

BBN Systems and Technologies

A Division of Bolt Beranek and Newman Inc.

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(1)

Contract No. MDA972-90-C-0074

Monthly R&D Status Reports and Quarterly Technical Reports

2nd Quarter
Calendar Year 1991



Submitted by:

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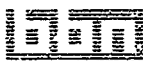
Submitted to:

DARPA/ISTO
Attn: LtCol Stephen E. Cross
Contracts Management Office,
Virginia Square Plaza
3701 No. Fairfax Drive - 7th Fl.
Arlington, VA 22203-1714

Defense Technical Information Center
Cameron Station
Attn: DTIC-FDAC
Alexandria, VA 22304-6145

DARPA/ISTO
Attn: Lou Kallis

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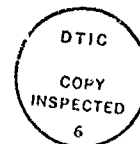


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2nd Quarter Calendar Year 1991

Statement A per telecon Ltc Stephen Cross
DARPA/SISTO
Arlington, VA 22203-1714

NWW 3/16/92

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DTIC TAB	☐
Unannounced	☐
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A-1	

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12 April IPR Agenda

- **TRANSCOM Update (Morrow, Lally)**
- **Build 2 Status (Ton, Tiffany)**
- **Build 2 Hardening (Berliner)**
- **GTN TCC study status (Estrada)**
- **Build 1 Test Results (Mosley)**
- **Training and Documentation Status (Mosley)**
- **Financial Report (Estrada)**
- **Action Items and Discussion (Lally)**





Build 2 Status 1.3

Title : Graphics Ops Indicator (1.3)

**Approach: Simplify the BBN peek window
Add color representation**

Resource: K. Anderson

Status: Incorporated into hardening work





Build 2 Status (1.4)

Title: Square Ft. Display(1.4)

Approach: Ascent fixes deficiencies in current approach

Resource: Ascent

Status: Complete





Build 2 Status (1.5)

Title: Auto Database Maintenance (1.5)

Approach:

- A detailed approach is currently under development.
- Likely solution: Separate Oracle table for separate TPFDDs.
- Interim Step to improve performance
 - Increase extents to reduce fragmentation
 - SQL solutions to reduce fragmentation
 - Oracle OLTP option
 - Slightly modified schema (clusters and index changes)

Resource: Ascent, G. Donlon

Status:

- Interim steps in progress
- Results from testing so far
 - Loads 10% slower into a full database than initial load
 - Loads 35%-45% slower into a full database than "best case"
 - Large TPFDD loads into a populated database in 35 minutes
- Stress test to be run as soon as possible





Build 2 Status (1.6)

Title: Auto Mac Graphics (1.6)

Approach:

- Simplify Build1 procedure via Macros
- Provide additional documentation

Resource: J. Clesius

Status:

- Draft documentation complete
- Floppy Disk: Sun Automated / MAC in progress
- TOPS: Sun Automated / MAC in progress





Build 2 Status (1.8)

Title: Auto TPFDD Edits (1.8)

Approach:

- Implement algorithms as TPFDD queries.

Resources: Ascent

Status:

- About 20 queries have been implemented.
- Queries reviewed with MITRE/SRA 11-Apr
- 85% complete





Build 2 Status (1.9)

Title: Expanded Graphics Outputs

Approach:

New Graphical outputs will be defined continuously and inserted into the system routinely.

Resources: J. Berliner, K. Anderson, J. Morrill

Status:

- Present graphs being converted to new data structures and new SCIGRAPH
- Annotation (including "Name the Wolf")
- Implement graphs with filtering
- Revise new scatter graphs
- Completion by 25 May





Build 2 Status (1.10)



Title: Expanded Query Output (1.10)

Approach:

- Provide Additional math functions: {=, -, *, /, not equal}.
- Discuss ramifications of sort keys.

Resources: Ascent

Status:

- Underway, along with a more useful interface





Build 2 Status (1.13)

Title : Update RAPIDSIM Level Capability (1.13)

Approach: Add the ability to use Sq. Ft and MTONS

Resources: G. Donlon

Status: Underway. Coupled to system hardening





Build 2 Status (2.1)



Title: Name the Wolf (2.1)

Approach: Convert graphs to new Scigraph and upgrade "group annotation"

Resources: Jeff Morrill with help from Ken Anderson

Status:

- Demonstration of preliminary version
- Additional annotation features available
- Coupled to system hardening
- will pass ULN list to TPedit via table





Build 2 Status (2.6)

Title: FM OPS; Window Mods (2.6)

Approach: Multiple options allowed.

Resources: Ascent

Status:

- Load diagrams more flexible (and correct) now
- FM window (showing date-ranges) being resurrected





Build 2 Status (2.7)

Title: Display Routes on Maps(2.7)

Approach:

- a) Display POE/ILOC/POD/DEST by geoloc.
- b) Display designated channels/RAPIDSIM port pairs.

Resources: G. Donlon

Status:

- a) Underway
- b) 90 % complete, working on "last" bug





Build 2 Status (2.8)

Title: TPFDD map speed (2.8)

Approach:

Save maps as pixmaps. Explore ways to reduce small-map features in favor of speed.

Resources: Ascent

Status: Not yet implemented





Build 2 Status (2.9)



Title: Links to Fast (2.9)

Approach:

Produce from DART an input file to FAST as an OPLAN or subset of an OPLAN. Initial approach will be in standard TPFDD format.

Resources: B. Goellner, Ascent

Status: Analysis of inputs and outputs completed

Status note: DART now running on FAST display (build 3)



Build 2 Status (2.12)



Title: 20 Line TPFDD Editor (2.12)

Approach: Mark records by marking start and end of region

Resources: Ascent

Status: Complete. Use mouse-middle





Build 2 Status (2.13)

Title: Provide Access to Non-TPFDD Tables (2.13)

Approach: Retrieve records from additional tables
TUCHA, GEOLOC from TPFDD Editor
SRF and map information from Map Display

Resources: Ascent, BBN

Status:

- TPFDD editor can now query and display GEOLOC and TUCHA unit types.
- X-Windows SQL*Forms not installed at TRANSCOM or available yet for the development platform.
- Ports and Aports to map not done.





Miscellaneous TP_Edit Items

- Note pad annotation for ULNs/CiNs/PiNs.
- Stored query about 85% complete.
- Problem with dropped records on input resolved for the four SRF record types from 189TT.





SITAP Integration

- SITAP model Fortran code transferred to Sun-4 workstation and compiled.
- Working on command files to simplify running SITAP.
- More knowledge acquisition is needed on network creation for SITAP.



Ascent Report on TPFDD Editor Bug Status

Apr. 10, 1991

Number	Purpose	Short Title	Status
38	SCP	Number of personnel option	Fixed
47	SCP	LISP level option	Fixed
57	IR	Yellow ULN color change	Fixed
62	IR	Force Module display error	Fixed
82	IR	Mtons values	Fixed
83	IR	Shift dates error	

Middle mouse button is an equivalent of [Return], it is not an abort operation. if you shift dates on one record - only one row is redrawn. Tested at Ascent.

84	IR	Destination TPFDD select error	Nonrepeatable
85	IR	External Regid list abort	Obsolete

Option is removed.

86	IR	POE change for record collection	Nonrepeatable
----	----	----------------------------------	---------------

Tested - took about 30 sec to set POE for 1167 records at Ascent.

90	IR	Inaccurate total load figures	Fixed
93	IR	Classification error	Fixed
94	IR	Number update error	Fixed

Every time the user makes changes (deleting or adding records) that makes the numbers inaccurate, stripes appear to indicate the fact. Click again to recount ULNs, CINS, and PINs.

96	IR	Intermediate location display	Deferred
??	IR	Incorrect record retrieval	Fixed



System Hardening I

1) Multiple DART Users

- Oracle database
 - OLTP will rereduce the lockout problem
 - Read/Write token to be implemented
- TPFDD Editor
 - Hardware limitation on the number of simultaneous DART sessions running on a single machine
- Model Analysis
 - Per-user analysis hierarchy
 - Public sharable analysis hierarchy

2) Simplify and document installation procedure

- In progress





System Hardening II

Goals:

- Consolidate and clean up internal representation of the setup
- Window reorganization
- CLIM bug eradication
- Gorilla-Proofing

Approach:

- Revise the Internal Data Representations
- Revise the User Interface
 - Design and reorganize the screens
 - Make operations clearer
 - CLIM Bug eradication and/or minimization
 - Bullet Proofing
 - Peek Window Revision
- Graphic Outputs
 - Design new graphs
 - Old graphs to use new data structures
 - Graphs with filtering
 - Revise vehicle activity graphs
 - Name the Wolf





Revise the User Interface

Approach to design:

- Identify objects "things" users deal with and think about.
- Talk to user interface specialists
- Talk to DART user representatives
- Work through sample problems
- Ensure design provides Build 2 functionality
- Leave hooks for additional functionality
- Follow Macintosh style, Motif style

Approach to development:

- Working prototype that begins to fulfill the build 2 design functionality
- Prototype behavior can be extended incrementally for user and developer evaluation
- Development of actual DART functionality will proceed by attaching functions as they are completed or by attaching existing functions





User Interface Design Principles I

(From the OSF/Motif Style Guide 1.1)

Know the user Empower the user

- 1.1 Adopt the User's Perspective**
 - 1.1.1 Involve users in the design**
 - 1.1.2 Be a user yourself**
- 1.2 Give the User Control**
 - 1.2.1 Keep Interfaces Flexible**
 - 1.2.2 Use Progressive Disclosure**
- 1.3 Use Real-World Metaphors**
 - 1.3.1 Allow Direct Manipulation**
 - 1.3.2 Provide Rapid Response**
 - 1.3.3 Provide Output as Input**
- 1.4 Keep Interfaces Natural**
 - 1.4.1 Make Navigation Easy**
 - 1.4.2 Provide Natural Shades and Colors**





User Interface Design Principles II

(From the OSF/Motif Style Guide 1.1)

1.5 Keep Interfaces Consistent

- 1.5.1 Consistency Within an Application
- 1.5.2 Consistency Between Applications

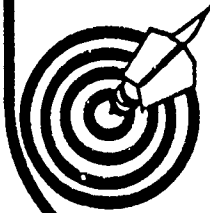
1.6 Communicate Application Actions to the User

- 1.6.1 Give the User Feedback
- 1.6.2 Anticipate Errors
 - Gray out inappropriate choices
 - Context-sensitive help
 - Support trial-and-error learning by providing an undo function
- 1.6.3 Use Explicit Destruction
 - Warnings before serious or unrecoverable loss of data

1.7 Avoid Common Design Pitfalls

- 1.7.1 Pay attention to details
- 1.7.2 Do not finish prematurely
- 1.7.3 Design iteratively
- 1.7.4 Start with a fresh perspective
- 1.7.5 Hide implementation details





User Interface Design: Plan

DART Base **Basic Objects**

ANALYSIS	TPFDD	SITUATION	WINDOW	MODEL	UTILITIES	EXIT	EDIT	HELP
ANALYSIS: TPFDD: 090TP C - Test OPLAN for DART SITUATION: MODEL:				DART Information Window				
DISPLAY								

