Contract SSC-92-Z-16308

SDC Muon System Assembly and Installation Study Phase II

15 December 1992

Prepared By:
J. Bakken, J. Brogan, G. Guenterberg, M. Montgomery

SCIENCE SYSTEMS
MARTIN MARIETTA ASTRONAUTICS GROUP
DENVER, COLORADO

SDC-92-390

FOREWORD

This report is submitted to the Superconducting Super Collider Laboratory as a deliverable item for contract SSC-92-Z-16308 Change 3, SOW Addendum B, Task 3.2.4.6, 29 September 1992.

The report provides results of continued development of the Resource Allocation Model (RAM) simulation for fabrication of the SDC muon measurement system, transportation to the collision hall, and installation on the detector.

TABLE OF CONTENTS

1.0 SCOPE AND OBJECTIVES

2.0 METHODOLOGY
2.1 GROUND RULES AND ASSUMPTIONS
2.2 RESOURCE ALLOCATION MODELING SIMULATION DESCRIPTION
2.3 RAM INPUT DATABASES
2.4 SUMMARY OF RESULTS

3.0 RECOMMENDED FUTURE TASKS

4.0 RAM RESULTS
4.1 SCHEDULES AND FLOW INFORMATION OVERVIEW
4.1.1 OVERALL MUON SYSTEM PRODUCTION AND INSTALLATION SCHEDULE
4.1.2 OVERALL MUON SYSTEM PRODUCTION AND INSTALLATION FLOW
4.1.3 DETAILED WORK CENTER ACTIVITY SCHEDULES
4.2 DETAILED SCHEDULE AND FLOW INFORMATION
4.2.1 DETAILED WORK STATION ACTIVITY SCHEDULES
4.2.2 DETAILED WORK STATION SCHEDULES WITH TUBE DELIVERY REQUIREMENTS
4.2.3 MACPROJECT DETAILED INFORMATION
4.3 RESOURCES AND STORAGE
4.3.1 RESOURCE NAME LIST
4.3.2 RESOURCE USAGE
4.3.3 RESOURCE ANALYSIS
4.3.4 RESOURCE TOOL COSTS
4.3.5 MODULE STORAGE REQUIREMENTS
4.4 LABOR
4.4.1 MANPOWER REQUIREMENTS
4.4.2 ASSEMBLY AND PRODUCTION MANPOWER REQUIREMENTS BY REGION
4.4.3 INSTALLATION MANPOWER REQUIREMENTS BY REGION

5.0 DETAILED FUNCTION EXAMPLE: INSTALLATION OF BW1-2 IN THE NORTH SHAFT

APPENDIX A: DETAILED RAM INPUT DATA (A Separate Volume)

1.0 SCOPE AND OBJECTIVES

The scope of this SDC Resource Allocation Model (RAM) study includes significant expansion and refinement of the RAM database for muon measurement system production, assembly and installation performed at the SSCL site, including fabrication of the SDC muon measurement system, transportation to the experimental hall, and installation on the detector. Installation "blockout" periods are accounted for properly, but the RAM simulation does not include an integrated installation of the full SDC detector.

The objectives for this report are defined in the Statement of Work for the SDC - Martin Marietta Astronautics Group, Addendum B, 29 September 1992 and are summarized here:

Define (for Phases I and II):

- Resources required
- Component delivery schedules
- Production schedules
- Resource allocation (including storage) at various stages of production
- Manpower requirements
- Module completion schedules

Detailed responses to these objectives are in Section 4.

2.0 METHODOLOGY

This effort represents a continuation of the Phase I ("Green Book") Muon RAM Simulation. This Phase II development of the RAM is significantly more detailed and is a much more realistic evaluation of the muon system fabrication and installation. The detail in RAM simulation has increased by 2 orders of magnitude, from approximately 300 functions to over 30,000 functions tracked over the period of the project.

Additional information about the design and construction of the hardware has been received from members of the muon group, specifically Henry Lubatti for the barrel chambers, Frank Desrosier for the forward chambers and assembly, and Richard Loveless for the intermediate assembly. The information received from Loveless included process flows and estimated time standards. Information from Lubatti, in a published SDC note, described the fabrication process flows; the time standards were applied by John Brogan. Information from Desrosier defined the forward chamber and structures and it was assumed that the fabrication process would be the same as for the barrel system. David Eartly supplied the installation sequence information; the installation process flows and time standards were applied by Brogan.

The RAM simulation consists of a preproduction phase and then a planned hiatus for each workstation and assembly. During the hiatus, the preproduction is evaluated and the tools are upgraded and process improvements are implemented. After the hiatus, the full production begins and continues through completion. Phase I installation modules are completed first followed by those in Phase II.

The resource list has been greatly expanded and reorganized. This reorganization was made to allow continued growth. The resource lists now includes all of the tooling required and the output products as well as the individual tube layers and scintillators for the modules. A probability for failure and a estimated repair or replacement time was added for each resource. The RAM calculates the amount of time each resource is used during the simulation and from this information is able to predict the mean number of resource failures and the corresponding repair time. A unit cost and resource category was added for each resource. The costs were taken from the SDC muon WBS. The categories were simple groupings of tools, scintillators, and tubes. Finally, resources with definite limits, such as the number of cranes available, have been defined. The RAM simulation is allowed to use the any number of the other resources without definite limits as needed to complete the process. This "resource float" is a RAM option allowing an optimization of resource quantities. It was not enabled for any of the data that follows in the rest of this report. Resources that have quantities of "999", in effect, are also allowed to float even without this option enabled.

2.1 ASSUMPTIONS AND GROUNDRULES

Listed here are the assumptions and groundrules used for this report. The assumptions and ground rules were based on personal communications from the SSCL and SDC muon system managers or from direction received from the numerous collaboration/muon system meetings. Three categories are listed:

general assumptions and groundrules that apply globally for the study, muon chamber configuration assumptions used to determine component quantities and sizes for the assembly flows, and RAM ground rules that are described in Section 2.2.

General assumptions and groundrules are:

1. The study is restricted to muon system production, assembly, and installation at the SSCL site.
2. Resources are dedicated for use as required for muon system assembly and installation. Potential conflicts for resources for the tracker and calorimeter assembly process are not considered. For installation, both hall equipment access shafts are assumed available as required for the muon system except for the shaft "blockout" periods defined by the SSC integration group.
3. Drift tubes are delivered to the on-site facility just-in-time.
4. There are two phases of installation work required to accommodate the interface agreements with the calorimeter. Phase I is the installation of the components (Figs. 2.1-1 and 2.1-2) that will be installed on the detector before the calorimeter to avoid interferences. Figure 2.1-1 shows, in a perspective view, the Phase I installation components. The same information is shown in Figure 2.1-2. Installation of these components begins on December 1, 1996. Phase II installation (Fig. 2.3-2) installs the remaining hardware and ends early January 1999.
5. Manpower is limited to a constant 16 workers for the on-site fabrication. This number has been optimized and represents the minimum number of workers required to complete the job on time. Rigger and alignment crews are not included in the 16 worker count.
6. Actual time spans are derived from the time standards using a 90-110% triangular distribution.
7. The standard work day begins at 8:00 a.m. and ends at 4:00 p.m. There is no weekend or holiday work. Overtime is allowed to complete in-process activities that need less than two more hours to finish. The production of BW3 modules is the only exception to this rule; a double shift, 16 normal hours and two possible hours of overtime, has been applied in this case to account for the large discrepancy in the amount of time that is required to complete the BW3 module as compared to the BW2 mating module.
8. Non-stop operations are those which must be completed without interruption, such as bonding operations. If the time span for completing all of the non-stop operations is more than 10 hours, then they are not started after 8:00 am. Once non-stop operations commence, overtime, beyond the 2 hour limit, is authorized.
9. A "corrected" version of the SSC calendar, furnished by Matthew Piazza is used.
10. The simulation starts January 3,1995.
11. Five shaft access or experimental hall "blockout" periods are defined. The blockout from 1/6/97 through 1/10/97 prevents the use of the both the north and south access shafts and the north and south hall cranes and does not allow anyone to be in the experimental hall due to magnetic field mapping. The blockouts from 3/24/97 through 3/28/97, 5/19/97 through 5/23/97, and 10/20/97 through 10/24/97 prevent the use of the south access shaft and the south hall crane. The blockout from 12/15/97 through 12/19/97 prevents the use of the north access shaft and the north hall crane. Activities that do not use these resources continue during the blockout periods as normal.
12. Learning curves of 300%, 150%, and 125% are applied to some of the activities. Generally these learning curves occur when starting a new production configuration. Details of the specific learning curves are shown in many of the results sections.

Muon chamber assumptions are :

1. Barrel Chamber:
   - SSCL site module production flows have been obtained from Henry Lubatti, et.al..., and are contained in the October 1992 SDC Note, "Assembly Procedure of Barrel Modules".
   - SSCL site assembly, installation and time spans have been coordinated with David Eartly.
2. Intermediate Chamber Assumptions:
   - Site assembly and installation flows and time standards were provided by Richard Loveless.
3. Forward Chamber Assumptions:
   - Octant chambers and structural assemblies are produced above ground on-site. The FW5 structure is transported and lowered into the hall in halves and then re-assembled before installing the chambers. Octant chambers are assembled on the structure in the hall.

- Assembly and installation flows and time spans have been coordinated with Frank Desrosier. The assembly procedure for the forward modules is patterned after the procedure for the barrel chambers.

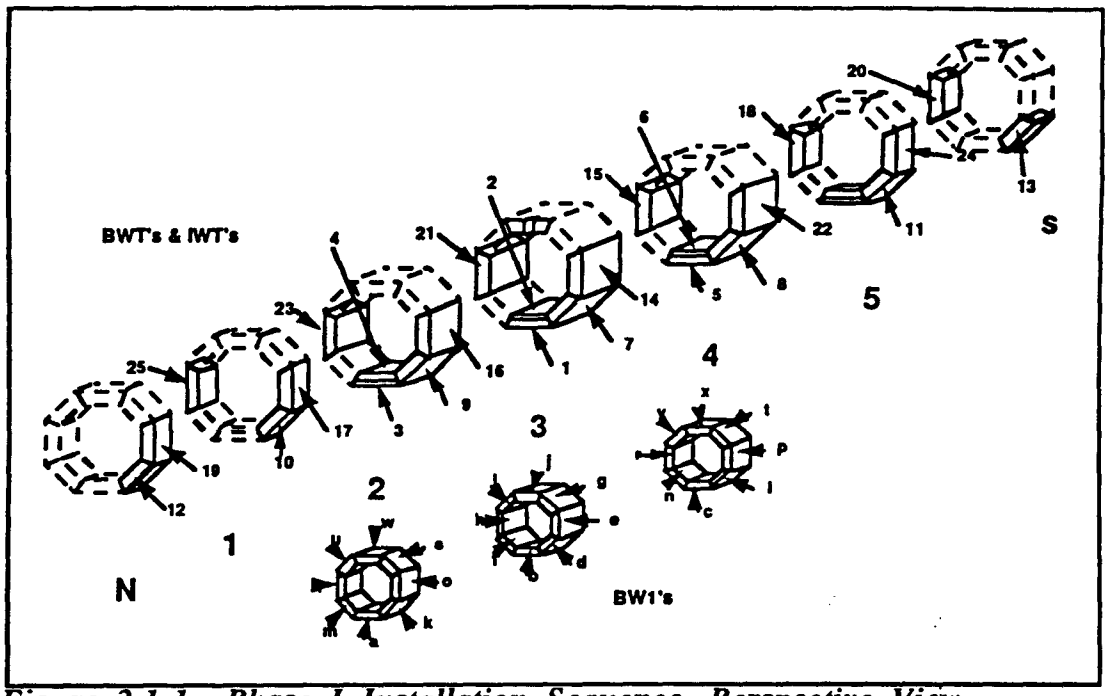


Figure 2.1-1 Phase I Installation Sequence, Perspective View

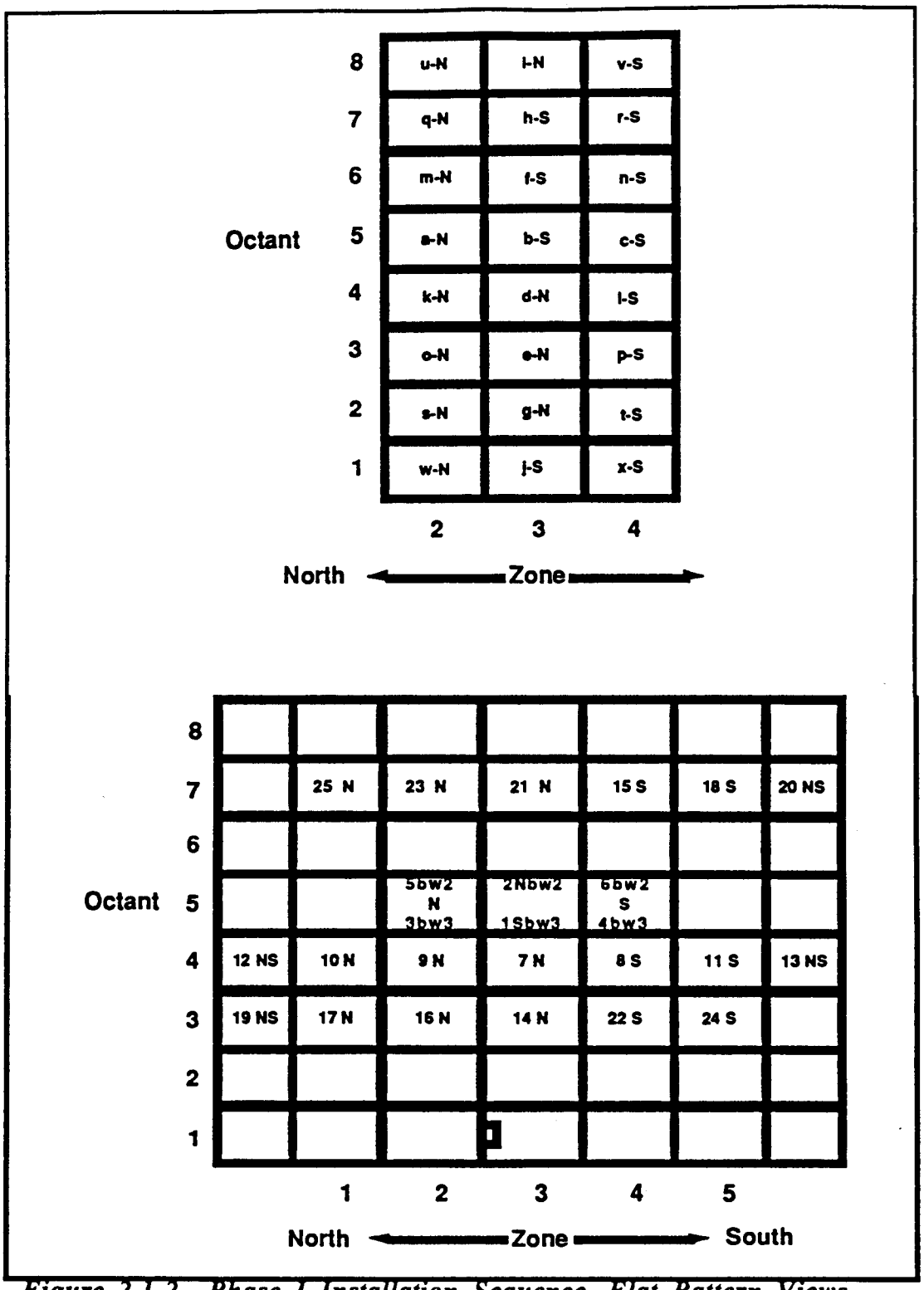


Figure 2.1-2 Phase I Installation Sequence, Flat Pattern Views

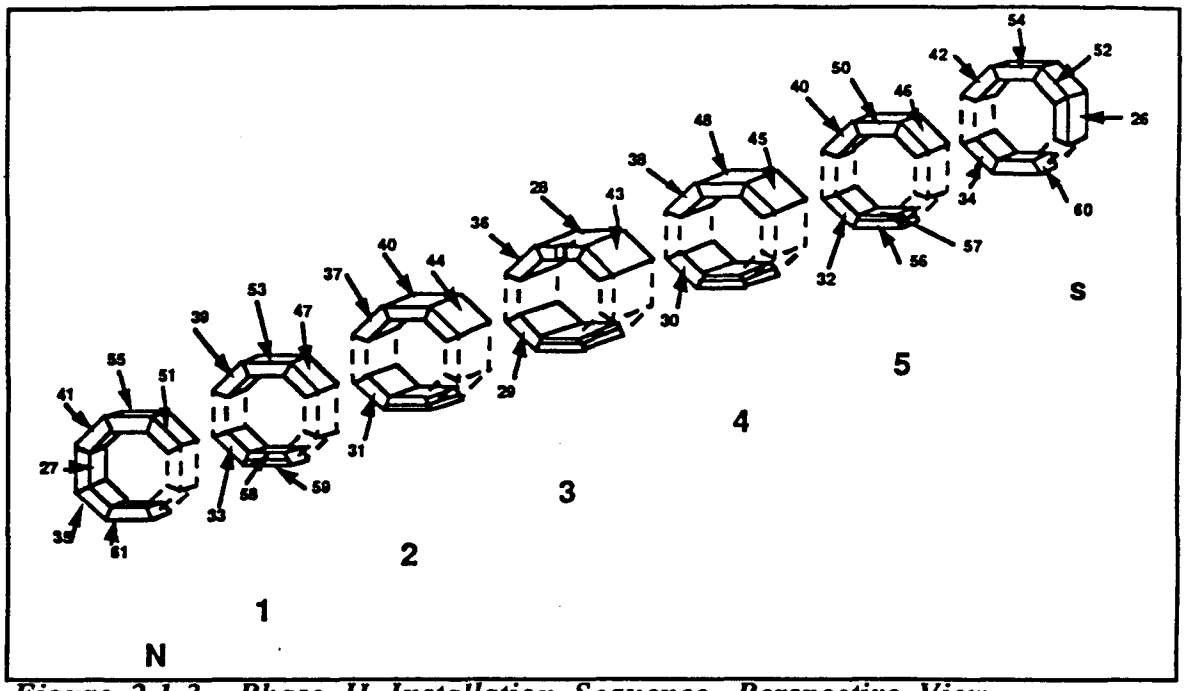


Figure 2.1-3 Phase II Installation Sequence, Perspective View

Octant							
8	41 NS	39 N	37 N	36 N	38 S	40 S	42 NS
7	27 NS						
6	35 NS	33 N	31 N	29 N	30 S	32 S	34 NS
5	61 NS	58bw3 N 59 bw2				56bw3 N 57bw2	60 NS
4							
3							26 NS
2	51 NS	47 N	44 N	43 N	45 S	46 S	52 NS
1	55 NS	53 N	40 N	28 S	48 S	50 S	54 NS
		1	2	3	4	5	

North ← Zone → South

Figure 2.1-4 Phase II Installation Sequence, Flat Pattern View

2.2 RESOURCE ALLOCATION MODELING SIMULATION DESCRIPTION

The main results of this study were generated by a Martin Marietta Astronautics Group proprietary program, called RAM (for resource allocation modeling). The RAM is a very flexible computer manufacturing simulation tool that implements a realistic and systematic process for efficiently allocating and scheduling resources in order to achieve project objectives and requirements. In this study, the RAM was used to define equipment and personnel requirements; to measure production, assembly, and installation time spans; to define delivery requirements for components produced off-site; to determine module completion and installation schedules. In the current SDC RAM simulation, about 31,000 operations are started and tracked. Most of these operations are small sets of parallel functions operating sequentially. At one point during the simulation, however, there are 25 parallel operations happening simultaneously. At another point in the simulation, more than 200 resources are simultaneously allocated; there are thousands more available, this is just the maximum number that are ever simultaneously allocated to the operating functions.

2.3 RAM INPUT DATA

Detailed production, assembly, and installation flow data, grouped by activities, are presented in Appendix A, a separate volume. This data is the primary input used by the RAM simulation. The data is contained in Microsoft Excel spreadsheets that are read directly by the RAM. Muon group members may request an Excel flow template to provide RAM input data for components of the muon system.

Appendix A presents the data for all activities, including flow diagrams showing the sequence of OAs that comprise each activity, resources lists, and spreadsheets that show the functions performed, the resource allocation and deallocation operations, and the time details for each OA.

2.4 SUMMARY OF RESULTS

The most important result of this effort is that, given the building availability and installation access, the muon detector schedules can be met by using the SSCL facilities. This is particularly encouraging given the detail now contained in the RAM databases and the complexity of the module fabrication. The number of workstations and the start dates for the workstations are driven by the Phase I hardware requirements. Delays in the schedule introduced by resource unavailability are acceptable.

The number of workers required to complete the effort has been optimized at 16. The previous ("Green Book") results indicated that 26 workers would be needed. Hence, this is a major reduction in the workforce required for the effort.

Due the Phase I installation requirements, there is a severe shortage of storage space in the Muon System Assembly Building storage alcove for the modules just prior to starting Phase I installation.

The RAM simulation is now able to generate files that can be directly read by Muon Measurement System Chief Engineer, Charles Grinnell, into his overall muon schedule program, MacProject PRO. This information contains a task overview, task duration, dependency relationships, labor hours, resource costs, and tube and scintillator delivery requirements.

The RAM also is able to generate files that can be directly read into the SDC Muon System WBS. This alleviates incompatibilities that have occurred between the RAM and the WBS in the past. Tool costs, on a first-used basis, are now imported to the WBS and a funding profile can be easily generated. Labor hours, based on SSCL categories, are also imported to the WBS.

3.0 RECOMMENDED FUTURE TASKS

The following tasks are recommended for future development:

- Scintillator fabrication and assembly requirements need to be specified and input into the RAM.
- More detailed process flow and time standards are required for the forward fabrication, assembly, and installation.
- Many more optimization runs need to be performed to find the best possible solution.
- "What if" scenarios should be investigated to determine an appropriate contingency plan.
- A trade study of forward supermodule above versus below ground assembly should be performed.

- Testing of the final modules needs to be defined and included in the RAM
- Define the checkout and alignment tool usage and include its effects in the RAM
- Incorporate the affects of other detector component process flows and schedules in the RAM.

4.0 RAM RESULTS

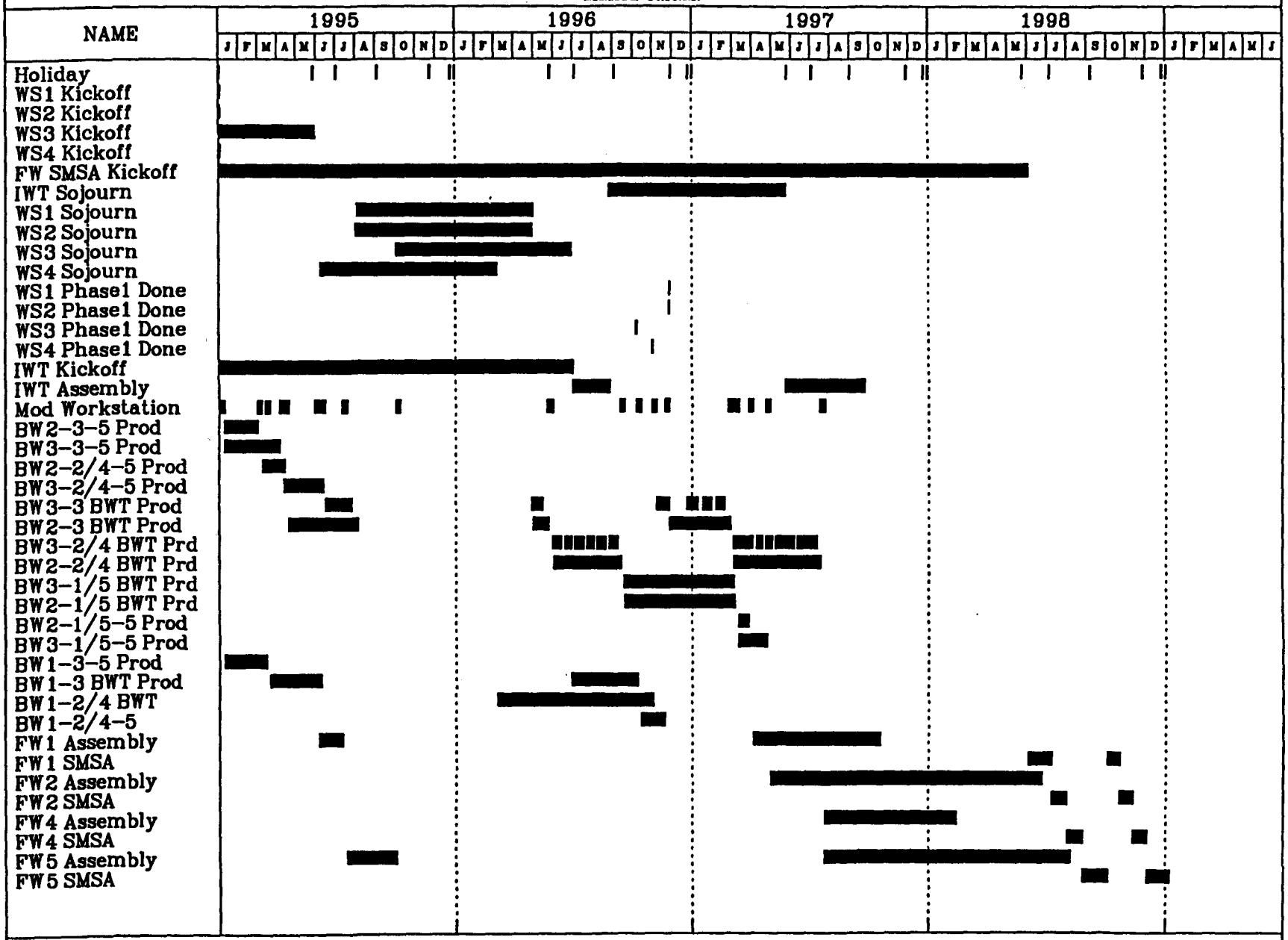
RAM simulation results are presented in Sections 4.1 through 4.4 identified with colored separator pages.

010

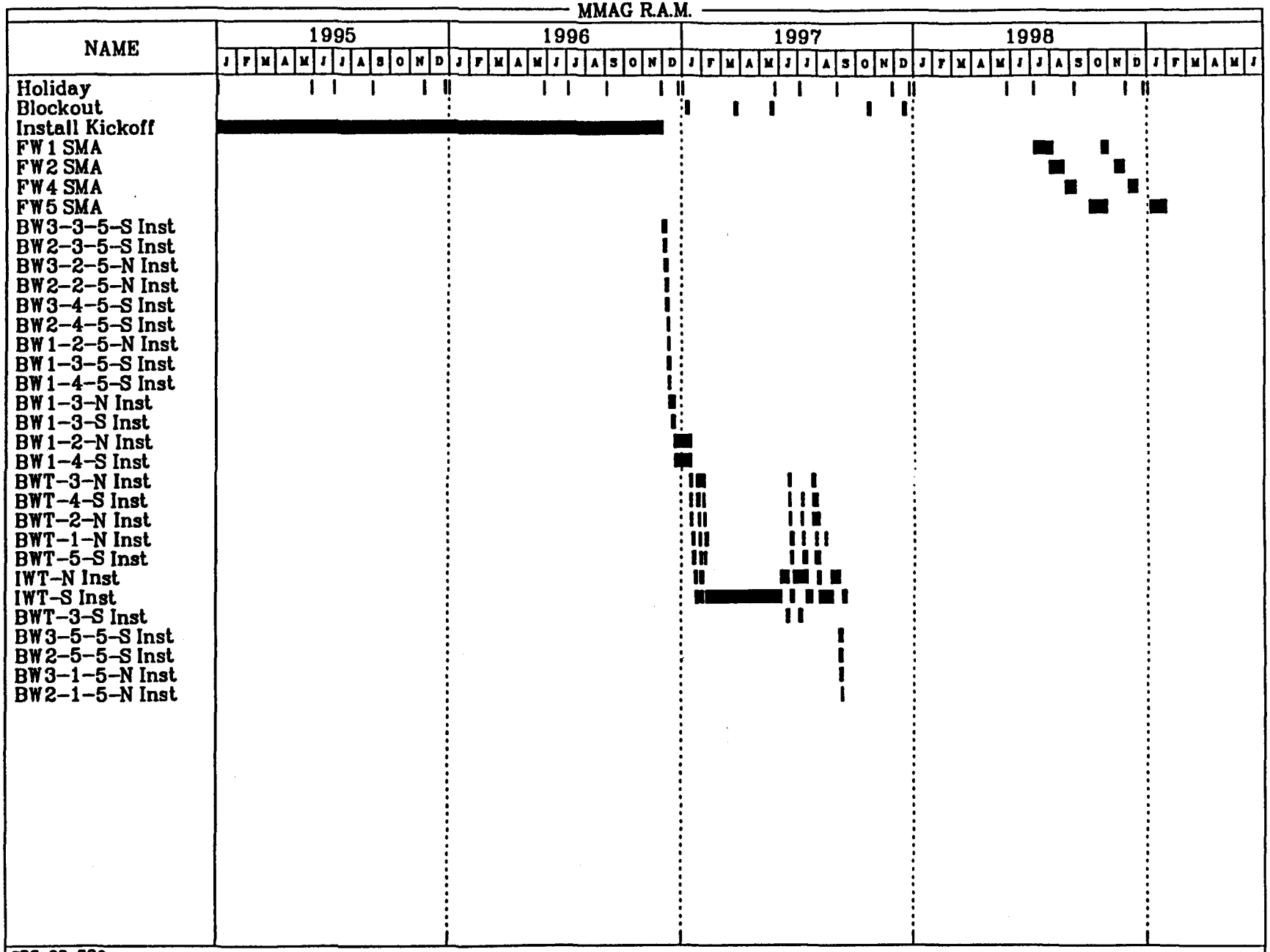
4.1.1 Overall Muon System Production and Installation Schedule (2 sheets)

Sheet 1 shows the muon system production schedule and sheet 2 shows the installation schedule.. Holidays, specified by the SSCL are shown as the first item on each schedule. Individual workstation milestones, such as kickoff dates, rest periods and phase one completions are shown on sheet 1.

Each schedule line can represent one or more activities. If successive activities overlap or connect timewise, they are shown as one line. Further detail is shown in the Work Center Activity Schedules that follow.


NAME
1995
1996
1997
1998
J F M A M J J A S O N D
Holiday
WS1 Kickoff
WS2 Kickoff
WS3 Kickoff
WS4 Kickoff
FW SMSA Kickoff
IWT Sojourn
WS1 Sojourn
WS2 Sojourn
WS3 Sojourn
WS4 Sojourn
WS1 Phase1 Done
WS2 Phase1 Done
WS3 Phase1 Done
WS4 Phase1 Done
IWT Kickoff
IWT Assembly
Mod Workstation
BW2-3-5 Prod
BW3-3-5 Prod
BW2-2/4-5 Prod
BW3-2/4-5 Prod
BW3-3 BWT Prod
BW2-3 BWT Prod
BW3-2/4 BWT Prd
BW2-2/4 BWT Prd
BW3-1/5 BWT Prd
BW2-1/5 BWT Prd
BW2-1/5-5 Prod
BW3-1/5-5 Prod
BW1-3-5 Prod
BW1-3 BWT Prod
BW1-2/4 BWT
BW1-2/4-5
FW1 Assembly
FW1 SMSA
FW2 Assembly
FW2 SMSA
FW4 Assembly
FW4 SMSA
FW5 Assembly
FW5 SMSA

SDC-92-390



SDC-92-390

12/08/92 - 18:50:55

4.1.2 Overall Muon System Production and Installation Flow (3 sheets)

The three sheets in this section are RAM output that has been imported directly into MacProject PRO. This data has been delivered electronically to the SSCL. The assembly and production portion of the muon work is shown in the upper portion of the three sheets and the installation part is on the bottom. The SDC RAM model currently performs approximately 31,000 functions. These operations have been condensed into about 60 very high level MacProject tasks. This data should prove quite useful in managing overall schedules, but one needs to be careful not to ask too much of it. The detailed work done by the RAM is not contained in this high level MacProject flow, therefore, manipulation of the MacProject files may not accurately reflect details available only in the RAM.

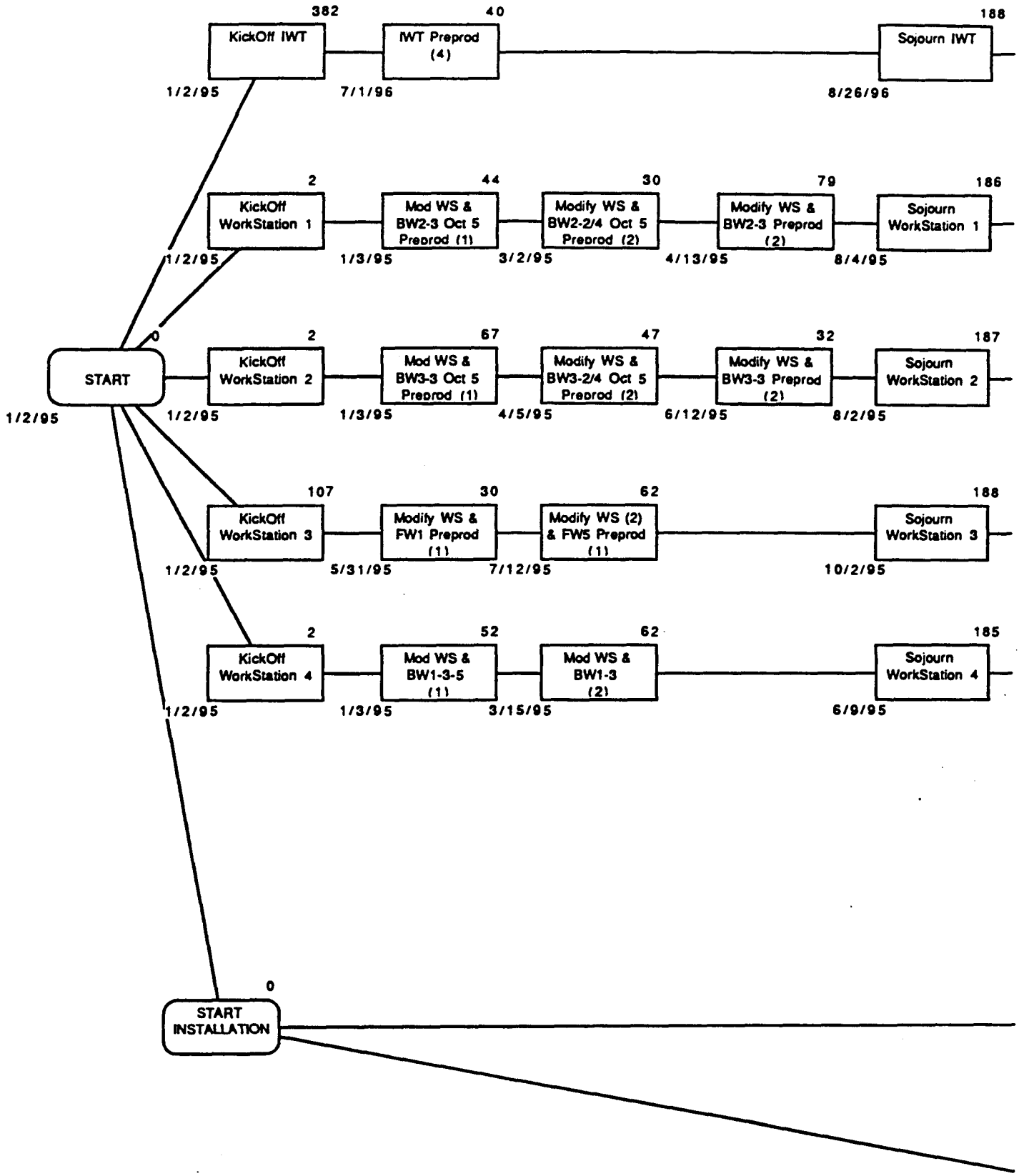
Each box represents a MacProject task. Each task is made up of numerous RAM activities. Typically the last line of the task description contains a number in parenthesis that is the quantity of RAM activities that have been condensed into the MacProject task. The number in the upper right corner of each box is the number of working days to complete the task. The date in the lower left corner is the start date, as determined by the RAM. This date has been loaded into the MacProject as the baseline start date.

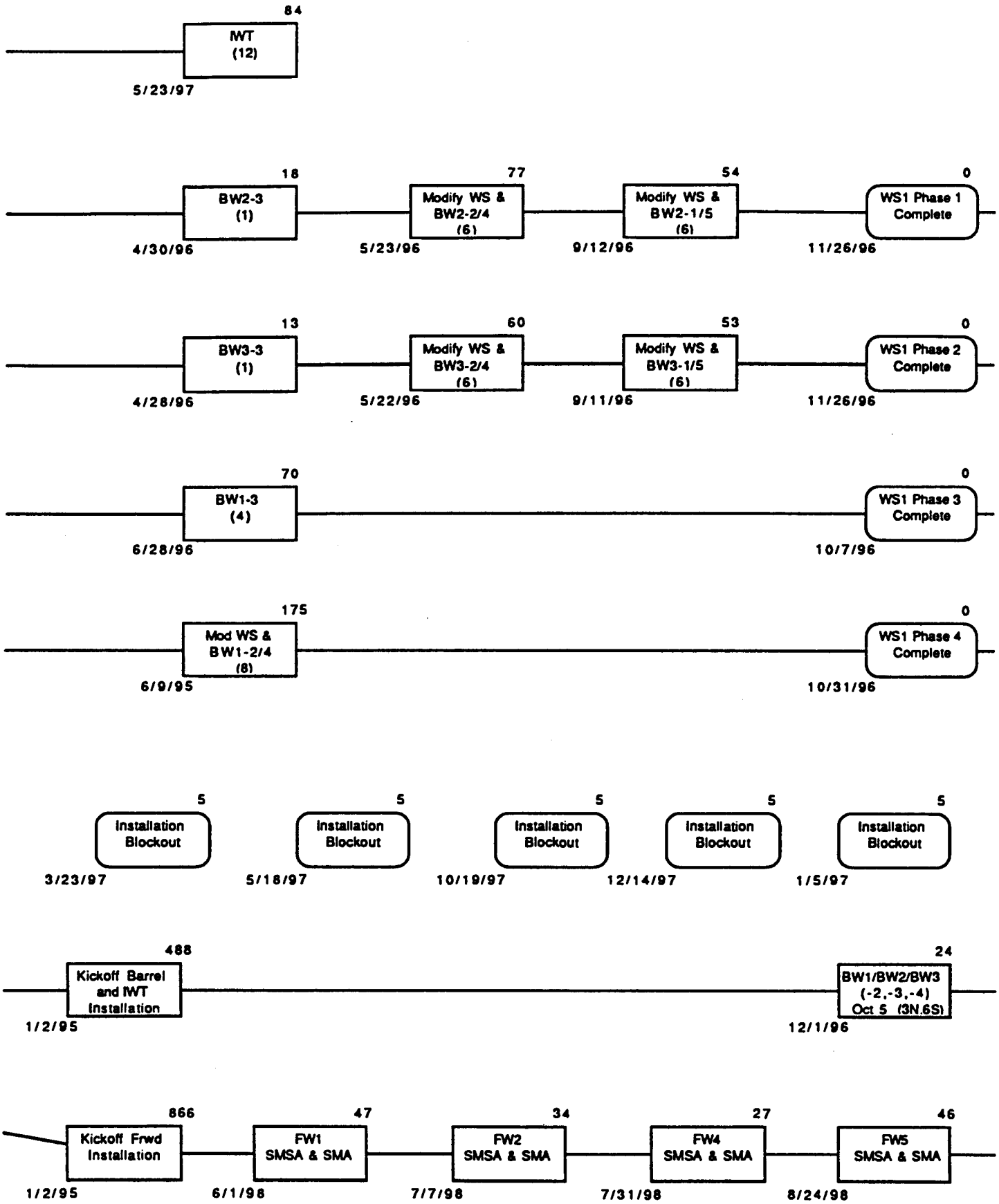
Lines connecting boxes represent a finish-to-start dependency relationship generated by the RAM.

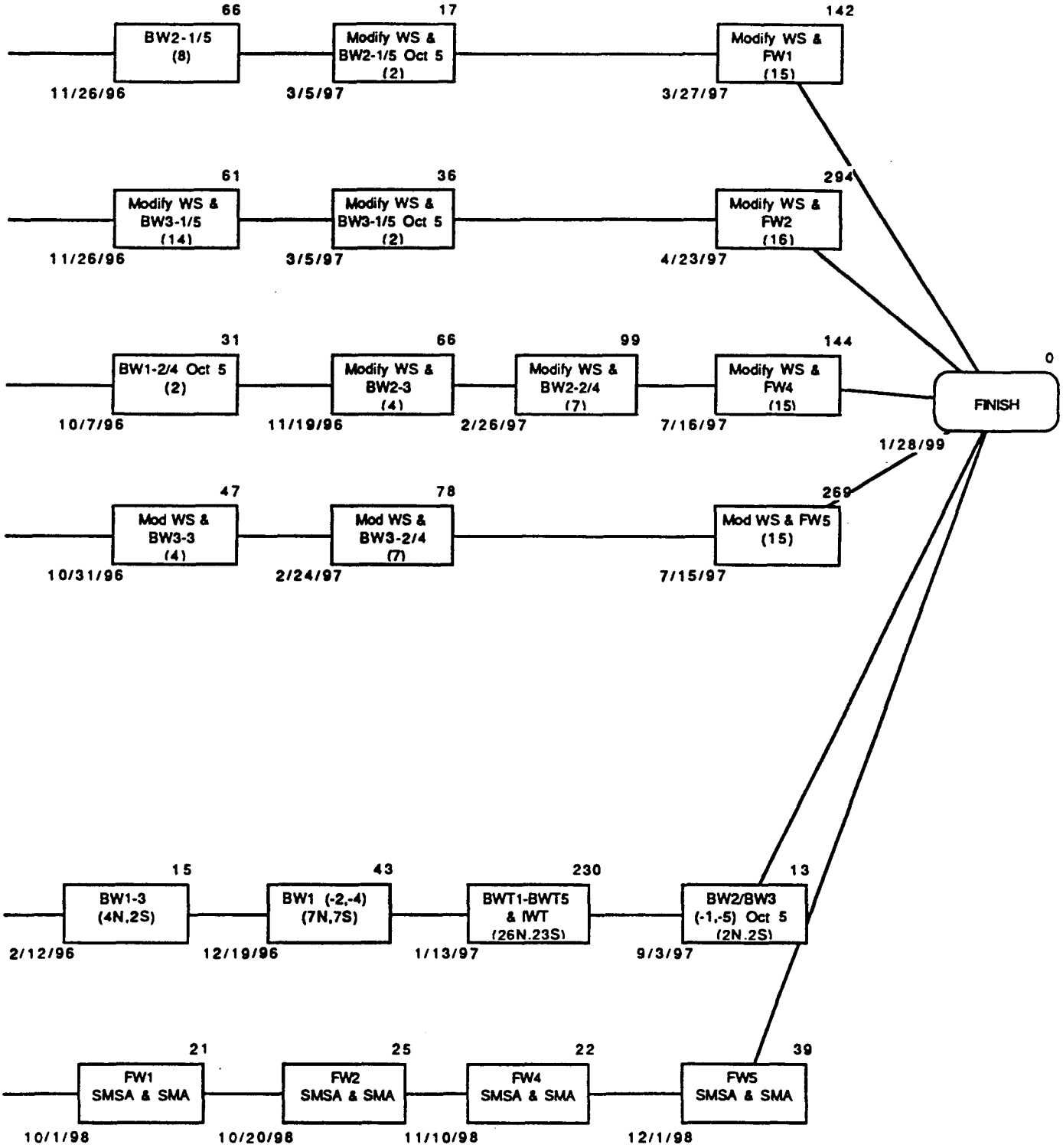
Milestones, such as rest periods for the workstations and phase 1 completion dates, are shown in the flows.

Resource costs, labor hours, number of tubes, and number of scintillators that are required for each task are attached to each task. This information is not shown on the flow diagrams. Again, this information was generated by the RAM and directly imported into MacProject.

More detailed information can be found in Section 4.2.3.


382
KickOff IWT
1/2/95
40
IWT Preprod (4)
7/1/96
188
Sojourn IWT
8/26/96
2
KickOff WorkStation 1
1/2/95
44
Mod WS & BW2-3 Oct 5 Preprod (1)
1/3/95
30
Modify WS & BW2-2/4 Oct 5 Preprod (2)
3/2/95
79
Modify WS & BW2-3 Preprod (2)
4/13/95
186
Sojourn WorkStation 1
8/4/95
0
START
1/2/95
2
KickOff WorkStation 2
1/2/95
67
Mod WS & BW3-3 Oct 5 Preprod (1)
1/3/95
47
Modify WS & BW3-2/4 Oct 5 Preprod (2)
4/5/95
32
Modify WS & BW3-3 Preprod (2)
6/12/95
187
Sojourn WorkStation 2
8/2/95
107
KickOff WorkStation 3
1/2/95
30
Modify WS & FW1 Preprod (1)
5/31/95
62
Modify WS (2) & FW5 Preprod (1)
7/12/95
188
Sojourn WorkStation 3
10/2/95
2
KickOff WorkStation 4
1/2/95
52
Mod WS & BW1-3-5 (1)
1/3/95
62
Mod WS & BW1-3 (2)
3/15/95
185
Sojourn WorkStation 4
6/9/95
0
START INSTALLATION


84
IWT
(12)
5/23/97
18
BW2-3
(1)
4/30/96
77
Modify WS &
BW2-2/4
(6)
5/23/96
54
Modify WS &
BW2-1/5
(6)
9/12/96
0
WS1 Phase 1
Complete
11/26/96
13
BW3-3
(1)
4/28/96
60
Modify WS &
BW3-2/4
(6)
5/22/96
53
Modify WS &
BW3-1/5
(6)
9/11/96
0
WS1 Phase 2
Complete
11/26/96
70
BW1-3
(4)
6/28/96
0
WS1 Phase 3
Complete
10/7/96
175
Mod WS &
BW1-2/4
(8)
6/9/95
0
WS1 Phase 4
Complete
10/31/96
5
Installation
Blockout
3/23/97
5
Installation
Blockout
5/18/97
5
Installation
Blockout
10/19/97
5
Installation
Blockout
12/14/97
5
Installation
Blockout
1/5/97
488
Kickoff Barrel
and IWT
Installation
1/2/95
24
BW1/BW2/BW3
(-2,-3,-4)
Oct 5 (3N.6S)
12/1/96
866
Kickoff Frwd
Installation
1/2/95
47
FW1
SMSA & SMA
6/1/98
34
FW2
SMSA & SMA
7/7/98
27
FW4
SMSA & SMA
7/31/98
46
FW5
SMSA & SMA
8/24/98


66
BW2-1/5
(8)
11/26/96
17
Modify WS &
BW2-1/5 Oct 5
(2)
3/5/97
142
Modify WS &
FW1
(15)
3/27/97
61
Modify WS &
BW3-1/5
(14)
11/26/96
36
Modify WS &
BW3-1/5 Oct 5
(2)
3/5/97
294
Modify WS &
FW2
(16)
4/23/97
31
BW1-2/4 Oct 5
(2)
10/7/96
66
Modify WS &
BW2-3
(4)
11/19/96
99
Modify WS &
BW2-2/4
(7)
2/26/97
144
Modify WS &
FW4
(15)
7/16/97
0
FINISH
1/28/99
47
Mod WS &
BW3-3
(4)
10/31/96
78
Mod WS &
BW3-2/4
(7)
2/24/97
269
Mod WS & FW5
(15)
7/15/97
15
BW1-3
(4N,2S)
2/12/96
43
BW1 (-2,-4)
(7N,7S)
12/19/96
230
BWT1-BWT5
& IWT
(26N,23S)
1/13/97
13
BW2/BW3
(-1,-5) Oct 5
(2N,2S)
9/3/97
21
FW1
SMSA & SMA
10/1/98
25
FW2
SMSA & SMA
10/20/98
22
FW4
SMSA & SMA
11/10/98
39
FW5
SMSA & SMA
12/1/98

4.1.3 DETAILED WORK CENTER ACTIVITY SCHEDULES (8 SHEETS)

Sheet 1 shows the activities required to assemble the IWTs.

Sheet 2 shows the production activities that occur on workstation 1.

Sheet 3 shows the production activities that occur on workstation 2.

Sheet 4 shows the production activities that occur on workstation 3.

Sheet 5 shows the production activities that occur on workstation 4.

Sheet 6 shows the production activities required to complete a Forward SMSA (Supermodule Structural Assembly).

Sheets 7 shows the installation activities in the North shaft.

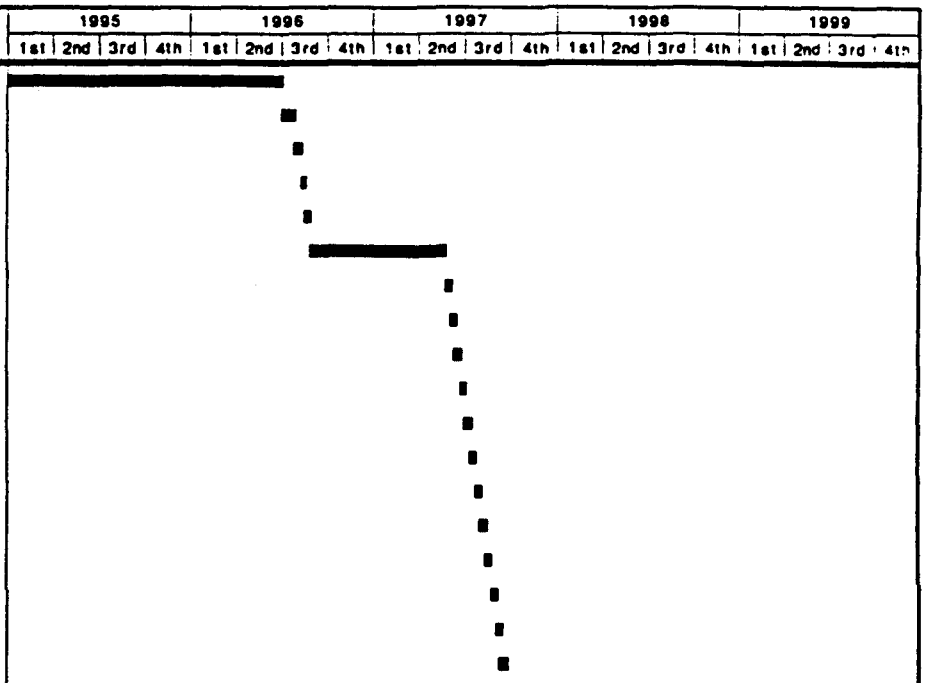
Sheets 8 shows the installation activities in the South shaft.

Each schedule item consists of:

Activity Name	The operation being performed or module being constructed
Work Days	The number of working days required to complete the activity
Start Date	The date the activity was begun
Finish Date	The date the activity was completed
Schedule Bar	Graphical representation of start and finish date

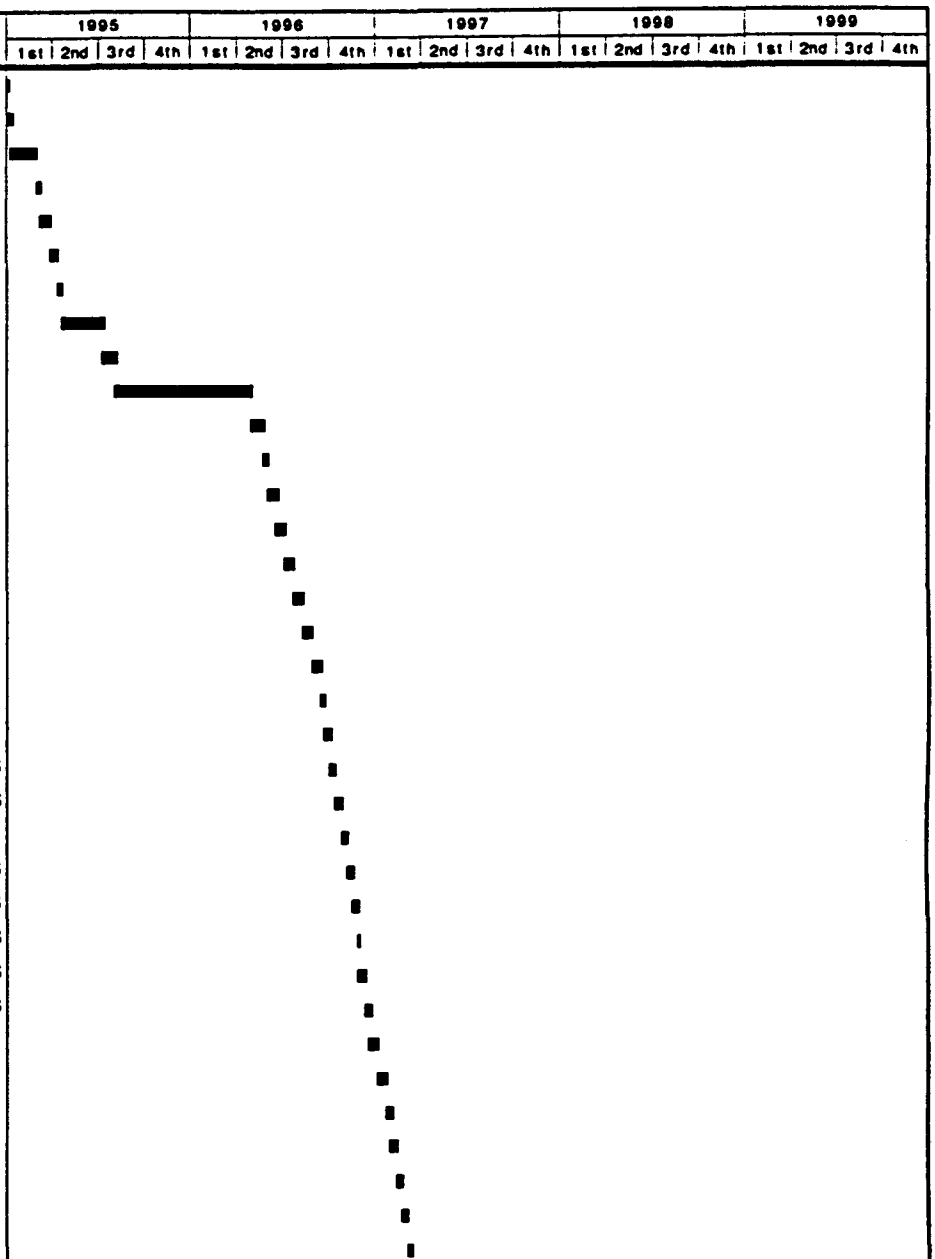
More detailed information concerning these production schedules can be found in Section 4.2.1, Detailed Work Station Activity Schedules.

