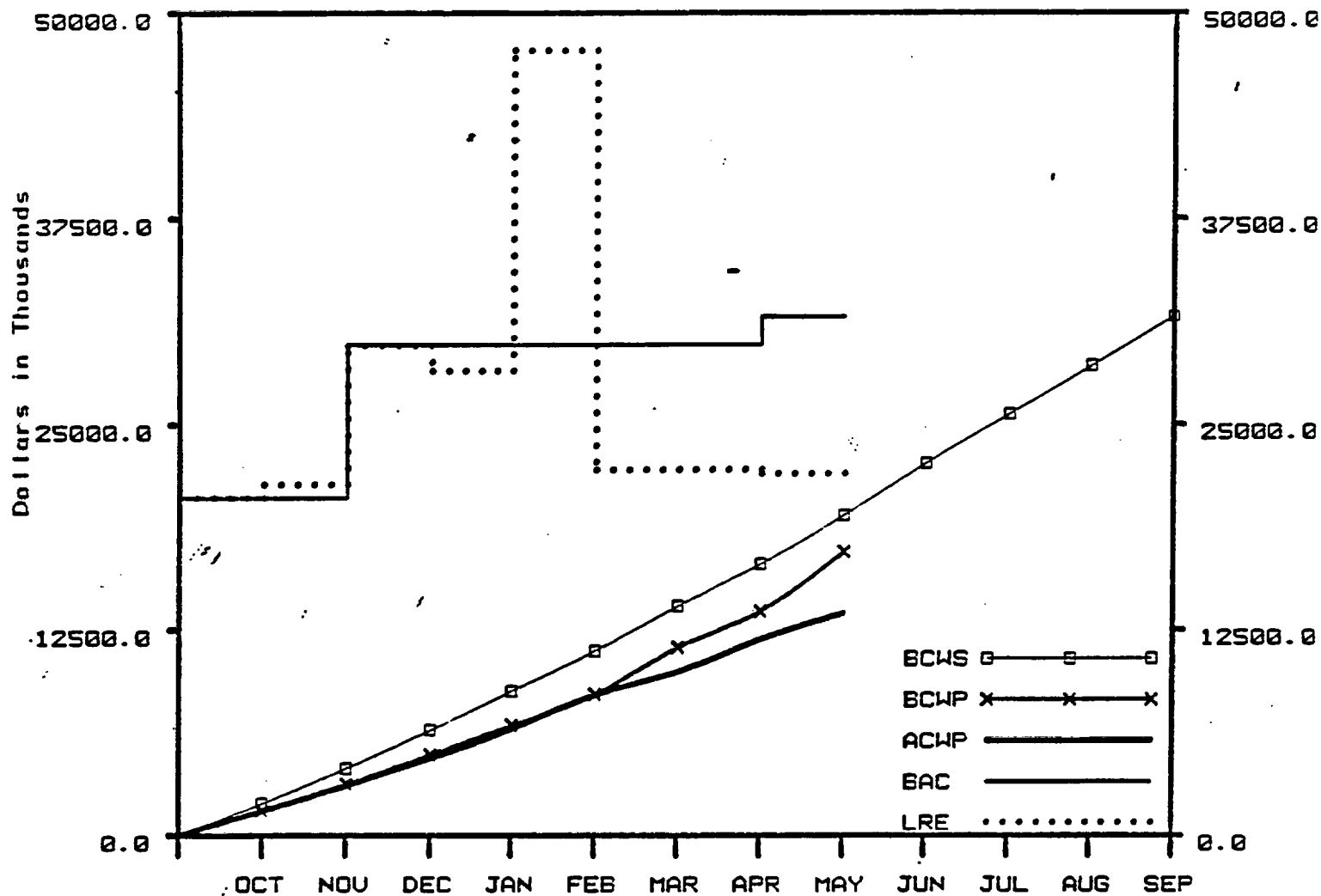
The estimated date of completion for SNL Milestone P498, study plan for fault potential near prospective surface facilities, has been delayed until June 30, 1987.

The estimated date of completion for USGS Milestone R845, recommendation to proceed with deep regional seismic survey to OGR for approval, is August 31, 1988.

The new estimated date of completion for LLNL Milestone C304, EQ3/6 Code Release, is July 1, 1987.

SAIC Milestone N360, status report of all radiological monitoring activities, was completed and transmitted to WMPO.

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.3



SITE INVESTIGATIONS

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	2988.1	19485.1
B. BUDGETED COST OF WORK PERFORMED (BCWP)	3638.3	17247.9
C. ACTUAL COST OF WORK PERFORMED (ACWP)	1601.5	13514.9
D. BUDGET AT COMPLETION (BAC)		31529.0
E. LATEST REVISED ESTIMATE (LRE)		21989.3

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-2237.2	-11.48
G. COST VARIANCE (B-C)	3733.0	21.64
H. AT COMPLETION VARIANCE (D-E)	9539.7	30.26

Remarks:

COST PERFORMANCE REPORT
WBS LEVEL 4
U.S. DEPARTMENT OF ENERGY
NNWSI PROJECT

For: MAY 1987

Date: June 22, 1987

WBS NUMBER AND DESCRIPTION		YEAR TO DATE				
		BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES	
					SCHEDULE	COST
1231	Management & Integration	3,936.700	3,930.544	2,383.764	-6.156	1,546.780
1232	Geology	3,282.500	2,753.871	1,683.669	-528.629	1,070.202
1233	Hydrology	4,360.000	3,568.819	3,069.655	-791.181	499.164
1234	Geochemistry	3,700.800	3,625.500	3,582.100	-83.300	43.400
1235	Drilling	2,263.610	1,758.232	1,090.421	-505.378	667.812
1236	Environment	899.700	824.229	721.461	-75.471	102.1768
1237	Socioeconomic	519.800	340.673	421.339	-179.127	-80.666
1238	Geochemical Modeling Code EQ3/6	514.000	446.000	562.500	-68.000	-116.500
1239	Deferred Site Close Out	.000	.000	.000	.000	.000
123	SITE INVESTIGATIONS	19,485.110	17,247.867	13,514.908	-2,237.243	3,732.959

MILE- STONE	RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
RB45	WMPO/ USGS	1.2.3.2	Recommendation to Proceed with Deep Regional Seismic Survey to OGR for Approval											△	
M325	WMPO/ LANL	1.2.3.4	Report on Geochemistry Simulation of Yucca Mountain Using Best Available Data on Mineralogy, Water Chemistry, Flow Rates and Crack Statistics		△								◇		
R309	WMPO/ LANL	1.2.3.4	Preliminary Report on Sorption Modeling				△						◇		
M895	WMPO/ SAIC	1.2.3.1	Submit Report on Evaluation of Natural Resources at YM and Vicinity received to DOE/HQ for Information										△		
M897	WMPO/ SAIC	1.2.3.6	Final Radiological Monitoring Plan Complete					△					◇		
R327	WMPO/ SAIC	1.2.3.6	Submit Air Quality Monitoring Plan to DOE/HQ							△			◇		
N345	WMPO/ SAIC	1.2.3.6	Begin Air Quality Monitoring												△
R945	WMPO/ SAIC	1.2.3.7	Submit Working Draft Site Characterization Socioeconomic Monitoring and Mitigation Plan (SMP)		◆	△									
P030	WMPO/ SAIC	1.2.3.7	Submit Draft Socioeconomic Monitoring and Mitigation Plan to DOE/HQ							△					◇

◇
8/88◇
10/87

△ PLANNED MILESTONE COMPLETION DATE

▲ COMPLETED AS SCHEDULED

◇ REVISED MILESTONE COMPLETION DATE

◆ COMPLETED AS REVISED

1.2.4 REPOSITORY INVESTIGATIONS

OBJECTIVE

The objective of this task is to develop the engineering capability to design, construct, operate, and decommission a repository in tuff. Four specific technical areas are involved that include (1) determination of the physical and mechanical properties of the rock matrix and rock mass that are important to the design and construction of an underground structure; (2) engineering analysis and evaluation of technical details that are important to the design and operation of a repository; (3) development of the techniques of sealing a repository as part of decommissioning; and (4) preparation of a sitespecific design that will be accommodated within the development of the equipment to construct the repository, handle the waste and waste package, and transfer the waste package within the repository system.

ACTIVITIES

WBS 1.2.4.1 MANAGEMENT AND INTEGRATION

During May the SAIC Engineering staff completed a review and rewrite of sections of the SCP Glossary, completed a rewrite of SCP Surface Characteristics section (Issue 4.6), and completed disposition review of SCP-CDR.

WBS 1.2.4.1.1 Management

Project schedules were studied by staff at SNL to determine the impact of delaying the start of Advanced Conceptual Design (ACD) from October 1, 1987, until January 1, 1989. The studies will be completed in June 1987.

WBS 1.2.4.1.2 Basis for Design

Draft sections of the Repository Design Requirements (RDR) have been provided to SNL by BNI and PBQ&D. Upon review, it was determined that the RDR should be formatted like the generic requirements document and that requirements derived from the sr document should be analyzed and translated into guidance specifically applicable to the physical subsystems contained in the RDR.

WBS 1.2.4.1.3 Major Design Deliverables

Some comments resulting from an internal SNL management review are being addressed and incorporated in the draft SCP-CDR. Chapter 8 may require changes as a result of the DOE reviews of Chapter 6 of the SCP.

WBS 1.2.4.1.4 Engineering Design Support: Special Studies

The SNL report entitled "Impact on Costs and Schedules of Using a Monitored Retrievable Storage Facility in Conjunction with a Repository in Tuff at Yucca Mountain" (SAND85-7112) is in policy review at WMPO.

WBS 1.2.4.2.1.1 Rock Mass Analysis

The computational work on the analysis of the mechanical testing portion of the G-Tunnel heated block experiment (problem definition memo (PDM) 71-021) was completed by SNL staff. The results of calculations using the compliant joint model with two sets of joints are in agreement with the experimental results, both qualitatively and quantitatively. A draft SNL letter report (SLTR87-7006) covering this portion of the analysis has been submitted and is in review.

The report entitled "Numerical Analyses for the G-Tunnel Small Diameter Heater Experiment" (SAND85-7115), by RE/SPEC, Inc., was submitted for printing.

WBS 1.2.4.2.1.2 Field Testing

A modified high-pressure flatjack based on flatjack technology developed at the Basalt Waste Isolation Project (BWIP) was designed by SNL personnel. This flatjack is intended to reach pressures of up to 50 MPa (7250 psi) for use in planned work mass strength and Exploratory Shaft experiments.

WBS 1.2.4.2.1.3 Laboratory Properties

SNL staff members involved in the laboratories properties task will direct their effort primarily toward preparing reports that are SCP references. The status of these reports is as follows:

SAND85-0703, which discusses mechanical properties of the Topopah Spring Member in USW G-2; SAND87-0115, which comprises two previously unpublished memoranda containing material referenced in the SCP; and SAND86-0177, "Rock Joint Compliance Studies," were published.

SAND85-0762, "Bulk, Thermal, and Mechanical Properties of the Topopah Spring Member of the Paintbrush Tuff, Yucca Mountain, Nevada," has been revised based on peer review comments and is now in line review.

WBS 1.2.4.2.2 Equipment Engineering and Instrument Development

The SNL contract with the Robbins Co. to produce conceptual designs for short-borehole drilling equipment and off-normal core drill retrieval equipment has been placed. Preliminary results should be available in about six weeks for use in the horizontal emplacement option study.

WBS 1.2.4.2.3.1 Seal Performance Requirements

A field trip to Yucca Mountain was made by SNL personnel to verify the alluvial thickness at the new exploratory shaft location. Because this new location is near the bedrock-alluvium contact, the water flow analysis presented in SAND85-0598 is considered to be very conservative.

An SNL response to the NRC Technical Position on Borehole and Shaft Sealing, Action Item #300B, was sent to WMPO.

WBS 1.2.4.2.3.2 Seal Materials Evaluation

An overview of the degradation model which identifies specific sources of permeability change has been prepared by staff members at SNL. Four sources have been identified which may change the volume of the seal: mechanical, thermomechanical, thermochemical, and moisture. Expressions relating volumetric expansion to moisture content and thermally induced stress have been selected. The degradation model will use empirical and theoretical expressions to determine which parameters most seriously affect the permeability of the sealing material. This sensitivity study will be used to help define the experimental data required and will be reported in the sealing material study plan.

WBS 1.2.4.3.2 Surface Facilities

The SNL letter report entitled "Repository Options Study" (SLTR86-1016) has been approved for distribution. The SNL report entitled "Site-Generated Waste Treatment and Disposal Study" (SAND86-7136) has completed peer review and is currently in SNL management and policy review. The letter report entitled "Structural Capability to Accommodate Fault Displacements" (SLTR87-7003) has completed peer review, and comments have been sent to BNI for resolution.

A change order revising the scope of work being performed by BNI to reflect more pre-Advanced Conceptual Design (ACD) studies rather than the initiation of ACD, as was originally planned, has been approved by SNL management and placed with BNI.

WBS 1.2.4.3.3 Shaft/Ramps

The document entitled "ESF Structural Design, Volume 2," by F&S has been reviewed by SNL staff members and comments have been given to WMPO.

The Exploratory Shaft Facility (ESF)/Repository interface drawing has been completed by SNL personnel and will be submitted for concurrence at the June 2, 1987, meeting of the ESF/Repository Interface Control Committee.

WBS 1.2.4.3.5 Underground Service System

A draft of a report outlining test methods and hardware for determining radon emission rates has been received from Mine Ventilation Services and is now in SNL review.

WBS 1.2.4.6.1 Repository Performance Code Development and Certification

The SNL reports entitled "NNWSI Unit Evaluation at Yucca Mountain, Nevada Test Site: Near Field Thermal and Mechanical Calculations Using the SANDIA-ADINA Code" (SAND83-0030); and "NNWSI Unit Evaluation at Yucca Mountain, Nevada Test Site: Near Field Mechanical Calculations Using a Continuum Jointed Rock Model in the JAC Code" (SAND83-0070), were submitted for printing.

WBS 1.2.4.6.2 Design Analysis

During May 1987 SNL staff continued work on sections of the SCP and SCP-CDR, including comment responses and reference verification.

The last report required to complete the current tasks of the RE/SPEC, Inc., contract has been received by SNL. The report is entitled "A Sensitivity Study of the Thermomechanical Far-Field Model of Yucca Mountain."

Agapito and Associates submitted camera-ready copies of three SNL reports for printing. The reports are "Analysis of Horizontal Waste Emplacement Boreholes of a Nuclear Repository in Tuff" (SAND86-7133), "Reference Thermal and Thermal/Mechanical Analysis of Drifts for Vertical and Horizontal Emplacement of Nuclear Waste in a Repository in Tuff" (SAND86-7005), and "Investigation of Excavation Stability in a Finite Repository" (SAND86-7011).

Final comments were incorporated into the SNL report entitled "Sensitivity Analyses of Underground Drift Temperatures, Stresses, and Safety Factors to Variation in the Rock Mass Properties of Tuff for a Nuclear Waste Repository at Yucca Mountain, Nevada" (SAND86-1250), and the report was published.

Work is progressing on SNL SCP references. Three have gone to printing, one has returned from WMPO, one is at WMPO for review, and two are in line review.

1.2.4.6.3 Preclosure Safety Analysis

Staff members at SNL have rewritten SCP Issues 2.1, 2.2, and 2.3 and transmitted them to SAIC for incorporation into the SCP. The rewrite of Issue 2.7 is nearing completion.

PLANNED WORK

SNL staff work will continue on the RDR and the interface control drawings (ICDs), with special attention devoted to the creation of tables of requirements derived from the SR and allocated to physical subsystems.

The modified high-pressure flatjack will be fabricated, evaluated under laboratory conditions, and tested by SNL staff members in situ in G-Tunnel.

Work by SNL staff members for the next few months will continue to concentrate on completing the horizontal emplacement option study requested by DOE/HQ.

Work on the exploratory shaft performance analysis will continue at SNL. A section describing the effects of barometric pressure variation will be added. Additional requirements to work on the SCP are anticipated.

SNL staff will continue written documentation of SPECTROM-31 and the Joint Empirical Model as time and funding permit.

During June 1987, the major emphasis of work by SNL staff members will be the SCP and SCP-CDR, references for those documents, and upon contract administration.

SCP Issue 2.7 will be written by SNL personnel and transmitted to SAIC, and the review of SAND87-7073 and SLTR87-7003 will be completed.

PROBLEM AREAS

Since the funding for the RE/SPEC, Inc., contract with SNL may be depleted this month, work may have to be suspended until a new contract can be placed.

MILESTONES

SNL milestones N430, start advanced conceptual design; and P195, SNL informs WMPO that repository advanced conceptual design activities are ready to start, are being reassessed.

The new estimated date of completion for SNL Milestone M434, report on G-Tunnel mining evaluation, is July 31, 1987.

SNL milestones P569, Study Plan SP-5: Laboratory Thermal Expansion Testing; and P570, Study Plan SP-3: Laboratory Mechanical Properties of Fractures, are delayed and the new estimated date of completion for these milestones is August 14, 1987.

SNL Milestone P207, WMPO completes review of horizontal was emplacement equipment plan and returns to SNL, has been delayed and the new estimated date of completion is June 30, 1987.

SNL Milestone P158, incorporate WMPO and TPO comments into "Performance Goals, Design Requirements, and Material Recommendations for the NNWSI Repository Sealing Program," SAND84-1895, is at WMPO for policy review.

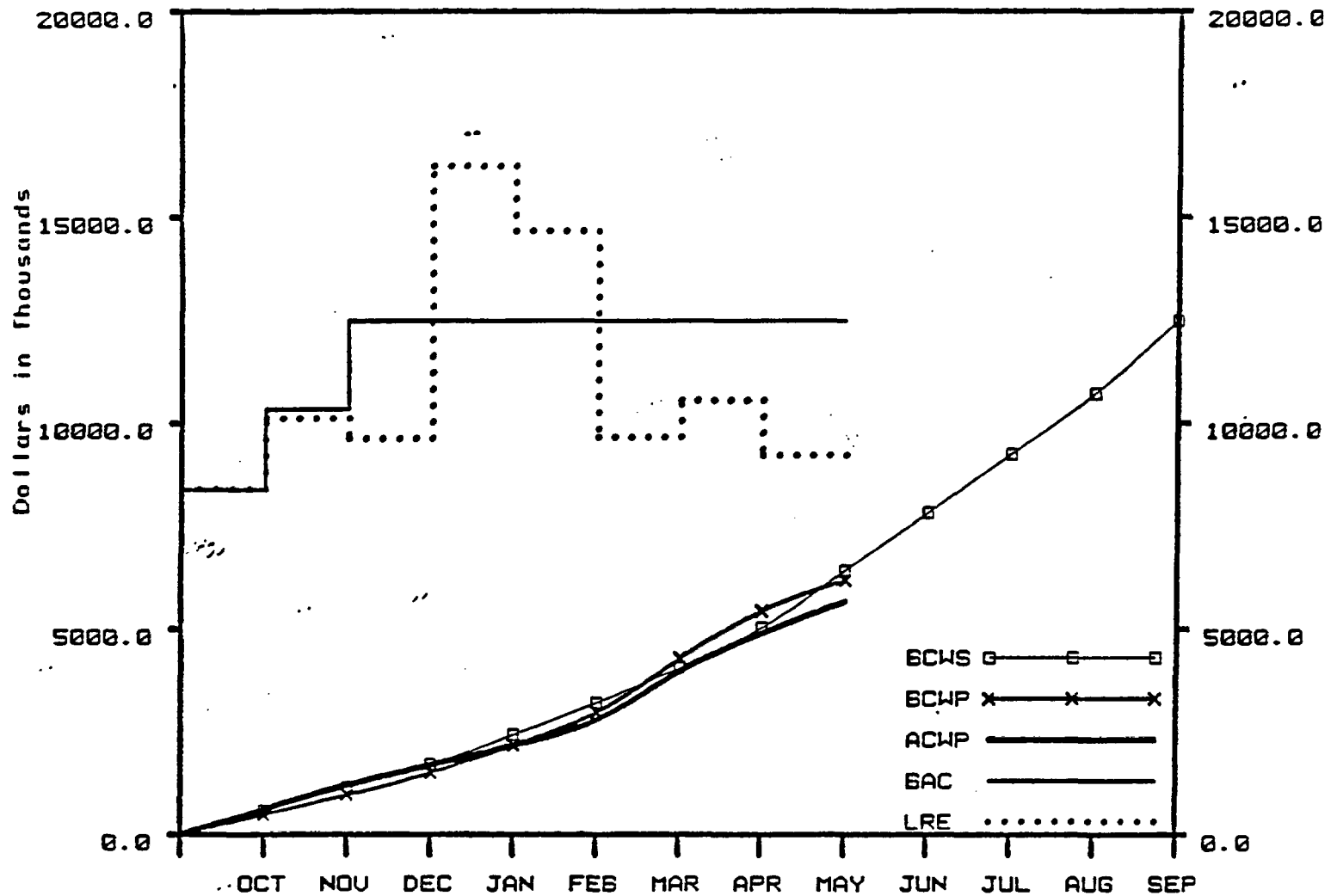
SNL Milestones P404, technical basis for performance goals, design requirements, and material recommendations for the NNWSI Project repository; and R036, analyses to evaluate the effect of the exploratory shaft on repository performance at Yucca Mountain, have been delayed.

SNL Milestone N242, prepare and submit "Preliminary Repository Operations Plan," SAND87-0088, has been delayed and the new estimated date of completion is October 1, 1987.

The new date for completion of WMPO Milestone T157, Final Report on Spent Fuel Rod Consolidation Study, to DOE/HQ is September 1, 1987.

SNL Milestone N414, prepare and submit "Interaction of Nuclear-Waste Panels with Shafts and Access Ramps for a Potential Repository at Yucca Mountain," SAND84-7213 has been delayed in line review.