SITUATION

RapidSim

TPFDD

ABC	DEF
ABC	DEF
ABC	DEF
ABC	DEF

PFE

SITAP

ANALYSIS
RESULTS

SITUATION

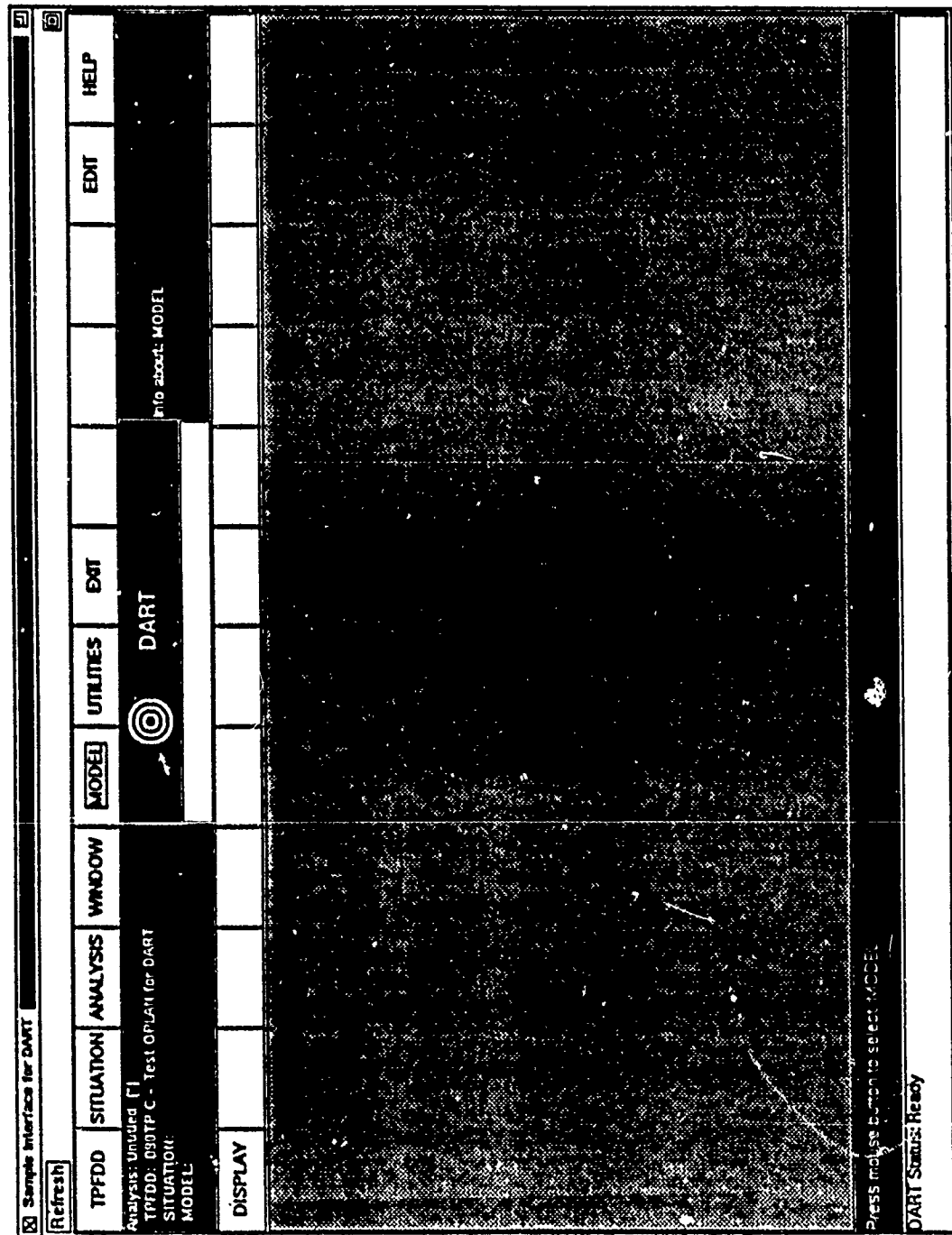
MODEL etc.

Mouse Documentation and Help Line

DART Status: Ready

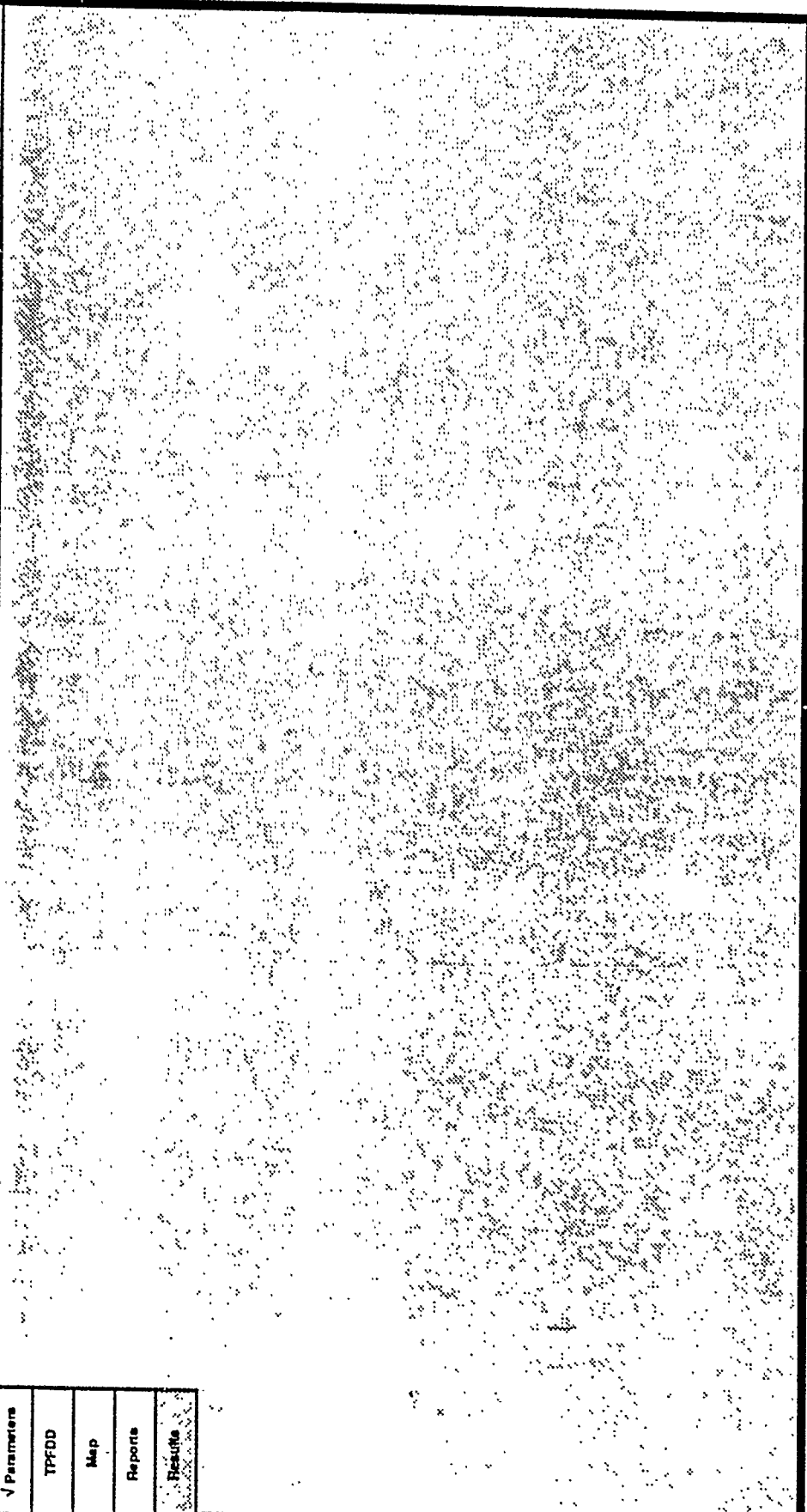


User Interface Design: Working Prototype



DART Base

DART Situation Menus

ANALYSIS	TPFDD	SITUATION	WINDOW	MODEL	UTILITIES	EXIT	EDIT	HELP
ANALYSIS: TPFDD: 090TP C - Test OPLAN for DART SITUATION: Partial Mobilization MODEL:				 SITUATION: pm-72 *				
DISPLAY								
√ Parameters								
TPFDD								
Map								
Reports								
Results								
								
Mouse Documentation and Help Line								
DART Status: Ready								



ANALYSIS	TPFDD	SITUATION	WIN/ICW	MODEL	UTILITIES	EXIT	EDIT	HELP
ANALYSIS: TPFDD: 090TP C - Test OPLAN for DART SITUATION: Partial Mobilization MODEL: DART SITUATION: pm-72 * Information Window								
DISPLAY TPFDD: 7,000 ULNs 3,000 CINs 2,000 PINs 783,660 STONS 2,345,678 MTONs 3,456,789 SqFt 247,971 PAX 8,123,570 CBBLs POL Update Situation Partial Mobilization - Case # 72 Ships Quantity: 24 Total Capacity:: 2,456,789,000 MTONs Planes Quantity: 153 Total Capacity:: 1,234,567,000 STONS Aggregation Ports 12 SPOE 18 APOE 6 SPOD 6 APOD Canals: Panama ☒ Open ☐ Closed Suez ☒ Open ☐ Closed								
Mouse Documentation and Help Line								
DART Status: Ready								





ANALYSIS	TPFDD	SITUATION	WINDOW	MODEL	UTILITIES	EXIT	EDIT	HELP
ANALYSIS: TPFDD: 090TP C - Test OPLAN for DART SITUATION: Partial Mobilization MODEL:  DART SITUATION: pm-72 * Information Window								
DISPLAY	REGION	ZOOM	SHOW	LOCATION	FIND			
Parameters	United States	Zoom In About a Point	TPFDD Channels	Select				
TPFDD	Mediterranean	Zoom Out About a Point	See Routes	Describe				
V Map	North America	Center On a Point	Air Routes	Add Delete				
Reports	South America		Cargo Assets	Add NSPOE Add NAPOE Add NSPOD Add NAPOD				
Results	Europe Africa Asia World: Pacific World: Atlantic		Port Aggregations					

Mouse Documentation and Help Line

DART Status: Ready



DART Base

ANALYSIS	TPFDD	SITUATION	WINDOW	MODEL	UTILITIES	EXIT	EDIT	HELP
ANALYSIS: TPFDD: 090TP C - Test OPLAN for DART SITUATION: Partial Mobilization MODEL:				DART SITUATION: pm-72°				
Information Window APOE VDTVD SCOTT AFB, ILLINOIS (Military Airport)								
DISPLAY	REGION	ZOOM	SHOW	LOCATION	FIND			

Name

Selected Geolocs

↑

↓

All Geolocs

↑

↓

Mouse Documentation and Help Line

DART Status: Ready



ANALYSIS	TPFDD	SITUATION	WINDOW	MODEL	UTILITIES	EXIT	EDIT	HELP
----------	-------	-----------	--------	-------	-----------	------	------	------

ANALYSIS: T 16 Baseline

TPFDD: 090TP C - Test OPLAN for DART

SITUATION: Partial Mobilization

MODEL: RapidSim

DART RapidSim

ANALYSIS: T16 Baseline *

Information Window

DISPLAY

TPFDD:

7,000 ULNs

3,000 CINs

2,000 PINs

783,660 STONS

2,345,678 MTONs

3,456,789 SqFt

247,971 PAX

8,123,570 CBBLs POL

Update

TPFDD Aggregation

2,870 Movement Requirements

782,450 STONS (99.85%)

2,331,600 MTONs (99.40%)

3,410,123 SqFt (98.65%)

242,956 PAX (97.98%)

7,979,680 CBBLs POL (98.23%)

Update

RapidSim

	On Time	Late
Air STONS	42,123	22,128
Sea MTONs	2,100,000	123,456
PAX	237,946	10,010
POL CBBLs	7,969,680	0

Run

Setup:

Partial Mobilization - Case # 72

Ships

Quantity: 24

Total Capacity: 2,456,789,000 MTONs

Planes

Quantity: 153

Total Capacity: 1,234,567,000 STONS

Aggregation Ports

12 SPOE 18 APOE 6 SPOD 6 APOD

Canals:

Panama ☒ Open ☐ Closed

Suez ☒ Open ☐ Closed

RapidSim Parameters:

Air POE

Sea POE

Air POD

Sea POD

Ships

Planes

Commodity Types

Convoy Parameters

Attrition Parameters

Aircraft Loading Policy

Time Periods

Other Parameters

Mouse Documentation and Help Line

DART Status: Ready

DART Base

ANALYSIS	TPFDD	SITUATION	WINDOW	MODEL	UTILITIES	EXIT	EDIT	HELP
ANALYSIS: T 16 Baseline TPFDD: 090TP C - Test OPLAN for DART SITUATION: Partial Mobilization MODEL: RapidSim U-ABG34: 234th Fire Brigade 1234 STONS, 4321 MTONS, 123 SqFt 111 PAX, 0 CBBLs POL								
DART RapidSim ANALYSIS: T16 Baseline								
DISPLAY	VIEW	OPTIONS	ZOOM					

203 Contributing U/LNs/CINs/PINs

- U-ABC01
- U-ABC02
- U-ABF010
- U-ABG34
- U-BD3**
- U-BD41
- U-GX99
- C-DEF01
- C-DEF44
- C-DEF46
- C-DEG22
- P-GHI01
- P-GJJ03

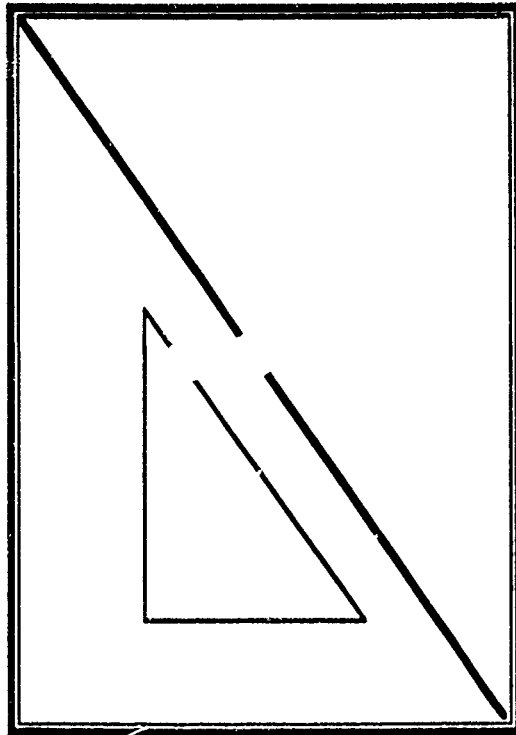
	Contributing U/LNs/CINs/PINs	Selected Deliveries
Total Deliveries	22,544	1,043
Total STONS	123,456	4458
Total MTONs	33,467	342
Total SqFt	12,345	543
Total PAX	2,332	243
Total CBBLs POL	0	0

Mouse Documentation and Help Line

DART Status: Ready



Name the Wolf Interface: Plan



Contributing
ULNs/CINs/PINs (203)

U-ABC01

C-DEF01

U-ABC02

C-DEF02

U-ABC03

P-GHI03

U-ABC04

P-GHI04

Contributing
ULNs/CINs/PINs

Selected
Deliveries

Total STONS

67890

987

Total PAX

12345

543







Name the Wolves Interface: Functionality

Graph Annotation Facility

- Text annotation
- Point annotation
- Interval annotation
- Region annotation

Application to "Name the Wolves"

- Points (wolves) can be corralled within an arbitrary polygon
- Any polygon vertex can be moved
- Wolves can be summarized according to a number of application specific attributes, such as MTONs, STONs, etc.
- Multiple corrals can be displayed simultaneously

Additional Features Required

- Integrate with DART data structures
- Build scrolling menu of contributing ULNs
- Build summary of contributing ULNs

Functionality for Other Graphs

- Annotation available on all other graphs
- Could implement shortfall annotation on closure graphs





USTC/TCC DART Network

Motivation and Requirements

- A high speed packet switching network would change current WWMCCS transfer of DART TPFDD information from six hours to minutes
- DART users in different locations could interact in ways that DART users in one location do now:
 - Share data in an Oracle database
 - Share processing resources
(e.g. run models in other locations)
- DART should be integrated with ADANS, STRADS, and SEA STRADS in ways that are similar to the DART/FAST integration
- Other electronic tools should be provided to assist joint planning





USTC/TCC DART Network Approach

Phase I - Limited communication

- Maintain STI-III link between USTC and MTMC
- Utilize existing USTC/MAC LAN link.
- Integrate DART with ADANS, STRADS, SEA STRADS and/or other TCC scheduling algorithms
- Provide E-mail and perhaps Mac-Email

Phase II - Upgrade Network to a high speed fully connected network

- Refine DART specific tools





USTC/TCC DART Network Report Outline

- 1. Introduction**
- 2. Assumed requirements and concept of operation**
- 3. Approach to creation of USTC/TCC Network**
- 4. Suggested statement of work and schedule**
- 5. Tentative costs**



DART

IN PROGRESS REVIEW

12 APRIL 1991

**SYSTEMS RESEARCH AND APPLICATIONS
CORPORATION**

SRA
CORPORATION

DART

INTRODUCTION

- **IN PROGRESS OBJECTIVES**
- **USERS MANUAL**
- **TESTING**
- **TRAINING**
- **DART TEST OBSERVATIONS REPORT SYSTEM**

DART EVALUATION

IN PROGRESS OBJECTIVES

- **EVALUATE**
 - **USERS MANUAL**
 - **TRAINING MANUAL**
- **STRESS TEST DART BUILD I**
 - **DIFFERENT USERS**
 - **DIFFERENT OPLAN/TPFDDs**
- **DEVELOP INSTRUCTOR POOL**
- **ENHANCE COURSE MATERIALS FROM FEEDBACK**
- **PROVIDE IR/SCPs IN-PROGRESS TO DEVELOPERS**
- **SUPPORT REFINEMENT CONFERENCE**

SRA

CORPORATION

USERS MANUAL

- **BUILD II USERS MANUAL
 - **7935A TAILORED FORMAT**
 - **NEED CLARIFICATION OF SYSTEM ADMINISTRATOR'S ROLES AND RESPONSIBILITIES**
 - **MUST BE INFORMED OF CHANGES TO THE BUILD II PLAN AS THEY OCCUR TO ENSURE INCORPORATION INTO MANUAL****
- **INTERNAL SRA TRAINING USED FOR VERIFICATION OF USERS MANUAL**

TESTING

- REVIEWING INFORMATION ON BUILD II ENHANCEMENTS
- ANALYZING IMPACT ON TEST PLAN
 - ADD NEW TESTS
 - EXPAND LEVEL OF DETAIL TO CURRENT TESTS
 - PREPARE FOR MULTIPLE USER TEST
- REQUEST A 'DIRECT FEED' FOR DETAILS OF BUILD II FUNCTIONALITY

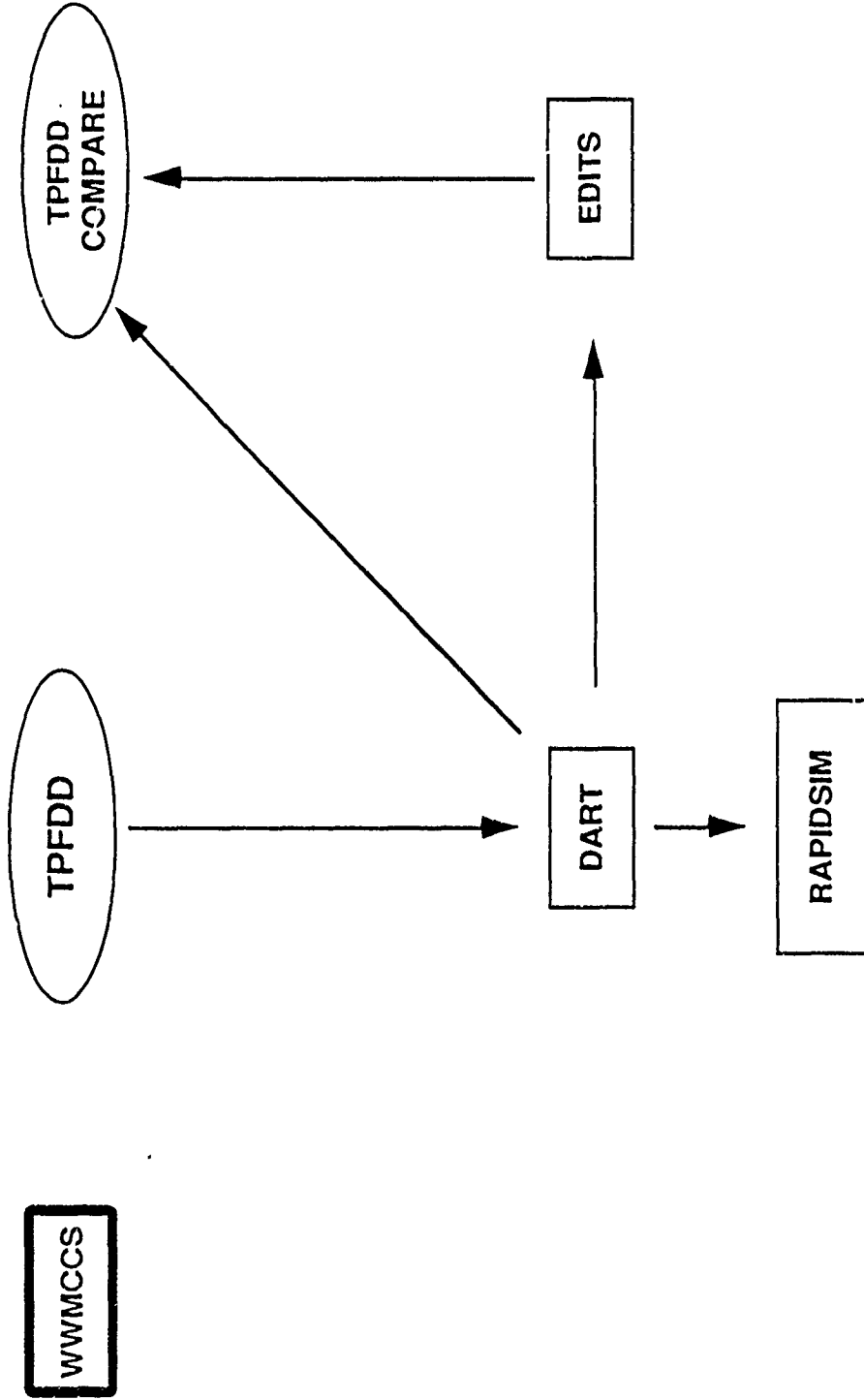
DART TESTS

- **INCREMENTAL TESTING**
 - **PART OF TRAINING & DOCUMENTATION**
 - **ERRORS & CHANGES TRACKED**
- **END-TO-END TESTING**
 - **BASED ON FORMAL TEST PLAN**
 - **COMPARED WITH EXPECTED RESULTS**
- **RAPIDSIM VALIDATION**
 - **INFORMAL STRUCTURE**
 - **EXACT GOALS**