IWT Assembly Activities	Work Days	Start	Finish
KickOff	381	1/2/95	7/1/96
IWT Assembly	19.04	7/1/96	7/26/96
IWT Assembly	8.16	7/26/96	8/8/96
IWT Assembly	6.14	8/8/96	8/16/96
IWT Assembly	5.99	8/16/96	8/26/96
Sojourn	188	8/26/96	5/23/97
IWT Assembly	6.73	5/23/97	6/4/97
IWT Assembly	6.95	6/4/97	6/12/97
IWT Assembly	7.16	6/12/97	6/24/97
IWT Assembly	6.5	6/24/97	7/2/97
IWT Assembly	6.68	7/2/97	7/14/97
IWT Assembly	6.99	7/14/97	7/23/97
IWT Assembly	7.5	7/23/97	8/1/97
IWT Assembly	7.07	8/1/97	8/12/97
IWT Assembly	7.16	8/12/97	8/22/97
IWT Assembly	7	8/22/97	9/3/97
IWT Assembly	6.91	9/3/97	9/11/97
IWT Assembly	6.82	9/11/97	9/22/97



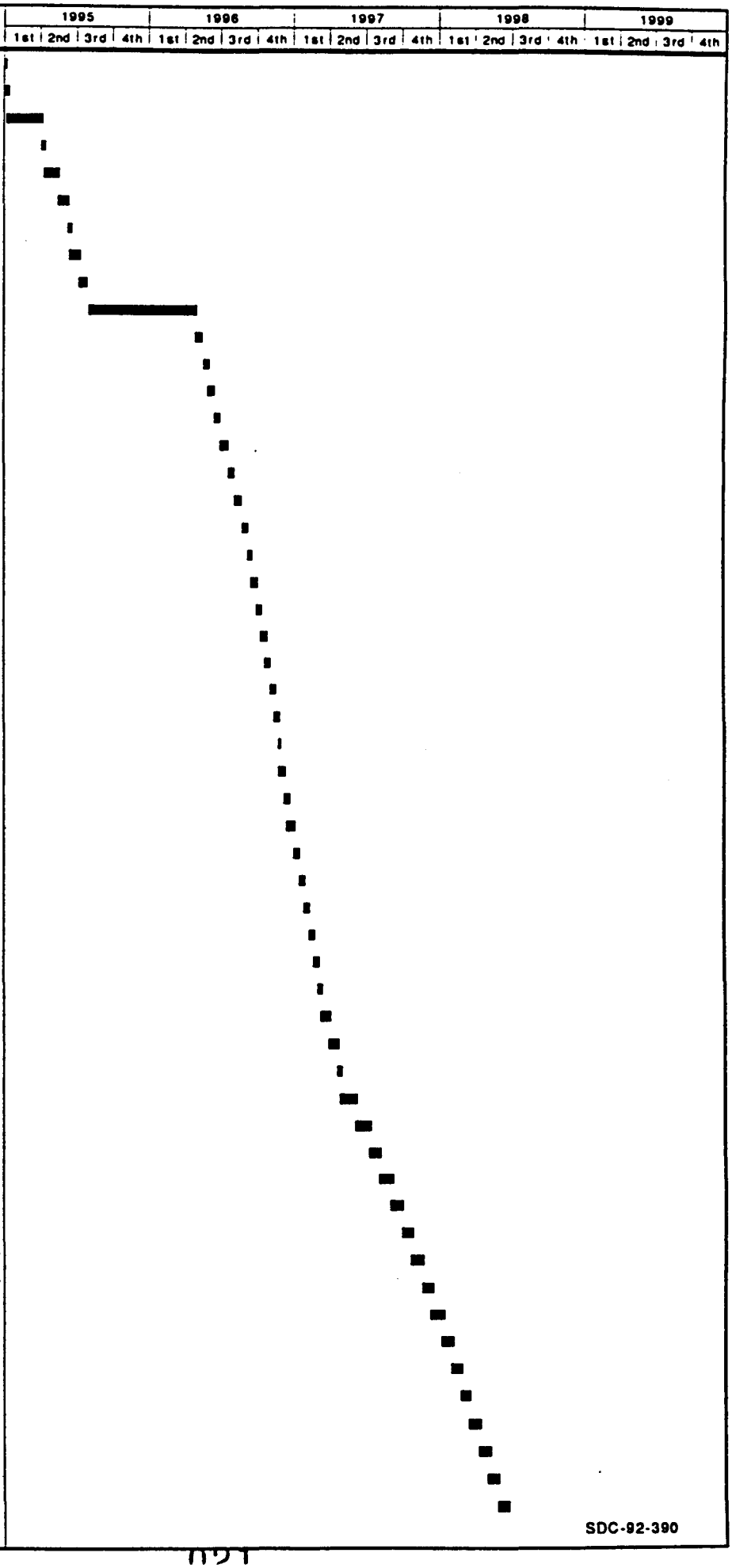
SDC-92-390

Workstation 1 Activities	Work Days	Start	Finish
KickOff	1	1/2/95	1/3/95
Mod Workstation	4.98	1/3/95	1/9/95
BW2-3-5 Prod	38.03	1/9/95	3/2/95
Mod Workstation	5.11	3/2/95	3/9/95
BW2-2/4-5 Prod	13.49	3/9/95	3/29/95
BW2-2/4-5 Prod	11.31	3/29/95	4/13/95
Mod Workstation	5.11	4/13/95	4/20/95
BW2-3 BWT Prod	55.7	4/20/95	7/11/95
BW2-3 BWT Prod	17.44	7/11/95	8/4/95
Sojourn	186	8/4/95	4/30/96
BW2-3 BWT Prod	17.28	4/30/96	5/23/96
Mod Workstation	4.97	5/23/96	5/31/96
BW2-2/4 BWT	13.08	5/31/96	6/19/96
BW2-2/4 BWT	10.64	6/19/96	7/5/96
BW2-2/4 BWT	12.59	7/5/96	7/23/96
BW2-2/4 BWT	12.03	7/23/96	8/8/96
BW2-2/4 BWT	12.38	8/8/96	8/27/96
BW2-2/4 BWT	11	8/27/96	9/12/96
Mod Workstation	5.18	9/12/96	9/19/96
BW2-1/5 BWT	9.52	9/19/96	10/2/96
BW2-1/5 BWT	7.03	10/2/96	10/11/96
BW2-1/5 BWT	8.24	10/11/96	10/24/96
BW2-1/5 BWT	7.42	10/24/96	11/4/96
BW2-1/5 BWT	8.82	11/4/96	11/15/96
BW2-1/5 BWT	7.43	11/15/96	11/26/96
WS1 Phase1 Done		11/26/96	11/26/96
BW2-1/5 BWT	7.75	11/26/96	12/10/96
BW2-1/5 BWT	7.16	12/10/96	12/19/96
BW2-1/5 BWT	8.09	12/19/96	1/3/97
BW2-1/5 BWT	10.77	1/3/97	1/20/97
BW2-1/5 BWT	7.77	1/20/97	1/30/97
BW2-1/5 BWT	7.32	1/30/97	2/10/97
BW2-1/5 BWT	8.9	2/10/97	2/21/97
BW2-1/5 BWT	7.99	2/21/97	3/5/97
Mod Workstation	5.14	3/5/97	3/12/97
BW2-1/5-5 Prod	5.46	3/12/97	3/20/97
BW2-1/5-5 Prod	5.77	3/20/97	3/27/97
Mod Workstation	5.06	3/27/97	4/3/97
FW1 Assembly	11.03	4/3/97	4/18/97
FW1 Assembly	9.56	4/18/97	5/2/97
FW1 Assembly	8.34	5/2/97	5/14/97
FW1 Assembly	7.43	5/14/97	5/27/97
FW1 Assembly	8.71	5/27/97	6/9/97
FW1 Assembly	9.36	6/9/97	6/20/97
FW1 Assembly	8.63	6/20/97	7/3/97
FW1 Assembly	8.02	7/3/97	7/16/97
FW1 Assembly	10.84	7/16/97	7/30/97
FW1 Assembly	9.19	7/30/97	8/13/97
FW1 Assembly	10.03	8/13/97	8/27/97
FW1 Assembly	8.41	8/27/97	9/9/97
FW1 Assembly	9.8	9/9/97	9/23/97
FW1 Assembly	9.11	9/23/97	10/6/97
FW1 Assembly	8.01	10/6/97	10/16/97



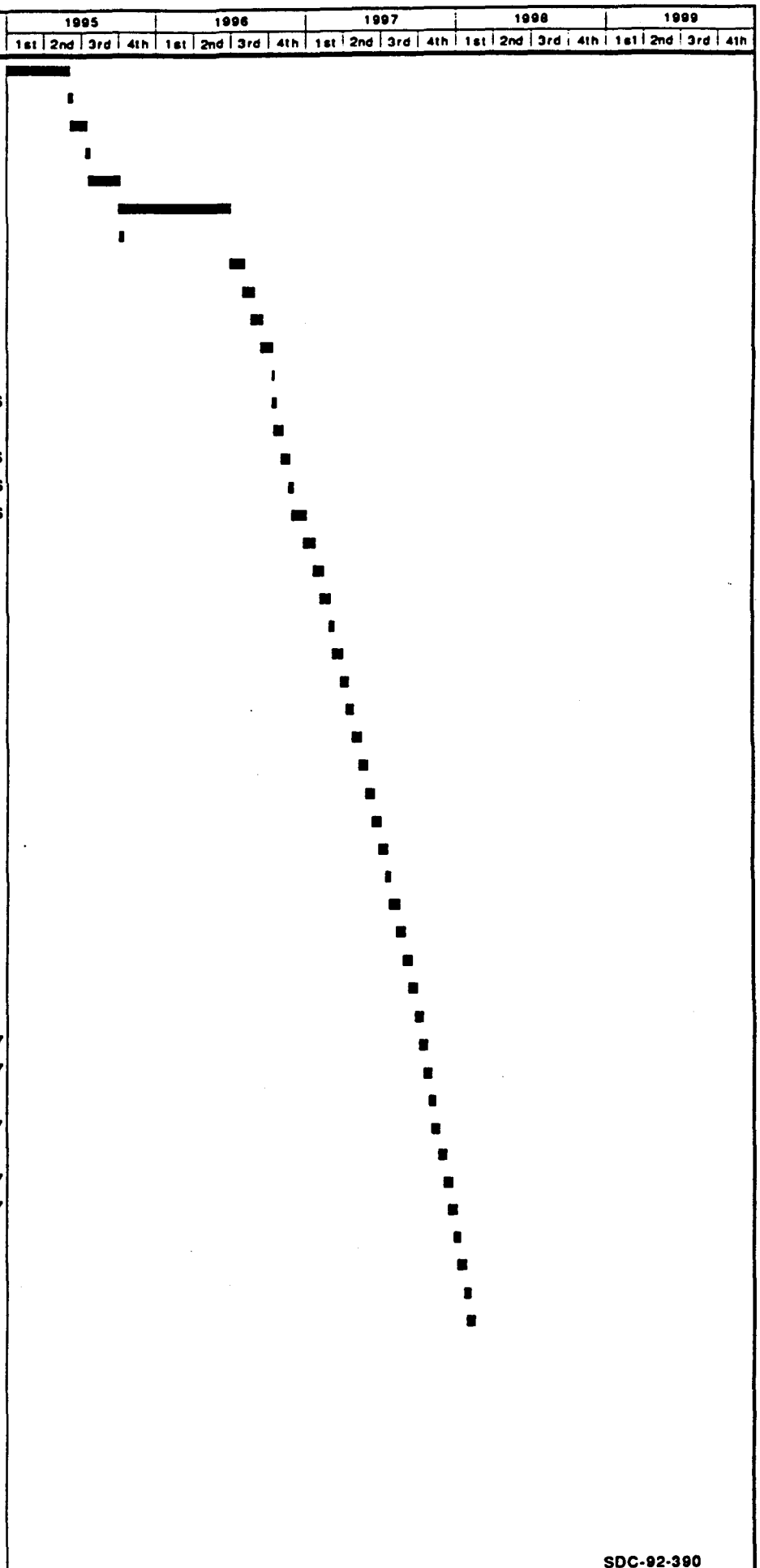
SDC-92-390

Workstation 2 Activities	Work Days	Start	Finish
KickOff	1	1/2/95	1/3/95
Mod Workstation	4.98	1/3/95	1/9/95
BW3-3-5 Prod	61.39	1/9/95	4/5/95
Mod Workstation	5.24	4/5/95	4/12/95
BW3-2/4-5 Prod	24.92	4/12/95	5/17/95
BW3-2/4-5 Prod	16.59	5/17/95	6/12/95
Mod Workstation	4.57	6/12/95	6/16/95
BW3-3 BWT Prod	14.59	6/16/95	7/7/95
BW3-3 BWT Prod	11.98	7/10/95	7/26/95
Sojourn	187	8/2/95	4/28/96
BW3-3 BWT Prod	12.44	4/28/96	5/14/96
Mod Workstation	5.25	5/22/96	5/30/96
BW3-2/4 BWT	10.23	5/30/96	6/13/96
BW3-2/4 BWT	8.29	6/18/96	6/28/96
BW3-2/4 BWT	9.12	7/3/96	7/17/96
BW3-2/4 BWT	9.2	7/22/96	8/2/96
BW3-2/4 BWT	9.05	8/7/96	8/20/96
BW3-2/4 BWT	8.41	8/26/96	9/6/96
Mod Workstation	4.77	9/11/96	9/17/96
BW3-1/5 BWT	9.82	9/17/96	10/1/96
BW3-1/5 BWT	7.55	10/1/96	10/11/96
BW3-1/5 BWT	8.08	10/11/96	10/23/96
BW3-1/5 BWT	7.21	10/23/96	11/1/96
BW3-1/5 BWT	8.34	11/4/96	11/14/96
BW3-1/5 BWT	7.02	11/14/96	11/25/96
WS2 Phase1 Done		11/26/96	11/26/96
BW3-1/5 BWT	7.21	11/26/96	12/9/96
BW3-1/5 BWT	7	12/10/96	12/19/96
BW3-1/5 BWT	7.42	12/19/96	1/2/97
BW3-1/5 BWT	7.26	1/3/97	1/14/97
BW3-1/5 BWT	7.79	1/17/97	1/29/97
BW3-1/5 BWT	7.35	1/29/97	2/7/97
BW3-1/5 BWT	8.67	2/10/97	2/20/97
BW3-1/5 BWT	7.49	2/21/97	3/4/97
Mod Workstation	4.58	3/5/97	3/11/97
BW3-1/5-5 Prod	16	3/11/97	4/2/97
BW3-1/5-5 Prod	15.07	4/2/97	4/23/97
Mod Workstation	5.29	4/23/97	4/30/97
FW2 Assembly	25.44	4/30/97	6/6/97
FW2 Assembly	23.87	6/6/97	7/11/97
FW2 Assembly	18.49	7/11/97	8/6/97
FW2 Assembly	19.57	8/6/97	9/4/97
FW2 Assembly	18.49	9/4/97	9/30/97
FW2 Assembly	17.55	9/30/97	10/24/97
FW2 Assembly	16.65	10/24/97	11/18/97
FW2 Assembly	16.8	11/18/97	12/12/97
FW2 Assembly	16.52	12/12/97	1/9/98
FW2 Assembly	16.41	1/9/98	2/2/98
FW2 Assembly	16.58	2/2/98	2/25/98
FW2 Assembly	16.47	2/25/98	3/19/98
FW2 Assembly	16.22	3/19/98	4/13/98
FW2 Assembly	16.31	4/13/98	5/5/98
FW2 Assembly	15.98	5/5/98	5/28/98
FW2 Assembly	17.28	5/28/98	6/22/98



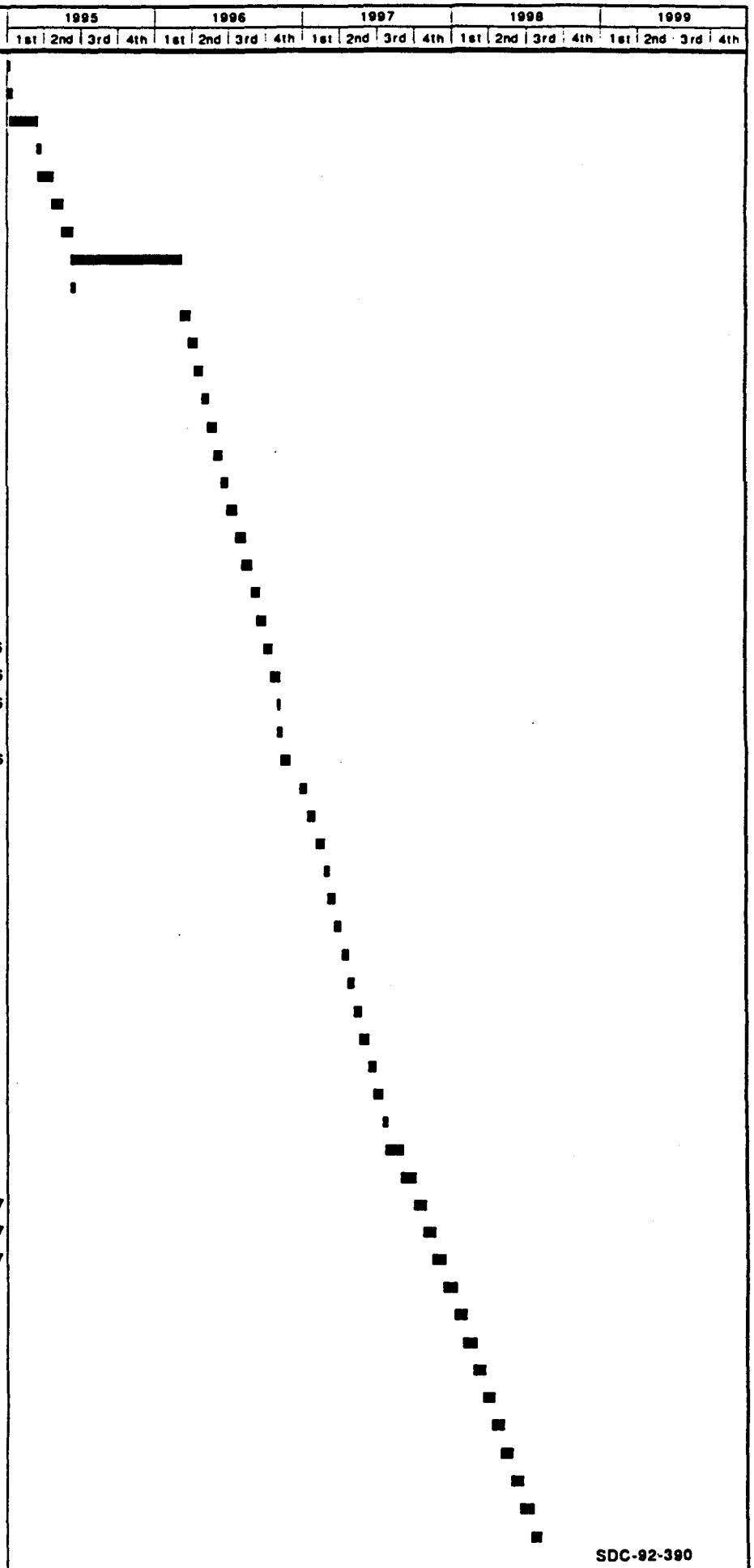
SDC-92-390

Workstation 3 Activities	Work Days	Start	Finish
KickOff	106	1/2/95	5/31/95
Mod Workstation	4.67	5/31/95	6/6/95
FW1 Assembly	25.26	6/6/95	7/12/95
Mod Workstation	5.36	7/12/95	7/20/95
FW5 Assembly	51.09	7/20/95	10/2/95
Sojourn	188	10/2/95	6/28/96
Mod Workstation	4.95	10/2/95	10/9/95
BW1-3 BWT Prod	20.74	6/28/96	7/30/96
BW1-3 BWT Prod	16.63	7/30/96	8/21/96
BW1-3 BWT Prod	15.35	8/21/96	9/13/96
BW1-3 BWT Prod	16.28	9/13/96	10/7/96
WS3 Phase1 Done		10/7/96	10/7/96
Mod Workstation	5.03	10/7/96	10/14/96
BW1-2/4-5	14.06	10/14/96	11/1/96
BW1-2/4-5	11.91	11/1/96	11/19/96
Mod Workstation	5.04	11/19/96	11/26/96
BW2-3 BWT Prod	18.2	11/26/96	12/26/96
BW2-3 BWT Prod	14.5	12/26/96	1/17/97
BW2-3 BWT Prod	14	1/17/97	2/6/97
BW2-3 BWT Prod	14	2/6/97	2/26/97
Mod Workstation	5.07	2/26/97	3/4/97
BW2-2/4 BWT	12.97	3/4/97	3/24/97
BW2-2/4 BWT	11.65	3/24/97	4/8/97
BW2-2/4 BWT	10.87	4/8/97	4/23/97
BW2-2/4 BWT	10.45	4/23/97	5/8/97
BW2-2/4 BWT	11	5/8/97	5/23/97
BW2-2/4 BWT	12.32	5/23/97	6/11/97
BW2-2/4 BWT	12.37	6/11/97	6/27/97
BW2-2/4 BWT	11.73	6/27/97	7/16/97
Mod Workstation	5.04	7/16/97	7/23/97
FW4 Assembly	13.24	7/23/97	8/11/97
FW4 Assembly	12.1	8/11/97	8/27/97
FW4 Assembly	9.2	8/27/97	9/11/97
FW4 Assembly	9.33	9/11/97	9/24/97
FW4 Assembly	8.48	9/24/97	10/6/97
FW4 Assembly	8.19	10/6/97	10/17/97
FW4 Assembly	7.79	10/17/97	10/28/97
FW4 Assembly	7.98	10/28/97	11/7/97
FW4 Assembly	7.8	11/7/97	11/19/97
FW4 Assembly	7.76	11/19/97	12/3/97
FW4 Assembly	8	12/3/97	12/15/97
FW4 Assembly	7.67	12/15/97	12/29/97
FW4 Assembly	7.83	12/29/97	1/8/98
FW4 Assembly	7.8	1/8/98	1/20/98
FW4 Assembly	7.69	1/20/98	1/30/98
FW4 Assembly	8	1/30/98	2/11/98



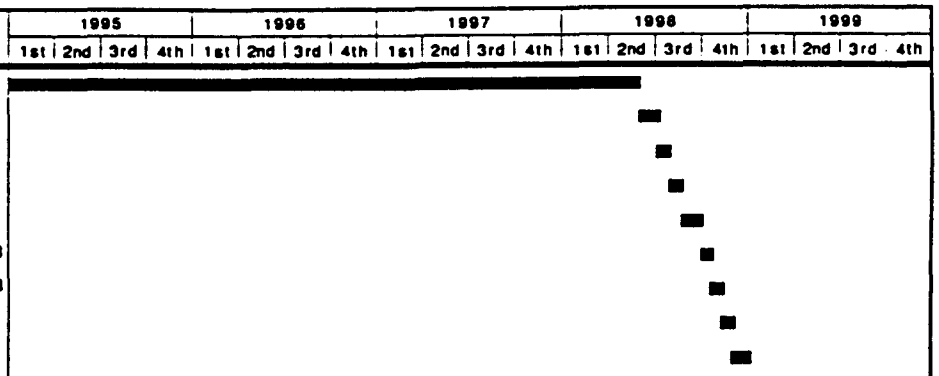
SDC-92-390

Workstation 4 Activities	Work Days	Start	Finish
KickOff	1	1/2/95	1/3/95
Mod Workstation	4.9	1/3/95	1/9/95
BW1-3-5 Prod	46.13	1/9/95	3/15/95
Mod Workstation	5.06	3/15/95	3/21/95
BW1-3 BWT Prod	22.92	3/21/95	4/24/95
BW1-3 BWT Prod	18.36	4/24/95	5/18/95
BW1-3 BWT Prod	14.69	5/18/95	6/9/95
Sojourn	185	6/9/95	3/5/96
Mod Workstation	4.82	6/9/95	6/15/95
BW1-2/4 BWT	14.72	3/5/96	3/25/96
BW1-2/4 BWT	11.31	3/25/96	4/10/96
BW1-2/4 BWT	11.23	4/10/96	4/25/96
BW1-2/4 BWT	11.55	4/25/96	5/10/96
BW1-2/4 BWT	11.19	5/10/96	5/29/96
BW1-2/4 BWT	11.09	5/29/96	6/13/96
BW1-2/4 BWT	11.57	6/13/96	6/28/96
BW1-2/4 BWT	13.12	6/28/96	7/18/96
BW1-2/4 BWT	13.24	7/18/96	8/7/96
BW1-2/4 BWT	12.98	8/7/96	8/26/96
BW1-2/4 BWT	11.77	8/26/96	9/11/96
BW1-2/4 BWT	11.82	9/11/96	9/27/96
BW1-2/4 BWT	12.1	9/27/96	10/15/96
BW1-2/4 BWT	11.98	10/15/96	10/31/96
WS4 Phase1 Done		10/31/96	10/31/96
Mod Workstation	5	10/31/96	11/7/96
BW3-3 BWT Prod	12.16	11/7/96	11/25/96
BW3-3 BWT Prod	9.88	12/23/96	1/8/97
BW3-3 BWT Prod	9.79	1/16/97	1/29/97
BW3-3 BWT Prod	9.66	2/5/97	2/18/97
Mod Workstation	4.95	2/24/97	3/3/97
BW3-2/4 BWT	11.7	3/3/97	3/19/97
BW3-2/4 BWT	8.9	3/21/97	4/2/97
BW3-2/4 BWT	8.17	4/7/97	4/17/97
BW3-2/4 BWT	8.1	4/22/97	5/2/97
BW3-2/4 BWT	8.2	5/7/97	5/19/97
BW3-2/4 BWT	9.17	5/22/97	6/5/97
BW3-2/4 BWT	8.99	6/10/97	6/23/97
BW3-2/4 BWT	8.93	6/26/97	7/10/97
Mod Workstation	5.07	7/15/97	7/22/97
FW5 Assembly	27.59	7/22/97	8/29/97
FW5 Assembly	22.32	8/29/97	10/1/97
FW5 Assembly	16.87	10/1/97	10/24/97
FW5 Assembly	16.04	10/24/97	11/17/97
FW5 Assembly	16.61	11/17/97	12/12/97
FW5 Assembly	16	12/12/97	1/8/98
FW5 Assembly	16.85	1/8/98	1/30/98
FW5 Assembly	16.25	1/30/98	2/24/98
FW5 Assembly	16.29	2/24/98	3/18/98
FW5 Assembly	16.6	3/18/98	4/9/98
FW5 Assembly	16.53	4/9/98	5/4/98
FW5 Assembly	16.41	5/4/98	5/27/98
FW5 Assembly	16.16	5/27/98	6/19/98
FW5 Assembly	16.31	6/19/98	7/14/98
FW5 Assembly	16.14	7/14/98	8/5/98



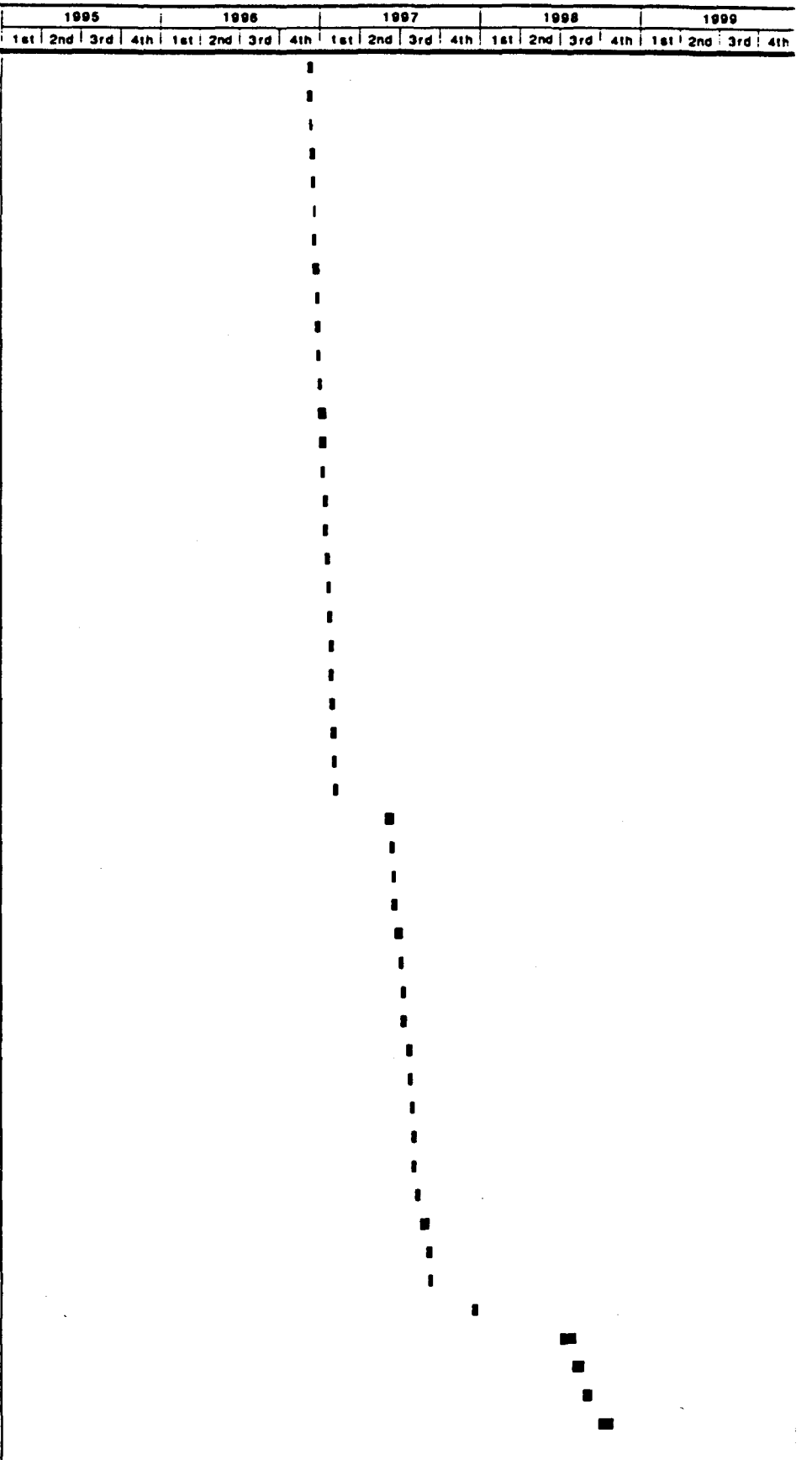
SDC-92-390

Forward SMA Activities	Work Days	Start	Finish
KickOff	865	1/2/95	6/1/98
FW1 SMSA	25	6/1/98	7/7/98
FW2 SMSA	18.96	7/7/98	7/31/98
FW4 SMSA	15.67	7/31/98	8/24/98
FW5 SMSA	26.95	8/24/98	10/1/98
FW1 SMSA	12.43	10/1/98	10/20/98
FW2 SMSA	15.45	10/20/98	11/10/98
FW4 SMSA	13.01	11/10/98	12/1/98
FW5 SMSA	20.98	12/1/98	1/4/99



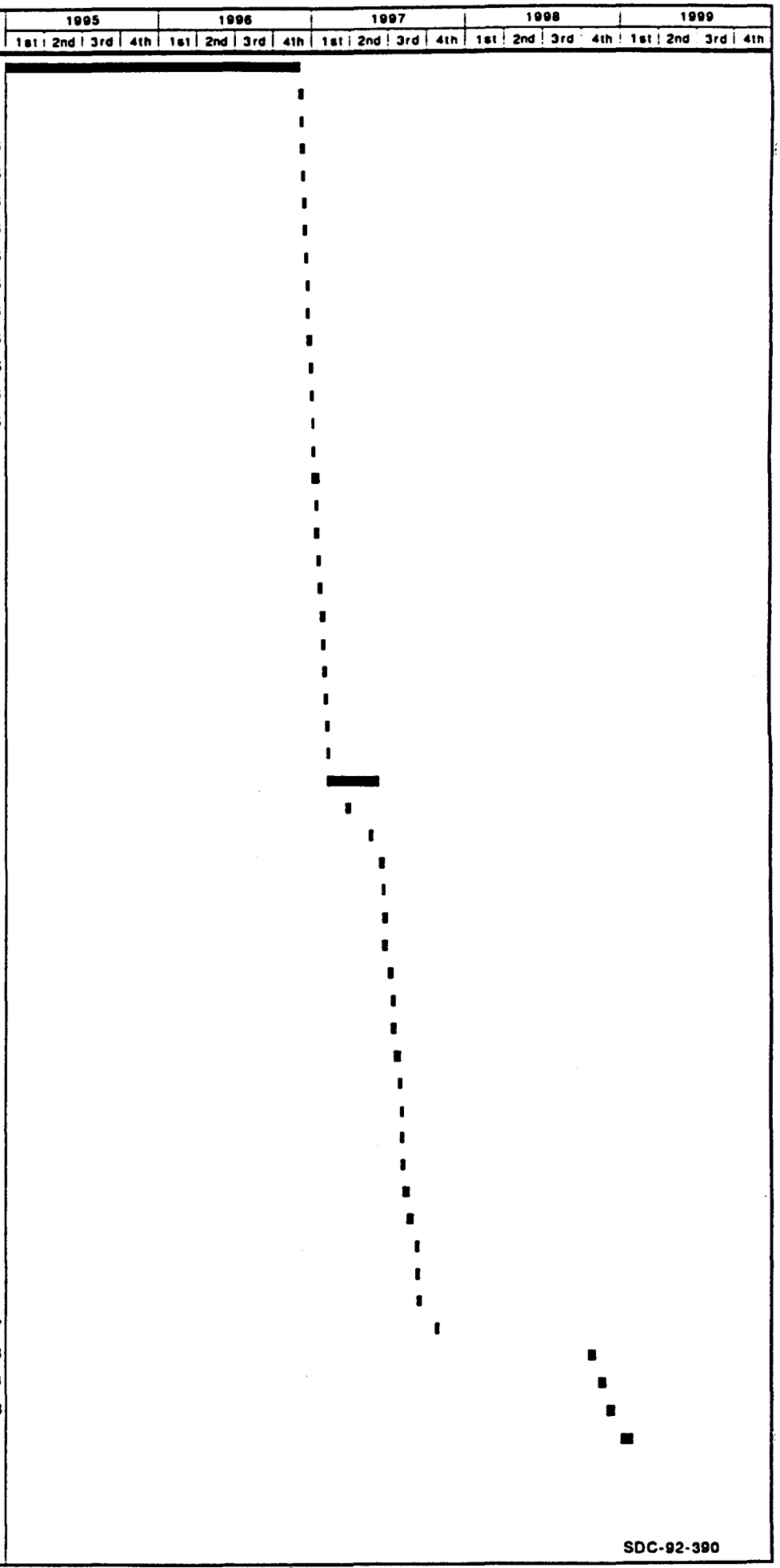
SDC-92-390

North Shaft Activities	Work Days	Start	Finish
BW3-2-5-N Inst	2.66	12/4/96	12/9/96
BW2-2-5-N Inst	2.13	12/5/96	12/9/96
BW1-2-5-N Inst	1.84	12/10/96	12/11/96
BW1-3-N Inst	2.66	12/12/96	12/17/96
BW1-3-N Inst	2.1	12/13/96	12/17/96
BW1-3-N Inst	1.83	12/17/96	12/18/96
BW1-3-N Inst	2.02	12/18/96	12/20/96
BW1-2-N Inst	2.57	12/19/96	12/26/96
BW1-2-N Inst	2.07	12/23/96	12/27/96
BW1-2-N Inst	1.69	12/26/96	12/30/96
BW1-2-N Inst	1.58	12/27/96	12/31/96
BW1-2-N Inst	1.73	12/31/96	1/2/97
BW1-2-N Inst	6.77	1/2/97	1/13/97
BW1-2-N Inst	6.67	1/3/97	1/14/97
Blockout	6	1/6/97	1/10/97
BWT-3-N Inst	3.38	1/13/97	1/16/97
BWT-2-N Inst	2.58	1/15/97	1/17/97
BWT-1-N Inst	2.12	1/16/97	1/20/97
IWT-N Inst	5.15	1/20/97	1/24/97
BWT-3-N Inst	2.88	1/23/97	1/28/97
BWT-2-N Inst	2.81	1/27/97	1/29/97
BWT-1-N Inst	2.52	1/28/97	1/30/97
IWT-N Inst	2.29	1/29/97	2/3/97
BWT-3-N Inst	2.25	1/31/97	2/5/97
BWT-2-N Inst	2.3	2/4/97	2/6/97
BWT-1-N Inst	2.37	2/6/97	2/10/97
IWT-N Inst	8.04	6/4/97	6/16/97
BWT-3-N Inst	2.38	6/16/97	6/19/97
BWT-2-N Inst	2.43	6/18/97	6/20/97
BWT-1-N Inst	2.37	6/19/97	6/24/97
IWT-N Inst	7.49	6/24/97	7/7/97
BWT-2-N Inst	2.19	7/7/97	7/9/97
BWT-1-N Inst	2.19	7/9/97	7/11/97
IWT-N Inst	3.13	7/10/97	7/16/97
BWT-3-N Inst	2.57	7/23/97	7/28/97
BWT-2-N Inst	2.5	7/24/97	7/29/97
BWT-1-N Inst	2.45	7/29/97	7/31/97
BWT-2-N Inst	2.49	7/31/97	8/4/97
IWT-N Inst	1.94	8/1/97	8/5/97
BWT-1-N Inst	2.32	8/13/97	8/15/97
IWT-N Inst	8.11	8/22/97	9/4/97
BW3-1-5-N Inst	2.06	9/5/97	9/9/97
BW2-1-5-N Inst	2.31	9/8/97	9/10/97
Blockout	6	12/15/97	12/19/97
FW1 SMA	21.38	7/7/98	8/5/98
FW2 SMA	14.92	7/31/98	8/21/99
FW4 SMA	10.96	8/24/98	9/9/99
FW5 SMA	18.43	10/1/98	10/28/98



SDC-92-390

South Shaft Activities	Work Days	Start	Finish
KickOff	487	1/2/95	12/1/96
BW3-3-5-S Inst	5.76	12/1/96	12/6/96
BW2-3-5-S Inst	2.26	12/3/96	12/6/96
BW3-4-5-S Inst	2.41	12/6/96	12/10/96
BW2-4-5-S Inst	1.95	12/9/96	12/11/96
BW1-3-5-S Inst	2.25	12/10/96	12/13/96
BW1-4-5-S Inst	2.24	12/11/96	12/13/96
BW1-3-S Inst	2.17	12/16/96	12/18/96
BW1-3-S Inst	1.93	12/17/96	12/19/96
BW1-3-S Inst	1.68	12/19/96	12/20/96
BW1-4-S Inst	1.59	12/20/96	12/26/96
BW1-4-S Inst	1.29	12/26/96	12/27/96
BW1-4-S Inst	1.29	12/27/96	12/30/96
BW1-4-S Inst	1.5	12/30/96	12/31/96
BW1-4-S Inst	1.46	12/31/96	1/3/97
BW1-4-S Inst	6.19	1/2/97	1/13/97
Blockout	6	1/6/97	1/10/97
BW1-4-S Inst	6.02	1/6/97	1/14/97
BWT-4-S Inst	2.37	1/14/97	1/16/97
BWT-5-S Inst	2.2	1/17/97	1/21/97
IWT-S Inst	3.14	1/22/97	1/27/97
BWT-4-S Inst	1.94	1/24/97	1/28/97
BWT-5-S Inst	1.98	1/29/97	1/31/97
IWT-S Inst	1.7	1/31/97	2/3/97
BWT-4-S Inst	2.17	2/3/97	2/5/97
BWT-5-S Inst	2.12	2/5/97	2/7/97
IWT-S Inst	83.29	2/7/97	6/5/97
Blockout	6	3/24/97	3/28/97
Blockout	6	5/19/97	5/23/97
BWT-3-S Inst	1.95	6/13/97	6/17/97
BWT-4-S Inst	1.76	6/17/97	6/19/97
BWT-5-S Inst	2.02	6/19/97	6/23/97
IWT-S Inst	2.8	6/20/97	6/25/97
BWT-3-S Inst	1.88	7/3/97	7/8/97
BWT-4-S Inst	2.29	7/8/97	7/10/97
BWT-5-S Inst	2.06	7/9/97	7/14/97
IWT-S Inst	7.75	7/15/97	7/24/97
BWT-4-S Inst	2.09	7/25/97	7/29/97
BWT-5-S Inst	1.97	7/28/97	7/30/97
BWT-4-S Inst	1.92	7/30/97	8/1/97
BWT-5-S Inst	1.96	8/1/97	8/4/97
IWT-S Inst	7.53	8/4/97	8/14/97
IWT-S Inst	7.28	8/14/97	8/25/97
BW3-5-5-S Inst	2.51	9/3/97	9/8/97
BW2-5-5-S Inst	1.61	9/4/97	9/8/97
IWT-S Inst	4.26	9/9/97	9/15/97
Blockout	6	10/20/97	10/24/97
FW1 SMA	8.13	10/20/98	10/30/98
FW2 SMA	9.55	11/10/98	11/24/98
FW4 SMA	8.72	12/1/98	12/14/98
FW5 SMA	17.89	1/4/99	1/28/99



4.2.1 Detailed Work Station Activity Schedules (8 sheets)

Column Headings:

Activity	Name of the operation being performed or module being constructed
Predecessor	ID of the activity that started the current activity. Negative numbers indicate activities that were started by hand.
ID	Unique identification number of the activity. The fractional part of the ID represents the sequence number for the activity (that is, .01 denotes the 1st time the activity was performed, .02 is the second , *etc.*) The whole part is simply the sum of the OA ID number and 1000 times the activity number.
Wrk Stat	The location of where the activity is taking place. 0 is IWT assembly, 1 is workstation 1 2 is workstation 2 3 is workstation 3 4 is workstation 4 6 is SMA assembly 7 is the north shaft 8 is the south shaft -1 is north and south shaft -2 is everywhere
Learn. Curve	The learning curve applied to the activity. 3=300%, etc.
Resource Waits	The total delay, in hours, in the activity due to a resource being unavailable. This time is not included in the activity work time.
Res Wait: 1,2,5	If the value was -aaa.bbb, then aaa denotes the ID of the 1st resource that caused a delay and bbb denotes the ID of the 2nd delaying resource. The minus sign indicates the presence of a 5th delaying resource in the activity.
Res Wait: 4,5,>	If the value was -ccc.ddd, then ccc denotes the ID of the 3rd resource that caused a delay and ddd denotes the ID of the 4th delaying resource. The minus sign indicates the presence of a 6th, or more, delaying resource.
Work Time	The amount of working time, in hours, from the start of the activity to its completion.
Over Time	The amount of overtime, in hours, from the start of the activity to its completion
Start	The starting date for the activity
Finish	The finishing date for the activity
Work Days	The amount of working time, in days, from the start of the activity to its completion

More detailed information concerning these workstation tube delivery requirements are in Section 4.2.2, Detailed Work Station Activities with Tube Delivery Requirements.

Activity	Predecessor	ID	Wrk Stat	Learn Curve	Resource Waits (hours)	Resource 1,2,5	Resource 3,4,>	Work Time	Over Time	Start	Finish	Work Days
KickOff	-.02	4000.01	0					3048.		01/02/95	07/01/96	381.
IWT Assembly	4000.01	81820.01	0	3.	1.3			207.1	8.1	07/01/96	07/26/96	19.
IWT Assembly	81829.01	81820.02	0	1.3	4.2			85.6	5.1	07/26/96	08/08/96	8.2
IWT Assembly	81829.02	81820.03	0	1.	4.3			68.8	11.5	08/08/96	08/16/96	6.1
IWT Assembly	81829.03	81820.04	0	1.	1.8			68.2	9.4	08/16/96	08/26/96	6.
Sojourn	81829.04	3000.05	0					1504.		08/26/96	05/23/97	188.
IWT Assembly	3000.05	81820.05	0	1.	5.2	51.		69.7	8.7	05/23/97	06/04/97	6.7
IWT Assembly	81829.05	81820.06	0	1.	8.	54.		68.	5.1	06/04/97	06/12/97	7.
IWT Assembly	81829.06	81820.07	0	1.	8.3	54.		68.	2.2	06/12/97	06/24/97	7.2
IWT Assembly	81829.07	81820.08	0	1.	3.			68.3	2.6	06/24/97	07/02/97	6.5
IWT Assembly	81829.08	81820.09	0	1.	4.3	104.		69.4	5.9	07/02/97	07/14/97	6.7
IWT Assembly	81829.09	81820.10	0	1.	9.7	54.054		68.6	6.6	07/14/97	07/23/97	7.
IWT Assembly	81829.10	81820.11	0	1.	10.5	54.		68.1	7.6	07/23/97	08/01/97	7.5
IWT Assembly	81829.11	81820.12	0	1.	8.8	54.		68.4	5.	08/01/97	08/12/97	7.1
IWT Assembly	81829.12	81820.13	0	1.	8.6	54.051		69.	5.9	08/12/97	08/22/97	7.2
IWT Assembly	81829.13	81820.14	0	1.	9.8	54.		67.8	8.8	08/22/97	09/03/97	7.
IWT Assembly	81829.14	81820.15	0	1.	6.	54.		68.5	3.6	09/03/97	09/11/97	6.9
IWT Assembly	81829.15	81820.16	0	1.	4.7			68.9	2.6	09/11/97	09/22/97	6.8

Activity	Predecessor	ID	Wrk Stat	Learn Curve	Resource Waits (hours)	Resource 1,2,5	Resource 3,4,>	Work Time	Over Time	Start	Finish	Work Days
KickOff	-.03	4000.02	1					8.		01/02/95	01/03/95	1.
Mod Workstation	4000.02	11225.01	1	1.				39.9		01/03/95	01/09/95	5.
BW2-3-5 Prod	11225.01	63405.01	1	3.				384.4	18.	01/09/95	03/02/95	38.
Mod Workstation	63423.01	11225.04	1	1.				40.9	.9	03/02/95	03/09/95	5.1
BW2-2/4-5 Prod	11225.04	62385.01	1	1.5				147.	11.1	03/09/95	03/29/95	13.5
BW2-2/4-5 Prod	62403.01	62385.02	1	1.3				122.3	9.4	03/29/95	04/13/95	11.3
Mod Workstation	62403.02	11225.07	1	1.				40.9	.2	04/13/95	04/20/95	5.1
BW2-3 BWT Prod	11225.07	65690.01	1	1.5	269.4	512.054	512.	211.4	4.2	04/20/95	07/11/95	55.7
BW2-3 BWT Prod	65711.01	65690.02	1	1.3				178.7	8.8	07/11/95	08/04/95	17.4
Sojourn	65711.02	3000.03	1					1488.		08/04/95	04/30/96	186.
BW2-3 BWT Prod	3000.03	65690.03	1	1.3				175.9	8.8	04/30/96	05/23/96	17.3
Mod Workstation	65711.03	11225.14	1	1.				39.7		05/23/96	05/31/96	5.
BW2-2/4 BWT Prd	11225.14	66720.01	1	1.3				138.7	12.7	05/31/96	06/19/96	13.1
BW2-2/4 BWT Prd	66741.01	66720.02	1	1.	.6			109.	8.3	06/19/96	07/05/96	10.6
BW2-2/4 BWT Prd	66741.02	66720.03	1	1.	13.5	51.051		109.6	5.7	07/05/96	07/23/96	12.6
BW2-2/4 BWT Prd	66741.03	66720.04	1	1.	8.	51.051		110.1	5.1	07/23/96	08/08/96	12.
BW2-2/4 BWT Prd	66741.04	66720.05	1	1.	12.1	51.054		110.	7.9	08/08/96	08/27/96	12.4
BW2-2/4 BWT Prd	66741.05	66720.06	1	1.	4.7	51.051		108.4	9.5	08/27/96	09/12/96	11.
Mod Workstation	66741.06	11225.16	1	1.				41.5		09/12/96	09/19/96	5.2
BW2-1/5 BWT Prd	11225.16	67790.01	1	1.3	12.4	51.051	51.513	78.9	4.7	09/19/96	10/02/96	9.5
BW2-1/5 BWT Prd	67811.01	67790.02	1	1.	4.1			62.3	2.3	10/02/96	10/11/96	7.
BW2-1/5 BWT Prd	67811.02	67790.03	1	1.	15.2	51.051	513.	62.7	4.6	10/11/96	10/24/96	8.2
BW2-1/5 BWT Prd	67811.03	67790.04	1	1.	10.2	513.		61.7	3.9	10/24/96	11/04/96	7.4
BW2-1/5 BWT Prd	67811.04	67790.05	1	1.	18.9	513.		62.8	2.3	11/04/96	11/15/96	8.8
BW2-1/5 BWT Prd	67811.05	67790.06	1	1.	8.5			62.6	3.2	11/15/96	11/26/96	7.4
WS1 Phase1 Done	67790.06	101000.01	1							11/26/96	11/26/96	
BW2-1/5 BWT Prd	67811.06	67790.07	1	1.	11.	- 54.513	104.513	63.1	3.2	11/26/96	12/10/96	7.8
BW2-1/5 BWT Prd	67811.07	67790.08	1	1.	5.9	104.513	104.513	63.3	3.1	12/10/96	12/19/96	7.2
BW2-1/5 BWT Prd	67811.08	67790.09	1	1.	13.	-104.513	54.104	62.4	2.	12/19/96	01/03/97	8.1
BW2-1/5 BWT Prd	67811.09	67790.10	1	1.	36.1	105.104	54.	63.2	4.	01/03/97	01/20/97	10.8
BW2-1/5 BWT Prd	67811.10	67790.11	1	1.	11.2	- 51.051	- 51.054	63.3	5.	01/20/97	01/30/97	7.8
BW2-1/5 BWT Prd	67811.11	67790.12	1	1.	7.2	513.		62.5	2.2	01/30/97	02/10/97	7.3
BW2-1/5 BWT Prd	67811.12	67790.13	1	1.	19.7	513.		62.4	3.	02/10/97	02/21/97	8.9
BW2-1/5 BWT Prd	67811.13	67790.14	1	1.	11.6	513.		62.3	1.3	02/21/97	03/05/97	8.
Mod Workstation	67811.14	11225.23	1	1.				41.1		03/05/97	03/12/97	5.1
BW2-1/5-5 Prod	11225.23	61365.01	1	1.	1.4			53.5	2.7	03/12/97	03/20/97	5.5
BW2-1/5-5 Prod	61383.01	61365.02	1	1.	3.8	51.		54.5	3.2	03/20/97	03/27/97	5.8
Mod Workstation	61383.02	11225.24	1	1.				40.5		03/27/97	04/03/97	5.1
FW1 Assembly	11225.24	91840.02	1	1.5				118.8	11.4	04/03/97	04/18/97	11.
FW1 Assembly	91858.02	91840.03	1	1.3				99.	8.9	04/18/97	05/02/97	9.6
FW1 Assembly	91858.03	91840.04	1	1.	3.8	51.		80.5	5.5	05/02/97	05/14/97	8.3
FW1 Assembly	91858.04	91840.05	1	1.	1.6			79.5	8.8	05/14/97	05/27/97	7.4
FW1 Assembly	91858.05	91840.06	1	1.	9.2			80.4	7.4	05/27/97	06/09/97	8.7
FW1 Assembly	91858.06	91840.07	1	1.	11.5	51.104	54.	78.8	3.	06/09/97	06/20/97	9.4
FW1 Assembly	91858.07	91840.08	1	1.	6.6	104.		79.7	5.8	06/20/97	07/03/97	8.6
FW1 Assembly	91858.08	91840.09	1	1.	1.4	51.		80.6	5.	07/03/97	07/16/97	8.
FW1 Assembly	91858.09	91840.10	1	1.	26.3	51.		79.2	5.8	07/16/97	07/30/97	10.8
FW1 Assembly	91858.10	91840.11	1	1.	10.7	51.051	54.	80.7	5.8	07/30/97	08/13/97	9.2
FW1 Assembly	91858.11	91840.12	1	1.	15.8	54.		80.	2.9	08/13/97	08/27/97	10.
FW1 Assembly	91858.12	91840.13	1	1.	5.3			80.	4.7	08/27/97	09/09/97	8.4
FW1 Assembly	91858.13	91840.14	1	1.	13.9	51.		79.4	2.9	09/09/97	09/23/97	9.8
FW1 Assembly	91858.14	91840.15	1	1.	11.3			79.4	5.3	09/23/97	10/06/97	9.1
FW1 Assembly	91858.15	91840.16	1	1.	4.1			79.5	7.1	10/06/97	10/16/97	8.

Activity	Predecessor	ID	Wrk Stat	Learn Curve	Resource Waits (hours)	Resource 1,2,5	Resource 3,4,>	Work Time	Over Time	Start	Finish	Work Days
KickOff	-.04	4000.03	2					8.		01/02/95	01/03/95	1.
Mod Workstation	4000.03	11225.02	2	1.				39.8		01/03/95	01/09/95	5.
BW3-3-5 Prod	11225.02	73505.01	2	3.				601.5	31.9	01/09/95	04/05/95	61.4
Mod Workstation	73541.01	11225.06	2	1.				41.9		04/05/95	04/12/95	5.2
BW3-2/4-5 Prod	11225.06	72465.01	2	1.5				260.2	9.7	04/12/95	05/17/95	24.9
BW3-2/4-5 Prod	72501.01	72465.02	2	1.				176.7	11.2	05/17/95	06/12/95	16.6
Mod Workstation	72501.02	11225.10	2	1.				36.5		06/12/95	06/16/95	4.6
BW3-3 BWT Prod	11225.10	75645.01	2	1.5				289.9	10.2	06/16/95	07/07/95	14.6
BW3-3 BWT Prod	65709.01	75645.02	2	1.3				239.9	3.	07/10/95	07/26/95	12.
Sojourn	65709.02	3000.02	2					1496.		08/02/95	04/28/96	187.
BW3-3 BWT Prod	3000.02	75645.03	2	1.3				241.	2.4	04/28/96	05/14/96	12.4
Mod Workstation	65709.03	11225.13	2	1.				42.		05/22/96	05/30/96	5.3
BW3-2/4 BWT Prd	11225.13	76600.01	2	1.3				211.7	5.7	05/30/96	06/13/96	10.2
BW3-2/4 BWT Prd	66739.01	76600.02	2	1.				168.6	4.3	06/18/96	06/28/96	8.3
BW3-2/4 BWT Prd	66739.02	76600.03	2	1.	14.7			169.3	4.9	07/03/96	07/17/96	9.1
BW3-2/4 BWT Prd	66739.03	76600.04	2	1.	14.4	51.051		169.	2.6	07/22/96	08/02/96	9.2
BW3-2/4 BWT Prd	66739.04	76600.05	2	1.	15.			167.6	6.2	08/07/96	08/20/96	9.1
BW3-2/4 BWT Prd	66739.05	76600.06	2	1.	2.8	51.051	51.051	168.4	5.4	08/26/96	09/06/96	8.4
Mod Workstation	66739.06	11225.15	2	1.				38.2	1.9	09/11/96	09/17/96	4.8
BW3-1/5 BWT Prd	11225.15	77750.01	2	1.3	11.3			186.	2.3	09/17/96	10/01/96	9.8
BW3-1/5 BWT Prd	67809.01	77750.02	2	1.	5.5			148.	4.	10/01/96	10/11/96	7.6
BW3-1/5 BWT Prd	67809.02	77750.03	2	1.	12.6	51.		148.1	2.5	10/11/96	10/23/96	8.1
BW3-1/5 BWT Prd	67809.03	77750.04	2	1.	1.1	51.		148.9	6.3	10/23/96	11/01/96	7.2
BW3-1/5 BWT Prd	67809.04	77750.05	2	1.	17.8	51.		149.1	4.4	11/04/96	11/14/96	8.3
BW3-1/5 BWT Prd	67809.05	77750.06	2	1.	2.7			147.8	11.1	11/14/96	11/25/96	7.
WS2 Phase1 Done	67790.06	102000.01	2							11/26/96	11/26/96	
BW3-1/5 BWT Prd	67809.06	77750.07	2	1.				149.5	4.6	11/26/96	12/09/96	7.2
BW3-1/5 BWT Prd	67809.07	77750.08	2	1.				148.2	6.3	12/10/96	12/19/96	7.
BW3-1/5 BWT Prd	67809.08	77750.09	2	1.	5.	51.051		148.4	4.4	12/19/96	01/02/97	7.4
BW3-1/5 BWT Prd	67809.09	77750.10	2	1.	1.8			148.6	5.7	01/03/97	01/14/97	7.3
BW3-1/5 BWT Prd	67809.10	77750.11	2	1.	9.8	51.051		147.6	3.2	01/17/97	01/29/97	7.8
BW3-1/5 BWT Prd	67809.11	77750.12	2	1.	1.3			147.6	2.2	01/29/97	02/07/97	7.4
BW3-1/5 BWT Prd	67809.12	77750.13	2	1.	22.2	- 51.051	51.051	148.6	3.1	02/10/97	02/20/97	8.7
BW3-1/5 BWT Prd	67809.13	77750.14	2	1.	8.4			148.2	6.8	02/21/97	03/04/97	7.5
Mod Workstation	67809.14	11225.22	2	1.				36.6		03/05/97	03/11/97	4.6
BW3-1/5-5 Prod	11225.22	71425.01	2	1.	10.1	51.		158.9	13.7	03/11/97	04/02/97	16.
BW3-1/5-5 Prod	71461.01	71425.02	2	1.	2.7	51.051		158.5	11.6	04/02/97	04/23/97	15.1
Mod Workstation	71461.02	11225.25	2	1.				42.3	.6	04/23/97	04/30/97	5.3
FW2 Assembly	11225.25	92870.01	2	1.5	5.9	51.054		253.2	13.	04/30/97	06/06/97	25.4
FW2 Assembly	92900.01	92870.02	2	1.3	21.8	51.		211.8	8.6	06/06/97	07/11/97	23.9
FW2 Assembly	92900.02	92870.03	2	1.	20.7			168.8	15.	07/11/97	08/06/97	18.5
FW2 Assembly	92900.03	92870.04	2	1.	25.9	54.		168.9	12.2	08/06/97	09/04/97	19.6
FW2 Assembly	92900.04	92870.05	2	1.	19.	51.051	51.	170.	13.3	09/04/97	09/30/97	18.5
FW2 Assembly	92900.05	92870.06	2	1.	8.9	51.051	54.	168.5	10.3	09/30/97	10/24/97	17.6
FW2 Assembly	92900.06	92870.07	2	1.				168.1	9.	10/24/97	11/18/97	16.7
FW2 Assembly	92900.07	92870.08	2	1.				169.4	8.	11/18/97	12/12/97	16.8
FW2 Assembly	92900.08	92870.09	2	1.				169.	9.9	12/12/97	01/09/98	16.5
FW2 Assembly	92900.09	92870.10	2	1.				169.	9.7	01/09/98	02/02/98	16.4
FW2 Assembly	92900.10	92870.11	2	1.				169.8	10.8	02/02/98	02/25/98	16.6
FW2 Assembly	92900.11	92870.12	2	1.				169.7	10.3	02/25/98	03/19/98	16.5
FW2 Assembly	92900.12	92870.13	2	1.				169.8	12.6	03/19/98	04/13/98	16.2
FW2 Assembly	92900.13	92870.14	2	1.				169.2	9.7	04/13/98	05/05/98	16.3
FW2 Assembly	92900.14	92870.15	2	1.				167.5	11.8	05/05/98	05/28/98	16.
FW2 Assembly	92900.15	92870.16	2	1.				170.2	6.1	05/28/98	06/22/98	17.3

Activity	Predecessor	ID	Wrk Stat	Learn Curve	Resource Waits (hours)	Resource 1,2,5	Resource 3,4,>	Work Time	Over Time	Start	Finish	Work Days
KickOff	-.05	4000.04	3					848.		01/02/95	05/31/95	106.
Mod Workstation	4000.04	11225.08	3	1.				37.3		05/31/95	06/06/95	4.7
FW1 Assembly	11225.08	91840.01	3	3.				238.6	13.8	06/06/95	07/12/95	25.3
Mod Workstation	91858.01	11225.11	3	1.				42.9		07/12/95	07/20/95	5.4
FW5 Assembly	11225.11	95950.01	3	3.				513.3	27.5	07/20/95	10/02/95	51.1
Sojourn	95980.01	3000.04	3					1504.		10/02/95	06/28/96	188.
Mod Workstation	95980.01	11225.12	3	1.				39.6		10/02/95	10/09/95	5.
BW1-3 BWT Prod	3000.04	53260.04	3	1.3	18.4			179.8	7.5	06/28/96	07/30/96	20.7
BW1-3 BWT Prod	53290.04	53260.05	3	1.	12.9	51.051	51.	146.4	6.5	07/30/96	08/21/96	16.6
BW1-3 BWT Prod	53290.05	53260.06	3	1.	4.	51.		145.4	5.9	08/21/96	09/13/96	15.4
BW1-3 BWT Prod	53290.06	53260.07	3	1.	14.3	51.		145.8	11.5	09/13/96	10/07/96	16.3
WS3 Phase1 Done	53260.07	103000.01	3							10/07/96	10/07/96	
Mod Workstation	53290.07	11225.17	3	1.				40.3		10/07/96	10/14/96	5.
BW1-2/4-5	11225.17	54295.01	3	1.3	3.4	51.051	51.051	140.5	12.4	10/14/96	11/01/96	14.1
BW1-2/4-5	54325.01	54295.02	3	1.	3.7			113.1	5.9	11/01/96	11/19/96	11.9
Mod Workstation	54325.02	11225.19	3	1.				40.3		11/19/96	11/26/96	5.
BW2-3 BWT Prod	11225.19	65690.04	3	1.3	1.1			179.9	10.	11/26/96	12/26/96	18.2
BW2-3 BWT Prod	65711.04	65690.05	3	1.	1.7	51.104		144.1	5.2	12/26/96	01/17/97	14.5
BW2-3 BWT Prod	65711.05	65690.06	3	1.	5.9	51.051	51.051	141.6	13.3	01/17/97	02/06/97	14.
BW2-3 BWT Prod	65711.06	65690.07	3	1.	3.	51.		141.9	13.7	02/06/97	02/26/97	14.
Mod Workstation	65711.07	11225.21	3	1.				40.5	1.5	02/26/97	03/04/97	5.1
BW2-2/4 BWT Prd	11225.21	66720.07	3	1.3	2.7	51.051		136.9	15.	03/04/97	03/24/97	13.
BW2-2/4 BWT Prd	66741.07	66720.08	3	1.	7.9	51.		109.7	6.	03/24/97	04/08/97	11.7
BW2-2/4 BWT Prd	66741.08	66720.09	3	1.	1.2			109.9	6.7	04/08/97	04/23/97	10.9
BW2-2/4 BWT Prd	66741.09	66720.10	3	1.	.1			109.2	8.8	04/23/97	05/08/97	10.5
BW2-2/4 BWT Prd	66741.10	66720.11	3	1.	.1			109.	3.4	05/08/97	05/23/97	11.
BW2-2/4 BWT Prd	66741.11	66720.12	3	1.	10.5			108.8	6.9	05/23/97	06/11/97	12.3
BW2-2/4 BWT Prd	66741.12	66720.13	3	1.	14.4	51.051		107.9	8.	06/11/97	06/27/97	12.4
BW2-2/4 BWT Prd	66741.13	66720.14	3	1.	8.	51.054		110.	7.9	06/27/97	07/16/97	11.7
Mod Workstation	66741.14	11225.27	3	1.				40.3		07/16/97	07/23/97	5.
FW4 Assembly	11225.27	94920.01	3	1.5	8.4	51.		119.9	4.6	07/23/97	08/11/97	13.2
FW4 Assembly	94938.01	94920.02	3	1.3	15.9	51.051	51.	100.1	6.2	08/11/97	08/27/97	12.1
FW4 Assembly	94938.02	94920.03	3	1.	11.6	51.		79.7	4.9	08/27/97	09/11/97	9.2
FW4 Assembly	94938.03	94920.04	3	1.	11.3	51.051		80.3	3.7	09/11/97	09/24/97	9.3
FW4 Assembly	94938.04	94920.05	3	1.	6.3			80.4	6.5	09/24/97	10/06/97	8.5
FW4 Assembly	94938.05	94920.06	3	1.	3.2	51.051	51.	79.7	7.3	10/06/97	10/17/97	8.2
FW4 Assembly	94938.06	94920.07	3	1.				79.9	5.3	10/17/97	10/28/97	7.8
FW4 Assembly	94938.07	94920.08	3	1.				80.2	5.	10/28/97	11/07/97	8.
FW4 Assembly	94938.08	94920.09	3	1.				80.2	4.7	11/07/97	11/19/97	7.8
FW4 Assembly	94938.09	94920.10	3	1.				80.9	5.9	11/19/97	12/03/97	7.8
FW4 Assembly	94938.10	94920.11	3	1.				80.8	3.9	12/03/97	12/15/97	8.
FW4 Assembly	94938.11	94920.12	3	1.				79.1	6.3	12/15/97	12/29/97	7.7
FW4 Assembly	94938.12	94920.13	3	1.				81.4	6.2	12/29/97	01/08/98	7.8
FW4 Assembly	94938.13	94920.14	3	1.				81.1	5.8	01/08/98	01/20/98	7.8
FW4 Assembly	94938.14	94920.15	3	1.				80.3	5.9	01/20/98	01/30/98	7.7
FW4 Assembly	94938.15	94920.16	3	1.				80.6	3.5	01/30/98	02/11/98	8.

