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Proceedings of the REAPS Technical Symposium

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September 11-13, 1979
San Diego, California
NETWORK SCHEDULING OF SHIPYARD PRODUCTION, ENGINEERING AND MATERIAL PROCUREMENT

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Director, Shipyard Planning Services
SPAR Associates Incorporated
Annapolis, Maryland

As Director of Shipyard Planning Services, Mr. Boucher is currently responsible for production planning and control services in shipyards, as well as system development and research. For the past 7 years, he has been involved in assisting various shipyards in the United States and Canada to improve their planning techniques and cost/schedule control systems. SPAR is currently engaged in providing production scheduling services to a number of yards in support of their planning staffs.

Prior to his involvement with SPAR, Mr. Boucher studied business administration and worked in management consulting.
PERT-PAC FEATURES

* Random network node numbering

* Multiple starting/ending, networks

* Sub-network, processing

* Multiple network processing

* Automatic network, loop detection

* Positive or negative activity lead time

* Automatic holiday and/or weekend schedule adjustment

* Automatic work week or shift adjustments

* Various activity sort list options

* Activity schedule bar charts

* Detailed node event schedule reports

* Summary milestone event schedule reports

* Critical activities analysis reports

* Activity cataloguing to work breakdown structure, production work centers, ship zone, and/or steel unit.
**PERT-PAC**

**SPECIAL BENEFITS**

* Direct access to WORK-PAC and performance information

* Simultaneous processing of preliminary planning work packages with actual, detailed production work packages

* Automatic re-scheduling of WORK-PAC options

* Automatic network updating; manual progress assessments not required

* Automated in-progress work adjustments

* Automated completed work adjustments

* Automated lead time adjustments

* Management visibility through schedule summary reports

  - Milestone Report
  - Critical Activity Report

* Schedule variance reporting

  - Automatic comparison of planned versus actual and current projected schedules
  - Total Project Slippage Report

* Automatic impact visibility of change orders and design changes
FIGURE 5
PERT-PAC SLIPPAGE ADJUSTMENTS
SAMPLE 27 ACTIVITY NETWORK

Planned Duration: 13.0 weeks

With 1/2-adjust feature on actual lead time

Without 1/2-adjust feature

Current Projected Duration: 12.4 weeks
AUTOMATED ADJUSTMENTS

Completed
adjust lead time

Today
re-compute duration

S
adjust lead time

Late to start
adjust lead time

Late to finish
adjust lead time
extend duration
### PERT-PAC Critical Activity Analysis

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**Current Schedule Slippages Have Caused Network To Slip: -0.57 Work Weeks = -26 Work Days**

**Total Duration 1/1/0 Thru 3/28/0 12.43 Work Weeks = 62.14 Work Days**

**Figure 8: PERT-PAC Critical Activity Analysis**
MANPOWER PLANNING & CONTROL

From scheduled work packages, WORK-PAC develops

* Planned manpower

* Actual manpower expended to-date

* Projected manpower using production performance data

Special options include:

* Monthly averaging

* Trade breakdown detail

* Manpower Levelling

* Automatic generation of manhour "S" curve:

  : planned
  : actual
  : projected
FIGURE 5c: Computer Generated (PERT-PAC) Manloading With Desired Manload Levels Superimposed
FIGURE 5d: Computer Generated (PERT-PAC) Levelling Of Manload Within Constraints Of Critical Delivery Schedules
MICRONETS

Pre-developed sub-networks:

* Can be used for any number of projects
* Can be used as often as needed within a given project
* Can be linked to other micronets

Major Benefits:

* Increased Confidence in Network By Production and Management
* Reduced Network Development Efforts
* Reduced Data Errors
* Reduced Opportunities To Neglect Important Activities

Disciplined & Orderly Network Logic:

* 'Improved Visibility Even With More Detail
* Easier Networks To Modify'

Special Feature

* Automated Activity Numbering
* Automated Node Numbering
* Automated Activity Budget Computations
* Automated Activity Duration Computations
Figure 1: Transfer of micro-net from library to project network