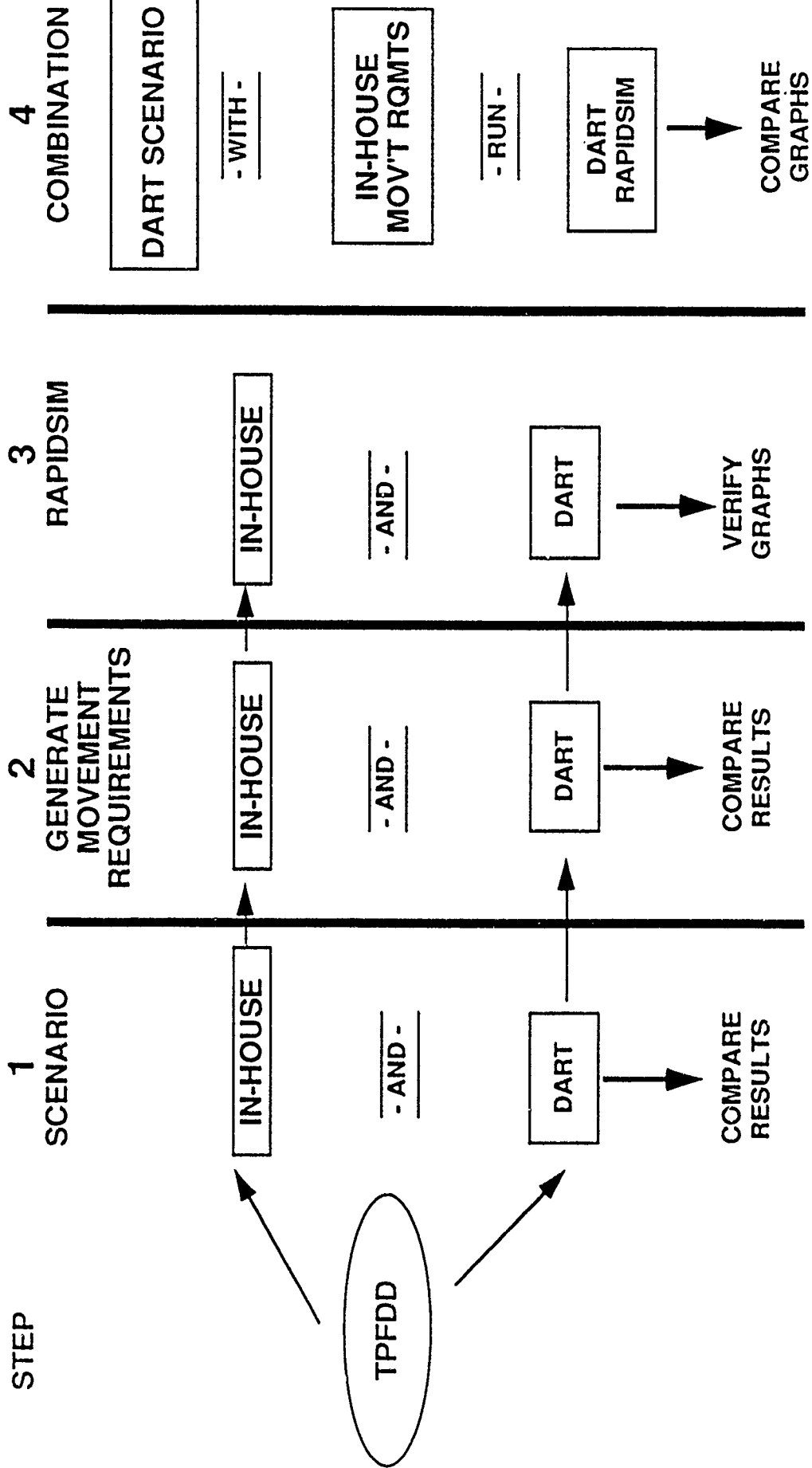
BUILD 1 TESTING

- TEST PLAN (BUILD I)
 - EXECUTED 15 MAR
 - DELIVERED 15 MAR
 - TEST ANALYSIS REPORT 1 APRIL

END-TO-END TEST



RAPIDSIM VALIDATION



TESTING SUMMARY

- SYSTEM IS STURDY
- DATA DIFFERENCES NOTED
 - SRF RECORDS MISSING
 - NO INTERNAL EDITS/CONTROLS
 - RAPIDSIM RQMTS DIFFER
- DISCREPANCIES DOCUMENTED
 - 24 IRs IN PRE-TEST
 - 28 IRs DURING ACTUAL TEST

TAR RECOMMENDATIONS

- **OUTPUT ALL JOPS DATA RECORDS**
- **ENHANCE DATA RELATIONSHIPS/ACCURACY**
- **CORRECT RAPIDSIM INPUT REQUIREMENTS**
- **TRANSFER EFFORT FROM SYSTEM
"HARDENING" TO DATA ACCURACY**

TRAINING

- DEVELOPING PROGRAM FOR CENTRAL AND USER SITE TRAINING OPTIONS
 - CENTRAL LOCATION
 - AT SCOTT AFB
 - TWO WEEK COURSE
 - TRAIN USER/INSTRUCTOR AND SYSTEM ADMINISTRATOR
 - USER SITE
 - TWO WEEKS ON SITE
 - TWO DAY COURSE PER USER
 - TRAIN USERS

TRAINING SCOPE

- INITIAL TRAINING PROGRAM DIVIDED INTO TWO STAGES
 - FIRST IS USER/INSTRUCTOR & DART ADMIN TRAINING PRIOR TO AND CONCURRENT WITH INSTALLATION
 - SECOND IS BASIC USER TRAINING FOLLOWING INSTALLATION
- FOLLOW-ON TRAINING WILL COINCIDE WITH EACH NEW SYSTEM RELEASE

DART TRAINING OBJECTIVES

- **PROVIDE TIMELY AND EFFICIENT TRAINING TO THE JPEC**
- **ALLOW FOR CONTINUED AND CURRENT TRAINING WHILE JPEC SITES RAMP UP FOR DART**
- **PROVIDE FRAMEWORK FOR FUTURE DART TRAINING TO PARALLEL AND INTERFACE WITH OTHER JOINT TRAINING**

TRAINING LOCATIONS

- INITIAL TRAINING PROVIDED AT TWO LOCATIONS
 - USTRANSCOM CENTRAL SITE
 - INSTALLATION SITE
- FOLLOW-ON REFRESHER TRAINING PROVIDED AT EACH DART SITE

DART COURSES

- **USER QUALIFICATION COURSES**
 - **VARIANT 1 - BASIC USER (14 HOURS)**
 - **VARIANT 2 - USER/INSTRUCTOR (32 HOURS)**
- **DART ADMINISTRATION (24 -32 HOURS)**
- **SENIOR EXECUTIVE ORIENTATION (MAX 2 HOURS)**

DART USER QUALIFICATION

COURSE

VARIANT 1 - BASIC USER

<u>UNIT</u>	<u>HRS</u>		<u>CLASSRM</u>	<u>PE</u>	<u>TOTAL</u>
1	JOINT ENVIRONMENT	1.0 L			1.0
2	DART FAMILIARIZATION	1.0 H/O			1.0
3	TPFDD EDITOR	3.0 H/O		1.5	4.5
4	MODEL APPLICATION	3.0 H/O		1.5	4.5
5	ANALYSIS	2.0			2.0
6	PRACTICAL EXERCISE			1.0	1.0
	TOTAL:	10.0		4.0	14.0

SRA
CORPORATION

DART USER QUALIFICATION

COURSE

VARIANT 2 - USER / INSTRUCTOR

<u>UNIT</u>	<u>HRS</u>	
	<u>CLASSRM</u>	<u>PE</u> <u>TOTAL</u>
1 JOINT ENVIRONMENT	2.0 L	2.0
2 DART FAMILIARIZATION	2.0 H/O	2.0
3 TPFDD EDITOR	6.0 H/O	2.5 8.5
4 MODEL APPLICATION	6.0 H/O	2.5 8.5
5 ANALYSIS	2.0 H/O	1.5 3.5
6 PRACTICAL EXERCISE		3.0 3.0
TOTAL:	18.0	9.5 27.5

SRA

CORPORATION

SYSTEM ADMINISTRATOR

- **ROLES AND RESPONSIBILITIES**
- **SKILLS NECESSARY FOR POSITION**
- **WHO COULD BEST FILL THE POSITION**

DART ADMINISTRATION

- **FUNCTIONAL SKILLS**
- **APPLICATION ADMINISTRATION**
- **SITE POC**

PROGRAM OF INSTRUCTION

- **COURSE DESCRIPTION**
- **COURSE OBJECTIVE**
- **TRAINING SCENARIO W/TPFDD**
- **LESSON PLANS**
 - **LESSON OBJECTIVE**
 - **TASKS/SUBTASKS**
 - **PRACTICAL EXERCISES**
- **STUDENT NOTEBOOK**
- **INSTRUCTOR TIPS**
- **TRAINING SUPPORT MATERIAL**

PROGRAM ADVANTAGES

- **CENTRAL SITE TRAINING PROVIDES:**
 - **STUDENTS AWAY FROM 'FLAG POLE'**
 - **MORE TRAINING TO CREATE DART USER/INSTRUCTOR**
 - **CHANCE FOR MORE STUDENTS TO BE TRAINED PER SESSION**
 - **A BASE FOR DEVELOPMENT AND FUTURE TRAINING**
- **ON-SITE TRAINING PROVIDES:**
 - **NO TRAVEL FOR STUDENTS**
 - **TRAINING TAILORED TO SPECIFIC NEEDS**