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.4



REPOSITORY INVESTIGATIONS

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	1386.4	6413.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	736.6	6168.5
C. ACTUAL COST OF WORK PERFORMED (ACWP)	776.4	5663.7
D. BUDGET AT COMPLETION (BAC)		12472.0
E. LATEST REVISED ESTIMATE (LRE)		9208.3

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-244.5	-3.81
G. COST VARIANCE (B-C)	504.8	8.18
H. AT COMPLETION VARIANCE (D-E)	3263.7	26.17

Remarks:

COST PERFORMANCE REPORT
WBS LEVEL 4
U.S. DEPARTMENT OF ENERGY
NNWSI PROJECT

For: MAY 1987

Date: June 22, 1987

WBS NUMBER AND DESCRIPTION		YEAR TO DATE				
		BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES	
					SCHEDULE	COST
1241	Management and Integration	1,785.000	2,019.480	1,928.714	254.480	90.766
1242	Development and Testing	2,628.000	2,196.998	2,041.000	-431.002	155.998
1243	Facilities	757.000	706.001	727.000	-50.999	-20.999
1244	Operations and Maintenance	362.000	381.999	371.000	-.001	-9.001
1245	Decommissioning	58.000	56.000	14.000	-.000	42.000
1246	Repository Performance Assessment	845.000	828.000	582.000	-17.000	246.000
124	REPOSITORY INVESTIGATIONS	6,413.000	6,168.478	5,663.714	-244.522	504.765

MILE- STONE	RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
N430	WMPO/ SNL	1.2.4.1	Start Repository Advanced Conceptual Design												△
N433	WMPO/ SNL	1.2.4.1	Initial Subsystem Design Requirement (SDR)							△				◇	
N432	WMPO/ SNL	1.2.4.1	Repository Conceptual Design in Support of Site Characterization					△		◆					
M455	WMPO/ SNL	1.2.4.2	Report on G-Tunnel Underground Facility (GTUF) Summary				△			◆					
M295	WMPO/ SNL	1.2.4.2	Feasibility Analysis of Horizontal Emplacement and Retrieval - Letter Report 9/86		△										
N406	WMPO/ SNL	1.2.4.2	Horizontal Waste Emplacement Equipment Development Plan					△						◇	
P404	WMPO/ SNL	1.2.4.2	Prepare "Technical Basis for Performance Goals, Design Requirements and Material Recommendation for the NNWSI Project Repository Sealing Program Report"						△					◇	
N427	WMPO/ SNL	1.2.4.2	Initiate Procurement of Development Prototype Boring Machine		△										◇
R036	WMPO/ SNL	1.2.4.2	Analysis to Evaluate the Effect of the Exploratory Shaft on Repository Performance at Yucca Mountain					△							◇
R848	WMPO	1.2.4.4	Submit Retrieval Compliance Strategy Plan to OGR for Review and Comment						△						
R267	WMPO/ SNL	1.2.4.4	Final Report on Spent Fuel Rod Consolidation			△	◆								
N457	WMPO	1.2.4.6	Preliminary Study of the Effects of Uncertain Geologic Data on Design of the Underground Facility					△			◆				

◇
12/87

△ PLANNED MILESTONE COMPLETION DATE

◇ REVISED MILESTONE COMPLETION DATE

▲ COMPLETED AS SCHEDULED

◆ COMPLETED AS REVISED

1.2.5 REGULATORY AND INSTITUTIONAL INVESTIGATIONS

OBJECTIVE

The objective of the regulatory and institutional investigations task is to provide the capability for interfacing with all the institutions and to meet the requirements identified in various laws and regulations pertaining to the siting, design, and construction of a nuclear waste repository and a test and evaluation facility. The principal laws and regulations which govern the licensing of these include the Atomic Energy Act of 1954, the National Environmental Policy Act (NEPA) of 1969, and the Nuclear Waste Policy Act (NWPA) of 1982, 10 CFR Part 60, and 40 CFR part 191.

ACTIVITIES

WBS 1.2.5.2 LICENSING

WBS 1.2.5.2.1 Regulatory Interactions

During May the fourth revision to the NNWSI Project Regulatory Document Manual (RDM) was prepared and issued by SAIC staff. This revision included an updated version of 10 CFR Part 20, "Standards for Protection Against Radiation," an advance notice of proposed rulemaking on the definition of "High-Level Radioactive Waste," a proposed rule to amend various regulations including 10 CFR Part 60, regarding completeness and accuracy of information, an updated revision of the NRC Regulatory Guide 4.17, "Standard Format and Content of Site Characterization Plans for High-Level Waste Geologic Repositories," and a more recent edition of the NRC Staff Technical Position Paper on "Determination of Radionuclide Sorption."

The development of the Radiological Compliance Guide (Plan) is behind schedule at SAIC due to resource diversion to the SCP.

SAIC Licensing Branch staff served on the SCP Project Internal Review Committee (PIRC). They also reviewed SCP chapters on radiological safety, seismic/tectonics, and waste package.

WBS 1.2.5.2.2 Site Characterization Plan

The Los Alamos contributions to the SCP Section 8.3.1.3, were completed this month, except for the geochemical field test proposal (Study 1.14.7.2). These completed contributions include revisions to the 8.3.1.3 text, revisions to the overview section, revisions to the parameter tables, and drafting of the accompanying logic diagrams.

Furthermore, the schedule and milestone sections were revised. The schedule information was communicated to SAIC, and an intermediate milestone list was developed. Upper level summary milestones were identified from the list, and a small upper level summary network was developed. This information was developed and provided, as requested, for Section 8.5 (Schedules and Milestones).

SCP Chapter 7 reference verification was completed by LLNL staff members during May. Introductory and summary sections for Chapter 7 were completed and transmitted to SAIC.

USGS staff members reviewed and corrected revisions to Chapter 1 of the SCP and met with SAIC to resolve remaining reference verification problems for Chapter 1.

SAIC/Golden Regulatory Compliance staff continued to provide management and technical support in the development and coordination of the USGS input to the NNWSI Project SCP and Study Plans.

Text and performance allocation tables were revised by SNL personnel, and logic diagrams and other descriptive figures with supporting text were created in response to the DOE/HQ review of SCP Section 8.3. All revised text, figures, and tables for 12 issues sections and 10 non-issues sections were submitted to SAIC.

On May 12, 1987, a decision was reached concerning the higher level findings issues of the SCP. DOE/HQ and the NNWSI Project representatives (SOC members) agreed that these sections are to be written according to DOE/HQ guidance received on May 1, 1987. These sections are to be written according to DOE/HQ guidance received on May 1, 1987. These sections were not sent to DOE/HQ on May 26, 1987, rather they are to be available for review no later than June 29, 1987.

A telecon was held May 12, 1987, to discuss the progress of Section 8.5. A meeting was held May 15, 1987, to review the proposed lists of intermediate milestones for Sections 8.5.1 to 8.5.4, which shows the connections between the milestones in 8.3 and the higher level milestones shown on the summary schedule for 8.5. Following revision, the section will be available for review June 8.

The revised Section 8.3 was submitted to HQ for review on May 26. A dual numbering system was used to preserve issue numbers for tracking. Studies and activities now have unique Section 8.3 numbers.

A meeting was held in mid-May between SAIC and SNL representatives to review the preliminary draft SCP glossary to ensure consistency between the SCP and the SCP-CDR. Project-sensitive words were reviewed by regulatory staff. A list of acronyms and abbreviations has been prepared for inclusion in the glossary. The glossary will be reviewed by the WMFO and Project representatives during the comment resolution workshops in June.

The HQ review of Chapter 6 took place in Washington, D.C., May 12-13, 1987.

The revised SCP Chapter 8 text was submitted to HQ on May 26, 1987, for review. Four Project Integration review teams began their review on Section 8.3 in Las Vegas on May 25, 1987, in parallel with HQ review in Washington, D.C. The four teams (Integration of Postclosure Performance Assessment with Site Programs, Integration of Repository and Waste Package Design with Site Programs, Integration of Performance Assessment Programs, and Integration of Radiological Safety with Site Programs) met through the end of May and are scheduled to continue through June 5, 1987. Beginning June 8, 1987, the two

teams will meet for three weeks in Washington, D.C., to resolve comments from the parallel review meetings.

Reference verification has been completed by SAIC staff for the Data and Design Chapters (1 through 7). Workshops were held to resolve all remaining problems. Chapter 8 references will be verified at Argonne National Laboratory beginning June 1, 1987. Changes to the SCP text resulting from HQ reviews will be addressed later in June.

Draft III of the Environmental Regulatory Compliance Plan (ERCP) was completed by SAIC and WMPO sent the document to DOE/HQ on May 29, 1987. DOE/HQ will perform a concurrence review by the end of June. The ERCP is scheduled for release to the States and Tribes on September 1, 1987.

1.2.5.4.1 Institutional Studies

SAIC staff provided input to the WMPO on a preliminary outline of the draft NNWSI Project SCP Release Plan.

PLANNED WORK

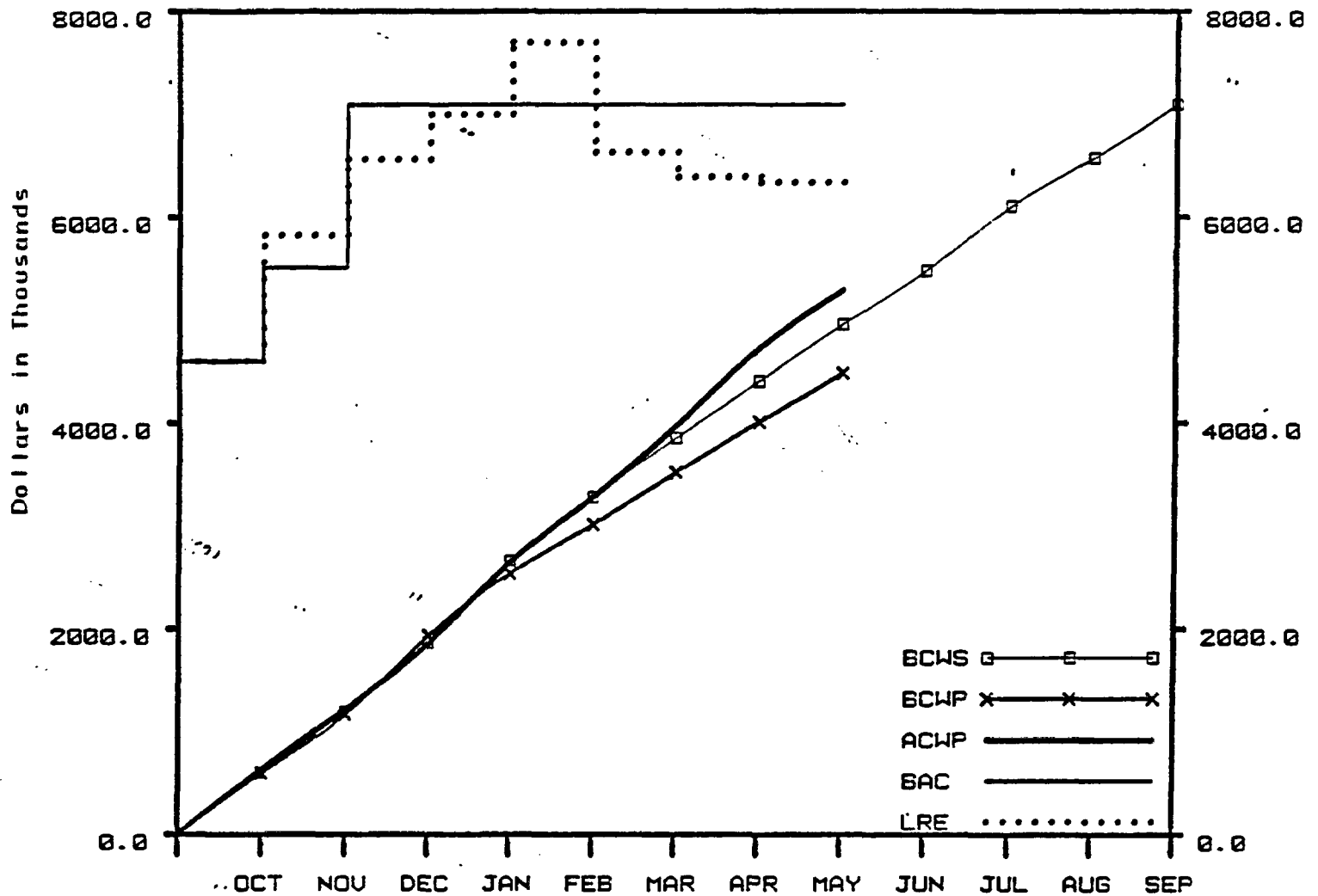
SAIC/Golden Regulatory Compliance staff will continue to support the USGS input to the SCP and Study Plans. SCP-related activities will focus on (1) completing remaining site integration tasks, (2) assisting the SCP schedules and milestones tasks, and (3) coordinating study plan development. Technical support will be provided for the bulk permeability test planning and technical reviews will continue of the unsaturated-zone hydrology project.

MILESTONES

The new estimated date of completion for SNL Milestone R961, NRC interaction meeting on seismic/tectonics, is June 30, 1987.

SNL Milestone R963, NRC interaction meeting on exploratory shaft design and construction, was completed on May 6, 1987.

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.5



REGULATORY AND INSTITUTIONAL INVESTIGATIONS

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	555.1	4957.9
B. BUDGETED COST OF WORK PERFORMED (BCWP)	473.6	4482.0
C. ACTUAL COST OF WORK PERFORMED (ACWP)	564.8	5288.9
D. BUDGET AT COMPLETION (BAC)		7086.0
E. LATEST REVISED ESTIMATE (LRE)		6329.8

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-475.9	-9.60
G. COST VARIANCE (B-C)	-806.9	-18.00
H. AT COMPLETION VARIANCE (D-E)	756.2	10.67

Remarks:

WBS LEVEL 4
U.S. DEPARTMENT OF ENERGY
NNWSI PROJECT

For: MAY 1987

Date: June 22, 1987

WBS NUMBER AND DESCRIPTION		YEAR TO DATE				
		BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES	
					SCHEDULE	COST
1251	Management and Integration	443.900	416.710	272.148	-27.190	144.562
1252	Licensing	3,834.400	3,477.036	4,472.818	-357.364	-995.782
1253	Environmental Compliance	364.300	272.950	320.533	-91.342	-47.575
1254	Communication and Liaison	315.300	315.301	223.396	.001	91.905
1255	Technology and Financial Assistance	.000	.000	.000	.000	.000
125	REGULATORY AND INSTITUTIONAL INVESTIGATIONS	4,957.900	4,482.005	5,288.895	-475.895	-806.890

MILE- STONE	RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
R579	WMPO/ SAIC	1.2.5.2	Submit Draft Preliminary Plan for Scheduling, Management, and Preparation of Position Papers to WMPO/NV											△	◇
R583	WMPO/ SAIC	1.2.5.2	Submit Draft Seismic/Tectonic Summary Position Paper to WMPO/NV									△		◇	
M521	WMPO/ SAIC	1.2.5.2	Draft Site Characterization Plan (SCP)				▲								
M522	WMPO/ SAIC	1.2.5.2	Site Characterization Plan (SCP)					△						◇	
R798	WMPO/ SAIC	1.2.5.3	Draft Environmental Field Study Plans Received at HQ for Review									△			
R799	WMPO/ SAIC	1.2.5.3	Environmental Field Study Plans Received at HQ for Baselineing											△	◇
R794	WMPO/ SAIC	1.2.5.3	Submit Working Draft Environmental Regulatory Compliance Plan to DOE/HQ and State				△	◆							
R795	WMPO/ SAIC	1.2.5.3	Environmental Regulatory Compliance Plan Issued								△				◇
R996	WMPO/ SAIC	1.2.5.3	Submit Draft II Environmental Monitoring and Mitigation Plan (EMMP) to WMPO/NV			▲									
P034	WMPO/ SAIC	1.2.5.3	Submit Environmental Monitoring and Mitigation Plan (EMMP) to DOE/HQ							△			◇		
M795	WMPO	1.2.5.4	Complete and Sign C&C Agreement with State						△						

◇ TBD

△ PLANNED MILESTONE COMPLETION DATE

◇ REVISED MILESTONE COMPLETION DATE

▲ COMPLETED AS SCHEDULED

◆ COMPLETED AS REVISED

1.2.6 EXPLORATORY SHAFT INVESTIGATIONS

OBJECTIVE

The objective of this task is to identify and plan the tests that need to be conducted at the repository horizon as a part of detailed site characterization and to design and construct the Exploratory Shaft (ES) and the underground test area in Yucca Mountain. The primary focus of this effort will be to establish the basis for evaluating the unsaturated zone in a welded tuff formation. In addition, an effort will be made to define the nature of the unsaturated zone with regard to water content and water movement, and the nature of the natural barriers between the repository horizon and the static water level.

ACTIVITIES

WBS 1.2.6.1 MANAGEMENT AND INTEGRATION

H&N Exploratory Shaft Facility (ESF) Special Study #2, Environmental Permitting Requirements, was completed and submitted to WMPO for review on May 22, 1987.

WBS 1.2.6.1.1 Exploratory Shaft Management, Planning, Design, and Review

A Los Alamos work plan and quality assurance level assignments for the ESF materials evaluation were completed and sent to the WMPO for information. This study proposes to inventory the materials expected to be introduced underground during ESF construction and testing. Potential chemical and microbial action will be estimated. Estimation of the transport of these materials from the ESF to the waste storage area of the repository is planned. A report from the study (in the form of a position paper) will recommend and document any restrictions in materials or practices used during ESF construction and testing.

Personnel at F&S issued revised Excavation Study (No.3) and Compressed Air Study (No.9) in accordance with WMPO direction. WMPO comments were included with revised study but no text was revised.

F&S staff members completed preparation of responses to WMPO comments on Study No. 8, Water and Waste Control Study.

REECo staff compiled data on drill jumbos at NTS for Los Alamos.

The draft technical procedure entitled "Calibration, Preparation, Installation and Operation of the Sinco/Terrametrics Model 6-CSLT(R) Waste Isolation Extensometer," by SAIC, was reviewed by SNL staff and comments were sent to SAIC for resolution.

WBS 1.2.6.1.2 Quality Assurance

During May 1987 the SAIC Engineering staff reviewed plans for non-destructive testing in the field on the proposed 1500 HP hoist for ES-2, reviewed the duty cycle and the conveyance weight, defined a scope and connectivity of components for a schedule covering the ESF permitting activities to comply with the American Indian Religious Freedom Act and the National Historic Preservation Act, completed the shaft convergence test strawman schedule, completed the IDs revised schedule, and completed first draft of the ESF/SCP Master Schedule.

WBS 1.2.6.2.1 Site and Roads

Staff members at H&N completed Revision 1 of Study #1, Surface Site Layout, and it was submitted to WMPO on May 29, 1987.

WBS 1.2.6.3.1 Buildings

Revision 1 to Study #3, Area 25 A/E Building, was completed by H&N staff and submitted to WMPO May 29, 1987.

WBS 1.2.6.5.1 Shaft and Liner

Staff members at F&S completed review of Systems Design Requirements Document (SDRD) and began preparation for development of Basis of Design criteria needs list.

WBS 1.2.6.9.1 Exploratory Shaft Test Plan

Los Alamos staff sent a draft of camera-ready galley of a portion of the Exploratory Shaft Test Plan (ESTP) to the WMPO.

A new edited version of Chapter 8.4 of the SCP was prepared by staff members at Los Alamos.

WBS 1.2.6.9.2.3 Exploratory Shaft Geomechanical Test

The SNL Excavation Investigations Study Plan (SLTR87-3004) was reviewed by WMPO and DOE/HQ.

The comments on the Excavation Investigations Study plan by WMPO and DOE/HQ will be resolved at SNL during a comment resolution workshop, and the study plan will be revised.

WBS 1.2.6.9.4 Prototype Testing

WBS 1.2.6.9.4.1 Prototype Geologic Testing

Staff members at the U.S. Bureau of Reclamation (USBR) completed the shaft mapping platform and the telescoping camera pedestal design.

WBS 1.2.6.9.4.2 Prototype Hydrologic Testing

USBR staff completed draft technical procedures (DTPs) on prototype Intact Fracture Sampling Methods and prototype Blast Effects on Instrumentation (PBEI) and drafted sections of the prototype Drill Hole Instrumentation (PDHI) DTP. They also completed Environmental Compliance Questionnaire for ES tests and 10 prototype tests and developed TIMELINE activity schedule and resources for ES tests based on information from ES SIP.

WBS 1.2.6.9.4.3 Exploratory Shaft Prototype Geomechanical Test

Project staff and personnel from the SNL Data Systems Development Division attended the Integrated Data Systems (IDS) Implementation Committee meeting in Las Vegas, NV, on May 8, 1987. The meeting was held to review the current status of the IDS and the revised IDS Requirements Document. Specific problems related to user input/output requirements and prototype testing in G-Tunnel were also discussed.

PLANNED WORK

The comments on the Excavation Investigations Study Plan by WMPO and DOE/EQ will be resolved at SNL during a comment resolution workshop, and the study plan will be revised.

The draft study plan for the exploratory shaft diffusion test will be completed by Los Alamos staff. The two test plans for this task that are proposed for the exploratory shaft will be reviewed in light of the consultants' comments and those of the Exploratory Shaft Test Plan editors to determine the changes that should be incorporated in the next revision.

H&N staff members will resolve review comments from WMPO and issue Revision 1 to Study #5.

Staff members at H&N will begin work on ESF Pre-Title I design effort in response to WMPO Action Item 87-1630. Meetings will be scheduled with WMPO to review requirements for this task.

PROBLEM AREAS

H&N staff members need to meet with WMPO to further define the requirements of ESF Special Study #4, Technical Interface Control and the Pre-Title I design effort.

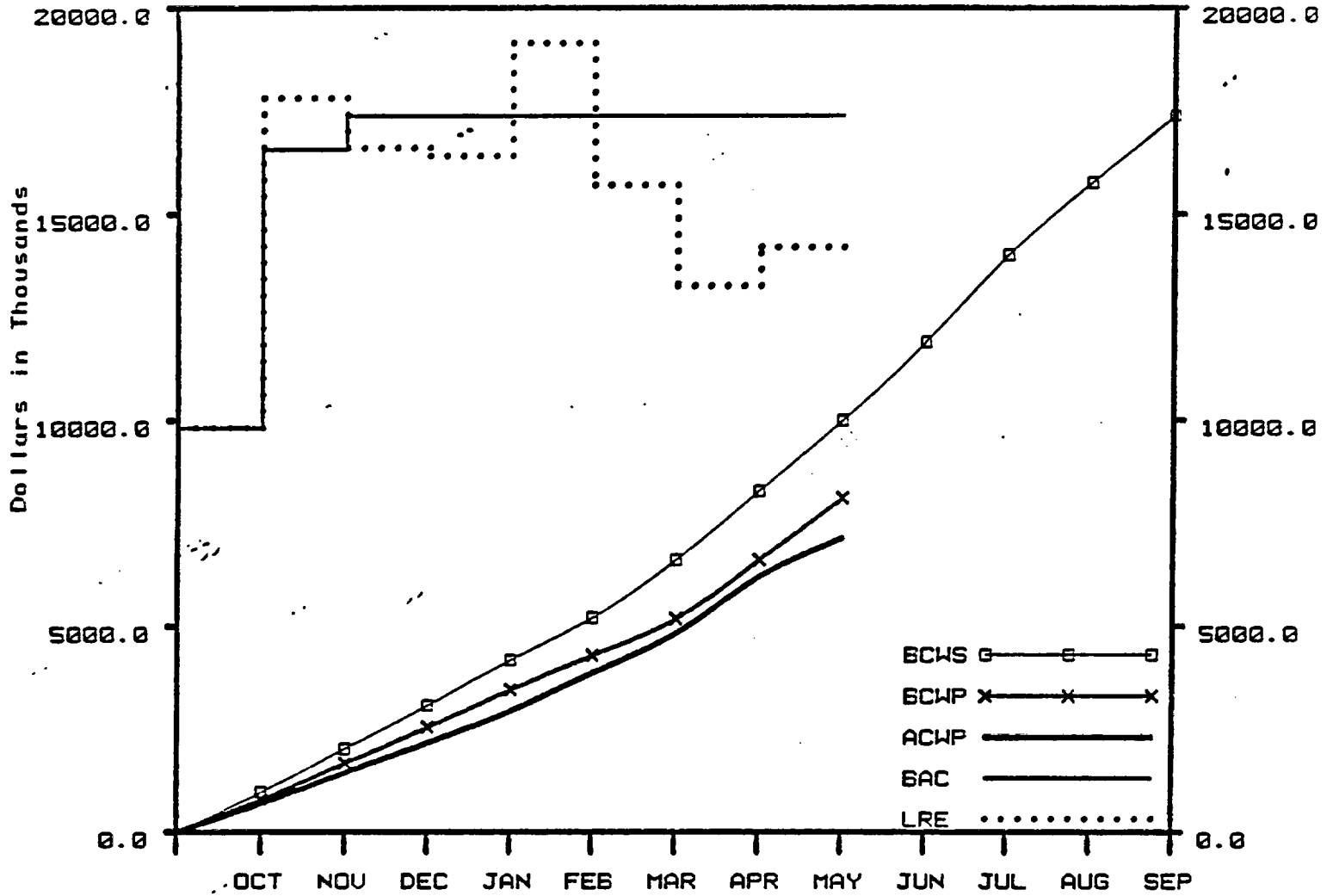
Weapons funding for G-Tunnel to remain operational is quickly being depleted. The re-review of prototype test plans by WMPO and SAIC and projected dates to consummate the review package have placed the schedule for prototype testing in a critical situation. The G-Tunnel underground facility could conceivably be closed by the time the PIs are allowed to begin prototype testing.