Activity	Predecessor	ID	Wrk Stat	Learn Curve	Resource Waits (hours)	Resource 1,2,5	Resource 3,4,>	Work Time	Over Time	Start	Finish	Work Days
KickOff	-.06	4000.05	4					8.		01/02/95	01/03/95	1.
Mod Workstation	4000.05	11225.03	4	1.				39.2		01/03/95	01/09/95	4.9
BW1-3-5 Prod	11225.03	55551.01	4	3.				431.6	19.	01/09/95	03/15/95	46.1
Mod Workstation	55581.01	11225.05	4	1.				40.5	.8	03/15/95	03/21/95	5.1
BW1-3 BWT Prod	11225.05	53260.01	4	1.5				217.4	5.5	03/21/95	04/24/95	22.9
BW1-3 BWT Prod	53290.01	53260.02	4	1.3				181.2	11.1	04/24/95	05/18/95	18.4
BW1-3 BWT Prod	53290.02	53260.03	4	1.				146.6	10.8	05/18/95	06/09/95	14.7
Sojourn	53290.03	3000.01	4					1480.		06/09/95	03/05/96	185.
Mod Workstation	53290.03	11225.09	4	1.				38.6		06/09/95	06/15/95	4.8
BW1-2/4 BWT	3000.01	52226.01	4	1.3				142.1	6.9	03/05/96	03/25/96	14.7
BW1-2/4 BWT	52256.01	52226.02	4	1.				113.1	7.3	03/25/96	04/10/96	11.3
BW1-2/4 BWT	52256.02	52226.03	4	1.				112.2	8.1	04/10/96	04/25/96	11.2
BW1-2/4 BWT	52256.03	52226.04	4	1.				113.1	5.2	04/25/96	05/10/96	11.6
BW1-2/4 BWT	52256.04	52226.05	4	1.				112.3	7.2	05/10/96	05/29/96	11.2
BW1-2/4 BWT	52256.05	52226.06	4	1.				112.5	9.2	05/29/96	06/13/96	11.1
BW1-2/4 BWT	52256.06	52226.07	4	1.				112.7	6.9	06/13/96	06/28/96	11.6
BW1-2/4 BWT	52256.07	52226.08	4	1.	14.2	51.051		112.3	6.7	06/28/96	07/18/96	13.1
BW1-2/4 BWT	52256.08	52226.09	4	1.	14.4			114.2	8.8	07/18/96	08/07/96	13.2
BW1-2/4 BWT	52256.09	52226.10	4	1.	15.1	51.		111.5	10.2	08/07/96	08/26/96	13.
BW1-2/4 BWT	52256.10	52226.11	4	1.	3.5	51.051	51.	112.	7.3	08/26/96	09/11/96	11.8
BW1-2/4 BWT	52256.11	52226.12	4	1.	8.4	51.051	51.	111.8	12.6	09/11/96	09/27/96	11.8
BW1-2/4 BWT	52256.12	52226.13	4	1.	8.6			113.2	10.2	09/27/96	10/15/96	12.1
BW1-2/4 BWT	52256.13	52226.14	4	1.	6.	51.		112.8	8.4	10/15/96	10/31/96	12.
WS4 Phase1 Done	52226.14	104000.01	4							10/31/96	10/31/96	
Mod Workstation	52256.14	11225.18	4	1.				40.		10/31/96	11/07/96	5.
BW3-3 BWT Prod	11225.18	75645.04	4	1.3	.8			240.5	4.	11/07/96	11/25/96	12.2
BW3-3 BWT Prod	65709.04	75645.05	4	1.	7.9	51.		193.3	5.7	12/23/96	01/08/97	9.9
BW3-3 BWT Prod	65709.05	75645.06	4	1.	9.5	51.051		192.	7.	01/16/97	01/29/97	9.8
BW3-3 BWT Prod	65709.06	75645.07	4	1.	8.6			192.	8.5	02/05/97	02/18/97	9.7
Mod Workstation	65709.07	11225.20	4	1.				40.4	.4	02/24/97	03/03/97	5.
BW3-2/4 BWT Prd	11225.20	76600.07	4	1.3	25.1			211.7	7.	03/03/97	03/19/97	11.7
BW3-2/4 BWT Prd	66739.07	76600.08	4	1.	8.6	51.		169.3	1.7	03/21/97	04/02/97	8.9
BW3-2/4 BWT Prd	66739.08	76600.09	4	1.	1.7	51.		167.4	7.2	04/07/97	04/17/97	8.2
BW3-2/4 BWT Prd	66739.09	76600.10	4	1.	1.9			168.2	10.1	04/22/97	05/02/97	8.1
BW3-2/4 BWT Prd	66739.10	76600.11	4	1.	.1	51.		168.	5.	05/07/97	05/19/97	8.2
BW3-2/4 BWT Prd	66739.11	76600.12	4	1.	16.6	51.		168.1	7.6	05/22/97	06/05/97	9.2
BW3-2/4 BWT Prd	66739.12	76600.13	4	1.	11.6	51.051		169.4	3.6	06/10/97	06/23/97	9.
BW3-2/4 BWT Prd	66739.13	76600.14	4	1.	12.4			170.	7.4	06/26/97	07/10/97	8.9
Mod Workstation	66739.14	11225.26	4	1.				40.5		07/15/97	07/22/97	5.1
FW5 Assembly	11225.26	95950.02	4	1.5	24.6	51.051	51.	258.1	14.6	07/22/97	08/29/97	27.6
FW5 Assembly	95980.02	95950.03	4	1.3	17.8	51.		214.6	12.8	08/29/97	10/01/97	22.3
FW5 Assembly	95980.03	95950.04	4	1.	5.4	51.		171.5	10.4	10/01/97	10/24/97	16.9
FW5 Assembly	95980.04	95950.05	4	1.				170.4	10.9	10/24/97	11/17/97	16.
FW5 Assembly	95980.05	95950.06	4	1.				170.6	7.9	11/17/97	12/12/97	16.6
FW5 Assembly	95980.06	95950.07	4	1.				171.	11.8	12/12/97	01/08/98	16.
FW5 Assembly	95980.07	95950.08	4	1.				172.5	5.2	01/08/98	01/30/98	16.9
FW5 Assembly	95980.08	95950.09	4	1.				170.5	10.2	01/30/98	02/24/98	16.3
FW5 Assembly	95980.09	95950.10	4	1.				169.2	7.1	02/24/98	03/18/98	16.3
FW5 Assembly	95980.10	95950.11	4	1.				170.7	6.7	03/18/98	04/09/98	16.6
FW5 Assembly	95980.11	95950.12	4	1.				169.9	4.8	04/09/98	05/04/98	16.5
FW5 Assembly	95980.12	95950.13	4	1.				170.8	6.7	05/04/98	05/27/98	16.4
FW5 Assembly	95980.13	95950.14	4	1.				170.4	12.2	05/27/98	06/19/98	16.2
FW5 Assembly	95980.14	95950.15	4	1.				170.5	7.8	06/19/98	07/14/98	16.3
FW5 Assembly	95980.15	95950.16	4	1.				170.5	9.2	07/14/98	08/05/98	16.1

Activity	Predecessor	ID	Wrk Stat	Learn Curve	Resource Waits (hours)	Resource 1,2,5	Resource 3,4,>	Work Time	Over Time	Start	Finish	Work Days
KickOff	-.08	4000.07	6					6920.		01/02/95	06/01/98	865.
FW1 SMSA	4000.07	96000.01	6	3.				277.3	11.8	06/01/98	07/07/98	25.
FW2 SMSA	96015.01	97020.01	6	1.5				204.4	6.8	07/07/98	07/31/98	19.
FW4 SMSA	97035.01	99040.01	6	1.3				178.2	11.3	07/31/98	08/24/98	15.7
FW5 SMSA	99055.01	100060.01	6	1.3				297.3	7.2	08/24/98	10/01/98	27.
FW1 SMSA	100075.01	96000.02	6	1.5	1.3	104.		137.9	7.5	10/01/98	10/20/98	12.4
FW2 SMSA	96015.02	97020.02	6	1.3				170.7	6.7	10/20/98	11/10/98	15.5
FW4 SMSA	97035.02	99040.02	6	1.				146.7	8.6	11/10/98	12/01/98	13.
FW5 SMSA	99055.02	100060.02	6	1.				236.1	11.	12/01/98	01/04/99	21.

Activity	Predecessor	ID	Wrk Stat	Learn Curve	Resource Waits (hours)	Resource 1,2,5	Resource 3,4,>	Work Time	Over Time	Start	Finish	Work Days
BW3-2-5-N Inst	33153.01	42010.01	7	1.5	1.6	302.053		21.	1.	12/04/96	12/09/96	2.7
BW2-2-5-N Inst	42013.01	32170.01	7	1.3				17.8	.5	12/05/96	12/09/96	2.1
BW1-2-5-N Inst	34133.01	25490.01	7	1.	1.2	57.		14.1	.4	12/10/96	12/11/96	1.8
BW1-3-N Inst	27453.01	22510.01	7	1.5	.7	53.		21.5	.6	12/12/96	12/17/96	2.7
BW1-3-N Insl	22513.01	22510.02	7	1.3				18.	1.	12/13/96	12/17/96	2.1
BW1-3-N Inst	23473.01	22510.03	7	1.	1.3	57.		14.1	.5	12/17/96	12/18/96	1.8
BW1-3-N Inst	23473.02	22510.04	7	1.	2.2	57.104	57.	14.3	.2	12/18/96	12/20/96	2.
BW1-2-N Inst	23473.03	21530.01	7	1.5	.6	57.		21.2	.9	12/19/96	12/26/96	2.6
BW1-2-N Inst	24433.01	21530.02	7	1.3	.8	302.057		17.9	1.8	12/23/96	12/27/96	2.1
BW1-2-N Inst	24433.02	21530.03	7	1.	1.5	54.302	57.	14.2	2.	12/26/96	12/30/96	1.7
BW1-2-N Inst	24433.03	21530.04	7	1.		302.		14.3	1.5	12/27/96	12/31/96	1.6
BW1-2-N Inst	24433.04	21530.05	7	1.				14.2	.1	12/31/96	01/02/97	1.7
BW1-2-N Inst	24433.05	21530.06	7	1.	40.9	57.107		14.2	.8	01/02/97	01/13/97	6.8
BW1-2-N Inst	24433.06	21530.07	7	1.	39.9	302.057	56.	14.2	.6	01/03/97	01/14/97	6.7
Blockout		1000.01	-1			- 52.053	- 55.056	48.		01/06/97	01/10/97	6.
BWT-3-N Inst	24433.07	15610.01	7	1.5	.3	302.057		29.1	2.1	01/13/97	01/16/97	3.4
BWT-2-N Inst	17653.01	14590.01	7	1.	1.8	302.057	53.	19.5	.4	01/15/97	01/17/97	2.6
BWT-1-N Inst	14593.01	13570.01	7	1.				19.4	2.2	01/16/97	01/20/97	2.1
IWT-N Inst	18673.01	82800.01	7	3.				45.3	5.8	01/20/97	01/24/97	5.2
BWT-3-N Inst	83823.01	15610.02	7	1.	5.3	56.		19.5	1.5	01/23/97	01/28/97	2.9
BWT-2-N Inst	17653.02	14590.02	7	1.	3.8	302.057	53.	19.2	.3	01/27/97	01/29/97	2.8
BWT-1-N Inst	14593.02	13570.02	7	1.	1.2	57.		19.4	.3	01/28/97	01/30/97	2.5
IWT-N Inst	18673.02	82800.02	7	1.3	1.2	302.		18.7	1.5	01/29/97	02/03/97	2.3
BWT-3-N Inst	83823.02	15610.03	7	1.				19.3	1.1	01/31/97	02/05/97	2.3
BWT-2-N Inst	17653.03	14590.03	7	1.				19.3	.7	02/04/97	02/06/97	2.3
BWT-1-N Inst	18673.03	13570.03	7	1.				19.4	.2	02/06/97	02/10/97	2.4
IWT-N Inst	83823.03	82800.03	7	1.	49.8	201.054	201.	15.1	.5	06/04/97	06/16/97	8.
BWT-3-N Inst	16633.01	15610.04	7	1.	1.2	57.		19.2	1.1	06/16/97	06/19/97	2.4
BWT-2-N Inst	17653.04	14590.04	7	1.	1.3	57.		19.5	1.1	06/18/97	06/20/97	2.4
BWT-1-N Inst	18673.04	13570.04	7	1.				19.7	.5	06/19/97	06/24/97	2.4
IWT-N Inst	83823.04	82800.04	7	1.	46.3	201.		15.1	1.4	06/24/97	07/07/97	7.5
BWT-2-N Inst	16633.02	14590.05	7	1.				19.3	1.6	07/07/97	07/09/97	2.2
BWT-1-N Inst	17653.05	13570.05	7	1.				19.4	1.7	07/09/97	07/11/97	2.2
IWT-N Inst	18673.05	82800.05	7	1.	10.5	201.		15.2	.6	07/10/97	07/16/97	3.1
BWT-3-N Inst	83823.05	15610.05	7	1.	2.1	57.053		19.3	.3	07/23/97	07/28/97	2.6
BWT-2-N Inst	15613.05	14590.06	7	1.	2.7	104.057		19.3	1.8	07/24/97	07/29/97	2.5
BWT-1-N Inst	18673.06	13570.06	7	1.	.8	57.		19.4	.4	07/29/97	07/31/97	2.5
BWT-2-N Inst	17653.07	14590.07	7	1.	1.1	57.		19.5	.5	07/31/97	08/04/97	2.5
IWT-N Inst	18673.07	82800.06	7	1.	.9	302.057		15.1	.3	08/01/97	08/05/97	1.9
BWT-1-N Inst	83823.06	13570.07	7	1.				19.3	.6	08/13/97	08/15/97	2.3
IWT-N Inst	83823.07	82800.07	7	1.	50.2	201.054		15.	.3	08/22/97	09/04/97	8.1
BW3-1-5-N Inst	35113.01	41090.01	7	1.	3.1	54.		14.	.4	09/05/97	09/09/97	2.1
BW2-1-5-N Inst	41093.01	31190.01	7	1.3	1.5	57.		17.7	.4	09/08/97	09/10/97	2.3
Blockout		1000.05	7			53.056		48.		12/15/97	12/19/97	6.
FW1 SMA	96015.01	86100.01	7	3.				223.9	19.3	07/07/98	08/05/98	21.4
FW2 SMA	97035.01	87160.01	7	1.5				148.4	9.8	07/31/98	08/21/98	14.9
FW4 SMA	99055.01	89230.01	7	1.3				112.2	6.1	08/24/98	09/09/98	11.
FW5 SMA	100075.01	90290.01	7	1.3	1.7	55.052	104.	186.7	19.6	10/01/98	10/28/98	18.4

Activity	Predecessor	ID	Wrk Stat	Learn Curve	Resource Waits (hours)	Resource 1,2,5	Resource 3,4,>	Work Time	Over Time	Start	Finish	Work Days
KickOff	-.07	4000.06	8					3896.		01/02/95	12/01/96	487.
BW3-3-5-S Inst	4000.06	43070.01	8	3.				41.	1.7	12/01/96	12/06/96	5.8
BW2-3-5-S Inst	43073.01	33150.01	8	1.5	.6	55.104		19.4	1.3	12/03/96	12/06/96	2.3
BW3-4-5-S Inst	32173.01	44050.01	8	1.5	.2	302.057		20.4	.8	12/06/96	12/10/96	2.4
BW2-4-5-S Inst	44053.01	34130.01	8	1.5	.2	57.		16.2	.2	12/09/96	12/11/96	2.
BW1-3-5-S Inst	25493.01	26400.01	8	1.5				19.4	.7	12/10/96	12/13/96	2.3
BW1-4-5-S Inst	26403.01	27450.01	8	1.5				19.	.5	12/11/96	12/13/96	2.2
BW1-3-S Inst	22517.01	23470.01	8	1.5				19.2	1.3	12/16/96	12/18/96	2.2
BW1-3-S Inst	22513.03	23470.02	8	1.3	.8	57.		15.9	.8	12/17/96	12/19/96	1.9
BW1-3-S Inst	22513.04	23470.03	8	1.	1.	54.		12.9		12/19/96	12/20/96	1.7
BW1-4-S Inst	21533.01	24430.01	8	1.3				13.8	.6	12/20/96	12/26/96	1.6
BW1-4-S Inst	21533.02	24430.02	8	1.		104.		10.8		12/26/96	12/27/96	1.3
BW1-4-S Inst	21533.03	24430.03	8	1.				10.8	.1	12/27/96	12/30/96	1.3
BW1-4-S Inst	21533.04	24430.04	8	1.	1.5	57.		11.	.1	12/30/96	12/31/96	1.5
BW1-4-S Inst	21533.05	24430.05	8	1.	1.4	57.		10.8	.2	12/31/96	01/03/97	1.5
BW1-4-S Inst	21533.06	24430.06	8	1.	39.9	104.107		10.8	.8	01/02/97	01/13/97	6.2
Blockout		1000.01	-1			- 52.053	- 55.056	48.		01/06/97	01/10/97	6.
BW1-4-S Inst	21533.07	24430.07	8	1.	38.1	57.057	104.	10.7	.2	01/06/97	01/14/97	6.
BWT-4-S Inst	15613.01	17650.01	8	1.3				20.6	1.4	01/14/97	01/16/97	2.4
BWT-5-S Inst	13573.01	18670.01	8	1.	2.4	54.057	104.	16.	.5	01/17/97	01/21/97	2.2
IWT-S Inst	82803.01	83820.01	8	1.5	6.7	55.		19.9	1.2	01/22/97	01/27/97	3.1
BWT-4-S Inst	15613.02	17650.02	8	1.				16.4	.5	01/24/97	01/28/97	1.9
BWT-5-S Inst	13573.02	18670.02	8	1.		104.		16.4	.3	01/29/97	01/31/97	2.
IWT-S Inst	82803.02	83820.02	8	1.	.9	55.		13.2	.4	01/31/97	02/03/97	1.7
BWT-4-S Inst	15613.03	17650.03	8	1.	1.9	57.104		16.4	.6	02/03/97	02/05/97	2.2
BWT-5-S Inst	14593.03	18670.03	8	1.	1.2	57.		16.3	.2	02/05/97	02/07/97	2.1
IWT-S Inst	13573.03	83820.03	8	1.	653.4	201.054		13.3	.2	02/07/97	06/05/97	83.3
Blockout		1000.02	8			52.055		48.		03/24/97	03/28/97	6.
Blockout		1000.03	8			52.055		48.		05/19/97	05/23/97	6.
BWT-3-S Inst	82803.03	16630.01	8	1.				16.3	.3	06/13/97	06/17/97	2.
BWT-4-S Inst	15613.04	17650.04	8	1.	.3	54.		16.4	2.3	06/17/97	06/19/97	1.8
BWT-5-S Inst	14593.04	18670.04	8	1.	.4	104.		16.6	.5	06/19/97	06/23/97	2.
IWT-S Inst	13573.04	83820.04	8	1.	10.3	201.		13.1	.8	06/20/97	06/25/97	2.8
BWT-3-S Inst	82803.04	16630.02	8	1.				16.5	1.1	07/03/97	07/08/97	1.9
BWT-4-S Inst	14593.05	17650.05	8	1.	2.9	54.		16.7	.8	07/08/97	07/10/97	2.3
BWT-5-S Inst	13573.05	18670.05	8	1.	1.4	57.		16.1	.7	07/09/97	07/14/97	2.1
IWT-S Inst	82803.05	83820.05	8	1.	49.	201.054	201.	13.4	.3	07/15/97	07/24/97	7.8
BWT-4-S Inst	14593.06	17650.06	8	1.	1.2	54.		16.5	.6	07/25/97	07/29/97	2.1
BWT-5-S Inst	17653.06	18670.06	8	1.				16.5	.3	07/28/97	07/30/97	2.
BWT-4-S Inst	13573.06	17650.07	8	1.				16.3	.5	07/30/97	08/01/97	1.9
BWT-5-S Inst	14593.07	18670.07	8	1.				16.3	.2	08/01/97	08/04/97	2.
IWT-S Inst	82803.06	83820.06	8	1.	48.1	201.		13.2	.8	08/04/97	08/14/97	7.5
IWT-S Inst	13573.07	83820.07	8	1.	45.3	201.054		13.3	.2	08/14/97	08/25/97	7.3
BW3-5-5-S Inst	82803.07	45030.01	8	1.5	2.4	104.057		20.6	2.3	09/03/97	09/08/97	2.5
BW2-5-5-S Inst	45033.01	35110.01	8	1.3				13.5	.1	09/04/97	09/08/97	1.6
IWT-S Inst	31193.01	83820.08	8	1.	20.9	201.		13.6	.2	09/09/97	09/15/97	4.3
Blockout		1000.04	8			52.055		48.		10/20/97	10/24/97	6.
FW1 SMA	96015.02	86100.02	8	1.	4.4	55.104		74.7	1.2	10/20/98	10/30/98	8.1
FW2 SMA	97035.02	87160.02	8	1.				98.3	8.1	11/10/98	11/24/98	9.6
FW4 SMA	99055.02	89230.02	8	1.				90.1	4.7	12/01/98	12/14/98	8.7
FW5 SMA	100075.02	90290.02	8	1.3				184.7	17.5	01/04/99	01/28/99	17.9

4.2.2 Detailed Work Station Activity Schedules with Tube Delivery Requirement (46 sheets)

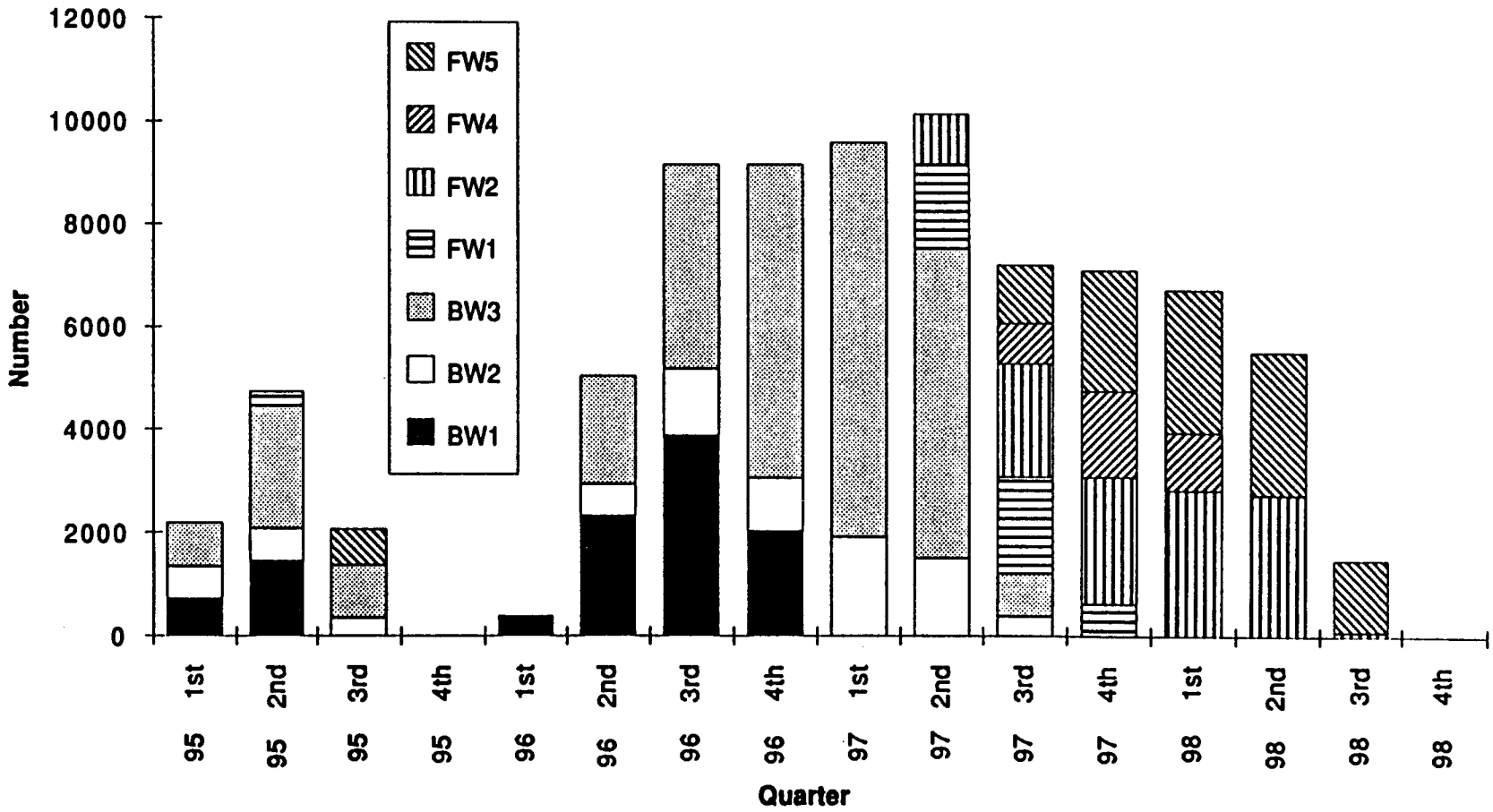
The first page of this section is a graphical overview of the tube delivery schedule necessary for building the modules. The RAM currently assumes that the tubes will be available exactly when needed (Just in Time/Total Quality Management philosophy). In order to plot the data on the graph, all different varieties and sizes of tubes have been grouped into major categories: BW1, BW2, BW3, FW1, FW2, FW4, and FW5. More detailed information can be found in the pages following this graph.

This rest of this section is essentially the same as the last one except tube delivery requirements and dates are now explicitly specified for each activity.

Column Headings:

Activity	Name of the operation being performed or module being constructed
Start	The starting date for the activity
Finish	The finishing date for the activity
Predecessor	ID of the activity that started the current activity. Negative numbers indicate activities that were started by hand.
ID	Unique identification number of the activity. The fractional part of the ID represents the sequence number for the activity (that is, .01 denotes the 1st time the activity was performed, .02 is the second , etc.). The whole part is simply the sum of the OA ID number and 1000 times the activity number.
Wrk Stat	The location of where the activity is taking place. 0 is IWT assembly, 1 is workstation 1 2 is workstation 2 3 is workstation 3 4 is workstation 4 6 is SMA assembly 7 is the north shaft 8 is the south shaft -1 is north and south shaft -2 is everywhere
Learn. Curve	The learning curve applied to the activity. 3=300%, etc.
Resource Waits	The total delay, in hours, in the activity due to a resource being unavailable. This time is not included in the activity work time.
Work Time	The amount of working time, in hours, from the start of the activity to its completion.
Over Time	The amount of overtime, in hours, from the start of the activity to its completion
Work Days	The amount of working time, in days, from the start of the activity to its completion

Tube Delivery Requirements



Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
KickOff	01/02/95	01/03/95	- .03	4000.02	1			8.		1.
Mod Workstation	01/03/95	01/09/95	4000.02	11225.01	1	1.		39.9		4.98
BW2-3-5 Prod	01/09/95	03/02/95	11225.01	63405.01	1	3.		384.4	18.	38.03
9 BW2 Theta 1 T	01/24/95				1					
81 BW2 Theta1 T	01/24/95				1					
9 BW2 Theta 2 T	01/27/95				1					
81 BW2 Theta2 T	01/30/95				1					
9 BW2 Theta 3 T	02/02/95				1					
81 BW2 Theta3 T	02/03/95				1					
9 BW2 Theta 4 T	02/08/95				1					
81 BW2 Theta4 T	02/09/95				1					
Mod Workstation	03/02/95	03/09/95	63423.01	11225.04	1	1.		40.9	.9	5.11
BW2-2/4-5 Prod	03/09/95	03/29/95	11225.04	62385.01	1	1.5		147.	11.1	13.49
6 BW2 Theta 1 T	03/16/95				1					
59 BW2 Theta1 T	03/16/95				1					
6 BW2 Theta 2 T	03/17/95				1					
59 BW2 Theta2 T	03/17/95				1					
6 BW2 Theta 3 T	03/20/95				1					
59 BW2 Theta3 T	03/20/95				1					
6 BW2 Theta 4 T	03/22/95				1					
59 BW2 Theta4 T	03/22/95				1					
BW2-2/4-5 Prod	03/29/95	04/13/95	62403.01	62385.02	1	1.3		122.3	9.4	11.31
6 BW2 Theta 1 T	04/04/95				1					
59 BW2 Theta1 T	04/04/95				1					
6 BW2 Theta 2 T	04/05/95				1					
59 BW2 Theta2 T	04/05/95				1					
6 BW2 Theta 3 T	04/06/95				1					
59 BW2 Theta3 T	04/06/95				1					
6 BW2 Theta 4 T	04/07/95				1					
59 BW2 Theta4 T	04/07/95				1					
Mod Workstation	04/13/95	04/20/95	62403.02	11225.07	1	1.		40.9	.2	5.11
BW2-3 BWT Prod	04/20/95	07/11/95	11225.07	65690.01	1	1.5	269.4	211.4	4.2	55.7
9 BW2 Theta 1 T	04/28/95				1					
81 BW2 Theta1 T	04/28/95				1					
9 BW2 Theta 2 T	05/02/95				1					
81 BW2 Theta2 T	05/02/95				1					
9 BW2 Theta 3 T	05/04/95				1					
81 BW2 Theta3 T	05/04/95				1					
9 BW2 Theta 4 T	05/08/95				1					
81 BW2 Theta4 T	05/08/95				1					
BW2-3 BWT Prod	07/11/95	08/04/95	65711.01	65690.02	1	1.3		178.7	8.8	17.44
9 BW2 Theta 1 T	07/18/95				1					
81 BW2 Theta1 T	07/18/95				1					
9 BW2 Theta 2 T	07/19/95				1					
81 BW2 Theta2 T	07/20/95				1					
9 BW2 Theta 3 T	07/21/95				1					
81 BW2 Theta3 T	07/21/95				1					
9 BW2 Theta 4 T	07/24/95				1					
81 BW2 Theta4 T	07/24/95				1					
Sojourn	08/04/95	04/30/96	65711.02	3000.03	1			1488.		186.
BW2-3 BWT Prod	04/30/96	05/23/96	3000.03	65690.03	1	1.3		175.9	8.8	17.28
9 BW2 Theta 1 T	05/06/96				1					
81 BW2 Theta1 T	05/06/96				1					
9 BW2 Theta 2 T	05/07/96				1					
81 BW2 Theta2 T	05/08/96				1					
9 BW2 Theta 3 T	05/09/96				1					
81 BW2 Theta3 T	05/09/96				1					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
9 BW2 Theta 4 T	05/13/96				1					
81 BW2 Theta4 T	05/13/96				1					
Mod Workstation	05/23/96	05/31/96	65711.03	11225.14	1	1.		39.7		4.97
BW2-2/4 BWT Prd	05/31/96	06/19/96	11225.14	66720.01	1	1.3		138.7	12.7	13.08
6 BW2 Theta 1 T	06/06/96				1					
59 BW2 Theta1 T	06/06/96				1					
6 BW2 Theta 2 T	06/07/96				1					
59 BW2 Theta2 T	06/07/96				1					
6 BW2 Theta 3 T	06/10/96				1					
59 BW2 Theta3 T	06/10/96				1					
6 BW2 Theta 4 T	06/11/96				1					
59 BW2 Theta4 T	06/11/96				1					
BW2-2/4 BWT Prd	06/19/96	07/05/96	66741.01	66720.02	1	1.	.6	109.	8.3	10.64
6 BW2 Theta 1 T	06/24/96				1					
59 BW2 Theta1 T	06/24/96				1					
6 BW2 Theta 2 T	06/24/96				1					
59 BW2 Theta2 T	06/25/96				1					
6 BW2 Theta 3 T	06/25/96				1					
59 BW2 Theta3 T	06/25/96				1					
6 BW2 Theta 4 T	06/26/96				1					
59 BW2 Theta4 T	06/26/96				1					
BW2-2/4 BWT Prd	07/05/96	07/23/96	66741.02	66720.03	1	1.	13.5	109.6	5.7	12.59
6 BW2 Theta 1 T	07/10/96				1					
59 BW2 Theta1 T	07/10/96				1					
6 BW2 Theta 2 T	07/11/96				1					
59 BW2 Theta2 T	07/11/96				1					
6 BW2 Theta 3 T	07/12/96				1					
59 BW2 Theta3 T	07/12/96				1					
6 BW2 Theta 4 T	07/15/96				1					
59 BW2 Theta4 T	07/15/96				1					
BW2-2/4 BWT Prd	07/23/96	08/08/96	66741.03	66720.04	1	1.	8.	110.1	5.1	12.03
6 BW2 Theta 1 T	07/26/96				1					
59 BW2 Theta1 T	07/29/96				1					
6 BW2 Theta 2 T	07/29/96				1					
59 BW2 Theta2 T	07/30/96				1					
6 BW2 Theta 3 T	07/31/96				1					
59 BW2 Theta3 T	07/31/96				1					
6 BW2 Theta 4 T	07/31/96				1					
59 BW2 Theta4 T	08/01/96				1					
BW2-2/4 BWT Prd	08/08/96	08/27/96	66741.04	66720.05	1	1.	12.1	110.	7.9	12.38
6 BW2 Theta 1 T	08/14/96				1					
59 BW2 Theta1 T	08/14/96				1					
6 BW2 Theta 2 T	08/15/96				1					
59 BW2 Theta2 T	08/15/96				1					
6 BW2 Theta 3 T	08/16/96				1					
59 BW2 Theta3 T	08/16/96				1					
6 BW2 Theta 4 T	08/19/96				1					
59 BW2 Theta4 T	08/19/96				1					
BW2-2/4 BWT Prd	08/27/96	09/12/96	66741.05	66720.06	1	1.	4.7	108.4	9.5	11.
6 BW2 Theta 1 T	08/30/96				1					
59 BW2 Theta1 T	08/30/96				1					
6 BW2 Theta 2 T	09/02/96				1					
59 BW2 Theta2 T	09/02/96				1					
6 BW2 Theta 3 T	09/02/96				1					
59 BW2 Theta3 T	09/04/96				1					
6 BW2 Theta 4 T	09/04/96				1					
59 BW2 Theta4 T	09/05/96				1					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
Mod Workstation	09/12/96	09/19/96	66741.06	11225.16	1	1.		41.5		5.18
BW2-1/5 BWT Prd	09/19/96	10/02/96	11225.16	67790.01	1	1.3	12.4	78.9	4.7	9.52
2 BW2 Theta 1 T	09/24/96				1					
19 BW2 Theta1 T	09/24/96				1					
2 BW2 Theta 2 T	09/24/96				1					
19 BW2 Theta2 T	09/24/96				1					
2 BW2 Theta 3 T	09/25/96				1					
19 BW2 Theta3 T	09/25/96				1					
2 BW2 Theta 4 T	09/25/96				1					
19 BW2 Theta4 T	09/25/96				1					
BW2-1/5 BWT Prd	10/02/96	10/11/96	67811.01	67790.02	1	1.	4.1	62.3	2.3	7.03
2 BW2 Theta 1 T	10/04/96				1					
19 BW2 Theta1 T	10/07/96				1					
2 BW2 Theta 2 T	10/07/96				1					
19 BW2 Theta2 T	10/07/96				1					
2 BW2 Theta 3 T	10/07/96				1					
19 BW2 Theta3 T	10/07/96				1					
2 BW2 Theta 4 T	10/08/96				1					
19 BW2 Theta4 T	10/08/96				1					
BW2-1/5 BWT Prd	10/11/96	10/24/96	67811.02	67790.03	1	1.	15.2	62.7	4.6	8.24
2 BW2 Theta 1 T	10/16/96				1					
19 BW2 Theta1 T	10/16/96				1					
2 BW2 Theta 2 T	10/16/96				1					
19 BW2 Theta2 T	10/16/96				1					
2 BW2 Theta 3 T	10/16/96				1					
19 BW2 Theta3 T	10/16/96				1					
2 BW2 Theta 4 T	10/17/96				1					
19 BW2 Theta4 T	10/17/96				1					
BW2-1/5 BWT Prd	10/24/96	11/04/96	67811.03	67790.04	1	1.	10.2	61.7	3.9	7.42
2 BW2 Theta 1 T	10/28/96				1					
19 BW2 Theta1 T	10/28/96				1					
2 BW2 Theta 2 T	10/28/96				1					
19 BW2 Theta2 T	10/28/96				1					
2 BW2 Theta 3 T	10/28/96				1					
19 BW2 Theta3 T	10/28/96				1					
2 BW2 Theta 4 T	10/29/96				1					
19 BW2 Theta4 T	10/29/96				1					
BW2-1/5 BWT Prd	11/04/96	11/15/96	67811.04	67790.05	1	1.	18.9	62.8	2.3	8.82
2 BW2 Theta 1 T	11/06/96				1					
19 BW2 Theta1 T	11/06/96				1					
2 BW2 Theta 2 T	11/07/96				1					
19 BW2 Theta2 T	11/07/96				1					
2 BW2 Theta 3 T	11/07/96				1					
19 BW2 Theta3 T	11/07/96				1					
2 BW2 Theta 4 T	11/07/96				1					
19 BW2 Theta4 T	11/07/96				1					
BW2-1/5 BWT Prd	11/15/96	11/26/96	67811.05	67790.06	1	1.	8.5	62.6	3.2	7.43
2 BW2 Theta 1 T	11/19/96				1					
19 BW2 Theta1 T	11/19/96				1					
2 BW2 Theta 2 T	11/20/96				1					
19 BW2 Theta2 T	11/20/96				1					
2 BW2 Theta 3 T	11/20/96				1					
19 BW2 Theta3 T	11/20/96				1					
2 BW2 Theta 4 T	11/20/96				1					
19 BW2 Theta4 T	11/20/96				1					
WS1 Phase1 Done	11/26/96	11/26/96	67790.06	101000.01	1					
BW2-1/5 BWT Prd	11/26/96	12/10/96	67811.06	67790.07	1	1.	11.	63.1	3.2	7.75