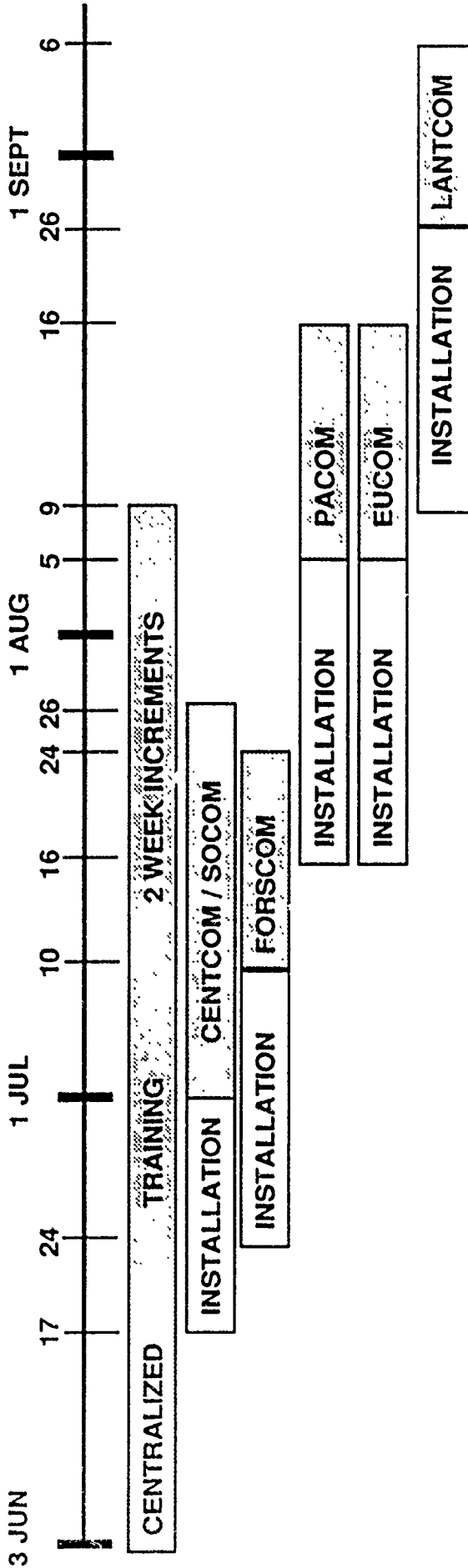
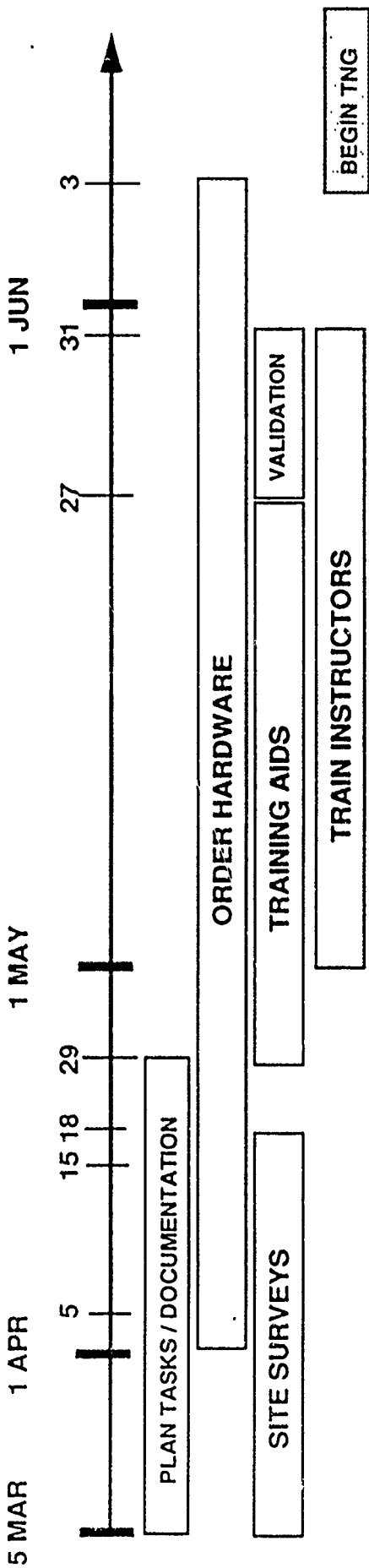
SRA

CORPORATION

PROGRAM DISADVANTAGES

- **CENTRAL SITE**
 - **TDY TRAVEL FOR STUDENTS**
 - **TWO WEEK DURATION OF COURSE**
- **ON-SITE**
 - **STUDENTS AT 'FLAG POLE'**
 - **FACILITIES NOT ALWAYS SUITED FOR TRAINING**
 - **SIMILAR NUMBER OF STUDENTS TRAINED PER SESSION**

DART PLANNING AND TRAINING SCHEDULE



IR DISPOSITION

	<u>IR</u>	<u>SCP</u>	<u>OTH</u>
• TOTAL RECEIVED:	<u>99</u>	<u>63</u>	<u>35</u> <u>1</u>
•• CORRECTED / CHANGED:	<u>16</u>	<u>3</u>	
•• UNDER CONSIDERATION:	<u>13</u>	<u>5</u>	
•• FOR SPONSOR REVIEW:	<u>-</u>	<u>2</u>	
•• DEFERRED / OBE:	<u>3</u>	<u>9</u>	
•• STATUS PENDING:	<u>31</u>	<u>16</u>	

AS OF: 10 APRIL 91

SRA
CORPORATION

**Operational Demonstration of Knowledge-Based Planning
and Scheduling for Total Warfare Planning**

Phase II

Fiscal Status Report

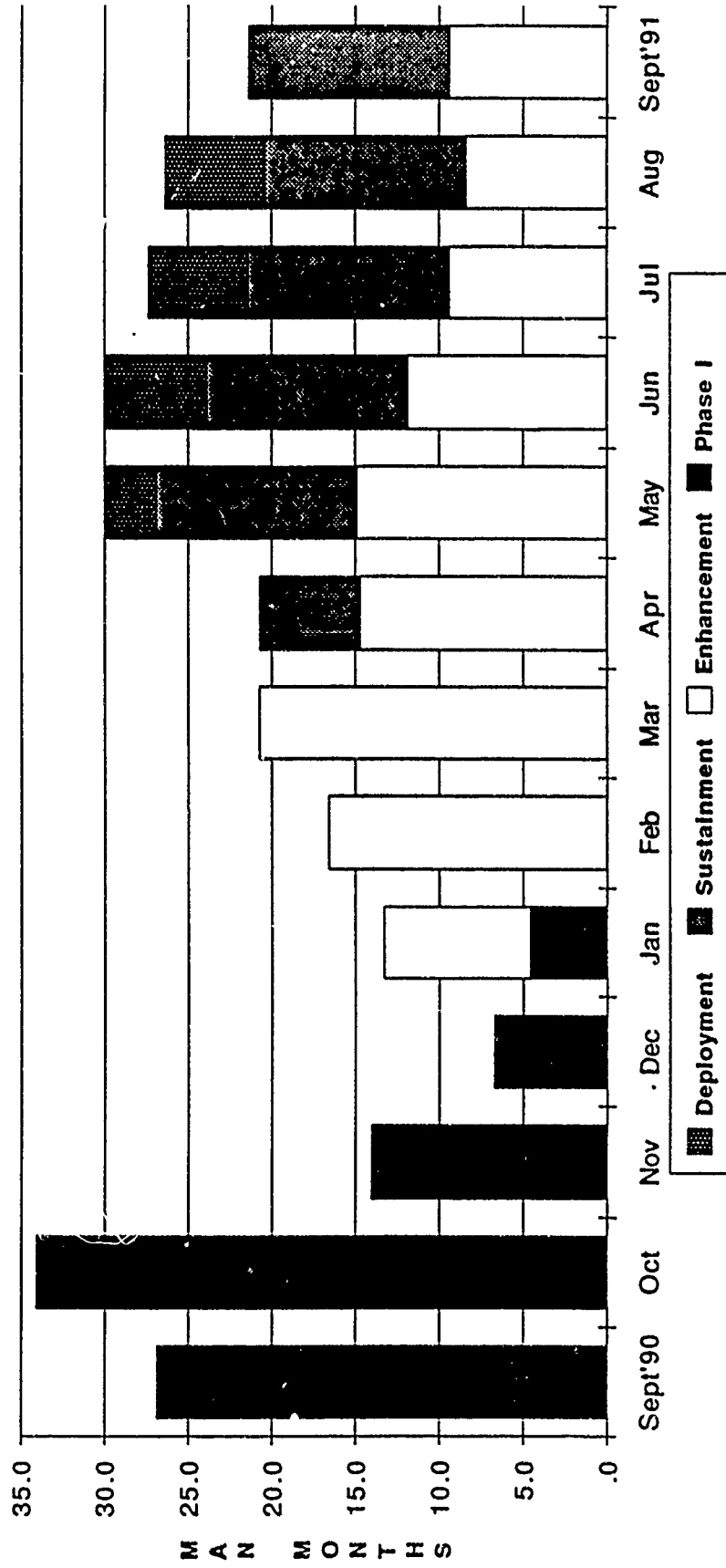
Contract No. MDA972-90-C-0074

ARPA Order No. 7687

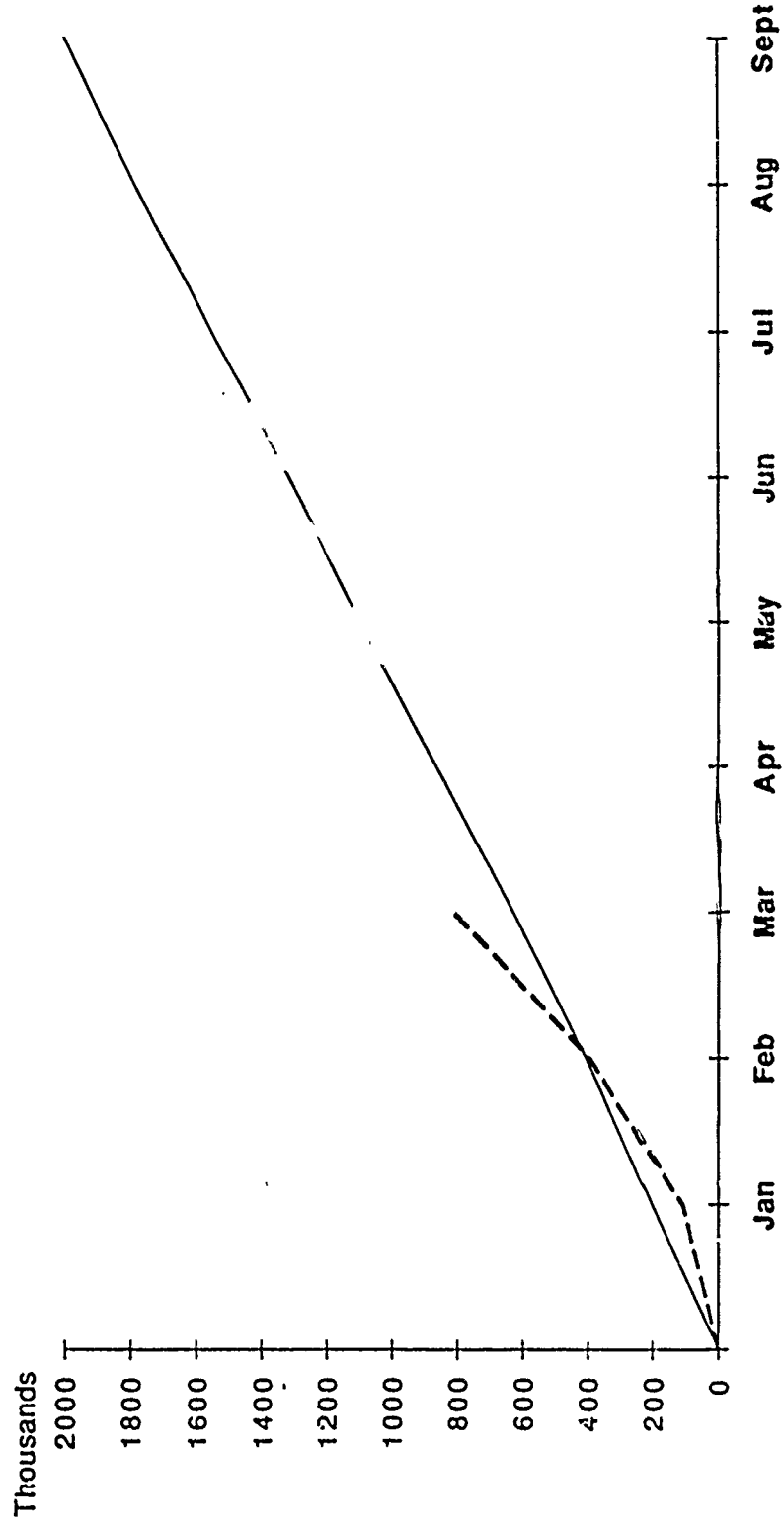
Program Code OE20

March 31, 1991

DART LEVEL OF EFFORT



DART Phase II
Contract No. MDA972-90-C-0074
Actual v Forecast of Expenditures



— Actual

-- Forecast



25 April IPR Agenda

- TRANSCOM Update (Morrow, Lally)
- Build 2 Status (Ton, Tiffany, Berliner)
- Testing, Training and Documentation Status (Mosley)
- Preparations for PACOM exercise (Ton, Goellner)
- Management and Financial Status (Estrada)
- Action Items and Discussion (Lally)
- Demonstration at TRANSCOM at 1500