MILESTONE PROGRESS

H&N Milestone R573, surface engineering studies complete, was delayed and the new estimated date of completion is August 1, 1987.

The new estimated date of completion for H&N Milestone P074, surface Title I design complete, is September 15, 1987.

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.6



EXPLORATORY SHAFT INVESTIGATIONS

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	1705.2	9988.2
B. BUDGETED COST OF WORK PERFORMED (BCWP)	1602.2	8107.7
C. ACTUAL COST OF WORK PERFORMED (ACWP)	930.1	7123.6
D. BUDGET AT COMPLETION (BAC)		17370.0
E. LATEST REVISED ESTIMATE (LRE)		14181.7

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-1880.4	-18.83
G. COST VARIANCE (B-C)	984.1	12.14
H. AT COMPLETION VARIANCE (D-E)	3188.3	18.35

Remarks:

**COST PERFORMANCE REPORT
WBS LEVEL 4
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NNWSI PROJECT**

For: MAY 1987

Date: June 22, 1987

WBS NUMBER AND DESCRIPTION	YEAR TO DATE				
	BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES	
				SCHEDULE	COST
1261 Management and Integration	3,214.730	3,119.068	2,823.451	-95.662	295.617
1262 Site Preparation	139.400	53.300	67.320	-86.100	-14.020
1263 Surface Facilities	90.400	39.200	38.500	-51.200	2.700
1264 First Shaft	184.000	166.000	166.384	-18.000	59.616
1265 Second Shaft	111.000	111.000	106.062	-.000	4.938
1266 Subsurface Excavations	200.000	200.000	189.101	.000	10.899
1267 Underground Service Systems	425.500	286.170	177.496	-139.330	108.674
1268 Operations	20.000	20.000	7.000	.000	13.000
1269 Testing	5,603.130	4,113.000	3,610.277	-1,490.130	502.723
126 EXPLORATORY SHAFT INVESTIGATIONS	9,988.160	8,107.738	7,123.591	-1,860.422	984.147

MILE- STONE	RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S	
M105	WMPO/ LANL	1.2.6.1	Submit Prototype Test Plans to DOE/HQ for Review and Comment					△					◇			
M243	WMPO/ LANL	1.2.6.1	Complete Exploratory Shaft Readiness Review												△	◇ 10/88
R841	WMPO/ SAIC	1.2.6.1	DOE/HQ Receives Final FY 89 Project Validation Material						▲							
M282	WMPO/ LANL	1.2.6.1	Start Field Prototype Testing in G-Tunnel						△							◇ TBD
R241	WMPO/ LANL	1.2.6.1	Exploratory Shaft Facility (ESF) Subsystems Design Requirements Document			△			◆							
M773	WMPO/ SAIC	1.2.6.1	Final ESF Title II Design Requirements Document Submitted To DOE/HQ								△					◇ 11/87
P763	WMPO/ SAIC	1.2.6.1	Exploratory Shaft Title I Design Summary Submitted to WMPO								△					◇ 11/87

△ PLANNED MILESTONE COMPLETION DATE

◇ REVISED MILESTONE COMPLETION DATE

▲ COMPLETED AS SCHEDULED

◆ COMPLETED AS REVISED

1.2.7 TEST FACILITIES

OBJECTIVE

The major objective of this task is the design, construction, and operation of the test facilities that support technology development for other waste management programs and other geologic repository projects. The two major facilities operated under this WBS element are the Climax Spent Fuel Test Facility and the E-MAD Facility.

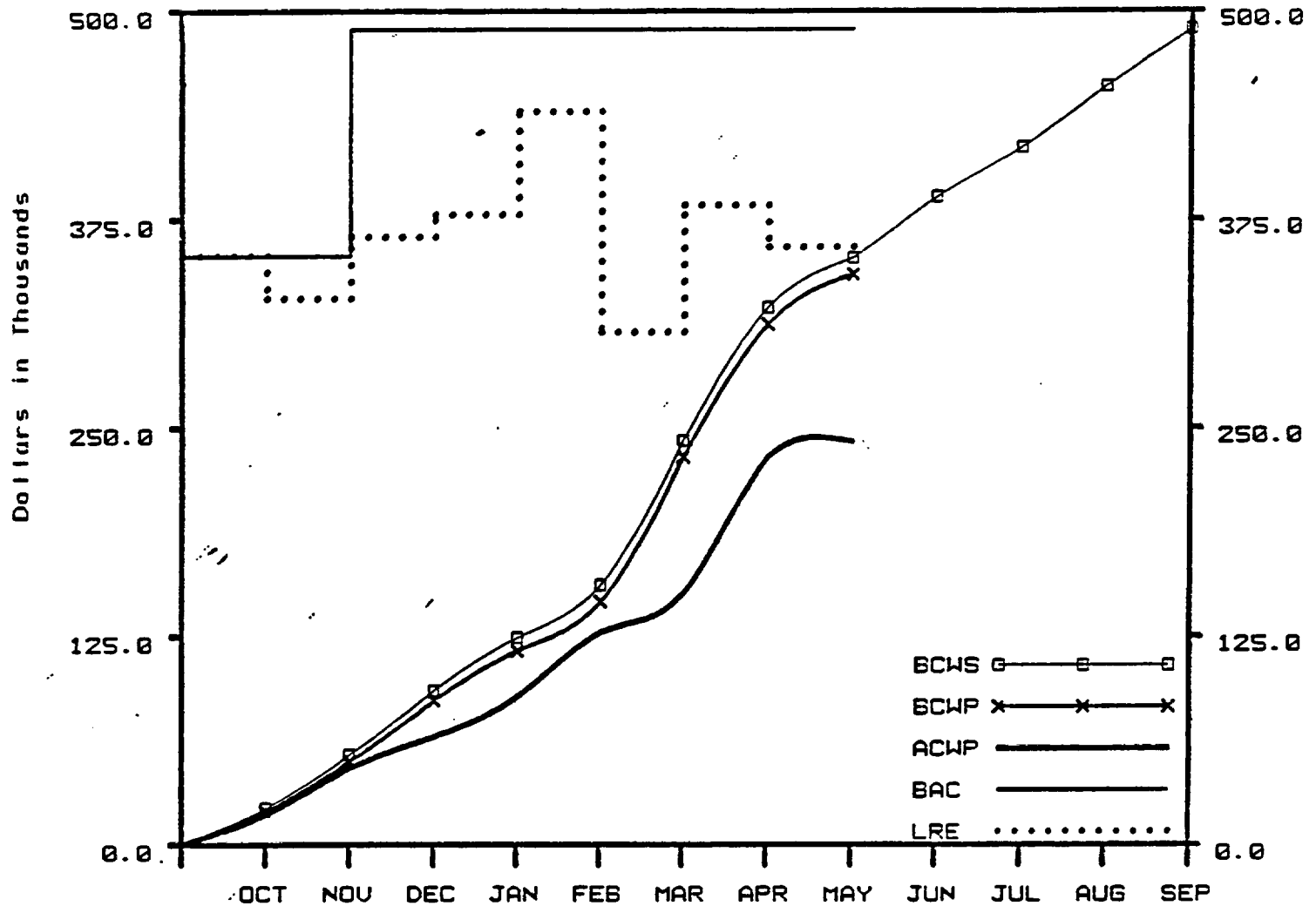
ACTIVITIES

WBS 1.2.7.2.1 Spent Fuel Test-Climax

The remaining LLNL Spent Fuel Test-Climax reports are in various stages of completion for printing as follows:

1. The final report (UCRL-53702) has been proofed and the galleys are now being corrected. Expected distribution is July 1987
2. The executive summary (UCRL-53762) has been printed and distributed.
3. The report on post-test thermal analyses (UCRL-53728) has been proofed and the galleys are being corrected. Expected distribution is July 1987.
4. The geomechanics report is in final corrections, and distribution lists are being prepared. Expected distribution is July 1987.

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.7



TEST FACILITIES

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	29.8	351.8
B. BUDGETED COST OF WORK PERFORMED (BCWP)	29.8	341.8
C. ACTUAL COST OF WORK PERFORMED (ACWP)	9.5	241.6
D. BUDGET AT COMPLETION (BAC)		489.0
E. LATEST REVISED ESTIMATE (LRE)		358.2

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-10.0	-2.84
G. COST VARIANCE (B-C)	100.1	29.30
H. AT COMPLETION VARIANCE (D-E)	130.8	26.74

Remarks:

COST PERFORMANCE REPORT
WBS LEVEL 4
U.S. DEPARTMENT OF ENERGY
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For: MAY 1987

Date: June 22, 1987

WBS NUMBER AND DESCRIPTION		YEAR TO DATE				
		BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES	
					SCHEDULE	COST
1271	Management and Integration	.000	.000	.000	.000	.000
1272	Testing	351.760	341.760	241.621	-10.000	100.139
1273	New Facility Acquisitions	.000	.000	.000	.000	.000
127	TEST FACILITIES	351.760	341.760	241.621	-10.000	100.139

1.2.8 LAND ACQUISITION

OBJECTIVE

The objective of this task is to maintain access to land adjacent to the Nevada Test Site that is controlled by the U.S. Air Force and the Bureau of Land Management and to protect land that could be used for a high-level waste repository and the surrounding buffer zones.

ACTIVITIES

SAIC representatives met with the BLM, WMPO, and Air Force officials on the Nellis Range Management Plan.

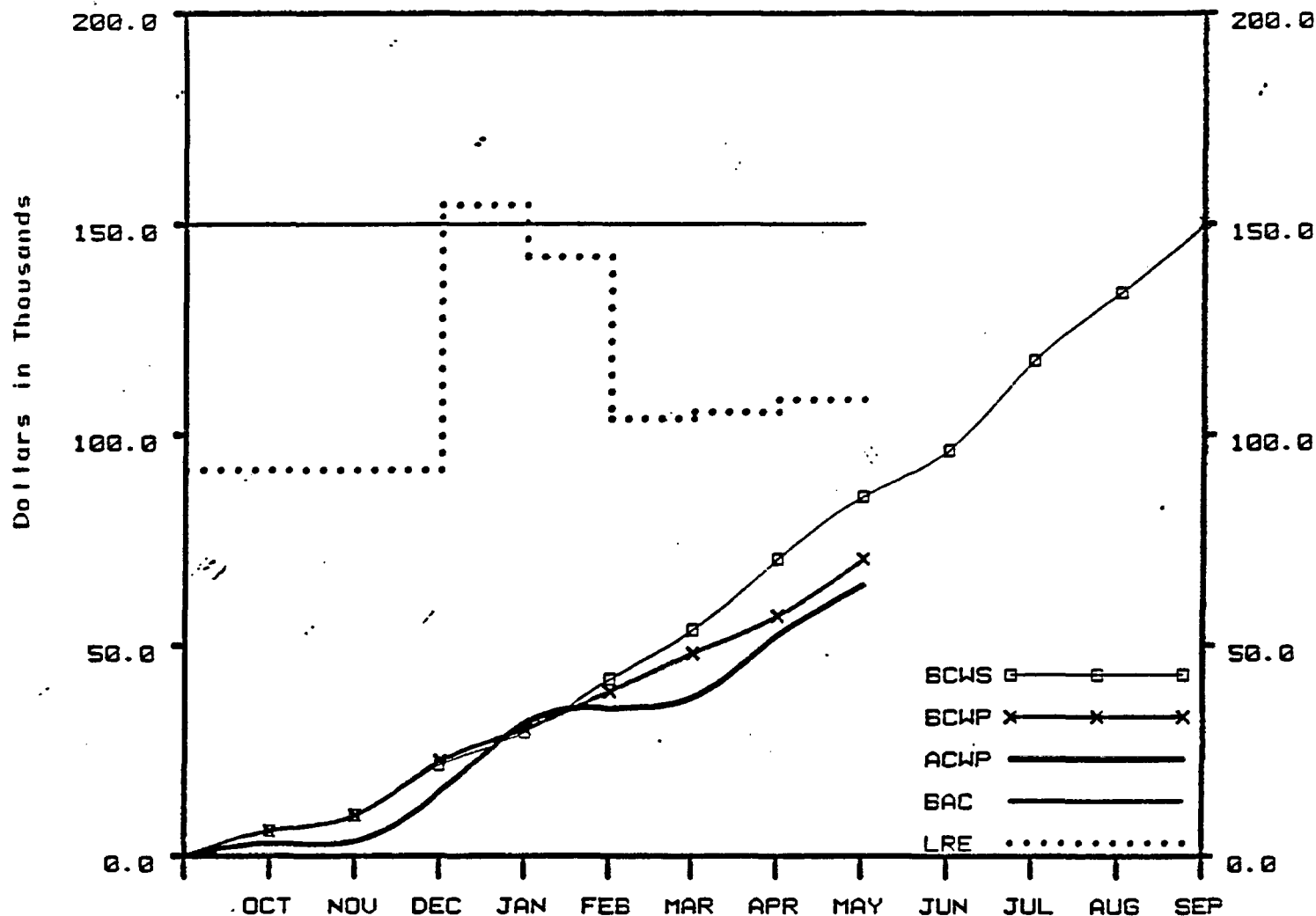
MILESTONE PROGRESS

SAIC Milestone T026, Draft Annotated Outline of the Plan of Development, was delivered to the WMPO.

NNWSI PROJECT

COST PERFORMANCE GRAPH FOR MAY 1987

WBS: 1.2.8



LAND ACQUISITION

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	14.8	85.3
B. BUDGETED COST OF WORK PERFORMED (BCWP)	13.5	70.5
C. ACTUAL COST OF WORK PERFORMED (ACWP)	11.9	64.4
D. BUDGET AT COMPLETION (BAC)		150.0
E. LATEST REVISED ESTIMATE (LRE)		108.2

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-14.8	-17.35
G. COST VARIANCE (B-C)	6.1	8.72
H. AT COMPLETION VARIANCE (D-E)	41.8	27.88

Remarks:

COST PERFORMANCE REPORT
WBS LEVEL 4
U.S. DEPARTMENT OF ENERGY
NNWSI PROJECT

For: MAY 1987

Date: June 22, 1987

WBS NUMBER AND DESCRIPTION	YEAR TO DATE				
	BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES	
				SCHEDULE	COST
1281 Land Acquisition	85.300	70.500	64.356	-14.800	6.144
128 LAND ACQUISITION	85.300	70.500	64.356	-14.800	6.144

WBS 1.2.9 PROJECT MANAGEMENT

OBJECTIVE

The objective of this task is to manage all activities of the NNWSI Project by all participants. The five major areas identified are Project Management, Project Control, Interface activities, Quality Assurance, and Generic Requirements Document (GRD) Support.

WBS 1.2.9.1 MANAGEMENT AND INTEGRATION

The F&S Technical Support Division distributed the NNWSI Project Hole History Publication DOE/NV/10322-16, UE-25p #1.

F&S staff submitted Revision No. 1, Special Study No. 3, ESF Excavation Methods; and Revision No. 1, Special Study No. 9, ESF Compressed Air System to WMPO for acceptance and approval.

The F&S Technical Support Division is preparing the NNWSI Project Seismic Hole Histories.

WBS 1.2.9.1.1 Management

A one-day workshop was conducted on May 15, 1987, to establish a framework for the WBS 1.2.4 networks. Prior to the workshop, it was agreed that two third-level WBS networks would be developed by the end of June 1987.

The Project Management Plan comments received from Project participants and WMPO are being incorporated and resolved internally at SAIC. The scheduled delivery date is June 30 to the WMPO for NV and WMPO approval.

WBS 1.2.9.1.4 Records Management

H&N staff completed the review of the Draft Keyword Dictionary in response to WMPO Action Item 87-1644.

The Information Management System (IMS) Plan, Revision 0, was completed by SAIC staff and controlled and uncontrolled distribution was made.

The IMS Thesaurus functional description was completed and submitted to the SAIC software review board.

SAIC staff completed the IMS Bridge Program functional description and forwarded it to WMPO for signature and distribution.

Personnel at SAIC completed indexing of the Environmental Assessment (EA) Administrative Records in the IMS.

WBS 1.2.9.2 PROJECT CONTROL

USGS personnel developed a summary plot and milestone list for the Exploratory Shaft, UZ Percolation activities and submitted them to the Study Plan group.

The SAIC Planning and Scheduling Branch supported the preparations of Chapter 8 of the SCP by correcting data inconsistencies associated with the SCP "Issues Data Base."

WBS 1.2.9.3 QUALITY ASSURANCE

The Scientific Investigation Plans were reviewed by LLNL staff and Quality Assurance level assignment meetings were held for the Waste Package Environment, Spent Fuel Waste Form, and Integrated Testing Tasks.

A LLNL representative presented a paper entitled "Organizing for Quality: A Structural Perspective" at the ASQC Annual Quality Conference, May 4-6, in Minneapolis, MN.

Los Alamos responses were prepared and returned to the WMPO for the standard deficiency reports from the WMPO Audit 87-1. The final audit report was received, and responses are being prepared for the observations produced during the audit.

The second audit for FY 87 was conducted at LLNL on April 27-May 1, 1987 and five Standard Deficiency Reports (SDRs) were issued.

Of the five audits conducted in FY 86 four remain open.

Of the 15 audits conducted in FY 85 four remain open.

One surveillance was conducted during May and two items or activities were monitored revealing no SDRs. To date, 19 surveillances have been conducted in FY 87 and 60 items or activities monitored and nine SDRs recorded.

An extension to the Los Alamos Technical Associates (LATA) contract was initiated to support the revision of the Los Alamos Quality Assurance Program Plan (QAPP) and implementing procedures. Work has started on the revision of procedures and activities found to be deficient during the WMPO audit.

A considerable amount of effort by Los Alamos personnel was directed to developing quality assurance level assignments (QALAS) for the ESF Integrated Data System (IDS). This work was started after the recent approval of EG&G's QAPP (for participation in the IDS design activity). A draft (informal input) of the QALAS was provided to WMPO representatives for comment before their formal submission for approval.

An SNL quality assurance audit of the University of New Mexico Institute of Meteoritics (an SNL contractor) was conducted during the week of May 25-29, 1987.

The WMPO is in the process of purchasing the ES-2 hoist which is a thirty-year-old machine, having been rebuilt within the last five years. To qualify the hoist for Level II quality requirements, an inspection and documentation operation is being planned.

PLANNED WORK

The Los Alamos reports library will be transferred from the Isotope and Nuclear Chemistry Division to the Los Alamos NNWSI Project Office in June.

H&N personnel will continue working on revisions to the NTS scale model and mosaic map.

PROBLEM AREAS

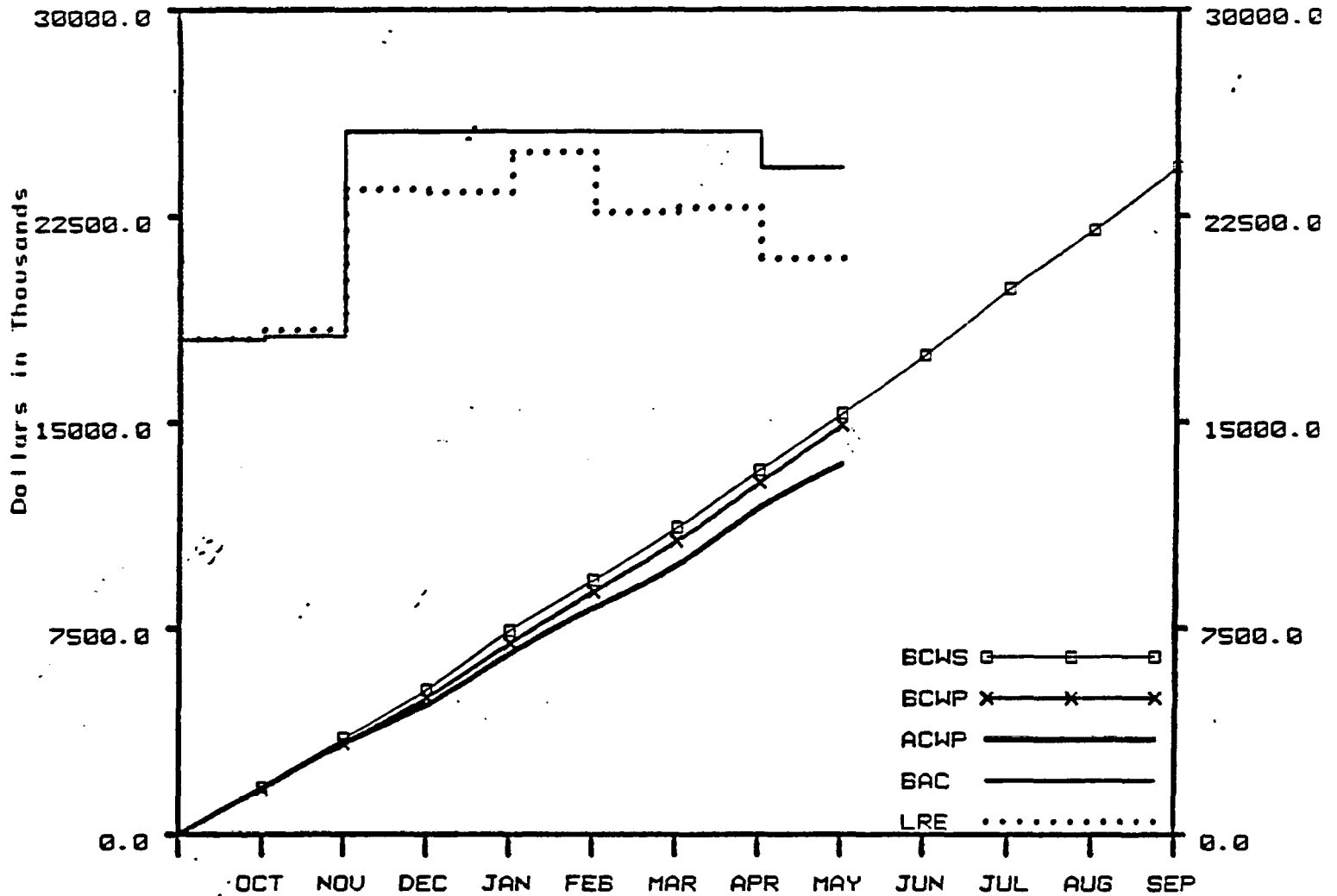
The lack of samples for the NNWSI Project core repository continues to hamper Los Alamos participants. Ostensibly, this nonavailability of samples is due to the delayed turnover of the core facility from the USGS to the new manager. A number of milestone dates will be missed if new samples are not available soon. There are also QA concerns about this situation.

MILESTONES

SNL Milestone R113, SNL contribution to the FY 87 NNWSI Project mid-year Project review, has been delayed.

The new estimated date of completion for SNL Milestone P993, completion of task-specific portion of SNL NNWSI Project Familiarization Program, is June 30, 1987.