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
2 BW2 Theta 1 T	12/02/96				1					
19 BW2 Theta1 T	12/03/96				1					
2 BW2 Theta 2 T	12/03/96				1					
19 BW2 Theta2 T	12/03/96				1					
2 BW2 Theta 3 T	12/03/96				1					
19 BW2 Theta3 T	12/03/96				1					
2 BW2 Theta 4 T	12/04/96				1					
19 BW2 Theta4 T	12/04/96				1					
BW2-1/5 BWT Prd	12/10/96	12/19/96	67811.07	67790.08	1	1.	5.9	63.3	3.1	7.16
2 BW2 Theta 1 T	12/12/96				1					
19 BW2 Theta1 T	12/12/96				1					
2 BW2 Theta 2 T	12/13/96				1					
19 BW2 Theta2 T	12/13/96				1					
2 BW2 Theta 3 T	12/13/96				1					
19 BW2 Theta3 T	12/13/96				1					
2 BW2 Theta 4 T	12/13/96				1					
19 BW2 Theta4 T	12/13/96				1					
BW2-1/5 BWT Prd	12/19/96	01/03/97	67811.08	67790.09	1	1.	13.	62.4	2.	8.09
2 BW2 Theta 1 T	12/23/96				1					
19 BW2 Theta1 T	12/23/96				1					
2 BW2 Theta 2 T	12/26/96				1					
19 BW2 Theta2 T	12/26/96				1					
2 BW2 Theta 3 T	12/26/96				1					
19 BW2 Theta3 T	12/26/96				1					
2 BW2 Theta 4 T	12/26/96				1					
19 BW2 Theta4 T	12/27/96				1					
BW2-1/5 BWT Prd	01/03/97	01/20/97	67811.09	67790.1	1	1.	36.1	63.2	4.	10.77
2 BW2 Theta 1 T	01/14/97				1					
19 BW2 Theta1 T	01/14/97				1					
2 BW2 Theta 2 T	01/14/97				1					
19 BW2 Theta2 T	01/14/97				1					
2 BW2 Theta 3 T	01/14/97				1					
19 BW2 Theta3 T	01/14/97				1					
2 BW2 Theta 4 T	01/15/97				1					
19 BW2 Theta4 T	01/15/97				1					
BW2-1/5 BWT Prd	01/20/97	01/30/97	67811.1	67790.11	1	1.	11.2	63.3	5.	7.77
2 BW2 Theta 1 T	01/23/97				1					
19 BW2 Theta1 T	01/23/97				1					
2 BW2 Theta 2 T	01/23/97				1					
19 BW2 Theta2 T	01/23/97				1					
2 BW2 Theta 3 T	01/23/97				1					
19 BW2 Theta3 T	01/23/97				1					
2 BW2 Theta 4 T	01/24/97				1					
19 BW2 Theta4 T	01/24/97				1					
BW2-1/5 BWT Prd	01/30/97	02/10/97	67811.11	67790.12	1	1.	7.2	62.5	2.2	7.32
2 BW2 Theta 1 T	02/03/97				1					
19 BW2 Theta1 T	02/03/97				1					
2 BW2 Theta 2 T	02/03/97				1					
19 BW2 Theta2 T	02/03/97				1					
2 BW2 Theta 3 T	02/04/97				1					
19 BW2 Theta3 T	02/04/97				1					
2 BW2 Theta 4 T	02/04/97				1					
19 BW2 Theta4 T	02/04/97				1					
BW2-1/5 BWT Prd	02/10/97	02/21/97	67811.12	67790.13	1	1.	19.7	62.4	3.	8.9
2 BW2 Theta 1 T	02/12/97				1					
19 BW2 Theta1 T	02/12/97				1					
2 BW2 Theta 2 T	02/13/97				1					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
19 BW2 Theta2 T	02/13/97				1					
2 BW2 Theta 3 T	02/13/97				1					
19 BW2 Theta3 T	02/13/97				1					
2 BW2 Theta 4 T	02/13/97				1					
19 BW2 Theta4 T	02/13/97				1					
BW2-1/5 BWT Prd	02/21/97	03/05/97	67811.13	67790.14	1	1.	11.6	62.3	1.3	7.99
2 BW2 Theta 1 T	02/25/97				1					
19 BW2 Theta1 T	02/25/97				1					
2 BW2 Theta 2 T	02/26/97				1					
19 BW2 Theta2 T	02/26/97				1					
2 BW2 Theta 3 T	02/26/97				1					
19 BW2 Theta3 T	02/26/97				1					
2 BW2 Theta 4 T	02/26/97				1					
19 BW2 Theta4 T	02/26/97				1					
Mod Workstation	03/05/97	03/12/97	67811.14	11225.23	1	1.		41.1		5.14
BW2-1/5-5 Prod	03/12/97	03/20/97	11225.23	61365.01	1	1.	1.4	53.5	2.7	5.46
2 BW2 Theta 1 T	03/14/97				1					
19 BW2 Theta1 T	03/14/97				1					
2 BW2 Theta 2 T	03/17/97				1					
19 BW2 Theta2 T	03/17/97				1					
2 BW2 Theta 3 T	03/17/97				1					
19 BW2 Theta3 T	03/17/97				1					
2 BW2 Theta 4 T	03/17/97				1					
19 BW2 Theta4 T	03/17/97				1					
BW2-1/5-5 Prod	03/20/97	03/27/97	61383.01	61365.02	1	1.	3.8	54.5	3.2	5.77
2 BW2 Theta 1 T	03/24/97				1					
19 BW2 Theta1 T	03/24/97				1					
2 BW2 Theta 2 T	03/24/97				1					
19 BW2 Theta2 T	03/24/97				1					
2 BW2 Theta 3 T	03/24/97				1					
19 BW2 Theta3 T	03/25/97				1					
2 BW2 Theta 4 T	03/25/97				1					
19 BW2 Theta4 T	03/25/97				1					
Mod Workstation	03/27/97	04/03/97	61383.02	11225.24	1	1.		40.5		5.06
FW1 Assembly	04/03/97	04/18/97	11225.24	91840.02	1	1.5		118.8	11.4	11.03
7 FW1 Thet1 F/T	04/08/97				1					
62 FW1 Thet1 Tu	04/08/97				1					
7 FW1 Thet2 F/T	04/09/97				1					
62 FW1 Thet2 Tu	04/10/97				1					
7 FW1 Thet3 F/T	04/11/97				1					
62 FW1 Thet3 Tu	04/11/97				1					
7 FW1 Thet4 F/T	04/14/97				1					
62 FW1 Thet4 Tu	04/15/97				1					
FW1 Assembly	04/18/97	05/02/97	91858.02	91840.03	1	1.3		99.	8.9	9.56
7 FW1 Thet1 F/T	04/22/97				1					
62 FW1 Thet1 Tu	04/23/97				1					
7 FW1 Thet2 F/T	04/24/97				1					
62 FW1 Thet2 Tu	04/24/97				1					
7 FW1 Thet3 F/T	04/25/97				1					
62 FW1 Thet3 Tu	04/28/97				1					
7 FW1 Thet4 F/T	04/29/97				1					
62 FW1 Thet4 Tu	04/29/97				1					
FW1 Assembly	05/02/97	05/14/97	91858.03	91840.04	1	1.	3.8	80.5	5.5	8.34
7 FW1 Thet1 F/T	05/06/97				1					
62 FW1 Thet1 Tu	05/06/97				1					
7 FW1 Thet2 F/T	05/07/97				1					
62 FW1 Thet2 Tu	05/07/97				1					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
7 FW1 Thet3 F/T	05/08/97				1					
62 FW1 Thet3 Tu	05/08/97				1					
7 FW1 Thet4 F/T	05/09/97				1					
62 FW1 Thet4 Tu	05/12/97				1					
FW1 Assembly	05/14/97	05/27/97	91858.04	91840.05	1	1.	1.6	79.5	8.8	7.43
7 FW1 Thet1 F/T	05/16/97				1					
62 FW1 Thet1 Tu	05/16/97				1					
7 FW1 Thet2 F/T	05/19/97				1					
62 FW1 Thet2 Tu	05/19/97				1					
7 FW1 Thet3 F/T	05/20/97				1					
62 FW1 Thet3 Tu	05/20/97				1					
7 FW1 Thet4 F/T	05/21/97				1					
62 FW1 Thet4 Tu	05/21/97				1					
FW1 Assembly	05/27/97	06/09/97	91858.05	91840.06	1	1.	9.2	80.4	7.4	8.71
7 FW1 Thet1 F/T	05/29/97				1					
62 FW1 Thet1 Tu	05/29/97				1					
7 FW1 Thet2 F/T	05/30/97				1					
62 FW1 Thet2 Tu	05/30/97				1					
7 FW1 Thet3 F/T	06/03/97				1					
62 FW1 Thet3 Tu	06/03/97				1					
7 FW1 Thet4 F/T	06/04/97				1					
62 FW1 Thet4 Tu	06/04/97				1					
FW1 Assembly	06/09/97	06/20/97	91858.06	91840.07	1	1.	11.5	78.8	3.	9.36
7 FW1 Thet1 F/T	06/10/97				1					
62 FW1 Thet1 Tu	06/11/97				1					
7 FW1 Thet2 F/T	06/12/97				1					
62 FW1 Thet2 Tu	06/12/97				1					
7 FW1 Thet3 F/T	06/13/97				1					
62 FW1 Thet3 Tu	06/16/97				1					
7 FW1 Thet4 F/T	06/17/97				1					
62 FW1 Thet4 Tu	06/17/97				1					
FW1 Assembly	06/20/97	07/03/97	91858.07	91840.08	1	1.	6.6	79.7	5.8	8.63
7 FW1 Thet1 F/T	06/24/97				1					
62 FW1 Thet1 Tu	06/24/97				1					
7 FW1 Thet2 F/T	06/25/97				1					
62 FW1 Thet2 Tu	06/25/97				1					
7 FW1 Thet3 F/T	06/26/97				1					
62 FW1 Thet3 Tu	06/26/97				1					
7 FW1 Thet4 F/T	06/27/97				1					
62 FW1 Thet4 Tu	06/30/97				1					
FW1 Assembly	07/03/97	07/16/97	91858.08	91840.09	1	1.	1.4	80.6	5.	8.02
7 FW1 Thet1 F/T	07/07/97				1					
62 FW1 Thet1 Tu	07/08/97				1					
7 FW1 Thet2 F/T	07/08/97				1					
62 FW1 Thet2 Tu	07/09/97				1					
7 FW1 Thet3 F/T	07/10/97				1					
62 FW1 Thet3 Tu	07/10/97				1					
7 FW1 Thet4 F/T	07/11/97				1					
62 FW1 Thet4 Tu	07/11/97				1					
FW1 Assembly	07/16/97	07/30/97	91858.09	91840.1	1	1.	26.3	79.2	5.8	10.84
7 FW1 Thet1 F/T	07/21/97				1					
62 FW1 Thet1 Tu	07/21/97				1					
7 FW1 Thet2 F/T	07/22/97				1					
62 FW1 Thet2 Tu	07/23/97				1					
7 FW1 Thet3 F/T	07/24/97				1					
62 FW1 Thet3 Tu	07/24/97				1					
7 FW1 Thet4 F/T	07/25/97				1					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
62 FW1 Thet4 Tu	07/25/97				1					
FW1 Assembly	07/30/97	08/13/97	91858.1	91840.11	1	1.	10.7	80.7	5.8	9.19
7 FW1 Thet1 F/T	08/01/97				1					
62 FW1 Thet1 Tu	08/04/97				1					
7 FW1 Thet2 F/T	08/05/97				1					
62 FW1 Thet2 Tu	08/05/97				1					
7 FW1 Thet3 F/T	08/06/97				1					
62 FW1 Thet3 Tu	08/06/97				1					
7 FW1 Thet4 F/T	08/08/97				1					
62 FW1 Thet4 Tu	08/08/97				1					
FW1 Assembly	08/13/97	08/27/97	91858.11	91840.12	1	1.	15.8	80.	2.9	10.03
7 FW1 Thet1 F/T	08/14/97				1					
62 FW1 Thet1 Tu	08/15/97				1					
7 FW1 Thet2 F/T	08/18/97				1					
62 FW1 Thet2 Tu	08/18/97				1					
7 FW1 Thet3 F/T	08/19/97				1					
62 FW1 Thet3 Tu	08/19/97				1					
7 FW1 Thet4 F/T	08/21/97				1					
62 FW1 Thet4 Tu	08/21/97				1					
FW1 Assembly	08/27/97	09/09/97	91858.12	91840.13	1	1.	5.3	80.	4.7	8.41
7 FW1 Thet1 F/T	08/28/97				1					
62 FW1 Thet1 Tu	08/29/97				1					
7 FW1 Thet2 F/T	09/02/97				1					
62 FW1 Thet2 Tu	09/02/97				1					
7 FW1 Thet3 F/T	09/03/97				1					
62 FW1 Thet3 Tu	09/03/97				1					
7 FW1 Thet4 F/T	09/04/97				1					
62 FW1 Thet4 Tu	09/04/97				1					
FW1 Assembly	09/09/97	09/23/97	91858.13	91840.14	1	1.	13.9	79.4	2.9	9.8
7 FW1 Thet1 F/T	09/11/97				1					
62 FW1 Thet1 Tu	09/11/97				1					
7 FW1 Thet2 F/T	09/12/97				1					
62 FW1 Thet2 Tu	09/15/97				1					
7 FW1 Thet3 F/T	09/16/97				1					
62 FW1 Thet3 Tu	09/16/97				1					
7 FW1 Thet4 F/T	09/17/97				1					
62 FW1 Thet4 Tu	09/17/97				1					
FW1 Assembly	09/23/97	10/06/97	91858.14	91840.15	1	1.	11.3	79.4	5.3	9.11
7 FW1 Thet1 F/T	09/25/97				1					
62 FW1 Thet1 Tu	09/25/97				1					
7 FW1 Thet2 F/T	09/26/97				1					
62 FW1 Thet2 Tu	09/26/97				1					
7 FW1 Thet3 F/T	09/29/97				1					
62 FW1 Thet3 Tu	09/30/97				1					
7 FW1 Thet4 F/T	09/30/97				1					
62 FW1 Thet4 Tu	10/01/97				1					
FW1 Assembly	10/06/97	10/16/97	91858.15	91840.16	1	1.	4.1	79.5	7.1	8.01
7 FW1 Thet1 F/T	10/08/97				1					
62 FW1 Thet1 Tu	10/08/97				1					
7 FW1 Thet2 F/T	10/09/97				1					
62 FW1 Thet2 Tu	10/09/97				1					
7 FW1 Thet3 F/T	10/10/97				1					
62 FW1 Thet3 Tu	10/10/97				1					
7 FW1 Thet4 F/T	10/13/97				1					
62 FW1 Thet4 Tu	10/13/97				1					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
KickOff	01/02/95	01/03/95	- .04	4000.03	2			8.		1.
Mod Workstation	01/03/95	01/09/95	4000.03	11225.02	2	1.		39.8		4.98
BW3-3-5 Prod	01/09/95	04/05/95	11225.02	73505.01	2	3.		601.5	31.9	61.39
9 BW3 Theta 1 T	01/25/95				2					
81 BW3 Theta 1T	01/26/95				2					
9 BW3 Theta 2 T	02/01/95				2					
81 BW3 Theta 2T	02/01/95				2					
9 BW3 Theta 3 T	02/07/95				2					
81 BW3 Theta 3T	02/07/95				2					
9 BW3 Theta 4 T	02/13/95				2					
81 BW3 Theta 4T	02/13/95				2					
7 BW3 Phi 5 F/T	02/17/95				2					
77 BW3 Phi 5 Tu	02/17/95				2					
7 BW3 Phi 6 F/T	02/23/95				2					
77 BW3 Phi 6 Tu	02/23/95				2					
7 BW3 Phi 7 F/T	02/28/95				2					
77 BW3 Phi7 Tub	02/28/95				2					
7 BW3 Phi 8 F/T	03/03/95				2					
77 BW3 Phi 8 Tu	03/03/95				2					
7 BW3 Stereo9 T	03/08/95				2					
72 BW3 Stereo9T	03/08/95				2					
7 BW3 Stereo10T	03/10/95				2					
72 BW3 Stere10T	03/13/95				2					
Mod Workstation	04/05/95	04/12/95	73541.01	11225.06	2	1.		41.9		5.24
BW3-2/4-5 Prod	04/12/95	05/17/95	11225.06	72465.01	2	1.5		260.2	9.7	24.92
7 BW3 Th 1 F/T	04/19/95				2					
77 BW3 Theta 1	04/19/95				2					
7 BW3 Th 2 F/T	04/20/95				2					
77 BW3 Theta 2	04/20/95				2					
7 BW3 Th 3 F/T	04/24/95				2					
77 BW3 Theta 3	04/24/95				2					
7 BW3 Th 4 F/T	04/25/95				2					
77 BW3 Theta 4	04/25/95				2					
7 BW3 Phi 5 F/T	04/27/95				2					
77 BW3 Phi 5 Tu	04/27/95				2					
7 BW3 Phi 6 F/T	04/28/95				2					
77 BW3 Phi 6 Tu	04/28/95				2					
7 BW3 Phi 7 F/T	05/02/95				2					
77 BW3 Phi7 Tub	05/02/95				2					
7 BW3 Phi 8 F/T	05/03/95				2					
77 BW3 Phi 8 Tu	05/03/95				2					
7 BW3 Str9 F/T	05/05/95				2					
77 BW3 Streo9 T	05/05/95				2					
7BW3 Str 10 F/T	05/08/95				2					
77 BW3 Str 10 T	05/08/95				2					
BW3-2/4-5 Prod	05/17/95	06/12/95	72501.01	72465.02	2	1.		176.7	11.2	16.59
7 BW3 Th 1 F/T	05/22/95				2					
77 BW3 Theta 1	05/22/95				2					
7 BW3 Th 2 F/T	05/23/95				2					
77 BW3 Theta 2	05/23/95				2					
7 BW3 Th 3 F/T	05/24/95				2					
77 BW3 Theta 3	05/24/95				2					
7 BW3 Th 4 F/T	05/25/95				2					
77 BW3 Theta 4	05/25/95				2					
7 BW3 Phi 5 F/T	05/26/95				2					
77 BW3 Phi 5 Tu	05/26/95				2					
7 BW3 Phi 6 F/T	05/30/95				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
77 BW3 Phi 6 Tu	05/30/95				2					
7 BW3 Phi 7 F/T	05/31/95				2					
77 BW3 Phi7 Tub	05/31/95				2					
7 BW3 Phi 8 F/T	06/01/95				2					
77 BW3 Phi 8 Tu	06/01/95				2					
7 BW3 Str9 F/T	06/02/95				2					
77 BW3 Streo9 T	06/02/95				2					
7BW3 Str 10 F/T	06/05/95				2					
77 BW3 Str 10 T	06/05/95				2					
Mod Workstation	06/12/95	06/16/95	72501.02	11225.1	2	1.		36.5		4.57
BW3-3 BWT Prod	06/16/95	07/07/95	11225.1	75645.01	2	1.5		289.9	10.2	14.59
9 BW3 Theta 1 T	06/21/95				2					
81 BW3 Theta 1T	06/21/95				2					
9 BW3 Theta 2 T	06/22/95				2					
81 BW3 Theta 2T	06/22/95				2					
9 BW3 Theta 3 T	06/22/95				2					
81 BW3 Theta 3T	06/23/95				2					
9 BW3 Theta 4 T	06/23/95				2					
81 BW3 Theta 4T	06/23/95				2					
7 BW3 Phi 5 F/T	06/26/95				2					
77 BW3 Phi 5 Tu	06/26/95				2					
7 BW3 Phi 6 F/T	06/27/95				2					
77 BW3 Phi 6 Tu	06/27/95				2					
7 BW3 Phi 7 F/T	06/28/95				2					
77 BW3 Phi7 Tub	06/28/95				2					
7 BW3 Phi 8 F/T	06/29/95				2					
77 BW3 Phi 8 Tu	06/29/95				2					
7 BW3 Stereo9 T	06/30/95				2					
72 BW3 Stereo9T	06/30/95				2					
7 BW3 Stereo10T	07/03/95				2					
72 BW3 Stere10T	07/03/95				2					
BW3-3 BWT Prod	07/10/95	07/26/95	65709.01	75645.02	2	1.3		239.9	3.	11.98
9 BW3 Theta 1 T	07/12/95				2					
81 BW3 Theta 1T	07/12/95				2					
9 BW3 Theta 2 T	07/13/95				2					
81 BW3 Theta 2T	07/13/95				2					
9 BW3 Theta 3 T	07/14/95				2					
81 BW3 Theta 3T	07/14/95				2					
9 BW3 Theta 4 T	07/14/95				2					
81 BW3 Theta 4T	07/14/95				2					
7 BW3 Phi 5 F/T	07/17/95				2					
77 BW3 Phi 5 Tu	07/17/95				2					
7 BW3 Phi 6 F/T	07/18/95				2					
77 BW3 Phi 6 Tu	07/18/95				2					
7 BW3 Phi 7 F/T	07/18/95				2					
77 BW3 Phi7 Tub	07/19/95				2					
7 BW3 Phi 8 F/T	07/19/95				2					
77 BW3 Phi 8 Tu	07/19/95				2					
7 BW3 Stereo9 T	07/20/95				2					
72 BW3 Stereo9T	07/20/95				2					
7 BW3 Stereo10T	07/21/95				2					
72 BW3 Stere10T	07/21/95				2					
Sojourn	08/02/95	04/28/96	65709.02	3000.02	2			1496.		187.
BW3-3 BWT Prod	04/28/96	05/14/96	3000.02	75645.03	2	1.3		241.	2.4	12.44
9 BW3 Theta 1 T	05/01/96				2					
81 BW3 Theta 1T	05/01/96				2					
9 BW3 Theta 2 T	05/02/96				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
81 BW3 Theta 2T	05/02/96				2					
9 BW3 Theta 3 T	05/02/96				2					
81 BW3 Theta 3T	05/03/96				2					
9 BW3 Theta 4 T	05/03/96				2					
81 BW3 Theta 4T	05/03/96				2					
7 BW3 Phi 5 F/T	05/06/96				2					
77 BW3 Phi 5 Tu	05/06/96				2					
7 BW3 Phi 6 F/T	05/07/96				2					
77 BW3 Phi 6 Tu	05/07/96				2					
7 BW3 Phi 7 F/T	05/07/96				2					
77 BW3 Phi7 Tub	05/08/96				2					
7 BW3 Phi 8 F/T	05/08/96				2					
77 BW3 Phi 8 Tu	05/08/96				2					
7 BW3 Stereo9 T	05/09/96				2					
72 BW3 Stereo9T	05/09/96				2					
7 BW3 Stereo10T	05/09/96				2					
72 BW3 Stere10T	05/10/96				2					
Mod Workstation	05/22/96	05/30/96	65709.03	11225.13	2	1.		42.		5.25
BW3-2/4 BWT Prd	05/30/96	06/13/96	11225.13	76600.01	2	1.3		211.7	5.7	10.23
7 BW3 Th 1 F/T	06/03/96				2					
77 BW3 Theta 1	06/03/96				2					
7 BW3 Th 2 F/T	06/03/96				2					
77 BW3 Theta 2	06/03/96				2					
7 BW3 Th 3 F/T	06/04/96				2					
77 BW3 Theta 3	06/04/96				2					
7 BW3 Th 4 F/T	06/04/96				2					
77 BW3 Theta 4	06/05/96				2					
7 BW3 Phi 5 F/T	06/05/96				2					
77 BW3 Phi 5 Tu	06/05/96				2					
7 BW3 Phi 6 F/T	06/06/96				2					
77 BW3 Phi 6 Tu	06/06/96				2					
7 BW3 Phi 7 F/T	06/06/96				2					
77 BW3 Phi7 Tub	06/07/96				2					
7 BW3 Phi 8 F/T	06/07/96				2					
77 BW3 Phi 8 Tu	06/07/96				2					
7 BW3 Str9 F/T	06/10/96				2					
77 BW3 Streo9 T	06/10/96				2					
7BW3 Str 10 F/T	06/10/96				2					
77 BW3 Str 10 T	06/10/96				2					
BW3-2/4 BWT Prd	06/18/96	06/28/96	66739.01	76600.02	2	1.		168.6	4.3	8.29
7 BW3 Th 1 F/T	06/19/96				2					
77 BW3 Theta 1	06/19/96				2					
7 BW3 Th 2 F/T	06/20/96				2					
77 BW3 Theta 2	06/20/96				2					
7 BW3 Th 3 F/T	06/20/96				2					
77 BW3 Theta 3	06/20/96				2					
7 BW3 Th 4 F/T	06/21/96				2					
77 BW3 Theta 4	06/21/96				2					
7 BW3 Phi 5 F/T	06/21/96				2					
77 BW3 Phi 5 Tu	06/21/96				2					
7 BW3 Phi 6 F/T	06/24/96				2					
77 BW3 Phi 6 Tu	06/24/96				2					
7 BW3 Phi 7 F/T	06/24/96				2					
77 BW3 Phi7 Tub	06/25/96				2					
7 BW3 Phi 8 F/T	06/25/96				2					
77 BW3 Phi 8 Tu	06/25/96				2					
7 BW3 Str9 F/T	06/26/96				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
77 BW3 Streo9 T	06/26/96				2					
7BW3 Str 10 F/T	06/26/96				2					
77 BW3 Str 10 T	06/26/96				2					
BW3-2/4 BWT Prd	07/03/96	07/17/96	66739.02	76600.03	2	1.	14.7	169.3	4.9	9.12
7 BW3 Th 1 F/T	07/05/96				2					
77 BW3 Theta 1	07/05/96				2					
7 BW3 Th 2 F/T	07/08/96				2					
77 BW3 Theta 2	07/08/96				2					
7 BW3 Th 3 F/T	07/08/96				2					
77 BW3 Theta 3	07/08/96				2					
7 BW3 Th 4 F/T	07/09/96				2					
77 BW3 Theta 4	07/09/96				2					
7 BW3 Phi 5 F/T	07/09/96				2					
77 BW3 Phi 5 Tu	07/10/96				2					
7 BW3 Phi 6 F/T	07/10/96				2					
77 BW3 Phi 6 Tu	07/10/96				2					
7 BW3 Phi 7 F/T	07/11/96				2					
77 BW3 Phi7 Tub	07/11/96				2					
7 BW3 Phi 8 F/T	07/11/96				2					
77 BW3 Phi 8 Tu	07/11/96				2					
7 BW3 Str9 F/T	07/12/96				2					
77 BW3 Streo9 T	07/12/96				2					
7BW3 Str 10 F/T	07/15/96				2					
77 BW3 Str 10 T	07/15/96				2					
BW3-2/4 BWT Prd	07/22/96	08/02/96	66739.03	76600.04	2	1.	14.4	169.	2.6	9.2
7 BW3 Th 1 F/T	07/24/96				2					
77 BW3 Theta 1	07/24/96				2					
7 BW3 Th 2 F/T	07/24/96				2					
77 BW3 Theta 2	07/24/96				2					
7 BW3 Th 3 F/T	07/25/96				2					
77 BW3 Theta 3	07/25/96				2					
7 BW3 Th 4 F/T	07/25/96				2					
77 BW3 Theta 4	07/25/96				2					
7 BW3 Phi 5 F/T	07/26/96				2					
77 BW3 Phi 5 Tu	07/26/96				2					
7 BW3 Phi 6 F/T	07/29/96				2					
77 BW3 Phi 6 Tu	07/29/96				2					
7 BW3 Phi 7 F/T	07/29/96				2					
77 BW3 Phi7 Tub	07/29/96				2					
7 BW3 Phi 8 F/T	07/30/96				2					
77 BW3 Phi 8 Tu	07/30/96				2					
7 BW3 Str9 F/T	07/30/96				2					
77 BW3 Streo9 T	07/31/96				2					
7BW3 Str 10 F/T	07/31/96				2					
77 BW3 Str 10 T	07/31/96				2					
BW3-2/4 BWT Prd	08/07/96	08/20/96	66739.04	76600.05	2	1.	15.	167.6	6.2	9.05
7 BW3 Th 1 F/T	08/08/96				2					
77 BW3 Theta 1	08/09/96				2					
7 BW3 Th 2 F/T	08/09/96				2					
77 BW3 Theta 2	08/09/96				2					
7 BW3 Th 3 F/T	08/12/96				2					
77 BW3 Theta 3	08/12/96				2					
7 BW3 Th 4 F/T	08/12/96				2					
77 BW3 Theta 4	08/12/96				2					
7 BW3 Phi 5 F/T	08/13/96				2					
77 BW3 Phi 5 Tu	08/13/96				2					
7 BW3 Phi 6 F/T	08/13/96				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
77 BW3 Phi 6 Tu	08/13/96				2					
7 BW3 Phi 7 F/T	08/14/96				2					
77 BW3 Phi7 Tub	08/14/96				2					
7 BW3 Phi 8 F/T	08/14/96				2					
77 BW3 Phi 8 Tu	08/15/96				2					
7 BW3 Str9 F/T	08/15/96				2					
77 BW3 Streo9 T	08/16/96				2					
7BW3 Str 10 F/T	08/16/96				2					
77 BW3 Str 10 T	08/16/96				2					
BW3-2/4 BWT Prd	08/26/96	09/06/96	66739.05	76600.06	2	1.	2.8	168.4	5.4	8.41
7 BW3 Th 1 F/T	08/27/96				2					
77 BW3 Theta 1	08/27/96				2					
7 BW3 Th 2 F/T	08/28/96				2					
77 BW3 Theta 2	08/28/96				2					
7 BW3 Th 3 F/T	08/28/96				2					
77 BW3 Theta 3	08/28/96				2					
7 BW3 Th 4 F/T	08/29/96				2					
77 BW3 Theta 4	08/29/96				2					
7 BW3 Phi 5 F/T	08/29/96				2					
77 BW3 Phi 5 Tu	08/29/96				2					
7 BW3 Phi 6 F/T	08/30/96				2					
77 BW3 Phi 6 Tu	08/30/96				2					
7 BW3 Phi 7 F/T	08/30/96				2					
77 BW3 Phi7 Tub	09/02/96				2					
7 BW3 Phi 8 F/T	09/02/96				2					
77 BW3 Phi 8 Tu	09/02/96				2					
7 BW3 Str9 F/T	09/02/96				2					
77 BW3 Streo9 T	09/04/96				2					
7BW3 Str 10 F/T	09/04/96				2					
77 BW3 Str 10 T	09/04/96				2					
Mod Workstation	09/11/96	09/17/96	66739.06	11225.15	2	1.		38.2	1.9	4.77
BW3-1/5 BWT Prd	09/17/96	10/01/96	11225.15	77750.01	2	1.3	11.3	186.	2.3	9.82
5 BW3 Theta 1 T	09/19/96				2					
45 BW3 Theta1 T	09/19/96				2					
5 BW3 Theta 2 T	09/19/96				2					
45 BW3 Theta2 T	09/19/96				2					
5 BW3 Theta 3 T	09/20/96				2					
45 BW3 Theta3 T	09/20/96				2					
5 BW3 Theta 4 T	09/20/96				2					
45 BW3 Theta4 T	09/20/96				2					
7 BW3 Phi 5 F/T	09/23/96				2					
77 BW3 Phi 5 Tu	09/23/96				2					
7 BW3 Phi 6 F/T	09/23/96				2					
77 BW3 Phi 6 Tu	09/24/96				2					
7 BW3 Phi 7 F/T	09/24/96				2					
77 BW3 Phi7 Tub	09/24/96				2					
7 BW3 Phi 8 F/T	09/25/96				2					
77 BW3 Phi 8 Tu	09/25/96				2					
6 BW3 Stero 9 T	09/25/96				2					
63 BW3 Ster9 T	09/26/96				2					
63 BW3 Ster10 T	09/27/96				2					
BW3-1/5 BWT Prd	10/01/96	10/11/96	67809.01	77750.02	2	1.	5.5	148.	4.	7.55
5 BW3 Theta 1 T	10/02/96				2					
45 BW3 Theta1 T	10/02/96				2					
5 BW3 Theta 2 T	10/02/96				2					
45 BW3 Theta2 T	10/03/96				2					
5 BW3 Theta 3 T	10/03/96				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
45 BW3 Theta3 T	10/03/96				2					
5 BW3 Theta 4 T	10/03/96				2					
45 BW3 Theta4 T	10/03/96				2					
7 BW3 Phi 5 F/T	10/04/96				2					
77 BW3 Phi 5 Tu	10/04/96				2					
7 BW3 Phi 6 F/T	10/04/96				2					
77 BW3 Phi 6 Tu	10/04/96				2					
7 BW3 Phi 7 F/T	10/07/96				2					
77 BW3 Phi7 Tub	10/07/96				2					
7 BW3 Phi 8 F/T	10/07/96				2					
77 BW3 Phi 8 Tu	10/08/96				2					
6 BW3 Stero 9 T	10/08/96				2					
63 BW3 Ster9 T	10/08/96				2					
63 BW3 Ster10 T	10/09/96				2					
BW3-1/5 BWT Prd	10/11/96	10/23/96	67809.02	77750.03	2	1.	12.6	148.1	2.5	8.08
5 BW3 Theta 1 T	10/14/96				2					
45 BW3 Theta1 T	10/15/96				2					
5 BW3 Theta 2 T	10/15/96				2					
45 BW3 Theta2 T	10/15/96				2					
5 BW3 Theta 3 T	10/15/96				2					
45 BW3 Theta3 T	10/15/96				2					
5 BW3 Theta 4 T	10/16/96				2					
45 BW3 Theta4 T	10/16/96				2					
7 BW3 Phi 5 F/T	10/16/96				2					
77 BW3 Phi 5 Tu	10/16/96				2					
7 BW3 Phi 6 F/T	10/17/96				2					
77 BW3 Phi 6 Tu	10/17/96				2					
7 BW3 Phi 7 F/T	10/17/96				2					
77 BW3 Phi7 Tub	10/17/96				2					
7 BW3 Phi 8 F/T	10/18/96				2					
77 BW3 Phi 8 Tu	10/18/96				2					
6 BW3 Stero 9 T	10/18/96				2					
63 BW3 Ster9 T	10/21/96				2					
63 BW3 Ster10 T	10/21/96				2					
BW3-1/5 BWT Prd	10/23/96	11/01/96	67809.03	77750.04	2	1.	1.1	148.9	6.3	7.21
5 BW3 Theta 1 T	10/24/96				2					
45 BW3 Theta1 T	10/24/96				2					
5 BW3 Theta 2 T	10/24/96				2					
45 BW3 Theta2 T	10/25/96				2					
5 BW3 Theta 3 T	10/25/96				2					
45 BW3 Theta3 T	10/25/96				2					
5 BW3 Theta 4 T	10/25/96				2					
45 BW3 Theta4 T	10/25/96				2					
7 BW3 Phi 5 F/T	10/28/96				2					
77 BW3 Phi 5 Tu	10/28/96				2					
7 BW3 Phi 6 F/T	10/28/96				2					
77 BW3 Phi 6 Tu	10/28/96				2					
7 BW3 Phi 7 F/T	10/29/96				2					
77 BW3 Phi7 Tub	10/29/96				2					
7 BW3 Phi 8 F/T	10/29/96				2					
77 BW3 Phi 8 Tu	10/29/96				2					
6 BW3 Stero 9 T	10/30/96				2					
63 BW3 Ster9 T	10/30/96				2					
63 BW3 Ster10 T	10/30/96				2					
BW3-1/5 BWT Prd	11/04/96	11/14/96	67809.04	77750.05	2	1.	17.8	149.1	4.4	8.34
5 BW3 Theta 1 T	11/05/96				2					
45 BW3 Theta1 T	11/05/96				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
5 BW3 Theta 2 T	11/06/96				2					
45 BW3 Theta2 T	11/06/96				2					
5 BW3 Theta 3 T	11/06/96				2					
45 BW3 Theta3 T	11/06/96				2					
5 BW3 Theta 4 T	11/06/96				2					
45 BW3 Theta4 T	11/07/96				2					
7 BW3 Phi 5 F/T	11/07/96				2					
77 BW3 Phi 5 Tu	11/07/96				2					
7 BW3 Phi 6 F/T	11/07/96				2					
77 BW3 Phi 6 Tu	11/08/96				2					
7 BW3 Phi 7 F/T	11/08/96				2					
77 BW3 Phi7 Tub	11/11/96				2					
7 BW3 Phi 8 F/T	11/11/96				2					
77 BW3 Phi 8 Tu	11/11/96				2					
6 BW3 Stero 9 T	11/12/96				2					
63 BW3 Ster9 T	11/12/96				2					
63 BW3 Ster10 T	11/12/96				2					
BW3-1/5 BWT Prd	11/14/96	11/25/96	67809.05	77750.06	2	1.	2.7	147.8	11.1	7.02
5 BW3 Theta 1 T	11/15/96				2					
45 BW3 Theta1 T	11/15/96				2					
5 BW3 Theta 2 T	11/18/96				2					
45 BW3 Theta2 T	11/18/96				2					
5 BW3 Theta 3 T	11/18/96				2					
45 BW3 Theta3 T	11/18/96				2					
5 BW3 Theta 4 T	11/18/96				2					
45 BW3 Theta4 T	11/18/96				2					
7 BW3 Phi 5 F/T	11/19/96				2					
77 BW3 Phi 5 Tu	11/19/96				2					
7 BW3 Phi 6 F/T	11/19/96				2					
77 BW3 Phi 6 Tu	11/19/96				2					
7 BW3 Phi 7 F/T	11/20/96				2					
77 BW3 Phi7 Tub	11/20/96				2					
7 BW3 Phi 8 F/T	11/20/96				2					
77 BW3 Phi 8 Tu	11/20/96				2					
6 BW3 Stero 9 T	11/21/96				2					
63 BW3 Ster9 T	11/21/96				2					
63 BW3 Ster10 T	11/21/96				2					
WS2 Phase1 Done	11/26/96	11/26/96	67790.06	102000.01	2					
BW3-1/5 BWT Prd	11/26/96	12/09/96	67809.06	77750.07	2	1.		149.5	4.6	7.21
5 BW3 Theta 1 T	11/27/96				2					
45 BW3 Theta1 T	11/27/96				2					
5 BW3 Theta 2 T	11/27/96				2					
45 BW3 Theta2 T	11/27/96				2					
5 BW3 Theta 3 T	12/02/96				2					
45 BW3 Theta3 T	12/02/96				2					
5 BW3 Theta 4 T	12/02/96				2					
45 BW3 Theta4 T	12/02/96				2					
7 BW3 Phi 5 F/T	12/02/96				2					
77 BW3 Phi 5 Tu	12/03/96				2					
7 BW3 Phi 6 F/T	12/03/96				2					
77 BW3 Phi 6 Tu	12/03/96				2					
7 BW3 Phi 7 F/T	12/04/96				2					
77 BW3 Phi7 Tub	12/04/96				2					
7 BW3 Phi 8 F/T	12/04/96				2					
77 BW3 Phi 8 Tu	12/04/96				2					
6 BW3 Stero 9 T	12/05/96				2					
63 BW3 Ster9 T	12/05/96				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
63 BW3 Ster10 T	12/05/96				2					
BW3-1/5 BWT Prd	12/10/96	12/19/96	67809.07	77750.08	2	1.		148.2	6.3	7.
5 BW3 Theta 1 T	12/11/96				2					
45 BW3 Theta1 T	12/11/96				2					
5 BW3 Theta 2 T	12/11/96				2					
45 BW3 Theta2 T	12/11/96				2					
5 BW3 Theta 3 T	12/11/96				2					
45 BW3 Theta3 T	12/12/96				2					
5 BW3 Theta 4 T	12/12/96				2					
45 BW3 Theta4 T	12/12/96				2					
7 BW3 Phi 5 F/T	12/12/96				2					
77 BW3 Phi 5 Tu	12/12/96				2					
7 BW3 Phi 6 F/T	12/13/96				2					
77 BW3 Phi 6 Tu	12/13/96				2					
7 BW3 Phi 7 F/T	12/13/96				2					
77 BW3 Phi7 Tub	12/13/96				2					
7 BW3 Phi 8 F/T	12/16/96				2					
77 BW3 Phi 8 Tu	12/16/96				2					
6 BW3 Stero 9 T	12/16/96				2					
63 BW3 Ster9 T	12/16/96				2					
63 BW3 Ster10 T	12/17/96				2					
BW3-1/5 BWT Prd	12/19/96	01/02/97	67809.08	77750.09	2	1.	5.	148.4	4.4	7.42
5 BW3 Theta 1 T	12/20/96				2					
45 BW3 Theta1 T	12/20/96				2					
5 BW3 Theta 2 T	12/20/96				2					
45 BW3 Theta2 T	12/20/96				2					
5 BW3 Theta 3 T	12/20/96				2					
45 BW3 Theta3 T	12/23/96				2					
5 BW3 Theta 4 T	12/23/96				2					
45 BW3 Theta4 T	12/23/96				2					
7 BW3 Phi 5 F/T	12/23/96				2					
77 BW3 Phi 5 Tu	12/23/96				2					
7 BW3 Phi 6 F/T	12/26/96				2					
77 BW3 Phi 6 Tu	12/26/96				2					
7 BW3 Phi 7 F/T	12/26/96				2					
77 BW3 Phi7 Tub	12/26/96				2					
7 BW3 Phi 8 F/T	12/27/96				2					
77 BW3 Phi 8 Tu	12/27/96				2					
6 BW3 Stero 9 T	12/27/96				2					
63 BW3 Ster9 T	12/30/96				2					
63 BW3 Ster10 T	12/30/96				2					
BW3-1/5 BWT Prd	01/03/97	01/14/97	67809.09	77750.1	2	1.	1.8	148.6	5.7	7.26
5 BW3 Theta 1 T	01/06/97				2					
45 BW3 Theta1 T	01/06/97				2					
5 BW3 Theta 2 T	01/06/97				2					
45 BW3 Theta2 T	01/06/97				2					
5 BW3 Theta 3 T	01/07/97				2					
45 BW3 Theta3 T	01/07/97				2					
5 BW3 Theta 4 T	01/07/97				2					
45 BW3 Theta4 T	01/07/97				2					
7 BW3 Phi 5 F/T	01/07/97				2					
77 BW3 Phi 5 Tu	01/08/97				2					
7 BW3 Phi 6 F/T	01/08/97				2					
77 BW3 Phi 6 Tu	01/08/97				2					
7 BW3 Phi 7 F/T	01/09/97				2					
77 BW3 Phi7 Tub	01/09/97				2					
7 BW3 Phi 8 F/T	01/09/97				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
77 BW3 Phi 8 Tu	01/09/97				2					
6 BW3 Stero 9 T	01/10/97				2					
63 BW3 Ster9 T	01/10/97				2					
63 BW3 Ster10 T	01/10/97				2					
BW3-1/5 BWT Prd	01/17/97	01/29/97	67809.1	77750.11	2	1.	9.8	147.6	3.2	7.79
5 BW3 Theta 1 T	01/20/97				2					
45 BW3 Theta1 T	01/21/97				2					
5 BW3 Theta 2 T	01/21/97				2					
45 BW3 Theta2 T	01/21/97				2					
5 BW3 Theta 3 T	01/21/97				2					
45 BW3 Theta3 T	01/22/97				2					
5 BW3 Theta 4 T	01/22/97				2					
45 BW3 Theta4 T	01/22/97				2					
7 BW3 Phi 5 F/T	01/22/97				2					
77 BW3 Phi 5 Tu	01/22/97				2					
7 BW3 Phi 6 F/T	01/23/97				2					
77 BW3 Phi 6 Tu	01/23/97				2					
7 BW3 Phi 7 F/T	01/23/97				2					
77 BW3 Phi7 Tub	01/24/97				2					
7 BW3 Phi 8 F/T	01/24/97				2					
77 BW3 Phi 8 Tu	01/24/97				2					
6 BW3 Stero 9 T	01/27/97				2					
63 BW3 Ster9 T	01/27/97				2					
63 BW3 Ster10 T	01/27/97				2					
BW3-1/5 BWT Prd	01/29/97	02/07/97	67809.11	77750.12	2	1.	1.3	147.6	2.2	7.35
5 BW3 Theta 1 T	01/30/97				2					
45 BW3 Theta1 T	01/30/97				2					
5 BW3 Theta 2 T	01/30/97				2					
45 BW3 Theta2 T	01/31/97				2					
5 BW3 Theta 3 T	01/31/97				2					
45 BW3 Theta3 T	01/31/97				2					
5 BW3 Theta 4 T	01/31/97				2					
45 BW3 Theta4 T	01/31/97				2					
7 BW3 Phi 5 F/T	02/03/97				2					
77 BW3 Phi 5 Tu	02/03/97				2					
7 BW3 Phi 6 F/T	02/03/97				2					
77 BW3 Phi 6 Tu	02/03/97				2					
7 BW3 Phi 7 F/T	02/04/97				2					
77 BW3 Phi7 Tub	02/04/97				2					
7 BW3 Phi 8 F/T	02/04/97				2					
77 BW3 Phi 8 Tu	02/04/97				2					
6 BW3 Stero 9 T	02/05/97				2					
63 BW3 Ster9 T	02/05/97				2					
63 BW3 Ster10 T	02/06/97				2					
BW3-1/5 BWT Prd	02/10/97	02/20/97	67809.12	77750.13	2	1.	22.2	148.6	3.1	8.67
5 BW3 Theta 1 T	02/11/97				2					
45 BW3 Theta1 T	02/11/97				2					
5 BW3 Theta 2 T	02/12/97				2					
45 BW3 Theta2 T	02/12/97				2					
5 BW3 Theta 3 T	02/12/97				2					
45 BW3 Theta3 T	02/12/97				2					
5 BW3 Theta 4 T	02/13/97				2					
45 BW3 Theta4 T	02/13/97				2					
7 BW3 Phi 5 F/T	02/13/97				2					
77 BW3 Phi 5 Tu	02/13/97				2					
7 BW3 Phi 6 F/T	02/14/97				2					
77 BW3 Phi 6 Tu	02/14/97				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
7 BW3 Phi 7 F/T	02/14/97				2					
77 BW3 Phi7 Tub	02/17/97				2					
7 BW3 Phi 8 F/T	02/17/97				2					
77 BW3 Phi 8 Tu	02/17/97				2					
6 BW3 Stero 9 T	02/18/97				2					
63 BW3 Ster9 T	02/18/97				2					
63 BW3 Ster10 T	02/18/97				2					
BW3-1/5 BWT Prd	02/21/97	03/04/97	67809.13	77750.14	2	1.	8.4	148.2	6.8	7.49
5 BW3 Theta 1 T	02/24/97				2					
45 BW3 Theta1 T	02/24/97				2					
5 BW3 Theta 2 T	02/24/97				2					
45 BW3 Theta2 T	02/24/97				2					
5 BW3 Theta 3 T	02/24/97				2					
45 BW3 Theta3 T	02/25/97				2					
5 BW3 Theta 4 T	02/25/97				2					
45 BW3 Theta4 T	02/25/97				2					
7 BW3 Phi 5 F/T	02/25/97				2					
77 BW3 Phi 5 Tu	02/25/97				2					
7 BW3 Phi 6 F/T	02/26/97				2					
77 BW3 Phi 6 Tu	02/26/97				2					
7 BW3 Phi 7 F/T	02/26/97				2					
77 BW3 Phi7 Tub	02/26/97				2					
7 BW3 Phi 8 F/T	02/27/97				2					
77 BW3 Phi 8 Tu	02/27/97				2					
6 BW3 Stero 9 T	02/27/97				2					
63 BW3 Ster9 T	02/27/97				2					
63 BW3 Ster10 T	02/28/97				2					
Mod Workstation	03/05/97	03/11/97	67809.14	11225.22	2	1.		36.6		4.58
BW3-1/5-5 Prod	03/11/97	04/02/97	11225.22	71425.01	2	1.	10.1	158.9	13.7	16.
5 BW3 Theta 1 T	03/14/97				2					
45 BW3 Theta1 T	03/14/97				2					
5 BW3 Theta 2 T	03/17/97				2					
45 BW3 Theta2 T	03/17/97				2					
5 BW3 Theta 3 T	03/17/97				2					
45 BW3 Theta3 T	03/17/97				2					
5 BW3 Theta 4 T	03/18/97				2					
45 BW3 Theta4 T	03/18/97				2					
7 BW3 Phi 5 F/T	03/19/97				2					
77 BW3 Phi 5 Tu	03/19/97				2					
7 BW3 Phi 6 F/T	03/20/97				2					
77 BW3 Phi 6 Tu	03/20/97				2					
7 BW3 Phi 7 F/T	03/21/97				2					
77 BW3 Phi7 Tub	03/24/97				2					
7 BW3 Phi 8 F/T	03/24/97				2					
77 BW3 Phi 8 Tu	03/25/97				2					
6 BW3 Stero 9 T	03/25/97				2					
63 BW3 Ster9 T	03/26/97				2					
63 BW3 Ster10 T	03/27/97				2					
BW3-1/5-5 Prod	04/02/97	04/23/97	71461.01	71425.02	2	1.	2.7	158.5	11.6	15.07
5 BW3 Theta 1 T	04/07/97				2					
45 BW3 Theta1 T	04/07/97				2					
5 BW3 Theta 2 T	04/07/97				2					
45 BW3 Theta2 T	04/08/97				2					
5 BW3 Theta 3 T	04/08/97				2					
45 BW3 Theta3 T	04/09/97				2					
5 BW3 Theta 4 T	04/09/97				2					
45 BW3 Theta4 T	04/09/97				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
7 BW3 Phi 5 F/T	04/10/97				2					
77 BW3 Phi 5 Tu	04/10/97				2					
7 BW3 Phi 6 F/T	04/11/97				2					
77 BW3 Phi 6 Tu	04/11/97				2					
7 BW3 Phi 7 F/T	04/14/97				2					
77 BW3 Phi7 Tub	04/14/97				2					
7 BW3 Phi 8 F/T	04/15/97				2					
77 BW3 Phi 8 Tu	04/15/97				2					
6 BW3 Stero 9 T	04/16/97				2					
63 BW3 Ster9 T	04/16/97				2					
63 BW3 Ster10 T	04/17/97				2					
Mod Workstation	04/23/97	04/30/97	71461.02	11225.25	2	1.		42.3	.6	5.29
FW2 Assembly	04/30/97	06/06/97	11225.25	92870.01	2	1.5	5.9	253.2	13.	25.44
9 FW2 Thet1 F/T	05/06/97				2					
79 FW2 Thet1 Tu	05/06/97				2					
9 FW2 Thet2 F/T	05/08/97				2					
79 FW2 Thet2 Tu	05/08/97				2					
9 FW2 Thet3 F/T	05/12/97				2					
79 FW2 Thet3 Tu	05/13/97				2					
9 FW2 Thet4 F/T	05/14/97				2					
79 FW2 Thet4 Tu	05/15/97				2					
9 FW2 Str1 F/T	05/16/97				2					
79 FW2 Str1 Tub	05/19/97				2					
9 FW2 Str2 F/T	05/21/97				2					
79 FW2 Str2 Tub	05/21/97				2					
9 FW2 Str3 F/T	05/23/97				2					
79 FW2 Str3 Tub	05/23/97				2					
9 FW2 Str4 F/T	05/28/97				2					
79 FW2 Str4 Tub	05/28/97				2					
FW2 Assembly	06/06/97	07/11/97	92900.01	92870.02	2	1.3	21.8	211.8	8.6	23.87
9 FW2 Thet1 F/T	06/11/97				2					
79 FW2 Thet1 Tu	06/12/97				2					
9 FW2 Thet2 F/T	06/13/97				2					
79 FW2 Thet2 Tu	06/16/97				2					
9 FW2 Thet3 F/T	06/17/97				2					
79 FW2 Thet3 Tu	06/18/97				2					
9 FW2 Thet4 F/T	06/19/97				2					
79 FW2 Thet4 Tu	06/20/97				2					
9 FW2 Str1 F/T	06/23/97				2					
79 FW2 Str1 Tub	06/24/97				2					
9 FW2 Str2 F/T	06/25/97				2					
79 FW2 Str2 Tub	06/25/97				2					
9 FW2 Str3 F/T	06/27/97				2					
79 FW2 Str3 Tub	06/30/97				2					
9 FW2 Str4 F/T	07/01/97				2					
79 FW2 Str4 Tub	07/02/97				2					
FW2 Assembly	07/11/97	08/06/97	92900.02	92870.03	2	1.	20.7	168.8	15.	18.49
9 FW2 Thet1 F/T	07/15/97				2					
79 FW2 Thet1 Tu	07/15/97				2					
9 FW2 Thet2 F/T	07/16/97				2					
79 FW2 Thet2 Tu	07/17/97				2					
9 FW2 Thet3 F/T	07/18/97				2					
79 FW2 Thet3 Tu	07/18/97				2					
9 FW2 Thet4 F/T	07/22/97				2					
79 FW2 Thet4 Tu	07/22/97				2					
9 FW2 Str1 F/T	07/23/97				2					
79 FW2 Str1 Tub	07/24/97				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
9 FW2 Str2 F/T	07/25/97				2					
79 FW2 Str2 Tub	07/25/97				2					
9 FW2 Str3 F/T	07/29/97				2					
79 FW2 Str3 Tub	07/29/97				2					
9 FW2 Str4 F/T	07/30/97				2					
79 FW2 Str4 Tub	07/31/97				2					
FW2 Assembly	08/06/97	09/04/97	92900.03	92870.04	2	1.	25.9	168.9	12.2	19.57
9 FW2 Thet1 F/T	08/11/97				2					
79 FW2 Thet1 Tu	08/12/97				2					
9 FW2 Thet2 F/T	08/13/97				2					
79 FW2 Thet2 Tu	08/13/97				2					
9 FW2 Thet3 F/T	08/14/97				2					
79 FW2 Thet3 Tu	08/15/97				2					
9 FW2 Thet4 F/T	08/18/97				2					
79 FW2 Thet4 Tu	08/18/97				2					
9 FW2 Str1 F/T	08/19/97				2					
79 FW2 Str1 Tub	08/20/97				2					
9 FW2 Str2 F/T	08/21/97				2					
79 FW2 Str2 Tub	08/21/97				2					
9 FW2 Str3 F/T	08/25/97				2					
79 FW2 Str3 Tub	08/26/97				2					
9 FW2 Str4 F/T	08/27/97				2					
79 FW2 Str4 Tub	08/27/97				2					
FW2 Assembly	09/04/97	09/30/97	92900.04	92870.05	2	1.	19.	170.	13.3	18.49
9 FW2 Thet1 F/T	09/08/97				2					
79 FW2 Thet1 Tu	09/08/97				2					
9 FW2 Thet2 F/T	09/10/97				2					
79 FW2 Thet2 Tu	09/10/97				2					
9 FW2 Thet3 F/T	09/11/97				2					
79 FW2 Thet3 Tu	09/12/97				2					
9 FW2 Thet4 F/T	09/15/97				2					
79 FW2 Thet4 Tu	09/15/97				2					
9 FW2 Str1 F/T	09/16/97				2					
79 FW2 Str1 Tub	09/17/97				2					
9 FW2 Str2 F/T	09/18/97				2					
79 FW2 Str2 Tub	09/18/97				2					
9 FW2 Str3 F/T	09/22/97				2					
79 FW2 Str3 Tub	09/22/97				2					
9 FW2 Str4 F/T	09/23/97				2					
79 FW2 Str4 Tub	09/24/97				2					
FW2 Assembly	09/30/97	10/24/97	92900.05	92870.06	2	1.	8.9	168.5	10.3	17.55
9 FW2 Thet1 F/T	10/03/97				2					
79 FW2 Thet1 Tu	10/03/97				2					
9 FW2 Thet2 F/T	10/06/97				2					
79 FW2 Thet2 Tu	10/07/97				2					
9 FW2 Thet3 F/T	10/08/97				2					
79 FW2 Thet3 Tu	10/08/97				2					
9 FW2 Thet4 F/T	10/09/97				2					
79 FW2 Thet4 Tu	10/09/97				2					
9 FW2 Str1 F/T	10/13/97				2					
79 FW2 Str1 Tub	10/13/97				2					
9 FW2 Str2 F/T	10/14/97				2					
79 FW2 Str2 Tub	10/15/97				2					
9 FW2 Str3 F/T	10/16/97				2					
79 FW2 Str3 Tub	10/16/97				2					
9 FW2 Str4 F/T	10/17/97				2					
79 FW2 Str4 Tub	10/17/97				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
FW2 Assembly	10/24/97	11/18/97	92900.06	92870.07	2	1.		168.1	9.	16.65
9 FW2 Thet1 F/T	10/28/97				2					
79 FW2 Thet1 Tu	10/28/97				2					
9 FW2 Thet2 F/T	10/30/97				2					
79 FW2 Thet2 Tu	10/30/97				2					
9 FW2 Thet3 F/T	10/31/97				2					
79 FW2 Thet3 Tu	10/31/97				2					
9 FW2 Thet4 F/T	11/03/97				2					
79 FW2 Thet4 Tu	11/03/97				2					
9 FW2 Str1 F/T	11/05/97				2					
79 FW2 Str1 Tub	11/05/97				2					
9 FW2 Str2 F/T	11/06/97				2					
79 FW2 Str2 Tub	11/06/97				2					
9 FW2 Str3 F/T	11/10/97				2					
79 FW2 Str3 Tub	11/10/97				2					
9 FW2 Str4 F/T	11/11/97				2					
79 FW2 Str4 Tub	11/11/97				2					
FW2 Assembly	11/18/97	12/12/97	92900.07	92870.08	2	1.		169.4	8.	16.8
9 FW2 Thet1 F/T	11/20/97				2					
79 FW2 Thet1 Tu	11/20/97				2					
9 FW2 Thet2 F/T	11/21/97				2					
79 FW2 Thet2 Tu	11/21/97				2					
9 FW2 Thet3 F/T	11/25/97				2					
79 FW2 Thet3 Tu	11/25/97				2					
9 FW2 Thet4 F/T	11/26/97				2					
79 FW2 Thet4 Tu	11/26/97				2					
9 FW2 Str1 F/T	12/02/97				2					
79 FW2 Str1 Tub	12/02/97				2					
9 FW2 Str2 F/T	12/03/97				2					
79 FW2 Str2 Tub	12/03/97				2					
9 FW2 Str3 F/T	12/04/97				2					
79 FW2 Str3 Tub	12/04/97				2					
9 FW2 Str4 F/T	12/08/97				2					
79 FW2 Str4 Tub	12/08/97				2					
FW2 Assembly	12/12/97	01/09/98	92900.08	92870.09	2	1.		169.	9.9	16.52
9 FW2 Thet1 F/T	12/16/97				2					
79 FW2 Thet1 Tu	12/17/97				2					
9 FW2 Thet2 F/T	12/18/97				2					
79 FW2 Thet2 Tu	12/18/97				2					
9 FW2 Thet3 F/T	12/19/97				2					
79 FW2 Thet3 Tu	12/19/97				2					
9 FW2 Thet4 F/T	12/23/97				2					
79 FW2 Thet4 Tu	12/23/97				2					
9 FW2 Str1 F/T	12/26/97				2					
79 FW2 Str1 Tub	12/26/97				2					
9 FW2 Str2 F/T	12/29/97				2					
79 FW2 Str2 Tub	12/29/97				2					
9 FW2 Str3 F/T	12/31/97				2					
79 FW2 Str3 Tub	12/31/97				2					
9 FW2 Str4 F/T	01/02/98				2					
79 FW2 Str4 Tub	01/02/98				2					
FW2 Assembly	01/09/98	02/02/98	92900.09	92870.1	2	1.		169.	9.7	16.41
9 FW2 Thet1 F/T	01/13/98				2					
79 FW2 Thet1 Tu	01/13/98				2					
9 FW2 Thet2 F/T	01/14/98				2					
79 FW2 Thet2 Tu	01/14/98				2					
9 FW2 Thet3 F/T	01/16/98				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
79 FW2 Thet3 Tu	01/16/98				2					
9 FW2 Thet4 F/T	01/19/98				2					
79 FW2 Thet4 Tu	01/19/98				2					
9 FW2 Str1 F/T	01/21/98				2					
79 FW2 Str1 Tub	01/21/98				2					
9 FW2 Str2 F/T	01/22/98				2					
79 FW2 Str2 Tub	01/22/98				2					
9 FW2 Str3 F/T	01/23/98				2					
79 FW2 Str3 Tub	01/23/98				2					
9 FW2 Str4 F/T	01/27/98				2					
79 FW2 Str4 Tub	01/27/98				2					
FW2 Assembly	02/02/98	02/25/98	92900.1	92870.11	2	1.		169.8	10.8	16.58
9 FW2 Thet1 F/T	02/04/98				2					
79 FW2 Thet1 Tu	02/05/98				2					
9 FW2 Thet2 F/T	02/06/98				2					
79 FW2 Thet2 Tu	02/06/98				2					
9 FW2 Thet3 F/T	02/09/98				2					
79 FW2 Thet3 Tu	02/09/98				2					
9 FW2 Thet4 F/T	02/11/98				2					
79 FW2 Thet4 Tu	02/11/98				2					
9 FW2 Str1 F/T	02/12/98				2					
79 FW2 Str1 Tub	02/12/98				2					
9 FW2 Str2 F/T	02/16/98				2					
79 FW2 Str2 Tub	02/16/98				2					
9 FW2 Str3 F/T	02/17/98				2					
79 FW2 Str3 Tub	02/17/98				2					
9 FW2 Str4 F/T	02/18/98				2					
79 FW2 Str4 Tub	02/18/98				2					
FW2 Assembly	02/25/98	03/19/98	92900.11	92870.12	2	1.		169.7	10.3	16.47
9 FW2 Thet1 F/T	02/27/98				2					
79 FW2 Thet1 Tu	02/27/98				2					
9 FW2 Thet2 F/T	03/02/98				2					
79 FW2 Thet2 Tu	03/03/98				2					
9 FW2 Thet3 F/T	03/04/98				2					
79 FW2 Thet3 Tu	03/04/98				2					
9 FW2 Thet4 F/T	03/05/98				2					
79 FW2 Thet4 Tu	03/05/98				2					
9 FW2 Str1 F/T	03/09/98				2					
79 FW2 Str1 Tub	03/09/98				2					
9 FW2 Str2 F/T	03/10/98				2					
79 FW2 Str2 Tub	03/10/98				2					
9 FW2 Str3 F/T	03/11/98				2					
79 FW2 Str3 Tub	03/11/98				2					
9 FW2 Str4 F/T	03/13/98				2					
79 FW2 Str4 Tub	03/13/98				2					
FW2 Assembly	03/19/98	04/13/98	92900.12	92870.13	2	1.		169.8	12.6	16.22
9 FW2 Thet1 F/T	03/23/98				2					
79 FW2 Thet1 Tu	03/24/98				2					
9 FW2 Thet2 F/T	03/25/98				2					
79 FW2 Thet2 Tu	03/25/98				2					
9 FW2 Thet3 F/T	03/26/98				2					
79 FW2 Thet3 Tu	03/27/98				2					
9 FW2 Thet4 F/T	03/30/98				2					
79 FW2 Thet4 Tu	03/30/98				2					
9 FW2 Str1 F/T	03/31/98				2					
79 FW2 Str1 Tub	03/31/98				2					
9 FW2 Str2 F/T	04/01/98				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
79 FW2 Str2 Tub	04/01/98				2					
9 FW2 Str3 F/T	04/03/98				2					
79 FW2 Str3 Tub	04/03/98				2					
9 FW2 Str4 F/T	04/06/98				2					
79 FW2 Str4 Tub	04/06/98				2					
FW2 Assembly	04/13/98	05/05/98	92900.13	92870.14	2	1.		169.2	9.7	16.31
9 FW2 Thet1 F/T	04/15/98				2					
79 FW2 Thet1 Tu	04/15/98				2					
9 FW2 Thet2 F/T	04/16/98				2					
79 FW2 Thet2 Tu	04/16/98				2					
9 FW2 Thet3 F/T	04/20/98				2					
79 FW2 Thet3 Tu	04/20/98				2					
9 FW2 Thet4 F/T	04/21/98				2					
79 FW2 Thet4 Tu	04/21/98				2					
9 FW2 Str1 F/T	04/22/98				2					
79 FW2 Str1 Tub	04/22/98				2					
9 FW2 Str2 F/T	04/24/98				2					
79 FW2 Str2 Tub	04/24/98				2					
9 FW2 Str3 F/T	04/27/98				2					
79 FW2 Str3 Tub	04/27/98				2					
9 FW2 Str4 F/T	04/28/98				2					
79 FW2 Str4 Tub	04/28/98				2					
FW2 Assembly	05/05/98	05/28/98	92900.14	92870.15	2	1.		167.5	11.8	15.98
9 FW2 Thet1 F/T	05/07/98				2					
79 FW2 Thet1 Tu	05/07/98				2					
9 FW2 Thet2 F/T	05/08/98				2					
79 FW2 Thet2 Tu	05/08/98				2					
9 FW2 Thet3 F/T	05/12/98				2					
79 FW2 Thet3 Tu	05/12/98				2					
9 FW2 Thet4 F/T	05/13/98				2					
79 FW2 Thet4 Tu	05/13/98				2					
9 FW2 Str1 F/T	05/14/98				2					
79 FW2 Str1 Tub	05/14/98				2					
9 FW2 Str2 F/T	05/18/98				2					
79 FW2 Str2 Tub	05/18/98				2					
9 FW2 Str3 F/T	05/19/98				2					
79 FW2 Str3 Tub	05/19/98				2					
9 FW2 Str4 F/T	05/21/98				2					
79 FW2 Str4 Tub	05/21/98				2					
FW2 Assembly	05/28/98	06/22/98	92900.15	92870.16	2	1.		170.2	6.1	17.28
9 FW2 Thet1 F/T	06/01/98				2					
79 FW2 Thet1 Tu	06/01/98				2					
9 FW2 Thet2 F/T	06/02/98				2					
79 FW2 Thet2 Tu	06/02/98				2					
9 FW2 Thet3 F/T	06/04/98				2					
79 FW2 Thet3 Tu	06/04/98				2					
9 FW2 Thet4 F/T	06/05/98				2					
79 FW2 Thet4 Tu	06/05/98				2					
9 FW2 Str1 F/T	06/09/98				2					
79 FW2 Str1 Tub	06/09/98				2					
9 FW2 Str2 F/T	06/10/98				2					
79 FW2 Str2 Tub	06/10/98				2					
9 FW2 Str3 F/T	06/12/98				2					
79 FW2 Str3 Tub	06/12/98				2					
9 FW2 Str4 F/T	06/15/98				2					
79 FW2 Str4 Tub	06/15/98				2					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
KickOff	01/02/95	05/31/95	- .05	4000.04	3			848.		106.
Mod Workstation	05/31/95	06/06/95	4000.04	11225.08	3	1.		37.3		4.67
FW1 Assembly	06/06/95	07/12/95	11225.08	91840.01	3	3.		238.6	13.8	25.26
7 FW1 Thet1 F/T	06/13/95				3					
62 FW1 Thet1 Tu	06/14/95				3					
7 FW1 Thet2 F/T	06/16/95				3					
62 FW1 Thet2 Tu	06/19/95				3					
7 FW1 Thet3 F/T	06/22/95				3					
62 FW1 Thet3 Tu	06/23/95				3					
7 FW1 Thet4 F/T	06/28/95				3					
62 FW1 Thet4 Tu	06/29/95				3					
Mod Workstation	07/12/95	07/20/95	91858.01	11225.11	3	1.		42.9		5.36
FW5 Assembly	07/20/95	10/02/95	11225.11	95950.01	3	3.		513.3	27.5	51.09
8 FW5 Thet1 F/T	07/28/95				3					
79 FW5 Thet1 Tu	07/31/95				3					
8 FW5 Thet2 F/T	08/03/95				3					
79 FW5 Thet2 Tu	08/04/95				3					
8 FW5 Thet3 F/T	08/09/95				3					
79 FW5 Thet3 Tu	08/10/95				3					
8 FW5 Thet4 F/T	08/15/95				3					
79 FW5 Thet4 Tu	08/16/95				3					
8 FW5 Str1 F/T	08/21/95				3					
79 FW5 Str1 Tub	08/22/95				3					
8 FW5 Str2 F/T	08/25/95				3					
79 FW5 Str2 Tub	08/28/95				3					
8 FW5 Str3 F/T	08/31/95				3					
79 FW5 Str3 Tub	09/01/95				3					
8 FW5 Str4 F/T	09/07/95				3					
79 FW5 Str4 Tub	09/08/95				3					
71 FS5 Scin	09/18/95				3					
Sojourn	10/02/95	06/28/96	95980.01	3000.04	3			1504.		188.
Mod Workstation	10/02/95	10/09/95	95980.01	11225.12	3	1.		39.6		4.95
BW1-3 BWT Prod	06/28/96	07/30/96	3000.04	53260.04	3	1.3	18.4	179.8	7.5	20.74
9 BW1 Theta 1 T	07/05/96				3					
80 BW1 Theta 1	07/05/96				3					
9 BW1 Theta 2 T	07/09/96				3					
80 BW1 Theta 2	07/09/96				3					
9 BW1 Theta 3 T	07/10/96				3					
80 BW1 Theta 3	07/10/96				3					
9 BW1 Theta 4 T	07/12/96				3					
80 BW1 Theta 4	07/12/96				3					
5 BW1 Phi 5 F/T	07/15/96				3					
43 BW1 Phi 5 Tu	07/16/96				3					
5 BW1 Phi 6 F/T	07/17/96				3					
43 BW1 Phi 6 Tu	07/17/96				3					
5 BW1 Phi 7 F/T	07/18/96				3					
43 BW1 Phi 7 Tu	07/18/96				3					
5 BW1 Phi 8 F/T	07/19/96				3					
43 BW1 Phi 8 Tu	07/19/96				3					
BW1-3 BWT Prod	07/30/96	08/21/96	53290.04	53260.05	3	1.	12.9	146.4	6.5	16.63
9 BW1 Theta 1 T	08/02/96				3					
80 BW1 Theta 1	08/02/96				3					
9 BW1 Theta 2 T	08/05/96				3					
80 BW1 Theta 2	08/05/96				3					
9 BW1 Theta 3 T	08/06/96				3					
80 BW1 Theta 3	08/07/96				3					
9 BW1 Theta 4 T	08/08/96				3					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
80 BW1 Theta 4	08/08/96				3					
5 BW1 Phi 5 F/T	08/09/96				3					
43 BW1 Phi 5 Tu	08/09/96				3					
5 BW1 Phi 6 F/T	08/12/96				3					
43 BW1 Phi 6 Tu	08/12/96				3					
5 BW1 Phi 7 F/T	08/13/96				3					
43 BW1 Phi 7 Tu	08/13/96				3					
5 BW1 Phi 8 F/T	08/14/96				3					
43 BW1 Phi 8 Tu	08/14/96				3					
BW1-3 BWT Prod	08/21/96	09/13/96	53290.05	53260.06	3	1.	4.	145.4	5.9	15.35
9 BW1 Theta 1 T	08/26/96				3					
80 BW1 Theta 1	08/27/96				3					
9 BW1 Theta 2 T	08/28/96				3					
80 BW1 Theta 2	08/28/96				3					
9 BW1 Theta 3 T	08/29/96				3					
80 BW1 Theta 3	08/29/96				3					
9 BW1 Theta 4 T	08/30/96				3					
80 BW1 Theta 4	09/02/96				3					
5 BW1 Phi 5 F/T	09/04/96				3					
43 BW1 Phi 5 Tu	09/04/96				3					
5 BW1 Phi 6 F/T	09/04/96				3					
43 BW1 Phi 6 Tu	09/05/96				3					
5 BW1 Phi 7 F/T	09/05/96				3					
43 BW1 Phi 7 Tu	09/06/96				3					
5 BW1 Phi 8 F/T	09/06/96				3					
43 BW1 Phi 8 Tu	09/06/96				3					
BW1-3 BWT Prod	09/13/96	10/07/96	53290.06	53260.07	3	1.	14.3	145.8	11.5	16.28
9 BW1 Theta 1 T	09/18/96				3					
80 BW1 Theta 1	09/19/96				3					
9 BW1 Theta 2 T	09/20/96				3					
80 BW1 Theta 2	09/20/96				3					
9 BW1 Theta 3 T	09/23/96				3					
80 BW1 Theta 3	09/23/96				3					
9 BW1 Theta 4 T	09/24/96				3					
80 BW1 Theta 4	09/24/96				3					
5 BW1 Phi 5 F/T	09/25/96				3					
43 BW1 Phi 5 Tu	09/26/96				3					
5 BW1 Phi 6 F/T	09/26/96				3					
43 BW1 Phi 6 Tu	09/26/96				3					
5 BW1 Phi 7 F/T	09/27/96				3					
43 BW1 Phi 7 Tu	09/27/96				3					
5 BW1 Phi 8 F/T	09/30/96				3					
43 BW1 Phi 8 Tu	09/30/96				3					
WS3 Phase1 Done	10/07/96	10/07/96	53260.07	103000.01	3					
Mod Workstation	10/07/96	10/14/96	53290.07	11225.17	3	1.		40.3		5.03
BW1-2/4-5	10/14/96	11/01/96	11225.17	54295.01	3	1.3	3.4	140.5	12.4	14.06
5 BW1 Theta 1 T	10/17/96				3					
48 BW1 Theta 1	10/17/96				3					
5 BW1 Theta 2 T	10/18/96				3					
48 BW1 Theta 2	10/18/96				3					
5 BW1 Theta 3 T	10/21/96				3					
48 BW1 Theta 3	10/21/96				3					
5 BW1 Theta 4 T	10/22/96				3					
48 BW1 Theta 4	10/22/96				3					
5 BW1 Phi 5 F/T	10/23/96				3					
43 BW1 Phi 5 Tu	10/23/96				3					
5 BW1 Phi 6 F/T	10/24/96				3					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
43 BW1 Phi 6 Tu	10/24/96				3					
5 BW1 Phi 7 F/T	10/25/96				3					
43 BW1 Phi 7 Tu	10/25/96				3					
5 BW1 Phi 8 F/T	10/28/96				3					
43 BW1 Phi 8 Tu	10/28/96				3					
BW1-2/4-5	11/01/96	11/19/96	54325.01	54295.02	3	1.	3.7	113.1	5.9	11.91
5 BW1 Theta 1 T	11/05/96				3					
48 BW1 Theta 1	11/06/96				3					
5 BW1 Theta 2 T	11/06/96				3					
48 BW1 Theta 2	11/07/96				3					
5 BW1 Theta 3 T	11/07/96				3					
48 BW1 Theta 3	11/07/96				3					
5 BW1 Theta 4 T	11/08/96				3					
48 BW1 Theta 4	11/08/96				3					
5 BW1 Phi 5 F/T	11/11/96				3					
43 BW1 Phi 5 Tu	11/11/96				3					
5 BW1 Phi 6 F/T	11/12/96				3					
43 BW1 Phi 6 Tu	11/12/96				3					
5 BW1 Phi 7 F/T	11/12/96				3					
43 BW1 Phi 7 Tu	11/12/96				3					
5 BW1 Phi 8 F/T	11/13/96				3					
43 BW1 Phi 8 Tu	11/13/96				3					
Mod Workstation	11/19/96	11/26/96	54325.02	11225.19	3	1.		40.3		5.04
BW2-3 BWT Prod	11/26/96	12/26/96	11225.19	65690.04	3	1.3	1.1	179.9	10.	18.2
9 BW2 Theta 1 T	12/04/96				3					
81 BW2 Theta1 T	12/05/96				3					
9 BW2 Theta 2 T	12/06/96				3					
81 BW2 Theta2 T	12/06/96				3					
9 BW2 Theta 3 T	12/10/96				3					
81 BW2 Theta3 T	12/10/96				3					
9 BW2 Theta 4 T	12/11/96				3					
81 BW2 Theta4 T	12/12/96				3					
BW2-3 BWT Prod	12/26/96	01/17/97	65711.04	65690.05	3	1.	1.7	144.1	5.2	14.5
9 BW2 Theta 1 T	01/02/97				3					
81 BW2 Theta1 T	01/02/97				3					
9 BW2 Theta 2 T	01/03/97				3					
81 BW2 Theta2 T	01/03/97				3					
9 BW2 Theta 3 T	01/06/97				3					
81 BW2 Theta3 T	01/07/97				3					
9 BW2 Theta 4 T	01/08/97				3					
81 BW2 Theta4 T	01/08/97				3					
BW2-3 BWT Prod	01/17/97	02/06/97	65711.05	65690.06	3	1.	5.9	141.6	13.3	14.
9 BW2 Theta 1 T	01/22/97				3					
81 BW2 Theta1 T	01/22/97				3					
9 BW2 Theta 2 T	01/23/97				3					
81 BW2 Theta2 T	01/24/97				3					
9 BW2 Theta 3 T	01/27/97				3					
81 BW2 Theta3 T	01/27/97				3					
9 BW2 Theta 4 T	01/28/97				3					
81 BW2 Theta4 T	01/29/97				3					
BW2-3 BWT Prod	02/06/97	02/26/97	65711.06	65690.07	3	1.	3.	141.9	13.7	14.
9 BW2 Theta 1 T	02/11/97				3					
81 BW2 Theta1 T	02/11/97				3					
9 BW2 Theta 2 T	02/12/97				3					
81 BW2 Theta2 T	02/12/97				3					
9 BW2 Theta 3 T	02/13/97				3					
81 BW2 Theta3 T	02/14/97				3					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
9 BW2 Theta 4 T	02/17/97				3					
81 BW2 Theta4 T	02/17/97				3					
Mod Workstation	02/26/97	03/04/97	65711.07	11225.21	3	1.		40.5	1.5	5.07
BW2-2/4 BWT Prd	03/04/97	03/24/97	11225.21	66720.07	3	1.3	2.7	136.9	15.	12.97
6 BW2 Theta 1 T	03/10/97				3					
59 BW2 Theta1 T	03/10/97				3					
6 BW2 Theta 2 T	03/11/97				3					
59 BW2 Theta2 T	03/11/97				3					
6 BW2 Theta 3 T	03/12/97				3					
59 BW2 Theta3 T	03/12/97				3					
6 BW2 Theta 4 T	03/13/97				3					
59 BW2 Theta4 T	03/13/97				3					
BW2-2/4 BWT Prd	03/24/97	04/08/97	66741.07	66720.08	3	1.	7.9	109.7	6.	11.65
6 BW2 Theta 1 T	03/26/97				3					
59 BW2 Theta1 T	03/27/97				3					
6 BW2 Theta 2 T	03/27/97				3					
59 BW2 Theta2 T	03/28/97				3					
6 BW2 Theta 3 T	03/28/97				3					
59 BW2 Theta3 T	03/31/97				3					
6 BW2 Theta 4 T	04/01/97				3					
59 BW2 Theta4 T	04/01/97				3					
BW2-2/4 BWT Prd	04/08/97	04/23/97	66741.08	66720.09	3	1.	1.2	109.9	6.7	10.87
6 BW2 Theta 1 T	04/11/97				3					
59 BW2 Theta1 T	04/11/97				3					
6 BW2 Theta 2 T	04/14/97				3					
59 BW2 Theta2 T	04/14/97				3					
6 BW2 Theta 3 T	04/15/97				3					
59 BW2 Theta3 T	04/15/97				3					
6 BW2 Theta 4 T	04/16/97				3					
59 BW2 Theta4 T	04/16/97				3					
BW2-2/4 BWT Prd	04/23/97	05/08/97	66741.09	66720.1	3	1.	.1	109.2	8.8	10.45
6 BW2 Theta 1 T	04/28/97				3					
59 BW2 Theta1 T	04/28/97				3					
6 BW2 Theta 2 T	04/29/97				3					
59 BW2 Theta2 T	04/29/97				3					
6 BW2 Theta 3 T	04/30/97				3					
59 BW2 Theta3 T	04/30/97				3					
6 BW2 Theta 4 T	04/30/97				3					
59 BW2 Theta4 T	05/01/97				3					
BW2-2/4 BWT Prd	05/08/97	05/23/97	66741.1	66720.11	3	1.	.1	109.	3.4	11.
6 BW2 Theta 1 T	05/13/97				3					
59 BW2 Theta1 T	05/13/97				3					
6 BW2 Theta 2 T	05/13/97				3					
59 BW2 Theta2 T	05/14/97				3					
6 BW2 Theta 3 T	05/14/97				3					
59 BW2 Theta3 T	05/14/97				3					
6 BW2 Theta 4 T	05/15/97				3					
59 BW2 Theta4 T	05/15/97				3					
BW2-2/4 BWT Prd	05/23/97	06/11/97	66741.11	66720.12	3	1.	10.5	108.8	6.9	12.32
6 BW2 Theta 1 T	05/29/97				3					
59 BW2 Theta1 T	05/29/97				3					
6 BW2 Theta 2 T	05/30/97				3					
59 BW2 Theta2 T	05/30/97				3					
6 BW2 Theta 3 T	06/02/97				3					
59 BW2 Theta3 T	06/03/97				3					
6 BW2 Theta 4 T	06/03/97				3					
59 BW2 Theta4 T	06/03/97				3					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
BW2-2/4 BWT Prd	06/11/97	06/27/97	66741.12	66720.13	3	1.	14.4	107.9	8.	12.37
6 BW2 Theta 1 T	06/16/97				3					
59 BW2 Theta1 T	06/17/97				3					
6 BW2 Theta 2 T	06/17/97				3					
59 BW2 Theta2 T	06/17/97				3					
6 BW2 Theta 3 T	06/18/97				3					
59 BW2 Theta3 T	06/19/97				3					
6 BW2 Theta 4 T	06/20/97				3					
59 BW2 Theta4 T	06/20/97				3					
BW2-2/4 BWT Prd	06/27/97	07/16/97	66741.13	66720.14	3	1.	8.	110.	7.9	11.73
6 BW2 Theta 1 T	07/02/97				3					
59 BW2 Theta1 T	07/03/97				3					
6 BW2 Theta 2 T	07/03/97				3					
59 BW2 Theta2 T	07/07/97				3					
6 BW2 Theta 3 T	07/07/97				3					
59 BW2 Theta3 T	07/08/97				3					
6 BW2 Theta 4 T	07/08/97				3					
59 BW2 Theta4 T	07/09/97				3					
Mod Workstation	07/16/97	07/23/97	66741.14	11225.27	3	1.		40.3		5.04
FW4 Assembly	07/23/97	08/11/97	11225.27	94920.01	3	1.5	8.4	119.9	4.6	13.24
5 FW4 Thet1 F/T	07/28/97				3					
51 FW4 Thet1 Tu	07/28/97				3					
5 FW4 Thet2 F/T	07/29/97				3					
51 FW4 Thet2 Tu	07/30/97				3					
5 FW4 Thet3 F/T	07/31/97				3					
51 FW4 Thet3 Tu	07/31/97				3					
5 FW4 Thet4 F/T	08/01/97				3					
51 FW4 Thet4 Tu	08/01/97				3					
70 FS4 Scin	08/06/97				3					
FW4 Assembly	08/11/97	08/27/97	94938.01	94920.02	3	1.3	15.9	100.1	6.2	12.1
5 FW4 Thet1 F/T	08/14/97				3					
51 FW4 Thet1 Tu	08/14/97				3					
5 FW4 Thet2 F/T	08/15/97				3					
51 FW4 Thet2 Tu	08/15/97				3					
5 FW4 Thet3 F/T	08/18/97				3					
51 FW4 Thet3 Tu	08/18/97				3					
5 FW4 Thet4 F/T	08/19/97				3					
51 FW4 Thet4 Tu	08/20/97				3					
70 FS4 Scin	08/25/97				3					
FW4 Assembly	08/27/97	09/11/97	94938.02	94920.03	3	1.	11.6	79.7	4.9	9.2
5 FW4 Thet1 F/T	09/02/97				3					
51 FW4 Thet1 Tu	09/02/97				3					
5 FW4 Thet2 F/T	09/03/97				3					
51 FW4 Thet2 Tu	09/03/97				3					
5 FW4 Thet3 F/T	09/03/97				3					
51 FW4 Thet3 Tu	09/04/97				3					
5 FW4 Thet4 F/T	09/04/97				3					
51 FW4 Thet4 Tu	09/05/97				3					
70 FS4 Scin	09/08/97				3					
FW4 Assembly	09/11/97	09/24/97	94938.03	94920.04	3	1.	11.3	80.3	3.7	9.33
5 FW4 Thet1 F/T	09/15/97				3					
51 FW4 Thet1 Tu	09/15/97				3					
5 FW4 Thet2 F/T	09/16/97				3					
51 FW4 Thet2 Tu	09/16/97				3					
5 FW4 Thet3 F/T	09/17/97				3					
51 FW4 Thet3 Tu	09/17/97				3					
5 FW4 Thet4 F/T	09/18/97				3					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
51 FW4 Thet4 Tu	09/18/97				3					
70 FS4 Scin	09/22/97				3					
FW4 Assembly	09/24/97	10/06/97	94938.04	94920.05	3	1.	6.3	80.4	6.5	8.48
5 FW4 Thet1 F/T	09/26/97				3					
51 FW4 Thet1 Tu	09/29/97				3					
5 FW4 Thet2 F/T	09/29/97				3					
51 FW4 Thet2 Tu	09/29/97				3					
5 FW4 Thet3 F/T	09/30/97				3					
51 FW4 Thet3 Tu	09/30/97				3					
5 FW4 Thet4 F/T	10/01/97				3					
51 FW4 Thet4 Tu	10/01/97				3					
70 FS4 Scin	10/02/97				3					
FW4 Assembly	10/06/97	10/17/97	94938.05	94920.06	3	1.	3.2	79.7	7.3	8.19
5 FW4 Thet1 F/T	10/08/97				3					
51 FW4 Thet1 Tu	10/09/97				3					
5 FW4 Thet2 F/T	10/09/97				3					
51 FW4 Thet2 Tu	10/09/97				3					
5 FW4 Thet3 F/T	10/10/97				3					
51 FW4 Thet3 Tu	10/10/97				3					
5 FW4 Thet4 F/T	10/13/97				3					
51 FW4 Thet4 Tu	10/13/97				3					
70 FS4 Scin	10/14/97				3					
FW4 Assembly	10/17/97	10/28/97	94938.06	94920.07	3	1.		79.9	5.3	7.79
5 FW4 Thet1 F/T	10/20/97				3					
51 FW4 Thet1 Tu	10/21/97				3					
5 FW4 Thet2 F/T	10/21/97				3					
51 FW4 Thet2 Tu	10/21/97				3					
5 FW4 Thet3 F/T	10/22/97				3					
51 FW4 Thet3 Tu	10/22/97				3					
5 FW4 Thet4 F/T	10/23/97				3					
51 FW4 Thet4 Tu	10/23/97				3					
70 FS4 Scin	10/24/97				3					
FW4 Assembly	10/28/97	11/07/97	94938.07	94920.08	3	1.		80.2	5.	7.98
5 FW4 Thet1 F/T	10/30/97				3					
51 FW4 Thet1 Tu	10/30/97				3					
5 FW4 Thet2 F/T	10/31/97				3					
51 FW4 Thet2 Tu	10/31/97				3					
5 FW4 Thet3 F/T	11/03/97				3					
51 FW4 Thet3 Tu	11/03/97				3					
5 FW4 Thet4 F/T	11/04/97				3					
51 FW4 Thet4 Tu	11/04/97				3					
70 FS4 Scin	11/05/97				3					
FW4 Assembly	11/07/97	11/19/97	94938.08	94920.09	3	1.		80.2	4.7	7.8
5 FW4 Thet1 F/T	11/11/97				3					
51 FW4 Thet1 Tu	11/11/97				3					
5 FW4 Thet2 F/T	11/12/97				3					
51 FW4 Thet2 Tu	11/12/97				3					
5 FW4 Thet3 F/T	11/13/97				3					
51 FW4 Thet3 Tu	11/13/97				3					
5 FW4 Thet4 F/T	11/14/97				3					
51 FW4 Thet4 Tu	11/14/97				3					
70 FS4 Scin	11/17/97				3					
FW4 Assembly	11/19/97	12/03/97	94938.09	94920.1	3	1.		80.9	5.9	7.76
5 FW4 Thet1 F/T	11/21/97				3					
51 FW4 Thet1 Tu	11/21/97				3					
5 FW4 Thet2 F/T	11/24/97				3					
51 FW4 Thet2 Tu	11/24/97				3					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
5 FW4 Thet3 F/T	11/24/97				3					
51 FW4 Thet3 Tu	11/25/97				3					
5 FW4 Thet4 F/T	11/25/97				3					
51 FW4 Thet4 Tu	11/25/97				3					
70 FS4 Scin	12/01/97				3					
FW4 Assembly	12/03/97	12/15/97	94938.1	94920.11	3	1.		80.8	3.9	8.
5 FW4 Thet1 F/T	12/05/97				3					
51 FW4 Thet1 Tu	12/05/97				3					
5 FW4 Thet2 F/T	12/08/97				3					
51 FW4 Thet2 Tu	12/08/97				3					
5 FW4 Thet3 F/T	12/08/97				3					
51 FW4 Thet3 Tu	12/09/97				3					
5 FW4 Thet4 F/T	12/09/97				3					
51 FW4 Thet4 Tu	12/09/97				3					
70 FS4 Scin	12/11/97				3					
FW4 Assembly	12/15/97	12/29/97	94938.11	94920.12	3	1.		79.1	6.3	7.67
5 FW4 Thet1 F/T	12/17/97				3					
51 FW4 Thet1 Tu	12/17/97				3					
5 FW4 Thet2 F/T	12/18/97				3					
51 FW4 Thet2 Tu	12/18/97				3					
5 FW4 Thet3 F/T	12/18/97				3					
51 FW4 Thet3 Tu	12/19/97				3					
5 FW4 Thet4 F/T	12/19/97				3					
51 FW4 Thet4 Tu	12/19/97				3					
70 FS4 Scin	12/23/97				3					
FW4 Assembly	12/29/97	01/08/98	94938.12	94920.13	3	1.		81.4	6.2	7.83
5 FW4 Thet1 F/T	12/30/97				3					
51 FW4 Thet1 Tu	12/31/97				3					
5 FW4 Thet2 F/T	12/31/97				3					
51 FW4 Thet2 Tu	12/31/97				3					
5 FW4 Thet3 F/T	01/02/98				3					
51 FW4 Thet3 Tu	01/02/98				3					
5 FW4 Thet4 F/T	01/05/98				3					
51 FW4 Thet4 Tu	01/05/98				3					
70 FS4 Scin	01/06/98				3					
FW4 Assembly	01/08/98	01/20/98	94938.13	94920.14	3	1.		81.1	5.8	7.8
5 FW4 Thet1 F/T	01/12/98				3					
51 FW4 Thet1 Tu	01/12/98				3					
5 FW4 Thet2 F/T	01/13/98				3					
51 FW4 Thet2 Tu	01/13/98				3					
5 FW4 Thet3 F/T	01/14/98				3					
51 FW4 Thet3 Tu	01/14/98				3					
5 FW4 Thet4 F/T	01/15/98				3					
51 FW4 Thet4 Tu	01/15/98				3					
70 FS4 Scin	01/16/98				3					
FW4 Assembly	01/20/98	01/30/98	94938.14	94920.15	3	1.		80.3	5.9	7.69
5 FW4 Thet1 F/T	01/22/98				3					
51 FW4 Thet1 Tu	01/22/98				3					
5 FW4 Thet2 F/T	01/23/98				3					
51 FW4 Thet2 Tu	01/23/98				3					
5 FW4 Thet3 F/T	01/26/98				3					
51 FW4 Thet3 Tu	01/26/98				3					
5 FW4 Thet4 F/T	01/27/98				3					
51 FW4 Thet4 Tu	01/27/98				3					
70 FS4 Scin	01/28/98				3					
FW4 Assembly	01/30/98	02/11/98	94938.15	94920.16	3	1.		80.6	3.5	8.
5 FW4 Thet1 F/T	02/03/98				3					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
51 FW4 Thet1 Tu	02/03/98				3					
5 FW4 Thet2 F/T	02/04/98				3					
51 FW4 Thet2 Tu	02/04/98				3					
5 FW4 Thet3 F/T	02/04/98				3					
51 FW4 Thet3 Tu	02/05/98				3					
5 FW4 Thet4 F/T	02/05/98				3					
51 FW4 Thet4 Tu	02/05/98				3					
70 FS4 Scin	02/09/98				3					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
KickOff	01/02/95	01/03/95	- .06	4000.05	4			8.		1.
Mod Workstation	01/03/95	01/09/95	4000.05	11225.03	4	1.		39.2		4.9
BW1-3-5 Prod	01/09/95	03/15/95	11225.03	55551.01	4	3.		431.6	19.	46.13
9 BW1 Theta 1 T	01/20/95				4					
80 BW1 Theta 1	01/23/95				4					
9 BW1 Theta 2 T	01/26/95				4					
80 BW1 Theta 2	01/27/95				4					
9 BW1 Theta 3 T	02/01/95				4					
80 BW1 Theta 3	02/02/95				4					
9 BW1 Theta 4 T	02/07/95				4					
80 BW1 Theta 4	02/08/95				4					
5 BW1 Phi 5 F/T	02/13/95				4					
43 BW1 Phi 5 Tu	02/14/95				4					
5 BW1 Phi 6 F/T	02/15/95				4					
43 BW1 Phi 6 Tu	02/16/95				4					
5 BW1 Phi 7 F/T	02/20/95				4					
43 BW1 Phi 7 Tu	02/21/95				4					
5 BW1 Phi 8 F/T	02/23/95				4					
43 BW1 Phi 8 Tu	02/23/95				4					
Mod Workstation	03/15/95	03/21/95	55581.01	11225.05	4	1.		40.5	.8	5.06
BW1-3 BWT Prod	03/21/95	04/24/95	11225.05	53260.01	4	1.5		217.4	5.5	22.92
9 BW1 Theta 1 T	03/28/95				4					
80 BW1 Theta 1	03/28/95				4					
9 BW1 Theta 2 T	03/30/95				4					
80 BW1 Theta 2	03/30/95				4					
9 BW1 Theta 3 T	04/03/95				4					
80 BW1 Theta 3	04/03/95				4					
9 BW1 Theta 4 T	04/05/95				4					
80 BW1 Theta 4	04/05/95				4					
5 BW1 Phi 5 F/T	04/07/95				4					
43 BW1 Phi 5 Tu	04/07/95				4					
5 BW1 Phi 6 F/T	04/10/95				4					
43 BW1 Phi 6 Tu	04/10/95				4					
5 BW1 Phi 7 F/T	04/11/95				4					
43 BW1 Phi 7 Tu	04/12/95				4					
5 BW1 Phi 8 F/T	04/13/95				4					
43 BW1 Phi 8 Tu	04/13/95				4					
BW1-3 BWT Prod	04/24/95	05/18/95	53290.01	53260.02	4	1.3		181.2	11.1	18.36
9 BW1 Theta 1 T	04/27/95				4					
80 BW1 Theta 1	04/28/95				4					
9 BW1 Theta 2 T	05/01/95				4					
80 BW1 Theta 2	05/01/95				4					
9 BW1 Theta 3 T	05/03/95				4					
80 BW1 Theta 3	05/03/95				4					
9 BW1 Theta 4 T	05/04/95				4					
80 BW1 Theta 4	05/04/95				4					
5 BW1 Phi 5 F/T	05/08/95				4					
43 BW1 Phi 5 Tu	05/08/95				4					
5 BW1 Phi 6 F/T	05/09/95				4					
43 BW1 Phi 6 Tu	05/09/95				4					
5 BW1 Phi 7 F/T	05/10/95				4					
43 BW1 Phi 7 Tu	05/10/95				4					
5 BW1 Phi 8 F/T	05/11/95				4					
43 BW1 Phi 8 Tu	05/11/95				4					
BW1-3 BWT Prod	05/18/95	06/09/95	53290.02	53260.03	4	1.		146.6	10.8	14.69
9 BW1 Theta 1 T	05/23/95				4					
80 BW1 Theta 1	05/23/95				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
9 BW1 Theta 2 T	05/24/95				4					
80 BW1 Theta 2	05/24/95				4					
9 BW1 Theta 3 T	05/25/95				4					
80 BW1 Theta 3	05/26/95				4					
9 BW1 Theta 4 T	05/30/95				4					
80 BW1 Theta 4	05/30/95				4					
5 BW1 Phi 5 F/T	05/31/95				4					
43 BW1 Phi 5 Tu	05/31/95				4					
5 BW1 Phi 6 F/T	06/01/95				4					
43 BW1 Phi 6 Tu	06/01/95				4					
5 BW1 Phi 7 F/T	06/01/95				4					
43 BW1 Phi 7 Tu	06/02/95				4					
5 BW1 Phi 8 F/T	06/02/95				4					
43 BW1 Phi 8 Tu	06/02/95				4					
Sojoum	06/09/95	03/05/96	53290.03	3000.01	4			1480.		185.
Mod Workstation	06/09/95	06/15/95	53290.03	11225.09	4	1.		38.6		4.82
BW1-2/4 BWT	03/05/96	03/25/96	3000.01	52226.01	4	1.3		142.1	6.9	14.72
5 BW1 Theta 1 T	03/07/96				4					
48 BW1 Theta 1	03/08/96				4					
5 BW1 Theta 2 T	03/08/96				4					
48 BW1 Theta 2	03/11/96				4					
5 BW1 Theta 3 T	03/12/96				4					
48 BW1 Theta 3	03/12/96				4					
5 BW1 Theta 4 T	03/13/96				4					
48 BW1 Theta 4	03/13/96				4					
5 BW1 Phi 5 F/T	03/14/96				4					
43 BW1 Phi 5 Tu	03/14/96				4					
5 BW1 Phi 6 F/T	03/15/96				4					
43 BW1 Phi 6 Tu	03/15/96				4					
5 BW1 Phi 7 F/T	03/15/96				4					
43 BW1 Phi 7 Tu	03/18/96				4					
5 BW1 Phi 8 F/T	03/18/96				4					
43 BW1 Phi 8 Tu	03/19/96				4					
BW1-2/4 BWT	03/25/96	04/10/96	52256.01	52226.02	4	1.		113.1	7.3	11.31
5 BW1 Theta 1 T	03/28/96				4					
48 BW1 Theta 1	03/28/96				4					
5 BW1 Theta 2 T	03/28/96				4					
48 BW1 Theta 2	03/29/96				4					
5 BW1 Theta 3 T	03/29/96				4					
48 BW1 Theta 3	04/01/96				4					
5 BW1 Theta 4 T	04/01/96				4					
48 BW1 Theta 4	04/01/96				4					
5 BW1 Phi 5 F/T	04/02/96				4					
43 BW1 Phi 5 Tu	04/02/96				4					
5 BW1 Phi 6 F/T	04/03/96				4					
43 BW1 Phi 6 Tu	04/03/96				4					
5 BW1 Phi 7 F/T	04/03/96				4					
43 BW1 Phi 7 Tu	04/03/96				4					
5 BW1 Phi 8 F/T	04/04/96				4					
43 BW1 Phi 8 Tu	04/04/96				4					
BW1-2/4 BWT	04/10/96	04/25/96	52256.02	52226.03	4	1.		112.2	8.1	11.23
5 BW1 Theta 1 T	04/12/96				4					
48 BW1 Theta 1	04/12/96				4					
5 BW1 Theta 2 T	04/15/96				4					
48 BW1 Theta 2	04/15/96				4					
5 BW1 Theta 3 T	04/15/96				4					
48 BW1 Theta 3	04/16/96				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
5 BW1 Theta 4 T	04/16/96				4					
48 BW1 Theta 4	04/16/96				4					
5 BW1 Phi 5 F/T	04/17/96				4					
43 BW1 Phi 5 Tu	04/17/96				4					
5 BW1 Phi 6 F/T	04/18/96				4					
43 BW1 Phi 6 Tu	04/18/96				4					
5 BW1 Phi 7 F/T	04/18/96				4					
43 BW1 Phi 7 Tu	04/18/96				4					
5 BW1 Phi 8 F/T	04/19/96				4					
43 BW1 Phi 8 Tu	04/19/96				4					
BW1-2/4 BWT	04/25/96	05/10/96	52256.03	52226.04	4	1.		113.1	5.2	11.55
5 BW1 Theta 1 T	04/29/96				4					
48 BW1 Theta 1	04/29/96				4					
5 BW1 Theta 2 T	04/30/96				4					
48 BW1 Theta 2	04/30/96				4					
5 BW1 Theta 3 T	05/01/96				4					
48 BW1 Theta 3	05/01/96				4					
5 BW1 Theta 4 T	05/02/96				4					
48 BW1 Theta 4	05/02/96				4					
5 BW1 Phi 5 F/T	05/02/96				4					
43 BW1 Phi 5 Tu	05/03/96				4					
5 BW1 Phi 6 F/T	05/03/96				4					
43 BW1 Phi 6 Tu	05/03/96				4					
5 BW1 Phi 7 F/T	05/06/96				4					
43 BW1 Phi 7 Tu	05/06/96				4					
5 BW1 Phi 8 F/T	05/07/96				4					
43 BW1 Phi 8 Tu	05/07/96				4					
BW1-2/4 BWT	05/10/96	05/29/96	52256.04	52226.05	4	1.		112.3	7.2	11.19
5 BW1 Theta 1 T	05/15/96				4					
48 BW1 Theta 1	05/15/96				4					
5 BW1 Theta 2 T	05/15/96				4					
48 BW1 Theta 2	05/16/96				4					
5 BW1 Theta 3 T	05/16/96				4					
48 BW1 Theta 3	05/16/96				4					
5 BW1 Theta 4 T	05/17/96				4					
48 BW1 Theta 4	05/17/96				4					
5 BW1 Phi 5 F/T	05/20/96				4					
43 BW1 Phi 5 Tu	05/20/96				4					
5 BW1 Phi 6 F/T	05/21/96				4					
43 BW1 Phi 6 Tu	05/21/96				4					
5 BW1 Phi 7 F/T	05/21/96				4					
43 BW1 Phi 7 Tu	05/21/96				4					
5 BW1 Phi 8 F/T	05/22/96				4					
43 BW1 Phi 8 Tu	05/22/96				4					
BW1-2/4 BWT	05/29/96	06/13/96	52256.05	52226.06	4	1.		112.5	9.2	11.09
5 BW1 Theta 1 T	05/31/96				4					
48 BW1 Theta 1	05/31/96				4					
5 BW1 Theta 2 T	06/03/96				4					
48 BW1 Theta 2	06/03/96				4					
5 BW1 Theta 3 T	06/03/96				4					
48 BW1 Theta 3	06/04/96				4					
5 BW1 Theta 4 T	06/04/96				4					
48 BW1 Theta 4	06/04/96				4					
5 BW1 Phi 5 F/T	06/05/96				4					
43 BW1 Phi 5 Tu	06/05/96				4					
5 BW1 Phi 6 F/T	06/06/96				4					
43 BW1 Phi 6 Tu	06/06/96				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
5 BW1 Phi 7 F/T	06/06/96				4					
43 BW1 Phi 7 Tu	06/06/96				4					
5 BW1 Phi 8 F/T	06/07/96				4					
43 BW1 Phi 8 Tu	06/07/96				4					
BW1-2/4 BWT	06/13/96	06/28/96	52256.06	52226.07	4	1.		112.7	6.9	11.57
5 BW1 Theta 1 T	06/17/96				4					
48 BW1 Theta 1	06/17/96				4					
5 BW1 Theta 2 T	06/18/96				4					
48 BW1 Theta 2	06/18/96				4					
5 BW1 Theta 3 T	06/19/96				4					
48 BW1 Theta 3	06/19/96				4					
5 BW1 Theta 4 T	06/19/96				4					
48 BW1 Theta 4	06/20/96				4					
5 BW1 Phi 5 F/T	06/20/96				4					
43 BW1 Phi 5 Tu	06/20/96				4					
5 BW1 Phi 6 F/T	06/21/96				4					
43 BW1 Phi 6 Tu	06/21/96				4					
5 BW1 Phi 7 F/T	06/24/96				4					
43 BW1 Phi 7 Tu	06/24/96				4					
5 BW1 Phi 8 F/T	06/24/96				4					
43 BW1 Phi 8 Tu	06/24/96				4					
BW1-2/4 BWT	06/28/96	07/18/96	52256.07	52226.08	4	1.	14.2	112.3	6.7	13.12
5 BW1 Theta 1 T	07/02/96				4					
48 BW1 Theta 1	07/03/96				4					
5 BW1 Theta 2 T	07/03/96				4					
48 BW1 Theta 2	07/05/96				4					
5 BW1 Theta 3 T	07/08/96				4					
48 BW1 Theta 3	07/08/96				4					
5 BW1 Theta 4 T	07/09/96				4					
48 BW1 Theta 4	07/09/96				4					
5 BW1 Phi 5 F/T	07/09/96				4					
43 BW1 Phi 5 Tu	07/10/96				4					
5 BW1 Phi 6 F/T	07/10/96				4					
43 BW1 Phi 6 Tu	07/11/96				4					
5 BW1 Phi 7 F/T	07/11/96				4					
43 BW1 Phi 7 Tu	07/11/96				4					
5 BW1 Phi 8 F/T	07/12/96				4					
43 BW1 Phi 8 Tu	07/12/96				4					
BW1-2/4 BWT	07/18/96	08/07/96	52256.08	52226.09	4	1.	14.4	114.2	8.8	13.24
5 BW1 Theta 1 T	07/23/96				4					
48 BW1 Theta 1	07/24/96				4					
5 BW1 Theta 2 T	07/25/96				4					
48 BW1 Theta 2	07/25/96				4					
5 BW1 Theta 3 T	07/26/96				4					
48 BW1 Theta 3	07/26/96				4					
5 BW1 Theta 4 T	07/26/96				4					
48 BW1 Theta 4	07/29/96				4					
5 BW1 Phi 5 F/T	07/29/96				4					
43 BW1 Phi 5 Tu	07/29/96				4					
5 BW1 Phi 6 F/T	07/30/96				4					
43 BW1 Phi 6 Tu	07/30/96				4					
5 BW1 Phi 7 F/T	07/31/96				4					
43 BW1 Phi 7 Tu	07/31/96				4					
5 BW1 Phi 8 F/T	08/01/96				4					
43 BW1 Phi 8 Tu	08/01/96				4					
BW1-2/4 BWT	08/07/96	08/26/96	52256.09	52226.1	4	1.	15.1	111.5	10.2	12.98
5 BW1 Theta 1 T	08/09/96				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
48 BW1 Theta 1	08/09/96				4					
5 BW1 Theta 2 T	08/12/96				4					
48 BW1 Theta 2	08/12/96				4					
5 BW1 Theta 3 T	08/13/96				4					
48 BW1 Theta 3	08/13/96				4					
5 BW1 Theta 4 T	08/14/96				4					
48 BW1 Theta 4	08/15/96				4					
5 BW1 Phi 5 F/T	08/15/96				4					
43 BW1 Phi 5 Tu	08/16/96				4					
5 BW1 Phi 6 F/T	08/16/96				4					
43 BW1 Phi 6 Tu	08/19/96				4					
5 BW1 Phi 7 F/T	08/19/96				4					
43 BW1 Phi 7 Tu	08/20/96				4					
5 BW1 Phi 8 F/T	08/20/96				4					
43 BW1 Phi 8 Tu	08/20/96				4					
BW1-2/4 BWT	08/26/96	09/11/96	52256.1	52226.11	4	1.	3.5	112.	7.3	11.77
5 BW1 Theta 1 T	08/28/96				4					
48 BW1 Theta 1	08/28/96				4					
5 BW1 Theta 2 T	08/29/96				4					
48 BW1 Theta 2	08/29/96				4					
5 BW1 Theta 3 T	08/29/96				4					
48 BW1 Theta 3	08/30/96				4					
5 BW1 Theta 4 T	08/30/96				4					
48 BW1 Theta 4	09/02/96				4					
5 BW1 Phi 5 F/T	09/02/96				4					
43 BW1 Phi 5 Tu	09/02/96				4					
5 BW1 Phi 6 F/T	09/04/96				4					
43 BW1 Phi 6 Tu	09/04/96				4					
5 BW1 Phi 7 F/T	09/05/96				4					
43 BW1 Phi 7 Tu	09/05/96				4					
5 BW1 Phi 8 F/T	09/05/96				4					
43 BW1 Phi 8 Tu	09/06/96				4					
BW1-2/4 BWT	09/11/96	09/27/96	52256.11	52226.12	4	1.	8.4	111.8	12.6	11.82
5 BW1 Theta 1 T	09/13/96				4					
48 BW1 Theta 1	09/16/96				4					
5 BW1 Theta 2 T	09/16/96				4					
48 BW1 Theta 2	09/16/96				4					
5 BW1 Theta 3 T	09/17/96				4					
48 BW1 Theta 3	09/17/96				4					
5 BW1 Theta 4 T	09/18/96				4					
48 BW1 Theta 4	09/18/96				4					
5 BW1 Phi 5 F/T	09/19/96				4					
43 BW1 Phi 5 Tu	09/19/96				4					
5 BW1 Phi 6 F/T	09/20/96				4					
43 BW1 Phi 6 Tu	09/20/96				4					
5 BW1 Phi 7 F/T	09/20/96				4					
43 BW1 Phi 7 Tu	09/20/96				4					
5 BW1 Phi 8 F/T	09/23/96				4					
43 BW1 Phi 8 Tu	09/23/96				4					
BW1-2/4 BWT	09/27/96	10/15/96	52256.12	52226.13	4	1.	8.6	113.2	10.2	12.1
5 BW1 Theta 1 T	10/01/96				4					
48 BW1 Theta 1	10/02/96				4					
5 BW1 Theta 2 T	10/02/96				4					
48 BW1 Theta 2	10/03/96				4					
5 BW1 Theta 3 T	10/03/96				4					
48 BW1 Theta 3	10/03/96				4					
5 BW1 Theta 4 T	10/04/96				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
48 BW1 Theta 4	10/04/96				4					
5 BW1 Phi 5 F/T	10/07/96				4					
43 BW1 Phi 5 Tu	10/07/96				4					
5 BW1 Phi 6 F/T	10/08/96				4					
43 BW1 Phi 6 Tu	10/08/96				4					
5 BW1 Phi 7 F/T	10/08/96				4					
43 BW1 Phi 7 Tu	10/08/96				4					
5 BW1 Phi 8 F/T	10/09/96				4					
43 BW1 Phi 8 Tu	10/09/96				4					
BW1-2/4 BWT	10/15/96	10/31/96	52256.13	52226.14	4	1.	6.	112.8	8.4	11.98
5 BW1 Theta 1 T	10/17/96				4					
48 BW1 Theta 1	10/18/96				4					
5 BW1 Theta 2 T	10/18/96				4					
48 BW1 Theta 2	10/21/96				4					
5 BW1 Theta 3 T	10/21/96				4					
48 BW1 Theta 3	10/21/96				4					
5 BW1 Theta 4 T	10/22/96				4					
48 BW1 Theta 4	10/22/96				4					
5 BW1 Phi 5 F/T	10/23/96				4					
43 BW1 Phi 5 Tu	10/23/96				4					
5 BW1 Phi 6 F/T	10/23/96				4					
43 BW1 Phi 6 Tu	10/23/96				4					
5 BW1 Phi 7 F/T	10/24/96				4					
43 BW1 Phi 7 Tu	10/25/96				4					
5 BW1 Phi 8 F/T	10/25/96				4					
43 BW1 Phi 8 Tu	10/28/96				4					
WS4 Phase1 Done	10/31/96	10/31/96	52226.14	104000.01	4					
Mod Workstation	10/31/96	11/07/96	52256.14	11225.18	4	1.		40.		5.
BW3-3 BWT Prod	11/07/96	11/25/96	11225.18	75645.04	4	1.3	.8	240.5	4.	12.16
9 BW3 Theta 1 T	11/11/96				4					
81 BW3 Theta 1T	11/12/96				4					
9 BW3 Theta 2 T	11/12/96				4					
81 BW3 Theta 2T	11/12/96				4					
9 BW3 Theta 3 T	11/13/96				4					
81 BW3 Theta 3T	11/13/96				4					
9 BW3 Theta 4 T	11/14/96				4					
81 BW3 Theta 4T	11/14/96				4					
7 BW3 Phi 5 F/T	11/14/96				4					
77 BW3 Phi 5 Tu	11/15/96				4					
7 BW3 Phi 6 F/T	11/15/96				4					
77 BW3 Phi 6 Tu	11/15/96				4					
7 BW3 Phi 7 F/T	11/18/96				4					
77 BW3 Phi7 Tub	11/18/96				4					
7 BW3 Phi 8 F/T	11/19/96				4					
77 BW3 Phi 8 Tu	11/19/96				4					
7 BW3 Stereo9 T	11/19/96				4					
72 BW3 Stereo9T	11/20/96				4					
7 BW3 Stereo10T	11/20/96				4					
72 BW3 Stere10T	11/20/96				4					
BW3-3 BWT Prod	12/23/96	01/08/97	65709.04	75645.05	4	1.	7.9	193.3	5.7	9.88
9 BW3 Theta 1 T	12/26/96				4					
81 BW3 Theta 1T	12/27/96				4					
9 BW3 Theta 2 T	12/27/96				4					
81 BW3 Theta 2T	12/27/96				4					
9 BW3 Theta 3 T	12/30/96				4					
81 BW3 Theta 3T	12/30/96				4					
9 BW3 Theta 4 T	12/30/96				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
81 BW3 Theta 4T	12/30/96				4					
7 BW3 Phi 5 F/T	12/31/96				4					
77 BW3 Phi 5 Tu	12/31/96				4					
7 BW3 Phi 6 F/T	01/02/97				4					
77 BW3 Phi 6 Tu	01/02/97				4					
7 BW3 Phi 7 F/T	01/02/97				4					
77 BW3 Phi7 Tub	01/02/97				4					
7 BW3 Phi 8 F/T	01/03/97				4					
77 BW3 Phi 8 Tu	01/03/97				4					
7 BW3 Stereo9 T	01/03/97				4					
72 BW3 Stereo9T	01/06/97				4					
7 BW3 Stereo10T	01/06/97				4					
72 BW3 Stere10T	01/06/97				4					
BW3-3 BWT Prod	01/16/97	01/29/97	65709.05	75645.06	4	1.	9.5	192.	7.	9.79
9 BW3 Theta 1 T	01/17/97				4					
81 BW3 Theta 1T	01/20/97				4					
9 BW3 Theta 2 T	01/20/97				4					
81 BW3 Theta 2T	01/20/97				4					
9 BW3 Theta 3 T	01/21/97				4					
81 BW3 Theta 3T	01/21/97				4					
9 BW3 Theta 4 T	01/22/97				4					
81 BW3 Theta 4T	01/22/97				4					
7 BW3 Phi 5 F/T	01/22/97				4					
77 BW3 Phi 5 Tu	01/22/97				4					
7 BW3 Phi 6 F/T	01/23/97				4					
77 BW3 Phi 6 Tu	01/23/97				4					
7 BW3 Phi 7 F/T	01/23/97				4					
77 BW3 Phi7 Tub	01/23/97				4					
7 BW3 Phi 8 F/T	01/24/97				4					
77 BW3 Phi 8 Tu	01/24/97				4					
7 BW3 Stereo9 T	01/24/97				4					
72 BW3 Stereo9T	01/27/97				4					
7 BW3 Stereo10T	01/27/97				4					
72 BW3 Stere10T	01/27/97				4					
BW3-3 BWT Prod	02/05/97	02/18/97	65709.06	75645.07	4	1.	8.6	192.	8.5	9.66
9 BW3 Theta 1 T	02/06/97				4					
81 BW3 Theta 1T	02/07/97				4					
9 BW3 Theta 2 T	02/07/97				4					
81 BW3 Theta 2T	02/07/97				4					
9 BW3 Theta 3 T	02/10/97				4					
81 BW3 Theta 3T	02/10/97				4					
9 BW3 Theta 4 T	02/10/97				4					
81 BW3 Theta 4T	02/10/97				4					
7 BW3 Phi 5 F/T	02/11/97				4					
77 BW3 Phi 5 Tu	02/11/97				4					
7 BW3 Phi 6 F/T	02/11/97				4					
77 BW3 Phi 6 Tu	02/12/97				4					
7 BW3 Phi 7 F/T	02/12/97				4					
77 BW3 Phi7 Tub	02/12/97				4					
7 BW3 Phi 8 F/T	02/13/97				4					
77 BW3 Phi 8 Tu	02/13/97				4					
7 BW3 Stereo9 T	02/13/97				4					
72 BW3 Stereo9T	02/13/97				4					
7 BW3 Stereo10T	02/14/97				4					
72 BW3 Stere10T	02/14/97				4					
Mod Workstation	02/24/97	03/03/97	65709.07	11225.2	4	1.		40.4	.4	4.95
BW3-2/4 BWT Prd	03/03/97	03/19/97	11225.2	76600.07	4	1.3	25.1	211.7	7.	11.7