Build 2 Status 1.3

Title : Graphics Ops Indicator (1.3)

**Approach: Simplify the BBN peek window
Add color representation**

Resource: K. Anderson

**Status: No change from 12 April - Incorporated into
hardening work**





Build 2 Status (1.4)

Title: Square Ft. Display(1.4)

Approach: Ascent fixes deficiencies in current approach

Resource: Ascent

Status: Was Completed by 12 April





Build 2 Status (1.5)

Title: Auto Database Maintenance (1.5)

Approach:

- Minimum impact approach to produce adequate Build 2 capability and reduce software development risk for Build 2
- A sequence of steps to improve performance
 - o Increase extents to reduce fragmentation
 - o SQL solutions to reduce fragmentation
 - o Oracle OLTP option
 - o Slightly modified schema (clusters and index changes)

Resource: Ascent, G. Donlon

Status:

- SQL solutions is not (totally) adequate
- Develop SQL scripts for diagnosis and monitoring and integrate them into system
- * Develop DB cleanup scripts





Build 2 Status (1.6)

Title: Auto Mac Graphics (1.6)

Approach:

- Simplify Build1 procedure via Macros
- Provide additional documentation

Resource: J. Clesius

Status:

- All manual steps have been documented
- Tops automation complete
- Diskette version awaiting hardware availability





Build 2 Status (1.8)

Title: Auto TPFDD Edits (1.8)

Approach:

- Implement algorithms as TPFDD queries.

Resources: Ascent

Status:

- Over 20 queries have been implemented.
- Essentially complete
- Gunther memorandum available





Build 2 Status (1.9)

Title: Expanded Graphics Outputs

Approach:

New Graphical outputs will be defined continuously and inserted into the system routinely.

Resources: J. Berliner, K. Anderson, J. Morrill

Status:

- Most graphs converted to new data structures and new SCIGRAPH
- Annotation (including "Name the Wolf")
- Revise new scatter graphs
- Demonstration of initial capability 25 April
- Completion by 23 May





Build 2 Status (1.10)

Title: Expanded Query Output (1.10)

Approach:

- Provide Additional math functions: {=, -, *, /, not equal}.
- Sort Keys easier than math (which requires syntax parsing)

Resources: Ascent

Status:

- Underway
- A demo-able more useful interface





Build 2 Status (1.13)

Title : Update RAPIDSIM Level Capability (1.13)

Approach: Add the ability to use Sq. Ft and MTONS

Resources: G. Donlon

Status:

- MTONS Essentially complete
- Currently anomalous results
- Sq. Ft needs verification with in house version
- Final Integration Coupled to system hardening





Build 2 Status (2.1)

Title: Name the Wolf (2.1)

Approach: Convert graphs to new Scigraph and upgrade "group annotation"

Resources: Jeff Morrill with help from Ken Anderson

Status:

- Demonstration of first version 25 April
- demo corrals but does not name wolves
- wolf naming expected by next week
- Coupled to system hardening
- Will pass ULN list to TPedit via table





Build 2 Status (2.6)

Title: FM OPS Window Mcds (2.6)

Approach: Multiple options allowed.

Resources: Ascent

Status:

- Load diagrams more flexible (and correct) now
- FM window (showing date-ranges) resurrection more difficult than first thought - should be moved to Build 3





Build 2 Status (2.7)

Title: Display Routes on Maps(2.7)

Approach:

- a) Display POE/ILOC/POD/DEST by geoloc.
- b) Display designated channels/RAPIDSIM port pairs.

Resources: G. Donlon

Status:

- a) POE to POD was completed by 12 April
- b) Complete - will be demonstrated 25 April and additional suggestions can be made





Build 2 Status (2.8)

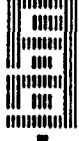
Title: TPFDD map speed (2.8)

Approach:

Save maps as pixmaps. Explore ways to reduce small-map features in favor of speed.

Resources: Ascent

Status: Not yet implemented





Build 2 Status (2.9)

Title: Links to Fast (2.9)

Approach:

Produce from DART an input file to FAST as an OPLAN
or subset of an OPLAN.

Resources: B. Goellner, Ascent

Status:

- Continuing analysis of FAST inputs
- consultation with CSC 25 April





Build 2 Status (2.12)

Title: 20 Line TPFDD Editor (2.12)

Approach: Mark records by marking start and end of region

Resources: Ascent

Status: Was Completed by 12 April. Use mouse-middle





Build 2 Status (2.13)

Title: Provide Access to Non-TPFDD Tables (2.13)

Approach: Retrieve records from additional tables
TUCHA, GEOLOC from TPFDD Editor
SRF and map information from Map Display

Resources: Ascent, BBN

Status:

- TPFDD editor can now query and display GEOLOC and TUCHA unit types.
- Received X-Windows SQL*Forms at TRANSCOM on 24 April. Will be installed and evaluated shortly
- Ports and Aports to map not done.





Miscellaneous TP_Edit Items

- Note pad annotation for ULNs/CINs/PINs.
- Stored query about 85% complete.
- Problem with dropped records on input and output resolved for the four SRF record types from 189TT.





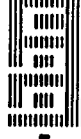
System Hardening I

1) Multiple DART Users

- Oracle database
 - OLTP will reduce the lockout problem
 - < Installed on Munchkinland
 - < Munchkinland database cleaned up
 - Read/Write token to be implemented
- TPFDD Editor
 - Hardware limitation on the number of simultaneous DART sessions running on a single machine
- Model Analysis
 - Per-user analysis hierarchy
 - Public sharable analysis hierarchy
 - Included in hardening effort

2) Simplify and document installation procedure

- In progress
- Test of procedure to be performed on Auntie Em





System Hardening II

Goals:

- Consolidate and clean up internal representation of the setup
- Window reorganization
- CLIM bug eradication
- Gorilla-Proofing

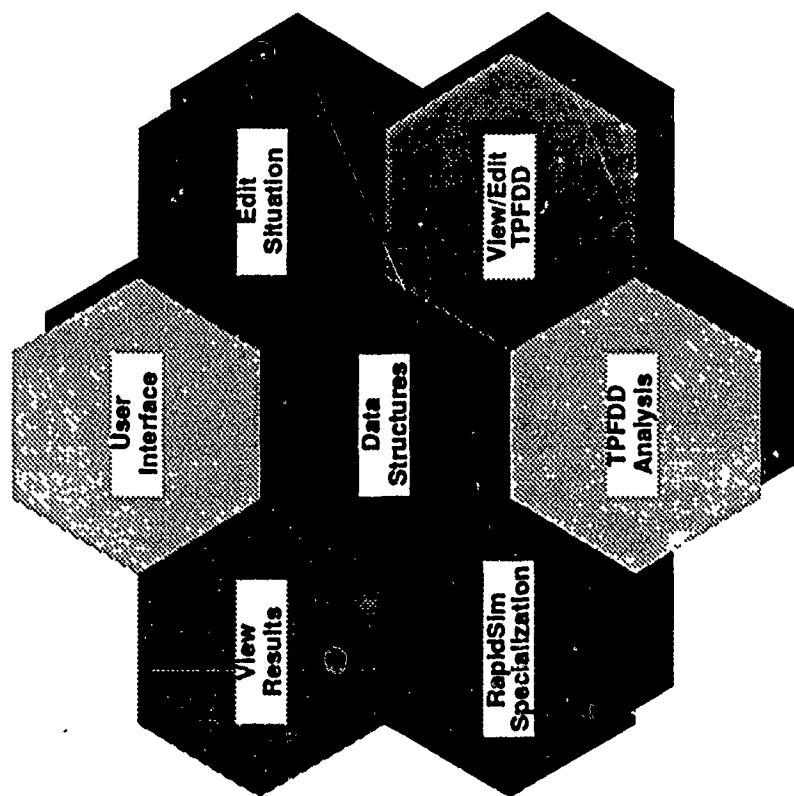
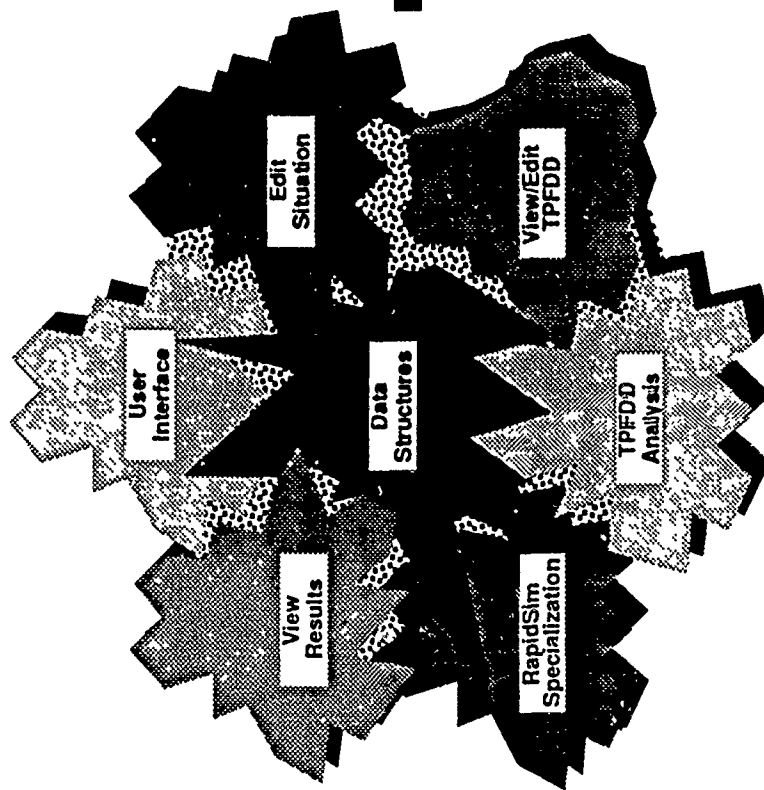
Approach:

- Revise the Internal Data Representations
- Revise the User Interface
 - Design and reorganize the screens
 - Make operations clearer
 - CLIM Bug eradication and/or minimization
 - Bullet Proofing
 - Peek Window Revision
- Graphic Outputs
 - Design new graphs
 - Old graphs to use new data structures
 - Graphs with filtering
 - Revise vehicle activity graphs
 - Name the Wolf





Transition from Build 1 to Build 2





DART Build 2 Hardening

Revise the Internal Data Structures

- TPFDD Object
- Analysis Object
 - < Situation
 - Assets
 - Nodes
 - Routes
 - Canals
 - < Model
 - < Results
- Model Object
- Model Results
 - Initial Capability 25 April
 - < History
 - < DETAIR
 - < DETSEA
 - < RS-Movement-Requirements
 - < RS-Movement-Relations





DART Build 2 Hardening

Revise the User Interface

- User Access
 - Demonstration of Initial Capability 25 April
 - < Top-Level
 - < File Access (Analysis, Situation)
 - < Window, Model, Utilities, Exit
 - < Help
 - < Display Parameters
 - < Display TPFDD
 - < Display Map
 - < Display Reports
 - < Display Results

- Edit Asset Situation
 - < Edit Ships
 - < Edit Planes
 - < Edit Ship Properties
 - < Edit Plane Properties

- Edit Geographic Situation
 - < Edit Nodes
 - < Edit Node Properties
 - < Edit Canals
 - < Edit Routes
 - < Edit Route Properties

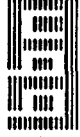




DART Build 2 Hardening TPFDD & RapidSim

- TPFDD (ora2move)
 - < Retrieve TPFDD Data
 - < Create Movement requirements by Nodes
 - < Correct and Report Errors & Warnings
 - < Aggregate Movement Requirements

- RapidSim Specialization
 - < Edit RapidSim Parameters
 - < Write RS-Movement-Requirements File
 - < Write RS-Scenario File
 - < Run RapidSim
 - < Collect RapidSim results





DART Build 2 Hardening

Display Results

- Graph Types -- Demonstration of Initial Capability 25 April
 - < Standard 4
 - < Single Run Line Graphs
 - < Multiple run Line Graphs
 - < Delivery Scatter Plots
 - < Loading/Lateness Scatter Plots
 - < Vehicle Activity Graph

- Graph Options -- Demonstration of Initial Capability 25 April
 - < Formatting
 - Change graph labels
 - Change graph axes
 - Change data symbols
 - < Annotation
 - Point annotation
 - Group annotation (Name-the-Wolf)
 - Text annotation
 - < View
 - Redisplay the graph
 - Cross hairs
 - Zoom





Preparations for PACOM Exercise

Ton, Goellner and Donlon will load and test all software on Auntie Em at TRANSCOM during the next week

* All functions for the PACOM exercise will be thoroughly rehearsed

- TRANSCOM assistance is requested to help assess functionality accuracy

* The subject TPFDD and other classified files will be sent to PACOM independently of Auntie Em

ISSUES:

- 1) Should Kansas or Henry be used as the source machine ?
- 2) Can a new Ascent TPFDD editor image which includes improvements required for PACOM exercise be integrated and tested in time for the exercise ?





Financial Summary

- The financial report given in the last IPR remains valid
 - 811K expended by 31 March
- Projection show that there will be 26MM available after 15 June for Build 3 covering 15 June to 30 September
- Only Operations and Maintenance and a very small Build 3 effort can be supported with current funds available .





Risk Management

Currently Two Risks are being tracked

Build 2 schedule risk

- risk of schedule slip due to software completion is now low
- risk of schedule slip due to serial completion of SW dev., software test plan generation software testing, and user manual update is medium

Hardware support risk

- BBN Cambridge is currently supported with a SUN loaner
- If PE machines do not appear by 15 May development effort has a problem





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If PE machines do not appear by 15 May development
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24 May IPR Agenda

- PACOM Trip Report (Wilson, Calvert)
- TRANSCOM Update (Lally)
- DARPA Update (Cross)
- MTMC Status Report (Goellner, Snow)
- Build 2 Status (Ton, Tiffany, Berliner)
 - What's completed
 - What is still to complete
 - Build 2 "Toxic Waste Cleanup"
- Three week DART schedule (Wilson,Estrada)
- Testing, Training and Documentation Status (Mosley)
- Management, Financial Status, Schedule, Build 3 (Estrada)
- Action Items and Discussion (Lally)
- Build 2 demonstration at TRANSCOM at 1400





MTMC Status Report

- MTMC DART system in operation since 21 April
- Fixed tape upload download problem
- Fixed broken Tredit image problem
- System now being used daily to conduct a study
- TPFDDs downloaded and uploaded daily
- Three users change dates in the TPFDDs





Build 2 Status Items Completed

- Graphics Ops Indicator (1.3)
- Square Ft. Display (1.4)
- Auto Mac Graphics(1.6)
- Auto Tpfdd Edits (1.8)
- Expanded Graphics Outputs (1.9)
- Expanded Query Output (1.10)
- Update RAPIDSIM Level Capability (1.13) (except IR)
- Name the Wolf (2.1)
- FM OPS Window MOds (2.6)
- Display Routes on Maps (2.7) (except for origin to POE)
- Links to Fast (2.9)
- 20 Line TPFDD Editor (2.12)
- Provide Access to Non-TPFDD Tables (2.13) (except Ports & Aport)
- Note Pad
- Stored Query capability (63% completion)
- Simplified and documented installation procedure
- Revised Internal Data Representations in DART analysis
- Revised fool proof user interface
- Improved Graphical structure- New Sci-Graph





Items Still to Be Completed in Build 2

- Data Base Locking for multiple users, and Unix multi -user hierarchy
- TPFDD sorting
- Refine Database Diagnosis function
- Easier to use Database defragmentation function
- Additional model dependent Parameters
- Restoring analyses and situations
- Finish utilities menu
- Hook build 1 functionality into transportation analysis map
- Validate Sq Ft from TPFDD data for Rapidsim
- Validate RAPIDSIM movement requirements
- Complete RAPIDSIM summary window
- Awaiting Ports and Aports data files





A Review of the DataBase Fragmentation issue

- Changes that can improve the performance of the Database (relative to a Jan 1991 baseline)
 - Remove history information from Oracle -DONE
 - Revise schema to provide better space allocation -DONE
 - User education - delete old TPFDDs
 - Insert Database fragmentation analysis function - Preliminary version installed
 - Insert Database defragmentation function - to be done
 - Put each TPFDD in its own table - under consideration
- DART meeting with Oracle scheduled for next week





Toxic Waste Clean up in Build 2

Goals:

- Consolidate and clean up internal representation of the setup
- Window reorganization
- CLIM bug eradication
- Gorilla-Proofing

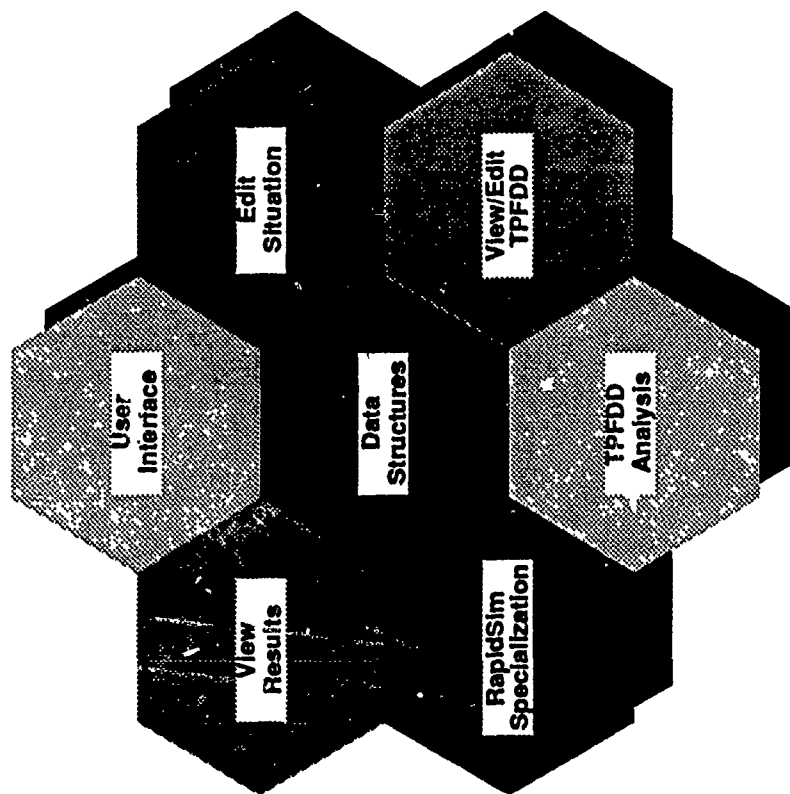
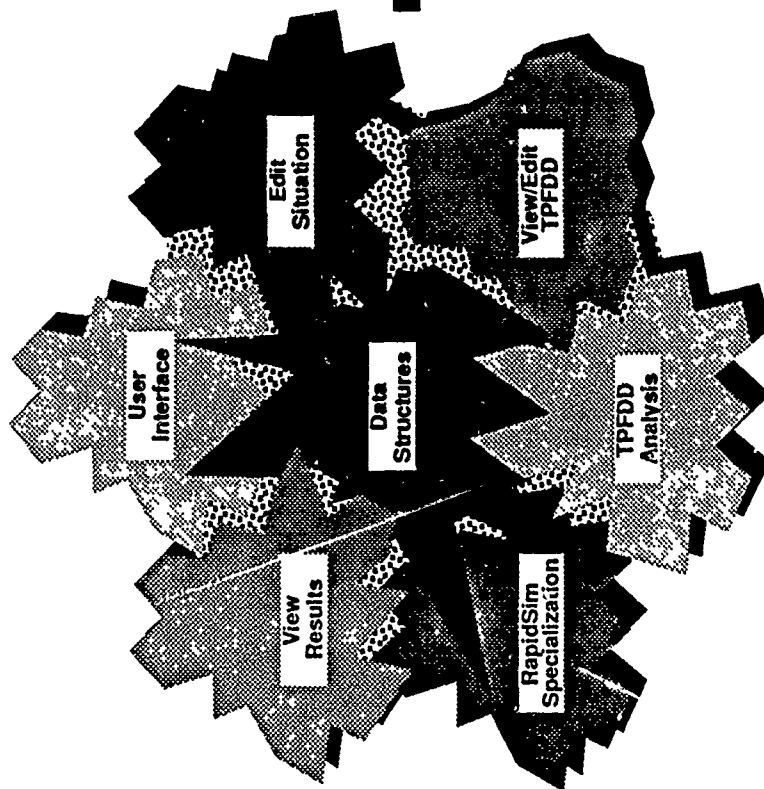
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Transition from Build 1 to Build 2

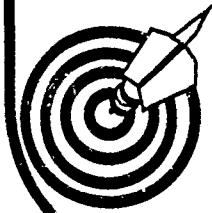




Features of the Build 2 Architecture

- All portions of DART are moving toward a MOTIF standard and wherever possible to consistent widgets, menus, and colors across all parts of the system
- Now difficult to get in a bad place with DART use interface
- New data representation facilitates the addition of new models





Management Report

- Financial Status
- Project Schedule between now and 31 July
- First Look at Build 3 requirements and schedule
- Risk Management





Financial Projection

- Projecting a Build 2 completion date of 8 June leads to a financial projection that there will be approximately \$200K left in the contract as currently funded
- The beta distribution and anticipated formal DART distribution effort has had a major impact on contract expenditures
- A year end money request has been submitted to cover the Build 3 effort described below
- Without year end money the DART project must go into a maintenance mode after Build 2 is completed and installed at USTC.