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.9



PROJECT MANAGEMENT

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	2051.5	15299.3
B. BUDGETED COST OF WORK PERFORMED (BCWP)	2078.4	14880.1
C. ACTUAL COST OF WORK PERFORMED (ACWP)	1588.4	13480.8
D. BUDGET AT COMPLETION (BAC)		24239.0
E. LATEST REVISED ESTIMATE (LRE)		20932.4

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-419.2	-2.74
G. COST VARIANCE (B-C)	1399.3	9.40
H. AT COMPLETION VARIANCE (D-E)	3306.6	13.64

Remarks:

COST PERFORMANCE REPORT
WBS LEVEL 4
U.S. DEPARTMENT OF ENERGY
NNWSI PROJECT

For: MAY 1987

Date: June 22, 1987

WBS NUMBER AND DESCRIPTION	YEAR TO DATE				
	BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES	
				SCHEDULE	COST
1291 Management and Integration	7,838.370	7,746.562	6,867.306	-91.808	879.256
1292 Project Control	2,561.760	2,534.221	2,755.202	-27.539	-220.981
1293 Quality Assurance	4,267.220	3,967.320	3,226.263	-299.900	741.057
1299 NTS Allocation	632.000	632.002	632.000	.002	.002
129 PROJECT MANAGEMENT	15,299.350	14,880.105	13,480.771	-419.245	1,399.334

MILE- STONE	RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
R44B	WMPO/ SAIC	1.2.9.1	Final NNWSI Project Management Plan to WMPO/NV and DOE/HQ			△						◇			
R849	WMPO/ SAIC	1.2.9.1	Submit FY 87 Baseline Budget Information and Cost Plans to OGR for Information			▲									
R850	WMPO/ SAIC	1.2.9.1	Approved Revised Project Charter				△			◆					
M712	WMPO SAIC	1.2.9.1	Submit FY 89 Budget to DOE/HQ						▲						
R647	WMPO/ SAIC	1.2.9.1	Licensing Support System Document Collection Procedure to Headquarters for Approval							△			◇		
M725	WMPO/ SAIC	1.2.9.2	Implement Phase II of Earned Value System		△						◆				
R810	WMPO SAIC	1.2.9.1	Submit NNWSI Project Plan to WMPO/NV and DOE/HQ												△
R842	WMPO/ SAIC	1.2.9.1	Implement Document Collection for the Licensing Support System										△		

◇
TBD

△ PLANNED MILESTONE COMPLETION DATE

◇ REVISED MILESTONE COMPLETION DATE

▲ COMPLETED AS SCHEDULED

◆ COMPLETED AS REVISED

1.2.10 FINANCIAL AND TECHNICAL ISSUES

OBJECTIVES

This WBS element includes grant assistance to the State of Nevada.

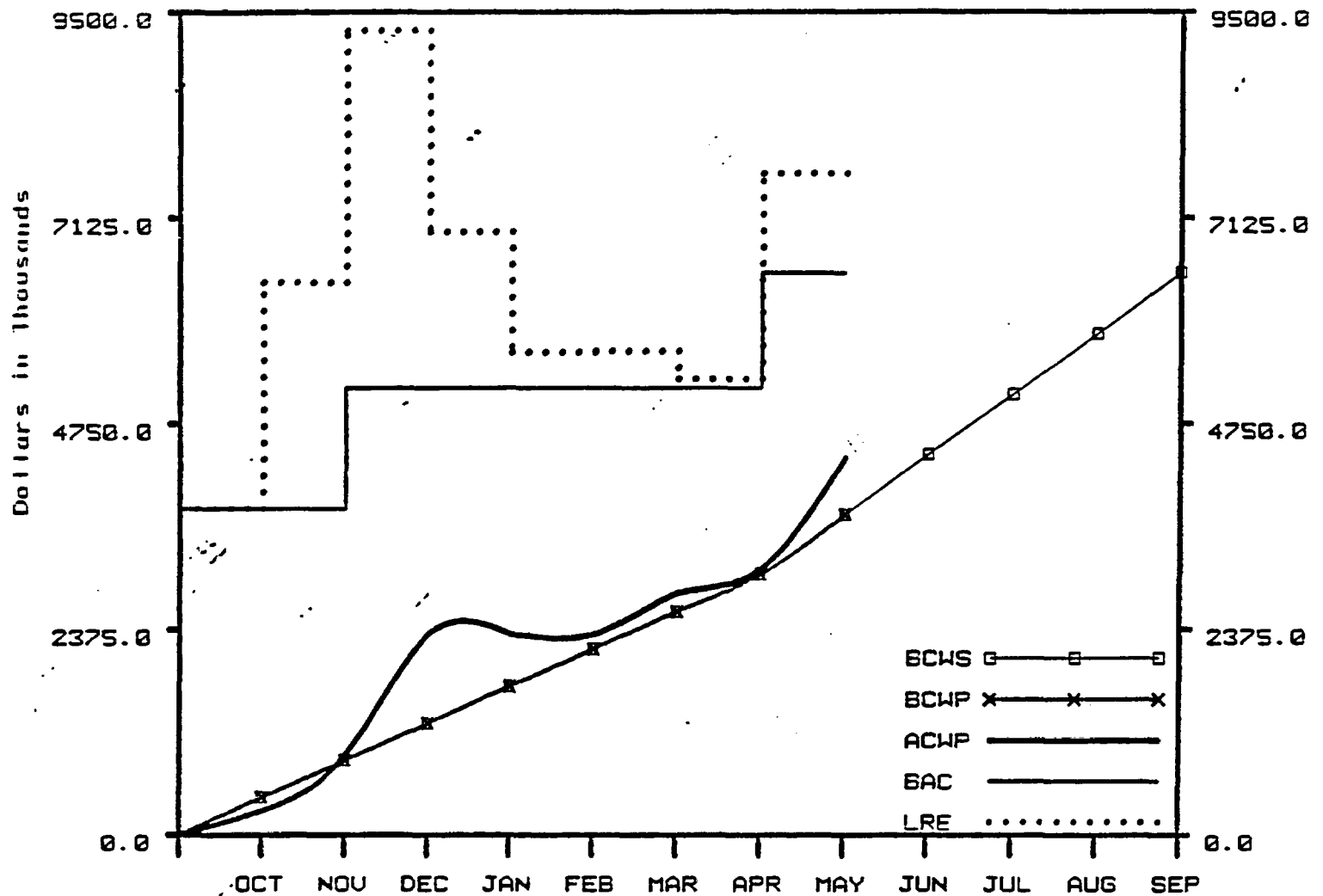
ACTIVITIES

None to report.

NNWSI PROJECT

COST PERFORMANCE GRAPH FOR MAY 1987

WBS: 1.2.10



FINANCIAL & TECHNICAL ASSISTANCE

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	690.0	3700.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	690.0	3700.0
C. ACTUAL COST OF WORK PERFORMED (ACWP)	1283.8	4351.8
D. BUDGET AT COMPLETION (BAC)		6486.0
E. LATEST REVISED ESTIMATE (LRE)		7628.6

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	0.0	0.00
G. COST VARIANCE (B-C)	-651.8	-17.62
H. AT COMPLETION VARIANCE (D-E)	-1142.6	-17.62

Remarks:

U.S. DEPARTMENT OF ENERGY

**DOE
OR
WM
OGR**

Nevada
Nuclear
Waste
Storage
Investigations
PROJECT

**YUCCA
MOUNTAIN**

PARTICIPANT

BUDGET vs COST

**COST PERFORMANCE REPORT - LEVEL 3
WORK BREAKDOWN STRUCTURE (FORMAT 1)
U.S. DEPARTMENT OF ENERGY**

CONTRACTOR:		CONTRACT TYPE NO.		PROJECT NAME/NUMBER:		REPORT FISCAL MONTH AND YEAR:		SIGNATURE:						
NMNSI Project				NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS		MAY 1987								
LOCATION: P. O. Box 14100 Las Vegas, NV 89114								TITLE: PROJECT MANAGER						
								Date: June 22, 1987						
		CURRENT PERIOD					YEAR TO DATE					FISCAL YEAR COMPLETION		
WBS NUMBER AND DESCRIPTION		BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES		BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES		BASELINED BUDGET	LATEST REVISED ESTIMATE	VARIANCE
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
121	SYSTEMS	735.400	674.435	616.843	-60.965	57.592	4,448.000	4,185.878	4,071.834	-253.138	124.836	7,923.000	6,739.983	1,183.017
122	WASTE PACKAGE	887.300	742.100	779.278	-65.200	-37.178	5,409.500	5,398.404	4,902.724	-98.896	487.681	8,535.000	8,386.457	1,228.543
123	SITE INVESTIGATIONS	2,988.140	3,638.344	1,601.527	656.204	2,036.817	19,485.110	17,247.867	13,514.908	-2,237.243	3,732.950	31,520.000	21,989.283	9,530.717
124	REPOSITORY INVESTIGATIONS	1,386.400	736.567	776.397	-649.833	-39.830	6,413.000	6,168.478	5,663.714	-244.522	504.765	12,472.000	9,208.315	3,263.685
125	REGULATORY AND INSTITUTIONAL INVESTIGATIONS	555.100	473.577	564.835	-81.523	-91.258	4,957.900	4,482.005	5,288.895	-475.895	-806.890	7,086.000	6,329.759	756.241
126	EXPLORATORY SHAFT INVESTIGATIONS	1,785.150	1,642.170	930.054	-182.972	672.123	9,988.160	8,107.738	7,123.591	-1,880.422	984.147	17,378.000	14,181.741	3,188.259
127	TEST FACILITIES	29.770	29.770	9.500	.000	20.270	351.760	341.760	241.621	-10.000	100.139	489.000	358.243	130.757
128	LAND ACQUISITION	14.000	13.500	11.939	-1.300	1.560	85.300	78.500	64.356	-14.800	6.144	150.000	108.182	41.818
129	PROJECT MANAGEMENT	2,051.480	2,078.401	1,588.385	26.921	490.816	15,299.350	14,800.105	13,480.771	-419.245	1,399.334	24,239.000	20,932.434	3,306.566
1210	FINANCIAL & TECHNICAL ASSISTANCE	690.000	690.000	1,283.789	.000	-593.789	3,700.000	3,700.817	4,351.781	.817	-651.764	6,486.000	7,628.554	-1,142.554
12	NMNSI - SUBTOTAL	18,963.540	18,678.871	8,162.547	-284.669	2,516.324	70,219.000	64,584.744	58,784.194	-5,634.336	5,800.551	117,279.000	95,782.952	21,496.048
	UNDISTRIBUTED BUDGET											100.000	100.000	.000
	CAPITAL EQUIPMENT								1,119.000			11,045.000	11,045.000	.000
	NMNSI - TOTAL	18,963.540	18,678.871	8,162.547	-284.669	2,516.324	70,219.000	64,584.744	59,823.283	-5,634.336	5,800.551	128,523.000	107,826.952	21,496.048

NOTE CAPITAL EQUIPMENT COSTS HAVE A ONE MONTH LAG. COSTS REPORTED
ARE FYTD THROUGH APRIL.

**COST PERFORMANCE REPORT - LEVEL 4
WORK BREAKDOWN STRUCTURE (FORMAT 1)
U.S. DEPARTMENT OF ENERGY**

PAGE 1

CONTRACTOR:		CONTRACT TYPE NO.:		PROJECT NAME/NUMBER:		REPORT FISCAL MONTH AND YEAR:		SIGNATURE:					
MWSI Project				NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS		MAY 1987							
LOCATION: P.O. Box 14100 Las Vegas, NV 89114								TITLE: PROJECT MANAGER					
								Date: June 22, 1987					
WBS NUMBER AND DESCRIPTION		CURRENT PERIOD				YEAR TO DATE				FISCAL YEAR COMPLETION			
		BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES SCHEDULE COST	BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES SCHEDULE COST	BASELINED BUDGET	LATEST REVISED ESTIMATE	VARIANCE	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1210	Systems Management and Integration	49,900	49,900	28,189	-	21,711	266,900	266,900	141,817	125,084	478,000	245,999	232,001
1212	Systems Engineering	228,500	213,878	140,453	-14,622	65,225	1,534,900	1,534,900	1,375,817	-16,111	2,740,000	2,314,383	425,617
1213	Technical Data Base Management	134,000	87,657	100,000	-46,343	-12,343	501,900	501,900	573,000	-237,015	1,437,000	720,000	700,192
1214	Total Systems Performance Assessment	323,000	323,000	348,000	-	-17,000	1,810,000	1,809,996	1,902,000	-884	3,268,000	3,450,794	-182,794
121	SYSTEMS	735,400	674,435	616,643	-60,965	57,592	4,449,000	4,195,876	4,871,834	-253,130	7,923,000	6,739,903	1,183,097
1221	Management and Integration	62,300	52,300	71,778	-10,000	-10,477	400,500	420,500	383,524	-60,000	725,000	561,117	163,883
1222	Package Environment	85,000	84,700	90,000	-20,300	-26,200	670,000	544,100	674,000	-125,900	990,000	843,786	146,214
1223	Waste Form & Materials Testing	462,000	426,899	493,000	-35,901	-67,001	3,127,000	3,200,000	3,834,600	-153,000	5,825,000	5,389,101	235,899
1224	Design, Fabricate, and Prototype Testing	118,000	135,900	38,000	17,999	87,999	647,000	647,000	268,000	-	1,240,000	511,332	728,668
1225	Performance Assessment	88,000	83,000	84,100	-17,000	-21,100	565,000	490,000	543,000	-67,000	955,000	901,201	53,799
122	WASTE PACKAGE	807,300	742,100	779,278	-45,200	-37,178	5,409,500	5,390,404	4,902,724	-90,096	9,535,000	8,306,457	1,228,543
1231	Management & Integration	591,700	916,899	260,051	325,199	650,048	3,936,700	3,930,544	2,383,764	-6,156	1,546,700	3,845,490	2,675,510
1232	Geology	455,600	1,138,400	222,210	682,800	916,190	3,282,500	2,753,871	1,683,689	-528,629	1,070,202	2,362,147	2,768,853
1233	Hydrology	545,000	295,499	316,203	-249,501	-20,704	4,360,000	3,669,655	3,669,655	-791,181	499,164	4,945,289	1,686,711
1234	Geochemistry	499,000	499,000	420,100	-	70,900	3,700,000	3,625,500	3,582,100	-83,300	43,400	5,500,787	219,213
1235	Drilling	669,100	603,350	163,235	-65,700	440,126	2,263,810	1,758,232	1,090,421	-505,378	667,812	2,964,623	1,736,177
1236	Environment	93,300	101,027	91,046	7,727	9,981	890,700	824,220	721,461	-75,471	102,768	983,664	248,356
1237	Socioeconomic	69,400	25,150	34,583	-44,242	-9,425	519,000	340,673	421,339	-179,127	818,000	479,740	338,260
1238	Geochemical Modeling Code EQ3/6	65,000	59,000	93,300	-6,000	-34,300	514,000	446,000	562,500	-68,000	774,000	827,143	-53,143
1239	Deferred Site Close Out	000	000	000	000	000	000	000	000	000	000	000	000
123	SITE INVESTIGATIONS	2,908,140	3,638,144	1,601,527	650,204	2,036,817	19,405,110	17,247,867	13,514,900	-2,237,243	3,732,959	21,909,183	9,539,717
1241	Management and Integration	267,400	35,400	190,397	-232,000	-154,997	1,765,000	2,019,400	1,920,714	254,400	2,906,000	3,075,541	-89,841
1242	Development and Testing	676,000	271,166	219,000	-404,834	-52,166	2,620,000	2,195,998	2,041,000	-431,002	155,998	5,534,000	2,652,59
1243	Facilities	160,000	150,000	219,000	-10,000	-69,000	757,000	706,001	727,000	-50,999	1,448,000	1,400,14	-40,234
1244	Operations and Maintenance	94,000	94,000	52,000	-	42,000	362,000	361,999	371,000	-901	811,000	833,49	-22,149
1245	Decommissioning	10,000	10,000	4,000	-	6,000	56,000	56,000	14,000	-	99,000	24,250	74,750
1246	Repository Performance Assessment	179,000	176,000	92,000	-3,000	84,000	845,000	828,000	582,000	-17,000	1,594,000	1,133,972	460,028
124	REPOSITORY INVESTIGATIONS	1,386,400	736,567	778,397	-649,833	-39,830	6,413,000	6,168,478	5,663,714	-244,522	504,765	12,472,000	1,263,685
1251	Management and Integration	54,500	46,310	33,851	-8,190	12,459	443,000	416,710	272,148	-27,100	144,562	601,000	415,733
1252	Licensing	421,200	346,624	470,181	-74,576	-123,537	3,834,400	3,477,036	4,472,810	-357,364	-895,782	5,269,946	187,854
1253	Environmental Compliance	43,000	44,243	41,287	1,243	2,976	364,300	272,950	320,533	-91,342	47,575	550,000	365,408
1254	Communication and Liaison	36,400	36,400	19,556	000	16,844	315,300	315,301	223,396	001	91,905	338,672	159,327
1255	Technology and Financial Assistance	000	000	000	000	000	000	000	000	000	000	000	000
125	REGULATORY AND INSTITUTIONAL INVESTIGATIONS	555,100	473,577	564,835	-81,523	-91,250	4,957,000	4,462,005	5,208,095	-475,095	-606,890	7,006,000	6,329,759
1261	Management and Integration	395,300	563,408	290,124	160,188	273,364	3,214,730	3,119,060	2,823,451	-95,662	295,617	4,871,000	4,291,769
1262	Site Preparation	25,600	000	4,520	-25,600	-4,520	139,400	53,300	67,320	-86,100	-14,020	324,000	374,000
1263	Surface Facilities	21,500	000	2,600	-21,500	-2,600	90,400	39,200	36,500	-51,200	2,700	161,000	161,000
1264	First Shaft	45,000	45,000	11,412	-	33,588	184,000	166,000	106,384	-18,000	59,616	147,284	104,612
1265	Second Shaft	49,000	49,000	62,432	-	-13,432	111,000	111,000	106,062	-	4,938	198,000	108,944
1266	Subsurface Excavations	13,000	13,000	000	13,000	200,000	200,000	189,181	189,181	000	10,899	358,000	338,431
1267	Underground Service Systems	61,000	24,600	74,104	-36,910	5,506	425,500	286,170	177,406	-139,330	108,674	754,951	224,049
1268	Operations	5,000	5,000	000	000	5,000	20,000	20,000	7,000	000	13,000	20,000	17,000
1269	Testing	1,009,150	902,000	534,862	-107,150	367,150	5,603,130	4,113,000	3,810,277	-1,490,130	502,723	10,205,000	7,960,281
126	EXPLORATORY SHAFT INVESTIGATIONS	1,705,150	1,602,170	930,054	-102,972	672,123	9,908,160	8,107,730	7,123,591	-1,800,422	984,147	17,370,000	14,181,741
1271	Management and Integration	000	000	000	000	000	000	000	000	000	000	000	000
1272	Testing	29,770	29,770	9,500	000	20,270	351,760	341,760	241,621	-10,000	100,139	489,000	350,243
1273	New Facility Acquisitions	000	000	000	000	000	000	000	000	000	000	000	000

11-2

**COST PERFORMANCE REPORT - LEVEL 4
WORK BREAKDOWN STRUCTURE (FORMAT 1)
U.S. DEPARTMENT OF ENERGY**

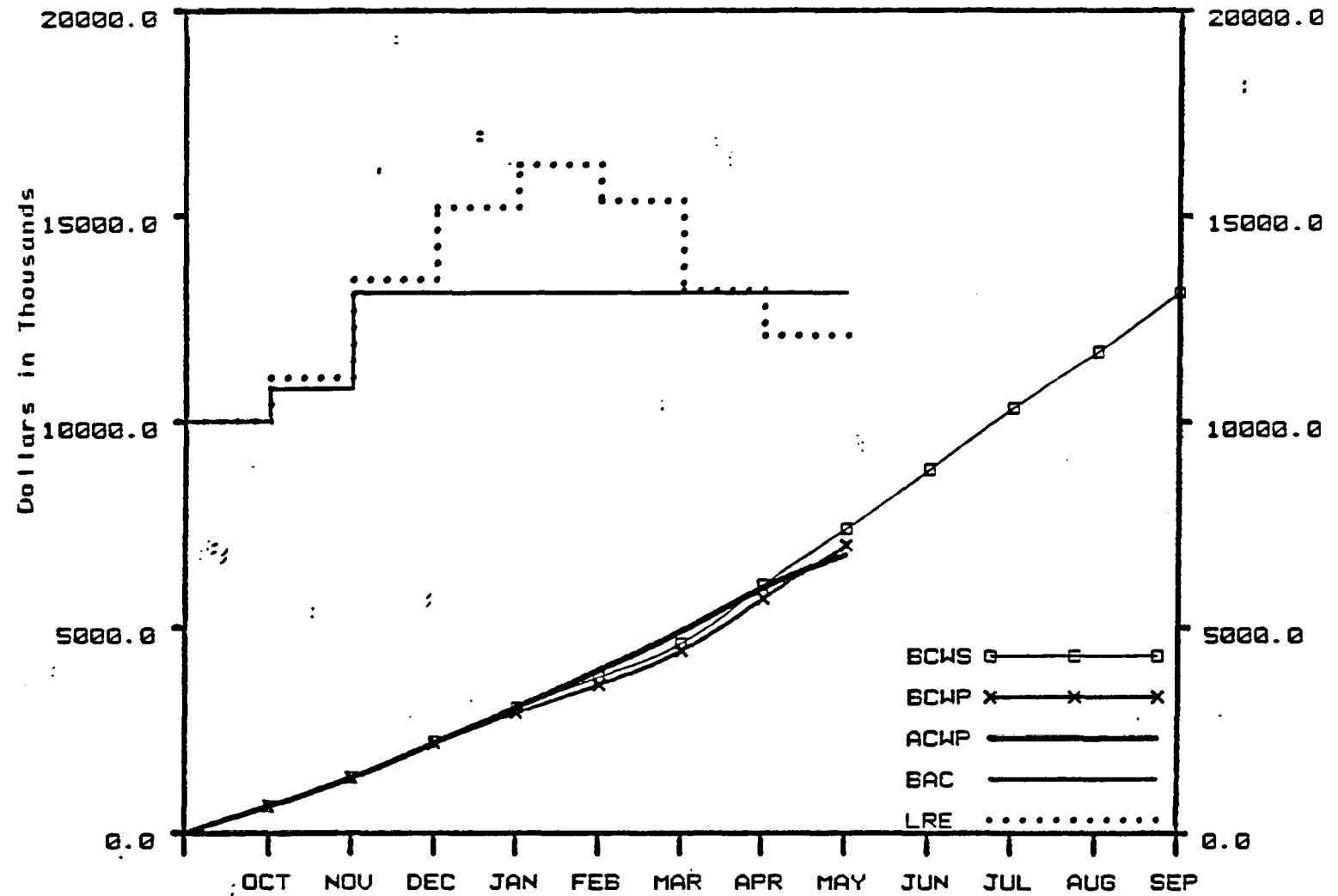
PAGE 2

CONTRACTOR: NWSI Project		CONTRACT TYPE NO.:		PROJECT NAME/NUMBER: NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS		REPORT FISCAL MONTH AND YEAR: MAY 1987		SIGNATURE:						
LOCATION: P.O. Box 14100 Las Vegas, NV 89114								TITLE: PROJECT MANAGER						
								Date: June 22, 1987						
WBS NUMBER AND DESCRIPTION		CURRENT PERIOD					YEAR TO DATE					FISCAL YEAR COMPLETION		
		BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES		BUD. COST OF WORK SCHEDULED	BUD. COST OF WORK PERFORMED	ACTUAL COST OF WORK PERFORMED	VARIANCES		BASELINED BUDGET	LATEST REVISED ESTIMATE	VARIANCE
(1)		(2)	(3)	(4)	(5) SCHEDULE	(6) COST	(7)	(8)	(9)	(10) SCHEDULE	(11) COST	(12)	(13)	(14)
127	TEST FACILITIES	20.770	20.770	9.500	.000	20.270	351.760	341.760	241.621	-10.000	100.139	480.000	350.243	130.757
1281	Land Acquisition	14.000	13.500	11.930	-1.300	1.500	85.300	70.500	64.356	-14.800	6.144	150.000	100.182	41.818
128	LAND ACQUISITION	14.000	13.500	11.930	-1.300	1.500	85.300	70.500	64.356	-14.800	6.144	150.000	100.182	41.818
1281	Management and Integration	1,000.940	1,076.681	850.754	86.721	216.907	7,830.370	7,746.562	6,867.306	-91.000	870.256	12,290.000	10,726.950	1,563.050
1282	Project Control	348.000	347.960	325.400	-1.000	22.551	2,561.760	2,534.221	2,755.202	-27.539	-220.981	3,990.000	4,121.239	-131.239
1283	Quality Assurance	613.500	574.700	324.223	-38.800	250.550	4,267.220	3,967.320	3,226.263	-299.900	741.057	7,023.000	5,140.246	1,874.754
1289	NTS Allocation	79.000	79.000	79.000	.000	.000	632.000	632.002	632.000	.002	.002	936.000	936.000	.000
129	PROJECT MANAGEMENT	2,051.400	2,078.401	1,500.385	26.921	490.016	15,290.350	14,800.105	13,400.771	-419.245	1,399.334	24,230.000	20,932.434	3,306.566
12101	Financial & Technical Assistance	690.000	690.000	1,283.789	.000	-593.789	3,700.000	3,700.017	4,351.781	.017	-651.784	6,486.000	7,620.554	-1,142.554
1210	FINANCIAL & TECHNICAL ASSISTANCE	690.000	690.000	1,283.789	.000	-593.789	3,700.000	3,700.017	4,351.781	.017	-651.784	6,486.000	7,620.554	-1,142.554
12	NWSI - SUBTOTAL	10,983.540	10,678.871	8,182.547	-284.669	2,516.324	70,219.000	64,584.744	58,704.194	-5,634.336	5,880.551	117,270.000	95,782.952	21,496.048
	UNDISTRIBUTED BUDGET											190.000	190.000	.000
	CAPITAL EQUIPMENT								1,119.000			11,045.000	11,045.000	.000
	NWSI - TOTAL	10,983.540	10,678.871	8,182.547	-284.669	2,516.324	70,219.000	64,584.744	59,823.203	-5,634.336	5,880.551	128,523.000	107,026.952	21,496.048

NOTE: CAPITAL EQUIPMENT COSTS HAVE A ONE MONTH LAG. COSTS REPORTED
ARE FYTD THROUGH APRIL.