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
7 BW3 Th 1 F/T	03/05/97				4					
77 BW3 Theta 1	03/05/97				4					
7 BW3 Th 2 F/T	03/05/97				4					
77 BW3 Theta 2	03/06/97				4					
7 BW3 Th 3 F/T	03/06/97				4					
77 BW3 Theta 3	03/10/97				4					
7 BW3 Th 4 F/T	03/10/97				4					
77 BW3 Theta 4	03/10/97				4					
7 BW3 Phi 5 F/T	03/11/97				4					
77 BW3 Phi 5 Tu	03/11/97				4					
7 BW3 Phi 6 F/T	03/11/97				4					
77 BW3 Phi 6 Tu	03/12/97				4					
7 BW3 Phi 7 F/T	03/12/97				4					
77 BW3 Phi7 Tub	03/12/97				4					
7 BW3 Phi 8 F/T	03/13/97				4					
77 BW3 Phi 8 Tu	03/13/97				4					
7 BW3 Str9 F/T	03/13/97				4					
77 BW3 Streo9 T	03/14/97				4					
7BW3 Str 10 F/T	03/14/97				4					
77 BW3 Str 10 T	03/14/97				4					
BW3-2/4 BWT Prd	03/21/97	04/02/97	66739.07	76600.08	4	1.	8.6	169.3	1.7	8.9
7 BW3 Th 1 F/T	03/24/97				4					
77 BW3 Theta 1	03/24/97				4					
7 BW3 Th 2 F/T	03/25/97				4					
77 BW3 Theta 2	03/25/97				4					
7 BW3 Th 3 F/T	03/25/97				4					
77 BW3 Theta 3	03/26/97				4					
7 BW3 Th 4 F/T	03/26/97				4					
77 BW3 Theta 4	03/26/97				4					
7 BW3 Phi 5 F/T	03/27/97				4					
77 BW3 Phi 5 Tu	03/27/97				4					
7 BW3 Phi 6 F/T	03/27/97				4					
77 BW3 Phi 6 Tu	03/27/97				4					
7 BW3 Phi 7 F/T	03/28/97				4					
77 BW3 Phi7 Tub	03/28/97				4					
7 BW3 Phi 8 F/T	03/28/97				4					
77 BW3 Phi 8 Tu	03/28/97				4					
7 BW3 Str9 F/T	03/31/97				4					
77 BW3 Streo9 T	03/31/97				4					
7BW3 Str 10 F/T	03/31/97				4					
77 BW3 Str 10 T	03/31/97				4					
BW3-2/4 BWT Prd	04/07/97	04/17/97	66739.08	76600.09	4	1.	1.7	167.4	7.2	8.17
7 BW3 Th 1 F/T	04/08/97				4					
77 BW3 Theta 1	04/09/97				4					
7 BW3 Th 2 F/T	04/09/97				4					
77 BW3 Theta 2	04/09/97				4					
7 BW3 Th 3 F/T	04/09/97				4					
77 BW3 Theta 3	04/10/97				4					
7 BW3 Th 4 F/T	04/10/97				4					
77 BW3 Theta 4	04/10/97				4					
7 BW3 Phi 5 F/T	04/10/97				4					
77 BW3 Phi 5 Tu	04/11/97				4					
7 BW3 Phi 6 F/T	04/11/97				4					
77 BW3 Phi 6 Tu	04/11/97				4					
7 BW3 Phi 7 F/T	04/14/97				4					
77 BW3 Phi7 Tub	04/14/97				4					
7 BW3 Phi 8 F/T	04/14/97				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
77 BW3 Phi 8 Tu	04/14/97				4					
7 BW3 Str9 F/T	04/15/97				4					
77 BW3 Streo9 T	04/15/97				4					
7BW3 Str 10 F/T	04/15/97				4					
77 BW3 Str 10 T	04/15/97				4					
BW3-2/4 BWT Prd	04/22/97	05/02/97	66739.09	76600.1	4	1.	1.9	168.2	10.1	8.1
7 BW3 Th 1 F/T	04/23/97				4					
77 BW3 Theta 1	04/24/97				4					
7 BW3 Th 2 F/T	04/24/97				4					
77 BW3 Theta 2	04/24/97				4					
7 BW3 Th 3 F/T	04/24/97				4					
77 BW3 Theta 3	04/25/97				4					
7 BW3 Th 4 F/T	04/25/97				4					
77 BW3 Theta 4	04/25/97				4					
7 BW3 Phi 5 F/T	04/28/97				4					
77 BW3 Phi 5 Tu	04/28/97				4					
7 BW3 Phi 6 F/T	04/28/97				4					
77 BW3 Phi 6 Tu	04/28/97				4					
7 BW3 Phi 7 F/T	04/29/97				4					
77 BW3 Phi7 Tub	04/29/97				4					
7 BW3 Phi 8 F/T	04/29/97				4					
77 BW3 Phi 8 Tu	04/29/97				4					
7 BW3 Str9 F/T	04/30/97				4					
77 BW3 Streo9 T	04/30/97				4					
7BW3 Str 10 F/T	04/30/97				4					
77 BW3 Str 10 T	04/30/97				4					
BW3-2/4 BWT Prd	05/07/97	05/19/97	66739.1	76600.11	4	1.	.1	168.	5.	8.2
7 BW3 Th 1 F/T	05/08/97				4					
77 BW3 Theta 1	05/08/97				4					
7 BW3 Th 2 F/T	05/09/97				4					
77 BW3 Theta 2	05/09/97				4					
7 BW3 Th 3 F/T	05/09/97				4					
77 BW3 Theta 3	05/09/97				4					
7 BW3 Th 4 F/T	05/12/97				4					
77 BW3 Theta 4	05/12/97				4					
7 BW3 Phi 5 F/T	05/12/97				4					
77 BW3 Phi 5 Tu	05/12/97				4					
7 BW3 Phi 6 F/T	05/13/97				4					
77 BW3 Phi 6 Tu	05/13/97				4					
7 BW3 Phi 7 F/T	05/13/97				4					
77 BW3 Phi7 Tub	05/14/97				4					
7 BW3 Phi 8 F/T	05/14/97				4					
77 BW3 Phi 8 Tu	05/14/97				4					
7 BW3 Str9 F/T	05/15/97				4					
77 BW3 Streo9 T	05/15/97				4					
7BW3 Str 10 F/T	05/15/97				4					
77 BW3 Str 10 T	05/15/97				4					
BW3-2/4 BWT Prd	05/22/97	06/05/97	66739.11	76600.12	4	1.	16.6	168.1	7.6	9.17
7 BW3 Th 1 F/T	05/23/97				4					
77 BW3 Theta 1	05/23/97				4					
7 BW3 Th 2 F/T	05/27/97				4					
77 BW3 Theta 2	05/27/97				4					
7 BW3 Th 3 F/T	05/27/97				4					
77 BW3 Theta 3	05/28/97				4					
7 BW3 Th 4 F/T	05/28/97				4					
77 BW3 Theta 4	05/28/97				4					
7 BW3 Phi 5 F/T	05/29/97				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
77 BW3 Phi 5 Tu	05/29/97				4					
7 BW3 Phi 6 F/T	05/29/97				4					
77 BW3 Phi 6 Tu	05/30/97				4					
7 BW3 Phi 7 F/T	05/30/97				4					
77 BW3 Phi7 Tub	05/30/97				4					
7 BW3 Phi 8 F/T	06/02/97				4					
77 BW3 Phi 8 Tu	06/02/97				4					
7 BW3 Str9 F/T	06/02/97				4					
77 BW3 Streo9 T	06/02/97				4					
7BW3 Str 10 F/T	06/03/97				4					
77 BW3 Str 10 T	06/03/97				4					
BW3-2/4 BWT Prd	06/10/97	06/23/97	66739.12	76600.13	4	1.	11.6	169.4	3.6	8.99
7 BW3 Th 1 F/T	06/11/97				4					
77 BW3 Theta 1	06/11/97				4					
7 BW3 Th 2 F/T	06/12/97				4					
77 BW3 Theta 2	06/12/97				4					
7 BW3 Th 3 F/T	06/12/97				4					
77 BW3 Theta 3	06/12/97				4					
7 BW3 Th 4 F/T	06/13/97				4					
77 BW3 Theta 4	06/13/97				4					
7 BW3 Phi 5 F/T	06/13/97				4					
77 BW3 Phi 5 Tu	06/16/97				4					
7 BW3 Phi 6 F/T	06/16/97				4					
77 BW3 Phi 6 Tu	06/16/97				4					
7 BW3 Phi 7 F/T	06/17/97				4					
77 BW3 Phi7 Tub	06/17/97				4					
7 BW3 Phi 8 F/T	06/17/97				4					
77 BW3 Phi 8 Tu	06/17/97				4					
7 BW3 Str9 F/T	06/18/97				4					
77 BW3 Streo9 T	06/18/97				4					
7BW3 Str 10 F/T	06/18/97				4					
77 BW3 Str 10 T	06/18/97				4					
BW3-2/4 BWT Prd	06/26/97	07/10/97	66739.13	76600.14	4	1.	12.4	170.	7.4	8.93
7 BW3 Th 1 F/T	06/30/97				4					
77 BW3 Theta 1	06/30/97				4					
7 BW3 Th 2 F/T	06/30/97				4					
77 BW3 Theta 2	06/30/97				4					
7 BW3 Th 3 F/T	07/01/97				4					
77 BW3 Theta 3	07/01/97				4					
7 BW3 Th 4 F/T	07/01/97				4					
77 BW3 Theta 4	07/02/97				4					
7 BW3 Phi 5 F/T	07/02/97				4					
77 BW3 Phi 5 Tu	07/02/97				4					
7 BW3 Phi 6 F/T	07/02/97				4					
77 BW3 Phi 6 Tu	07/03/97				4					
7 BW3 Phi 7 F/T	07/03/97				4					
77 BW3 Phi7 Tub	07/03/97				4					
7 BW3 Phi 8 F/T	07/07/97				4					
77 BW3 Phi 8 Tu	07/07/97				4					
7 BW3 Str9 F/T	07/07/97				4					
77 BW3 Streo9 T	07/07/97				4					
7BW3 Str 10 F/T	07/08/97				4					
77 BW3 Str 10 T	07/08/97				4					
Mod Workstation	07/15/97	07/22/97	66739.14	11225.26	4	1.		40.5		5.07
FW5 Assembly	07/22/97	08/29/97	11225.26	95950.02	4	1.5	24.6	258.1	14.6	27.59
8 FW5 Thet1 F/T	07/28/97				4					
79 FW5 Thet1 Tu	07/29/97				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
8 FW5 Thet2 F/T	07/30/97				4					
79 FW5 Thet2 Tu	07/31/97				4					
8 FW5 Thet3 F/T	08/01/97				4					
79 FW5 Thet3 Tu	08/04/97				4					
8 FW5 Thet4 F/T	08/05/97				4					
79 FW5 Thet4 Tu	08/05/97				4					
8 FW5 Str1 F/T	08/07/97				4					
79 FW5 Str1 Tub	08/08/97				4					
8 FW5 Str2 F/T	08/12/97				4					
79 FW5 Str2 Tub	08/12/97				4					
8 FW5 Str3 F/T	08/13/97				4					
79 FW5 Str3 Tub	08/14/97				4					
8 FW5 Str4 F/T	08/18/97				4					
79 FW5 Str4 Tub	08/18/97				4					
71 FS5 Scin	08/22/97				4					
FW5 Assembly	08/29/97	10/01/97	95980.02	95950.03	4	1.3	17.8	214.6	12.8	22.32
8 FW5 Thet1 F/T	09/04/97				4					
79 FW5 Thet1 Tu	09/04/97				4					
8 FW5 Thet2 F/T	09/05/97				4					
79 FW5 Thet2 Tu	09/08/97				4					
8 FW5 Thet3 F/T	09/09/97				4					
79 FW5 Thet3 Tu	09/10/97				4					
8 FW5 Thet4 F/T	09/11/97				4					
79 FW5 Thet4 Tu	09/11/97				4					
8 FW5 Str1 F/T	09/15/97				4					
79 FW5 Str1 Tub	09/15/97				4					
8 FW5 Str2 F/T	09/17/97				4					
79 FW5 Str2 Tub	09/17/97				4					
8 FW5 Str3 F/T	09/18/97				4					
79 FW5 Str3 Tub	09/19/97				4					
8 FW5 Str4 F/T	09/22/97				4					
79 FW5 Str4 Tub	09/23/97				4					
71 FS5 Scin	09/25/97				4					
FW5 Assembly	10/01/97	10/24/97	95980.03	95950.04	4	1.	5.4	171.5	10.4	16.87
8 FW5 Thet1 F/T	10/03/97				4					
79 FW5 Thet1 Tu	10/03/97				4					
8 FW5 Thet2 F/T	10/06/97				4					
79 FW5 Thet2 Tu	10/07/97				4					
8 FW5 Thet3 F/T	10/08/97				4					
79 FW5 Thet3 Tu	10/08/97				4					
8 FW5 Thet4 F/T	10/09/97				4					
79 FW5 Thet4 Tu	10/09/97				4					
8 FW5 Str1 F/T	10/10/97				4					
79 FW5 Str1 Tub	10/13/97				4					
8 FW5 Str2 F/T	10/14/97				4					
79 FW5 Str2 Tub	10/14/97				4					
8 FW5 Str3 F/T	10/15/97				4					
79 FW5 Str3 Tub	10/15/97				4					
8 FW5 Str4 F/T	10/16/97				4					
79 FW5 Str4 Tub	10/17/97				4					
71 FS5 Scin	10/20/97				4					
FW5 Assembly	10/24/97	11/17/97	95980.04	95950.05	4	1.		170.4	10.9	16.04
8 FW5 Thet1 F/T	10/28/97				4					
79 FW5 Thet1 Tu	10/28/97				4					
8 FW5 Thet2 F/T	10/29/97				4					
79 FW5 Thet2 Tu	10/29/97				4					
8 FW5 Thet3 F/T	10/30/97				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
79 FW5 Thet3 Tu	10/31/97				4					
8 FW5 Thet4 F/T	11/03/97				4					
79 FW5 Thet4 Tu	11/03/97				4					
8 FW5 Str1 F/T	11/04/97				4					
79 FW5 Str1 Tub	11/04/97				4					
8 FW5 Str2 F/T	11/05/97				4					
79 FW5 Str2 Tub	11/05/97				4					
8 FW5 Str3 F/T	11/06/97				4					
79 FW5 Str3 Tub	11/07/97				4					
8 FW5 Str4 F/T	11/10/97				4					
79 FW5 Str4 Tub	11/10/97				4					
71 FS5 Scin	11/12/97				4					
FW5 Assembly	11/17/97	12/12/97	95980.05	95950.06	4	1.		170.6	7.9	16.61
8 FW5 Thet1 F/T	11/19/97				4					
79 FW5 Thet1 Tu	11/19/97				4					
8 FW5 Thet2 F/T	11/20/97				4					
79 FW5 Thet2 Tu	11/20/97				4					
8 FW5 Thet3 F/T	11/21/97				4					
79 FW5 Thet3 Tu	11/24/97				4					
8 FW5 Thet4 F/T	11/25/97				4					
79 FW5 Thet4 Tu	11/25/97				4					
8 FW5 Str1 F/T	11/26/97				4					
79 FW5 Str1 Tub	11/26/97				4					
8 FW5 Str2 F/T	12/01/97				4					
79 FW5 Str2 Tub	12/02/97				4					
8 FW5 Str3 F/T	12/03/97				4					
79 FW5 Str3 Tub	12/03/97				4					
8 FW5 Str4 F/T	12/04/97				4					
79 FW5 Str4 Tub	12/04/97				4					
71 FS5 Scin	12/08/97				4					
FW5 Assembly	12/12/97	01/08/98	95980.06	95950.07	4	1.		171.	11.8	16.
8 FW5 Thet1 F/T	12/16/97				4					
79 FW5 Thet1 Tu	12/16/97				4					
8 FW5 Thet2 F/T	12/17/97				4					
79 FW5 Thet2 Tu	12/17/97				4					
8 FW5 Thet3 F/T	12/18/97				4					
79 FW5 Thet3 Tu	12/18/97				4					
8 FW5 Thet4 F/T	12/19/97				4					
79 FW5 Thet4 Tu	12/22/97				4					
8 FW5 Str1 F/T	12/23/97				4					
79 FW5 Str1 Tub	12/23/97				4					
8 FW5 Str2 F/T	12/26/97				4					
79 FW5 Str2 Tub	12/26/97				4					
8 FW5 Str3 F/T	12/29/97				4					
79 FW5 Str3 Tub	12/29/97				4					
8 FW5 Str4 F/T	12/30/97				4					
79 FW5 Str4 Tub	12/31/97				4					
71 FS5 Scin	01/02/98				4					
FW5 Assembly	01/08/98	01/30/98	95980.07	95950.08	4	1.		172.5	5.2	16.85
8 FW5 Thet1 F/T	01/12/98				4					
79 FW5 Thet1 Tu	01/12/98				4					
8 FW5 Thet2 F/T	01/13/98				4					
79 FW5 Thet2 Tu	01/13/98				4					
8 FW5 Thet3 F/T	01/14/98				4					
79 FW5 Thet3 Tu	01/14/98				4					
8 FW5 Thet4 F/T	01/15/98				4					
79 FW5 Thet4 Tu	01/16/98				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
8 FW5 Str1 F/T	01/19/98				4					
79 FW5 Str1 Tub	01/19/98				4					
8 FW5 Str2 F/T	01/20/98				4					
79 FW5 Str2 Tub	01/20/98				4					
8 FW5 Str3 F/T	01/21/98				4					
79 FW5 Str3 Tub	01/22/98				4					
8 FW5 Str4 F/T	01/23/98				4					
79 FW5 Str4 Tub	01/23/98				4					
71 FS5 Scin	01/27/98				4					
FW5 Assembly	01/30/98	02/24/98	95980.08	95950.09	4	1.		170.5	10.2	16.25
8 FW5 Thet1 F/T	02/03/98				4					
79 FW5 Thet1 Tu	02/04/98				4					
8 FW5 Thet2 F/T	02/05/98				4					
79 FW5 Thet2 Tu	02/05/98				4					
8 FW5 Thet3 F/T	02/06/98				4					
79 FW5 Thet3 Tu	02/06/98				4					
8 FW5 Thet4 F/T	02/09/98				4					
79 FW5 Thet4 Tu	02/09/98				4					
8 FW5 Str1 F/T	02/10/98				4					
79 FW5 Str1 Tub	02/11/98				4					
8 FW5 Str2 F/T	02/12/98				4					
79 FW5 Str2 Tub	02/12/98				4					
8 FW5 Str3 F/T	02/13/98				4					
79 FW5 Str3 Tub	02/13/98				4					
8 FW5 Str4 F/T	02/16/98				4					
79 FW5 Str4 Tub	02/16/98				4					
71 FS5 Scin	02/18/98				4					
FW5 Assembly	02/24/98	03/18/98	95980.09	95950.1	4	1.		169.2	7.1	16.29
8 FW5 Thet1 F/T	02/25/98				4					
79 FW5 Thet1 Tu	02/26/98				4					
8 FW5 Thet2 F/T	02/27/98				4					
79 FW5 Thet2 Tu	02/27/98				4					
8 FW5 Thet3 F/T	03/02/98				4					
79 FW5 Thet3 Tu	03/02/98				4					
8 FW5 Thet4 F/T	03/03/98				4					
79 FW5 Thet4 Tu	03/04/98				4					
8 FW5 Str1 F/T	03/05/98				4					
79 FW5 Str1 Tub	03/05/98				4					
8 FW5 Str2 F/T	03/06/98				4					
79 FW5 Str2 Tub	03/06/98				4					
8 FW5 Str3 F/T	03/09/98				4					
79 FW5 Str3 Tub	03/10/98				4					
8 FW5 Str4 F/T	03/11/98				4					
79 FW5 Str4 Tub	03/11/98				4					
71 FS5 Scin	03/13/98				4					
FW5 Assembly	03/18/98	04/09/98	95980.1	95950.11	4	1.		170.7	6.7	16.6
8 FW5 Thet1 F/T	03/20/98				4					
79 FW5 Thet1 Tu	03/20/98				4					
8 FW5 Thet2 F/T	03/23/98				4					
79 FW5 Thet2 Tu	03/23/98				4					
8 FW5 Thet3 F/T	03/24/98				4					
79 FW5 Thet3 Tu	03/25/98				4					
8 FW5 Thet4 F/T	03/26/98				4					
79 FW5 Thet4 Tu	03/26/98				4					
8 FW5 Str1 F/T	03/27/98				4					
79 FW5 Str1 Tub	03/27/98				4					
8 FW5 Str2 F/T	03/30/98				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
79 FW5 Str2 Tub	03/31/98				4					
8 FW5 Str3 F/T	04/01/98				4					
79 FW5 Str3 Tub	04/01/98				4					
8 FW5 Str4 F/T	04/02/98				4					
79 FW5 Str4 Tub	04/02/98				4					
71 FS5 Scin	04/06/98				4					
FW5 Assembly	04/09/98	05/04/98	95980.11	95950.12	4	1.		169.9	4.8	16.53
8 FW5 Thet1 F/T	04/14/98				4					
79 FW5 Thet1 Tu	04/14/98				4					
8 FW5 Thet2 F/T	04/15/98				4					
79 FW5 Thet2 Tu	04/15/98				4					
8 FW5 Thet3 F/T	04/16/98				4					
79 FW5 Thet3 Tu	04/16/98				4					
8 FW5 Thet4 F/T	04/17/98				4					
79 FW5 Thet4 Tu	04/20/98				4					
8 FW5 Str1 F/T	04/21/98				4					
79 FW5 Str1 Tub	04/21/98				4					
8 FW5 Str2 F/T	04/22/98				4					
79 FW5 Str2 Tub	04/22/98				4					
8 FW5 Str3 F/T	04/24/98				4					
79 FW5 Str3 Tub	04/24/98				4					
8 FW5 Str4 F/T	04/27/98				4					
79 FW5 Str4 Tub	04/27/98				4					
71 FS5 Scin	04/29/98				4					
FW5 Assembly	05/04/98	05/27/98	95980.12	95950.13	4	1.		170.8	6.7	16.41
8 FW5 Thet1 F/T	05/06/98				4					
79 FW5 Thet1 Tu	05/06/98				4					
8 FW5 Thet2 F/T	05/07/98				4					
79 FW5 Thet2 Tu	05/08/98				4					
8 FW5 Thet3 F/T	05/11/98				4					
79 FW5 Thet3 Tu	05/11/98				4					
8 FW5 Thet4 F/T	05/12/98				4					
79 FW5 Thet4 Tu	05/12/98				4					
8 FW5 Str1 F/T	05/13/98				4					
79 FW5 Str1 Tub	05/13/98				4					
8 FW5 Str2 F/T	05/14/98				4					
79 FW5 Str2 Tub	05/15/98				4					
8 FW5 Str3 F/T	05/18/98				4					
79 FW5 Str3 Tub	05/18/98				4					
8 FW5 Str4 F/T	05/19/98				4					
79 FW5 Str4 Tub	05/19/98				4					
71 FS5 Scin	05/21/98				4					
FW5 Assembly	05/27/98	06/19/98	95980.13	95950.14	4	1.		170.4	12.2	16.16
8 FW5 Thet1 F/T	05/29/98				4					
79 FW5 Thet1 Tu	06/01/98				4					
8 FW5 Thet2 F/T	06/02/98				4					
79 FW5 Thet2 Tu	06/02/98				4					
8 FW5 Thet3 F/T	06/03/98				4					
79 FW5 Thet3 Tu	06/03/98				4					
8 FW5 Thet4 F/T	06/04/98				4					
79 FW5 Thet4 Tu	06/04/98				4					
8 FW5 Str1 F/T	06/05/98				4					
79 FW5 Str1 Tub	06/08/98				4					
8 FW5 Str2 F/T	06/09/98				4					
79 FW5 Str2 Tub	06/09/98				4					
8 FW5 Str3 F/T	06/10/98				4					
79 FW5 Str3 Tub	06/10/98				4					

Activity	Start	Finish	Predecessor	ID	Work Stat	Learn Curve	Resource Wait (hrs)	Work Time	Over Time	Work Days
8 FW5 Str4 F/T	06/11/98				4					
79 FW5 Str4 Tub	06/12/98				4					
71 FS5 Scin	06/15/98				4					
FW5 Assembly	06/19/98	07/14/98	95980.14	95950.15	4	1.		170.5	7.8	16.31
8 FW5 Thet1 F/T	06/23/98				4					
79 FW5 Thet1 Tu	06/23/98				4					
8 FW5 Thet2 F/T	06/24/98				4					
79 FW5 Thet2 Tu	06/24/98				4					
8 FW5 Thet3 F/T	06/25/98				4					
79 FW5 Thet3 Tu	06/25/98				4					
8 FW5 Thet4 F/T	06/26/98				4					
79 FW5 Thet4 Tu	06/29/98				4					
8 FW5 Str1 F/T	06/30/98				4					
79 FW5 Str1 Tub	06/30/98				4					
8 FW5 Str2 F/T	07/01/98				4					
79 FW5 Str2 Tub	07/01/98				4					
8 FW5 Str3 F/T	07/02/98				4					
79 FW5 Str3 Tub	07/03/98				4					
8 FW5 Str4 F/T	07/07/98				4					
79 FW5 Str4 Tub	07/07/98				4					
71 FS5 Scin	07/09/98				4					
FW5 Assembly	07/14/98	08/05/98	95980.15	95950.16	4	1.		170.5	9.2	16.14
8 FW5 Thet1 F/T	07/16/98				4					
79 FW5 Thet1 Tu	07/16/98				4					
8 FW5 Thet2 F/T	07/17/98				4					
79 FW5 Thet2 Tu	07/17/98				4					
8 FW5 Thet3 F/T	07/20/98				4					
79 FW5 Thet3 Tu	07/21/98				4					
8 FW5 Thet4 F/T	07/22/98				4					
79 FW5 Thet4 Tu	07/22/98				4					
8 FW5 Str1 F/T	07/23/98				4					
79 FW5 Str1 Tub	07/23/98				4					
8 FW5 Str2 F/T	07/24/98				4					
79 FW5 Str2 Tub	07/24/98				4					
8 FW5 Str3 F/T	07/27/98				4					
79 FW5 Str3 Tub	07/28/98				4					
8 FW5 Str4 F/T	07/29/98				4					
79 FW5 Str4 Tub	07/29/98				4					
71 FS5 Scin	07/31/98				4					

4.2.3 MacProject Detailed Information (4 sheets)

This section lists in tabular form all the data that was generated by the RAM and imported into MacProject. The overall flow chart of this information was presented in Section 4.1.2.