Financial slides



financial slides





DART Program Schedule

25 May to 31 JULY

28 May to 31 May - LANTCOM installation and system administrator training

3 June to 8 June - LANTCOM user training

28 May to 15 June - Build 2 clean up and acceptance testing

7 June - informal IPR focused on build 2 testing in progress

17 June to 27 June PACOM refinement conference

17 June to 30 June beta Build 2 installation at USTC -J5/S

11 June to -- Build 3 development begins

Early July to Build 2 to MTMC and LANTCOM

9 July to 10 July DARPA DART Distribution Panel

17 July to 26 July Global War Game Support





Top View of Build 3 requirements

- Integration of SITAP into DART
- Integration of PFE into current build DART
- Completion of Expanded Query Capability
- Create/Edit Level 4 Cargo Detail
- Small Enhancements to Force Module Management
- Incorporation of lessons learned (SCP) from Refinement conference
- Incorporate SCPs relating DART/FAST integration
- Fixing IRs





Build 3 milestones

- 8 June - Development begins
- 13 September - complete integration
- 16 September - Begin Acceptance Testing
- 28 September - Complete Acceptance Testing
- 28 September - Build 3 Turned Over to TRANSCOM





Risk Management

RISK	LEVEL	RISK REDUCTION
Complete Build 2 on schedule	Low	extremely close monitoring triage less critical functions
Insufficient funds for build 3	Low	Pray, look hungry
Maintain DART team during funding fluctuations	Medium	Focus on key team members
Complete build 3 on budget	Medium	Put staff on time budgets maintain focus on key issues





June 7 IPR Agenda

Focused on Build 2 Testing

- TRANSCOM Update (Morrow, Lally)
- Approach to completing Build 2 (Estrada)
- Build 2 Status (Tiffany, Berliner)
 - A micro-list of what is still to complete
- Result of Informal Build 2 testing (Wilson)
- Schedule for formal testing (Wilson)
- Action Items and Discussion (Lally)
- Update on current status at 1500





Approach to Completing Build 2

- Prioritize all outstanding items to be completed
 - 1- required for refinement conference
 - 2- essential for build 2
 - 3- desired for build 2
- Have all priority 1 items ready for formal testing by COB today
- Begin formal testing on Monday executing and analyzing tests relating to items with priority 1 (given highest resource priority)
- Complete and informally test all priority 2 items by COB Wednesday June 12
- Complete formal testing by June 15





Build 2 Status Items Completed

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- Note Pad
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- Revised Internal Data Representations in DART analysis
- Revised fool proof user interface
- Improved Graphical structure- New Sci-Graph





Summary of Build 2 Completion

Build 2 is 98% complete





Micro items to Be Completed

- Routes and Channels on Maps (2-)
- Junction Based Distances (2)
- Convoy Routes (3) *done & ready*
- TPFDD stale indicator (1)
- Captured Screen to Mac (1 of 3) *ready*
- Numerical Accuracy of Analysis (2)
- MTONS & Sq Ft. (2)
- Warp to TPedit (3-)
- F11 on marked records (1)
- Help (3) *done & ready*
- multiple analysis graphs (2+)
- Presentation of errors/warnings * comments (3-) *done & ready*
- Include service code in aggregation key (2)





TPFFD Editor Status

- F11 from marked records (1) -- done
- FM Capability Lines in Database (1) -- done
- New SRF record up- and down-load (1) - done *Not done Rev's for it?*
- Various user-interface upgrades (1) -- done
- Bugs squashed in tpdump, DB support tables (1) -- done
- Retrieval Sorting for build 3. High risk/\$-uncertainty.
- New image for next week with minor fixes.*

Not ready to fill in yet - values





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File

Window

Model

Utilities

Help

DART

SUMMARY

TPFDD

MAP

REPORTS

CAPACITY

RESULTS

• CAN'T IMPORT RAPIDSIM RESULTS





File

Window

Model

Utilities

Help

SUMMARY

TPFDD

MAP

REPORTS

CAPACITY

RESULTS

DART



- File
- Window
- Model
- Utilities
- Help

- SUMMARY
- TPFDD
- MAP
- REPORTS
- CAPACITY
- RESULTS

DART

BUILD 2

INITIAL
RESULTS OF INFORMAL FUNCTION TEST

AS OF

FORMAL TEST PLAN NOT YET EXECUTED

7 JUNE 1991



File

Window

Model

Utilities

Help

DART

SUMMARY

TPFDD

MAP

REPORTS

CAPACITY

RESULTS

RESULTS OF INFORMAL FUNCTION TEST

"Baseline"

File

Window

Model

Utilities

Help

SUMMARY

TPFDD

MAP

REPORTS

CAPACITY

RESULTS

DART

- TPFDD RQMTS
 - ✓ .. MSC REALLY MSC?
 - ✓ .. MAC REALLY MAC? *5/8*
- SITUATION
 - .. SHIP MTON & SQ FT = 0 ?
 - .. "CARGO CAPABILITY" TERM *0.0*
 - .. "PLANE" TYPE *Trage to Bu'd 2.1*
 - .. DECREASING ASSETS?
 - .. CAN'T EDIT "NAME" FIELD
 - .. ROUTES NOT RESPONSIVE
- MODEL
 - ✓ .. SEA MODE MEASUREMENTS LIMITED TO STONS
 - ✓ .. MOV'T RQMTS LIMITED TO AIR PAX AND SEA POL
 - ✓ .. GEN MOV'T RQMT ERRORS NOT VISIBLE
 - ✓ .. RUN RAPIDSIM ABORTS (ADJUNCT FILE)



File

Window

Model

Utilities

Help

SUMMARY

TPFDD

MAP

REPORTS

CAPACITY :

RESULTS

DART

- EXPORTS A BLANK ULN
- "FORCE DESCRIPTION" INVALID
- DISCHARGE CONST FOR POD & DEST, TOO
- PROV ORG MENU CHOPS OFF
- RED FLAG MSG HUNG ON POE

- (1) • Rights vs Capability
• Save data
• Produce Hard copy
- (3) • Map on collection



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DART

SUMMARY

TPFDD

MAP

REPORTS

CAPACITY

RESULTS

- VARIABLE RESULTS
 - .. NO DATA POINTS
 - .. SAME REGION NAMES
- ABORT ON MOUSE TOUCH



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SUMMARY

TPFDD

MAP

REPORTS

CAPACITY

RESULTS

DART

- NOTHING HAPPENS
- ORIGIN NAME INVALID
- NO CINS/PINS



File

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DART

SUMMARY

TPFDD

MAP

REPORTS

CAPACITY

RESULTS

~~HAS GARBAGE COLLECTION BUG~~

• File on marked Records





File

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DART

SUMMARY

TPFDD

MAF

REPORTS

CAPACITY

RESULTS

• CAN'T RUN RAPIDSIM

File

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DART

- (1) FAST file
- (1) Import TPFDD
- (1) Export to file

SUMMARY

TPFDD

MAP

REPORTS

CAPACITY

RESULTS



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TPFDD

MAP

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CAPACITY

RESULTS

DART BUILD II

RESULTS OF INITIAL FUNCTION TEST

As of 0730 hrs

Formal Test Plan Not Yet Executed

7 June 1991

DART

BUILD II

SUMMARY

TPFDD

MAP

REPORTS

CAPACITY

RESULTS

- SITUATION
 - .. SHIP MTON & SQ FT = 0
 - .. "CARGO CAPABILITY" TERM
 - .. "PLANE" TYPE
 - .. DECREASING ASSETS? ?
 - .. CAN'T EDIT "NAME" FIELD
 - .. ROUTES NOT RESPONSIVE
- MODEL
 - .. SEA MODE MEASUREMENTS LIMITED TO STONS
 - .. SEA MTONS & SQ FT RQMTS ARE HIGH
 - .. GEN MOV'T RQMT ERRORS NOT VISIBLE
 - .. "RUN RAPIDSIM" IS FRAGILE

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SUMMARY

TPFDD

MAP

REPORTS

CAPACITY

RESULTS

DART BUILD II

- EXPORTS A BLANK ULN
- "FORCE DESCRIPTION" INVALID
- DISCHARGE CONST FOR POD & DEST, TOO
- PROV ORG MENU CHOPS OFF
- RED FLAG MSG HUNG ON POE
- PROV ORG MENU CHOPS OFF
- RQMTS VS CAPABILITY
 - SAVE DATA POINTS?
 - PRODUCE HARD COPY?
- MAP ON COLLECTION



File

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SUMMARY

TPFDD

MAP

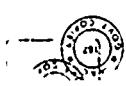
REPORTS

CAPACITY

RESULTS

DART BUILD II

- VARIABLE RESULTS
 - .. N T ITS
 - .. SAME REGION NAMES



- File
- Window
- Model
- Utilities
- Help

DART BUILD II

SUMMARY

TPFDD

MAP

REPORTS

CAPACITY

RESULTS

- NOTHING HAPPENS
- ORIGIN NAME INVALID
- NO-CINS/PINS
- F11 ON MARKED RECORDS

File

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Utilities

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DART BUILD I I

SUMMARY

TPFDD

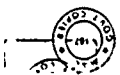
MAP

REPORTS

CAPACITY

RESULTS

• VERY SLOW



File

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DART BUILD II

SUMMARY

TPFDD

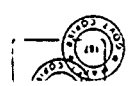
MAP

REPORTS

CAPACITY

RESULTS

• CAN'T RUN RAPIDSIM



File

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SUMMARY

TPFDD

MAP

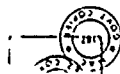
REPORTS

CAPACITY

RESULTS

DART BUILD II

- (1) IMPORT TPFDD
- (1) EXPORT TPFDD
- (1) EXPORT TO FAST



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DART BUILD II

SUMMARY

TPFDD

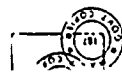
MAP

REPORTS

CAPACITY

RESULTS

• CAN'T IMPORT RAPIDSIM RESULTS



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DART BUILD II

SUMMARY

REFINEMENT CONFERENCE PRIORITIES

TPFDD

• IMPORT TPFDD

• EXPORT TO FAST

• QUERY OPERATIONS

MAP

• FM GRAPHS

• MAP ON COLLECTION

• F11 RPTS ON MARKED RCDS

• EXPORT TO JOPES

REPORTS

CAPACITY

RESULTS



DART BUILD II TEST

June 10 11 12 13 14

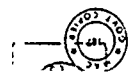
Upload FAST	Query FM Graph	Reports Map	Download IR Retest	Multi-User RAPIDSIM
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17 18 19 20 21

IR Retest Stress Test	Conf Prep ,	Refinement Conference		
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CAPACITY

RESULTS





SRA Formal Test Sequence

- 1 Upload & download TPFDD
- 2 FAST Interface
- 3 TPFDD Editor Force Module manipulation
- 4 TPFDD Editor Query/Modify
- 5 IR Regression Testing
- 6 RAPIDSIM end to end test
- 7 Multi-user Tests
- 8 DART / In-house RAPIDSIM comparison