11-3

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.A



LOS ALAMOS - TOTAL

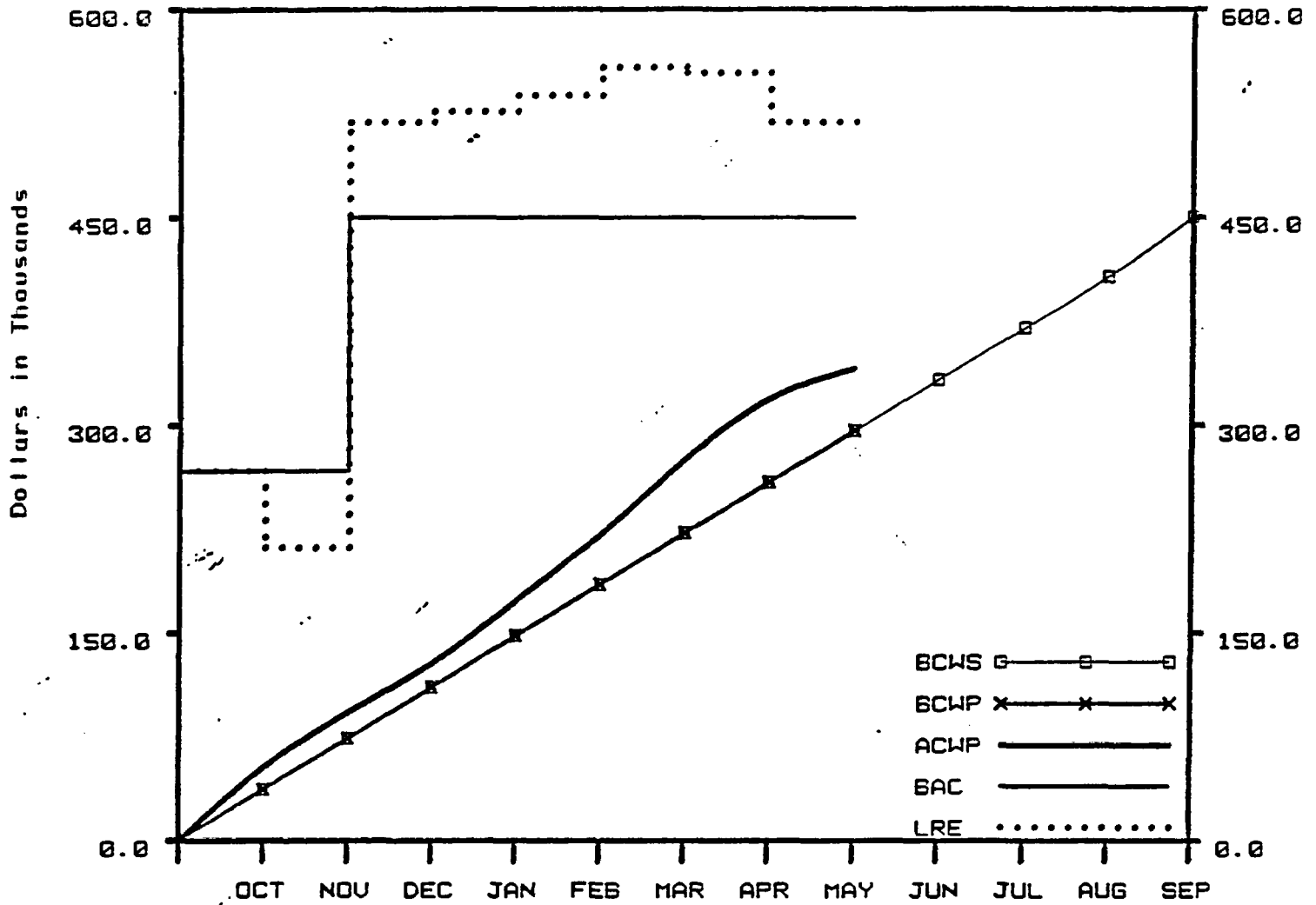
	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	1367.8	7396.4
B. BUDGETED COST OF WORK PERFORMED (BCWP)	1269.6	6983.2
C. ACTUAL COST OF WORK PERFORMED (ACWP)	799.7	6768.0
D. BUDGET AT COMPLETION (BAC)		13128.0
E. LATEST REVISED ESTIMATE (LRE)		12084.5

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-413.2	-5.59
G. COST VARIANCE (B-C)	215.2	3.08
H. AT COMPLETION VARIANCE (D-E)	1043.5	7.95

Remarks:

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.B



LBL - TOTAL

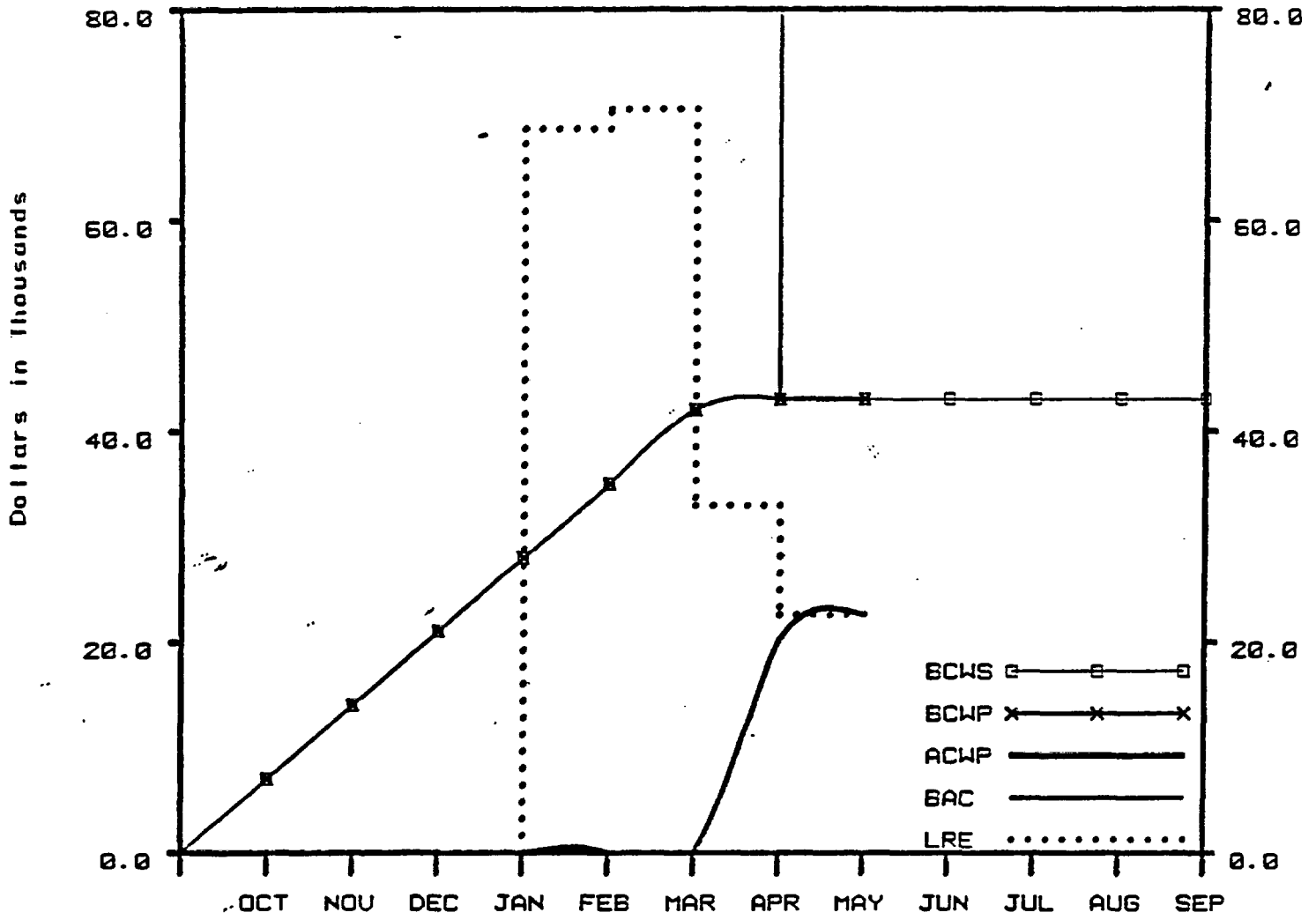
	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	37.0	296.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	37.0	296.0
C. ACTUAL COST OF WORK PERFORMED (ACWP)	22.2	340.8
D. BUDGET AT COMPLETION (BAC)		450.0
E. LATEST REVISED ESTIMATE (LRE)		518.1

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	0.0	0.00
G. COST VARIANCE (B-C)	-44.8	-15.13
H. AT COMPLETION VARIANCE (D-E)	-68.1	-15.14

Remarks:

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.C



CSC-TOTAL

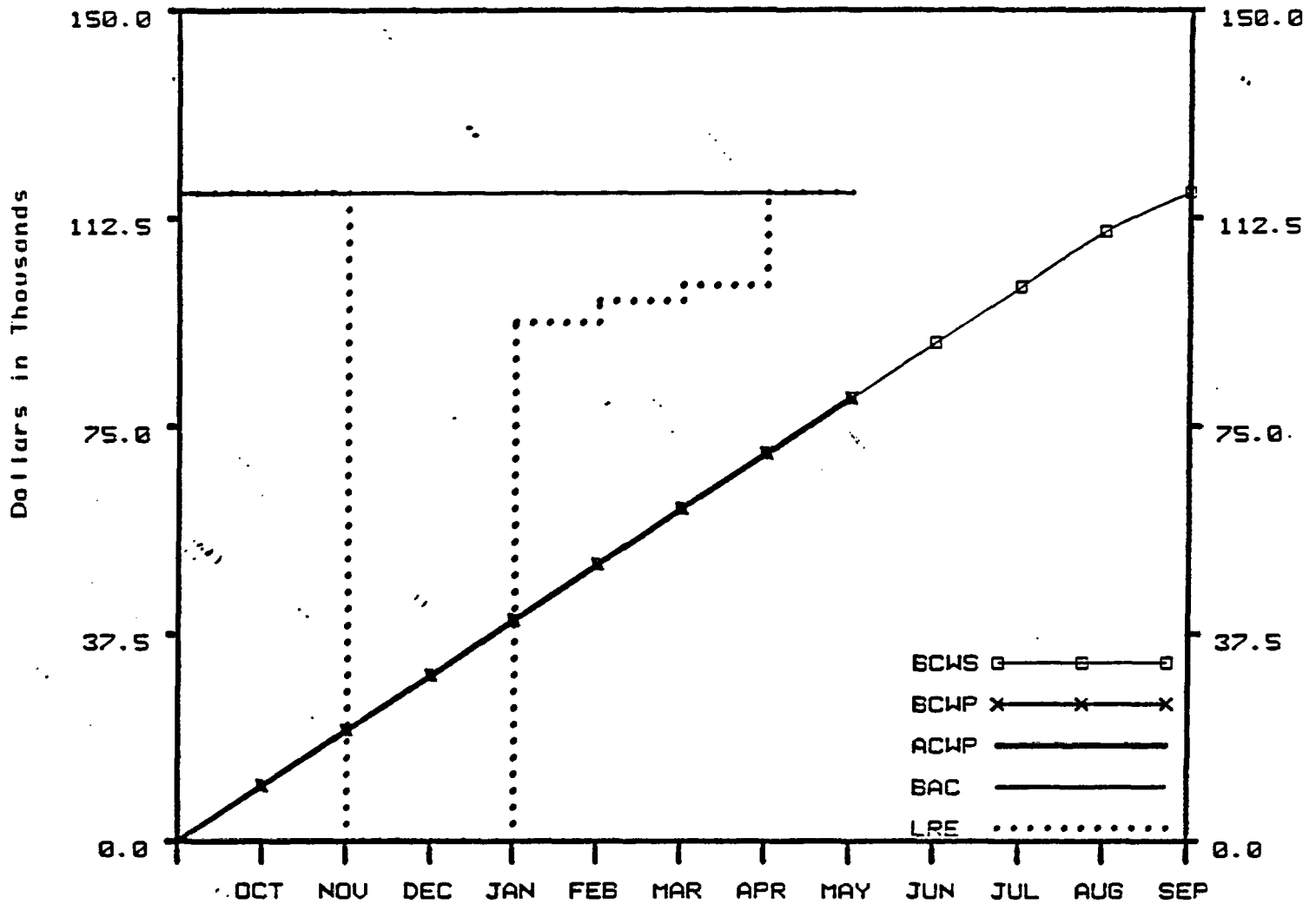
	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	0.0	43.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	0.0	43.0
C. ACTUAL COST OF WORK PERFORMED (ACWP)	2.4	22.6
D. BUDGET AT COMPLETION (BAC)		43.0
E. LATEST REVISED ESTIMATE (LRE)		22.6

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	0.0	0.00
G. COST VARIANCE (B-C)	20.4	47.53
H. AT COMPLETION VARIANCE (D-E)	20.4	47.53

Remarks:

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.D



HEDL-TOTAL

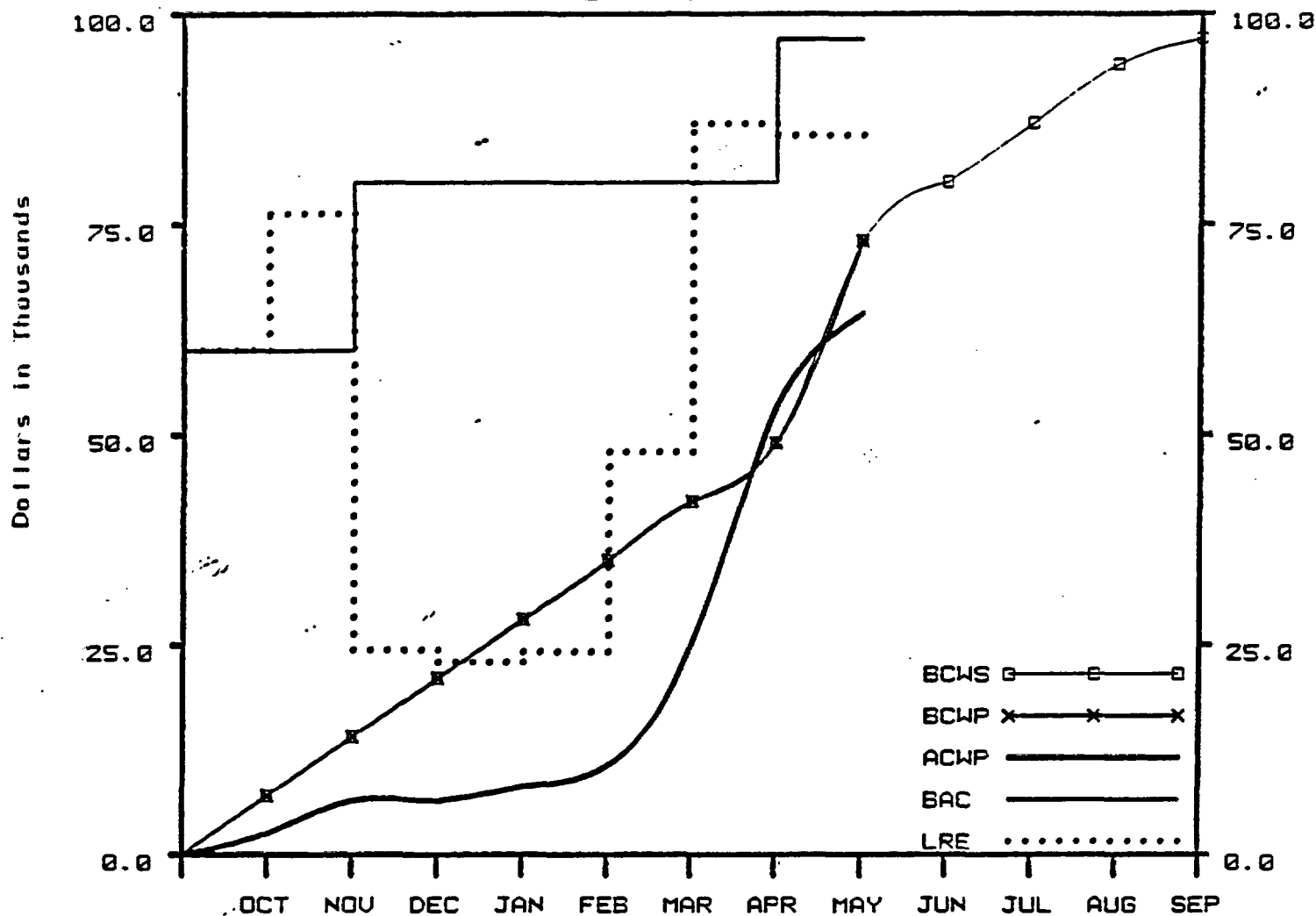
	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	10.0	80.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	10.0	80.0
C. ACTUAL COST OF WORK PERFORMED (ACWP)	10.0	80.0
D. BUDGET AT COMPLETION (BAC)		117.0
E. LATEST REVISED ESTIMATE (LRE)		117.0

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	0.0	0.00
G. COST VARIANCE (B-C)	0.0	0.00
H. AT COMPLETION VARIANCE (D-E)	0.0	0.00

Remarks:

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.E



EG&G - TOTAL

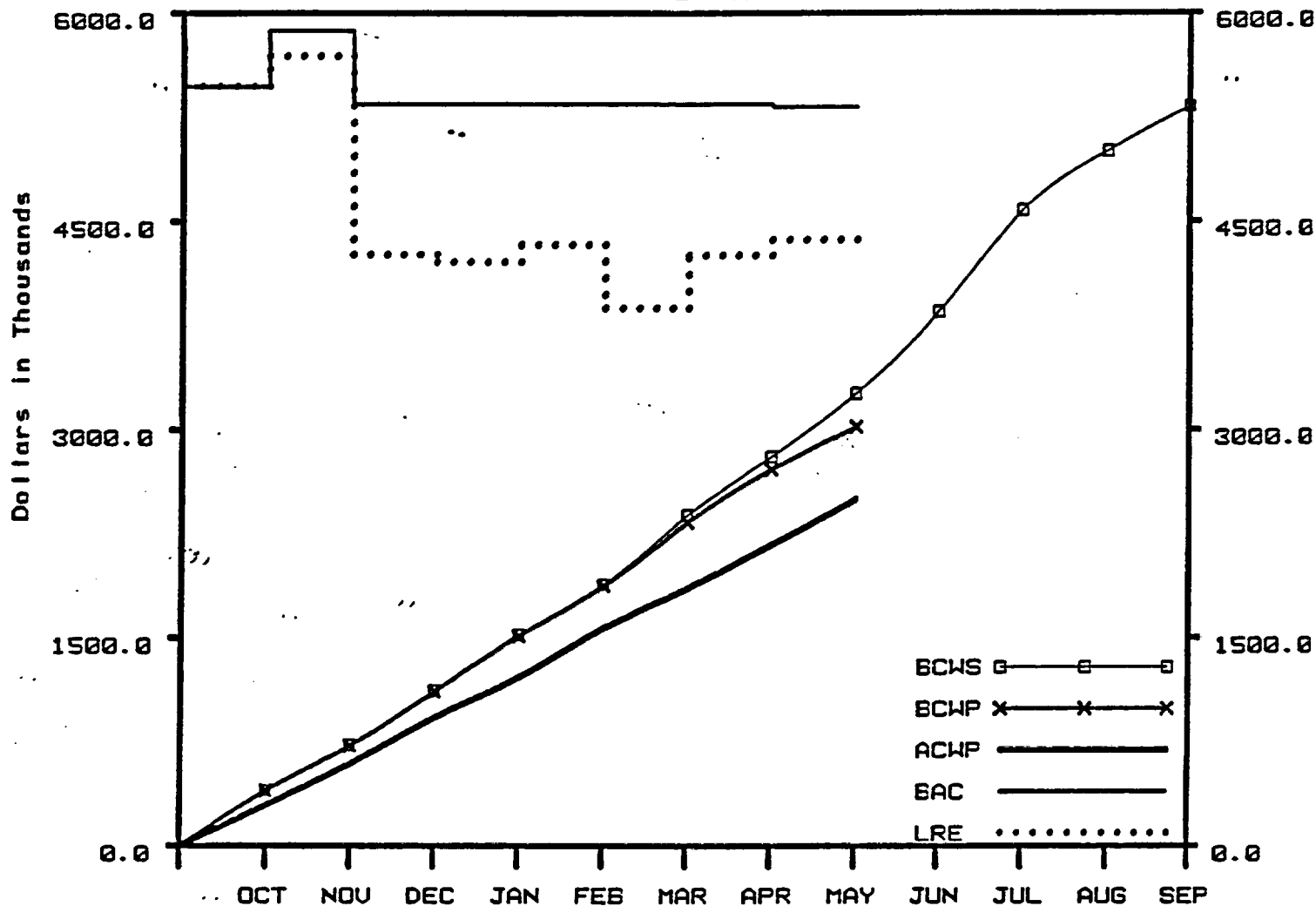
	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	24.0	73.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	24.0	73.0
C. ACTUAL COST OF WORK PERFORMED (ACWP)	11.1	64.4
D. BUDGET AT COMPLETION (BAC)		97.0
E. LATEST REVISED ESTIMATE (LRE)		85.5

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	0.0	0.00
G. COST VARIANCE (B-C)	8.6	11.82
H. AT COMPLETION VARIANCE (D-E)	11.5	11.82

Remarks:

NNWSI PROJECT
 COST PERFORMANCE GRAPH FOR MAY 1987
 WBS: 1.2.F



F&S - TOTAL

- A. BUDGETED COST OF WORK SCHEDULED (BCWS)
- B. BUDGETED COST OF WORK PERFORMED (BCWP)
- C. ACTUAL COST OF WORK PERFORMED (ACWP)
- D. BUDGET AT COMPLETION (BAC)
- E. LATEST REVISED ESTIMATE (LRE)