Sheet 1 lists the general information about the task:

MacProject Task	Name of the task for MacProject. This high level task consists of numerous RAM activities
MacProject ID	Unique number identifying the task to MacProject
Duration	The number of working days required to complete the task
Start	Date that the RAM started the task (MacProject baseline start)
Finish	Data that the RAM finished the task (MacProject baseline finish)
Resource Waits	The amount of time, in working days, that the task had to wait for a resource to become available before it could continue

Sheet 2 lists manpower requirements for the tasks:

TEM.W	Worker
TEM.A	Alignment Technician
TEM.HW	Hall Worker
Days	Number of working days each person spent on each task
Num	Maximum number of people working on each task

Sheet 3 lists crew manpower requirements for each task:

TEM.RC	Rigger crew
TEM.AC	Alignment crew
TEM.HRC	Hall rigger crew
Days	Number of working days each crew spent on each task
Num	Maximum number of crews working on each task

Sheet 4 lists the resource requirements for each task:

Tools Cost	Cost, in dollars, for the tools needed to complete the task
Tubes	Number of tubes required to build the modules
Scin	Number of scintillators required to build the modules

MacProject Task	MacProject ID	Duration Days	Start	Finish	Resource Waits (days)
KickOff IWT	04001	382	01/02/95	07/01/96	
IWT Preprod (4)	08101	40	07/01/96	08/26/96	2
Sojourn IWT	03005	188	08/26/96	05/23/97	
IWT (12)	08105	84	05/23/97	09/22/97	11
KickOff WorkStation 1	04002	2	01/02/95	01/03/95	
Mod WS & BW2-3 Oct 5 Preprod (1)	06301	44	01/03/95	03/02/95	
Modify WS & BW2-2/4 Oct 5 Preprod (2)	06201	30	03/02/95	04/13/95	
Modify WS & BW2-3 Preprod (2)	06501	79	04/13/95	08/04/95	34
Sojourn WorkStation 1	03003	186	08/04/95	04/30/96	
BW2-3 (1)	06503	18	04/30/96	05/23/96	
Modify WS & BW2-2/4 (6)	06601	77	05/23/96	09/12/96	5
Modify WS & BW2-1/5 (6)	06701	54	09/12/96	11/26/96	9
WS1 Phase 1 Done	01011		01/02/95	01/02/95	
BW2-1/5 (8)	06707	66	11/26/96	03/05/97	15
Modify WS & BW2-1/5 Oct 5 (2)	06101	17	03/05/97	03/27/97	1
Modify WS & FW1 (15)	09102	142	03/27/97	10/16/97	16
KickOff WorkStation 2	04003	2	01/02/95	01/03/95	
Mod WS & BW3-3 Oct 5 Preprod (1)	07301	67	01/03/95	04/05/95	
Modify WS & BW3-2/4 Oct 5 Preprod (2)	07201	47	04/05/95	06/12/95	
Modify WS & BW3-3 Preprod (2)	07501	32	06/12/95	07/26/95	
Sojourn WorkStation 2	03002	187	08/02/95	04/28/96	
BW3-3 (1)	07503	13	04/28/96	05/14/96	
Modify WS & BW3-2/4 (6)	07601	60	05/22/96	09/06/96	6
Modify WS & BW3-1/5 (6)	07701	53	09/11/96	11/25/96	7
WS2 Phase 1 Done	01021		01/02/95	01/02/95	
Modify WS & BW3-1/5 (14)	07707	61	11/26/96	03/04/97	7
Modify WS & BW3-1/5 Oct 5 (2)	07101	36	03/05/97	04/23/97	2
Modify WS & FW2 (16)	09201	294	04/23/97	06/22/98	13
KickOff WorkStation 3	04004	107	01/02/95	05/31/95	
Modify WS & FW1 Preprod (1)	09110	30	05/31/95	07/12/95	
Modify WS (2) & FW5 Preprod (1)	09501	62	07/12/95	10/09/95	
Sojourn WorkStation 3	03004	188	10/02/95	06/28/96	
BW1-3 (4)	05304	70	06/28/96	10/07/96	7
WS3 Phase 1 Done	01031		01/02/95	01/02/95	
BW1-2/4 Oct 5 (2)	05401	31	10/07/96	11/19/96	1
Modify WS & BW2-3 (4)	06504	66	11/19/96	02/26/97	2
Modify WS & BW2-2/4 (7)	06607	99	02/26/97	07/16/97	6
Modify WS & FW4 (15)	09401	144	07/16/97	02/11/98	8
KickOff WorkStation 4	04005	2	01/02/95	01/03/95	
Mod WS & BW1-3-5 (1)	05501	52	01/03/95	03/15/95	
Mod WS & BW1-3 (2)	05301	62	03/15/95	06/09/95	
Sojourn WorkStation 4	03001	185	06/09/95	03/05/96	
Mod WS & BW1-2/4 (8)	05201	175	06/09/95	10/31/96	9
WS4 Phase 1 Done	01041		01/02/95	01/02/95	
Mod WS & BW3-3 (4)	07504	47	10/31/96	02/18/97	4
Mod WS & BW3-2/4 (7)	07607	78	02/24/97	07/10/97	10
Mod WS & FW5 (15)	09502	269	07/15/97	08/05/98	6
Installation Blockout	03331	6	01/05/97	01/10/97	
Installation Blockout	03332	6	03/23/97	03/28/97	
Installation Blockout	03333	6	05/18/97	05/23/97	
Installation Blockout	03334	6	10/19/97	10/24/97	
Installation Blockout	03335	6	12/14/97	12/19/97	
Kickoff Forward Installation	04007	866	01/02/95	06/01/98	
FW1 SMSA & SMA Installation	09601	47	06/01/98	08/05/98	
FW2 SMSA & SMA Installation	09701	34	07/07/98	08/21/98	
FW4 SMSA & SMA Installation	09901	27	07/31/98	09/09/98	
FW5 SMSA & SMA Installation	01001	46	08/24/98	10/28/98	1
FW1 SMSA & SMA Installation	09602	21	10/01/98	10/30/98	1
FW2 SMSA & SMA Installation	09702	25	10/20/98	11/24/98	
FW4 SMSA & SMA Installation	09902	22	11/10/98	12/14/98	
FW5 SMSA & SMA Installation	01002	39	12/01/98	01/28/99	
Kickoff Barrel and IWT Installation	04006	488	01/02/95	12/01/96	
BW1/BW2/BW3 (-2,-3,-4) Octant 5 Inst. 3N,6S	04301	24	12/01/96	12/13/96	1
BW1-3 Inst. 4N,2S	02201	15	12/12/96	12/20/96	1
BW1 (-2,-4) Inst. 7N,7S	02101	43	12/19/96	01/14/97	21
BWT1-BWT5 & IWT Inst. (26N,23S)	01501	230	01/13/97	09/04/97	126
BW2/BW3 (-1,-5) Octant 5 Inst. 2N,2S	04501	13	09/03/97	09/15/97	4

MacProject Task	TEM.W Days	TEM.W Num	EN Days	EN Num	TEM.A Days	TEM.A Num	TEM.HW Days	TEM.HW Num
KickOff IWT								
IWT Preprod (4)	142.63	4	11.55	2	.47	1		
Sojourn IWT								
IWT (12)	271.92	4	22.52	2	.9	1		
KickOff WorkStation 1								
Mod WS & BW2-3 Oct 5 Preprod (1)	211.19	6	3.39	2				
Modify WS & BW2-2/4 Oct 5 Preprod (2)	149.65	6	2.3	2				
Modify WS & BW2-3 Preprod (2)	208.45	6	3.14	2				
Sojourn WorkStation 1								
BW2-3 (1)	84.79	6	1.4	2				
Modify WS & BW2-2/4 (6)	337.04	6	5.15	2				
Modify WS & BW2-1/5 (6)	194.48	6	2.76	2				
WS1 Phase 1 Done								
BW2-1/5 (8)	223.4	6	3.56	2				
Modify WS & BW2-1/5 Oct 5 (2)	71.18	6	.88	2				
Modify WS & FW1 (15)	550.99	5	27.52	2				
KickOff WorkStation 2								
Mod WS & BW3-3 Oct 5 Preprod (1)	285.56	6	15.59	2				
Modify WS & BW3-2/4 Oct 5 Preprod (2)	213.49	6	10.92	2				
Modify WS & BW3-3 Preprod (2)	250.28	6	15.16	2				
Sojourn WorkStation 2								
BW3-3 (1)	105.78	6	6.78	2				
Modify WS & BW3-2/4 (6)	488.19	6	27.63	2				
Modify WS & BW3-1/5 (6)	425.43	6	26.62	2				
WS2 Phase 1 Done								
Modify WS & BW3-1/5 (14)	520.39	6	33.52	2				
Modify WS & BW3-1/5 Oct 5 (2)	158.2	6	8.42	2				
Modify WS & FW2 (16)	1195.82	5	74.77	2				
KickOff WorkStation 3								
Modify WS & FW1 Preprod (1)	119.54	5	5.27	2				
Modify WS (2) & FW5 Preprod (1)	274.37	6	13.1	2				
Sojourn WorkStation 3								
BW1-3 (4)	287.29	5	6.02	2	.31	2		
WS3 Phase 1 Done								
BW1-2/4 Oct 5 (2)	135.7	5	2.32	2	.17	2		
Modify WS & BW2-3 (4)	313.31	6	4.84	2				
Modify WS & BW2-2/4 (7)	436.84	6	6.81	2				
Modify WS & FW4 (15)	672.36	6	23.87	2				
KickOff WorkStation 4								
Mod WS & BW1-3-5 (1)	220.47	5	4.18	2	.21	2		
Mod WS & BW1-3 (2)	274.41	5	5.17	2	.29	2		
Sojourn WorkStation 4								
Mod WS & BW1-2/4 (8)	751.49	5	14.45	2	1.07	2		
WS4 Phase 1 Done								
Mod WS & BW3-3 (4)	379.27	6	22.7	2				
Mod WS & BW3-2/4 (7)	637.52	6	36.52	2				
Mod WS & FW5 (15)	1244.44	6	68.71	2				
Installation Blockout								
Installation Blockout								
Installation Blockout								
Installation Blockout								
Installation Blockout								
Kickoff Forward Installation								
FW1 SMSA & SMA Installation	126.76	6					55.83	6
FW2 SMSA & SMA Installation	96.94	6					35.49	6
FW4 SMSA & SMA Installation	85.64	6					30.6	6
FW5 SMSA & SMA Installation	151.47	6					45.74	6
FW1 SMSA & SMA Installation	62.63	6					18.59	6
FW2 SMSA & SMA Installation	80.98	6					23.45	6
FW4 SMSA & SMA Installation	71.17	6					24.53	6
FW5 SMSA & SMA Installation	120.43	6					44.98	6
Kickoff Barrel and IWT Installation								
BW1/BW2/BW3 (-2,-3,-4) Octant 5 Inst, 3N,6S							19.85	8
BW1-3 Inst, 4N,2S							13.14	8
BW1 (-2,-4) Inst, 7N,7S							18.1	8
BWT1-BWT5 & IWT Inst, (26N,23S)							74.86	8
BW2/BW3 (-1,-5) Octant 5 Inst, 2N,2S							7.15	8

MacProject Task	TEM.RC Days	TEM.RC Num	TEM.AC Days	TEM.AC Num	TEM.HRC Days	TEM.HRC Num
KickOff IWT						
IWT Preprod (4)	6.3	1				
Sojourn IWT						
IWT (12)	11.97	1				
KickOff WorkStation 1						
Mod WS & BW2-3 Oct 5 Preprod (1)	.38	1	.11	1	.11	1
Modify WS & BW2-2/4 Oct 5 Preprod (2)	.34	1	.1	1	.1	1
Modify WS & BW2-3 Preprod (2)	.69	1	.28	1	.28	1
Sojourn WorkStation 1						
BW2-3 (1)	.32	1	.13	1	.13	1
Modify WS & BW2-2/4 (6)	1.58	1	.63	1	.63	1
Modify WS & BW2-1/5 (6)	1.55	1	.61	1	.61	1
WS1 Phase 1 Done						
BW2-1/5 (8)	2.03	1	.81	1	.81	1
Modify WS & BW2-1/5 Oct 5 (2)	.24	1	.07	1	.07	1
Modify WS & FW1 (15)	1.97	1	.59	1	.59	1
KickOff WorkStation 2						
Mod WS & BW3-3 Oct 5 Preprod (1)	.37	1	.11	1	.11	1
Modify WS & BW3-2/4 Oct 5 Preprod (2)	.31	1	.09	1	.09	1
Modify WS & BW3-3 Preprod (2)			.1	1	.1	1
Sojourn WorkStation 2						
BW3-3 (1)			.04	1	.04	1
Modify WS & BW3-2/4 (6)			.23	1	.23	1
Modify WS & BW3-1/5 (6)			.23	1	.23	1
WS2 Phase 1 Done						
Modify WS & BW3-1/5 (14)			.3	1	.3	1
Modify WS & BW3-1/5 Oct 5 (2)	.25	1	.08	1	.08	1
Modify WS & FW2 (16)	2.09	1	.62	1	.62	1
KickOff WorkStation 3						
Modify WS & FW1 Preprod (1)	.38	1	.11	1	.11	1
Modify WS (2) & FW5 Preprod (1)	.38	1	.12	1	.12	1
Sojourn WorkStation 3						
BW1-3 (4)	1.64	1				
WS3 Phase 1 Done						
BW1-2/4 Oct 5 (2)	.87	1				
Modify WS & BW2-3 (4)	1.07	1	.42	1	.42	1
Modify WS & BW2-2/4 (7)	2.06	1	.81	1	.81	1
Modify WS & FW4 (15)	2.08	1	.62	1	.62	1
KickOff WorkStation 4						
Mod WS & BW1-3-5 (1)	1.15	1				
Mod WS & BW1-3 (2)	1.42	1				
Sojourn WorkStation 4						
Mod WS & BW1-2/4 (8)	5.49	1				
WS4 Phase 1 Done						
Mod WS & BW3-3 (4)			.16	1	.16	1
Mod WS & BW3-2/4 (7)			.32	1	.32	1
Mod WS & FW5 (15)	1.96	1	.59	1	.59	1
Installation Blockout						
Installation Blockout						
Installation Blockout						
Installation Blockout						
Installation Blockout						
Kickoff Forward Installation						
FW1 SMSA & SMA Installation	16.46	2	7.81	20	7.81	20
FW2 SMSA & SMA Installation	10.36	2	5.08	20	5.08	20
FW4 SMSA & SMA Installation	8.01	2	3.27	20	3.27	20
FW5 SMSA & SMA Installation	11.18	2	5.33	20	5.33	20
FW1 SMSA & SMA Installation	5.69	2	3.07	20	3.07	20
FW2 SMSA & SMA Installation	7.04	2	3.61	20	3.61	20
FW4 SMSA & SMA Installation	6.41	2	2.67	20	2.67	20
FW5 SMSA & SMA Installation	10.81	2	4.97	20	4.97	20
Kickoff Barrel and IWT Installation						
BW1/BW2/BW3 (-2,-3,-4) Octant 5 Inst, 3N,6S	10.29	2	2.78	10	2.78	10
BW1-3 Inst, 4N,2S	6.	2	1.72	8	1.72	8
BW1 (-2,-4) Inst, 7N,7S	10.51	2	2.55	16	2.55	16
BWT1-BWT5 & IWT Inst, (26N,23S)	50.25	2	12.02	64	12.02	64
BW2/BW3 (-1,-5) Octant 5 Inst. 2N,2S	4.42	2	1.11	7	1.11	7

MacProject Task	Tools Cost	Tubes	Scin
KickOff IWT			
IWT Preprod (4)	$249,864		4
Sojourn IWT			
IWT (12)	$ 36,001		12
KickOff WorkStation 1			
Mod WS & BW2-3 Oct 5 Preprod (1)	$259,864	360	
Modify WS & BW2-2/4 Oct 5 Preprod (2)	$ 10,000	520	
Modify WS & BW2-3 Preprod (2)		720	
Sojourn WorkStation 1			
BW2-3 (1)		360	
Modify WS & BW2-2/4 (6)	$ 46,001	1560	
Modify WS & BW2-1/5 (6)		504	
WS1 Phase 1 Done			
BW2-1/5 (8)		672	
Modify WS & BW2-1/5 Oct 5 (2)		168	
Modify WS & FW1 (15)	$ 80,001	4140	
KickOff WorkStation 2			
Mod WS & BW3-3 Oct 5 Preprod (1)	$ 66,001	854	
Modify WS & BW3-2/4 Oct 5 Preprod (2)	$ 15,000	1680	
Modify WS & BW3-3 Preprod (2)		1708	
Sojourn WorkStation 2			
BW3-3 (1)		854	
Modify WS & BW3-2/4 (6)		5040	
Modify WS & BW3-1/5 (6)	$ 10,000	4014	
WS2 Phase 1 Done			
Modify WS & BW3-1/5 (14)		5352	
Modify WS & BW3-1/5 Oct 5 (2)		1338	
Modify WS & FW2 (16)	$ 98,001	11264	
KickOff WorkStation 3			
Modify WS & FW1 Preprod (1)	$ 80,001	276	
Modify WS (2) & FW5 Preprod (1)	$ 78,001	696	71
Sojourn WorkStation 3			
BW1-3 (4)	$ 30,000	2192	
WS3 Phase 1 Done			
BW1-2/4 Oct 5 (2)		808	
Modify WS & BW2-3 (4)		1440	
Modify WS & BW2-2/4 (7)		2080	
Modify WS & FW4 (15)	$ 78,001	3584	1120
KickOff WorkStation 4			
Mod WS & BW1-3-5 (1)	$171,001	548	
Mod WS & BW1-3 (2)		1644	
Sojourn WorkStation 4			
Mod WS & BW1-2/4 (8)	$ 12,000	5656	
WS4 Phase 1 Done			
Mod WS & BW3-3 (4)		3416	
Mod WS & BW3-2/4 (7)		6720	
Mod WS & FW5 (15)	$ 79,001	10440	1065
Installation Blockout			
Installation Blockout			
Installation Blockout			
Installation Blockout			
Installation Blockout			
Kickoff Forward Installation			
FW1 SMSA & SMA Installation	$122,401		
FW2 SMSA & SMA Installation	$ 62,401		
FW4 SMSA & SMA Installation	$ 62,401		
FW5 SMSA & SMA Installation	$ 62,401		
FW1 SMSA & SMA Installation	$ 62,401		
FW2 SMSA & SMA Installation	$ 62,401		
FW4 SMSA & SMA Installation	$ 62,401		
FW5 SMSA & SMA Installation	$ 62,401		
Kickoff Barrel and IWT Installation			
BW1/BW2/BW3 (-2,-3,-4) Octant 5 Inst, 3N,6S	$499,727		
BW1-3 Inst, 4N,2S			
BW1 (-2,-4) Inst, 7N,7S			
BWT1-BWT5 & IWT Inst, (26N,23S)	$ 20,000		
BW2/BW3 (-1,-5) Octant 5 Inst, 2N,2S			

680

4.3.1 Resource Name List (8 sheets)

This section lists all resources currently in the RAM. The list is grouped by category. This is the only section in the report in which a full descriptive resource name is provided. In all other sections, the name has been truncated to 15 characters (for the RAM).

Column Headings:

Grouping	Category of resource
ID	The unique identification number that the RAM uses
Name	Full descriptive name of the resource

Grouping	ID	Name
Slings	1	FOUR POINT SLING
	2	VACUUM SLING
	3	STRONGBACK SLING
	4	STANDARD HANDLING CHOKER
Hoists	51	LIGHT HOIST (ASSY BLD)
	52	ACCESS SHAFT A (SOUTH)
	53	ACCESS SHAFT B (NORTH)
	54	HEAVY HOIST (ASSY BLD)
	55	HALL CRANE A (SOUTH)
	56	HALL CRANE B (NORTH)
	57	SHAFT HOIST (SHARED)
Laborers	101	ASSEMBLY TECH/WORKER
	102	TEST ENGINEER
	103	ALIGN TECHNICIAN
	104	RIGGER CREW
	105	ALIGNMENT CREW
	106	HALL RIGGING CREW
	107	HALL INSTALLATION WORKER
Barrel SM	151	BONDING WEIGHTS
	152	FINAL ASSEMBLY TOOL
	154	FIDUCIAL TUBE STRONGBACK
	155	TUBE STRONGBACK
	157	MODULE SPREADER BEAM
	158	TUBE BONDING ALIGNMENT RACK
	159	BWT ROTATION TOOL
	160	BW TEST COMPUTER
	156	MBWT-2/4 MIDDLE SUPERMODULE
	161	MBWT-1/5 END SUPERMODULE
	162	MBWT-3 CENTER SUPERMODULE
Intermed SM	201	IWT ASSY TOOL
	202	SUPERTOWER VERTICAL STORAGE CART
	203	SUPERTOWER HANDLING/ROTATION TOOL
	204	SUPERTOWER ASSY TOOL
	205	TEST TOOL COMPUTER
Forward SM	251	57mm FIDUCIAL TUBE STRONGBACK
	252	OCTANT MODULE VERTICAL TEST RACK
	253	TEST TOOL COMPUTER
	254	SUPERMODULE STRUCTURAL ASSEMBLY TOOL
	255	SMSA TRANSPORTER
	256	SMSA SPREADER
	257	FRAME VERT SUPPORT STAND (HALL)
	258	45mm FIDUCIAL TUBE STRONGBACK
	259	OCTANT CHAMBER ROTATION SLING
	260	OCTANT CHAMBER VERTICAL STORAGE RACK
	261	57MM TUBE STRONGBACK
	262	45MM TUBE STRONGBACK
Common Tools	301	1HR ADHESIVE DISPENSER
	302	TRANSPORTER, TRAILER
	303	EXPERIMENT HALL
	304	TUBE SHIPPING CONTAINER
	305	HEAVY HAUL TRUCK
	306	15 MIN GLUE MACHINE

Grouping	ID	Name
UTA WORKSTATION	330	FOUR POINT SLING
	331	VACUUM SLING
	332	LIGHT HOIST
	333	ASSEMBLY TECH/WORKER
	334	TEST ENGINEER
	335	ALIGN TECHNICIAN
	336	BONDING WEIGHTS
	337	FINAL ASSEMBLY TOOL
	338	FIDUCIAL TUBE STRONGBACK
	339	TUBE STRONGBACK
	340	BW TEST COMPUTER
	341	1 HOUR ADHESIVE MACHINE
	342	15 MINUTE ADHESIVE MACHINE
	343	TUBE BONDING ALIGNMENT RACK
	344	MODULE SPREADER BEAM

Grouping	ID	Name
BW1-2/4 ENDS	351	5 EACH BW1 THETA LAYER 1 FIDUCIAL TUBES
	352	5 EACH BW1 THETA LAYER 2 FIDUCIAL TUBES
	353	5 EACH BW1 THETA LAYER 3 FIDUCIAL TUBES
	354	5 EACH BW1 THETA LAYER 4 FIDUCIAL TUBES
	355	5 EACH BW1 PHI LAYER 5 FIDUCIAL TUBES
	356	5 EACH BW1 PHI LAYER 6 FIDUCIAL TUBES
	357	5 EACH BW1 PHI LAYER 7 FIDUCIAL TUBES
	358	5 EACH BW1 PHI LAYER 8 FIDUCIAL TUBES
	359	MBW1-2/4 MODULE
	369	MBW1-2/4-OCTANT 5 MODULE
	361	48 EACH BW1 THETA LAYER 1 TUBES
	362	48 EACH BW1 THETA LAYER 2 TUBES
	363	48 EACH BW1 THETA LAYER 3 TUBES
	364	48 EACH BW1 THETA LAYER 4 TUBES
	365	43 EACH BW1 PHI LAYER 5 TUBES
	366	43 EACH BW1 PHI LAYER 6 TUBES
	367	43 EACH BW1 PHI LAYER 7 TUBES
	368	43 EACH BW1 PHI LAYER 8 TUBES
BW1-3 CENTER	371	9 EACH BW1 THETA LAYER 1 FIDUCIAL TUBES
	372	9 EACH BW1 THETA LAYER 2 FIDUCIAL TUBES
	373	9 EACH BW1 THETA LAYER 3 FIDUCIAL TUBES
	374	9 EACH BW1 THETA LAYER 4 FIDUCIAL TUBES
	381	80 EACH BW1 THETA LAYER 1 TUBES
	382	80 EACH BW1 THETA LAYER 2 TUBES
	383	80 EACH BW1 THETA LAYER 3 TUBES
	384	80 EACH BW1 THETA LAYER 4 TUBES
	390	MBW1-3 MODULE
	391	MBW1-3-OCTANT 5 MODULE

Grouping	ID	Name
BW2-2/4 MIDDLE	401	6 EACH BW2 THETA LAYER 1 FIDUCIAL TUBES
	402	6 EACH BW2 THETA LAYER 2 FIDUCIAL TUBES
	403	6 EACH BW2 THETA LAYER 3 FIDUCIAL TUBES
	404	6 EACH BW2 THETA LAYER 4 FIDUCIAL TUBES
	411	59 EACH BW2 THETA LAYER 1 TUBES
	412	59 EACH BW2 THETA LAYER 2 TUBES
	413	59 EACH BW2 THETA LAYER 3 TUBES
	414	59 EACH BW2 THETA LAYER 4 TUBES
	405	MBW2-2/4 MODULE
	407	MBW2-2/4-OCTANT 5 MODULE
BW2-1/5 END	421	2 EACH BW2 THETA LAYER 1 FIDUCIAL TUBES
	422	2 EACH BW2 THETA LAYER 2 FIDUCIAL TUBES
	423	2 EACH BW2 THETA LAYER 3 FIDUCIAL TUBES
	424	2 EACH BW2 THETA LAYER 4 FIDUCIAL TUBES
	431	19 EACH BW2 THETA LAYER 1 TUBES
	432	19 EACH BW2 THETA LAYER 2 TUBES
	433	19 EACH BW2 THETA LAYER 3 TUBES
	434	19 EACH BW2 THETA LAYER 4 TUBES
	406	MBW2-1/5 MODULE
	408	MBW2-1/5-OCTANT 5 MODULE
BW2-3 CENTER	441	9 EACH BW2 THETA LAYER 1 FIDUCIAL TUBES
	442	9 EACH BW2 THETA LAYER 2 FIDUCIAL TUBES
	443	9 EACH BW2 THETA LAYER 3 FIDUCIAL TUBES
	444	9 EACH BW2 THETA LAYER 4 FIDUCIAL TUBES
	451	81 EACH BW2 THETA LAYER 1 TUBES
	452	81 EACH BW2 THETA LAYER 2 TUBES
	453	81 EACH BW2 THETA LAYER 3 TUBES
	454	81 EACH BW2 THETA LAYER 4 TUBES
	460	MBW2-3 MODULE
	461	MBW2-3-OCTANT 5 MODULE
BW SCIN	471	BW2 SCINTILLATORS

Grouping	ID	Name
BW3-2/3 MIDDLE	501	7 EACH BW3 THETA LAYER 1 FIDUCIAL TUBES
	502	7 EACH BW3 THETA LAYER 2 FIDUCIAL TUBES
	503	7 EACH BW3 THETA LAYER 3 FIDUCIAL TUBES
	504	7 EACH BW3 THETA LAYER 4 FIDUCIAL TUBES
	505	7 EACH BW3 PHI LAYER 5 FIDUCIAL TUBES
	506	7 EACH BW3 PHI LAYER 6 FIDUCIAL TUBES
	507	7 EACH BW3 PHI LAYER 7 FIDUCIAL TUBES
	508	7 EACH BW3 PHI LAYER 8 FIDUCIAL TUBES
	509	7 EACH BW3 STEREO LAYER 9 FIDUCIAL TUBES
	510	7 EACH BW3 STEREO LAYER 10 FIDUCIAL TUBES
	511	MBW3-2/4 MIDDLE READY TO MATE INTO BWT
	512	MBW3-3 CENTER READY TO MATE INTO BWT
	513	MBW3-1/5 END READY TO MATE INTO BWT
	514	MBW3-2/4-OCTANT 5
	515	MBW3-1/5-OCTANT 5
	516	MBW3-3- OCTANT 5
	521	77 EACH BW3 THETA LAYER 1 TUBES
	522	77 EACH BW3 THETA LAYER 2 TUBES
	523	77 EACH BW3 THETA LAYER 3 TUBES
	524	77 EACH BW3 THETA LAYER 4 TUBES
	525	77 EACH BW3 PHI LAYER 5 TUBES
	526	77 EACH BW3 PHI LAYER 6 TUBES
	527	77 EACH BW3 PHI LAYER 7 TUBES
	528	77 EACH BW3 PHI LAYER 8 TUBES
	529	77 EACH BW3 STEREO LAYER 9 TUBES
	530	77 EACH BW3 STEREO LAYER 10 TUBES
BW3-1/5 END	551	5 EACH BW3 THETA LAYER 1 FIDUCIAL TUBES
	552	5 EACH BW3 THETA LAYER 2 FIDUCIAL TUBES
	553	5 EACH BW3 THETA LAYER 3 FIDUCIAL TUBES
	554	5 EACH BW3 THETA LAYER 4 FIDUCIAL TUBES
	555	6 EACH BW3 STEREO LAYER 9 FIDUCIAL TUBES
	556	6 EACH BW3 STEREO LAYER 10 FIDUCIAL TUBES
	557	45 EACH BW3 THETA LAYER 1 TUBES
	558	45 EACH BW3 THETA LAYER 2 TUBES
	559	45 EACH BW3 THETA LAYER 3 TUBES
	560	45 EACH BW3 THETA LAYER 4 TUBES
	561	63 EACH BW3 STEREO LAYER 9 TUBES
	562	63 EACH BW3 STEREO LAYER 10 TUBES
BW3-3 CENTER	571	9 EACH BW3 THETA LAYER 1 FIDUCIAL TUBES
	572	9 EACH BW3 THETA LAYER 2 FIDUCIAL TUBES
	573	9 EACH BW3 THETA LAYER 3 FIDUCIAL TUBES
	574	9 EACH BW3 THETA LAYER 4 FIDUCIAL TUBES
	575	7 EACH BW3 STEREO LAYER 9 FIDUCIAL TUBES
	576	7 EACH BW3 STEREO LAYER 10 FIDUCIAL TUBES
	577	81EACH BW3 THETA LAYER 1 TUBES
	578	81EACH BW3 THETA LAYER 2 TUBES
	579	81EACH BW3 THETA LAYER 3 TUBES
	580	81EACH BW3 THETA LAYER 4 TUBES
	581	72 EACH BW3 STEREO LAYER 9 TUBES
	582	72 EACH BW3 STEREO LAYER 10 TUBES

Grouping	ID	Name
IW2	601	IW2 MODULE ASSEMBLY READY
	602	IW2 VERTICAL TEST RACK
	603	IW2 MODULE HANDLING SLING
	604	IW2 MODULE ASSEMBLY
	605	IW2 MODULE SHIPPING CONTAINER
	621	IW2 SCINTILLATORS
IW3	651	IW3 MODULE ASSEMBLY READY
	652	IW3 VERTICAL TEST RACK
	653	IW3 MODULE HANDLING SLING
	654	IW3 MODULE ASSEMBLY
	655	IW3 MODULE SHIPPING CONTAINER

Grouping	ID	Name
FW1	701	FW1 OCTANT CHAMBER ASSEMBLY TOOL
	702	FW1 OCTANT CHAMBER ASSEMBLY
	703	FW1 SUPERMODULE STRUCTURAL ASSEMBLY (SMSA)
	704	FW1 SUPERMODULE ASSEMBLY (SMA)
	711	7 EACH FW1 THETA LAYER 1 FIDUCIAL TUBES
	712	7 EACH FW1 THETA LAYER 2 FIDUCIAL TUBES
	713	7 EACH FW1 THETA LAYER 3 FIDUCIAL TUBES
	714	7 EACH FW1 THETA LAYER 4 FIDUCIAL TUBES
	721	62 EACH FW1 THETA LAYER 1 TUBES
	722	62 EACH FW1 THETA LAYER 2 TUBES
	723	62 EACH FW1 THETA LAYER 3 TUBES
	724	62 EACH FW1 THETA LAYER 4 TUBES
FW2	751	FW2 OCTANT CHAMBER ASSEMBLY TOOL
	752	FW2 OCTANT CHAMBER ASSEMBLY
	753	FW2 SUPERMODULE STRUCTURAL ASSEMBLY (SMSA)
	754	FW2 SUPERMODULE ASSEMBLY (SMA)
	761	9 EACH FW2 THETA LAYER 1 FIDUCIAL TUBES
	762	9 EACH FW2 THETA LAYER 2 FIDUCIAL TUBES
	763	9 EACH FW2 THETA LAYER 3 FIDUCIAL TUBES
	764	9 EACH FW2 THETA LAYER 4 FIDUCIAL TUBES
	765	79 EACH FW2 THETA LAYER 1 TUBES
	766	79 EACH FW2 THETA LAYER 2 TUBES
	767	79 EACH FW2 THETA LAYER 3 TUBES
	768	79 EACH FW2 THETA LAYER 4 TUBES
	771	9 EACH FW2 STEREO LAYER 5 FIDUCIAL TUBES
	772	9 EACH FW2 STEREO LAYER 6 FIDUCIAL TUBES
	773	9 EACH FW2 STEREO LAYER 7 FIDUCIAL TUBES
	774	9 EACH FW2 STEREO LAYER 8 FIDUCIAL TUBES
	775	79 EACH FW2 STEREO LAYER 5 TUBES
	776	79 EACH FW2 STEREO LAYER 6 TUBES
	777	79 EACH FW2 STEREO LAYER 7 TUBES
	778	79 EACH FW2 STEREO LAYER 8 TUBES

Grouping	ID	Name
FW4	801	FW4 OCTANT CHAMBER ASSEMBLY TOOL
	802	FW4 OCTANT CHAMBER ASSEMBLY
	803	FW4 SUPERMODULE STRUCTURAL ASSEMBLY (SMSA)
	804	FW4 SUPERMODULE ASSEMBLY (SMA)
	811	5 EACH FW4 THETA LAYER 1 FIDUCIAL TUBES
	812	5 EACH FW4 THETA LAYER 2 FIDUCIAL TUBES
	813	5 EACH FW4 THETA LAYER 3 FIDUCIAL TUBES
	814	5 EACH FW4 THETA LAYER 4 FIDUCIAL TUBES
	821	51 EACH FW4 THETA LAYER 1 TUBES
	822	51 EACH FW4 THETA LAYER 2 TUBES
	823	51 EACH FW4 THETA LAYER 3 TUBES
	824	51 EACH FW4 THETA LAYER 4 TUBES
	841	70 EACH FS4 SCINTALATORS
FW5	851	FW5 OCTANT CHAMBER ASSEMBLY TOOL
	852	FW5 OCTANT CHAMBER ASSEMBLY
	853	FW5 SUPERMODULE STRUCTURAL ASSEMBLY (SMSA)
	854	FW5 SUPERMODULE ASSEMBLY (SMA)
	861	8 EACH FW5 THETA LAYER 1 FIDUCIAL TUBES
	862	8 EACH FW5 THETA LAYER 2 FIDUCIAL TUBES
	863	8 EACH FW5 THETA LAYER 3 FIDUCIAL TUBES
	864	8 EACH FW5 THETA LAYER 4 FIDUCIAL TUBES
	865	79 EACH FW5 THETA LAYER 1 TUBES
	866	79 EACH FW5 THETA LAYER 2 TUBES
	867	79 EACH FW5 THETA LAYER 3 TUBES
	868	79 EACH FW5 THETA LAYER 4 TUBES
	871	8 EACH FW5 STEREO LAYER 5 FIDUCIAL TUBES
	872	8 EACH FW5 STEREO LAYER 6 FIDUCIAL TUBES
	873	8 EACH FW5 STEREO LAYER 7 FIDUCIAL TUBES
	874	8 EACH FW5 STEREO LAYER 8 FIDUCIAL TUBES
	875	79 EACH FW5 STEREO LAYER 5 TUBES
	876	79 EACH FW5 STEREO LAYER 6 TUBES
	877	79 EACH FW5 STEREO LAYER 7 TUBES
	878	79 EACH FW5 STEREO LAYER 8 TUBES
	881	71 EACH FS5 SCINTILLATORS

4.3.2 Resource Usage (6 sheets)

Column Headings:

ID	Unique identification for each resource
Name	Name of the resource, truncated to 15 characters
Initial Capacity	The number of items that are available to use at the start
Maximum Inventory	The maximum number of items available to use
Minimum Inventory	The minimum number of items available to use
Number at End	The number of items that are left at the end
Limited	Marked with an "X" if the quantity is limited. This is used by the RAM to determine if it can allow the resource quantity to float. If the float option is enable, the RAM can use as many of the unlimited items that it needs.
First Allocated	Date that the resource is first used
Last Deallocated	Date that the resource is last put away
Usage Time	The amount of time, in hours, that the resource is in use
Resource Waits	cumulative amount of time, in hours, that some activity had to wait for the resource to become available
Average Wait	Average amount of time, in hours, that an activity had to wait for the resource to become available
Minimum Wait	Minimum amount of time, in hours, that an activity had to wait for the resource to become available
Maximum Wait	Maximum amount of time, in hours, that an activity had to wait for the resource to become available

ID	Name	Initial Capacity	Maximum Inventory	Minimum Inventory	Number at end	Limited	First Allocated	Last Deallocated	Usage Time	Resource Wait	Average Wait	Minimum Wait	Maximum Wait
1	Sling	99	99	95	99		01/09/95	12/28/98	11106.3				
2	Vacuum Sling	4	4	1	4		01/17/95	12/16/98	5253.5				
3	StrongbackSling	1	1	0	1		01/20/97	09/12/97	118.2				
4	Std HandlChoker	999	999	999	999								
51	LitHoist AsyBld	3	3	0	3	X	01/09/95	12/17/98	12368.8	61.3	.6	.1	2.5
52	Shaft A - South	1	1	0	1	X	12/03/96	01/22/99	192.1	.4	.4	.4	.4
53	Shaft B - North	1	1	-1	1	X	12/05/96	12/19/97	79.7	3.	.6	.4	.9
54	HvyHoist AsyBld	1	1	0	1	X	03/02/95	12/28/98	573.1	37.6	1.	.1	3.3
55	Hall Crane A So	1	1	0	1	X	12/03/96	01/22/99	646.6	11.6	2.3	.1	6.7
56	Hall Crane B No	1	1	0	1	X	12/05/96	12/19/97	183.3	44.7	22.4	5.3	39.5
57	ShaftHoist Shrd	1	1	-1	1	X	12/03/96	01/22/99	396.2	66.	2.	.1	36.6
101	Worker	16	16	0	16		01/03/95	01/04/99	101054.9	873.3	1.3		23.6
102	Test Engineer	7	7	1	7		02/24/95	08/05/98	4140.3				
103	Alignment Tech	2	2	0	2		01/17/95	09/22/97	27.4				
104	Rigger Crew	2	2	0	2		03/02/95	01/22/99	1650.5	21.5	.8		1.8
105	Alignment Crew	2	2	0	2		01/16/95	01/27/99	514.3	32.7	32.7	32.7	32.7
106	HallRiggerCrew	2	2	0	2		12/03/96	01/22/99	625.7				
107	Hall Worker	99	99	-4	99		12/05/96	01/28/99	3298.4	79.1	39.6	39.1	40.
151	Bonding Weights	4	4	0	4		01/17/95	07/30/98	10217.2				
152	FinalAssblyTool	4	4	0	4	X	01/12/95	07/16/97	8454.4				
154	FidTubeStrgback	999	999	976	999		01/20/95	07/09/97	11407.9				
155	Tube Strongback	999	999	991	999		01/23/95	07/09/97	7865.7				
156	MBWT-2/4 Mid SM	0	6	0	0	X	01/14/97	07/16/97					
157	Mod Sprder Beam	1	1	0	1		03/02/95	07/16/97	100.9				
158	TubeBondingRack	99	99	95	99		01/23/95	07/30/98	6120.6				
159	BWTRotationTool	999	999	996	999		03/02/95	09/10/97	950.				
160	BW1TestComputer	999	999	996	999		02/24/95	07/11/97	1058.3				
161	MBWT-1/5 End SM	0	9	0	0	X	01/16/97	03/05/97					
162	MBWT-3 Ctr SM	0	4	0	0	X	01/13/97	02/26/97					
201	IWT Assembly	0	4	0	1	X	01/20/97	09/22/97		982.3	81.9	6.6	653 1
202	ST Vert Storage	16	16	0	0		07/26/96						
203	Std Hnd/RotTool	1	1	0	1		07/26/96	09/22/97	100.				
204	ST AssemblyTool	1	1	0	1	X	07/09/96	09/16/97	109.4				
205	TestToolComputr	1	1	0	1		07/01/96	09/18/97	218.				
251	57mm F/T Strbck	99	99	86	99		07/28/95	07/29/98	3294.7				
252	OctMod TstRack	6	6	6	6								
253	TstToolComputer	12	12	9	12		07/10/95	08/05/98	852.9				
254	SM FinAsmbTool	1	1	1	1	X							
255	Frame AsmbXprt	999	999	998	999		07/07/98	01/06/99	145.7				
256	Frame Spreader	999	999	998	999		07/07/98	01/06/99	81.8				
257	FrameVertSupprt	999	999	991	991	X	07/08/98						
258	45mm F/T Strbck	99	99	83	99		06/13/95	06/15/98	4226.2				
259	OctChm RotSling	999	999	997	999		07/12/95	01/21/99	510.				
260	OctCHm VertStor	999	999	936	999		07/12/95	01/22/99					
261	57mm TubeStrbck	99	99	95	99		07/31/95	07/30/98	2260.				
262	45mm TubeStrbck	99	99	95	99		06/14/95	06/16/98	2303.9				

ID	Name	Initial Capacity	Maximum Inventory	Minimum Inventory	Number at end	Limited	First Allocated	Last Deallocated	Usage Time	Resource Wait	Average Wait	Minimum Wait	Maximum Wait
301	1hr AdhesivDisp	4	4	0	4		01/17/95	07/30/98	9512.2				
302	Transporter	2	2	0	2		12/02/96	01/19/99	959.3	7.	.6		2.1
303	Experiment Hall	1	1	1	1	X							
304	Tube Ship Contr	999	999	999	999								
305	Heavy HaulTrick	1	1	1	1								
306	15min Glue Disp	4	4	1	4		01/20/95	07/29/98	1632.3				
330	UT SLing	1	1	1	1								
331	UT VacuumSling	1	1	1	1								
332	UT Light Hoist	1	1	1	1	X							
333	UT Worker	99	99	99	99								
334	UT TestEngineer	2	2	2	2								
335	UT Aling Tech	2	2	2	2								
336	UT BondWeights	1	1	1	1								
337	UT FinAssyTool	1	1	1	1	X							
338	UT F/T Strback	99	99	99	99								
339	UT T Strngback	2	2	2	2								
340	UT BW1TestComp	1	1	1	1								
341	UT 1hr GlueDis	1	1	1	1								
342	UT 15m GlueDIs	1	1	1	1								
343	UT T Bond Rack	99	99	99	99								
344	UT ModSpreader	1	1	1	1								
351	5 BW1 Theta 1 T	999	999	983	983		03/07/96						
352	5 BW1 Theta 2 T	999	999	983	983		03/08/96						
353	5 BW1 Theta 3 T	999	999	983	983		03/12/96						
354	5 BW1 Theta 4 T	999	999	983	983		03/13/96						
355	5 BW1 Phi 5 F/T	999	999	975	975		02/13/95						
356	5 BW1 Phi 6 F/T	999	999	975	975		02/15/95						
357	5 BW1 Phi 7 F/T	999	999	975	975		02/20/95						
358	5 BW1 Phi 8 F/T	999	999	975	975		02/23/95						
359	MBW1-2/4 Module	0	14	0	0	X	12/19/96	10/31/96					
361	48 BW1 Theta 1	999	999	983	983		03/08/96						
362	48 BW1 Theta 2	999	999	983	983		03/11/96						
363	48 BW1 Theta 3	999	999	983	983		03/12/96						
364	48 BW1 Theta 4	999	999	983	983		03/13/96						
365	43 BW1 Phi 5 Tu	999	999	975	975		02/14/95						
366	43 BW1 Phi 6 Tu	999	999	975	975		02/16/95						
367	43 BW1 Phi 7 Tu	999	999	975	975		02/21/95						
368	43 BW1 Phi 8 Tu	999	999	975	975		02/23/95						
369	MBW1-2/4-OCT 5	0	2	0	0	X	12/10/96	11/19/96					
371	9 BW1 Theta 1 T	999	999	991	991		01/20/95						
372	9 BW1 Theta 2 T	999	999	991	991		01/26/95						
373	9 BW1 Theta 3 T	999	999	991	991		02/01/95						
374	9 BW1 Theta 4 T	999	999	991	991		02/07/95						
381	80 BW1 Theta 1	999	999	991	991		01/23/95						
382	80 BW1 Theta 2	999	999	991	991		01/27/95						
383	80 BW1 Theta 3	999	999	991	991		02/02/95						

ID	Name	Initial Capacity	Maximum Inventory	Minimum Inventory	Number at end	Limited	First Allocated	Last Deallocated	Usage Time	Resource Wait	Average Wait	Minimum Wait	Maximum Wait
384	80 BW1 Theta 4	999	999	991	991		02/08/95						
390	MBW1-3 Module	0	7	0	0	X	12/12/96	10/07/96					
391	MBW1-3-OCT 5 Mo	0	1	0	0	X	12/10/96	03/15/95					
401	6 BW2 Theta 1 T	999	999	983	983		03/16/95						
402	6 BW2 Theta 2 T	999	999	983	983		03/17/95						
403	6 BW2 Theta 3 T	999	999	983	983		03/20/95						
404	6 BW2 Theta 4 T	999	999	983	983		03/22/95						
405	MBW2-2/4 Module	0	0	0	0	X							
406	MBW2-1/5 Module	0	0	0	0	X							
407	MBW2-2/4-OCT 5	0	2	0	0	X	12/05/96	04/13/95					
408	MBW2-1/5-OCT 5	0	2	0	0	X	09/04/97	03/27/97					
411	59 BW2 Theta1 T	999	999	983	983		03/16/95						
412	59 BW2 Theta2 T	999	999	983	983		03/17/95						
413	59 BW2 Theta3 T	999	999	983	983		03/20/95						
414	59 BW2 Theta4 T	999	999	983	983		03/22/95						
421	2 BW2 Theta 1 T	999	999	983	983		09/24/96						
422	2 BW2 Theta 2 T	999	999	983	983		09/24/96						
423	2 BW2 Theta 3 T	999	999	983	983		09/25/96						
424	2 BW2 Theta 4 T	999	999	983	983		09/25/96						
431	19 BW2 Theta1 T	999	999	983	983		09/24/96						
432	19 BW2 Theta2 T	999	999	983	983		09/24/96						
433	19 BW2 Theta3 T	999	999	983	983		09/25/96						
434	19 BW2 Theta4 T	999	999	983	983		09/25/96						
441	9 BW2 Theta 1 T	999	999	991	991		01/24/95						
442	9 BW2 Theta 2 T	999	999	991	991		01/27/95						
443	9 BW2 Theta 3 T	999	999	991	991		02/02/95						
444	9 BW2 Theta 4 T	999	999	991	991		02/08/95						
451	81 BW2 Theta1 T	999	999	991	991		01/24/95						
452	81 BW2 Theta2 T	999	999	991	991		01/30/95						
453	81 BW2 Theta3 T	999	999	991	991		02/03/95						
454	81 BW2 Theta4 T	999	999	991	991		02/09/95						
460	MBW2-3 Module	0	0	0	0	X							
461	MBW2-3-OCT5 Mod	0	1	0	0	X	12/03/96	03/02/95					
471	BW2 Scin	999	999	999	999								
501	7 BW3 Th 1 F/T	999	999	983	983		04/19/95						
502	7 BW3 Th 2 F/T	999	999	983	983		04/20/95						
503	7 BW3 Th 3 F/T	999	999	983	983		04/24/95						
504	7 BW3 Th 4 F/T	999	999	983	983		04/25/95						
505	7 BW3 Phi 5 F/T	999	999	959	959		02/17/95						
506	7 BW3 Phi 6 F/T	999	999	959	959		02/23/95						
507	7 BW3 Phi 7 F/T	999	999	959	959		02/28/95						
508	7 BW3 Phi 8 F/T	999	999	959	959		03/03/95						
509	7 BW3 Str9 F/T	999	999	983	983		05/05/95						
510	7BW3 Str 10 F/T	999	999	983	983		05/08/95						
511	MBW3-2/4 MidRdy	0	1	0	0	X	06/18/96	07/10/97					
512	MBW3-3 Cen Rdy	0	1	0	0	X	07/10/95	02/18/97		268.9	134.4	109.4	159.4

ID	Name	Initial Capacity	Maximum Inventory	Minimum Inventory	Number at end	Limited	First Allocated	Last Deallocated	Usage Time	Resource Wait	Average Wait	Minimum Wait	Maximum Wait
513	MBW3-1/5 EndRdy	0	1	0	0	X	10/01/96	03/04/97		99.1	7.6	.8	19.4
514	MBW3-2/4-OCT 5	0	2	0	0	X	12/04/96	06/12/95					
515	MBW3-1/5-OCT 5	0	2	0	0	X	09/03/97	04/23/97					
516	MBW3-3- OCT 5	0	1	0	0	X	12/02/96	04/05/95					
521	77 BW3 Theta 1	999	999	983	983		04/19/95						
522	77 BW3 Theta 2	999	999	983	983		04/20/95						
523	77 BW3 Theta 3	999	999	983	983		04/24/95						
524	77 BW3 Theta 4	999	999	983	983		04/25/95						
525	77 BW3 Phi 5 Tu	999	999	959	959		02/17/95						
526	77 BW3 Phi 6 Tu	999	999	959	959		02/23/95						
527	77 BW3 Phi7 Tub	999	999	959	959		02/28/95						
528	77 BW3 Phi 8 Tu	999	999	959	959		03/03/95						
529	77 BW3 Streo9 T	999	999	983	983		05/05/95						
530	77 BW3 Str 10 T	999	999	983	983		05/08/95						
551	5 BW3 Theta 1 T	999	999	983	983		09/19/96						
552	5 BW3 Theta 2 T	999	999	983	983		09/19/96						
553	5 BW3 Theta 3 T	999	999	983	983		09/20/96						
554	5 BW3 Theta 4 T	999	999	983	983		09/20/96						
555	6 BW3 Stero 9 T	999	999	983	983		09/25/96						
556	6 BW3 Ster 10 T	999	999	983	983		09/27/96						
557	45 BW3 Theta1 T	999	999	983	983		09/19/96						
558	45 BW3 Theta2 T	999	999	983	983		09/19/96						
559	45 BW3 Theta3 T	999	999	983	983		09/20/96						
560	45 BW3 Theta4 T	999	999	983	983		09/20/96						
561	63 BW3 Ster9 T	999	999	983	983		09/26/96						
562	63 BW3 Ster10 T	999	999	983	983		09/27/96						
571	9 BW3 Theta 1 T	999	999	991	991		01/25/95						
572	9 BW3 Theta 2 T	999	999	991	991		02/01/95						
573	9 BW3 Theta 3 T	999	999	991	991		02/07/95						
574	9 BW3 Theta 4 T	999	999	991	991		02/13/95						
575	7 BW3 Stereo9 T	999	999	991	991		03/08/95						
576	7 BW3 Stereo10T	999	999	991	991		03/10/95						
577	81 BW3 Theta 1T	999	999	991	991		01/26/95						
578	81 BW3 Theta 2T	999	999	991	991		02/01/95						
579	81 BW3 Theta 3T	999	999	991	991		02/07/95						
580	81 BW3 Theta 4T	999	999	991	991		02/13/95						
581	72 BW3 Stereo9T	999	999	991	991		03/08/95						
582	72 BW3 Stere10T	999	999	991	991		03/13/95						
601	IW2 MA Ready	16	16	0	0		07/01/96						
602	IW2 VertTestRck	1	1	0	1		07/01/96	09/16/97	564.				
603	IW2 Handl Sling	1	1	0	1		07/01/96	09/12/97	18.4				
604	IW2 Mod Assmbly	16	16	16	16								
605	IW2 ShippingCon	0	16	0	16	X		09/12/97					
621	IS2 Scin	999	999	983	983		07/02/96						
651	IW3 MA Ready	16	16	0	0		07/01/96						
652	IW3 VertTestRck	1	1	0	1		07/01/96	09/16/97	508.5				

ID	Name	Initial Capacity	Maximum Inventory	Minimum Inventory	Number at end	Limited	First Allocated	Last Deallocated	Usage Time	Resource Wait	Average Wait	Minimum Wait	Maximum Wait
653	IW3 Handl Sling	1	1	0	1		07/01/96	09/12/97	18.4				
654	IW3 Mod Assmbly	16	16	16	16								
655	IW3 ShippingCon	0	16	0	16	X		09/12/97					
701	FW1Chm AsblTool	1	1	0	1	X	06/07/95	10/16/97	1411.8				
702	FW1 Oct Cham	0	16	0	0	X	07/10/98	10/16/97					
703	FW1 SMSA	0	1	0	0	X	07/07/98	10/20/98					
704	FW1 SMA	0	2	0	2	X		10/30/98					
711	7 FW1 Thet1 F/T	999	999	983	983		06/13/95						
712	7 FW1 Thet2 F/T	999	999	983	983		06/16/95						
713	7 FW1 Thet3 F/T	999	999	983	983		06/22/95						
714	7 FW1 Thet4 F/T	999	999	983	983		06/28/95						
721	62 FW1 Thet1 Tu	999	999	983	983		06/14/95						
722	62 FW1 Thet2 Tu	999	999	983	983		06/19/95						
723	62 FW1 Thet3 Tu	999	999	983	983		06/23/95						
724	62 FW1 Thet4 Tu	999	999	983	983		06/29/95						
751	FW2Chm AsblTool	1	1	0	1	X	05/02/97	06/22/98	2707.4				
752	FW2 Oct Cham	0	16	0	0	X	08/04/98	06/22/98					
753	FW2 SMSA	0	1	0	0	X	07/31/98	11/10/98					
754	FW2 SMA	0	2	0	2	X		11/24/98					
761	9 FW2 Thet1 F/T	999	999	983	983		05/06/97						
762	9 FW2 Thet2 F/T	999	999	983	983		05/08/97						
763	9 FW2 Thet3 F/T	999	999	983	983		05/12/97						
764	9 FW2 Thet4 F/T	999	999	983	983		05/14/97						
765	79 FW2 Thet1 Tu	999	999	983	983		05/06/97						
766	79 FW2 Thet2 Tu	999	999	983	983		05/08/97						
767	79 FW2 Thet3 Tu	999	999	983	983		05/13/97						
768	79 FW2 Thet4 Tu	999	999	983	983		05/15/97						
771	9 FW2 Str1 F/T	999	999	983	983		05/16/97						
772	9 FW2 Str2 F/T	999	999	983	983		05/21/97						
773	9 FW2 Str3 F/T	999	999	983	983		05/23/97						
774	9 FW2 Str4 F/T	999	999	983	983		05/28/97						
775	79 FW2 Str1 Tub	999	999	983	983		05/19/97						
776	79 FW2 Str2 Tub	999	999	983	983		05/21/97						
777	79 FW2 Str3 Tub	999	999	983	983		05/23/97						
778	79 FW2 Str4 Tub	999	999	983	983		05/28/97						
801	FW4Chm AsblTool	1	1	0	1	X	07/24/97	02/11/98	1262.1				
802	FW4 Oct Cham	0	16	0	0	X	08/26/98	02/11/98					
803	FW4 SMSA	0	1	0	0	X	08/24/98	12/01/98					
804	FW4 SMA	0	2	0	2	X		12/14/98					
811	5 FW4 Thet1 F/T	999	999	983	983		07/28/97						
812	5 FW4 Thet2 F/T	999	999	983	983		07/29/97						
813	5 FW4 Thet3 F/T	999	999	983	983		07/31/97						
814	5 FW4 Thet4 F/T	999	999	983	983		08/01/97						
821	51 FW4 Thet1 Tu	999	999	983	983		07/28/97						
822	51 FW4 Thet2 Tu	999	999	983	983		07/30/97						
823	51 FW4 Thet3 Tu	999	999	983	983		07/31/97						

ID	Name	Initial Capacity	Maximum Inventory	Minimum Inventory	Number at end	Limited	First Allocated	Last Deallocated	Usage Time	Resource Wait	Average Wait	Minimum Wait	Maximum Wait
824	51 FW4 Thet4 Tu	999	999	983	983		08/01/97						
841	70 FS4 Scin	16	16	0	0		08/06/97						
851	FW5CHM ASY TOOL	1	1	0	1	X	07/24/95	08/05/98	3086.9				
852	FW5 Oct Cham	0	16	0	0	X	10/05/98	08/05/98					
853	FW5 SMSA	0	1	0	0	X	10/01/98	01/04/99					
854	FW5 SMA	0	2	0	2	X		01/28/99					
861	8 FW5 Thet1 F/T	999	999	983	983		07/28/95						
862	8 FW5 Thet2 F/T	999	999	983	983		08/03/95						
863	8 FW5 Thet3 F/T	999	999	983	983		08/09/95						
864	8 FW5 Thet4 F/T	999	999	983	983		08/15/95						
865	79 FW5 Thet1 Tu	999	999	983	983		07/31/95						
866	79 FW5 Thet2 Tu	999	999	983	983		08/04/95						
867	79 FW5 Thet3 Tu	999	999	983	983		08/10/95						
868	79 FW5 Thet4 Tu	999	999	983	983		08/16/95						
871	8 FW5 Str1 F/T	999	999	983	983		08/21/95						
872	8 FW5 Str2 F/T	999	999	983	983		08/25/95						
873	8 FW5 Str3 F/T	999	999	983	983		08/31/95						
874	8 FW5 Str4 F/T	999	999	983	983		09/07/95						
875	79 FW5 Str1 Tub	999	999	983	983		08/22/95						
876	79 FW5 Str2 Tub	999	999	983	983		08/28/95						
877	79 FW5 Str3 Tub	999	999	983	983		09/01/95						
878	79 FW5 Str4 Tub	999	999	983	983		09/08/95						
881	71 FS5 Scin	16	16	0	0		09/18/95						

4.3.3 Resource Analysis (6 sheets)

Column Headings:

ID	Unique identification for each resource
Name	Name of the resource, truncated to 15 characters
Unit Cost	The cost, in dollars, of the one resource item. This amount comes from Montgomery's WBS.
Type	Category of resource for MacProject overviews. Currently the types of categories are "tools", "tubes", and "scin"
Prob. to Fail	The probability of a resource to fail. These values were estimated by John Brogan.
Repair Time	The time needed either to repair a broken item or to replace it. These values were estimated by John Brogan.
Usage Time	The amount of time, in hours, that the resource is in use
Percent Usage	The percentage of total job time that a resource is in use
Mean Number of Failures	The number of failures, based on a Poisson distribution expected for the resource over the life of the project.
Extra Time	The amount of additional time, in hours, that one needs to complete the project due to the expected number of resource failures
Percent Extra	Percentage of extra time needed due to the expected number of resource failures

Note that most resources have an acceptable number of failures and introduce little additional time into the schedule. The major exception to this is the sling resource. Based on predicted failure rates, sling failures would introduce an additional 4000 working hours into the schedule. It has been assumed that sufficient sling spares are available to preclude this schedule impact. Other, less drastic exceptions, can be found in the sheets.

ID	Name	Unit Cost	Type		Probability to Fail	Repair Time	Usage Time	Percent Usage	Mean Number Failures	Extra Time	Percent Extra
1	Sling	$ 2000	tools		.01	40.	11106.3	36.	111.1	4442.5	14.4
2	Vacuum Sling	$ 10000	tools		.05	1.	5253.5	17.1	262.7	262.7	.9
3	StrongbackSling	$ 20000	tools		.01	40.	118.2	.4	1.2	47.3	.2
4	Std HandlChoker	$ 6000	tools		.01	8.					
51	LitHoist AsyBld	$ 8000	tools		.01	8.	12368.8	40.1	123.7	989.5	3.2
52	Shaft A - South				.01	8.	192.1	.6	1.9	15.4	
53	Shaft B - North				.01	8.	79.7	.3	.8	6.4	
54	HvyHoist AsyBld				.01	8.	573.1	1.9	5.7	45.9	.1
55	Hall Crane A So				.01	8.	646.6	2.1	6.5	51.7	.2
56	Hall Crane B No				.01	8.	183.3	.6	1.8	14.7	
57	ShaftHoist Shrd				.01	8.	396.2	1.3	4.	31.7	.1
101	Worker						101054.9	328.			
102	Test Engineer						4140.3	13.4			
103	Alignment Tech						27.4	.1			
104	Rigger Crew						1650.5	5.4			
105	Alignment Crew						514.3	1.7			
106	HallRiggerCrew						625.7	2.			
107	Hall Worker						3298.4	10.7			
151	Bonding Weights	$ 10000	tools				10217.2	33.2			
152	FinalAssblyTool	$ 25000	tools				8454.4	27.4			
154	FidTubeStrgback	$ 5000	tools		.05	1.	11407.9	37.	570.4	570.4	1.9
155	Tube Strongback	$ 5000	tools		.05	1.	7865.7	25.5	393.3	393.3	1.3
156	MBWT-2/4 Mid SM										
157	Mod Sprder Beam	$ 20000	tools		.01	8.	100.9	.3	1.	8.1	
158	TubeBondingRack	$ 5000	tools		.05	1.	6120.6	19.9	306.	306.	1.
159	BWTRotationTool	$149863	tools		.01	8.	950.	3.1	9.5	76.	.2
160	BW1TestComputer	$ 10000	tools		.01	1.	1058.3	3.4	10.6	10.6	
161	MBWT-1/5 End SM										
162	MBWT-3 Ctr SM										
201	IWT Assembly										
202	ST Vert Storage	$ 3000	tools		.01	2.					
203	Std Hnd/RotTool	$149863	tools		.03	8.	100.	.3	3.	24.	.1
204	ST AssemblyTool	$ 64000	tools				109.4	.4			
205	TestToolComputr	$ 5000	tools		.01	1.	218.	.7	2.2	2.2	
251	57mm F/T Strbck	$ 5000	tools		.05	1.	3294.7	10.7	164.7	164.7	.5
252	OctMod TstRack	$ 3000	tools								
253	TstToolComputer	$ 5000	tools		.01	1.	852.9	2.8	8.5	8.5	
254	SM FinAsmbTool	$ 26000	tools			...					
255	Frame AsmbXprt	$ 50000	tools		.05	8.	145.7	.5	7.3	58.3	.2
256	Frame Spreader	$ 10000	tools		.01	8.	81.8	.3	.8	6.5	
257	FrameVertSupprt	$ 62400	tools		.01	1.					
258	45mm F/T Strbck	$ 5000	tools		.01	1.	4226.2	13.7	42.3	42.3	.1
259	OctChm RotSling	$ 2000	tools		.01	1.	510.	1.7	5.1	5.1	
260	OctCHm VertStor	$ 3000	tools		.01	2.					
261	57mm TubeStrbck	$ 5000	tools		.05	1.	2260.	7.3	113.	113.	.4
262	45mm TubeStrbck	$ 5000	tools		.05	1.	2303.9	7.5	115.2	115.2	.4

ID	Name	Unit Cost	Type		Probability to Fail	Repair Time	Usage Time	Percent Usage	Mean Number Failures	Extra Time	Percent Extra
301	1hr AdhesivDisp	$ 10000	tools		.2	.2	9512.2	30.9	1902.4	380.5	1.2
302	Transporter	$100000	tools		.01	1.	959.3	3.1	9.6	9.6	
303	Experiment Hall										
304	Tube Ship Contr										
305	Heavy HaulTrick				.01	1.					
306	15min Glue Disp	$ 1000	tools		.2	.2	1632.3	5.3	326.5	65.3	.2
330	UT SLing				.01	40.					
331	UT VacuumSling				.05	1.					
332	UT Light Hoist				.01	8.					
333	UT Worker										
334	UT TestEngineer										
335	UT Aling Tech										
336	UT BondWeights										
337	UT FinAssyTool										
338	UT F/T Strback				.05	1.					
339	UT T Strngback				.05	1.					
340	UT BW1TestComp				.01	1.					
341	UT 1hr GlueDis				.2	.2					
342	UT 15m GlueDis				.2	.2					
343	UT T Bond Rack										
344	UT ModSpreader										
351	5 BW1 Theta 1 T		tubes								
352	5 BW1 Theta 2 T		tubes								
353	5 BW1 Theta 3 T		tubes								
354	5 BW1 Theta 4 T		tubes								
355	5 BW1 Phi 5 F/T		tubes								
356	5 BW1 Phi 6 F/T		tubes								
357	5 BW1 Phi 7 F/T		tubes								
358	5 BW1 Phi 8 F/T		tubes								
359	MBW1-2/4 Module										
361	48 BW1 Theta 1		tubes								
362	48 BW1 Theta 2		tubes								
363	48 BW1 Theta 3		tubes								
364	48 BW1 Theta 4		tubes								
365	43 BW1 Phi 5 Tu		tubes								
366	43 BW1 Phi 6 Tu		tubes								
367	43 BW1 Phi 7 Tu		tubes								
368	43 BW1 Phi 8 Tu		tubes								
369	MBW1-2/4-OCT 5										
371	9 BW1 Theta 1 T		tubes								
372	9 BW1 Theta 2 T		tubes								
373	9 BW1 Theta 3 T		tubes								
374	9 BW1 Theta 4 T		tubes								
381	80 BW1 Theta 1		tubes								
382	80 BW1 Theta 2		tubes								
383	80 BW1 Theta 3		tubes								

ID	Name	Unit Cost	Type		Probability to Fail	Repair Time	Usage Time	Percent Usage	Mean Number Failures	Extra Time	Percent Extra
384	80 BW1 Theta 4		tubes								
390	MBW1-3 Module										
391	MBW1-3-OCT 5 Mo										
401	6 BW2 Theta 1 T		tubes								
402	6 BW2 Theta 2 T		tubes								
403	6 BW2 Theta 3 T		tubes								
404	6 BW2 Theta 4 T		tubes								
405	MBW2-2/4 Module										
406	MBW2-1/5 Module										
407	MBW2-2/4-OCT 5										
408	MBW2-1/5-OCT 5										
411	59 BW2 Theta1 T		tubes								
412	59 BW2 Theta2 T		tubes								
413	59 BW2 Theta3 T		tubes								
414	59 BW2 Theta4 T		tubes								
421	2 BW2 Theta 1 T		tubes								
422	2 BW2 Theta 2 T		tubes								
423	2 BW2 Theta 3 T		tubes								
424	2 BW2 Theta 4 T		tubes								
431	19 BW2 Theta1 T		tubes								
432	19 BW2 Theta2 T		tubes								
433	19 BW2 Theta3 T		tubes								
434	19 BW2 Theta4 T		tubes								
441	9 BW2 Theta 1 T		tubes								
442	9 BW2 Theta 2 T		tubes								
443	9 BW2 Theta 3 T		tubes								
444	9 BW2 Theta 4 T		tubes								
451	81 BW2 Theta1 T		tubes								
452	81 BW2 Theta2 T		tubes								
453	81 BW2 Theta3 T		tubes								
454	81 BW2 Theta4 T		tubes								
460	MBW2-3 Module										
461	MBW2-3-OCT5 Mod										
471	BW2 Scin		scin								
501	7 BW3 Th 1 F/T		tubes								
502	7 BW3 Th 2 F/T		tubes								
503	7 BW3 Th 3 F/T		tubes								
504	7 BW3 Th 4 F/T		tubes								
505	7 BW3 Phi 5 F/T		tubes								
506	7 BW3 Phi 6 F/T		tubes								
507	7 BW3 Phi 7 F/T		tubes								
508	7 BW3 Phi 8 F/T		tubes								
509	7 BW3 Str9 F/T		tubes								
510	7BW3 Str 10 F/T		tubes								
511	MBW3-2/4 MidRdy										
512	MBW3-3 Cen Rdy										

ID	Name	Unit Cost	Type		Probability to Fail	Repair Time	Usage Time	Percent Usage	Mean Number Failures	Extra Time	Percent Extra
513	MBW3-1/5 EndRdy										
514	MBW3-2/4-OCT 5										
515	MBW3-1/5-OCT 5										
516	MBW3-3- OCT 5										
521	77 BW3 Theta 1		tubes								
522	77 BW3 Theta 2		tubes								
523	77 BW3 Theta 3		tubes								
524	77 BW3 Theta 4		tubes								
525	77 BW3 Phi 5 Tu		tubes								
526	77 BW3 Phi 6 Tu		tubes								
527	77 BW3 Phi7 Tub		tubes								
528	77 BW3 Phi 8 Tu		tubes								
529	77 BW3 Streo9 T		tubes								
530	77 BW3 Str 10 T		tubes								
551	5 BW3 Theta 1 T		tubes								
552	5 BW3 Theta 2 T		tubes								
553	5 BW3 Theta 3 T		tubes								
554	5 BW3 Theta 4 T		tubes								
555	6 BW3 Stero 9 T		tubes								
556	6 BW3 Ster 10 T		tubes								
557	45 BW3 Theta1 T		tubes								
558	45 BW3 Theta2 T		tubes								
559	45 BW3 Theta3 T		tubes								
560	45 BW3 Theta4 T		tubes								
561	63 BW3 Ster9 T		tubes								
562	63 BW3 Ster10 T		tubes								
571	9 BW3 Theta 1 T		tubes								
572	9 BW3 Theta 2 T		tubes								
573	9 BW3 Theta 3 T		tubes								
574	9 BW3 Theta 4 T		tubes								
575	7 BW3 Stereo9 T		tubes								
576	7 BW3 Stereo10T		tubes								
577	81 BW3 Theta 1T		tubes								
578	81 BW3 Theta 2T		tubes								
579	81 BW3 Theta 3T		tubes								
580	81 BW3 Theta 4T		tubes								
581	72 BW3 Stereo9T		tubes								
582	72 BW3 Stere10T		tubes								
601	IW2 MA Ready										
602	IW2 VertTestRck	$ 2000	tools				564.	1.8			
603	IW2 Handl Sling	$ 7500	tools		.01	2.	18.4	.1	.2	.4	
604	IW2 Mod Assmbly	$ 20000	tools								
605	IW2 ShippingCon										
621	IS2 Scin		scin								
651	IW3 MA Ready										
652	IW3 VertTestRck	$ 2000	tools				508.5	1.7			

ID	Name	Unit Cost	Type		Probability to Fail	Repair Time	Usage Time	Percent Usage	Mean Number Failures	Extra Time	Percent Extra
653	IW3 Handl Sling	$ 7500	tools		.01	2.	18.4	.1	.2	.4	
654	IW3 Mod Assmbly	$ 20000	tools								
655	IW3 ShippingCon										
701	FW1Chm AsblTool	$ 25000	tools				1411.8	4.6			
702	FW1 Oct Cham										
703	FW1 SMSA										
704	FW1 SMA										
711	7 FW1 Thet1 F/T		tubes								
712	7 FW1 Thet2 F/T		tubes								
713	7 FW1 Thet3 F/T		tubes								
714	7 FW1 Thet4 F/T		tubes								
721	62 FW1 Thet1 Tu		tubes								
722	62 FW1 Thet2 Tu		tubes								
723	62 FW1 Thet3 Tu		tubes								
724	62 FW1 Thet4 Tu		tubes								
751	FW2Chm AsblTool	$ 25000	tools				2707.4	8.8			
752	FW2 Oct Cham										
753	FW2 SMSA										
754	FW2 SMA										
761	9 FW2 Thet1 F/T		tubes								
762	9 FW2 Thet2 F/T		tubes								
763	9 FW2 Thet3 F/T		tubes								
764	9 FW2 Thet4 F/T		tubes								
765	79 FW2 Thet1 Tu		tubes								
766	79 FW2 Thet2 Tu		tubes								
767	79 FW2 Thet3 Tu		tubes								
768	79 FW2 Thet4 Tu		tubes								
771	9 FW2 Str1 F/T		tubes								
772	9 FW2 Str2 F/T		tubes								
773	9 FW2 Str3 F/T		tubes								
774	9 FW2 Str4 F/T		tubes								
775	79 FW2 Str1 Tub		tubes								
776	79 FW2 Str2 Tub		tubes								
777	79 FW2 Str3 Tub		tubes								
778	79 FW2 Str4 Tub		tubes								
801	FW4Chm AsblTool	$ 25000	tools				1262.1	4.1			
802	FW4 Oct Cham										
803	FW4 SMSA										
804	FW4 SMA										
811	5 FW4 Thet1 F/T		tubes								
812	5 FW4 Thet2 F/T		tubes								
813	5 FW4 Thet3 F/T		tubes								
814	5 FW4 Thet4 F/T		tubes								
821	51 FW4 Thet1 Tu		tubes								
822	51 FW4 Thet2 Tu		tubes								
823	51 FW4 Thet3 Tu		tubes								

ID	Name	Unit Cost	Type		Probability to Fail	Repair Time	Usage Time	Percent Usage	Mean Number Failures	Extra Time	Percent Extra
824	51 FW4 Thet4 Tu		tubes								
841	70 FS4 Scin		scin								
851	FW5CHM ASY TOOL	$ 25000	tools				3086.9	10.			
852	FW5 Oct Cham										
853	FW5 SMSA										
854	FW5 SMA										
861	8 FW5 Thet1 F/T		tubes								
862	8 FW5 Thet2 F/T		tubes								
863	8 FW5 Thet3 F/T		tubes								
864	8 FW5 Thet4 F/T		tubes								
865	79 FW5 Thet1 Tu		tubes								
866	79 FW5 Thet2 Tu		tubes								
867	79 FW5 Thet3 Tu		tubes								
868	79 FW5 Thet4 Tu		tubes								
871	8 FW5 Str1 F/T		tubes								
872	8 FW5 Str2 F/T		tubes								
873	8 FW5 Str3 F/T		tubes								
874	8 FW5 Str4 F/T		tubes								
875	79 FW5 Str1 Tub		tubes								
876	79 FW5 Str2 Tub		tubes								
877	79 FW5 Str3 Tub		tubes								
878	79 FW5 Str4 Tub		tubes								
881	71 FS5 Scin		scin								

4.3.4 Resource Tool Costs (5 sheets)

This section shows the funding profile necessary to pay for the tools used by the project. All the tools are listed in Section 4.3.1. The individual resource costs have been input from Mike Montgomery's WBS data. It has been assumed that a tool has to be paid for the first time it is used and not before. This is slightly inaccurate since you clearly need to have the tool before you use it. Hence the timeline should probably be shifted to the left by six months to a year.

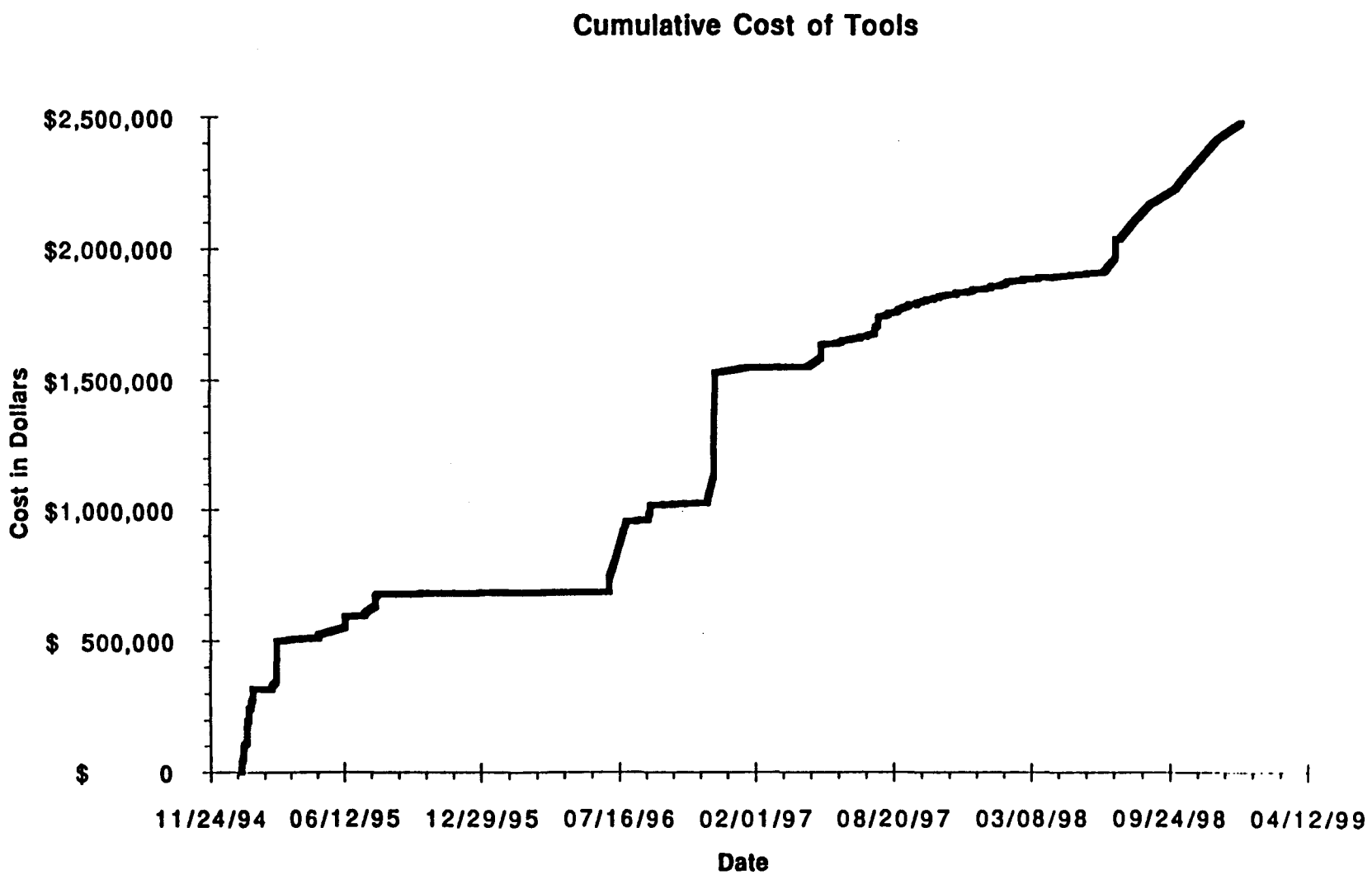
Sheet 1 shows a graph of cumulative tool costs versus time.

Sheets 2-4 provide the detailed backup information that went into making the graph.

Column Headings:

ID-nnn	ID is the unique resource identification, "nnn" is the sequential resource item that is being paid for. (for example, "2-003" represents the 3rd sling)
Resource	Name of the resource being paid for, truncated to 15 characters
Used by	Code the ram uses to identify the current operation
Activity	Name of the Activity that is paying for the resource
Cost	Cost, in dollars, of the resource - from the WBS tables
Date	The date on which the resource is being first used
Cumulative Cost	Running total of all resource costs.

Note that these costs only cover tools identified in the resource lists. They do not include the costs for labor. Labor costs are shown in Section 4.4. Costs for tubes, shipping containers, etc. are assumed to be covered elsewhere, such as within university budgets. There is also no cost in this section for spare resources or for resources that were not used in the RAM simulation.


Cumulative Cost of Tools
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$ 500,000
$ 0
Cost in Dollars
11/24/94
06/12/95
12/29/95
07/16/96
02/01/97
08/20/97
03/08/98
09/24/98
04/12/99
Date

ID-nnn	Resource	Used by	Activity	Cost	Date	Cumulative Cost
1-001	Sling	55551.01	BW1-3-5 Prod	$ 2,000	01/09/95	$ 2,000
51-001	LitHoist AsyBld	55551.01	BW1-3-5 Prod	$ 8,000	01/09/95	$ 10,000
1-002	Sling	73505.01	BW3-3-5 Prod	$ 2,000	01/09/95	$ 12,000
51-002	LitHoist AsyBld	73505.01	BW3-3-5 Prod	$ 8,000	01/09/95	$ 20,000
1-003	Sling	63405.01	BW2-3-5 Prod	$ 2,000	01/09/95	$ 22,000
51-003	LitHoist AsyBld	63405.01	BW2-3-5 Prod	$ 8,000	01/09/95	$ 30,000
152-001	FinalAssblyTool	63405.01	BW2-3-5 Prod	$25,000	01/12/95	$ 55,000
152-002	FinalAssblyTool	73505.01	BW3-3-5 Prod	$25,000	01/12/95	$ 80,000
152-003	FinalAssblyTool	55551.01	BW1-3-5 Prod	$25,000	01/13/95	$ 105,000
2-001	Vacuum Sling	63405.01	BW2-3-5 Prod	$10,000	01/17/95	$ 115,000
151-001	Bonding Weights	63405.01	BW2-3-5 Prod	$10,000	01/17/95	$ 125,000
301-001	1hr AdhesivDisp	63405.01	BW2-3-5 Prod	$10,000	01/17/95	$ 135,000
2-002	Vacuum Sling	55551.01	BW1-3-5 Prod	$10,000	01/17/95	$ 145,000
151-002	Bonding Weights	55551.01	BW1-3-5 Prod	$10,000	01/17/95	$ 155,000
301-002	1hr AdhesivDisp	55551.01	BW1-3-5 Prod	$10,000	01/17/95	$ 165,000
2-003	Vacuum Sling	73505.01	BW3-3-5 Prod	$10,000	01/18/95	$ 175,000
151-003	Bonding Weights	73505.01	BW3-3-5 Prod	$10,000	01/18/95	$ 185,000
301-003	1hr AdhesivDisp	73505.01	BW3-3-5 Prod	$10,000	01/18/95	$ 195,000
154-001	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/20/95	$ 200,000
154-002	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/20/95	$ 205,000
154-003	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/20/95	$ 210,000
154-004	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/20/95	$ 215,000
154-005	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/20/95	$ 220,000
154-006	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/20/95	$ 225,000
154-007	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/20/95	$ 230,000
154-008	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/20/95	$ 235,000
154-009	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/20/95	$ 240,000
306-001	15min Glue Disp	55551.01	BW1-3-5 Prod	$ 1,000	01/20/95	$ 241,000
155-001	Tube Strongback	55551.01	BW1-3-5 Prod	$ 5,000	01/23/95	$ 246,000
155-002	Tube Strongback	55551.01	BW1-3-5 Prod	$ 5,000	01/23/95	$ 251,000
158-001	TubeBondingRack	55551.01	BW1-3-5 Prod	$ 5,000	01/23/95	$ 256,000
155-003	Tube Strongback	63405.01	BW2-3-5 Prod	$ 5,000	01/24/95	$ 261,000
155-004	Tube Strongback	63405.01	BW2-3-5 Prod	$ 5,000	01/24/95	$ 266,000
158-002	TubeBondingRack	63405.01	BW2-3-5 Prod	$ 5,000	01/25/95	$ 271,000
154-010	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/26/95	$ 276,000
154-011	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/26/95	$ 281,000
154-012	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/26/95	$ 286,000
154-013	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/26/95	$ 291,000
154-014	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/26/95	$ 296,000
154-015	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/26/95	$ 301,000
154-016	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/26/95	$ 306,000
154-017	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/26/95	$ 311,000
154-018	FidTubeStrgback	55551.01	BW1-3-5 Prod	$ 5,000	01/26/95	$ 316,000
306-002	15min Glue Disp	73505.01	BW3-3-5 Prod	$ 1,000	02/23/95	$ 317,000
160-001	BW1TestComputer	63405.01	BW2-3-5 Prod	$10,000	02/24/95	$ 327,000
157-001	Mod Sprder Beam	63405.01	BW2-3-5 Prod	$20,000	03/02/95	$ 347,000
159-001	BWTRotationTool	63405.01	BW2-3-5 Prod	$149,863	03/02/95	$ 496,863
160-002	BW1TestComputer	62385.01	BW2-2/4-5 Prod	$10,000	03/27/95	$ 506,863
155-005	Tube Strongback	72465.01	BW3-2/4-5 Prod	$ 5,000	05/05/95	$ 511,863
155-006	Tube Strongback	72465.01	BW3-2/4-5 Prod	$ 5,000	05/05/95	$ 516,863
158-003	TubeBondingRack	72465.01	BW3-2/4-5 Prod	$ 5,000	05/05/95	$ 521,863
701-001	FW1Chm AsblTool	91840.01	FW1 Assembly	$25,000	06/07/95	$ 546,863
258-001	45mm F/T Strbck	91840.01	FW1 Assembly	$ 5,000	06/13/95	$ 551,863
258-002	45mm F/T Strbck	91840.01	FW1 Assembly	$ 5,000	06/13/95	$ 556,863
258-003	45mm F/T Strbck	91840.01	FW1 Assembly	$ 5,000	06/13/95	$ 561,863
258-004	45mm F/T Strbck	91840.01	FW1 Assembly	$ 5,000	06/13/95	$ 566,863

ID-nnn	Resource	Used by	Activity	Cost	Date	Cumulative Cost
258-005	45mm F/T Strbck	91840.01	FW1 Assembly	$ 5,000	06/13/95	$ 571,863
258-006	45mm F/T Strbck	91840.01	FW1 Assembly	$ 5,000	06/13/95	$ 576,863
258-007	45mm F/T Strbck	91840.01	FW1 Assembly	$ 5,000	06/13/95	$ 581,863
262-001	45mm TubeStrbck	91840.01	FW1 Assembly	$ 5,000	06/14/95	$ 586,863
262-002	45mm TubeStrbck	91840.01	FW1 Assembly	$ 5,000	06/14/95	$ 591,863
253-001	TstToolComputer	91840.01	FW1 Assembly	$ 5,000	07/10/95	$ 596,863
259-001	OctChm RotSling	91840.01	FW1 Assembly	$ 2,000	07/12/95	$ 598,863
260-001	OctCHm VertStor	91840.01	FW1 Assembly	$ 3,000	07/12/95	$ 601,863
851-001	FW5CHM ASY TOOL	95950.01	FW5 Assembly	$25,000	07/24/95	$ 626,863
251-001	57mm F/T Strbck	95950.01	FW5 Assembly	$ 5,000	07/28/95	$ 631,863
251-002	57mm F/T Strbck	95950.01	FW5 Assembly	$ 5,000	07/28/95	$ 636,863
251-003	57mm F/T Strbck	95950.01	FW5 Assembly	$ 5,000	07/28/95	$ 641,863
251-004	57mm F/T Strbck	95950.01	FW5 Assembly	$ 5,000	07/28/95	$ 646,863
251-005	57mm F/T Strbck	95950.01	FW5 Assembly	$ 5,000	07/28/95	$ 651,863
251-006	57mm F/T Strbck	95950.01	FW5 Assembly	$ 5,000	07/28/95	$ 656,863
251-007	57mm F/T Strbck	95950.01	FW5 Assembly	$ 5,000	07/28/95	$ 661,863
251-008	57mm F/T Strbck	95950.01	FW5 Assembly	$ 5,000	07/28/95	$ 666,863
261-001	57mm TubeStrbck	95950.01	FW5 Assembly	$ 5,000	07/31/95	$ 671,863
261-002	57mm TubeStrbck	95950.01	FW5 Assembly	$ 5,000	07/31/95	$ 676,863
260-002	OctCHm VertStor	95950.01	FW5 Assembly	$ 3,000	10/02/95	$ 679,863
154-019	FidTubeStrgback	66720.02	BW2-2/4 BWT Prd	$ 5,000	06/24/96	$ 684,863
602-001	IW2 VertTestRck	81820.01	IWT Assembly	$ 2,000	07/01/96	$ 686,863
603-001	IW2 Handl Sling	81820.01	IWT Assembly	$ 7,500	07/01/96	$ 694,363
652-001	IW3 VertTestRck	81820.01	IWT Assembly	$ 2,000	07/01/96	$ 696,363
653-001	IW3 Handl Sling	81820.01	IWT Assembly	$ 7,500	07/01/96	$ 703,863
205-001	TestToolComputr	81820.01	IWT Assembly	$ 5,000	07/01/96	$ 708,863
152-004	FinalAssblyTool	53260.04	BW1-3 BWT Prod	$25,000	07/01/96	$ 733,863
204-001	ST AssemblyTool	81820.01	IWT Assembly	$64,000	07/09/96	$ 797,863
1-004	Sling	52226.08	BW1-2/4 BWT	$ 2,000	07/09/96	$ 799,863
203-001	Std Hnd/RotTool	81820.01	IWT Assembly	$149,863	07/26/96	$ 949,726
202-001	ST Vert Storage	81820.01	IWT Assembly	$ 3,000	07/26/96	$ 952,726
306-003	15min Glue Disp	66720.04	BW2-2/4 BWT Prd	$ 1,000	07/26/96	$ 953,726
202-002	ST Vert Storage	81820.02	IWT Assembly	$ 3,000	08/08/96	$ 956,726
202-003	ST Vert Storage	81820.03	IWT Assembly	$ 3,000	08/16/96	$ 959,726
202-004	ST Vert Storage	81820.04	IWT Assembly	$ 3,000	08/26/96	$ 962,726
154-020	FidTubeStrgback	52226.11	BW1-2/4 BWT	$ 5,000	08/28/96	$ 967,726
154-021	FidTubeStrgback	52226.11	BW1-2/4 BWT	$ 5,000	08/28/96	$ 972,726
301-004	1hr AdhesivDisp	66720.06	BW2-2/4 BWT Prd	$10,000	08/28/96	$ 982,726
155-007	Tube Strongback	66720.06	BW2-2/4 BWT Prd	$ 5,000	08/30/96	$ 987,726
155-008	Tube Strongback	66720.06	BW2-2/4 BWT Prd	$ 5,000	08/30/96	$ 992,726
151-004	Bonding Weights	66720.06	BW2-2/4 BWT Prd	$10,000	08/30/96	$1,002,726
158-004	TubeBondingRack	66720.06	BW2-2/4 BWT Prd	$ 5,000	08/30/96	$1,007,726
154-022	FidTubeStrgback	53260.06	BW1-3 BWT Prod	$ 5,000	08/30/96	$1,012,726
154-023	FidTubeStrgback	66720.06	BW2-2/4 BWT Prd	$ 5,000	09/02/96	$1,017,726
160-003	BW1TestComputer	77750.06	BW3-1/5 BWT Prd	$10,000	11/22/96	$1,027,726
302-001	Transporter	43070.01	BW3-3-5-S Inst	$100,000	12/02/96	$1,127,726
159-002	BWTRotationTool	33150.01	BW2-3-5-S Inst	$149,863	12/03/96	$1,277,589
302-002	Transporter	33150.01	BW2-3-5-S Inst	$100,000	12/04/96	$1,377,589
159-003	BWTRotationTool	42010.01	BW3-2-5-N Inst	$149,863	12/04/96	$1,527,452
3-001	StrongbackSling	82800.01	IWT-N Inst	$20,000	01/20/97	$1,547,452
260-003	OctCHm VertStor	91840.02	FW1 Assembly	$ 3,000	04/18/97	$1,550,452
751-001	FW2Chm AsblTool	92870.01	FW2 Assembly	$25,000	05/02/97	$1,575,452
260-004	OctCHm VertStor	91840.03	FW1 Assembly	$ 3,000	05/02/97	$1,578,452
258-008	45mm F/T Strbck	92870.01	FW2 Assembly	$ 5,000	05/06/97	$1,583,452
258-009	45mm F/T Strbck	92870.01	FW2 Assembly	$ 5,000	05/06/97	$1,588,452
258-010	45mm F/T Strbck	91840.04	FW1 Assembly	$ 5,000	05/06/97	$1,593,452

ID-nnn	Resource	Used by	Activity	Cost	Date	Cumulative Cost
258-011	45mm F/T Strbck	91840.04	FW1 Assembly	$ 5,000	05/06/97	$1,598,452
258-012	45mm F/T Strbck	91840.04	FW1 Assembly	$ 5,000	05/06/97	$1,603,452
258-013	45mm F/T Strbck	91840.04	FW1 Assembly	$ 5,000	05/06/97	$1,608,452
258-014	45mm F/T Strbck	91840.04	FW1 Assembly	$ 5,000	05/06/97	$1,613,452
258-015	45mm F/T Strbck	91840.04	FW1 Assembly	$ 5,000	05/06/97	$1,618,452
258-016	45mm F/T Strbck	91840.04	FW1 Assembly	$ 5,000	05/06/97	$1,623,452
262-003	45mm TubeStrbck	92870.01	FW2 Assembly	$ 5,000	05/06/97	$1,628,452
262-004	45mm TubeStrbck	92870.01	FW2 Assembly	$ 5,000	05/06/97	$1,633,452
260-005	OctCHm VertStor	91840.04	FW1 Assembly	$ 3,000	05/14/97	$1,636,452
260-006	OctCHm VertStor	91840.05	FW1 Assembly	$ 3,000	05/27/97	$1,639,452
202-005	ST Vert Storage	81820.05	IWT Assembly	$ 3,000	06/04/97	$1,642,452
260-007	OctCHm VertStor	92870.01	FW2 Assembly	$ 3,000	06/06/97	$1,645,452
260-008	OctCHm VertStor	91840.06	FW1 Assembly	$ 3,000	06/06/97	$1,648,452
202-006	ST Vert Storage	81820.06	IWT Assembly	$ 3,000	06/12/97	$1,651,452
260-009	OctCHm VertStor	91840.07	FW1 Assembly	$ 3,000	06/20/97	$1,654,452
202-007	ST Vert Storage	81820.07	IWT Assembly	$ 3,000	06/24/97	$1,657,452
202-008	ST Vert Storage	81820.08	IWT Assembly	$ 3,000	07/02/97	$1,660,452
260-010	OctCHm VertStor	91840.08	FW1 Assembly	$ 3,000	07/02/97	$1,663,452
260-011	OctCHm VertStor	92870.02	FW2 Assembly	$ 3,000	07/11/97	$1,666,452
202-009	ST Vert Storage	81820.09	IWT Assembly	$ 3,000	07/14/97	$1,669,452
260-012	OctCHm VertStor	91840.09	FW1 Assembly	$ 3,000	07/16/97	$1,672,452
202-010	ST Vert Storage	81820.1	IWT Assembly	$ 3,000	07/23/97	$1,675,452
801-001	FW4Chm AsblTool	94920.01	FW4 Assembly	$25,000	07/24/97	$1,700,452
251-009	57mm F/T Strbck	95950.02	FW5 Assembly	$ 5,000	07/28/97	$1,705,452
251-010	57mm F/T Strbck	95950.02	FW5 Assembly	$ 5,000	07/28/97	$1,710,452
251-011	57mm F/T Strbck	95950.02	FW5 Assembly	$ 5,000	07/28/97	$1,715,452
251-012	57mm F/T Strbck	95950.02	FW5 Assembly	$ 5,000	07/28/97	$1,720,452
251-013	57mm F/T Strbck	95950.02	FW5 Assembly	$ 5,000	07/28/97	$1,725,452
261-003	57mm TubeStrbck	95950.02	FW5 Assembly	$ 5,000	07/29/97	$1,730,452
261-004	57mm TubeStrbck	95950.02	FW5 Assembly	$ 5,000	07/29/97	$1,735,452
260-013	OctCHm VertStor	91840.1	FW1 Assembly	$ 3,000	07/30/97	$1,738,452
202-011	ST Vert Storage	81820.11	IWT Assembly	$ 3,000	08/01/97	$1,741,452
260-014	OctCHm VertStor	92870.03	FW2 Assembly	$ 3,000	08/06/97	$1,744,452
260-015	OctCHm VertStor	94920.01	FW4 Assembly	$ 3,000	08/11/97	$1,747,452
202-012	ST Vert Storage	81820.12	IWT Assembly	$ 3,000	08/12/97	$1,750,452
260-016	OctCHm VertStor	91840.11	FW1 Assembly	$ 3,000	08/13/97	$1,753,452
202-013	ST Vert Storage	81820.13	IWT Assembly	$ 3,000	08/22/97	$1,756,452
253-002	TstToolComputer	94920.02	FW4 Assembly	$ 5,000	08/26/97	$1,761,452
260-017	OctCHm VertStor	91840.12	FW1 Assembly	$ 3,000	08/27/97	$1,764,452
260-018	OctCHm VertStor	94920.02	FW4 Assembly	$ 3,000	08/27/97	$1,767,452
260-019	OctCHm VertStor	95950.02	FW5 Assembly	$ 3,000	08/29/97	$1,770,452
202-014	ST Vert Storage	81820.14	IWT Assembly	$ 3,000	09/03/97	$1,773,452
260-020	OctCHm VertStor	92870.04	FW2 Assembly	$ 3,000	09/04/97	$1,776,452
260-021	OctCHm VertStor	91840.13	FW1 Assembly	$ 3,000	09/09/97	$1,779,452
260-022	OctCHm VertStor	94920.03	FW4 Assembly	$ 3,000	09/11/97	$1,782,452
202-015	ST Vert Storage	81820.15	IWT Assembly	$ 3,000	09/11/97	$1,785,452
202-016	ST Vert Storage	81820.16	IWT Assembly	$ 3,000	09/22/97	$1,788,452
260-023	OctCHm VertStor	91840.14	FW1 Assembly	$ 3,000	09/23/97	$1,791,452
260-024	OctCHm VertStor	94920.04	FW4 Assembly	$ 3,000	09/24/97	$1,794,452
260-025	OctCHm VertStor	92870.05	FW2 Assembly	$ 3,000	09/30/97	$1,797,452
260-026	OctCHm VertStor	95950.03	FW5 Assembly	$ 3,000	10/01/97	$1,800,452
260-027	OctCHm VertStor	91840.15	FW1 Assembly	$ 3,000	10/06/97	$1,803,452
260-028	OctCHm VertStor	94920.05	FW4 Assembly	$ 3,000	10/06/97	$1,806,452
260-029	OctCHm VertStor	91840.16	FW1 Assembly	$ 3,000	10/16/97	$1,809,452
260-030	OctCHm VertStor	94920.06	FW4 Assembly	$ 3,000	10/17/97	$1,812,452
260-031	OctCHm VertStor	95950.04	FW5 Assembly	$ 3,000	10/24/97	$1,815,452

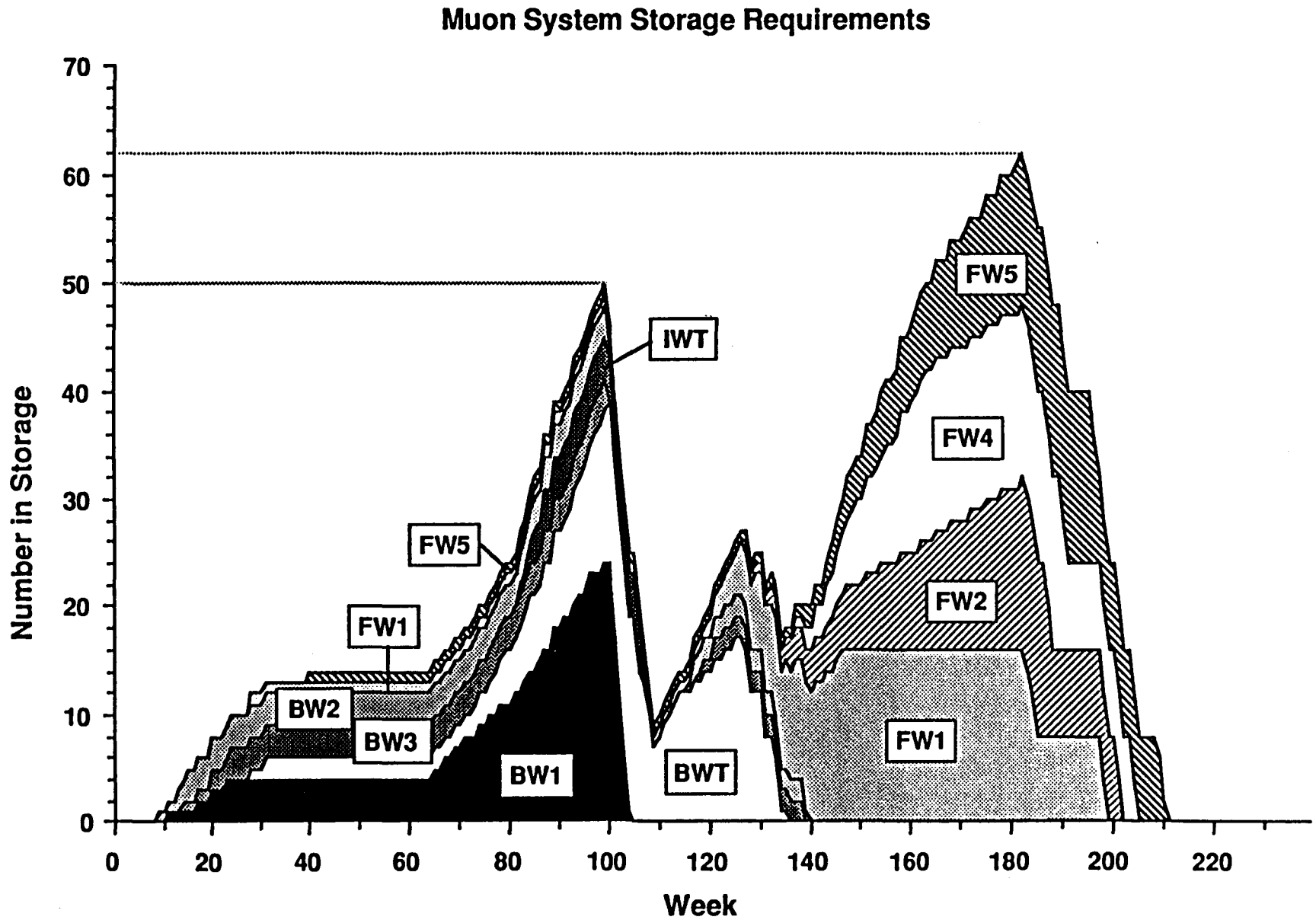
ID-nnn	Resource	Used by	Activity	Cost	Date	Cumulative Cost
260-032	OctCHm VertStor	92870.06	FW2 Assembly	$ 3,000	10/24/97	$1,818,452
260-033	OctCHm VertStor	94920.07	FW4 Assembly	$ 3,000	10/28/97	$1,821,452
260-034	OctCHm VertStor	94920.08	FW4 Assembly	$ 3,000	11/07/97	$1,824,452
260-035	OctCHm VertStor	95950.05	FW5 Assembly	$ 3,000	11/17/97	$1,827,452
260-036	OctCHm VertStor	92870.07	FW2 Assembly	$ 3,000	11/18/97	$1,830,452
260-037	OctCHm VertStor	94920.09	FW4 Assembly	$ 3,000	11/19/97	$1,833,452
260-038	OctCHm VertStor	94920.1	FW4 Assembly	$ 3,000	12/03/97	$1,836,452
260-039	OctCHm VertStor	95950.06	FW5 Assembly	$ 3,000	12/11/97	$1,839,452
260-040	OctCHm VertStor	92870.08	FW2 Assembly	$ 3,000	12/12/97	$1,842,452
260-041	OctCHm VertStor	94920.11	FW4 Assembly	$ 3,000	12/15/97	$1,845,452
260-042	OctCHm VertStor	94920.12	FW4 Assembly	$ 3,000	12/29/97	$1,848,452
260-043	OctCHm VertStor	95950.07	FW5 Assembly	$ 3,000	01/07/98	$1,851,452
260-044	OctCHm VertStor	94920.13	FW4 Assembly	$ 3,000	01/08/98	$1,854,452
260-045	OctCHm VertStor	92870.09	FW2 Assembly	$ 3,000	01/09/98	$1,857,452
260-046	OctCHm VertStor	94920.14	FW4 Assembly	$ 3,000	01/20/98	$1,860,452
253-003	TstToolComputer	92870.1	FW2 Assembly	$ 5,000	01/29/98	$1,865,452
260-047	OctCHm VertStor	94920.15	FW4 Assembly	$ 3,000	01/30/98	$1,868,452
260-048	OctCHm VertStor	95950.08	FW5 Assembly	$ 3,000	01/30/98	$1,871,452
260-049	OctCHm VertStor	92870.1	FW2 Assembly	$ 3,000	02/02/98	$1,874,452
260-050	OctCHm VertStor	94920.16	FW4 Assembly	$ 3,000	02/11/98	$1,877,452
260-051	OctCHm VertStor	95950.09	FW5 Assembly	$ 3,000	02/24/98	$1,880,452
260-052	OctCHm VertStor	92870.11	FW2 Assembly	$ 3,000	02/25/98	$1,883,452
260-053	OctCHm VertStor	95950.1	FW5 Assembly	$ 3,000	03/18/98	$1,886,452
260-054	OctCHm VertStor	92870.12	FW2 Assembly	$ 3,000	03/19/98	$1,889,452
260-055	OctCHm VertStor	95950.11	FW5 Assembly	$ 3,000	04/09/98	$1,892,452
260-056	OctCHm VertStor	92870.13	FW2 Assembly	$ 3,000	04/13/98	$1,895,452
260-057	OctCHm VertStor	95950.12	FW5 Assembly	$ 3,000	05/04/98	$1,898,452
260-058	OctCHm VertStor	92870.14	FW2 Assembly	$ 3,000	05/05/98	$1,901,452
260-059	OctCHm VertStor	95950.13	FW5 Assembly	$ 3,000	05/27/98	$1,904,452
260-060	OctCHm VertStor	92870.15	FW2 Assembly	$ 3,000	05/28/98	$1,907,452
260-061	OctCHm VertStor	95950.14	FW5 Assembly	$ 3,000	06/19/98	$1,910,452
260-062	OctCHm VertStor	92870.16	FW2 Assembly	$ 3,000	06/22/98	$1,913,452
255-001	Frame AsmbXprt	86100.01	FW1 SMA	$50,000	07/07/98	$1,963,452
256-001	Frame Spreader	86100.01	FW1 SMA	$10,000	07/07/98	$1,973,452
257-001	FrameVertSupprt	86100.01	FW1 SMA	$62,400	07/08/98	$2,035,852
259-002	OctChm RotSling	95950.15	FW5 Assembly	$ 2,000	07/14/98	$2,037,852
260-063	OctCHm VertStor	95950.15	FW5 Assembly	$ 3,000	07/14/98	$2,040,852
257-002	FrameVertSupprt	87160.01	FW2 SMA	$62,400	08/03/98	$2,103,252
257-003	FrameVertSupprt	89230.01	FW4 SMA	$62,400	08/25/98	$2,165,652
257-004	FrameVertSupprt	90290.01	FW5 SMA	$62,400	10/02/98	$2,228,052
257-005	FrameVertSupprt	86100.02	FW1 SMA	$62,400	10/21/98	$2,290,452
257-006	FrameVertSupprt	87160.02	FW2 SMA	$62,400	11/11/98	$2,352,852
257-007	FrameVertSupprt	89230.02	FW4 SMA	$62,400	12/02/98	$2,415,252
257-008	FrameVertSupprt	90290.02	FW5 SMA	$62,400	01/05/99	$2,477,652

4.3.5 Module Storage Requirements (6 sheets)

Sheet 1 is a graphical representation of the storage requirements for the various chambers and modules. To prevent the graph from being cluttered and unreadable, the items were grouped by category, BW1, BW2, BW3, BWT, FW1, FW4, and FW5. The details that made up this graph can be found in sheets 2-6. The current version of the RAM assumes that storage space is available.

Column Headings:

Week	Week number when module goes into storage
MBWT 2/4 Mid	Cumulative storage quantities of middle barrel towers 2 and 4 in z-direction
MBWT 1/5 End	Cumulative storage quantities of end barrel towers 1 and 5 in z-direction
MBWT 3 Ctr	Cumulative storage quantities of center barrel towers 3 in z-direction
IWT Assy	Cumulative storage quantities of intermediate towers
MBW1 2/4	Cumulative storage quantities of middle barrel BW1 modules 2 and 4 in z-direction
MBW1 2/4, Oct 5	Cumulative storage quantities of middle barrel BW1 octant 5 modules 2 an 4 in z-direction
MBW1 3	Cumulative storage quantities of center barrel BW1 modules 3 in z-direction
MBW1 3, Oct 5	Cumulative storage quantities of center barrel BW1 octant 5 module 3 in z-direction
MBW2 2/4, Oct 5	Cumulative storage quantities of middle barrel octant 5 BW2 modules 2 and 4 in z-direction
MBW2 1/5, Oct 5	Cumulative storage quantities of end barrel octant 5 BW2 modules 1 and 5 in z-direction
MBW2 3, Oct 5	Cumulative storage quantities of center barrel BW2 octant 5 module 3 in z-direction
MBW3 2/4, Oct 5	Cumulative storage quantities of middle barrel octant 5 BW3 modules 2 and 4 in z-direction
MBW3 1/5, Oct 5	Cumulative storage quantities of end barrel octant 5 BW3 modules 1 and 5 in z-direction
MBW3 3, Oct 5	Cumulative storage quantities of center barrel BW3 octant 5 module 3 in z-direction
FW1 Cham	Cumulative storage quantities of FW1 chambers
FW1 SMSA	Cumulative storage quantities of FW1 supermodule structural assemblies
FW2 Cham	Cumulative storage quantities of FW2 chambers
FW2 SMSA	Cumulative storage quantities of FW2 supermodule structural assemblies
FW4 Cham	Cumulative storage quantities of FW4 chambers
FW4 SMSA	Cumulative storage quantities of FW4 supermodule structural assemblies
FW5 Cham	Cumulative storage quantities of FW5 chambers
FW5 SMSA	Cumulative storage quantities of FW5 supermodule structural assemblies
Total	Total items in storage


Muon System Storage Requirements
Number in Storage
Week
0
10
20
30
40
50
60
70
0
20
40
60
80
100
120
140
160
180
200
220
IWT
FW5
FW4
FW2
FW1
BWT
FW5
FW1
BW2
BW3
BW1

SDC-92-390

Week	MBWT 2/4 Mid	MBWT 1/5 End	MBWT 3 Ctr	IWT Assy	MBW1 2/4	MBW1 2/4,Oct5	MBW1 3	MBW1 3,Oct5	MBW2 2/4,Oct5	MBW2 1/5,Oct5	MBW2 3,Oct5	MBW3 2/4,Oct5	MBW3 1/5,Oct5	MBW3 3,Oct5	FW1 Cham	FW1 SMSA	FW2 Cham	FW2 SMSA	FW4 Cham	FW4 SMSA	FW5 Cham	FW5 SMSA	TOTAL
1																							0
2																							0
3																							0
4																							0
5																							0
6																							0
7																							0
8																							0
9																							0
10											1												1
11											1												1
12								1			1												2
13								1			1												2
14								1	1		1												3
15								1	1		1			1									4
16								1	2		1			1									5
17								1	2		1			1									5
18							1	1	2		1			1									6
19							1	1	2		1			1									6
20							1	1	2		1			1									6
21							2	1	2		1	1		1									8
22							2	1	2		1	1		1									8
23							2	1	2		1	1		1									8
24							3	1	2		1	1		1									9
25							3	1	2		1	2		1									10
26							3	1	2		1	2		1									10
27							3	1	2		1	2		1									10
28							3	1	2		1	2		1									10
29			1				3	1	2		1	2		1	1								12
30			1				3	1	2		1	2		1	1								12
31			1				3	1	2		1	2		1	1								12
32			2				3	1	2		1	2		1	1								13
33			2				3	1	2		1	2		1	1								13
34			2				3	1	2		1	2		1	1								13
35			2				3	1	2		1	2		1	1								13
36			2				3	1	2		1	2		1	1								13
37			2				3	1	2		1	2		1	1								13
38			2				3	1	2		1	2		1	1								13
39			2				3	1	2		1	2		1	1								13
40			2				3	1	2		1	2		1	1								13
41			2				3	1	2		1	2		1	1						1		14
42			2				3	1	2		1	2		1	1						1		14
43			2				3	1	2		1	2		1	1						1		14
44			2				3	1	2		1	2		1	1						1		14
45			2				3	1	2		1	2		1	1						1		14
46			2				3	1	2		1	2		1	1						1		14

Week	MBWT 2/4 Mid	MBWT 1/5 End	MBWT 3 Ctr	IWT Assy	MBW1 2/4	MBW1 2/4,Oct5	MBW1 3	MBW1 3,Oct5	MBW2 2/4,Oct5	MBW2 1/5,Oct5	MBW2 3,Oct5	MBW3 2/4,Oct5	MBW3 1/5,Oct5	MBW3 3,Oct5	FW1 Cham	FW1 SMSA	FW2 Cham	FW2 SMSA	FW4 Cham	FW4 SMSA	FW5 Cham	FW5 SMSA	TOTAL
47			2				3	1	2		1	2		1	1						1		14
48			2				3	1	2		1	2		1	1						1		14
49			2				3	1	2		1	2		1	1						1		14
50			2				3	1	2		1	2		1	1						1		14
51			2				3	1	2		1	2		1	1						1		14
52			2				3	1	2		1	2		1	1						1		14
53			2				3	1	2		1	2		1	1						1		14
54			2				3	1	2		1	2		1	1						1		14
55			2				3	1	2		1	2		1	1						1		14
56			2				3	1	2		1	2		1	1						1		14
57			2				3	1	2		1	2		1	1						1		14
58			2				3	1	2		1	2		1	1						1		14
59			2				3	1	2		1	2		1	1						1		14
60			2				3	1	2		1	2		1	1						1		14
61			2				3	1	2		1	2		1	1						1		14
62			2				3	1	2		1	2		1	1						1		14
63			2				3	1	2		1	2		1	1						1		14
64			2				3	1	2		1	2		1	1						1		14
65			2				3	1	2		1	2		1	1						1		14
66			2		1		3	1	2		1	2		1	1						1		15
67			2		1		3	1	2		1	2		1	1						1		15
68			2		2		3	1	2		1	2		1	1						1		16
69			2		2		3	1	2		1	2		1	1						1		16
70			2		3		3	1	2		1	2		1	1						1		17
71			2		3		3	1	2		1	2		1	1						1		17
72			2		4		3	1	2		1	2		1	1						1		18
73			2		4		3	1	2		1	2		1	1						1		18
74			3		4		3	1	2		1	2		1	1						1		19
75			3		5		3	1	2		1	2		1	1						1		20
76			3		5		3	1	2		1	2		1	1						1		20
77			3		6		3	1	2		1	2		1	1						1		21
78	1		3		6		3	1	2		1	2		1	1						1		22
79	1		3		7		3	1	2		1	2		1	1						1		23
80	2		3		7		3	1	2		1	2		1	1						1		24
81	2		3		7		3	1	2		1	2		1	1						1		24
82	2		3		6		3	1	2		1	2		1	1						1		25
83	3		3	1	8		3	1	2		1	2		1	1						1		27
84	3		3	1	8		4	1	2		1	2		1	1						1		28
85	4		3	2	9		4	1	2		1	2		1	1						1		31
86	4		3	3	9		4	1	2		1	2		1	1						1		32
87	4		3	3	9		5	1	2		1	2		1	1						1		33
88	5		3	4	10		5	1	2		1	2		1	1						1		36
89	5		3	4	10		5	1	2		1	2		1	1						1		36
90	6		3	4	11		6	1	2		1	2		1	1						1		39
91	6		3	4	11		6	1	2		1	2		1	1						1		39
92	6		3	4	12		6	1	2		1	2		1	1						1		40

Week	MBWT 2/4 Mid	MBWT 1/5 End	MBWT 3 Ctr	IWT Assy	MBW1 2/4	MBW1 2/4,Oct5	MBW1 3	MBW1 3,Oct5	MBW2 2/4,Oct5	MBW2 1/5,Oct5	MBW2 3,Oct5	MBW3 2/4,Oct5	MBW3 1/5,Oct5	MBW3 3,Oct5	FW1 Cham	FW1 SMSA	FW2 Cham	FW2 SMSA	FW4 Cham	FW4 SMSA	FW5 Cham	FW5 SMSA	TOTAL
93	6	1	3	4	12		6	1	2		1	2		1	1						1		41
94	6	2	3	4	12		7	1	2		1	2		1	1						1		43
95	6	2	3	4	13		7	1	2		1	2		1	1						1		44
96	6	3	3	4	13		7	1	2		1	2		1	1						1		45
97	6	3	3	4	14	1	7	1	2		1	2		1	1						1		47
98	6	4	3	4	14	1	7	1	2		1	2		1	1						1		48
99	6	5	3	4	14	1	7	1	2		1	2		1	1						1		49
100	6	5	3	4	14	2	7	1	2		1	2		1	1						1		50
101	6	6	3	4	14	2	7	1	1						1						1		46
102	6	6	3	4	14		5								1						1		40
103	6	7	3	4	12										1						1		34
104	6	6	3	4	7										1						1		30
105	6	8	4	4	1										1						1		25
106	6	9	4	4											1						1		25
107	4	7	3	4											1						1		20
108	3	7	3	2											1						1		17
109	2	6	2												1						1		12
110	0	5	2												1						1		9
111	0	5	3												1						1		10
112	0	6	3												1						1		11
113	0	7	3												1						1		12
114	0	7	4												1						1		13
115	0	6	4												1						1		14
116	0	8	4												1						1		14
117	0	6	4							1					1						1		15
118	1	6	4							2					1						1		17
119	1	6	4							2			1		1						1		18
120	2	8	4							2			1		1						1		19
121	2	6	4							2			1		2						1		20
122	3	6	4							2			2		2						1		22
123	3	8	4							2			2		3						1		23
124	4	6	4							2			2		3						1		24
125	4	6	4							2			2		4						1		25
126	5	8	4							2			2		4						1		26
127	5	8	4							2			2		5						1		27
128	5	8	3							2			2		5		1				1		27
129	4	6	2							2			2		6		1				1		24
130	4	6	2							2			2		7		1				1		25
131	5	6	1							2			2		7		1				1		25
132	3	4	1							2			2		8		1				1		22
133	3	4	1							2			2		8		2				1		23
134	2	4								2			2		9		2				1		22
135		1								2			2		9		2				1		17
136		1								2			2		10		2				1		18
137										2			2		10		3				1		18
136										2			2		11		3		1		1		20

Week	MBWT 2/4 Mid	MBWT 1/5 End	MBWT 3 Ctr	IWT Assy	MBW1 2/4	MBW1 2/4,Oct5	MBW1 3	MBW1 3,Oct5	MBW2 2/4,Oct5	MBW2 1/5,Oct5	MBW2 3,Oct5	MBW3 2/4,Oct5	MBW3 1/5,Oct5	MBW3 3,Oct5	FW1 Cham	FW1 SMSA	FW2 Cham	FW2 SMSA	FW4 Cham	FW4 SMSA	FW5 Cham	FW5 SMSA	TOTAL
139										2			2		11		3		1		1		20
140										1					12		3		2		2		20
141															12		4		2		2		20
142															13		4		3		2		22
143															13		4		3		2		22
144															14		4		4		2		24
145															14		5		4		3		26
146															15		5		5		3		28
147															16		5		6		3		30
148															16		6		6		4		32
149															16		6		7		4		33
150															16		6		8		4		34
151															16		6		8		4		34
152															16		7		9		5		37
153															16		7		9		5		37
154															16		7		10		5		38
155															16		8		10		6		40
156															16		8		11		6		41
157															16		8		11		6		41
158															16		8		12		6		42
159															16		9		13		7		45
160															16		9		13		7		45
161															16		9		14		7		46
162															16		9		15		8		48
163															16		10		15		8		49
164															16		10		16		8		50
165															18		10		16		8		50
166															16		11		16		9		52
167															16		11		16		9		52
168															16		11		16		9		52
169															16		12		16		10		54
170															16		12		16		10		54
171															16		12		16		10		54
172															16		12		16		11		55
173															16		13		16		11		56
174															16		13		16		11		56
175															16		13		16		11		56
176															16		14		18		12		58
177															16		14		16		12		58
178															16		14		16		12		58
179															16		15		16		13		60
180															16		15		16		13		60
181															16		15		16		13		60
182															16		15		16		14		61
183															16		16		16		14		62
184															14		16		16		14		60

Week	MBWT 2/4 Mid	MBWT 1/5 End	MBWT 3 Ctr	IWT Assy	MBW1 2/4	MBW1 2/4,Oct5	MBW1 3	MBW1 3,Oct5	MBW2 2/4,Oct5	MBW2 1/5,Oct5	MBW2 3,Oct5	MBW3 2/4,Oct5	MBW3 1/5,Oct5	MBW3 3,Oct5	FW1 Cham	FW1 SMSA	FW2 Cham	FW2 SMSA	FW4 Cham	FW4 SMSA	FW5 Cham	FW5 SMSA	TOTAL
185															12		16		16		14		58
186															8		16		16		15		55
187															8		16		16		15		55
188															8		12		16		15		51
189															8		8		16		16		48
190															8		8		16		16		48
191															8		8		12		16		44
192															8		8		8		16		40
193															8		8		8		16		40
194															8		8		8		16		40
195															8		8		8		16		40
196															8		8		8		16		40
197															8		8		8		12		36
198															8		8		8		8		32
199															4		8		8		8		28
200																	8		8		8		24
201																	8		8		8		24
202																	4		8		8		20
203																			8		8		16
204																			8		8		16
205																			4		8		12
206																					8		8
207																					8		8
208																					8		8
209																					8		8
210																					6		6
211																					2		2
TOTAL	203	263	273	92	326	7	301	90	173	46	91	156	39	86	1035	0	621	0	754	0	747	0	

4.4.1 Manpower Requirements (4 sheets)

In the current version of the RAM, 16 workers are available throughout the project. This number has been optimized and remains constant. More workers are not added midway during production.

Figure 1 depicts the maximum and average number of workers required to complete all activities each quarter. Except for the 4th quarter of 1995 (hiatus period) , the 5th quarter of 1996 (hiatus period) and at the end of the project, the workers are used quite effectively. The hiatus periods are used for intermediate evaluation of system performance, tool upgrades, process flow improvements, and incorporation of other lessons learned.