Current Period	Year To Date
456.0	3260.0
408.0	3022.0
330.2	2497.1
	5324.0
	4364.3

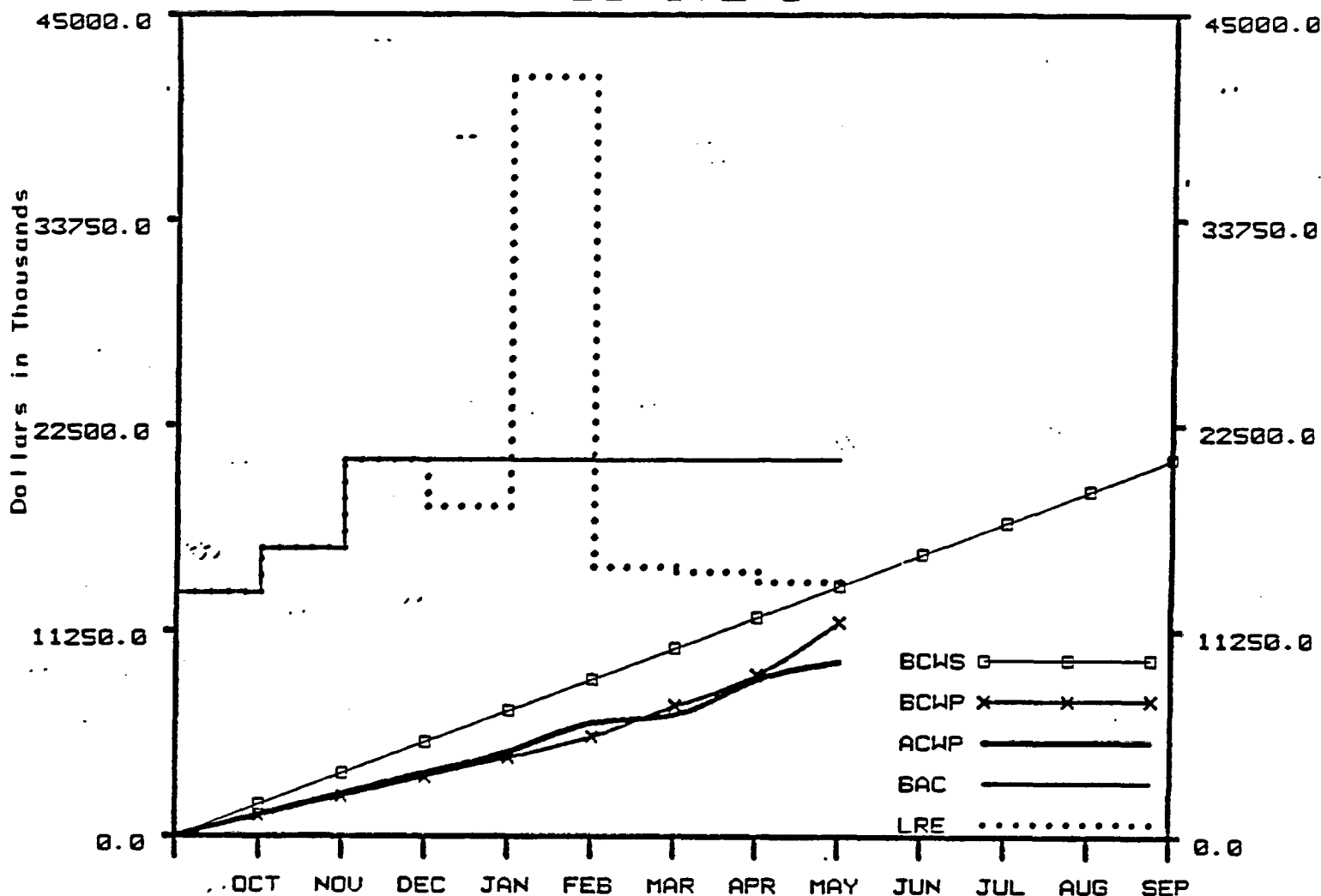
VARIANCES (Year To Date)

F. SCHEDULE VARIANCE (B-A)
G. COST VARIANCE (B-C)
H. AT COMPLETION VARIANCE (D-E)

Dollars	Percent
-238.0	-7.30
524.9	17.37
959.7	18.03

Remarks:

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.6



USGS - TOTAL

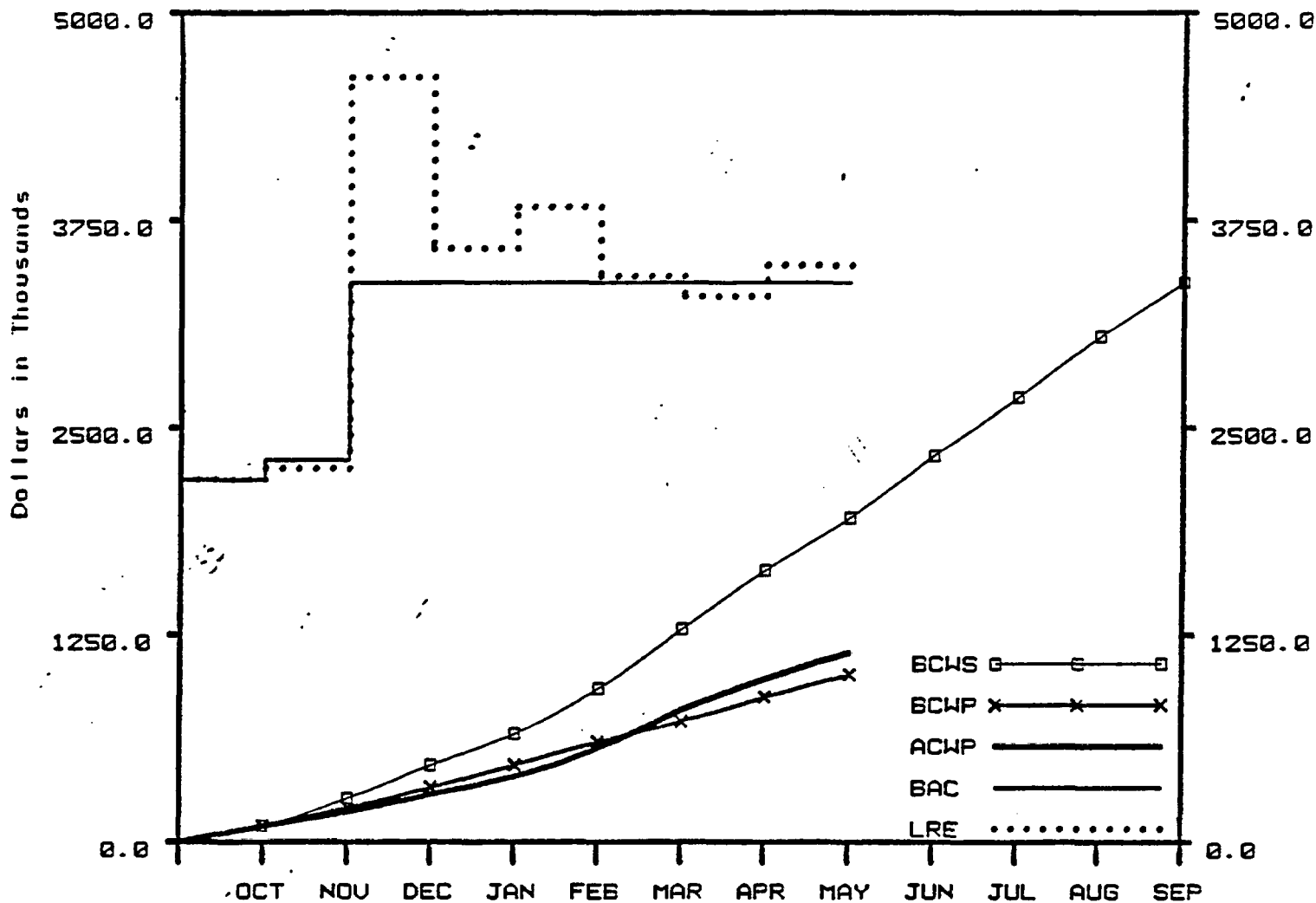
	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	1722.0	13727.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	2908.8	11742.7
C. ACTUAL COST OF WORK PERFORMED (ACWP)	954.7	9566.9
D. BUDGET AT COMPLETION (BAC)		20629.0
E. LATEST REVISED ESTIMATE (LRE)		13934.4

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-1984.3	-14.46
G. COST VARIANCE (B-C)	2175.7	18.53
H. AT COMPLETION VARIANCE (D-E)	6694.6	32.45

Remarks:

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.H



H&N - TOTAL

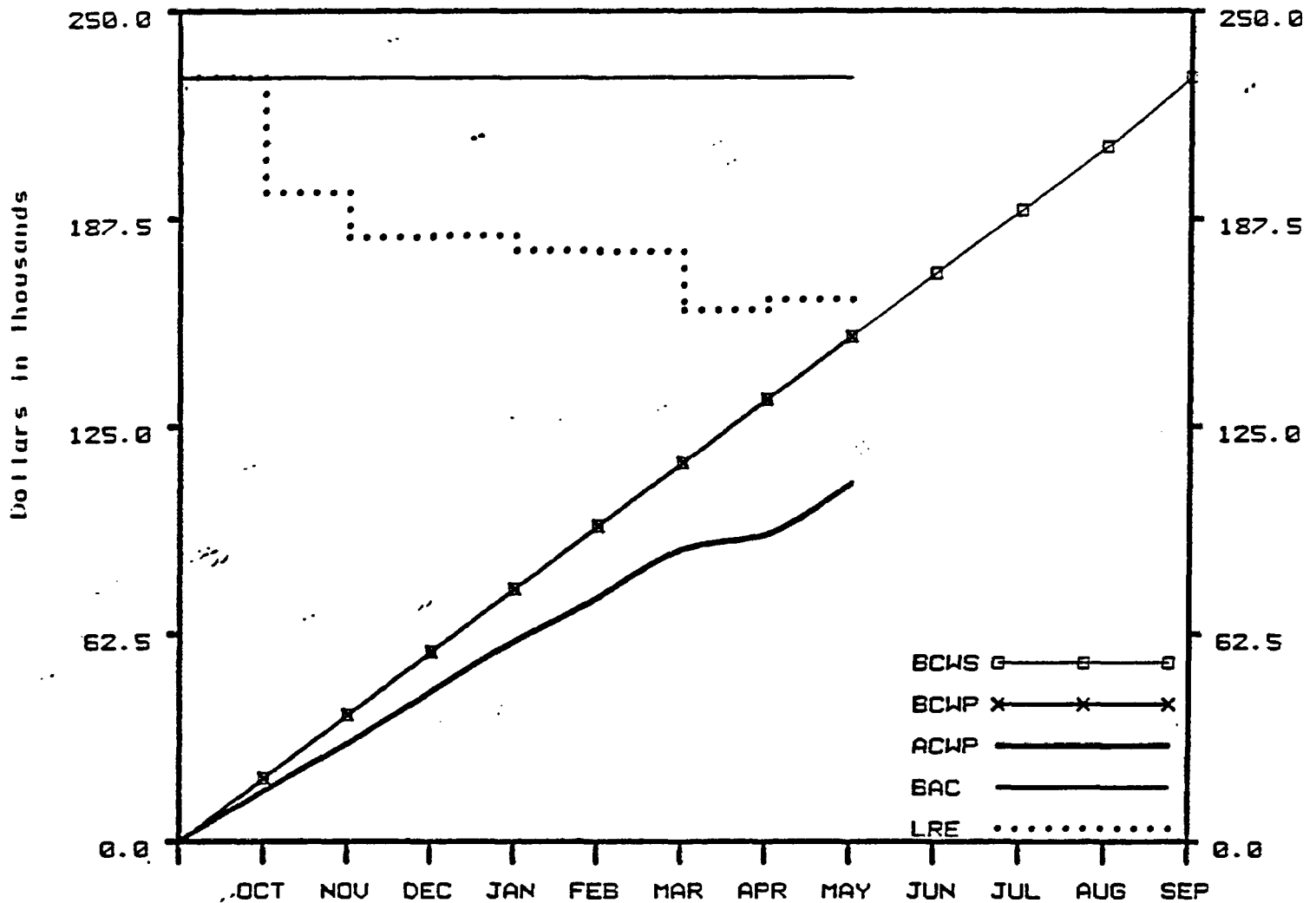
	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	317.8	1955.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	137.0	1009.1
C. ACTUAL COST OF WORK PERFORMED (ACWP)	162.5	1144.2
D. BUDGET AT COMPLETION (BAC)		3371.0
E. LATEST REVISED ESTIMATE (LRE)		3472.7

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-945.8	-48.38
G. COST VARIANCE (B-C)	-135.1	-13.38
H. AT COMPLETION VARIANCE (D-E)	-101.7	-3.02

Remarks:

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2. I



WSI - TOTAL

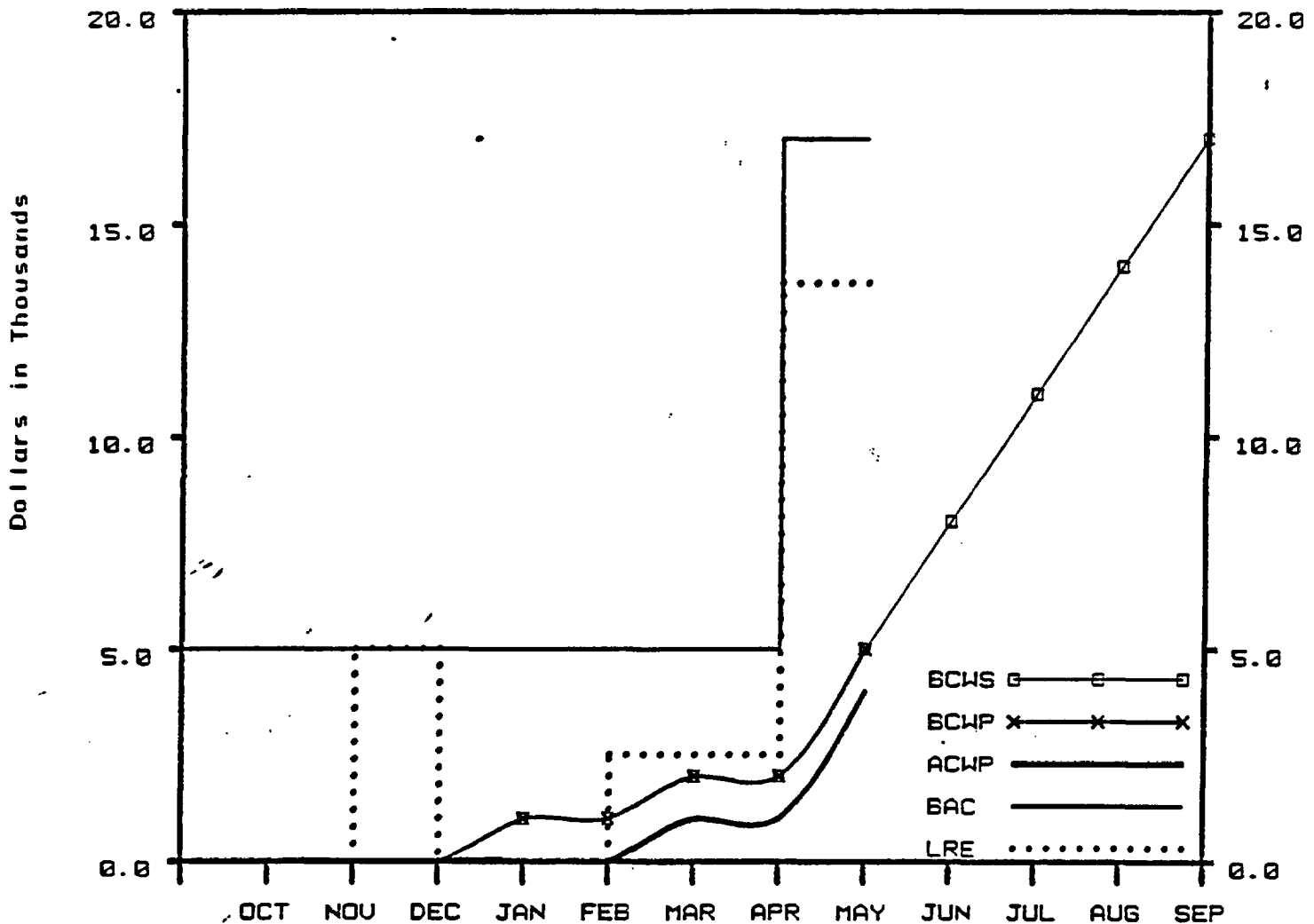
	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	19.0	152.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	19.0	152.0
C. ACTUAL COST OF WORK PERFORMED (ACWP)	15.3	107.8
D. BUDGET AT COMPLETION (BAC)		230.0
E. LATEST REVISED ESTIMATE (LRE)		163.1

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	0.0	0.00
G. COST VARIANCE (B-C)	44.2	29.09
H. AT COMPLETION VARIANCE (D-E)	66.9	29.09

Remarks:

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.J



OSTI/TC-TOTAL

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	3.0	5.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	3.0	5.0
C. ACTUAL COST OF WORK PERFORMED (ACWP)	3.0	4.0
D. BUDGET AT COMPLETION (BAC)		17.0
E. LATEST REVISED ESTIMATE (LRE)		13.6

VARIANCES (Year To Date)

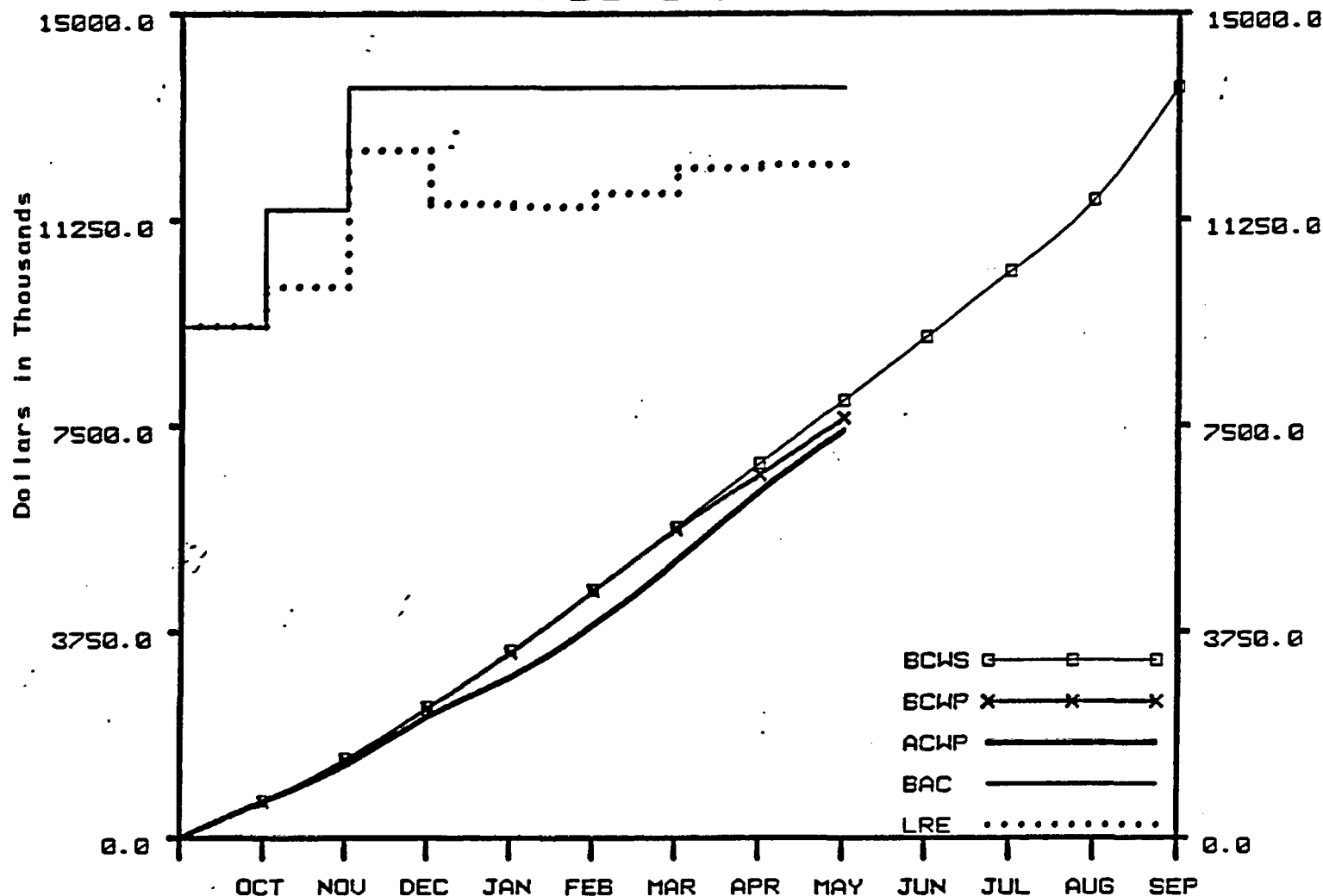
	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	0.0	0.00
G. COST VARIANCE (B-C)	1.0	20.00
H. AT COMPLETION VARIANCE (D-E)	3.4	20.00

Remarks:

NNWSI PROJECT

COST PERFORMANCE GRAPH FOR MAY 1987

WBS: 1.2.L



LLNL - TOTAL

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	1156.0	7965.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	1029.3	7638.4
C. ACTUAL COST OF WORK PERFORMED (ACWP)	1110.0	7417.9
D. BUDGET AT COMPLETION (BAC)		13654.0
E. LATEST REVISED ESTIMATE (LRE)		12244.8

VARIANCES (Year To Date)

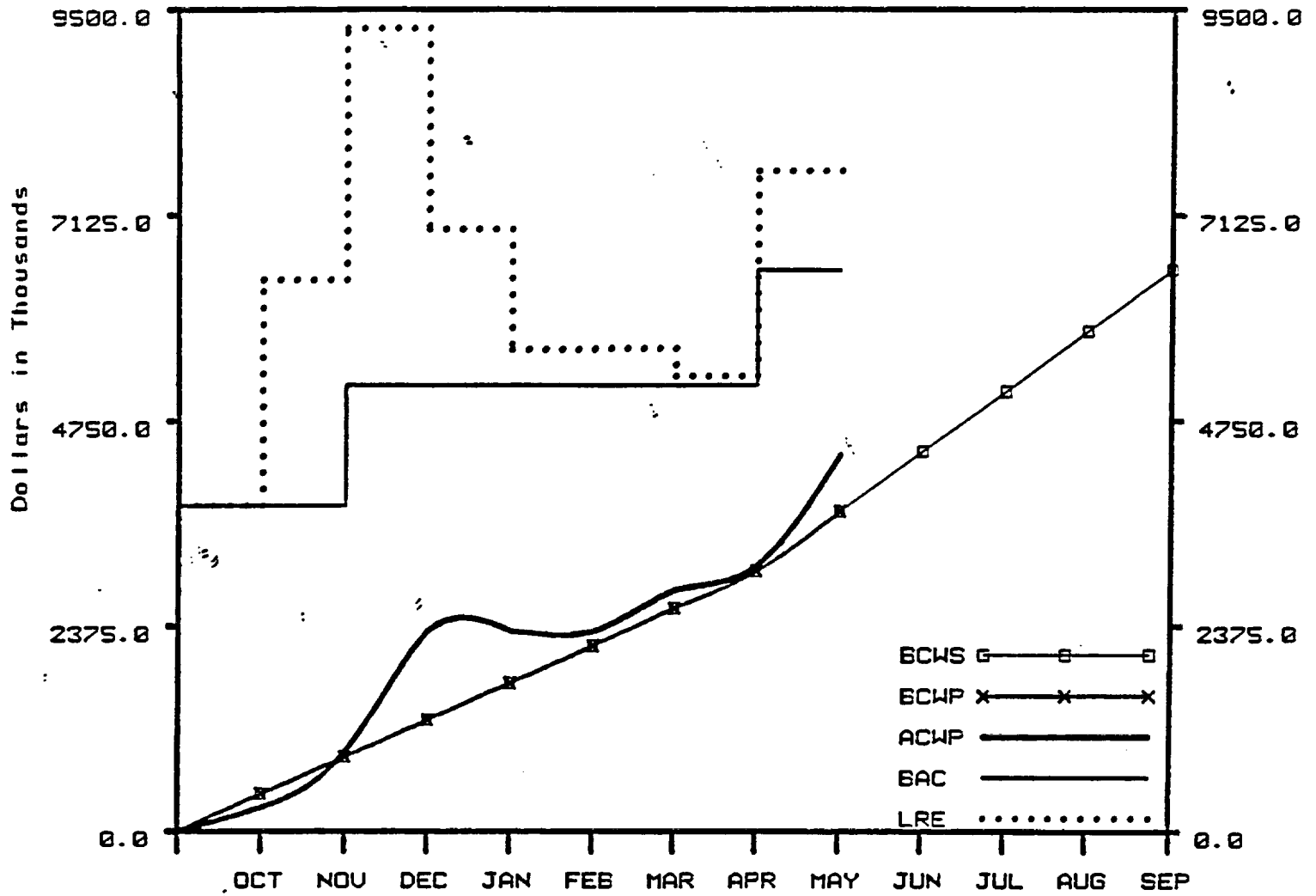
	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-326.6	-4.10
G. COST VARIANCE (B-C)	220.5	2.89
H. AT COMPLETION VARIANCE (D-E)	1409.2	10.32

Remarks:

NNWSI PROJECT

COST PERFORMANCE GRAPH FOR MAY 1987

WBS: 1.2.N



STATE - TOTAL

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	690.0	3700.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	690.0	3700.0
C. ACTUAL COST OF WORK PERFORMED (ACWP)	1283.8	4351.8
D. BUDGET AT COMPLETION (BAC)		6486.0
E. LATEST REVISED ESTIMATE (LRE)		7628.6

VARIANCES (Year To Date)

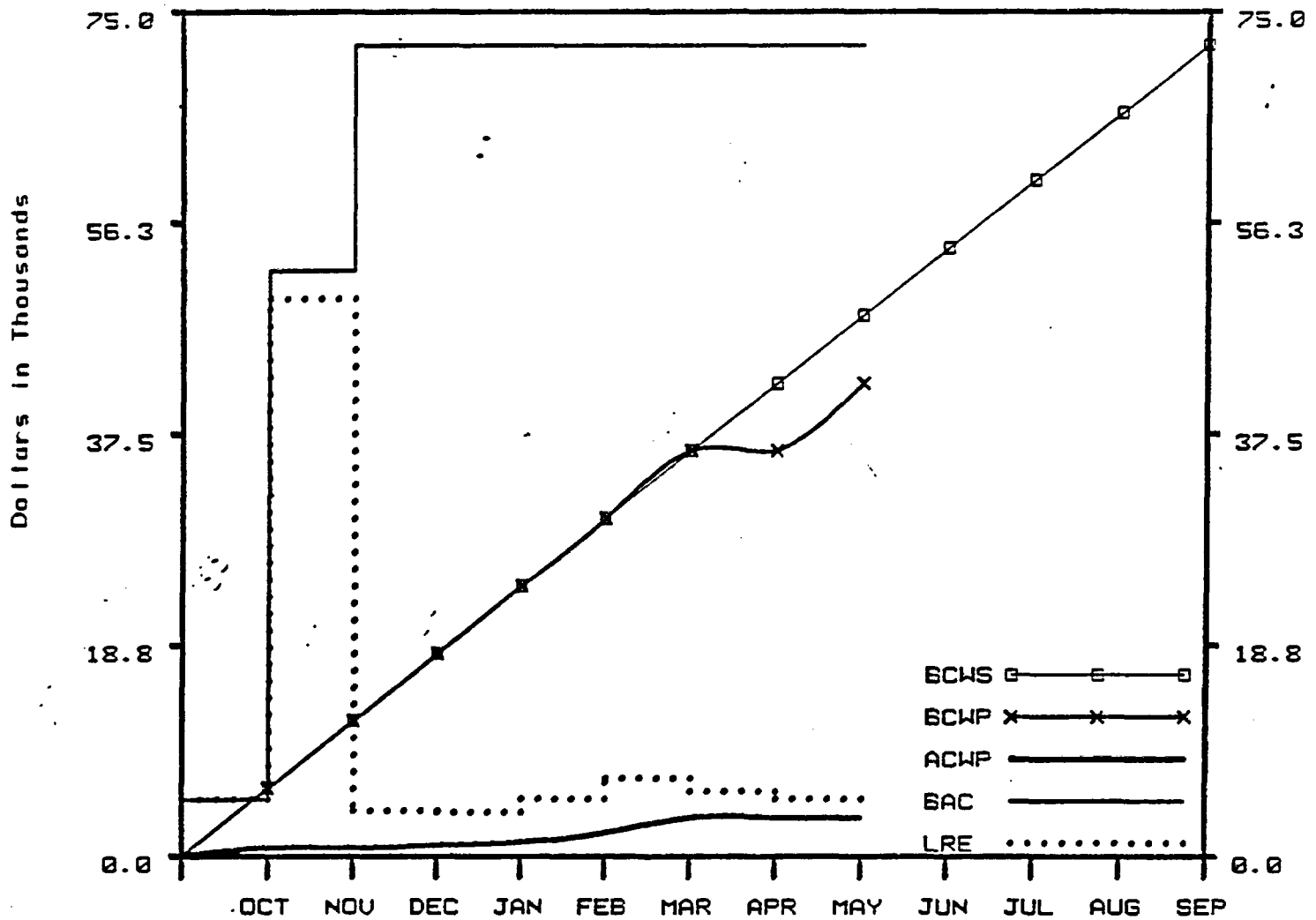
	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	0.0	0.00
G. COST VARIANCE (B-C)	-651.8	-17.62
H. AT COMPLETION VARIANCE (D-E)	-1142.6	-17.62

Remarks:

NNWSI PROJECT

COST PERFORMANCE GRAPH FOR MAY 1987

WBS: 1.2.P



PAN AM - TOTAL

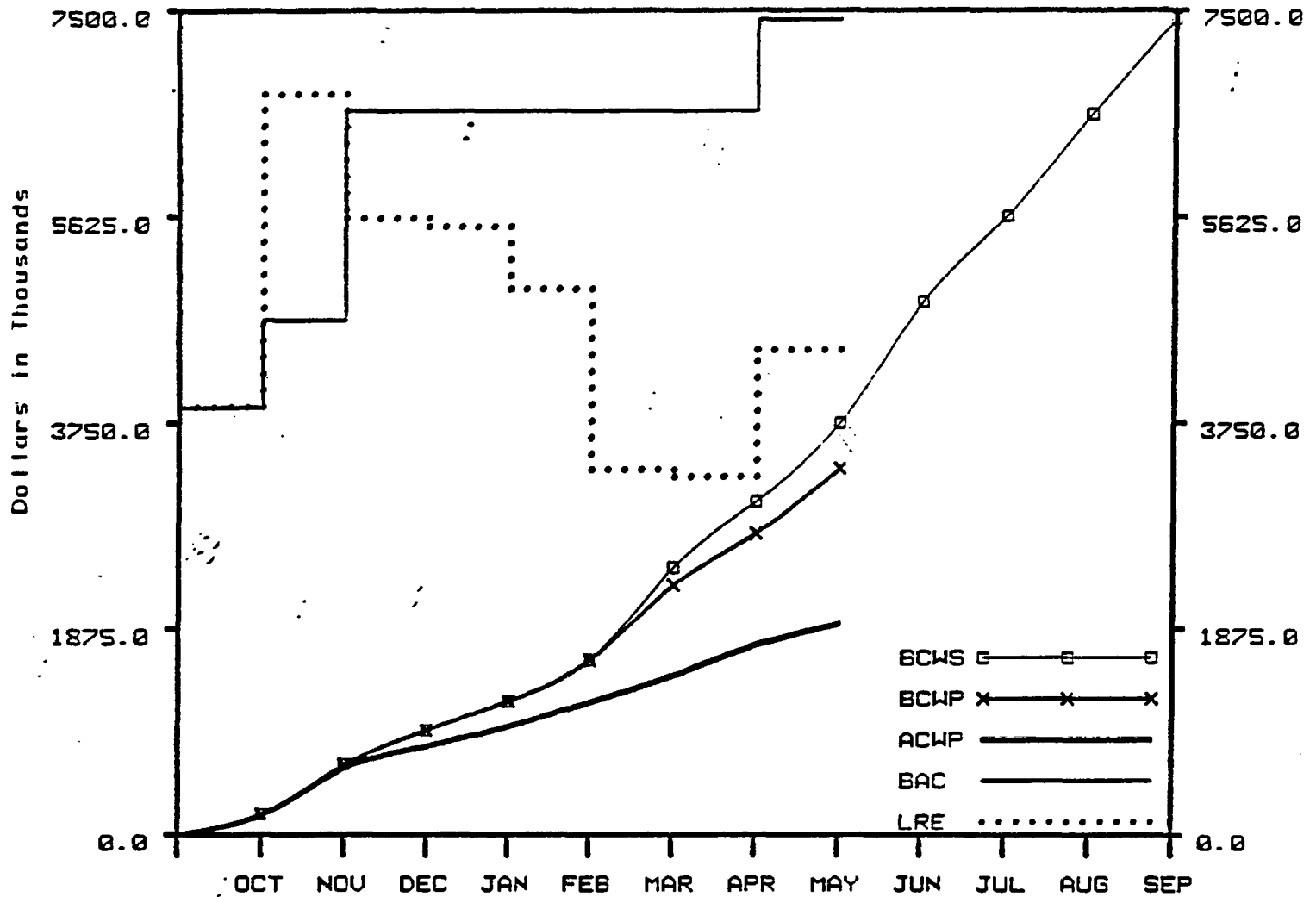
	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	6.0	48.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	6.0	42.0
C. ACTUAL COST OF WORK PERFORMED (ACWP)	0.0	3.4
D. BUDGET AT COMPLETION (BAC)		72.0
E. LATEST REVISED ESTIMATE (LRE)		5.1

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-6.0	-12.50
G. COST VARIANCE (B-C)	38.6	91.91
H. AT COMPLETION VARIANCE (D-E)	66.9	92.98

Remarks:

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.R



REECO - TOTAL

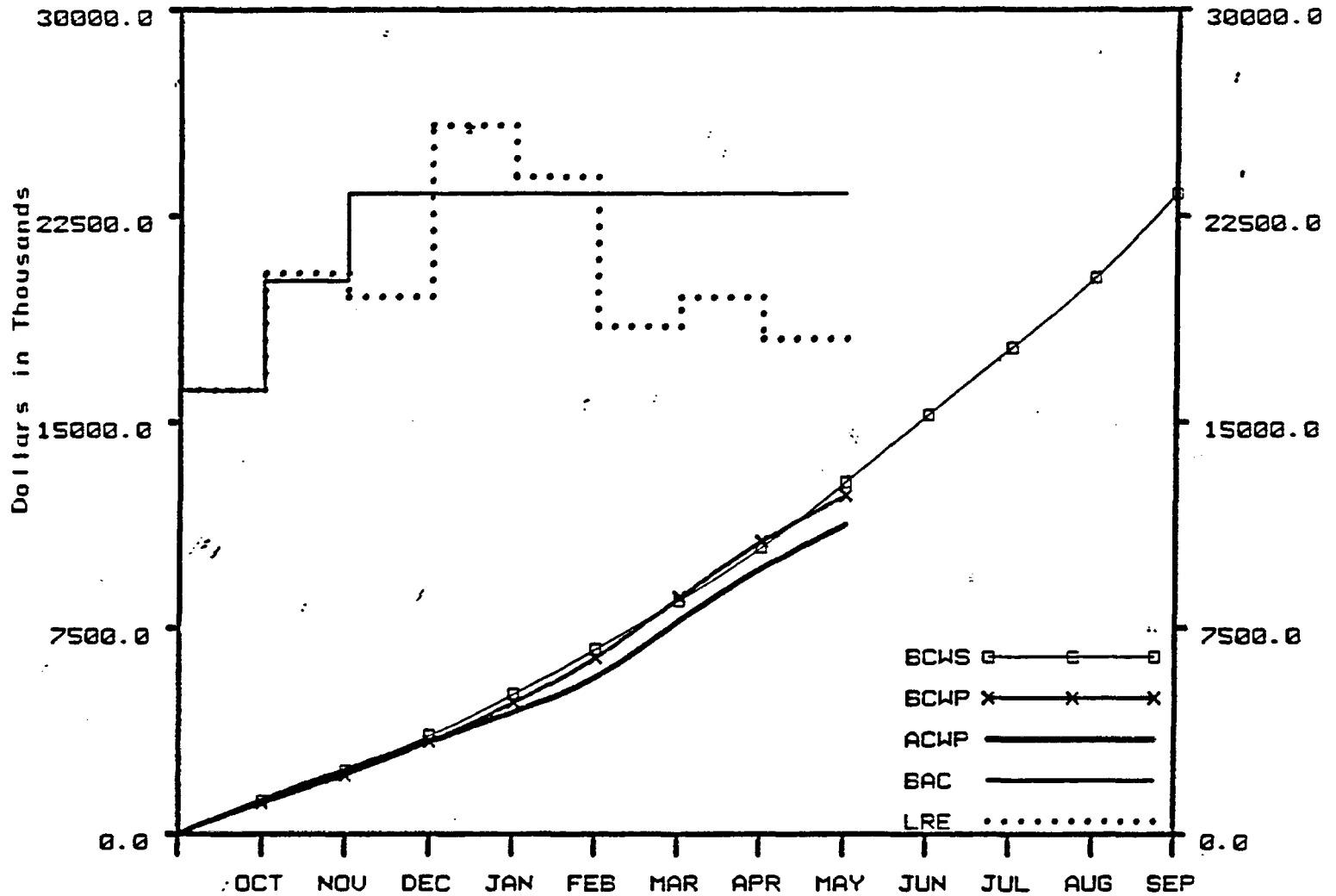
	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	717.8	3748.2
B. BUDGETED COST OF WORK PERFORMED (BCWP)	590.5	3330.3
C. ACTUAL COST OF WORK PERFORMED (ACWP)	190.7	1916.5
D. BUDGET AT COMPLETION (BAC)		7415.0
E. LATEST REVISED ESTIMATE (LRE)		4408.1

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-417.9	-11.15
G. COST VARIANCE (B-C)	1413.8	42.45
H. AT COMPLETION VARIANCE (D-E)	3006.9	40.55

Remarks:

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.5



SNL - TOTAL

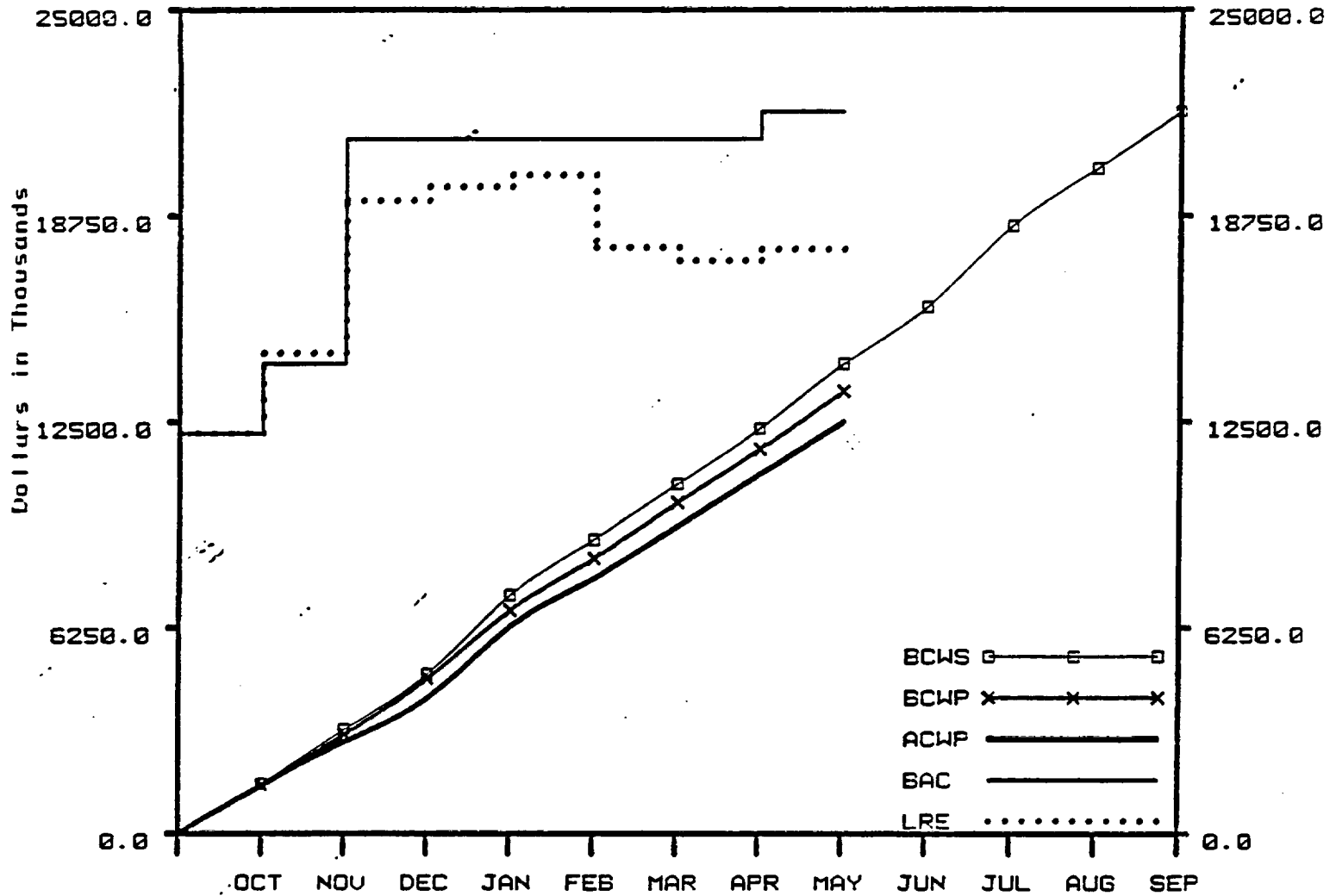
	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	2395.0	12811.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	1698.8	12329.5
C. ACTUAL COST OF WORK PERFORMED (ACWP)	1591.0	11251.0
D. BUDGET AT COMPLETION (BAC)		23289.0
E. LATEST REVISED ESTIMATE (LRE)		17997.4

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-481.5	-3.76
G. COST VARIANCE (B-C)	1078.5	8.75
H. AT COMPLETION VARIANCE (D-E)	5291.6	22.72

Remarks:

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.T



SAIC - TOTAL

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	1953.1	14247.5
B. BUDGETED COST OF WORK PERFORMED (BCWP)	1758.8	13426.5
C. ACTUAL COST OF WORK PERFORMED (ACWP)	1590.1	12494.0
D. BUDGET AT COMPLETION (BAC)		21896.0
E. LATEST REVISED ESTIMATE (LRE)		17721.9

VARIANCES (Year To Date)

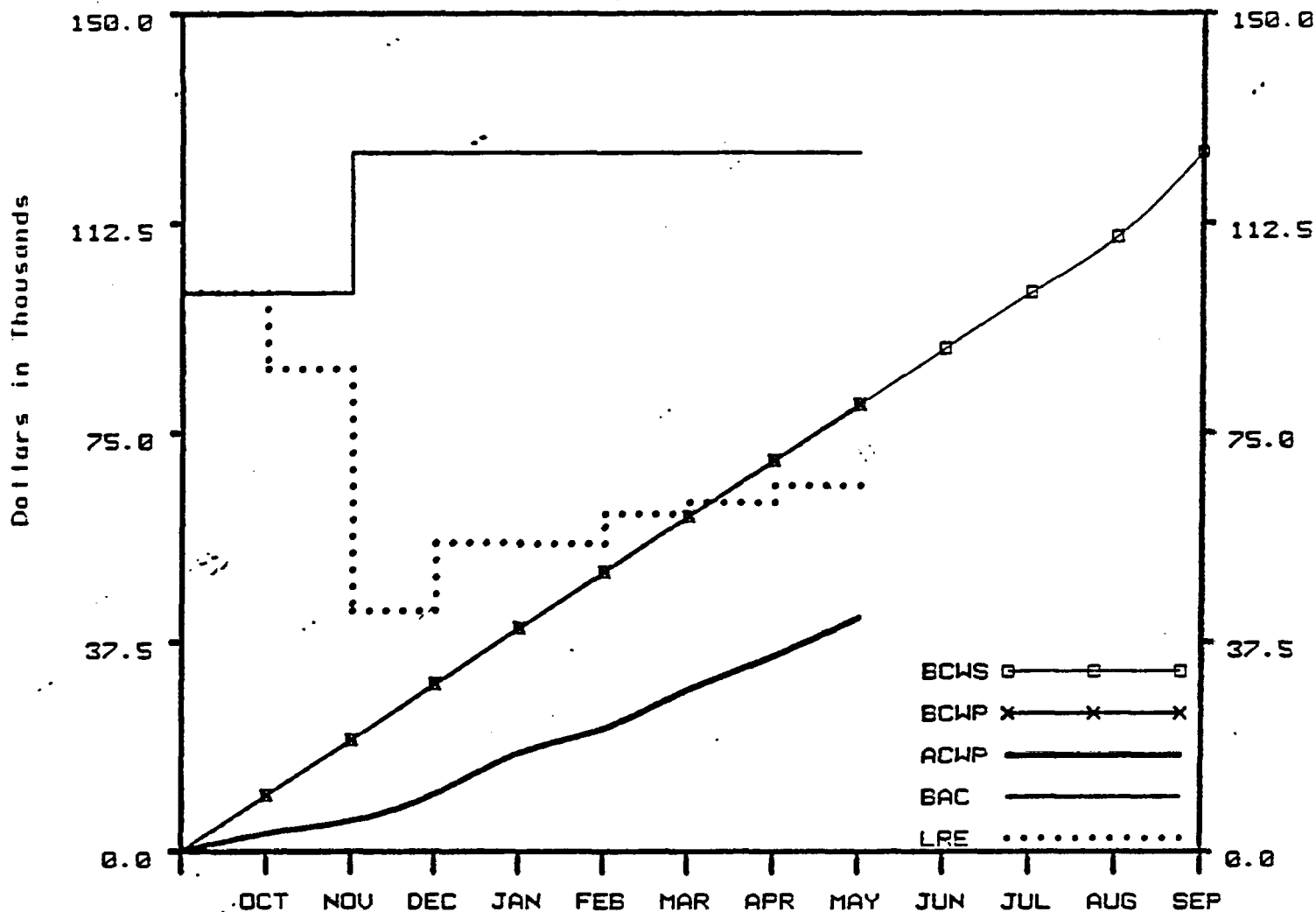
	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	-821.0	-5.76
G. COST VARIANCE (B-C)	932.6	6.95
H. AT COMPLETION VARIANCE (D-E)	4174.1	19.06

Remarks:

NNWSI PROJECT

COST PERFORMANCE GRAPH FOR MAY 1987

WBS: 1.2.U



DRI - TOTAL

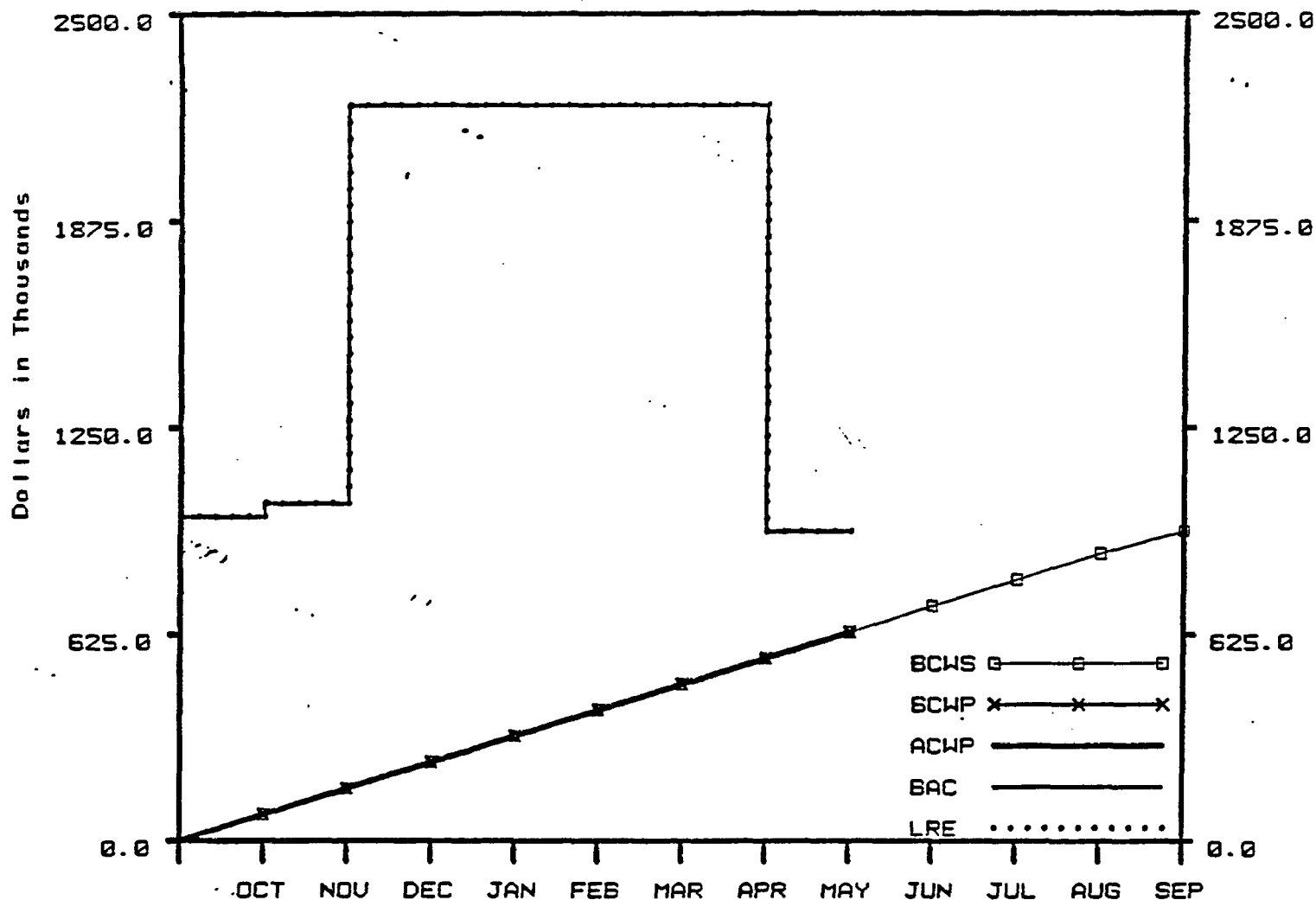
	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	10.0	80.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	10.0	80.0
C. ACTUAL COST OF WORK PERFORMED (ACWP)	6.9	41.9
D. BUDGET AT COMPLETION (BAC)		125.0
E. LATEST REVISED ESTIMATE (LRE)		65.4

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	0.0	0.00
G. COST VARIANCE (B-C)	38.1	47.67
H. AT COMPLETION VARIANCE (D-E)	59.6	47.67

Remarks:

NNWSI PROJECT COST PERFORMANCE GRAPH FOR MAY 1987 WBS: 1.2.X



NTS - TOTAL

	Current Period	Year To Date
A. BUDGETED COST OF WORK SCHEDULED (BCWS)	79.0	632.0
B. BUDGETED COST OF WORK PERFORMED (BCWP)	79.0	632.0
C. ACTUAL COST OF WORK PERFORMED (ACWP)	79.0	632.0
D. BUDGET AT COMPLETION (BAC)		936.0
E. LATEST REVISED ESTIMATE (LRE)		936.0

VARIANCES (Year To Date)

	Dollars	Percent
F. SCHEDULE VARIANCE (B-A)	0.0	0.00
G. COST VARIANCE (B-C)	0.0	0.00
H. AT COMPLETION VARIANCE (D-E)	0.0	0.00

Remarks:

May 1987 Status Report
Run Date: 01 June 1987

NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS
MAJOR SYSTEMS ACQUISITION (MSA) MILESTONES
01 Oct 1986 to 30 Sep 1987

(B)=Baselined
(P)=Planned

MILESTONE DESCRIPTION	WBS NO.	WMPO RESP	LEVEL	RESP ORG	MILESTONE	BASELINE DATE	FORECAST or ACTUAL	(F) (A)
WMPO submits letter report on Studies of Coupled Processes Included in the SCP to OGR for information	1.2.1.1	Robson	1	WMPO	R109 (B)	26 Nov 86	08 Apr 87	(A)
WMPO submits letter report on Studies of Performance Allocation Included in SCP to OGR	1.2.1.1	Robson.	1	WMPO/SNL	R108 (B)	16 Feb 87	31 Jul 87	(F)
WMPO submits Annual PASS Program Interaction Letter Report for FY87 to OGR	1.2.1.1	Robson	1	WMPO/SNL	P132 (B)	30 Sep 87	30 Sep 87	(F)
Yucca Mountain Mined Geologic Disposal System (MGDS) Requirements	1.2.1.2.1	Robson	1	WMPO/SNL	M120 (B)	31 Mar 87	30 Sep 87	(F)
Draft Yucca Mountain Site-Specific Mined Geologic Disposal System (MGDS) Description	1.2.1.2.1	Robson	1	WMPO/SNL	M261 (B)	30 Jun 87	28 Jan 88	(F)
System Engineering Management Plan (SEMP)	1.2.1.2.4	Robson	1	WMPO/SNL	M108 (B)	16 Feb 87	03 Aug 87	(F)
OGR Systems Engineering Review of the NNWSI Project	1.2.1.2.4	Robson	1	WMPO/SNL	R074 (B)	15 Mar 87	14 Aug 87	(F)
WMPO submits hard copy (1987 Annual) version of the Reference Information Base to OGR	1.2.1.3.3	Livingston	1	WMPO/SNL	R092 (B)	29 May 87	03 Aug 87	(F)
Waste Package Postclosure Compliance Strategy Document	1.2.2.1	Valentine	1	WMPO/LLNL	R003 (B)	30 Jan 87	30 Aug 87	(F)
Progress Report on the Results of Testing Advanced Conceptual Design Metal Barrier Materials Under Relevant Environmental Conditions for a Tuff Repository	1.2.2.3.2	Valentine	1	WMPO/LLNL	M236 (B)	30 Jan 87	31 Jul 87	(F)
Decision Made on Using Packing Material in the Waste Package to Assist in Controlling Radionuclides Release Rate	1.2.2.3.3	Valentine	1	WMPO/LLNL	M257 (B)	30 Jan 87	30 Sep 87	(F)
Revised Draft Waste Package Subsystem Conceptual Design Requirements to DOE/HQ for Review	1.2.2.4	Valentine	1	WMPO/LLNL	M013 (B)	31 Aug 87	31 Aug 87	(F)
Initiate Waste Package Advanced Conceptual Design	1.2.2.4	Valentine	1	WMPO/LLNL	M233 (B)	30 Sep 87	30 Sep 87	(F)
Report on the System Model for Waste Package Performance Analysis	1.2.2.5	Valentine	1	WMPO/LLNL	M276 (B)	31 Oct 86	12 Jan 87	(A)
Report on Long Term Performance Analysis of the Conceptual Waste Package Design	1.2.2.5	Valentine	1	WMPO/LLNL	M260 (B)	30 Apr 87	30 Sep 87	(F)
Submit Report on Evaluation of Natural Resources at Yucca Mountain and Vicinity received to DOE/ HQ for Information	1.2.3.1	Livingston	1	WMPO/SAIC	M895 (B)	31 Jul 87	31 Jul 87	(F)
Recommendation to Proceed With Deep Regional Seismic Survey to OGR for Approval	1.2.3.2.2	Robert	1	WMPO/USGS	R845 (B)	31 Aug 87	31 Aug 88	(F)

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May 1987 Status Report
Run Date: 01 June 1987

NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS
MAJOR SYSTEMS ACQUISITION (MSA) MILESTONES
01 Oct 1986 to 30 Sep 1987

(B)=Baselined
(P)=Planned

MILESTONE DESCRIPTION	WBS NO.	WMPO RESP	LEVEL	RESP ORG	MILESTONE	BASELINE DATE	FORECAST (F) or ACTUAL (A)
Report on Geochemistry Simulation of Yucca Mountain Using Best Available Data on Mineralogy, Water Chemistry, Flow Rates and Crack Statistics	1.2.3.4.1	Livingston	1	WMPO/LANL	M325 (B)	26 Nov 86	31 Jul 87 (F)
Preliminary Report on Sorption Modeling	1.2.3.4.1	Livingston	1	WMPO/LANL	R309 (B)	30 Jan 87	31 Jul 87 (F)
Final Radiological Monitoring Plan Complete	1.2.3.6.1	Jankus	1	WMPO/SAIC	M897 (B)	27 Feb 87	15 Jul 87 (F)
Submit Air Quality Monitoring Plan to DOE/HQ	1.2.3.6.1	Jankus	1	WMPO/SAIC	R327 (B)	30 Apr 87	07 Jul 87 (F)
Begin Air Quality Monitoring	1.2.3.6.1	Blanchard	1	WMPO/SAIC	N345 (B)	30 Sep 87	01 Oct 87 (F)
Submit Working Draft Site Characterization Socioeconomic Monitoring and Mitigation Plan (SMMP)	1.2.3.7	Dixon	1	WMPO/SAIC	R945 (B)	01 Dec 86	21 Nov 86 (A)
Submit Draft Socioeconomic Monitoring and Mitigation Plan to DOE/HQ	1.2.3.7	Dixon	1	WMPO/SAIC	P030 (B)	02 Apr 87	01 Sep 87 (F)
Start Repository Advanced Conceptual Design	1.2.4.1.1	Zvada	1	WMPO/SNL	N430 (B)	30 Sep 87	30 Sep 87 (F)
Initial Subsystem Design Requirement (SDR)	1.2.4.1.2	Skousen	1	WMPO/SNL	N433 (B)	30 Apr 87	03 Aug 87 (F)
Repository Conceptual Design in Support of Site Characterization	1.2.4.1.3	Skousen	1	WMPO/SNL	N432 (B)	27 Feb 87	28 Apr 87 (A)
Report on G-Tunnel Underground Facility (GTUF) Summary	1.2.4.2.1	Skousen	1	WMPO/SNL	M455 (B)	30 Jan 87	01 Apr 87 (A)
Feasibility Analysis of Horizontal Emplacement and Retrieval - Letter Report	1.2.4.2.2	Skousen	1	WMPO/SNL	M295 (B)	30 Nov 86	05 Sep 86 (A)
Initiate Procurement of Development Prototype Boring Machine	1.2.4.2.2	Skousen	1	WMPO/SNL	N427 (B)	30 Nov 86	01 Sep 87 (F)
Horizontal Waste Emplacement Equipment Development Plan	1.2.4.2.2	Skousen	1	WMPO/SNL	N406 (B)	27 Feb 87	31 Jul 87 (F)
Analysis to Evaluate the Effect of the Exploratory Shaft on Repository Performance at Yucca Mountain	1.2.4.2.3	Skousen	1	WMPO/SNL	R036 (B)	27 Feb 87	31 Aug 87 (F)
Prepare "Technical Basis for Performance Goals, Design Requirements and Material Recommendation for the NNWSI Project Repository Sealing Program Report"	1.2.4.2.3	Skousen	1	WMPO/SNL	P404 (B)	31 Mar 87	31 Jul 87 (F)
Submit Initial Draft Report on Spent Fuel Rod Consolidation Study to DOE/HQ for Review	1.2.4.4	Zvada	1	WMPO/SNL	R267 (B)	31 Dec 86	22 Jan 87 (A)
Submit Retrievability Compliance Strategy Plan to OGR for Review and Comment	1.2.4.4	Skousen	1	WMPO/SNL	R848 (P)	31 Mar 87	30 Dec 87 (F)
Preliminary Study of the Effects of Uncertain Geologic Data on Design of the Underground Facility	1.2.4.6.2	Skousen	1	WMPO/SNL	N457 (B)	27 Feb 87	22 May 87 (A)

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MILESTONE DESCRIPTION	WBS NO.	WMPO RESP	LEVEL	RESP ORG	MILESTONE	BASELINE DATE	FORECAST or ACTUAL	(F) (A)
Submit Draft Seismic/ Tectonic Summary Position Paper to WMPO/NV	1.2.5.2.1	Szymanski	1	WMPO/SAIC	R583 (B)	15 Jun 87	21 Aug 87	(F)
Submit Draft Preliminary Plan for Scheduling, Management, and Preparation of Position Papers to WMPO/NV	1.2.5.2.1	Szymanski	1	WMPO/SAIC	R579 (B)	31 Aug 87	30 Sep 87	(F)
Draft Site Characterization Plan (SCP)	1.2.5.2.2	Clanton	1	WMPO/SAIC	M521 (B)	16 Jan 87	14 Jan 87	(A)
Site Characterization Plan (SCP)	1.2.5.2.2	Clanton	1	WMPO/SAIC	M522 (B)	27 Feb 87	21 Aug 87	(F)
Draft Environmental Field Study Plans Received at HQ for review.	1.2.5.3	Jankus	1	WMPO/SAIC	R798 (B)	30 Jun 87	30 Jun 87	(F)
Environmental Field Study Plans Received at HQ For Baselining	1.2.5.3	Jankus	1	WMPO/SAIC	R799 (B)	31 Aug 87	30 Sep 87	(F)
Submit Working Draft Environmental Regulatory Compliance Plan to DOE/HQ & State.	1.2.5.3.3	Jankus	1	WMPO/SAIC	R794 (B)	30 Jan 87	06 Mar 87	(A)
Environmental Regulatory Compliance Plan Issued	1.2.5.3.3	Jankus	1	WMPO/SAIC	R795 (B)	31 May 87	01 Sep 87	(F)
Submit Draft II Environmental Monitoring and Mitigation Plan (EMMP) to WMPO/NV	1.2.5.3.4	Jankus	1	WMPO/SAIC	R996 (B)	01 Dec 86	01 Dec 86	(A)
Submit Environmental Monitoring and Mitigation Plan (EMMP) to DOE/HQ	1.2.5.3.4	Jankus	1	WMPO/SAIC	P034 (B)	30 Apr 87	31 Jul 87	(F)
Complete and Sign C&C Agreement with State	1.2.5.4.1	Dixon	1	WMPO	M795 (P)	31 Mar 87	TBD	(F)
Exploratory Shaft Facility (ESF) Subsystems Design Requirements Document	1.2.6.1.1	Irby	1	WMPO/LANL	R241 (B)	30 Dec 86	23 Apr 87	(A)
Submit Prototype Test Plans to DOE/HQ for review and comment	1.2.6.1.1	Irby	1	WMPO/LANL	M105 (B)	27 Feb 87	31 Jul 87	(F)
DOE/HQ receives Final FY89 Project Validation Material	1.2.6.1.1	Irby	1	WMPO/SAIC	R841 (B)	13 Mar 87	20 Mar 87	(A)
Start Field Prototype Testing in G-Tunnel	1.2.6.1.1	Irby	1	WMPO/LANL	M282 (B)	30 Mar 87	TBD	(F)
Final ESF Title II Design Requirements Document submitted to DOE/HQ	1.2.6.1.1	Irby	1	WMPO/SAIC	M773 (B)	29 May 87	30 Nov 87	(F)
Exploratory Shaft Title I Design Summary Submitted to WMPO	1.2.6.1.1	Irby	1	WMPO/SAIC	P763 (B)	29 May 87	30 Nov 87	(F)
Complete Exploratory Shaft Readiness Review	1.2.6.1.1	Irby	1	WMPO/LANL	M243 (B)	30 Sep 87	20 Oct 88	(F)
Submit FY 87 Baseline Budget Information and Cost Plans to OGR for Information	1.2.9.1.1	Kulich	1	WMPO/SAIC	R849 (B)	30 Dec 86	22 Dec 86	(A)

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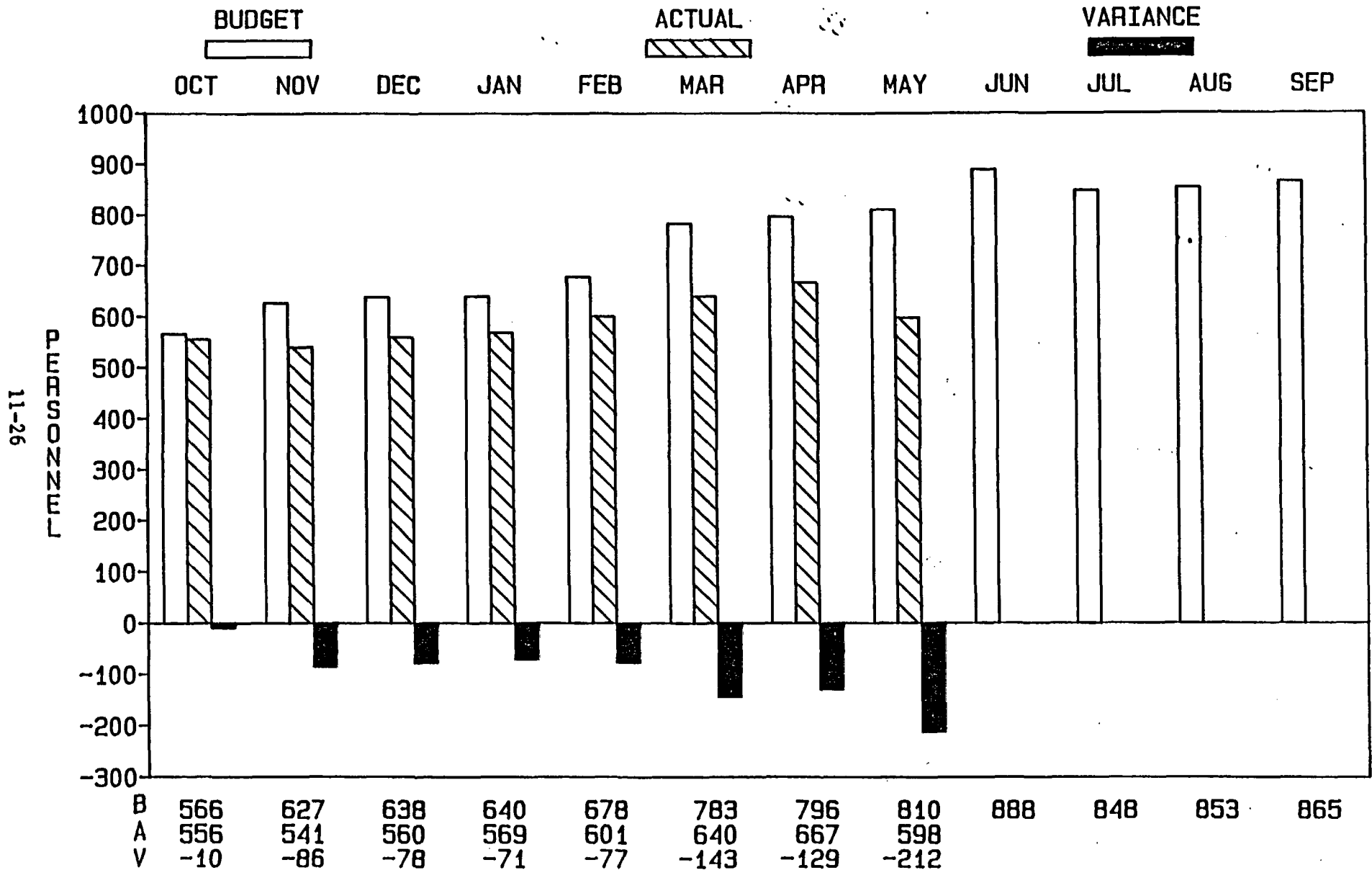
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MILESTONE DESCRIPTION	WBS NO.	WMPO RESP	LEVEL	RESP ORG	MILESTONE	BASELINE DATE	FORECAST or ACTUAL	(F) (A)
Final NNWSI Project Management Plan to WMPO/NV and DOE/HQ	1.2.9.1.1	Dixon	1	WMPO/SAIC	R448 (B)	30 Dec 86	30 Jun 87	(F)
Approved Revised Project Charter	1.2.9.1.1	Vleth	1	WMPO/SAIC	R850 (B)	30 Jan 87	16 Apr 87	(A)
Submit NNWSI Project Plan to WMPO/NV and DOE/HQ	1.2.9.1.1	Dixon	1	WMPO/SAIC	R810 (B)	30 Sep 87	30 Sep 87	(F)
Submit FY 89 Budget to DOE/HQ	1.2.9.1.2	Dixon	1	WMPO/SAIC	M712 (B)	13 Mar 87	14 Mar 87	(A)
Licensing Support System Document Collection Procedure to Headquarters for Approval	1.2.9.1.4	Hatch	1	WMPO/SAIC	R647 (B)	30 Apr 87	31 Jul 87	(F)
Implement Document Collection for the Licensing Support System	1.2.9.1.4	Hatch	1	WMPO/SAIC	R842 (P)	31 Jul 87	TBD	(F)
Implement Phase II of Earned Value System	1.2.9.2	Dixon	1	WMPO/SAIC	M725 (B)	30 Nov 86	04 May 87	(A)

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NNWSI PROJECT STAFFING*

FISCAL YEAR 1987



* FTEs SHOWN REFLECT INPUT FROM ALL NNWSI PROJECT PARTICIPANTS EXCEPT THE STATE OF NEVADA

PLANNED NNWSI PROJECT FIELD ACTIVITIES

FOR JULY

Participant	Activity	Location	Planned	
			Day	Time
LLNL	No scheduled activities			
Los Alamos	No report received			
SAIC	Meteorological monitoring	Yucca Mountain	Field site technicians will maintain stations weekly, 3 days per week.	
USGS	Seismic network monitoring	NTS and Vicinity	Continuous throughout month.	
	Collect precipitation and runoff data	NTS	Following storm events.	
	Water-level monitoring	Wells at Yucca Mountain and Vicinity	July 6-8, and 20-22	8-4
	Monitoring of test well USW UZ-1	Test well USW UZ-1	July 10, 20, and 21	8-11 2:30-3:30
	Monitoring of neutron test holes	Yucca Mountain and vicinity	Continuous throughout month	8-4
	Service and Maintenance of Paleohydrology analog sites	South Central Nevada	July 1-2	7-7
	Gas sampling	UZ-1, NTS	July 27-August 5	Daylight hours
	Temperature and humidity measurements	UZ-6, NTS	Intermittent throughout month	Daylight hours