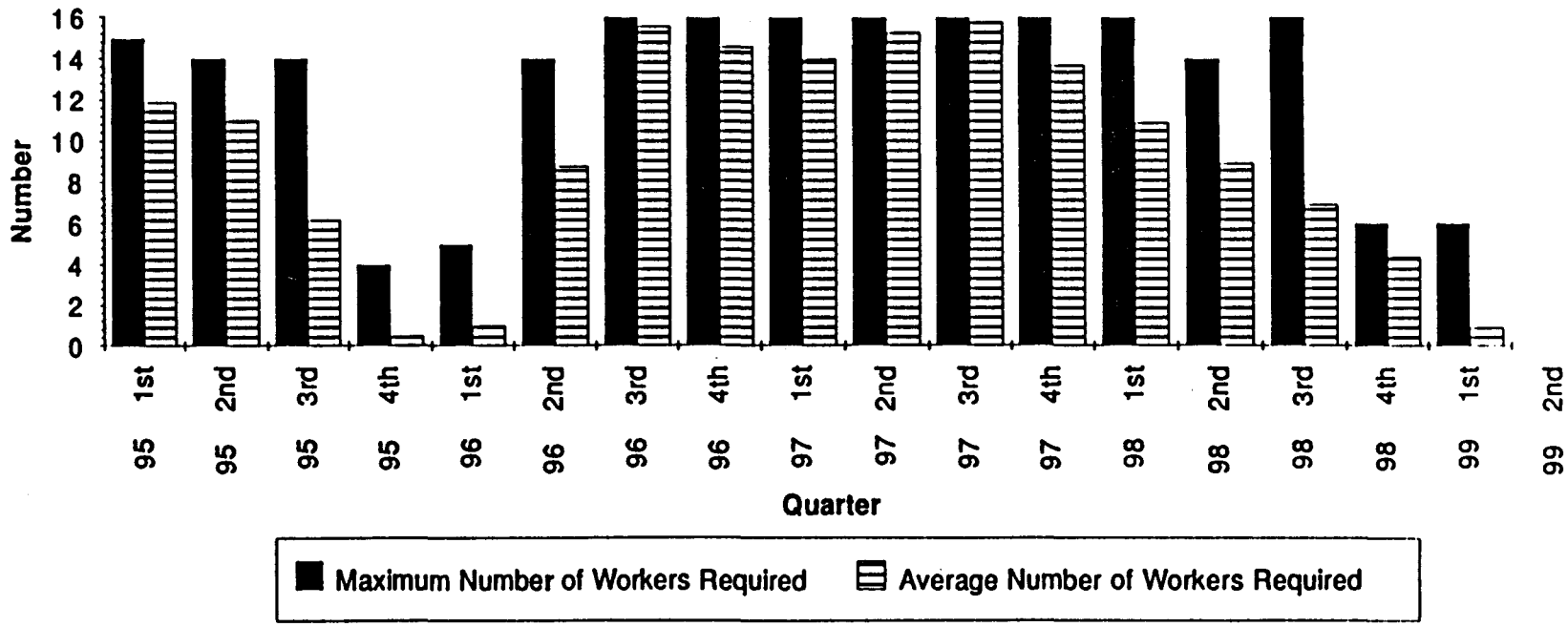
Figure 2 shows worker utilization, which is essentially the same information as Figure 1 except that the data has been transformed into percentages of the 16 available workers.

Figure 3 shows the maximum number of workers required to complete specific activities. The numbers workers in this Figure do not add up to the same as Figure 1 since it is possible for a worker to work on multiple activities during a quarter, and hence, would be counted more than once.

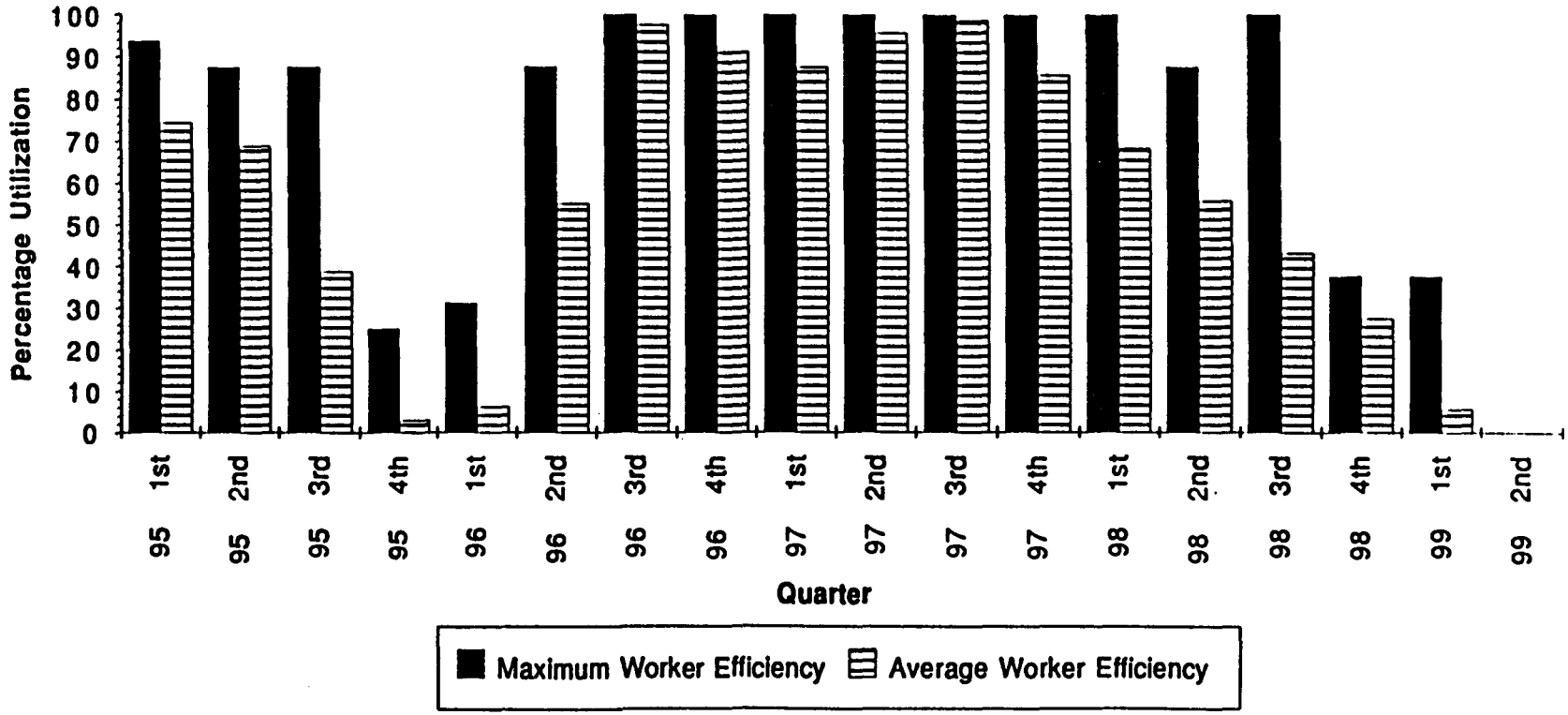
Figure 4 depicts the average number of workers required to complete specific activities.

More detailed information concerning worker hours are in Sections 4.4.2 and 4.4.3 which show RAM Link to the WBS.

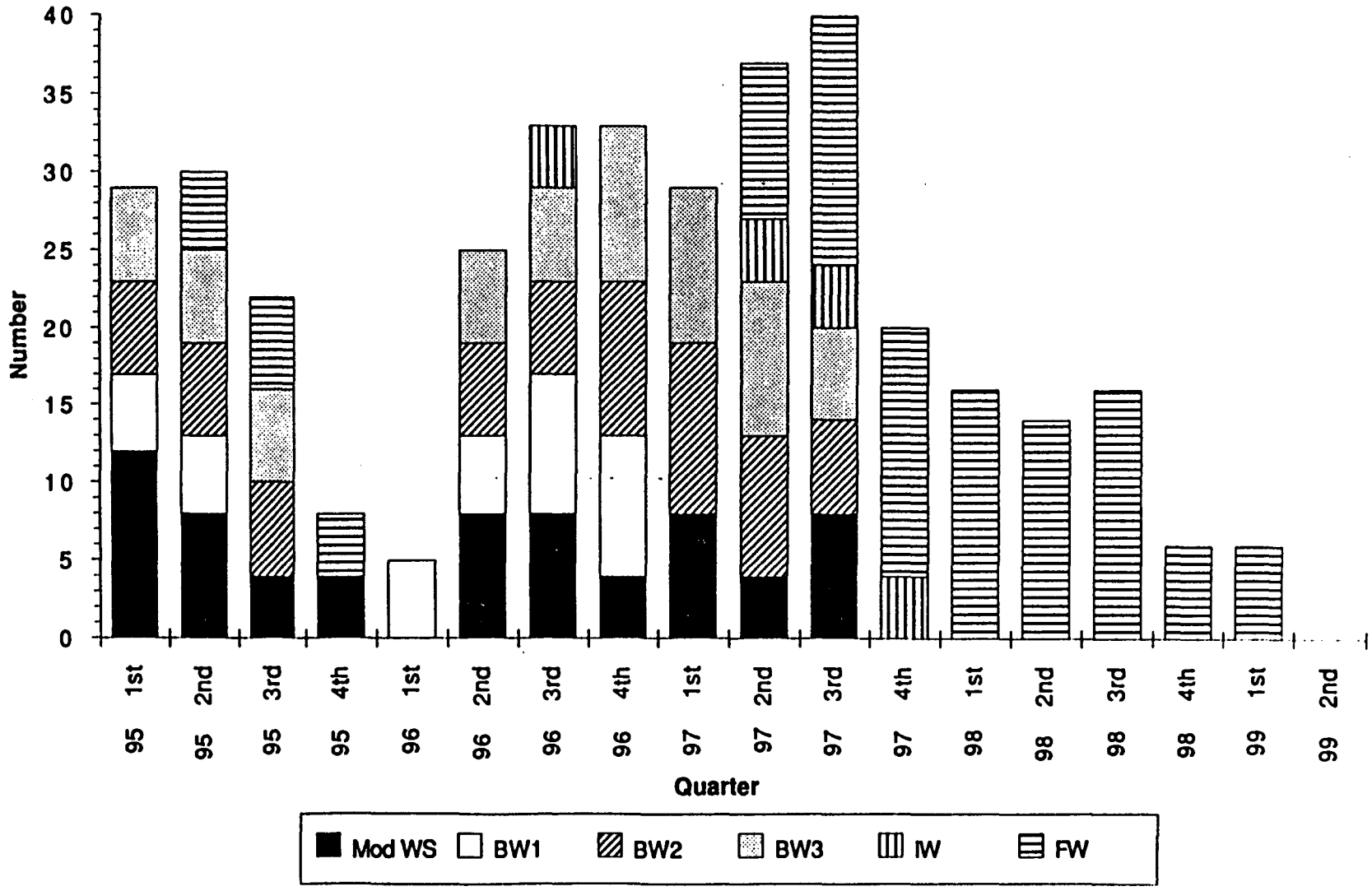
Quarterly Workers Needed - 16 Available - Level Loading



Quarterly Worker Utilization - 16 Available - Level Loading

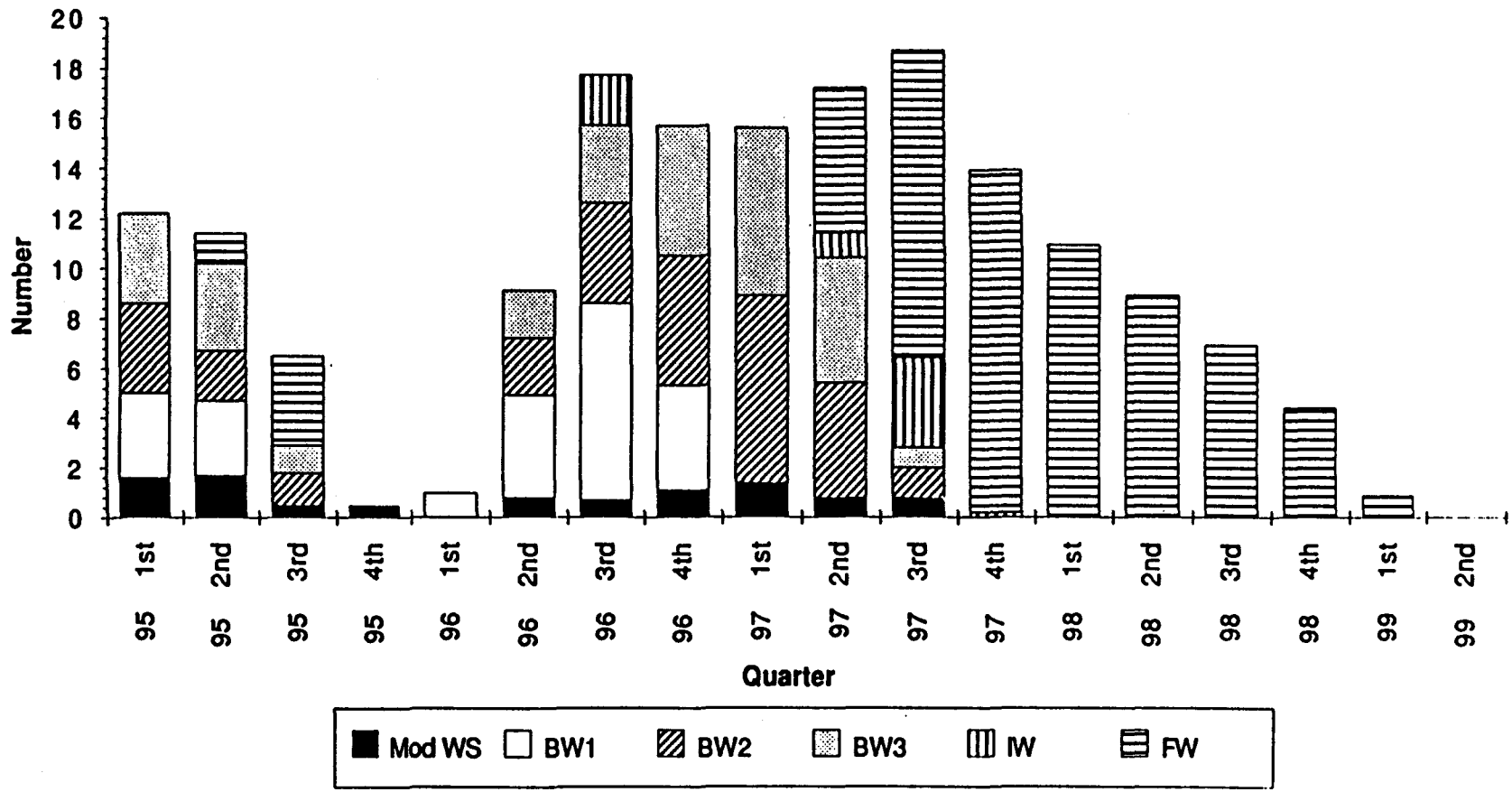


Maximum Quarterly Workers Required For Each Activity



SDC-92-390

Average Quarterly Workers Required For Each Acitivity



4.4.2 Assembly and Production Manpower Requirements by Region (3 sheets)

Column Headings:

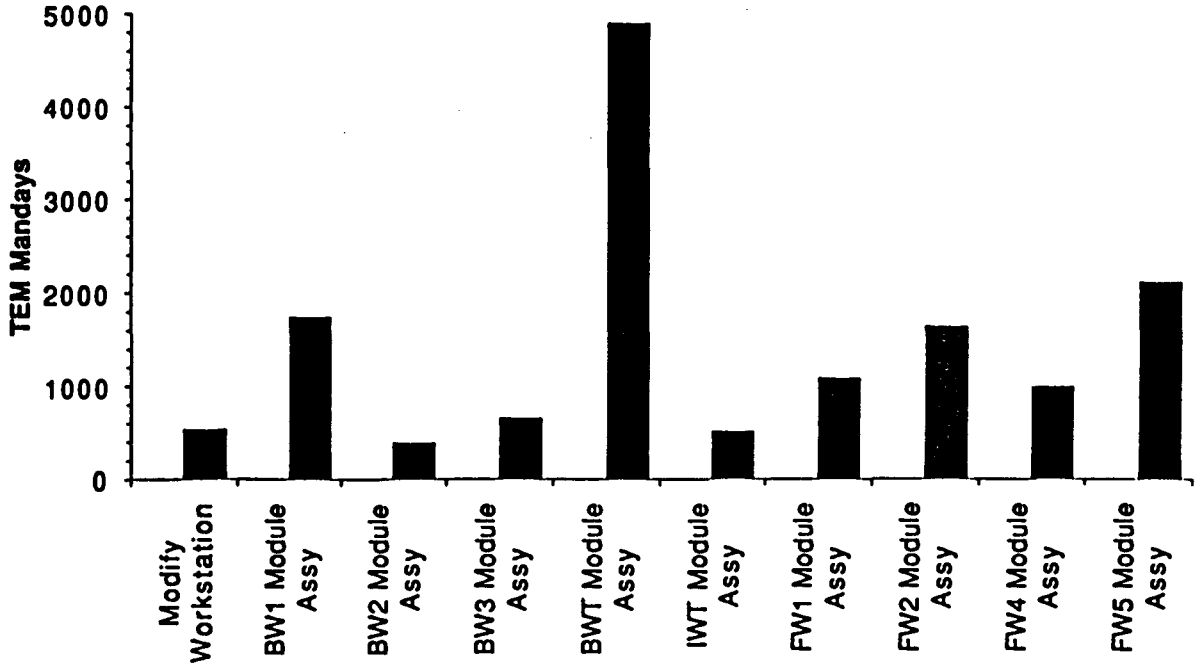
ID	Unique identification number of the activity
Name	Name of the operation being performed or module being constructed
Date Last Produced	Finishing date of the last module quantity of modules being constructed
Work Hours	The amount of working time available, in hours, from the start of the activity to its completion
Overtime Hours	The amount of overtime available, in hours, from the start of the activity to its completion
Res101 Worker	Total first-shift hours worked by assembly facility workers (technicians) indicated as resource type 101 for each activity
OT101 Worker	Total second-shift (overtime) hours worked by assembly facility workers (technicians) indicated as resource type 101 for each activity
Res102 Test Engineer	Total first-shift hours worked by test engineers indicated as resource type 102 for each activity
OT102 Test Engineer	Total second-shift (overtime) hours worked by test engineers indicated as resource type 102 for each activity indicated as resource type 103 for each activity
OT103 Alignment Tech	Total second-shift (overtime) hours worked by alignment technicians indicated as resource type 103 for each activity
Res107 Hall Worker	Total first-shift hours worked by hall workers (technicians) indicated as resource type 107 for each activity
OT107 Hall Worker	Total second-shift (overtime) hours worked by hall workers (technicians) indicated as resource type 107 for each activity
Res104 Rigger Crew	Total first-shift hours worked by riggers (technicians) indicated as resource type 104 for each activity
OT104 Rigger Crew	Total second-shift (overtime) hours worked by riggers (technicians) indicated as resource type 104 for each activity
Res105 Alignment Crew	Total first-shift hours worked by alignment technicians indicated as resource type 105 for each activity
OT105 Alignment Crew	Total second-shift (overtime) hours worked by alignment technicians indicated as resource type 105 for each activity
Res106 Hall Rigger Crew	Total first-shift hours worked by hall riggers (technicians) indicated as resource type 104 for each activity
OT106 Hall Rigger Crew	Total second-shift (overtime) hours worked by hall riggers (technicians) indicated as resource type 104 for each activity
Total Hours	Total of all resource hours worked
WBS #	WBS number where costs for activities and module construction are included within the Muon System WBS
WBS Description	WBS element description within the Muon System WBS
# units	Total quantity of modules constructed
TEM mandays	Total technician mandays required for constructing all the items within the WBS element (total hours column converted to mandays)
TEM M/D per Unit	TEM mandays divided by # units
Duration Days	Work hours divided by Quantity
Avg. FTEs per Station	TEM M/D per Unit divided by Duration Days
WBS Baseline Mandays	Current estimate of TEM mandays included in the Muon System WBS at time of DOE Review

ID	Name	Date Last Produced	Qty	Work Hours	Overtime Hours
11	Mod Workstation	7/23/97	27	1,082	6
52	BW1-2/4 BWT	10/31/96	14	1,606	115
54	BW1-2/4-5	11/19/98	2	254	18
	UT Summary		16	1,859	133
53	BW1-3 BWT Prod	10/7/96	7	1,163	59
55	BW1-3-5 Prod	3/15/95	1	432	19
	BW1 Summary		8	1,594	78
61	BW2-1/5-5 Prod	3/27/97	2	108	6
62	BW2-2/4-5 Prod	4/13/95	2	269	21
63	BW2-3-5 Prod	3/2/95	1	384	18
	BW2 Summary		5	762	44
71	BW3-1/5-5 Prod	4/23/97	2	317	25
72	BW3-2/4-5 Prod	6/12/95	2	437	21
73	BW3-3-5 Prod	4/5/95	1	602	32
	BW3 Summary		5	1,356	78
65	BW2-3 BWT Prod	2/26/97	7	1,174	64
66	BW2-2/4 BWT Prd	7/16/97	14	1,587	112
67	BW2-1/5 BWT Prd	3/5/97	14	893	45
75	BW3-3 BWT Prod	2/18/97	7	1,589	41
76	BW3-2/4 BWT Prd	7/10/97	14	2,447	79
77	BW3-1/5 BWT Prd	10/16/97	14	2,197	133
	BWT Summary		70	9,887	473
81	IWT Assembly	9/22/97	16	1,252	99
91	FW1 Assembly	10/16/97	16	1,494	104
96	FW1 SMSA	10/20/98	2	415	19
92	FW2 Assembly	6/22/98	16	2,833	170
97	FW2 SMSA	11/10/98	2	375	14
94	FW4 Assembly	2/11/98	16	1,345	86
99	FW4 SMSA	12/1/98	2	325	20
95	FW5 Assembly	8/5/98	16	3,205	166
100	FW5 SMSA	1/4/99	2	533	18
86	FW1 SMA	10/30/98	2	299	21
87	FW2 SMA	11/24/98	2	247	18
89	FW4 SMA	12/14/98	2	202	11
90	FW5 SMA	1/28/99	2	371	37
	FW Summary		64	11,644	683
	Totals		211	29,437	1,595

ID	Name	Res101	OT101	Res102	OT102	Res103	OT103	Res107	OT107	Res104	OT104	Res105	OT105	Res106	OT106	Total
		Worker		Test Engineer		Alignment Tech		Hall Worker		Rigger Crew		Alignment Crew		Hall Rigger Crew		Hours
11	Mod Workstation	4,330	25													4,355
52	BW1-2/4 BWT	5,858	443	116	6	9				88	2					6,520
54	BW1-2/4-5	925	56	19	7	1				14						1,022
	UT Summary	6,782	499	134	13	10				102	2					7,542
53	BW1-3 BWT Prod	4,332	229	90		5				49	2					4,706
55	BW1-3-5 Prod	1,607	68	33		2				18	2					1,730
	BW1 Summary	5,938	297	123		7				67	3					6,436
61	BW2-1/5-5 Prod	405	20	7						4		1				438
62	BW2-2/4-5 Prod	1,034	64	18	3					5		2				1,125
63	BW2-3-5 Prod	1,530	71	27	2					6		2	1			1,639
	BW2 Summary	2,969	154	53	5					16		5	1			3,201
71	BW3-1/5-5 Prod	1,119	98	67	1					4		1				1,291
72	BW3-2/4-5 Prod	1,540	69	87	5					5		2				1,708
73	BW3-3-5 Prod	2,125	127	125						6		2				2,385
	BW3 Summary	4,785	295	280	6					15		5				5,384
65	BW2-3 BWT Prod	4,528	253	75	3					33	2	13				4,907
66	BW2-2/4 BWT Prd	5,870	427	96	6					58	1	23				6,481
67	BW2-1/5 BWT Prd	3,177	154	51	3					57	3	23				3,467
75	BW3-3 BWT Prod	5,576	146	357	4							5				6,088
76	BW3-2/4 BWT Prd	8,676	268	513	11							9				9,478
77	BW3-1/5 BWT Prd	8,108	493	207	8											8,817
	BWT Summary	35,936	1,741	1,299	36					149	5	72	1			39,238
81	IWT Assembly	3,316	267	273	34	11				292	6					4,199
91	FW1 Assembly	5,053	356	262	6					37	1	11	1			5,727
96	FW1 SMSA	1,468	64							31	1	88	3			1,655
92	FW2 Assembly	9,397	565	598	21					33		10				10,625
97	FW2 SMSA	1,385	40							26	2	53				1,506
94	FW4 Assembly	5,218	299	191	14					33		10				5,765
99	FW4 SMSA	1,219	48							23	1	41	6			1,337
95	FW5 Assembly	11,658	656	654	12					38		11	1			13,031
100	FW5 SMSA	2,126	51							32	2	43	3			2,257
86	FW1 SMA	48						595	61	323	20	86	1	245	23	1,403
87	FW2 SMA	39	20					472	40	252	13	86	1	190	6	1,117
89	FW4 SMA	35						441	43	208	7	54	3	165	5	962
90	FW5 SMA	49						726	161	320	18	121	7	371	11	1,783
	FW Summary	37,894	2,099	1,706	53			2,234	305	1357	65	615	26	971	45	47,169
	Totals	101,749	5,377	3,866	146	27		2,234	305	1998	81	697	28	971	45	117,525

WBS #	WBS Description	# Units	TEM Mandays	TEM M/D per Unit	Duration Days	Avg. FTEs per Station	WBS Baseline Mandays
???	Modify Workstation	27	544	20.2	5	4.0	
3.2.1.1.4	BW1 Module Assy	24	1,747	72.8	18	4.0	1,527
3.2.1.2.4	BW2 Module Assy	5	400	80.0	19	4.2	329
3.2.1.3.4	BW3 Module Assy	5	673	134.6	34	4.0	311
3.2.1.4.4	BWT Module Assy	70	4,905	70.1	18	4.0	6,426
3.2.2.1.4	IWT Module Assy	16	525	32.8	10	3.4	2,720
3.2.3.1.4	FW1 Module Assy	16	1,098	68.6	15	4.6	469
3.2.3.2.4	FW2 Module Assy	16	1,656	103.5	25	4.1	1,195
3.2.3.3.4	FW4 Module Assy	16	1,008	63.0	13	4.8	380
3.2.3.4.4	FW5 Module Assy	16	2,134	133.4	29	4.6	1,182
Total Mandays*			14,691				14,540
Total Manhours			117,525				116,319

* Compares to level of effort of 16 persons for 17 quarters or 17,000 mandays



4.4.3 Installation Manpower Requirements by Region (3 sheets)

Column Headings:

ID	Unique identification number of the activity
Name	Name of the operation being performed or module being constructed
Date Last Produced	Finishing date of the last module quantity of modules being constructed
Work Hours	The amount of working time available, in hours, from the start of the activity to its completion
Overtime Hours	The amount of overtime available, in hours, from the start of the activity to its completion
Res101 Worker	Total first-shift hours worked by assembly facility workers (technicians) indicated as resource type 101 for each activity
OT101 Worker	Total second-shift (overtime) hours worked by assembly facility workers (technicians) indicated as resource type 101 for each activity
Res102 Test Engineer	Total first-shift hours worked by test engineers indicated as resource type 102 for each activity
OT102 Test Engineer	Total second-shift (overtime) hours worked by test engineers indicated as resource type 102 for each activity indicated as resource type 103 for each activity
OT103 Alignment Tech	Total second-shift (overtime) hours worked by alignment technicians indicated as resource type 103 for each activity
Res107 Hall Worker	Total first-shift hours worked by hall workers (technicians) indicated as resource type 107 for each activity
OT107 Hall Worker	Total second-shift (overtime) hours worked by hall workers (technicians) indicated as resource type 107 for each activity
Res104 Rigger Crew	Total first-shift hours worked by riggers (technicians) indicated as resource type 104 for each activity
OT104 Rigger Crew	Total second-shift (overtime) hours worked by riggers (technicians) indicated as resource type 104 for each activity
Res105 Alignment Crew	Total first-shift hours worked by alignment technicians indicated as resource type 105 for each activity
OT105 Alignment Crew	Total second-shift (overtime) hours worked by alignment technicians indicated as resource type 105 for each activity
Res106 Hall Rigger Crew	Total first-shift hours worked by hall riggers (technicians) indicated as resource type 104 for each activity
OT106 Hall Rigger Crew	Total second-shift (overtime) hours worked by hall riggers (technicians) indicated as resource type 104 for each activity
Total Hours	Total of all resource hours worked
WBS #	WBS number where costs for activities and module construction are included within the Muon System WBS
WBS Description	WBS element description within the Muon System WBS
# units	Total quantity of modules constructed
TEM mandays	Total technician mandays required for constructing all the items within the WBS element (total hours column converted to mandays)
TEM M/D per Unit	TEM mandays divided by # units
Duration Days	Work hours divided by Quantity
Avg. FTEs per Station	TEM M/D per Unit divided by Duration Days
WBS Baseline Mandays	Current estimate of TEM mandays included in the Muon System WBS at time of DOE Review

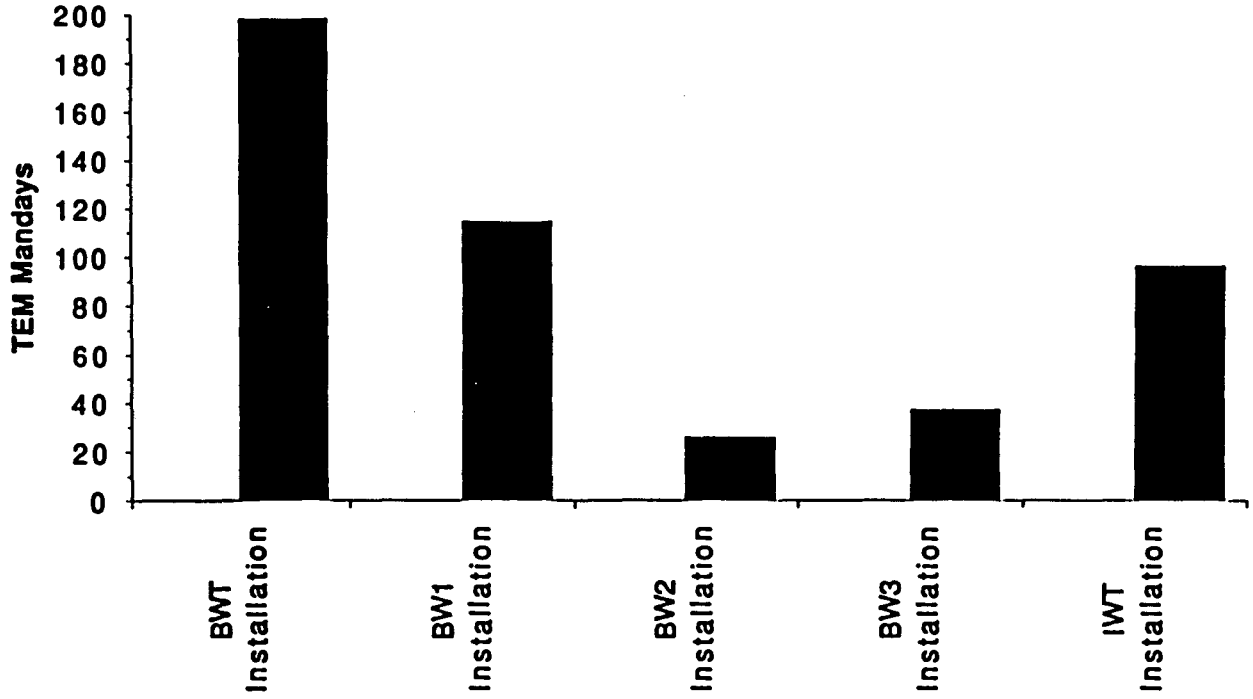
ID	Name	Date Last Produced	Qty	Work Hours	Overtime Hours
13	BWT-1-N Inst	8/15/97	7	136	6
14	BWT-2-N Inst	8/4/97	7	135	6
15	BWT-3-N Inst	7/28/97	5	106	6
16	BWT-3-S Inst	7/8/97	2	33	1
17	BWT-4-S Inst	8/1/97	7	119	7
18	BWT-5-S Inst	8/4/97	7	114	3
	BWT Instl.		35	644	29
21	BW1-2-N Inst	1/14/97	7	110	8
22	BW1-3-N Inst	12/20/96	4	68	2
23	BW1-3-S Inst	12/20/96	3	48	2
24	BW1-4-S Inst	1/14/97	7	79	2
25	BW1-2-5-N Inst	12/11/96	1	14	
26	BW1-3-5-S Inst	12/13/96	1	19	1
27	BW1-4-5-S Inst	12/13/96	1	19	1
	BW1 Instl.		24	357	16
31	BW2-1-5-N Inst	9/10/97	1	18	
32	BW2-2-5-N Inst	12/9/96	1	18	1
33	BW2-3-5-S Inst	12/6/96	1	19	1
34	BW2-4-5-S Inst	12/11/96	1	16	
35	BW2-5-5-S Inst	9/8/97	1	14	
	BW2 Instl.		5	85	3
41	BW3-1-5-N Inst	9/9/97	1	14	
42	BW3-2-5-N Inst	12/9/96	1	21	1
43	BW3-3-5-S Inst	12/6/96	1	41	2
44	BW3-4-5-S Inst	12/10/96	1	20	1
45	BW3-5-5-S Inst	9/8/97	1	21	2
	BW3 Instl.		5	117	6
82	IWT-N Inst	9/4/97	7	140	10
83	IWT-S Inst	9/15/97	8	113	4
	IWT Instl.		15	253	14
	Totals		84	1456	68

ID	Name	Res101	OT101	Res102	OT102	Res103	OT103	Res107	OT107	Res104	OT104	Res105	OT105	Res106	OT106	Total
		Worker		Test Engineer		Alignment Tech		Hall Worker		Rigger Crew		Alignment Crew		Hall Rigger Crew		Hours
13	BWT-1-N Inst							94	13	119	3	28		61		318
14	BWT-2-N Inst							93	12	114	5	28		61	2	315
15	BWT-3-N Inst							73	8	90	3	22	2	47	5	250
16	BWT-3-S Inst							27	1	32	2	8		17		86
17	BWT-4-S Inst							96	8	115	8	29		64	3	322
18	BWT-5-S Inst							92	2	110	2	28	1	62	2	298
	BWT Instl.							475	43	580	22	142	3	312	12	1589
21	BW1-2-N Inst							96	21	90	1	25	3	52	1	288
22	BW1-3-N Inst							58	3	56	1	15	1	32	2	168
23	BW1-3-S Inst							47	5	40	2	12		25		130
24	BW1-4-S Inst							49	5	78	1	16	1	48		197
25	BW1-2-5-N Inst							12		12		3		7	1	35
26	BW1-3-5-S Inst							19		17	1	5		10	1	52
27	BW1-4-5-S Inst							18		16	1	5		10		50
	BW1 Instl.							299	34	309	6	81	5	183	5	920
31	BW2-1-5-N Inst							16		14	1	4		8		43
32	BW2-2-5-N Inst							15		15	1	4		8		43
33	BW2-3-5-S Inst							19		16		5	1	10	2	53
34	BW2-4-5-S Inst							11		16		3		10		40
35	BW2-5-5-S Inst							8		13		3		8		33
	BW2 Instl.							69		74	3	19	1	44	2	211
41	BW3-1-5-N Inst							7		12	1	3		8		31
42	BW3-2-5-N Inst							10	1	19		5		11	2	48
43	BW3-3-5-S Inst							37	2	36	1	10		21	2	110
44	BW3-4-5-S Inst							18		18	2	5		11		54
45	BW3-5-5-S Inst							19	6	18		5		11	2	61
	BW3 Instl.							91	9	104	4	27		61	5	303
82	IWT-N Inst							68	10	134	8	28	3	177	14	443
83	IWT-S Inst							63	1	102	3	25		130	7	332
	IWT Instl.							131	11	237	11	54	3	307	21	775
	Totals							1065	97	1304	46	323	12	907	44	3798

Inputs to Installation WBS

WBS #		# Units	TEM Mandays	TEM M/D per Unit	Duration Days	Avg. FTEs per Station
8.2.1.3	BWT Installation	35	199	5.7	2.3	2.5
8.2.1.3	BW1 Installation	24	115	4.8	1.9	2.6
8.2.1.3	BW2 Installation	5	26	5.3	2.1	2.5
8.2.1.3	BW3 Installation	5	38	7.6	2.9	2.6
8.2.1.3	IWT Installation	15	97	6.5	2.1	3.1
Total Mandays			475			
Total Manhours			3798			

Note: FW Installation included in WBS 3.2



5.0 DETAILED FUNCTION EXAMPLE INSTALLATION OF BW1-2 IN THE NORTH SHAFT (14 SHEETS)

This section provides an example of some of the inner workings of the RAM simulation. Activity 21, BW1-2 Installation was chosen as the example since it contains a relatively small number of OAs and functions and, therefore, can be demonstrated in a few pages. The data shown in this example represent what happens "inside" one of the time bars shown in higher level schedules.

Sheets 1 and 2 of this section show the timeline graph of this activity.

Sheet 3 provides the detailed start and stop time data for the bars shown in the graph.

Sheet 4 represents the OAs (operational actions) that comprise this activity.

Sheets 5-14 list the detailed functions, allocation and deallocation operations and the time details for each OA.

Sheets 4-14 have been copied from Appendix A for the convenience of the reader. See the appendix for format details.

The function name in the first column of all three sheets is the name as defined in the RAM. The decoding of the numbers is straightforward and is most easily understood with an example. The first function name is "01-021-1530-01 Remove". "01" means that this is the first time this activity has been performed, "021" is the activity number, "1530" is the OA number, "01" means that it is the first function in the OA, and "Remove" are the first few characters of the text that explains what is actually happening. The numbers and explanation are tied directly to the RAM input data sheets that can be found in sheets 5-14 and in Appendix A.

There is one calendar day between each vertical line in the timeline bargraph. Each day starts at 8 AM. Please note that only every other day is labeled. For example, the first function in the bargraph is begun on December 19, 1996.

There are several interesting things to observe about the graphs:

(1) Work on the activity begins in the afternoon of Thursday December 19, 1996 at 14:26, presumably after work on another activity completes.
(2) Work is stopped on the 19th at 16:01. One minute of overtime was used to complete a function before going home for the day.
(3) Work continued on the activity all day on Friday December 20, 1996: from 8 AM until 16:14. This time 14 minutes of overtime were used to complete something before going home for the weekend.
(4) December 21 and 22, 1996 are on the weekend and therefore no work is done on the activity during these days.
(5) Work is restarted after the weekend at 8 AM on Monday December 23 and continued until 16:37, with 37 minutes of overtime needed.
(6) December 24 and 25, 1996 are official SSCL holidays and therefore no work is performed on these days.
(7) Work is continued after Christmas on December 26 at 8 AM and the entire activity is completed at 10:58 that morning. Another activity is started at this point.

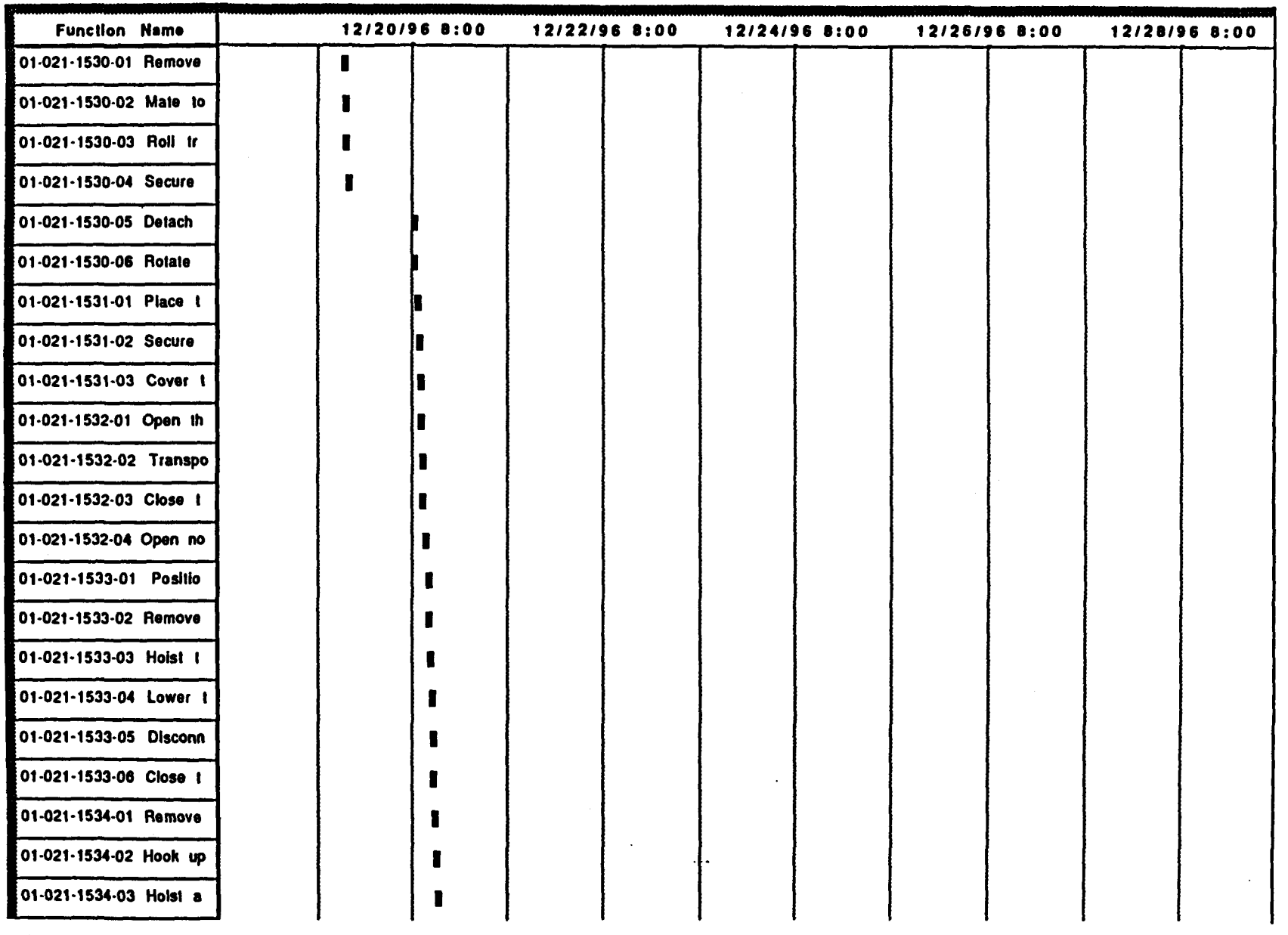
There are several things that occur in the RAM that are not shown by this example:

(1) Any number of operations can be in parallel. For the example shown, everything was done serially. In the case of parallel functions, usually all the parallel functions have to complete before one can begin the next set of functions in the OA.
(2) Certain operations are defined as "non-stop", that is once they are started you can't stop until the entire set is completed. For example, if you start putting glue on something, you can't go home until you actually put the pieces together. The non-stop operations can be either parallel or serial. This example does contain two non-stop functions, the 1st and 2nd functions of OA 1532, but since they happen in the middle of the day, one is unable to determine the difference between them and regular functions. The non-stop difference can only be seen at the end of the working day.
(3) You don't always finish a function every day. There are some functions that span days. In this case, you do not work any overtime. You only work overtime if you can complete a function.
(4) The functions in this example have small durations. This is not true in general. The function duration can be any length.

The detailed times, down to the minute, represent the time for one particular run of the RAM simulation. The durations for the functions are randomly generated from a 90 to 110% triangular distribution about the mean estimated function time. The times change from run to run.

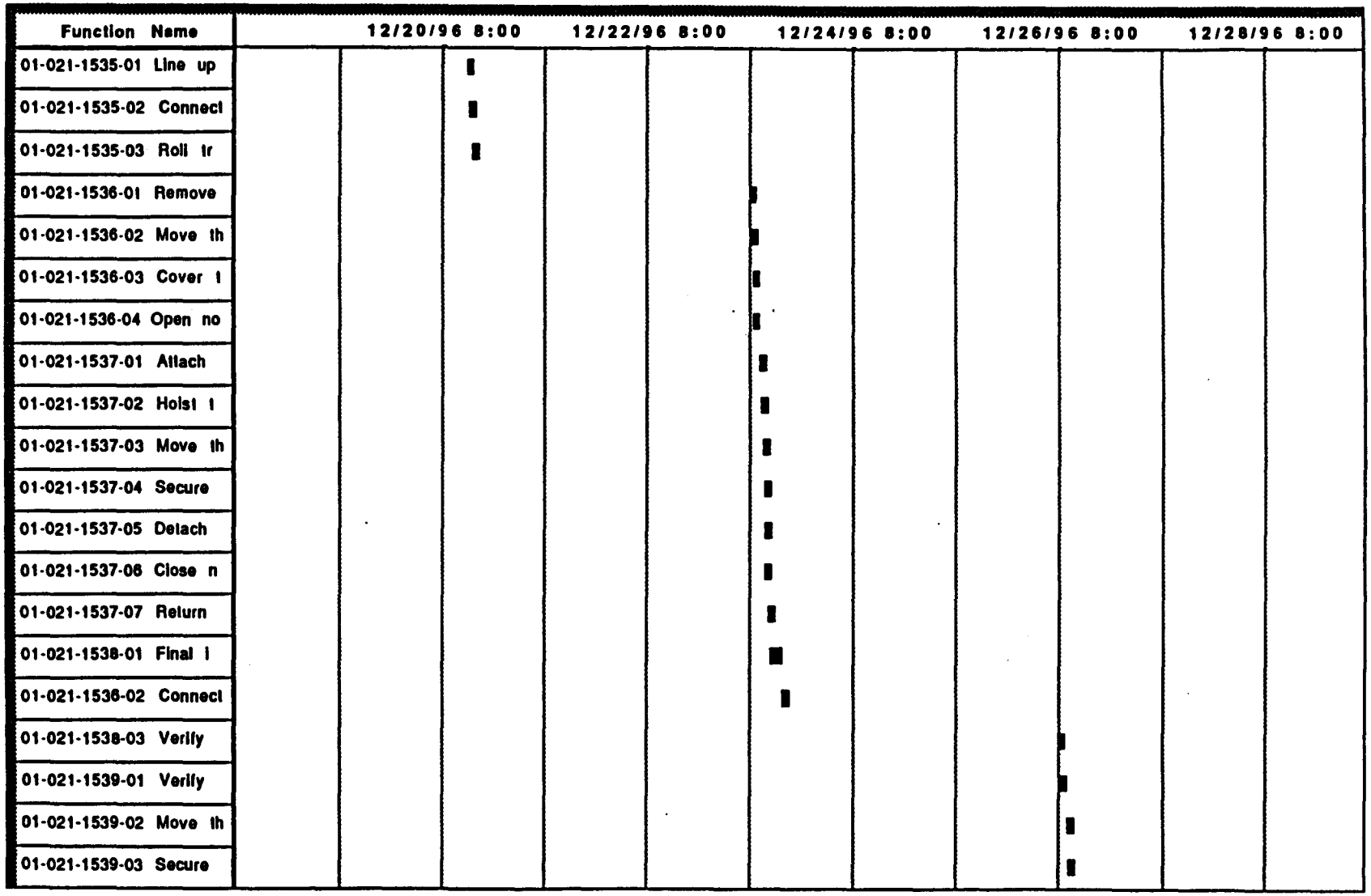
Finally, it is important to note that a learning curve of 150% has been applied to the data in this example.

Detailed Function Timeline for BW1-2 in North Shaft Installation



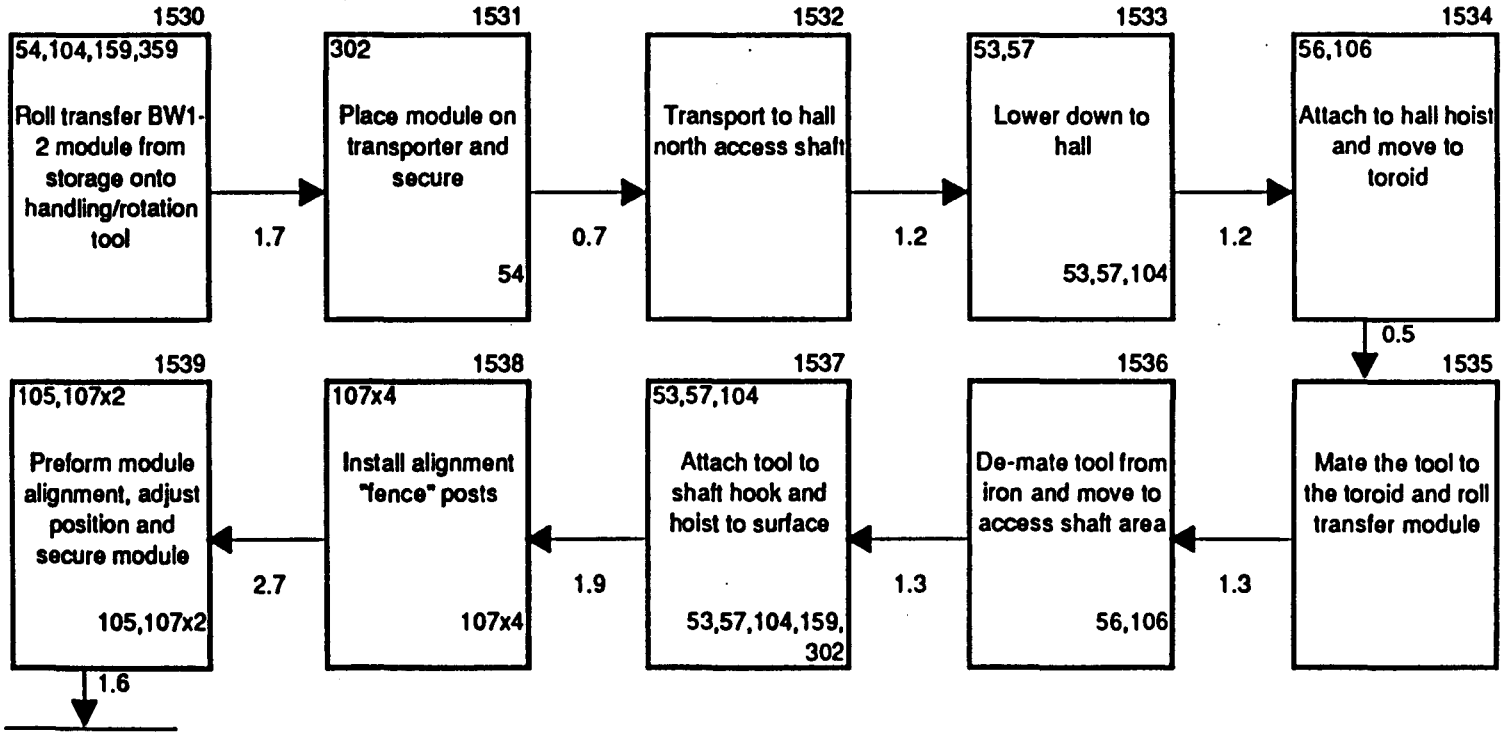
SDC-92 390

Detailed Function Timeline for BW1-2 in North Shaft Installation



Function Name	Start Time	Finish Time
01-021-1530-01 Remove	12/19/96 14:26	12/19/96 14:51
01-021-1530-02 Mate to	12/19/96 14:51	12/19/96 15:09
01-021-1530-03 Roll tr	12/19/96 15:09	12/19/96 15:44
01-021-1530-04 Secure	12/19/96 15:44	12/19/96 16:01
01-021-1530-05 Detach	12/20/96 08:00	12/20/96 08:09
01-021-1530-06 Rotate	12/20/96 08:09	12/20/96 08:53
01-021-1531-01 Place t	12/20/96 08:53	12/20/96 09:20
01-021-1531-02 Secure	12/20/96 09:20	12/20/96 09:38
01-021-1531-03 Cover t	12/20/96 09:38	12/20/96 09:56
01-021-1532-01 Open th	12/20/96 09:56	12/20/96 10:04
01-021-1532-02 Transpo	12/20/96 10:04	12/20/96 10:52
01-021-1532-03 Close t	12/20/96 10:04	12/20/96 10:14
01-021-1532-04 Open no	12/20/96 10:52	12/20/96 11:38
01-021-1533-01 Positio	12/20/96 11:38	12/20/96 11:57
01-021-1533-02 Remove	12/20/96 11:57	12/20/96 12:06
01-021-1533-03 Hoist t	12/20/96 12:06	12/20/96 12:32
01-021-1533-04 Lower t	12/20/96 12:32	12/20/96 12:59
01-021-1533-05 Disconn	12/20/96 12:59	12/20/96 13:08
01-021-1533-06 Close t	12/20/96 13:08	12/20/96 13:25
01-021-1534-01 Remove	12/20/96 13:25	12/20/96 13:44
01-021-1534-02 Hook up	12/20/96 13:44	12/20/96 14:01
01-021-1534-03 Hoist a	12/20/96 14:01	12/20/96 14:11
01-021-1535-01 Line up	12/20/96 14:11	12/20/96 14:39
01-021-1535-02 Connect	12/20/96 14:39	12/20/96 15:25
01-021-1535-03 Roll tr	12/20/96 15:25	12/20/96 16:14
01-021-1536-01 Remove	12/23/96 08:00	12/23/96 08:42
01-021-1536-02 Move th	12/23/96 08:42	12/23/96 08:51
01-021-1536-03 Cover t	12/23/96 08:51	12/23/96 09:08
01-021-1536-04 Open no	12/23/96 09:08	12/23/96 09:55
01-021-1537-01 Attach	12/23/96 10:29	12/23/96 10:48
01-021-1537-02 Hoist t	12/23/96 10:48	12/23/96 11:15
01-021-1537-03 Move th	12/23/96 11:15	12/23/96 11:42
01-021-1537-04 Secure	12/23/96 11:42	12/23/96 11:51
01-021-1537-05 Detach	12/23/96 11:42	12/23/96 11:58
01-021-1537-06 Close n	12/23/96 11:58	12/23/96 12:41
01-021-1537-07 Return	12/23/96 12:41	12/23/96 13:08
01-021-1538-01 Final i	12/23/96 13:08	12/23/96 15:59
01-021-1538-02 Connect	12/23/96 15:59	12/23/96 16:37
01-021-1538-03 Verify	12/26/96 08:00	12/26/96 08:34
01-021-1539-01 Verify	12/26/96 08:34	12/26/96 10:04
01-021-1539-02 Move th	12/26/96 10:04	12/26/96 10:32
01-021-1539-03 Secure	12/26/96 10:32	12/26/96 10:58

BW1-2 Module Installation, North Shaft, 7 Units, Activity #21



O.A. 1530

Roll transfer BW1-2 module from storage onto handling/rotation tool

FUNCTION		Allocate	De-Allocate	TIME	SEQ
1	Remove tool from storage and hoist to module storage area	54,104,159,359	0	0.30	1
2	Mate tool the the storage rails and secure	0	0	0.20	2
3	Roll transfer the BW1-2 module to the tool	0	0	0.40	3
4	Secure the module	0	0	0.20	4
5	Detach from the storage rails	0	0	0.10	5
6	Rotate the module to the required position	0	0	0.50	6
7					
8					
9					
10					

RESOURCES	54,104,159,359	0

TOTAL SPAN	1.70
TOTAL HOURS	1.70

147

BW1-2 Module Installation, North Shaft, 7 Units, Activity #21

O.A. 1531

Place module on transporter and secure

FUNCTION		Allocate	De-Allocate	TIME	SEQ
1	Place the module on the transporter	302	54	0.30	1
2	Secure the module / tool to the transporter	0	0	0.20	2
3	Cover the module for outside transit protection	0	0	0.20	3
4					
5					
6					
7					
8					
9					
10					

RESOURCES	302	54

TOTAL SPAN	0.70
TOTAL HOURS	0.70

O.A. 1532

Transport to hall north access shaft

FUNCTION		Allocate	De-Allocate	TIME	SEQ	
1	Open the assembly building doors	0	0	0.10	1	
2	Transport to the north access shaft	0	0	0.50	2	n/p
3	Close the assembly building doors	0	0	0.10	2	n/p
4	Open north access shaft hatch	0	0	0.50	3	
5						
6						
7						
8						
9						
10						
	RESOURCES	0	0			
			TOTAL SPAN	1.10		
			TOTAL HOURS	1.20		

149

BW1-2 Module Installation, North Shaft, 7 Units, Activity #21

O.A. 1533

Lower down to hall

FUNCTION		Allocate	De-Allocate	TIME	SEQ
1	Position the shaft hoist over the module and attach the hook	57	0	0.20	1
2	Remove the module tie downs	0	104	0.10	2
3	Hoist the module of the transporter and move over the access shaft	53	0	0.30	3
4	Lower the module down the shaft	0	0	0.30	4
5	Disconnect the shaft hoist and return hook to the surface	0	57	0.10	5
6	Close the north access shaft hatch	0	53	0.20	6
7					
8					
9					
10					

RESOURCES	53,57	53,57,104		
		TOTAL SPAN	0.90	
		TOTAL HOURS	1.20	

O.A. 1534

Attach to hall hoist and move to toroid

FUNCTION		Allocate	De-Allocate	TIME	SEQ
1	Remove the protective tarp from the module	0	0	0.20	1
2	Hook up to the module with the hall hoist	56,106	0	0.20	2
3	Hoist and move the toroid assembly area	0	0	0.10	3
4					
5					
6					
7					
8					
9					
10					

RESOURCES	56,106	0

TOTAL SPAN	0.50
TOTAL HOURS	0.50

BW1-2 Module Installation, North Shaft, 7 Units, Activity #21

O.A. 1535

Mate the tool to the toroid and roll transfer module

FUNCTION		Allocate	De-Allocate	TIME	SEQ
1	Line up the module with the toroid	0	0	0.30	1
2	Connect the tool to the iron and install the transfer rails	0	0	0.50	2
3	Roll transfer the module onto the toroid and move to apx position on the iron	0	0	0.50	3
4					
5					
6					
7					
8					
9					
10					
	RESOURCES	0	0		
			TOTAL SPAN	1.30	
			TOTAL HOURS	1.30	

O.A. 1536

De-mate tool from iron and move to access shaft area

FUNCTION		Allocate	De-Allocate	TIME	SEQ
1	Remove the transfer rails and detach the tool form the iron	0	0	0.50	1
2	Move the tool back to the access shaft area and detach from hall hoist	0	56,106	0.10	2
3	Cover the tool with a tarp for outside transit protection	0	0	0.20	3
4	Open north access shaft hatch	0	0	0.50	4
5					
6					
7					
8					
9					
10					
	RESOURCES	0	56,106		
			TOTAL SPAN	1.30	
			TOTAL HOURS	1.30	

153

BW1-2 Module Installation, North Shaft, 7 Units, Activity #21

O.A. 1537

Attach tool to shaft hook and hoist to surface

FUNCTION		Allocate	De-Allocate	TIME	SEQ	
1	Attach hiost to the tool	53,57,104	0	0.20	1	
2	Hoist the tool back up to the surface	0	53	0.30	2	
3	Move the hoist over the transporter and position the tool	0	0	0.30	3	
4	Secure the tool	0	0	0.10	4	n/p
5	Detach the hook form the tool	0	0	0.20	4	n/p
6	Close north access shaft hatch	0	57	0.50	5	
7	Return the transporter to the assembly building	0	104,159,302	0.30	6	
8						
9						
10						

RESOURCES	53,57,104	53,57,104,159, 302

TOTAL SPAN	1.80
TOTAL HOURS	1.90

O.A. 1538

Install alignment "fence" posts

FUNCTION		Allocate	De-Allocate	TIME	SEQ
1	Final install the four posts and secure	107x4	0	2.00	1
2	Connect the fence posts electrical leads to the toroid harness	0	0	0.33	2
3	Verify the sensors functioning	0	107x4	0.33	3
4					
5					
6					
7					
8					
9					
10					

RESOURCES	107x4	107x4		
		TOTAL SPAN	2.66	
		TOTAL HOURS	2.66	

BW1-2 Module Installation, North Shaft, 7 Units, Activity #21

O.A. 1539

Preform module alignment, adjust position and secure module

FUNCTION		Allocate	De-Allocate	TIME	SEQ
1	Verify the location of the fence posts	105	0	1.00	1
2	Move the module as required to locate on the posts	107x2	0	0.30	2
3	Secure the module into position	0	105,107x2	0.30	3
4					
5					
6					
7					
8					
9					
10					

RESOURCES	105,107x2	105,107x2		
		TOTAL SPAN	1.60	
		TOTAL HOURS	1.60	

156